



2022  
Sustainability Report  
SDG7

**7** AFFORDABLE AND  
CLEAN ENERGY



ABDULLAH GÜL  
UNIVERSITY



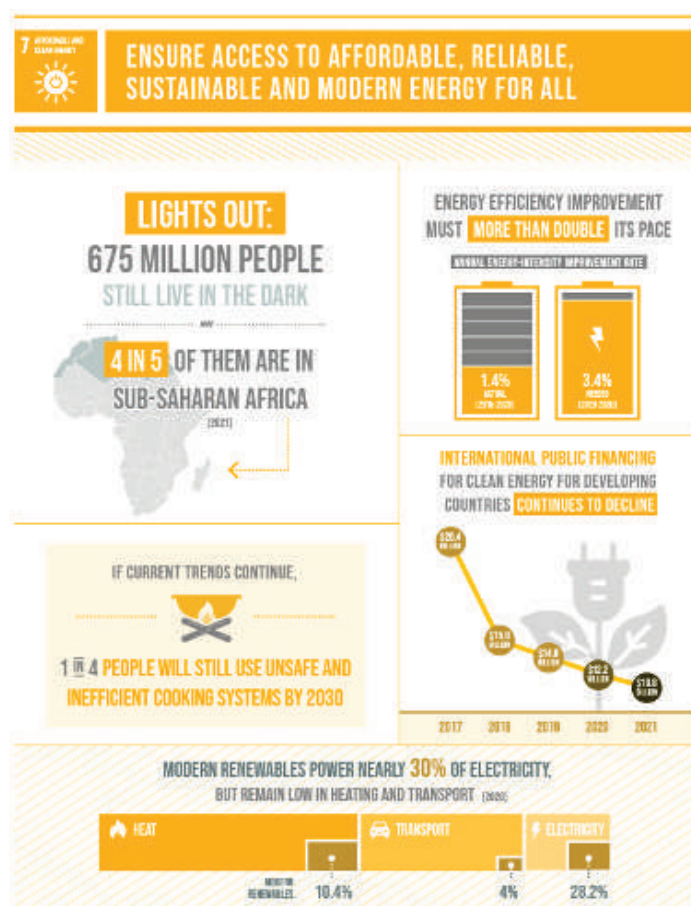
# SUSTAINABLE DEVELOPMENT GOALS

## 7 AFFORDABLE AND CLEAN ENERGY



## SDG7: Affordable and Clean Energy

SDG7 aims to **ensure access to affordable, reliable, sustainable and modern energy for all**. Access to electricity and clean cooking fuels has improved in many parts of the world, but 675 million people are still not connected to those grids, and 2.3 billion still cook with unsafe and polluting fuels. The war in Ukraine and global economic uncertainty continue to cause significant volatility in energy prices, leading some countries to raise investments in renewables and others to increase reliance on coal, putting the green transition at risk. If the current pace continues, about 660 million people will still lack access to electricity and close to 2 billion people will continue to rely on polluting fuels and technologies for cooking by 2030. To ensure access to energy for all by 2030, we must accelerate electrification, increase investments in renewable energy sources and invest in improving electricity grids.



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- **Target 7.1:** The global population with access to electricity increased from 87 per cent in 2015 to 91 per cent in 2021. The pace of electrification rebounded between 2019 and 2021. However, the annual access growth of 0.6 percentage points in the recent period is lower than the 0.8 percentage points in the period 2015–2019. As a result, 675 million people, most located in the least developed countries and sub-Saharan Africa, still lacked access in 2021.

<sup>1</sup> <https://sdgs.un.org/goals/goal7>

- **Target 7.1:** In 2021, 71 per cent of the global population had access to clean cooking fuels and technologies, up from 64 per cent in 2015. In 7 (all located in sub-Saharan Africa) of the 20 countries with the largest deficits, fewer than 10 per cent of the population had access to clean fuels and technologies. The growing access deficit in sub-Saharan Africa, if not reversed, could dampen or undermine increasing trends in global access.

- **Target 7.2:** The share of renewable sources in total final energy consumption amounted to 19.1 per cent globally in 2020, or 2.4 percentage points higher than in 2015. Part of that progression was due to lower final energy demand in 2020, as the pandemic disrupted social and economic activities worldwide. The electricity sector shows the largest share of renewables in total final energy consumption (28.2 per cent in 2020) and has driven most of the growth in renewable energy use, while the heat and transport sectors have seen limited progress over the past decade.

- **Target 7.3:** The rate of improvement in primary energy intensity, which had already slowed in recent years, dropped to 0.6 per cent in 2020. This makes it the worst year for energy intensity improvement since the global financial crisis. Annual improvement through 2030 must now average 3.4 per cent to meet the target of Goal 7.3. This slowdown was influenced by a shift in the economic structure during COVID-19 towards more energy-intensive industrial production, combined with only modest rates of technical efficiency improvements, in the context of low energy prices.

- **Target 7.a:** International public financial flows in support of clean energy in developing countries have seen a decreasing trend that started before the COVID-19 pandemic and continued through 2021. In 2021, such flows amounted to \$10.8 billion – an 11 per cent drop from 2020. This was 35 per cent less than the decade-long average from 2010 to 2019, and less than half the 2017 peak of \$26.4 billion.

- **Target 7.b:** In 2021, there was a record-breaking installation of 268 watts per capita of renewable capacity in developing countries, representing a year-on-year growth rate of 9.8 per cent. However, even with this positive and accelerating growth, developing countries are not on track to meet Goal 7 by 2030. Moreover, the positive global and regional trends hide the fact that the countries that are most in need of support are being left behind, even among developing countries.<sup>2</sup>

## AGU'S POLICIES AND PRACTICES

After water and food, energy is one of the key enablers of human life. Energy is central to nearly every major challenge and opportunity the world faces today, and access to energy for all is essential. But energy needs to be available and affordable to all to allow future development, and it needs to be clean in order to ensure that the development can be sustainable. With this regard, Abdullah Gul University (AGU) promotes clean energy through research and usage. AGU has policies and plans in place to reduce the overall energy consumption of the University. The use of regular reports and the strict implementation of these plans (including for Electricity Use, Heating-Cooling Systems,

<sup>2</sup><https://unstats.un.org/sdgs/files/report/2023/secretary-general-sdg-report-2023--EN.pdf>

and Water Consumption) led to the reduction of the overall energy consumption.

At AGU, there is an Energy Management Unit and this unit is responsible for energy management. The Energy Management Unit works for compliance with both legal requirements and other requirements. At the same time, the Rectorate appointed an Energy Manager as part of the Energy Management System.

