ISTANBUL OKAN UNIVERSITY

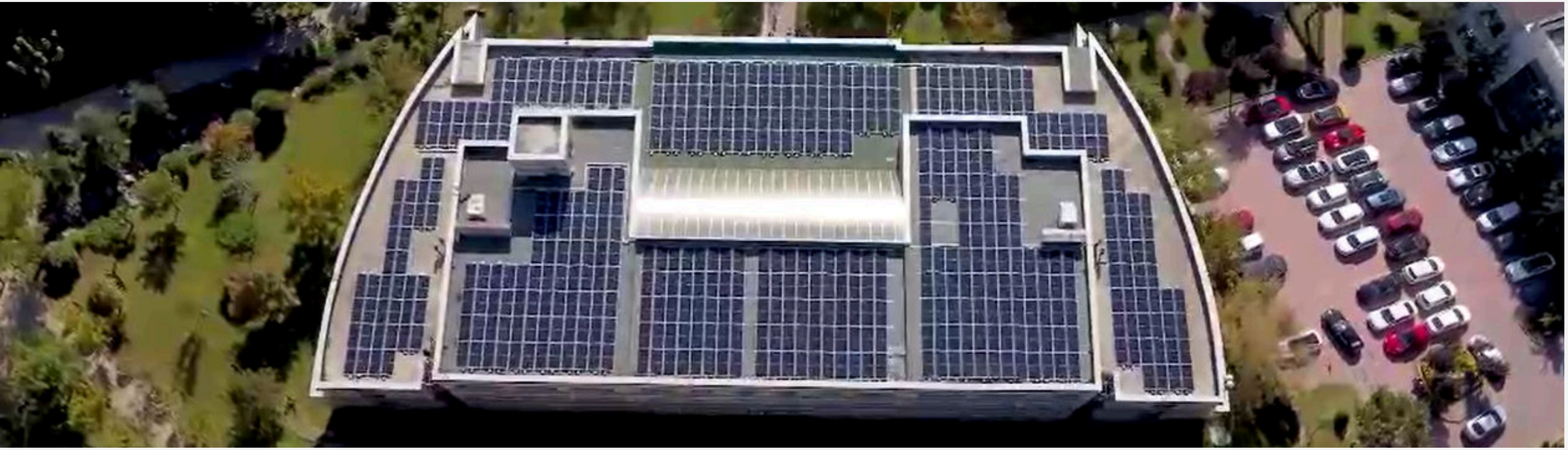
MAKING THE WORLD A BETTER PLACE:

A Report On Our Progress with the 17 Sustainable Development Goals

SDG 7 - AFFORDABLE AND CLEAN ENERGY

The 17 Sustainable Development Goals

The Sustainable Development Goals (SDGs), also known as Global Goals, are a set of 17 integrated and interrelated goals to end poverty, protect the planet and ensure that humanity enjoys peace and prosperity.



Introduction

Aim of this report presenting the sustainability achievement of OKAN in 2022 for SDG 7. The report introduces the general practices and policies of the university on sustainability.

“Ensure access to affordable, reliable, sustainable and modern energy for all.”
Universities can play a significant role in contributing to Sustainable Development Goal 7 (SDG 7), which focuses on ensuring access to affordable, reliable, sustainable, and modern energy for all.
They can contribute to the global effort to ensure affordable and clean energy for all while fostering sustainability awareness among students, staff, and the communities they serve.

SDG 7: Ensure access to affordable, reliable, sustainable and modern energy for all.

Istanbul Okan University, which educates individuals who contribute to the needs of society and national competitiveness and conducts education, training and research studies at an international level, has the mission of implementing innovative ideas and practices. It aims to offer all its employees and students an environment with low carbon intensity, a high quality of life that protects the existing ecosystem, supports biodiversity, and ensures environmental sustainability by preventing air, water and soil pollution. With this vision and purpose, our university aims to ensure a healthy and quality life by protecting human and environmental health.

SDG 7: Affordable and Clean Energy Targets

Goal 1.1: To design and implement effective, efficient and inclusive energy management.

Goal 1.2: To use 100% renewable energy in its activities and processes.

Goal 1.3: To minimize energy use and costs in water and waste management.

Goal 1.4: To promote the use of more energy efficient products, practices and activities by popularizing the use of renewable energy among stakeholders.

