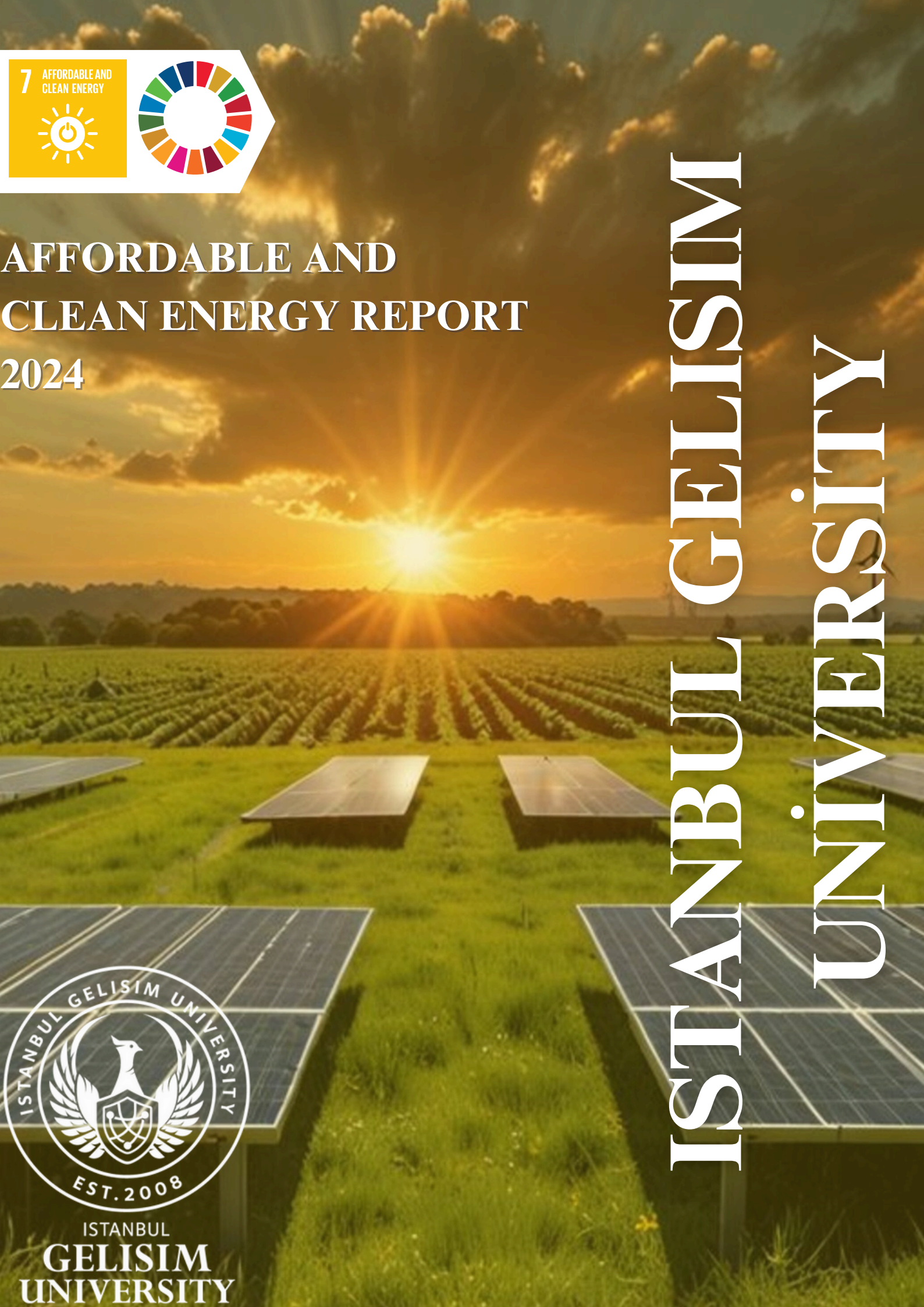

AFFORDABLE AND CLEAN ENERGY REPORT 2024

ISTANBUL GELISIM UNIVERSITY

ISTANBUL GELISIM UNIVERSITY EST. 2008

ISTANBUL GELISIM UNIVERSITY

SDG 7: AFFORDABLE AND CLEAN ENERGY

IGU for "Ecological, Social and Economic Sustainability"

Within the framework of the United Nations Sustainable Development Goals (SDGs), SDG 7 seeks to ensure universal access to affordable, reliable, sustainable, and modern energy services. Energy constitutes a cornerstone for fostering economic growth, enhancing social well-being, and ensuring environmental sustainability. In this regard, the promotion of renewable energy sources, the enhancement of energy efficiency, and the inclusive strengthening of energy infrastructure are essential prerequisites for achieving sustainable development.

Higher education institutions occupy a central position in this transformation process, both in terms of knowledge production and societal impact. Istanbul Gelisim University (IGU) contributes institutionally to the transition towards clean energy through academic research in the energy field, sustainable campus practices, and multi-stakeholder collaborations. These efforts reflect a governance approach that aligns not only with local needs but also with global sustainability goals.

In this context, SDG 7 is not merely a goal aimed at increasing access to energy; it also stands at the intersection of multidimensional sustainability approaches, such as combating climate change, efficient use of resources, and social inclusivity.

IGU CORPORATE PROFILE

IGU VISION

Istanbul Gelisim University (IGU) is a foundation university based in Istanbul, established in 2008 and granted university status in 2011. Since its foundation, IGU has operated with the mission of enhancing quality, accessibility, and diversity in higher education. The university considers education, research, and community service as its core areas of activity. IGU aims to educate students as internationally competent individuals who adhere to scientific ethical values, think creatively, and are conscious of sustainability. To this end, it continuously updates its student-centered educational programs and focuses on graduating qualified individuals who meet the needs of the modern era.