Within the scope of AGU Energy Management Unit Directive, it is aimed to regulate energy management practices, use energy effectively and efficiently, prevent energy waste, reduce the burden of energy costs on the institution's budget, and increase efficiency in energy use to protect the environment.

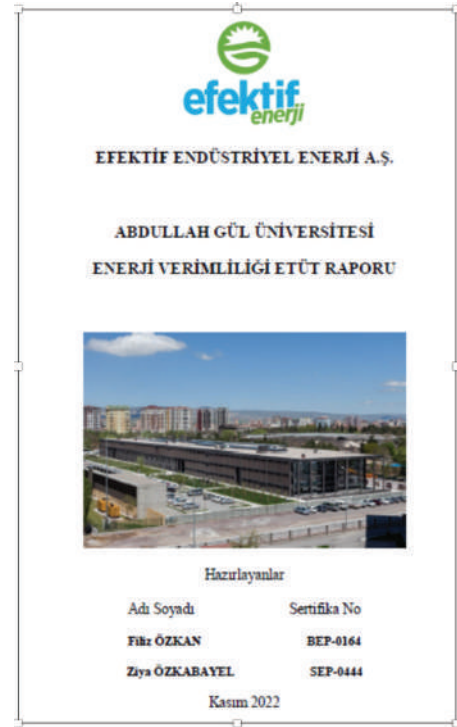
With the Energy Efficiency Policy, AGU has identified various precautions/measures to be taken and aims to achieve energy efficiency all across the university units. According to this policy, 14 issues listed by the department are considered for energy efficiency and savings during all kinds of maintenance, repair, modification, manufacturing, and restoration works carried out within the body of the department. Also, the "TS 825 Thermal Insulation Requirements for Buildings" must be followed with the insulation materials to be used. For instance, the materials are required to be domestic and recyclable. Heat recovery systems are used in the heating and cooling systems of the University buildings, as well. These are necessary for achieving savings targets and energy efficiency.



*The Solar Power Plant Built on the Department Building's Roof*

Within the scope of the Energy Efficiency Law and Related Legislation, our University has developed an Energy Efficiency Strategy. These strategies cover existing buildings and all new buildings to be constructed. Some of these strategies are as follows. To have energy audits done for service buildings, to carry out efficiency-enhancing studies according to the energy audit reports, to ensure that an Energy Identity Certificate is issued for our new and existing service buildings, to pay attention to energy consumption and CO<sub>2</sub> emissions in the design of new buildings, not to use fossil fuels such as coal etc. in the heating boilers of university buildings, etc.

Some of these strategies are as follows; to have energy audits done for service buildings, to carry out efficiency-enhancing studies according to the energy audit reports, to ensure that an Energy Identity Certificate is issued for our new and existing service buildings, to pay attention to energy consumption and CO2 emissions in the design of new buildings, not to use fossil fuels such as coal etc. in the heating boilers of university buildings, etc.



AGU, as a public university, complies with the Savings Target and Implementation Guide In Public Buildings prepared under the Energy Efficiency Law No. 5627. In this context, AGU determines its energy saving targets and reports them to the Ministry of Energy and Natural Resources.

At AGU, there are many improvements made within the scope of Energy Efficiency Management. Some of them are lighting systems, automation, maintenance of devices, regular energy consumption control, use of renewable energy, water efficiency practices, use of natural resources, waste water separation, irrigation installation maintenance and repair, etc. For detailed information, please click [here](#).

At our university, an Energy Efficiency Checklist has been prepared to review the performance of the equipment used and to identify areas where energy consumption can be reduced. This checklist is carried out by the Building Works Unit once a month.

AGU has a process for carbon management. At AGU, GHG measurement is prepared in accordance with TS EN ISO 14064-1:2018 and verified according to TS EN ISO 14064-3 standard and ISO 14065 principles. Details can be found in the verification statement annex of QSI, an international organization. Please click [here](#) for AGU's ISO 14064-1:2018 certificate.

In light of the growing demand for resources and the ever decreasing amount of water, water use and management is a key issue for every company to consider. Water management is needed at local, regional and global levels, and this requires a consistent method of assessment. Water management is needed at local, regional and global levels, and it requires a consistent method of assessment.

ISO 14046 is the water footprint standard that will ensure this consistency and give credibility to water footprint results. In this context, AGU has completed its efforts to have the ISO 14046 Water Footprint Standard for the first time in 2023 with data from 2022.

In accordance with the carbon management of our university, the AGU Climate Action Plan was prepared with the contributions of both our internal and external stakeholders and published for the first time in 2019. This plan includes energy dimension to improve. AGU's aim is to become a carbon-negative university by the end of 2029. According to this commitment, AGU revises its Climate Action Plan annually.



AGU has created its own Divestment Policy. The primary objective of this policy is to progressively reduce and ultimately eliminate the university's financial exposure to companies involved in the extraction, production, and consumption of coal and oil. By divesting from these carbon-intensive energy industries, we aim to:

- **Environmental Leadership:** Demonstrate our commitment to environmental leadership by supporting the transition to clean, renewable energy sources, thereby reducing greenhouse gas emissions and mitigating climate change impacts.
- **Ethical and Responsible Investments:** Align our investment portfolio with our institutional values, ethics, and commitment to sustainability, while promoting responsible practices within the investment community.
- **Education and Engagement:** Utilize divestment as an educational opportunity to raise awareness and engage our community on climate change, sustainable investing, and the importance of transitioning to a low-carbon economy.

AGU Sümer Campus, is an exemplary university site that has been progressing towards being green and environmentally friendly since its foundation. The most heavily used main building of AGU, which is a water-saving historic building, has been awarded a silver LEED certificate since 2015, thanks to its use of a grey water reuse system.

AGU's LEED certificate proves that all AGU facilities are designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

AGU obtained the BD+C: New Construction LEED Silver certificate for its sustainable, energy-efficient, eco-friendly facilities. LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. LEED certification is a globally recognized symbol of sustainability achievement.

The AGU Sumer Campus Project was awarded the first prize in the “Educational Buildings” category at the World Architecture Festival in Singapore in 2012. The newly built Management and Training Building (13.823 m2 on a total campus area of 320.000m2), obtained the following scores:

- Sustainable Land Selection (21/26),
- Water Efficiency (6/10),
- Energy and Atmosphere (28/35),
- Innovation (4/6),
- Regional Loans (3/4),
- Interior Quality (5/15).

The campus performed particularly well in the following categories: 21 points out of 26 points in the Sustainable Sites category, 3 points out of 4 thanks to Energy Performance, Thermal Comfort and Heat Island Impact on the Roof in the Regional Priority category, and 6 out of 10 points in the Water Efficiency category, thanks to its use of innovative and efficient wastewater technologies and the reduction of clean water use.