Goal 1.5: To ensure energy efficiency in existing buildings and structures and to use national and international energy efficiency certificates in their buildings.

Goal 1.6: To increase national and international projects and collaborations by conducting R&D studies on renewable energy, energy efficiency, and clean energy including advanced and cleaner fuel technologies.

Goal 1.7: To develop investments in energy infrastructure and clean energy technologies.

Goal 1.8: To encourage the efficient and smart use of energy and to increase the awareness and sensitivity of employees, students and all stakeholders in this regard.

SDG 7 Indicators

Indicator 7.1 : Ratio of renewable energy in total energy consumption

Indicator 7.2 : Change in annual energy consumption in Water and Waste Management

Indicator 7.3 : Completion rate of authorization process for energy efficiency certificate

Indicator 7.4 : Number of certifications for energy efficiency and clean energy

Indicator 7.5 : Realization rate of monitoring and tracking system for an effective, efficient, inclusive and sustainable energy management

Indicator 7.6 : Rate of energy efficient and clean energy innovative applications

Indicator 7.7 : Realization rate of data tracking, monitoring and control system covering all energy consumption and usage

Indicator 7.8 : Number of nationally and internationally certified buildings

Indicator 7.9 : Number of R&D studies on issues such as clean production, zero emission alternative fuels, energy storage

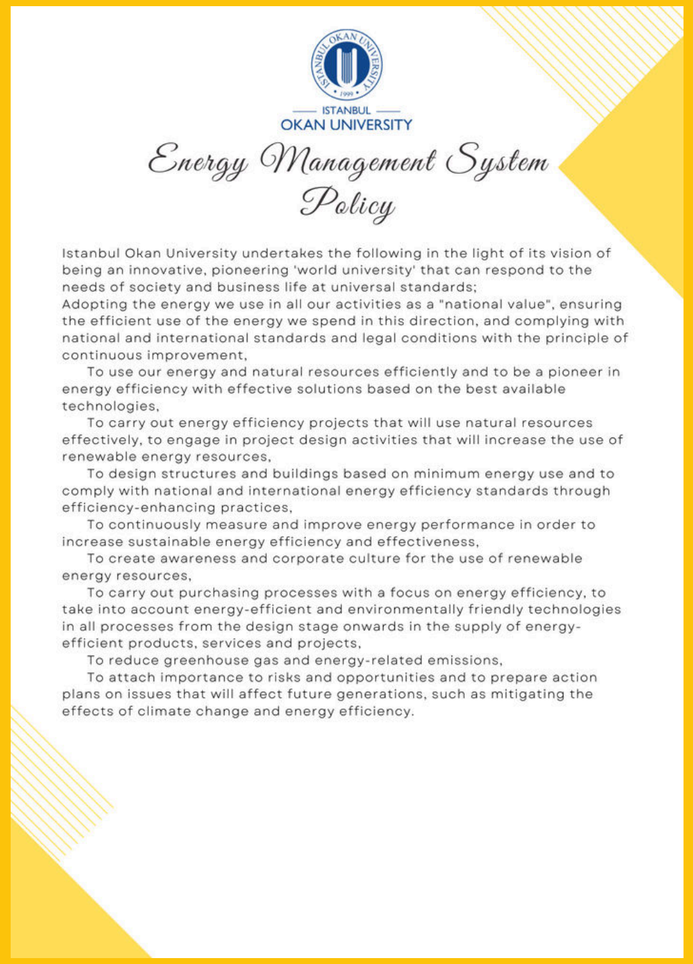
Indicator 7.10 : Number of projects and collaborations with industry and other stakeholders on clean production and energy efficiency

Indicator 7.11 : Number of information, awareness and events organized for staff, students and other stakeholders on campus to promote the efficient and smart use of energy

SDG 7: AFFORDABLE AND CLEAN ENERGY

University measures towards affordable and clean energy

We establish measures and policies which when considered would battle the harms of climate change and help achieve the goal of reducing emissions and provide a clean environment by our Energy Management Unit Directive and our Energy Management System Policy.