IGU's core values include respect for individual differences, openness and transparency, an interdisciplinary approach, the principle of sustainability, collaboration with the real sector, and a commitment to continuous improvement.

IGU contributes to knowledge production by conducting research activities both nationally and internationally and strengthens its societal impact through social responsibility projects and public-private partnerships. Within the framework of its 2024–2028 Strategic Plan, IGU envisions generating a global impact in the field of higher education and contributing to societal development through qualified knowledge.

IGU INSTITUTIONAL CAPACITY

Year of Establishment: 2008 (Vocational School), 2011 (University status)
Number of Faculties: 7
Number of Institutes: 1
Number of Schools: 1
Number of Vocational Schools: 2
Number of Research Centers: 22
Number of Laboratories and Workshops: 145
Total Number of Students (2024): 37,918
Campus Location: Avcılar, Istanbul, Türkiye
Library Facilities: 1 main library and 4 branch libraries
Strategic Plan Period: 2024–2028

ACKNOWLEDGEMENTS

We would like to express our gratitude to IGU's esteemed academics, administrative unit coordinators, staff members, dear students, alumni, and internal and external stakeholders for their contributions to the preparation of this report.

We would also like to extend our sincere thanks to all university members and stakeholders who have embraced all sustainability-related goals included in this report and have carried out related efforts, as well as to the University Board of Trustees and the Rectorate for their unwavering support of these initiatives.

Istanbul Gelisim University

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7.1. Research on Clean Energy

7.1.1. Scopus Publications on IGU Affordable and Clean Energy

The number of scientific publications categorized under SDG 7 in the tab on accessible and clean energy, energy systems, and energy efficiency—according to the Sustainable Development Goals on Scopus—was 66 in 2021, 55 in 2022, 53 in 2023, and **42** in 2024.

In 2024, scientific publications produced by IGU that were categorized according to the 17 Sustainable Development Goals, **11,11%** of them pertain to SDG 7.

The number of scientific publications published on Scopus over the past four years is presented below.

Click here to access all publications indexed in Scopus.

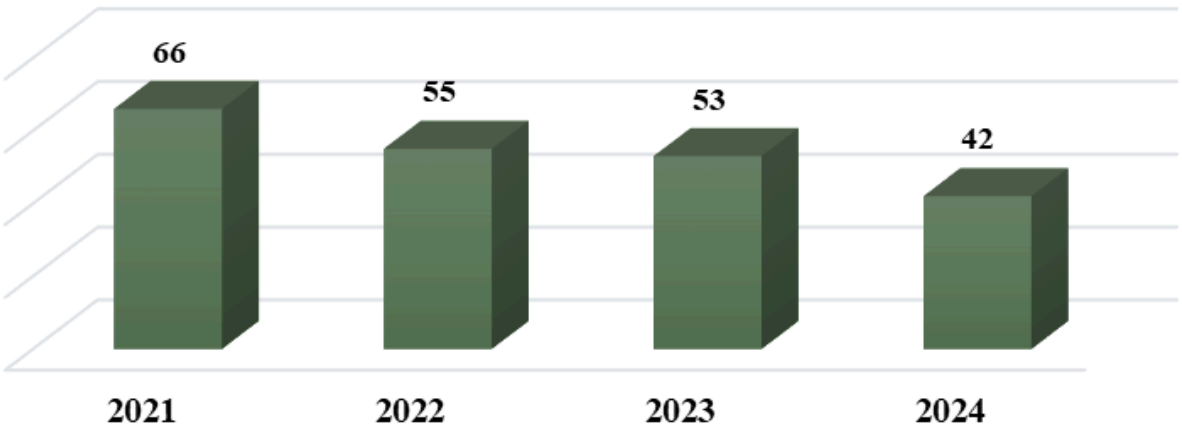


Figure 1. Number of Scientific Publications on SDG 7 by Year (Scopus)

7.1.2. IGU Courses on Affordable and Clean Energy

In the 2023–2024 academic year, sustainability-focused courses related to the theme of accessible and clean energy offered at IGU are presented in the table below. These courses aim to equip students with comprehensive knowledge and skills in areas such as renewable energy sources, energy efficiency, energy conversion systems, energy economics, and sustainable development. Offered at undergraduate, associate, and graduate levels, these courses provide an interdisciplinary learning environment by integrating technical, economic, and environmental perspectives.

Additionally, the course "Introduction to Sustainability" is included in the elective course pool of faculties and schools, aiming to convey the university's sustainability vision to all students. This enables students to recognize global sustainable development goals and develop the ability to approach the relationship between energy, environment, and society from a holistic perspective.

Table 1. Courses Offered Within the Scope of Accessible and Clean Energy

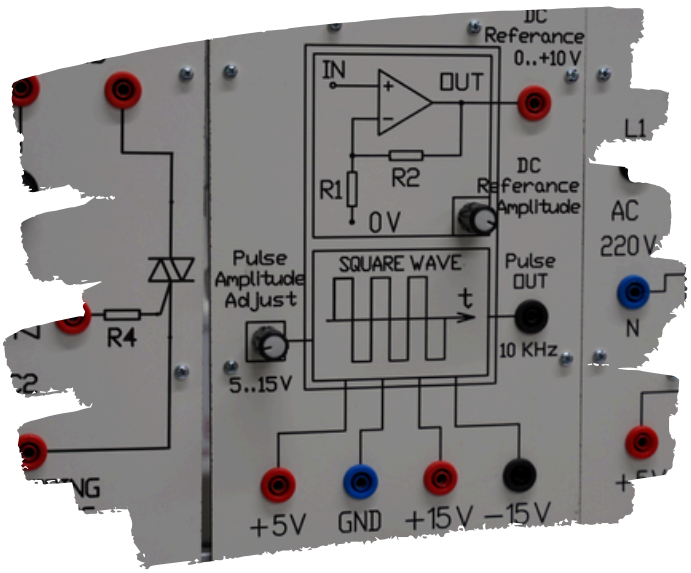
Faculty Name	Department Name	Course Name
Institute of Graduate Studies	Mechatronics Engineering (MD)	New and Renewable Energy Systems
	Electric and Electronics Engineering (MD)	New and Renewable Energy Systems
Faculty of Engineering and Architecture	Mechatronics Engineering	Renewable Energy Systems
		Electromechanical Energy Conversion Systems
	Electric and Electronics Engineering	Renewable Energy Systems
IGU Vocational School	Car Body and Surface Finishing Technologies	Renewable Energy Systems
	Electronics Technology	Energy Efficiency in Industry
	Electricity Generation, Transmission and Distribution	Energy Efficiency in Industry
	Technology of Hybrid and Electric Vehicles	Energy Storage Systems
Faculty of Economics, Administrative and Social Sciences	Economy and Finance	Energy Economics and Sustainability
	International Trade and Finance	Energy Economics and Sustainability