*Leed Certificate*



AGU was founded as the new Socio-Technical University Model in order to lead and integrate “Environmental and Social Impact” into the larger higher education agenda. AGU ecosystem is comprised of international, national, and local collaborations with organizations such as United Nations High Commissioner for Refugees (UNCHR), United Nations Development Programme (UNDP), UN Academic Impact, SDG Universities, Global Solutions Initiatives, and the Sustainable Development Solutions Network. In all of its activities, AGU seeks to increase its impact by forming strong partnerships. The AGU’s ecosystem has two clear dimensions: (1) Corporate practices as an exemplary leader: Significant evidence for AGU’s Outstanding Contribution includes its Strategic Plan, Climate Action Plan, Zero Waste and LEED Certificate, ISO 14064:2018 Certificate, etc. (2) Teaching & research practices, to increase the awareness of citizens. AGU’s departments such as the Career Center, AGU Academy, Creative Hub, Children University, Technology Transfer Office (TTO), and the Youth Office are tasked with providing instruction and research not only for students, but also for the broader community, including industry partners, kindergarten, primary, and high school students. AGU has been awarded THE Awards Asia: Outstanding Contribution to Environmental Leadership for its activities.



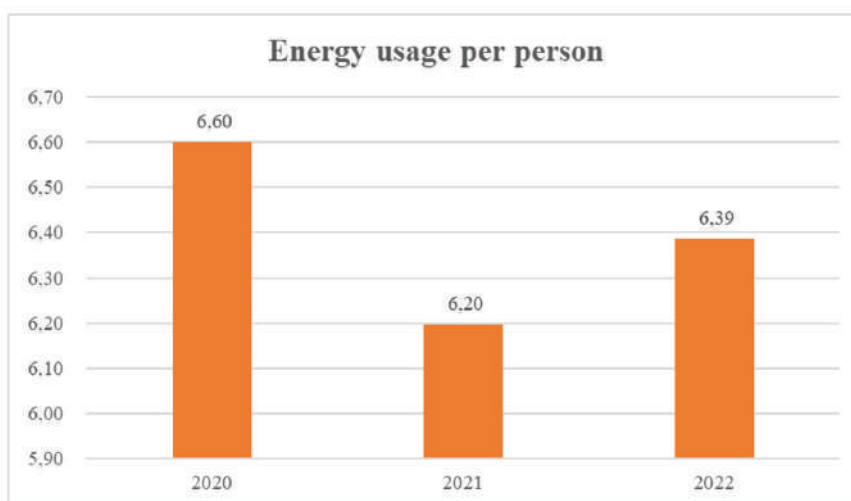
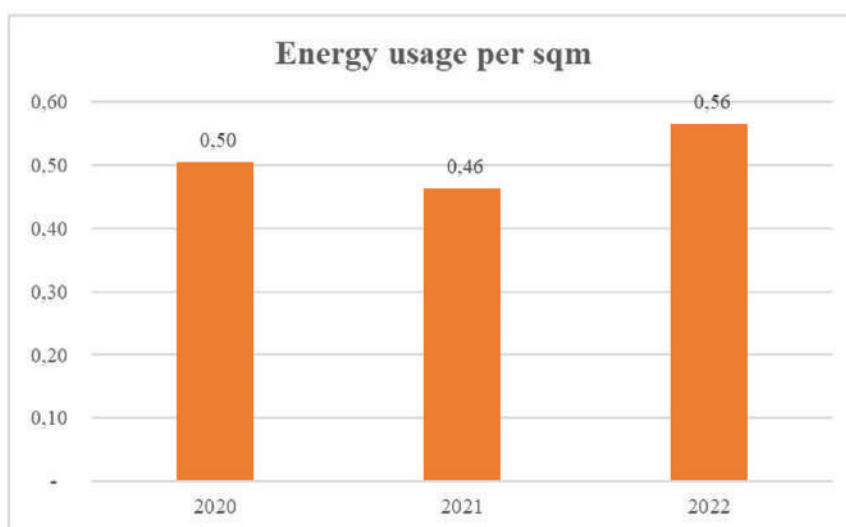
## AGU'S PROGRESS

AGU tracks publications, projects, courses, theses, dissertations, and congress and symposium participation for all SDGs through AVESIS (Academic Data Management System).



## Energy Usage

Year	Energy Usage (gj)	Total Floor Space (sqm)	Campus Population	Energy usage per sqm	Energy usage per person
2020	19.676,00	39.010,00	2981	0,50	6,60
2021	21.477,00	46.318,00	3466	0,46	6,20
2022	26.160,00	46.318,00	4096	0,56	6,39



Total energy consumed per sqm and person on campus were measured and are shown in the graph for the years 2020, 2021 and 2022. According to this graphs, total energy consumed per sqm and person are decreased in 2021 due to the pandemic-related. the total energy consumed per sqm and person in 2022 is less than in 2020, thanks to a policy and practices followed by AGU.

## RESEARCH AND PROJECTS

AGU aims to ensure affordable and clean energy by conducting a lot of research and projects. Some of the research and projects carried out by AGU in this SDG are described below:

- **TeknoCC R&D Innovation Limited Company**

Our university faculty member Asst. Prof. Cihan Çiftçi's TeknoCC R&D Innovation Limited Company's founding philosophy is to produce the structural elements (blades and tower) in wind turbines differently and uniquely out of the traditional. With this originality, it has developed new generation wind turbine blades, which it has realized for the first time in the world, by doing some preliminary studies with various KOSGEB projects.

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In its first KOSGEB Project, it developed an innovative production technique and evaluated whether it was suitable for the production of a new generation blade (1 m.) on a small scale. In the second KOSGEB Project in 2022, this production technique was shown to be a valid production technique for much longer wings (10 m.). Thanks to this innovative manufacturing technique, it has been shown that new generation wind turbine blades can be produced from different materials compared to conventional blades, making them lighter and more durable, as well as more cost-effective. Thanks to these achievements, it is aimed to provide services in the field of cleaner and renewable energy for humanity by making the wind energy industry more widespread in the near future.

- **AGU Power Lab**

“[AGU Power Lab](#)” was established in 2017 by Assist. Prof. Burak Tekgün. Since then, it has been equipped with state-of-the-art equipment and has been steadily growing with funding provided by The Scientific and Technological Research Council of Türkiye (TUBITAK) and AGU. Research priorities include design and optimization of electric machines, motor drives, electric machine controls, sensorless control techniques, electric vehicle charging units, battery management systems and renewable energy systems. This Power Lab is promoted to the public at events and career days outside the university.