ISTANBUL OKAN UNIVERSITY

Energy Management System Policy

Istanbul Okan University undertakes the following in the light of its vision of being an innovative, pioneering 'world university' that can respond to the needs of society and business life at universal standards;
Adopting the energy we use in all our activities as a "national value", ensuring the efficient use of the energy we spend in this direction, and complying with national and international standards and legal conditions with the principle of continuous improvement,

To use our energy and natural resources efficiently and to be a pioneer in energy efficiency with effective solutions based on the best available technologies,

To carry out energy efficiency projects that will use natural resources effectively, to engage in project design activities that will increase the use of renewable energy resources,

To design structures and buildings based on minimum energy use and to comply with national and international energy efficiency standards through efficiency-enhancing practices,

To continuously measure and improve energy performance in order to increase sustainable energy efficiency and effectiveness,

To create awareness and corporate culture for the use of renewable energy resources,

To carry out purchasing processes with a focus on energy efficiency, to take into account energy-efficient and environmentally friendly technologies in all processes from the design stage onwards in the supply of energy-efficient products, services and projects,

To reduce greenhouse gas and energy-related emissions,

To attach importance to risks and opportunities and to prepare action plans on issues that will affect future generations, such as mitigating the effects of climate change and energy efficiency.

SDG 7: AFFORDABLE AND CLEAN ENERGY

MODALES PROJECT

Our Faculty of Engineering and Natural Science realized MODALES project.

MODALES vision is to substantially reduce air pollution from all types of on-road vehicles by encouraging the adoption of low-emission driving behaviour and proper maintenance choice.

MODALES proposes a user-centric approach to addressing all of the challenges which on the one hand enhance low-emission practices and on the other hand suppress high-emission behaviour by researching, developing and testing a number of innovative and complementary solutions in four key areas (namely, Driver, Retrofits, EOBD and Inspection) in order to substantially reduce vehicle emissions from three main sources (i.e. powertrain, brake wear and tyre wear).

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 815189.

Key technical tasks

- Defining low-emission factors
- Impact of user behaviours
- Effectiveness of inspections and depollution systems
- Guidelines and tools for low-emission training (including app development)
- User trials and evaluation, featuring private and professional drivers of different vehicle types at sites across Europe and in China

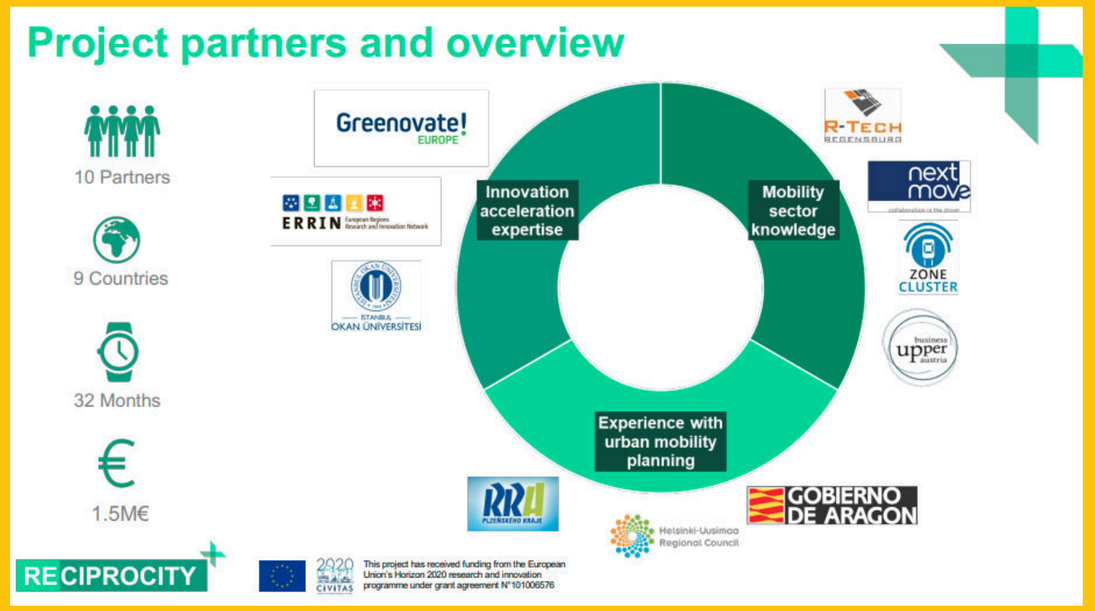
SDG 7: AFFORDABLE AND CLEAN ENERGY

RECIPROCITY PROJECT

Our Faculty of Engineering and Natural Science part of RECIPROCITY project.