7.1.3. IGU Laboratories on Affordable and Clean Energy

Within IGU, there are a total of five laboratories supporting research, education, and practical activities in the field of accessible and clean energy. These laboratories are designed for the development of sustainable energy systems, modeling of energy efficiency applications, and analysis of environmentally friendly technologies. They provide hands-on training opportunities for students and facilitate interdisciplinary collaboration. The laboratories are actively utilized by undergraduate and graduate students, as well as researchers from diverse fields such as engineering, architecture, environmental sciences, and energy systems.
Through these facilities, students are able to connect theoretical knowledge with real-world problems, gaining experience in areas such as renewable energy system design, energy efficiency analysis, sustainable building technologies, and environmental impact assessment. Furthermore, these environments serve as the infrastructure for energy-focused capstone projects, TÜBİTAK-supported research, and applied studies aimed at societal contribution.

Click here for all laboratories in IGU.

1. Renewable Energy - Electronic Machinery and Power Elements Laboratory
2. Electrical-Electronics Laboratory
3. Electro-Mechanical Laboratory
4. Electrical Laboratory
5. Electrical and Electronics Engineering Student Workshop



Renewable Energy - Electronic Machinery and Power Elements Laboratory

Electrical-Electronics Laboratory

Electrical-Electronics Laboratory

Electrical and Electronics Engineering Student Workshop

Electro-Mechanical Laboratory

Electrical Laboratory

Electrical Laboratory

7.2. University Measures towards Affordable and Clean Energy

IGU develops various strategies to support the use of clean and accessible energy in line with sustainable development goals. The university's energy policies aim both to enhance energy efficiency within campus infrastructure and to promote awareness of clean energy at academic and societal levels.

7.2.1. Energy-Efficient Renovation and Building

In line with its 2024–2028 Strategic Plan, IGU adopts energy efficiency as a priority principle in all construction and renovation activities to achieve energy savings, reduce carbon emissions, and ensure environmental sustainability. This approach is clearly defined not only in practice but also explicitly articulated in the university's updated policy documents.

The university's "Sustainability Training Policy", "The Policy for Carbon Emission and Nature Conservation", "Environment Policy", "Sustainable Procurement and Supplier Policy", "Policy for Waste Management and Reducing Environmentally Hazardous Products" and "Water Management Policy" have established energy efficiency, the use of environmentally friendly technologies, and the transition to renewable energy as strategic objectives. These policies directly contribute to supporting sustainable building infrastructures, prioritizing energy savings in equipment selection, and reducing resource consumption across the campus.

One of the fundamental values and objectives within the scope of the "Sustainability Training Policy" is identified as "supporting industries within the framework of sustainable infrastructure, sustainable technology, and energy efficiency." In line with this objective, IGU designs interactive and student-centered sustainability education programs aimed at assisting industries in achieving sustainable infrastructure transformation through responsible production, developing sustainable energy and waste policies to reduce their ecological footprint, and creating corporate social responsibility projects that provide social benefits to the community.

Within the framework of the "The Policy for Carbon Emission and Nature Conservation" raising public awareness and fostering internal transformation for the protection of nature and environmental sustainability are established as fundamental principles. IGU actively pursues initiatives aimed at meeting its energy needs from renewable energy sources and supports projects designed to raise awareness and contribute to the community in this regard.

Within the scope of the "Environment Policy", the university collaborates with local industry with the goals of reducing and preventing waste, investing in initiatives that enhance environmental performance, and undertaking activities aimed at minimizing its environmental footprint.

Within the "Sustainable Procurement and Supplier Policy", the university ensures the procurement of environmentally friendly goods and services through multifaceted, effective, and sustainable collaboration with suppliers.

Within the scope of the "Policy of Sustainability Research", IGU places particular emphasis on the concept of sustainability in its social, economic, and environmental dimensions. The university is committed to designing and conducting research within this framework and actively encourages its researchers to do the same. Furthermore, IGU supports its researchers in establishing both domestic and international collaborations.

Within the scope of the "Policy for Waste Management and Reducing Environmentally Hazardous Products", the university aims to reduce waste generation and natural resource consumption through practices such as waste reuse, recycling, and recovery, as well as to ensure effective waste management. When necessary, it conducts removal activities of generated waste and environmentally harmful products in collaboration with local industry. In this context, the university has established agreements with local industry, including the "Medical Waste Agreement," "Non-Hazardous Waste Agreement," and "Dental Hospital Medical Waste Agreement."

Within the scope of the "Water Management Policy", the university undertakes responsibility for conducting regular economic analyses of water usage and implementing activities, programs, and projects aimed at raising awareness of water-related issues. In this context, cooperation is established with all local and global stakeholders.

7.2.2. Upgrade Buildings to Higher Energy Efficiency

Within the framework of its 2024–2028 Strategic Plan, IGU has set concrete targets to improve the energy efficiency of its existing buildings in order to achieve energy savings and reduce carbon emissions harmful to the environment. These targets are supported by strategic sub-goals shaped under the main objective SA.3 – Enhancing Multifaceted Social Benefit by Centering Sustainability.