- **Kayseri Kayseri Climate Change Action Plan (CCAP) Project**

The Kayseri CCAP Climate Action project, which was initiated with this understanding immediately after the ratification of the Paris Climate Agreement by our country and the 2053 net-zero vision, includes a planned action program aiming for a more resilient, carbon neutral and more sustainable urban life against climate hazards. The Kayseri CCAP Climate Action project was prepared with the support of 91 participants from various institutions and organizations. In this context, a 2-day workshop was organized. From AGU, 6 members including Abdurrahman Tekin, Ahmet Güç, Akif Taşkın, Dr. Fatma Şener Fidan, Recep Tayyip Akarsu, Prof. Dr. Niğmet Uzal participated and provided cooperation for planning.

Please click [here](#) to see Kayseri CCAP Climate Action Project Report.



- **Optimization of Kayseri Public Transportation System**

AGU TTO supports a [project](#) to optimize Kayseri's transport system and helps develop products for the formation of local, innovative, green, and smart systems to reduce fuel consumption and carbon emissions from urban transport. AGU TTO signed a protocol with the public city transportation company, "[Kayseri Ulaşım.](#)" Within the frame of this project, AGU continues giving consultancy on;

- (1) Analyzing and evaluating the problems of the urban transportation sector and producing innovative solutions,
- (2) Developing products for the establishment of a transportation structure with domestic, innovative, green, and smart systems,
- (3) Ensuring the formation of a safe and sustainable transportation structure with a high level of efficiency,
- (4) Reducing fuel consumption and carbon emissions from urban transportation,
- (5) Supporting the digital transformation for smart cities and infrastructures within the framework of the fourth industrial revolution (Industry 4.0).

- **Learn-Transform Project from Kayseri Model Factory**

"[The Learn and Transform Project](#)" of the Kayseri Model Factory was launched thanks to the partnership of AGU, KAYSO, and KTO. It was designed to give hands-on training to industrialists on production efficiency and digital transformation.

The primary target group of the Kayseri Model Factory is Small and Medium Enterprises (SMEs) with more than 50 employees, which have the highest potential for growth and employment creation. The Learn and Transform Project, combining Model Factory Experiential Training and field coaching, aims to train and develop a company's own "Lean Leaders." The training programs within the project are designed to enable these leaders to significantly increase company productivity with the "Lean Production Methodology" by changing their perspective on production without making any new investment and to make the gains they have achieved sustainable by spreading them within their companies.



- “Investigation of the location and size of flexibility in wind turbine blades and flow control capability” project

AGU Faculty Member Dr. Kemal Koca was among the academicians who received the Outstanding Achievement Award. Dr. Koca received the Outstanding Achievement Award in the category of Science and Engineering Sciences in the Individual field with his project “Investigation of flow control capability by changing the location and length of flexibility in wind turbine blades”.

The awards given by Council of Higher Education (YÖK) in order to encourage the achievements and outstanding performances of academicians are given in 12 different categories under four main headings: individual, institutional, special field and special.



- **“Optimization of Energy Efficiency in Water Supply Systems with Hybrid Methods” Project**

In this project, horizontal or vertical centrifugal pump systems used to take and distribute water in a water supply system, submersible or deep well pumping systems (shaft turbine deep well), piston type dosing pumps used for chemical filtration in treatment, pumping systems used for physical filtration, Horizontal or vertical centrifugal pump systems used for pressure increase and promotion are the components with the highest energy consumption.

It is extremely important to save energy due to the fact that most of this energy is produced from fossil fuels, limited resources and problems such as pollution. In this project, IoT and artificial intelligence-based pump control that is compatible with the characteristics of the pumps used in many stages of water supply systems, can operate in variable flow systems, is dynamic, real-time, energy efficiency-oriented, capable of on/off switching with frequency change will be realized.

- Behavior and Strength of Structural Columns and Beams Produced of Fly Ash Based Geopolymer Concrete

This project is supported by TUBITAK and will continue between 2021-2024.

- Artificial Intelligence Supported Water Management Software Platform Development

The aim of this project is to develop a web-based water management system platform for water supply and distribution systems, which receives data from field devices such as PLC/RTU using up-to-date software technologies, transfers it to the database system, allows operators using the system to monitor and manage field devices with mimic screens designed by users, offers reporting, alarm management and historical archive recording features, has optimal load balancing (LB) and high accessibility (HA) features, and can analyze the data obtained with unique artificial intelligence techniques to maximize water and energy efficiency.

- **Projects Supported by AGU Revolving Fund**

In 2022, AGU Revolving Fund provided direct support to industrial projects focused on energy efficiency and clean energy. These projects are shared below.

Project Name	Collaborating Industry Organization	Start Date	Finish Date
Investigation of panels for the establishment of a solar power plant in Aksu District of Antalya Province	Türel Engineering	10.10.2022	17.10.2022
Induction motor design and performance improvement, research and development study for submersible pump application	Mutlu Water Pump	10.05.2022	10.05.2023
Design-based optimization of the functionality, cost and EMI/EMC compatibility of printed circuits used in household electrical appliances	SER Durable Consumption	9.05.2022	9.11.2022

- **Projects Supported by AGU TTO**

In 2022, AGU TTO provided direct support to industrial projects focused on energy efficiency and clean energy. These projects are shared below.

Project Name	Collaborating Industry Organization	Start Date	Finish Date
R&D studies on improving the driving and efficiency performances of asynchronous and permanent magnet motors used in electric vehicle applications, as well as improving motor designs	Honkong E. Motor Advance Technology	20.05.2022	24.05.2024
Increasing Efficiency with Lean Techniques 1	Kayseri Model Factory	6.04.2022	6.08.2022
Increasing Efficiency with Lean Techniques 2	Kayseri Model Factory	6.04.2022	6.05.2023
Model Factories Digital Transformation Roadmap Phase II	UNDP	1.09.2022	1.09.2023
Preparation of Digital Transformation Roadmap of Model Factories	UNDP	07.09.2020	31.03.2022
Sponge Production Plant Simulation Modeling and Plant Planning	Yataş	1.06.2021	30.08.2023

• **Research publications by faculty members of our university on Renewable Energy in 2022**