RECIPROCITY aims at transforming European cities into climate-resilient and connected, multimodal nodes for smart and clean mobility through an innovative four-stage replication approach.

- **Better, smarter and cleaner mobility for all**
- **Reduced greenhouse gas emissions and improved air quality**
- **Prosperity for all regions**
- **Improved local governance and transnational collaboration**
- **Wide-scale replication despite different backgrounds**



SDG 7: AFFORDABLE AND CLEAN ENERGY

OPINA PROJECT

Istanbul Okan University is among the Implementing Organizations of TÜBITAK 1512 Techno-Enterprise Capital Support Program in the thematic areas of "Smart Transportation" and "Health and Good Life" under the name BIGG STEP.

The infrastructure to be established with our OPINA Project and ERTICO- Intelligent Transportation System Networks (ITS Europe), of which we are the only university from Turkey, EGVIA-The European Green Vehicles Initiative Association, BEPA-Batteries European Partnership Association and CCAM-European Partnership on Cooperative Connected and Automated Mobility networks will also provide advantages to technological entrepreneur candidates working on smart systems for transportation with strong international partners and stakeholders.

In addition, our institution, together with the Faculty of Medicine and Laboratories, Simulation Centers and University Hospital, Faculty of Health Sciences, Faculty of Dentistry and Hospital, provides services in all matters that entrepreneurs may need, from the idea stage to the processes of accessing international markets, thanks to its corporate business network and international connections. will be able to provide support.

With the BiGG STEP program, in addition to our OPINA project and relevant infrastructure support in the field of healthcare, teams with business ideas are provided with office facilities, free training, expert mentoring and consultancy, customer and investor introductions, and pre-prototype and laboratory infrastructure usage opportunities, and by dealing with prospective entrepreneurs one-on-one. , we provide support to entrepreneurs in every aspect they may need, from idea to market, and ensure the emergence of business plans in line with TÜBİTAK expectations.

OKAN ÜNİVERSİTESİ
UTAS
ULAŞTIRMA TEKNOLOJİLERİ VE AKILLI OTOMOTİV SİSTEMLERİ UYG. VE ARŞ. MERKEZİ

SDG 7: AFFORDABLE AND CLEAN ENERGY

IN2CCAM PROJECT

The application results of the first group calls for 2022 under the Horizon Europe Programme, Cluster 5: Climate, Energy, Mobility, "Goal 6: Safe, Resilient Transportation and Smart Mobility Services for Freight and Passengers" component have been announced. For the calls whose applications remained open between 14 October 2021 and 12 January 2022, where competition was high and 1087 institutions and organizations from around the world applied for 8 calls, 2 projects with 2 partners from our country were supported and a total grant of 570,250 euros was received from the European Commission. .

Our university is a partner;

Offered within the scope of the call "HORIZON-CL5-2022-D6-01-04: Integrate CCAM services in fleet and traffic management systems (CCAM Partnership)";

There are 22 organizations in the project consortium acronym IN2CCAM (Enhancing Integration and Interoperability of CCAM eco-system); The project aims to accelerate the implementation of innovative CCAM technologies and systems for freight and passengers, develop, implement and demonstrate innovative services for connected autonomous vehicles, infrastructures and users.

ERTICO
ITS EUROPE

SDG 7: AFFORDABLE AND CLEAN ENERGY

Sustainable Practices

We measure and set targets for more sustainable commuting and undertake actions to promote more sustainable commuting

Our university attaches importance to public transportation in order to minimize individual vehicle use. It allocates a personnel shuttle for transportation of its personnel. There are also ring shuttles available to all staff and students.

We also aim to make the campus a greener campus with disabled parking spaces, electric vehicle charging stations, fuel-efficient vehicles and pedestrianized areas

SDG 7: AFFORDABLE AND CLEAN ENERGY

Sustainable Practices

We build new buildings to sustainable standards

Solar Energy System (SPP) is an nature-friendly system that converts solar energy into electrical energy with the help of solar cells. Approximately 2,235,000 kWh of electricity will be produced annually with Solar Energy System (SPP) panels installed on a 9,000 m² roof area in our campus and Okan College. Thanks to SPP, approximately 40 percent of the annual electricity consumption of our Tuzla Campus and Okan College will be covered. Thus, less electricity consumption will be ensured. It is planned to continue producing electricity for 20-25 years with the installed solar power plant. In this process, we will contribute to the reduction of approximately 1,030 tons of greenhouse gas emissions annually.