Specifically, in line with the objective SH.3.2 – Enhancing the Effectiveness of the Sustainable Environmental Management System, systematic investments and implementations aimed at improving building energy performance are being carried out across all campuses within the university.

In this direction;

- New buildings and renovation works are carried out with energy-saving applications such as insulation, natural lighting, automation systems, and LED conversion. In 2024, 2.298 fluorescent lights were replaced with LED systems, increasing the LED usage rate from 78,49% to **90,08%**.

Table 2. Changes in Total Lighting and LED Lighting Numbers by Years

Years	Total Lighting	LED Lighting	Rate of LED Lighting
2018	17.337	5.548	32%
2019	18.153	6.669	36,70%
2020	19.153	7.769	40,50%
2021	19.542	8.794	45%
2022	19.460	9.048	46,50%
2023	19.280	15.132	78,49%
2024	**19.350**	**17.430**	**90,08%**

- Thanks to external facade insulation work, natural gas consumption has been reduced, and energy efficiency has been improved during the winter months.

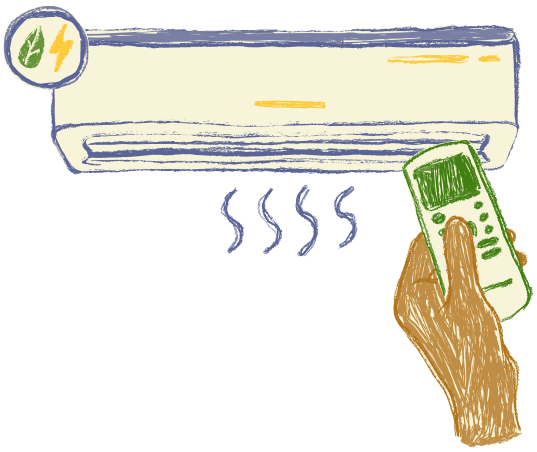
- At the Tower Campus, lighting systems equipped with daylight sensors have been implemented, preventing unnecessary energy consumption outside of working hours.

- At the Tower Campus of the university, regular maintenance and improvement activities are conducted for the mechanical automation systems used in indoor climate control and energy management. To enhance the efficiency of these systems, hardware replacements are made when deemed necessary, thereby reducing energy consumption during heating and cooling processes. Accordingly, the 2025 targets include replacing the existing chiller systems with models of higher energy efficiency. This planned transformation aims to make the cooling infrastructure across the campus more environmentally friendly, economical, and sustainable.

- Regular maintenance protocols for the generator systems have resulted in reduced fuel consumption and the associated carbon emissions.

- IGU develops projects aimed at conserving natural resources and indirectly reducing energy consumption through the recovery of rainwater and greywater. One such initiative was implemented in 2023 at the Tower Campus, where systems for collecting and reusing rainwater were activated. This application not only conserves water but also contributes to energy efficiency by reducing energy consumption in water treatment and pumping processes. Additionally, these practices aim to raise awareness among students and staff about sustainable resource use.

- IGU has a total of 370 air conditioning units. Of these, 355 are new-generation models with high energy efficiency and environmentally friendly features, while only 15 units are older, high-energy-consumption models. The university aims to gradually replace these 15 units with efficient models, thereby achieving an almost complete energy efficiency transformation in its climate control systems.



- IGU adopts the use of renewable resources in its procurement processes as an institutional priority. In line with this, the university aims to integrate clean and sustainable energy into both campus life and academic-administrative operations. To achieve this goal, IGU holds the Renewable Energy Guarantees of Origin (YEK-G) and The International REC Standard (I-REC) certifications. These certifications officially verify that all electricity consumed on IGU campuses is sourced entirely from renewable resources. Since 2021, the university's electricity consumption has been supplied by hydroelectric power plants, and as of 2024, this consumption is fully met by solar energy. This transition not only reduces the university's carbon footprint but also demonstrates the integration of energy efficiency principles into its institutional infrastructure policies.

The International Tracking Standard Foundation
Founders of I-REC

This Redemption Statement has been produced for

İSTANBUL GELİŞİM ÜNİVERSİTESİ

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FOTON MARKETPLACE

confirming the Redemption of

4 524.000000

I-REC Certificates, representing 4 524.000000 MWh of electricity generated from renewable sources

This Statement relates to electricity consumption located at or in

CİHANGİR MAHALLESİ ŞEHİT JANDARMA KOMANDO ER HAKAN ÖNER SOKAK NO:1 AVCILAR /İSTANBUL
Turkey

in respect of the reporting period

2024-01-01 to 2024-12-31

The stated Redemption Purpose is

Scope 2 Reporting

7.2.3. Carbon Reduction and Emission Reduction Process

IGU, aware of its institutional responsibility in combating global climate change, adopts a holistic approach to reducing carbon emissions. Within this framework, the university regularly monitors carbon emissions resulting from energy consumption, conducts annual carbon footprint calculations in accordance with international standards, and sets strategic improvement targets based on the data obtained. To minimize emissions from electricity, natural gas, and fuel use, the university undertakes both technical infrastructure investments and awareness-raising initiatives aimed at transforming user behaviors. All these efforts enable the university to structure its carbon management and emission reduction processes—one of the fundamental components of its sustainability policy—in a systematic, transparent, and measurable manner.

The 2024–2028 Strategic Plan includes strategic objectives, targets, and indicators aligned with this direction. The relevant objectives, targets, and indicators are as follows:

SA.3. Enhancing multifaceted social benefit by centering sustainability

- SH.3.1. Increasing the quality and quantity of social responsibility projects.
- SH.3.2. Enhancing the effectiveness of the sustainable environmental management system.
- SH.3.3. Elevating the level of cooperation with local and regional institutions and organizations.
- SH.3.4. Increasing activities aimed at serving the community.