Paper Title	Author Name	Publication Type	Journal Name
The role of interaction effect between renewable energy consumption and real income in carbon emissions: Evidence from low-income countries	Kizito Uyi Ehigiamusoe, Eyüp Doğan	Article	Renewable & Sustainable Energy Reviews
A way forward in reducing carbon emissions in environmentally friendly countries: the role of green growth and environmental taxes	Eyüp Doğan, Sabina Hodzic, Tanja Fatur Sikic	Article	Economic Research-Ekonomska Istrazivanja
The impacts of organizational green culture and corporate social responsibility on employees' responsible behaviour towards the society	Jawad Abbas, Eyüp Doğan	Article	Environmental Science and Pollution Research
Analyzing the determinants of renewable energy: The moderating role of technology and macroeconomic uncertainty	Muhammad Zubair Chishti, Eyüp Doğan	Article	Energy & Environment
Analyzing the Role of Renewable Energy and Energy Intensity in the Ecological Footprint of the United Arab Emirates	Eyüp Doğan, Syed Faisal Shah	Article	Sustainability
The roles of technology and Kyoto Protocol in energy transition towards COP26 targets: Evidence from the novel GMM-PVAR approach for G-7 countries	Eyüp Doğan, Muhammad Zubair Chishti, Nooshin Karimi Alavijeh, Panayiotis Tzeremes	Article	Technological Forecasting And Social Change
A way forward in reducing carbon emissions in environmentally friendly countries: the role of green growth and environmental taxes	Eyüp Doğan, Sabina Hodzic, Tanja Fatur Sikic	Article	Economic Research-Ekonomska Istrazivanja
Investigating the spillovers and connectedness between green finance and renewable energy sources	Eyüp Doğan, Mara Madaleno, Dilvin Taskin, Panayiotis Tzeremes	Article	Renewable Energy
Revisiting the nexus of ecological footprint, unemployment, and renewable and non-renewable energy for South Asian economies: Evidence from novel research methods	Eyüp Doğan, Muhammad Tariq Majeed, Tania Luni	Article	Renewable Energy
The role of interaction effect between renewable energy consumption and real income in carbon emissions: Evidence from low-income countries	Kizito Uyi Ehigiamusoe, Eyüp Doğan	Article	Renewable and Sustainable Energy Reviews
The Selection of a Renewable Energy Systems in Kayseri with Multi-Criteria Decision-Making Method	İsmet Söylemez	Conference Paper	International Symposium on Energy Management and Sustainability (IS-EMAS)



## EDUCATIONAL PROGRAMS AND COURSES

AGU offers many educational programs and courses. In addition, AGU uses many technological resources in all education programs, courses, and content-specific and professional development areas. For example, many tools such as ‘Schoology,’ ‘Canvas,’ ‘Mural,’ ‘Mentimeter,’ and ‘Zoom’ for remote education, ‘Nearpod’ for presentation, ‘Screencastify’ and ‘Educreations’ for video creation, ‘EdPuzzle’ for video sharing tools have been introduced and encouraged to be used.

AGU educates and promotes topics such as the use of 100% renewable energies. AGU – as a research university seeking solutions to global challenges and aiming at developing citizens who can contribute to societies and shape the future – developed an innovative Global Challenge Curriculum (GLB) composed of one mandatory course and several elective courses taught throughout the four undergraduate academic years. These courses focus on global topics such as the ones tackled by the United Nations Sustainable Development Goals.

AGU’s multiple educational programs and courses, such as executive education and/or vocational training, are also open to the general public. Below are the educational programs and courses offered at AGU regarding SDG 7.

- **AGU Academy’s Educational Programs**

AGU Academy organizes educational programs that will contribute to professional and personal development through certification programs created by bringing together many disciplines that will help raise the educational level of the public. AGU Academy’s Educational Programs offered in 2022 is given below.

<b>AGU Academy Education Programs for 2022</b>
Practical Project Writing Training
Applied Entrepreneurship Training
Electric Vehicle Technologies
Engineering and Defense Industry
Press Release Preparation Training
Sustainable Living and the City: Accessibility and Mobility (Mobility)
Design and Application of Objects/Products from Waste Materials
Adobe Photoshop Training
Basic Photography Training
Little Designers

- **AGU TTO SDG Awareness Training Series in Contribution to Society**

AGU Technology Transfer Office and Kayseri Model Factory organize a Training Series to raise awareness of the SDGs. These trainings are organized periodically for each new group of participants who start training at Kayseri Model Factory.

In the meetings held in this direction, an informative presentation is made on the 17 Sustainable Development Goals of the United Nations, the activities carried out in this context at AGU, the activities that can be carried out in companies and the partnerships to be established on Sustainability throughout the city.

In the meetings held in this direction, an informative presentation was made on the 17 Sustainable Development Goals of the United Nations. The presentation was about SDG related activities at AGU, activities that can be carried out in companies and the partnerships to be established on Sustainability throughout the city.



In 2022 total 385 people from industry joined this training.

- **Affordable & Clean Energy Course**

Global Challenge Curriculum (GLB) Affordable & Clean Energy course is offered at AGU, which is also open to public. The course focuses on affordable & clean energy in the light of 2 different perspectives. One is sustainable transport. Enhance students' consciousness about how public (railway, buses, BRT, etc.), private (cars) and green transport systems (bicycle, electric vehicles, renewable energy, etc.) could be designed and implement in general for affordable & clean energy. Other one is fossil, nuclear energy sources and minerals that are indirectly used in energy production (minerals used in the production of vehicles used in renewable energy production such as platinum group metals, rare earth elements and vanadium source minerals). These sources and minerals is examined in detail within the scope of the course.

The course enhances students' consciousness about how public (railway, buses, BRT, etc.), private (cars) and green transport systems (bicycle, electric vehicles, renewable energy, etc.) could be designed and implemented in general for affordable & clean energy.

These sources and minerals are examined in detail within the scope of the course.

## COOPERATION AND EVENTS

AGU has had an impact related to the SDGs via its partnerships with international NGOs (such as the Sustainable Development Solutions Network-SDSN, SDSN Youth, SDG Academy, and the Global Solutions Initiative).

- **Race to Zero Campaign**

In line with its carbon targets, AGU has joined the “Race to Zero” campaign, which is carried out jointly with the United Nations Environment Programme (UNEP), the Second Nature organization and The Alliance for Sustainability Leadership in Education (EAUC), an association aiming for sustainability in education. The campaign is a global initiative for zero carbon emissions and is open to universities from all over the world. 832 institutions from different regions of the world are taking part in the campaign.

832 institutions from different regions of the world take part in the campaign.

The campaign, in which universities are expected to create strategies and plans for “zero carbon emission” targets in the future, aims for a healthy and zero carbon emission recovery that prevents threats to the future, provides decent jobs and paves the way for inclusive sustainable development.

The campaign, in which universities are expected to create strategies and plans for “zero carbon emission” has future targets which aims for for a healthy and zero carbon emission recovery that prevents threats to the future, provides decent jobs and paves the way for inclusive sustainable development.