SDG 7: Publications

9 Publications has been published untill 2022 related to SDG 7

Yolci Omeroglu, P., Acoglu, B., Özdal, T. and 2 more (...) (2019).Extraction techniques for plant-based bio-active compounds. Natural Bio-active Compounds: Chemistry, Pharmacology and Health Care Practices,2465-492

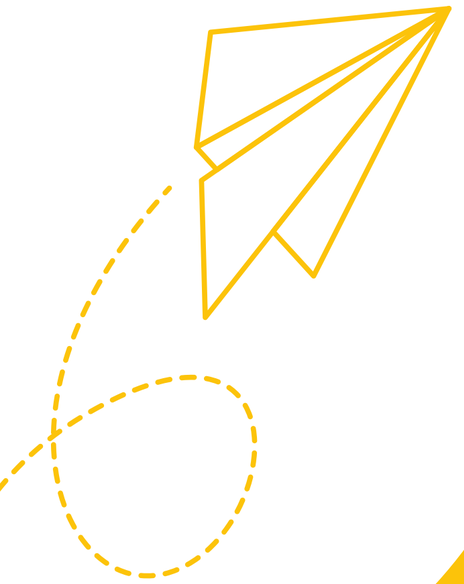
Karimkhani, H., Özkoç, M., Shojaolsadati, P. and 3 more (...) (2021).Protective Effect of Boric Acid and Omega-3 on Myocardial Infarction in an Experimental Rat Model. Biological Trace Element Research,199(7) 2612-2620

Baydan, S.S., Ceylan, M., Tuncay, R.N. (2021).A Study on the State of Health of Lithium-ion Batteries. 2021 13th International Conference on Electrical and Electronics Engineering, ELECO 2021,509-513

Karamuk, M., Ozturk, S.B. (2019).Design of a Controller for Torsional Vibrations of an Electric Vehicle Powertrain. Proceedings 2019 International Aegean Conference on Electrical Machines and Power Electronics, ACEMP 2019 and 2019 International Conference on Optimization of Electrical and Electronic Equipment, OPTIM 2019,583-589

Source: SciVal

SDG 8: Publications



Alp, G., Murat, S., Yilmaz, B. (2019).Comparison of Flexural Strength of Different CAD/CAM PMMA-Based Polymers. Journal of Prosthodontics,28(2) e491-e495

Dursun, İ., Tümer Kabadayı, E., Tuğer, A.T. (2019).Overcoming the psychological barriers to energy conservation behaviour: The influence of objective and subjective environmental knowledge. International Journal of Consumer Studies,43(4) 402-416

Çakmak, G., Yilmaz, H., Aydoğ, Ö. and 1 more (...) (2020).Flexural strength of CAD-CAM and conventional interim resin materials with a surface sealant. Journal of Prosthetic Dentistry,124(6) 800-800.e7

Iban, M.C., Aksu, O. (2020).A model for big spatial rural data infrastructure in Turkey: Sensor-driven and integrative approach. Land Use Policy,91

Otay, I., Jaller, M. (2020).Multi-criteria and multi-expert wind power farm location selection using a pythagorean fuzzy analytic hierarchy process. Advances in Intelligent Systems and Computing,1029905-914

Source: SciVal

SDG 7: What Have We Done?

EVENT PARTICIPATION OF OUR STUDENTS

Students of our faculty participated in the "Future of Automotive Design Competition" event held at Bursa Uludağ University on October 25, 2022, on behalf of OİB (Automotive Exporters' Associations).

In the "Design the future of automotive" competition held in Bursa, Prof. Dr. Orhan Behiç Alankuş made a presentation about the "TTIS and OPINA" projects carried out at Istanbul Okan University, Faculty of Engineering and Natural Sciences,

FACTORY VISIT

Our Mechanical Engineering Department students visited the EscuTurco Electricity, Industry and Trade Inc. factory.