Relevant Indicators:

- Electricity consumption (kWh)
- Capacity of renewable energy sources (kWh)
- Investment in energy efficiency (USD)
- Ratio of total Zero Emission Vehicles (ZEV) to total campus population

The use of automation systems and LED lighting indirectly supports IGU's objectives by reducing energy consumption. Regular training sessions are organized to raise awareness among students and staff about carbon emissions. Efforts to reduce the carbon footprint include implementing conservation measures in water, electricity, heating, and transportation. Additionally, environmentally friendly, energy-saving, and low carbon-emission air conditioners and devices are prioritized in procurement processes. To ensure efficiency and prevent energy waste, maintenance is regularly performed on all devices at scheduled intervals.

In line with its low-carbon transportation systems, IGU took a significant step on July 5, 2024, by adding a zero-emission vehicle to its fleet. With this addition, the total number of zero-emission vehicles at the university has increased to two. Furthermore, to support environmentally friendly transportation infrastructure, an electric vehicle charging station has been installed in the university parking lot. A specialized measurement device has also been integrated into the system to monitor the performance and safety levels of the equipment used at the charging station. All these implementations clearly demonstrate IGU's institutional commitment to supporting the transition to low-carbon technologies and promoting sustainable energy use.

Click here.

Projects aimed at the reuse of rainwater and greywater are being developed to promote savings and raise awareness. One such rainwater reuse project has been implemented at the Tower Campus, with plans to extend it to other buildings. To further reduce the university's carbon footprint and ensure sustainability, training programs intended to raise awareness about factors affecting the carbon footprint are planned.

The university's institutional commitment in this area has also been validated by the "University Monitoring and Evaluation General Report-2024" prepared by the Council of Higher Education (YÖK). In the report, IGU ranked first in Turkey in the categories of "energy efficiency investment" and "investment in water savings per unit of water consumed," while also placing among the top 10 in the "per capita direct carbon footprint" indicator. These achievements demonstrate the university's national-level dedication to the sustainable use of natural resources and its tangible contributions to carbon reduction efforts.

The studies conducted in this context are listed below:

1. The use of fluorescent lamps on campuses has been gradually reduced year by year. These fluorescent lamps are being replaced with longer-lasting and more energy-efficient LED lighting. This initiative not only decreases consumption but also reduces the number of lamps, resulting in higher illumination levels at a lower cost, thus increasing efficiency. In 2024, in line with this plan, 2.298 fluorescent lamps in use areas were replaced with 2.298 LED lamps. As a result, the LED lighting rate improved from 78,49% to **90,08%**. This effort will continue in 2025.

2. Regular maintenance and system renewal efforts are ongoing to improve the energy efficiency of mechanical automation systems at the university's Tower Campus. Within this scope, one of the priority goals for 2025 is to replace the existing chillers—responsible for high energy consumption—with new-generation units that offer lower carbon emissions and higher efficiency. This improvement will contribute to reducing energy consumption across the campus and, consequently, decrease the university's carbon footprint.

3. In line with its strategic energy policies aimed at reducing carbon emissions, IGU has adopted the use of renewable energy sources in its energy supply as a corporate priority. Since 2021, all electricity consumed across the university has been sourced from renewable energy generated by hydroelectric power plants; as of 2024, IGU's entire electricity consumption is met by solar energy. This transition has been officially certified through the Renewable Energy Guarantee of Origin System (YEK-G) and the internationally recognized International Renewable Energy Certificate (I-REC). IGU's approach to utilizing renewable sources in its energy procurement process aims to minimize environmental impacts. Through these practices, reductions are achieved not only in direct carbon emissions related to energy consumption but also in the university's indirect environmental footprint.

Furthermore, IGU approaches this process not as a static measure but as a dynamic and evolving sustainability strategy; it seeks to strengthen emission reduction efforts through multifaceted interventions such as investments in energy efficiency, digital monitoring systems, green building applications, and integration of low-carbon technologies. Within this framework, the university not only reduces its current carbon emissions but also shapes carbon management plans for future years.

4. Lighting systems at the Tower Campus have been upgraded with daylight sensors to control illumination, ensuring that lights automatically turn off after working hours. This aims to prevent unnecessary electricity consumption.

5. Policies promoting the use of renewable energy sources, specifically wind and solar energy, have been enhanced.

6. Work on a 4 MW solar power plant (GES) project is ongoing. The site has been selected and official procedures have commenced, with the plant scheduled to become operational in 2026. IGU's objective is to meet its own energy consumption through its power plant.

7. The use of various electrical appliances such as tea and coffee machines in staff offices increases energy consumption. To reduce energy use, efforts to establish shared kitchen areas on campuses are underway. Accordingly, three kitchens have been established at the Tower Campus.

8. Annual tree planting and afforestation activities continue regularly as part of efforts to reduce the carbon footprint.

9. Procurement processes for new equipment to be used on campuses continue to adhere to purchasing specifications that prioritize energy efficiency as the primary selection criterion.

10. Regular maintenance is conducted on compensation panels used to prevent losses affecting total energy consumption.

11. Throughout 2024, plant-based waste oil management activities have been effectively carried out in alignment with environmental sustainability targets.

12. In line with its environmental sustainability policies, IGU does not limit its carbon emission reduction efforts to energy consumption alone but follows a comprehensive strategy incorporating waste management, recycling practices, and circular economy approaches. Within this framework, hazardous and harmful wastes originating primarily from gastronomy kitchens, laboratories, clinics, and technical units are strictly controlled in full compliance with environmental regulations. These wastes are segregated, temporarily stored under appropriate conditions, and disposed of through licensed firms.