### Official Race to Zero Signatory

We are part of the Race to Zero and are leading the education sector for a healthy and resilient zero carbon recovery in the lead up to COP26!



- **Kayseri Model Factory**

With the cooperation of AGU, Kayseri Chamber of Industry, Kayseri Chamber of Commerce and the United Nations Development Program (UNDP), the Kayseri Model Factory was established at AGU Sumer Campus. The Model Factory provides direct services to SMEs with mentoring, financial support and necessary trainings and consultancy such as productivity optimization, energy efficiency and waste management. Please click on the link, to find the training topics of Kayseri Model Factory.

- **F3 Incubation Center**

AGU TTO's F3 Incubation Center and Fly for Future project offer financial support (up to TRY 450000) for training, consultancy, and mentoring needed by candidate entrepreneurs to promote their business idea. Projects are prioritized based on AGU's focus areas (health and medical biotech, Smart Cities, Industry 4.0, Advanced Materials, societies, innovation and entrepreneurship, energy) and if they are producing/ supporting a low-carbon economy or technology.

- **Sera Incubation Center**

AGU is a partner of Erciyes Teknopark's Sera Incubation Center, which provides support to spin-offs, start-ups working in the field of Smart Life, Smart Urbanism, Mobile Applications, Robotics, Wireless Communication, Wearable Technologies, Mobile Health, Intelligent Education, Renewable and Intelligent Energy Systems, Information Technologies and Software, or Food Technologies.

- **BiGG (Individual Young Entrepreneur) Program**

AGU Technology Transfer Office (AGU TTO) is the implementing organization of the TUBITAK BiGG Program. In this context, free-of-charge support are provided to all participants for each application period. Within the scope of the BiGG Program, training, mentoring services, and financial support are offered.

All participants are offered training in Strategic Planning and Process Management, Finance Management and Risk Management, Marketing, Law for Start-ups, Entrepreneur Skills and investor Presentation, and Project Cycle and Business Plan Preparation.

AGU TTO, which is the first application and pre-evaluation organization of the 450,000 TL provided to entrepreneurs by TÜBİTAK, sends business ideas that meet the criteria it has determined to TÜBİTAK for final evaluation to receive this support. You can access detailed information from the provided [link](#).

In 2022, AGU TTO provided mentoring and consultancy services for the "Artificial Intelligence and IoT Based Smart Efficiency and Fault Tracking System for Solar Energy Fields" project. The project has passed the stage 1 evaluation and is in the stage 2 evaluation.



- **Young Professionals Advisory Committee of Institute of Electrical and Electronics Engineers (IEEE) Photonics Society**

AGU faculty members support start-ups by advising them on this low-carbon economy or technology. For example, The IEEE Photonics Society established a Young Professionals Advisory Committee to ensure that the Society's early career professionals and members up to 15 years post their first degree, are represented in all aspects of the organization. The Committee also facilitates interconnected outreach methods to encourage international, educational and career development in the photonics community. Dr. Sinan Genç, one of our faculty members, is on the Young Professionals Advisory Committee of Institute of Electrical and Electronics Engineers (IEEE) Photonics Society.



- **IEEE & IEEE AGU Student Branch**

In addition, AGU Electrical and Electronics Engineering department faculty member Assist. Prof. Dr. Burak Tekgün is a Senior member of IEEE. IEEE AGU Student Branch has adopted as its mission to ensure the exchange of information between AGU students and IEEE Society members develop and share innovative ideas in engineering branches. AGU Electrical and Electronics Engineering Department faculty members provide assistance this branch.

IEEE AGU Student Branch has adopted the mission of ensuring the exchange of information between AGU students and IEEE Society members. Also it aims to support them to produce, develop and share innovative ideas in engineering branches and to provide all kinds of material, moral and logistical support to the members.



- **AGU Faculty Member Who is a Board Member of TEİAŞ**

AGU Department of Electrical and Electronics Engineering faculty member Assoc. Prof. Ahmet Önen is a board member at Turkish Electricity Transmission Company (TEİAŞ). In this context, there are ongoing projects in which he is a consultant. These projects are given below.

1. Patent Holder, PI, "Developing High Accuracy Production Forecasts for Solar Power Plants with Image Recognition Based Deep Learning Algorithms" Directorate of Technology and Innovation Support Programs (TEYDEB) 1501, 2021-2023.
2. Idea Owner, Advisor, "Developing a Management and Trading Platform for Demand Aggregators in Grids with Distributed Energy Resources" TEYDEB 1501, 2021-2023.

- **Advisory to T3 ( Türkiye Teknoloji Takımı) Foundation**

AGU Faculty of Architecture faculty member Asst. Prof. Ömer Devrim Aksoyak is a project consultant at T3 foundation in which business ideas are developed.

- **The Healthy Cities Association**

In 1988, the World Health Organization launched the Healthy Cities Movement to assess city health indicators and address factors that lower them.

In 1988, the World Health Organization launched the Healthy Cities Movement to assess city health indicators and address factors that affect the indicators negatively.

On December 2, 2004, the Council of Ministers established the Healthy Cities Union to promote the Healthy Cities Movement in Turkey. It was established under Local Government Unions Law 5355. It appeared in the 22.12.2004 Official Gazette. Healthy Cities Network now has 1400 cities/municipalities in 5 regions. On behalf of our country, the Healthy Cities Association represents 27 countries and 100 European cities/municipalities. Healthy Cities Association has continued to promote "Healthy Cities" through its subjects and studies.

Its slogans "Sustainable Development" and "Creating Sustainable Cities" have brought together member municipalities to organize trainings, workshops, symposiums, conferences, international congresses, competitions, award ceremonies, and awareness activities on all urban and environmental health issues. The slogans; "Sustainable Development" and "Creating Sustainable Cities" have brought together member municipalities to organize trainings, workshops, symposiums, conferences, international congresses, competitions, award ceremonies, and awareness activities on all urban and environmental health issues.

AGU is represented by Assoc. Prof. Mustafa Ayten as an Advisory Board Member in the Healthy Cities Union, Turkey's most widespread local government union. Click [here](#) for more details.

Also, an event organized in 2022 with the participations of 120 municipalities in Turkey.

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- **Partnership with Ardahan City Council**

A cooperation protocol was signed between AGU and Ardahan City Council for the SDG workshop program within the framework of climate change. With the protocol, joint studies will be carried out between the two institutions within the framework of UN SDGs, including topics such as climate change, water footprint, carbon footprint, food waste, quality education, sustainability of culture, smart cities and societies, clean energy, terrestrial and aquatic ecosystems.