Throughout the year 2024, the following waste management processes were systematically carried out:

- Vegetable waste oil management was implemented consistently in the gastronomy kitchens located in Blocks B, C, and G of the university. A total of 380 kg of waste oil was collected and handed over to a licensed recycling company, thereby preventing contamination of the sewage system, damage to groundwater, and carbon emissions released into the atmosphere.
- Through grease trap systems, **603** kg of mixed waste consisting of oil and grease was collected, processed under the relevant waste code (19 09 10), and sent for disposal.
- Toner and cartridge wastes were separately collected across the university, with **55** kg of toner waste delivered to a licensed firm in 2024.
- A total of **696** kg of liquid chemical waste generated from laboratory and clinical activities was labeled in compliance with applicable regulations and safely disposed of.
- Packaging waste contaminated with chemicals, amounting to **160** kg, was collected with proper classification and waste codes, then handed over to licensed firms.
- Hazardous pharmaceutical waste was recorded as **150** kg and appropriately disposed of.
- Additionally, **290** kg of motor oil from generators used throughout the university was collected without environmental harm and sent for disposal.
- As a result of these efforts, a total of **1.954** kg of hazardous waste was collected and disposed of in accordance with environmental legislation within Istanbul Gelişim University in 2024.

All waste management processes are conducted integrally with the "Zero Waste" approach; operations are documented with official certificates and receipts, and environmental impacts are monitored continuously throughout the year.

The targets set for the year 2025 include:

- Making the segregation of hazardous waste types more systematic,
- Improving the infrastructure of temporary storage areas,
- Enhancing the awareness and competencies of responsible personnel,
- Establishing an integrated hazardous waste management mechanism aligned with the Zero Waste Management System.

These practices directly contribute to the university's goals of reducing carbon emissions, preventing waste from entering the natural environment, supporting the carbon cycle through energy recovery, and leaving a livable environment for future generations.

7.2.3.1. Carbon Footprint Measurement Process and Method

Since 2018, Istanbul Gelisim University (IGU) has been regularly conducting primary carbon footprint calculations to shape its strategies aimed at reducing carbon emissions. In this process, annual data on the consumption of fossil fuels such as electricity, natural gas, gasoline, and diesel used across the university are collected and analyzed in accordance with international standards.

The primary carbon footprint has been calculated using the Intergovernmental Panel on Climate Change (IPCC) calculation methodology. Accordingly, the university's carbon footprint caused by electricity consumption, transportation, and heating has been determined. Since carbon dioxide emissions are directly related to fuel combustion, their calculation is straightforward. Calculating other greenhouse gases requires multiple criteria. The IPCC calculation methodology consists of three categories under the term Tier. The Tier 1 approach has been used in this report. For this approach:

1.Official university records of gasoline, diesel, LPG, natural gas, and electricity consumption amounts have been obtained. For calculating emissions resulting from electricity consumption, the IPCC carbon dioxide emission factor of 0.584 ton/mWh, as stated in the master's thesis by Toröz (2015: 79), has been applied.

2.The consumption values of fuels are multiplied by the conversion factors provided in the IPCC guidelines to calculate the energy content. These conversion factors are those specified in the Regulation on Monitoring and Reporting of Greenhouse Gas Emissions, published in the Official Gazette dated 22.07.2014 and numbered 29068, and they comply with the values indicated in the IPCC 2006 guidelines. These values are given in Table 3.

Table 3. Net Calorific Value of Fuels (Source: ÇŞB, 2014:40)

Fuel Type	Net Calorific Value (Tj/Gg)
Gasoline	44,30
Diesel	43,00
Natural Gas	48,00

Energy Consumption (TJ) = Fuel Consumption (t)× Net Calorie Value (TJ/Gg)

3. For each fuel group that is specified in the IPCC guidelines the carbon emission factors are selected and the total carbon content of the fuel is calculated using this value.

Carbon Content (t C) = Carbon Emission Factor (t C/TJ) × Energy Consumption (TJ)

Table 4: Emission Factor Of Fuels (Source: TUIK, 2013:16)

Fuel Type	Net Calorific Value (TJ/Gg)
Gasoline	18,90
Diesel	20,20
Natural Gas	15,30

4. The amount of carbon that is not oxidized during combustion is found and the value of the carbon involved in complete combustion is calculated.

Carbon Emission (Gg C) = Carbon Content (Gg C) × Carbon Oxidation Rate

Table 5: Oxidation Rate Of Fuels (Source: ÇŞB, 2014:40)

Fuel Type	Net Calorific Value (TJ/Gg)
Gasoline	0,990
Diesel	0,990
Natural Gas	0,995

5. At this stage, the ratio 44/12, which is the ratio of the molecular weight of CO_2 to the molecular weight of carbon, is multiplied by the value found in the previous step to find the CO_2 emission value resulting from the combustion of the fuel.

CO_2 Emission (Gg CO_2) = Carbon Emission (Gg C) × (44/12)

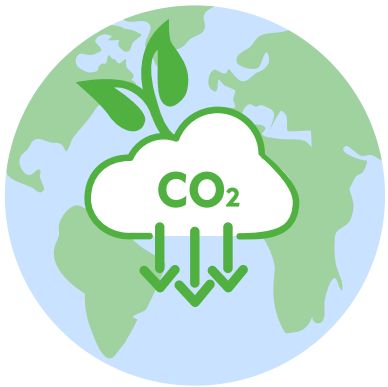
7.2.3.2. Carbon Footprint Calculation Result

Using the consumption data of gasoline, diesel, natural gas, and electricity for the year 2024, primary carbon footprint calculations for IGU have been conducted. The calculation was performed based on the IPCC Tier 1 approach, taking into account the relevant conversion factors and emission coefficients for each energy type.
Within this scope, the university's carbon dioxide emission values from different sources are detailed in the table below. These data not only reveal IGU's current carbon emission levels but also serve as a guiding reference for planning sustainability strategies for the coming years.

Table 6. Carbon Footprint Calculation of IGU (2024)

Energy Type	Consumption Amount	Consumption Amount (Tonnes)	Net Calorific Value (TJ/Gg)	Carbon Emission Factor (tC/TJ)	Carbon Oxidation Rate	Ton CO_2	Percentage (%)
Benzin (L)	7.692,00	5,87	44,30	18,90	0,990	17,845	0,58%
Motorin (L)	25.112,00	21,34	43,00	20,20	0,990	67,300	2,17%
Natural Gas(m3)	207.392,00	137,78	48,00	15,30	0,995	369,157	11,92%
Electricity(kWh)	4.523.414,21					2.641,674	85,33%
Total						**3.095,976**	

When examining the table, IGU's total carbon footprint for the year 2024 is calculated as 3.095,976 tons of CO_2. Of this total, 85,33% originates from electricity consumption, followed by natural gas at 11,92%, diesel at 2,17%, and gasoline at 0,58%.



The comparative carbon footprint values by year are presented as follows. Although an increase in total emissions was observed in 2024 compared to 2023, this rise is due to the expansion of the university's physical footprint, including the commissioning of new laboratories, classrooms, and administrative areas, which led to increased electricity and natural gas consumption. The main reasons for the increase in natural gas consumption compared to 2023 can be listed as follows: boilers being operated regardless of outside temperature, weekend events and training held in the blocks, heating systems being activated one month earlier than in 2023, and the addition of radiators and central heating units. To reduce natural gas consumption, measures such as operating boilers with automatic control based on outside air temperature and installing hydraulic door closers on classroom doors to prevent heat loss are planned.

On the other hand, as a result of the university's measures aligned with sustainable transportation goals, gasoline consumption decreased. Gasoline consumption, which was 10.600,32 liters in 2023, dropped to 7.692 liters in 2024, and accordingly, the carbon emissions from this source also decreased. This development demonstrates that awareness and practices aimed at reducing carbon emissions are being effectively implemented, highlighting IGU's commitment to environmental sustainability.

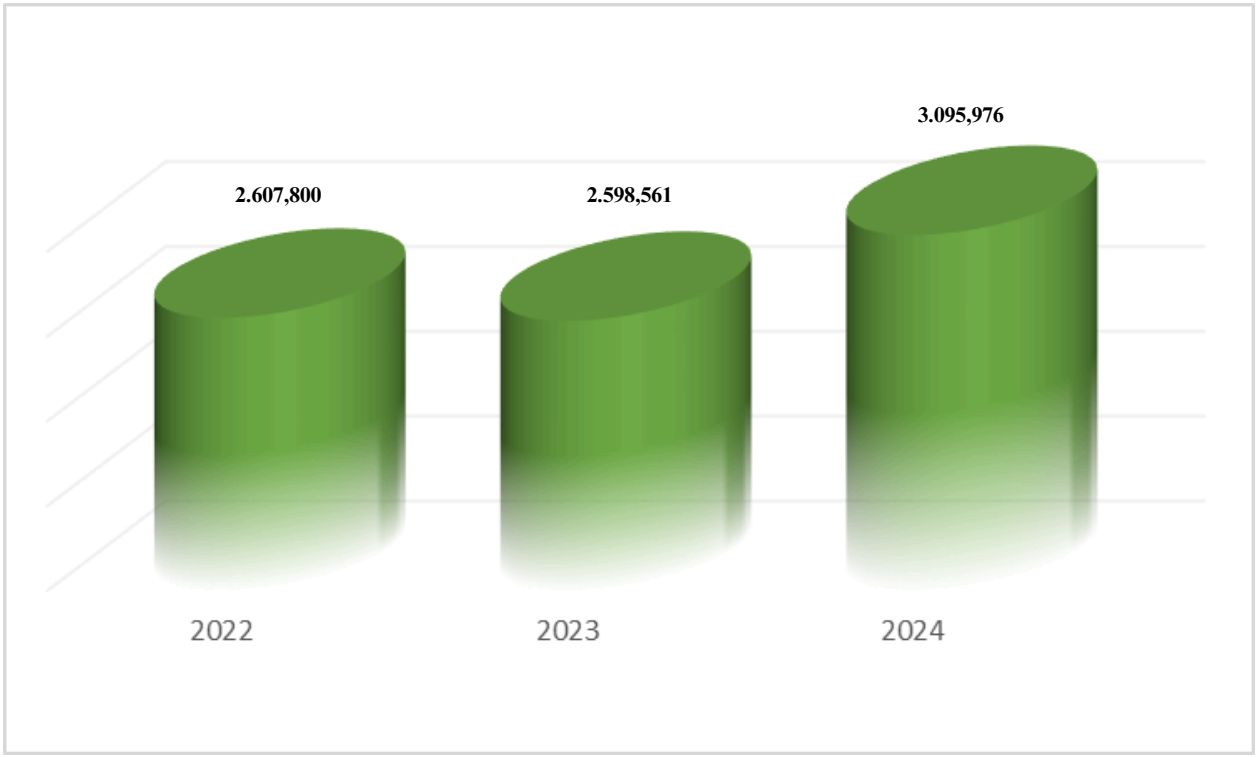


Figure 2. Carbon Footprint by Year (Tons of CO2)

7.2.4. Plan to Reduce Energy Consumption

IGU has structured and clearly detailed its plans to reduce energy consumption within the framework of the 2024–2028 Strategic Plan. The regulations and implementations carried out in this context have been explained in detail under the relevant previous sections. The plan includes targets such as reducing the use of energy sources like electricity and natural gas, increasing renewable energy capacity, and raising the proportion of green areas.