Within the scope of the protocol, studies will also be carried out on the trainings to be given to teachers working at all levels in Ardahan and students studying in primary, secondary and high schools.

In addition to these, AGU carries out many activities to promote affordable and clean energy. Below are some activities related to SDG 7.



- **Panel on “Renewable Energy and the Future of Energy”**

Within the scope of 2022 Climate Diplomacy Week activities, AGU held a panel on “Renewable Energy and the Future of Energy” at AGU Sümer Campus with the support of Kayseri Chamber of Commerce, EU Information Center and Kocasinan District Directorate of National Education.

Dean of the Faculty of Engineering Prof. Dr. Evren Mutlugün, Director of the Institute of Social Sciences Assoc. Prof. Dr. Umut Türk, Deputy CEO of Erciyes Anadolu Holding and General Manager of RHG Enerjürlük Murat Aksu and Kayseri and Surrounding Electricity Turkish Joint Stock Company (KCETAŞ) R&D Manager Dr. Kürşat Tanrıöven attended the panel as speakers.

In the panel, which attracted great interest from AGU and Osman Ulubaş Kayseri Science High School students, EU climate and energy policies and targets, renewable energy, energy-climate relationship, the future of energy and the opportunities offered by the renewable energy sector for young people were discussed.



• “Green Deal and Carbon Footprint” Training Given to Young Independent Industrialists Businessmen Association Kayseri Branch (MUSIAD) Kayseri



AGU Department of Industrial Engineering Lect. PhD Fatma Şener Fidan made a presentation on “Green Deal and Carbon Footprint” for Young MUSIAD Kayseri.

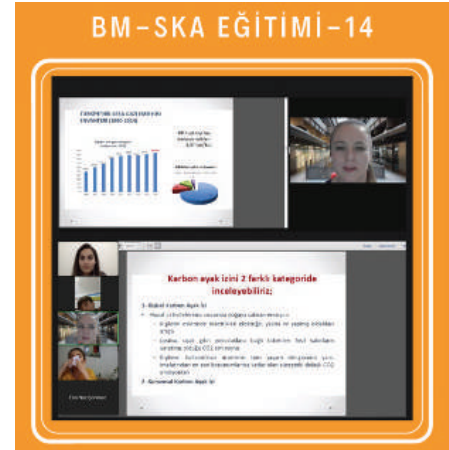




### • Sustainable Development Goals Training-14: Clean Energy

AGU and the Private High School of the TED Kayseri College Foundation jointly organized the Awareness Program on Sustainable Development Goals. The training program was held online with the support of the United Nations High Commissioner for Refugees (UNHCR). After successfully completing the 7-week training program on the goals of Climate Action, Sustainable Cities, and Life on Earth, the students received participation certificates from AGU.

In cooperation with AGU and 12 TED schools across Turkey, the Career Center organized the third United Nations Sustainable Development Goals awareness training for Junior Model of United Nations (JMUN) club students. Technology Transfer Office Lect. PhD Fatma Şener Fidan give training for "Clean Energy & Climate".



### • "International World Light Day" Workshop

Hikmet Kozan Secondary School 7th grade students attended the workshop organized within the scope of "Accessible and Clean Energy", one of the United Nations' Sustainable Development Goals. In the workshop, after general information, interactive activities related to clean energy were carried out in accordance with the age group of the students. Students participating in the event practiced on basic topics such as white light components, absorption, refraction and reflection of light.



### • Sustainable Development Dialogue Day

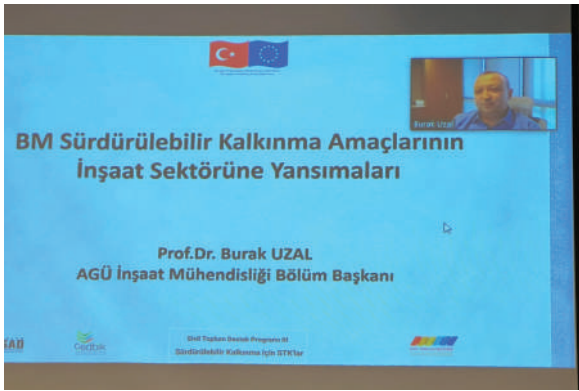
"Dialogue Day" was organized within the scope of the project titled "NGOs for Sustainable Development", which was realized with the coordination and support of the Directorate for EU Affairs in partnership with Türkiye İMSAD (Association of Turkish Construction Material Industrialists), the umbrella organization of the construction materials industry, and ÇEDBİK (Environment Friendly Buildings Association).

"Dialogue Day" was organized within the scope of the project titled "NGOs for Sustainable Development". "Dialogue Day" was realized with the coordination and support of the Directorate for EU Affairs in partnership with Türkiye İMSAD (Association of Turkish Construction Material Industrialists), the umbrella organization of the construction materials industry, and ÇEDBİK (Environment Friendly Buildings Association).

At the meeting, representatives of non-governmental organizations, relevant public institutions and local governments working in the fields of construction, environment, sustainable development, architecture and energy efficiency worked on the obstacles and solutions for the sector with a focus on the UN Sustainable Development Goals.

In his online presentation, Prof. Dr. Burak Uzal, Head of the Department of Civil Engineering at Abdullah Gül University, who was one of the keynote speakers of the program, evaluated the reflections of the Sustainable Development Goals on the construction sector, what awaits the sector and which areas should be prioritized, both on the construction sector and contractor activities and on the construction materials industry.

The “Dialogue Day” continued with sessions where participants shared their views and suggestions on the obstacles and problems experienced in achieving the SDGs. It was stated that the results will be reported and shared with the public.



- **Seminars on Climate Change by GLB Coordinatorship**

AGU GLB Coordinatorship organized seminars on “Climate Change and Its Global Impacts” and “Roadmap for Preparing Your City’s Local Climate Action Plan” within the scope of GLB 205 course. Dr. Ümit Şahin, Senior Expert and Climate Change Studies Coordinator at Istanbul Policy Center (IPC), participated as a speaker in the first of the seminars held online via Zoom platform.

Dr. Şahin stated that since the Industrial Revolution, carbon emissions in the atmosphere have increased due to the use of greenhouse gases in production and daily life, and as a result, the negative impacts of climate change on energy, agriculture and food security are at local and national levels. There was also a question and answer session on the impact of climate change on our country and its future impacts. Dr. Ebru Eraslan from the International Relations Coordination Unit of the Ministry of Environment, Urbanization and Climate Change stated that one of the methods followed in order to combat climate change in cities is the reduction of greenhouse gas emissions and adaptation to its ef-



fects. Dr. Eraslan analyzed climate change mitigation and adaptation policies in relation to urban planning at the city, district and neighborhood level and gave examples of Japan's climate change mitigation and adaptation policies.

Both seminars were attended by students and academics.



- **TÜBİTAK 2237-A BİDEB 2022: Think about the Future, Take Action! Trainer Training for a Sustainable Future Focusing on Classroom Teachers**

With the project titled “Think the Future, Act” prepared by AGÜ with the support of TÜBİTAK, classroom teachers were given trainer training for all SDGs including SDG 13. The project titled “Think the Future, Act” prepared by AGÜ with the support of TÜBİTAK, classroom teachers were given training of trainers for all SDGs including SDG 13. Think the Future, Act, Take Action: Trainer Training for a Sustainable Future Focused on Classroom Teachers was held at AGU between 17-21 October 2022. After the training, certificates were presented to the participants. For details please go to project [website](#).



- **Joint “TCES Project Hard Surface Cleaners Sector Workshop” within the Scope of the Development of the Turkish Environmental Labeling System (TÇES) Project**

Within the scope of the project, criteria will be determined in 4 product groups (Paints and Varnishes, Detergents (Laundry Detergent and Dishwasher Detergent), Glass Products and Hard Surface Cleaners) in line with ISO 14024: Type 1 Environmental Labeling and ISO 14040/44: Life Cycle Assessment (LCA) standards and application guidelines will be prepared in accordance with the determined criteria.

Standards and application guidelines will be prepared in accordance with the determined criteria.

Within the scope of the project, promotional activities, surveys with the sector, pilot plant inspections and webinars will be organized.

In the project, technical support will be provided to the Administration within the scope of membership obligations to the Global Ecolabeling Network (GEN) and a scientific article will be prepared.

During the workshop, presentations were made on the Turkish Environmental Labeling System, Hard Surface Cleaner Production RDD studies - Good Practices and sectoral Examples, and opinions were exchanged on the results of sectoral RDD studies and draft environmental label criteria. As part of the workshop, Prof. Dr. Niğmet Uzal, one of the faculty members of our university, made a presentation.

As one of the project outputs, named "The Importance of Ecolabels in Sustainable Production and Consumption: Turkish Environmental Labelling System" article has been published.

The image shows a Zoom meeting interface. The main window displays a presentation slide with the following text:
   
TÜRKİYE ÇEVRE ETİKET SİSTEMİNİN GELİŞTİRİLMESİ PROJESİ
   
TÇES
   
Sert Yüzey Temizleyiciler Ürün Grubu Çalıştayı
   
09.11.2022
   
Logos for ODTÜ, TÇES, and AGU are visible.
   
The participant list on the right includes:
   
Hamiyet DOĞR...
   
Hamiyet DOĞRU-Centr...
   
Zeynep AKI
   
Uşaklıng
   
Mervin Ölmaz P...
   
Mervin Ölmaz P...
   
Burcu Akcalar
   
Engin YILDIZ
   
ceylan.kalkan
   
Ilke Duman
   
cansu.yildiz
   
deryakoman
   
Melih KAYA (TSE)
   
Elif Nur TOKUCU...
   
Ergül Dilek
   
Sema Oviç
   
Tuğba TAŞCI AL...
   
Naz Simsek
   
Fatma Kazak
   
merve cakmak
   
şükran hergül
   
Müzeyyen Kışık...
   
ARIF

- **SmartCity Kayseri Meetings**

Kayseri is a city located in the center of Turkey and has attracted attention with its rich cultural heritage and economic growth throughout history. During this growth process, the city aims for a sustainable future by focusing on technological innovations. Kayseri is taking important steps to offer its residents a more livable environment with its smart city projects and infrastructure. Many aspects of Kayseri Province, such as energy and environment, are discussed in the congresses organized under the name of Smart City Meetings. AGU periodically participates in these congresses.



- **Economy and Climate Change Summit**

AGU Faculty of Architecture Faculty Members Dr. Sinan Akyüz and Dr. Sümeyra Ayık attended the “Eco Climate: Economy and Climate Change Summit” with their presentation titled “Education for Sustainable Development Goals”. The summit aimed to raise public awareness on climate change and economic issues.

The summit, which was held in Ankara as carbon neutral, was attended by heads of state, representatives of public institutions, more than twenty international institutions and organizations, academics from more than thirty universities, municipalities with best practices, organized industrial zones, technocities and sector representatives.



12 thousand people attended the summit on-site and 50 thousand people participated online, and the Fair and Climate Museum with the theme of “Economy and Climate Change” was established. The summit also featured more than twenty sessions with 150 national and international speakers, B2B meetings, certified training programs, trainings, workshops and exhibitions.

- **Workshop on Energy Efficiency in Municipal Services and Heating & Cooling Sector**

Assist. Prof. Rıfat Kurban participated in the "Workshop on Energy Efficiency in Municipal Services and Heating & Cooling Sector" organized by the Ministry of Energy and Natural Resources and the World Bank and shared his recommendations for energy and water efficiency in drinking water supply and distribution systems. Assist. Prof. Rıfat Kurban participated in the "Workshop on Energy Efficiency in Municipal Services and Heating & Cooling Sector" organized by the Ministry of Energy and Natural Resources and the World Bank. Prof. Rıfat Kurban shared his recommendations for energy and water efficiency in drinking water supply and distribution systems.



- **Climate Change Workshop**

AGU Civil Engineering Department Faculty Member Prof. Dr. Niğmet Uzal attended the Kayseri Climate Change Action Plan (CCAP) Stakeholder Workshop organized by Kayseri Metropolitan Municipality Climate Change and Zero Waste Department.

Prof. Dr. Uzal gave a presentation titled "Climate Change: Wastewater Reuse" at the workshop held at Kadir Has Congress Center Lifos Hall. In his presentation, Prof. Uzal touched upon wastewater treatment, wastewater reuse practices and sustainable development goals.

In her presentation, Prof. Uzal touched upon wastewater treatment, wastewater reuse practices and sustainable development goals. Mayor of Metropolitan Municipality Dr. Memduh Büyükkılıç, Provincial Director of Environment, Urbanization and Climate Change Sibel Livdumlu, Deputy Secretary General of Metropolitan Municipality Ali Hasdal, Head of Climate Change and Zero Waste Department Buket Ergin, Climate Change Awareness Project Consultant Tamer Atalay and Engin Algür and academicians from different institutions attended the workshop.



The outputs to be obtained within the scope of the "CCAP-Kayseri Climate Action" project, in which various training and workshop meetings, greenhouse gas inventory and climate risk and vulnerability analyzes have been carried out so far, will be shared with stakeholders.