Some of the key objectives identified in this context and the planned areas of implementation are summarized below:

- Electricity consumption: Targeted to decrease from 3.901.005 kWh in 2023 to 3.500.000 kWh by 2028.
- Renewable energy source capacity: Maintained at a steady level of 4.000.000 kWh annually, up from 3.915.000 kWh in 2023.
- No specific goal has been set for natural gas consumption, but reductions are anticipated as part of plans to lower overall energy consumption.
- Transition to energy-efficient equipment
- Automation and improvement of mechanical systems (e.g., chiller replacement, LED upgrades)
- Awareness campaigns across the campus
- Expansion of auto-shutoff systems in unused areas
- Regular monitoring and reporting of energy consumption in all buildings

Click for the Strategic Plan.

Some of the measures that will be taken to reduce energy consumption are listed below:

- Efforts to save water, electricity, heating and transportation must continue and decisions must be made to ensure that the products purchased are environmentally friendly, energy efficient and low in carbon emissions.
- Efforts to use renewable energy (wind and solar energy) must be increased and the university must be enabled to supply its own energy.
- The necessary work must be done to ensure that new buildings are environmentally friendly green buildings.

The image below is the 2nd objective of the 3rd goal of the Strategic Plan.

Purpose 3 (SP 3)	To make multifaceted social benefit more effective by centering sustainability						
Goal 2 (SG 2): To increase the effectiveness of the sustainable environmental management system		Plan Starting Value 2023	2024	2025	2026	2027	2028
3.2.1	The university's ranking in the green, environmentally friendly university index (Türkiye)	58	55	50	48	45	40
3.2.2	The university's ranking in the green, environmentally friendly university index (World)	674	650	625	600	575	550
3.2.3	Electrical energy consumption (kw.hour)	3.901.005	3.900.000	3.800.000	3.700.000	3.600.000	3.500.000
3.2.4	Water consumption (m^3)	51683	51500	51000	50500	50000	50000
3.2.5	Annual amount of recycled water (m^3)	110	110	115	120	125	125
3.2.6	Total amount of waste (kg)	43031	43000	42750	42500	42400	42300
3.2.7	Amount of waste recycled (kg)	21423	21500	22000	22500	23000	23500
3.2.8	Amount of organic waste (kg)	14471	15000	15000	15000	15000	15000
3.2.9	Hazardous waste amount (kg)	186	200	210	220	220	220
3.2.10	Green area ratio (%)	26	26	26	26	27	27
3.2.11	Smoke-free airspace rate (%)	99,7	99,7	99,7	99,7	99,7	99,7
3.2.12	Capacity of renewable energy resources (kw.hour)	3.915.000	4.000.000	4.000.000	4.000.000	4.000.000	4.000.000

7.2.5. Energy Wastage Identification

IGU conducts regular energy analyses and makes technical interventions in areas where they are needed as part of its efforts to reduce energy waste. In this regard, detailed data on energy usage has been obtained and improvement processes have been initiated with the "Building Automation System" project launched in 2023. Especially with the system applied to the Tower Campus, lighting, fire detection, and mechanical systems have been revised, and efficiency has been increased with dimmer-equipped fixtures and daylight sensors. In the six months prior to the automation system being put into operation, electricity consumption was measured at 1.352.118,8 kWh, while in the following six months, this value was recorded as **1.422.840,4** kWh. Although total consumption increased due to the expansion of the floor area from 116.080.1 m^2 to 138.313.6 m^2 during the same period, CO_2 emissions per m^2 decreased by **12%**. This result demonstrates that energy waste identification and intervention processes were effectively implemented.

7.2.5.1. Analysis of Consumed Energy

Energy consumption is tracked through relevant billing documents and is regularly recorded at the end of each month on a digital platform known as the QDMS Integrated Managament System. Consumption data is analyzed through this system to make assessments regarding sustainability targets. Among the types of energy used at the university, the most intensively used resource is electrical energy. Block-based electricity consumption data for 2024 has been analyzed in detail, and the total consumption has been determined to be **4.523.414,21** kWh. In the analysis conducted by month and building, A Block (Rectorate and administrative units) and K Block (numerous faculties, laboratories, and high-rise buildings) stand out as the buildings with the highest consumption rates. This high energy consumption is expected given the intensive use of these areas and the technical infrastructure they house. However, these data demonstrate that the university is **monitoring its energy consumption intensity**, identifying high-consumption areas, and has the potential to develop targeted energy efficiency measures. Regular measurement and monitoring enable interventions to prevent energy waste to be planned in a more effective and strategic manner.

Table 7. Distribution of Electricity Consumption (kWh) by Building and Month in 2024

Months	A Block	B Block	C Block	D-E Block	F Block	G Block	K Block	Total
January	80.979,44	11.023,55	17.819,44	13.983,54	13.123,60	34.172,60	223.249,50	**394.351,67**
February	67.565,84	8.318,03	14.334,12	9.856,38	10.861,80	29.320,52	208.764,68	**349.021,37**
March	67.770,77	11.076,95	15.166,16	12.527,28	12.905,20	36.560,34	228.528,00	**384.534,70**
April	45.562,77	7.345,48	9.664,16	9.123,54	8.199,60	28.773,00	174.319,88	**282.988,43**
May	53.171,06	9.543,85	13.377,80	10.774,86	9.870,80	35.702,33	205.856,33	**338.297,03**
June	61.839,18	6.344,98	11.823,32	8.560,38	11.663,60	30.001,55	218.700,68	**348.933,69**
Jusy	78.500,61	6.063,05	14.789,08	7.171,56	12.356,40	30.812,99	334.470,60	**484.164,29**
August	78.118,70	4.862,35	13.152,68	6.993,72	11.405,40	27.597,24	267.702,75	**409.832,84**
September	61.681,86	4.983,33	10.559,96	6.691,20	10.178,90	24.145,52	221.790,15	**340.030,92**
October	53.516,75	11.126,70	13.098,84	10.462,20	10.584,90	36.156,69	224.750,25	**359.696,33**
November	65.619,00	12.309,28	16.610,40	11.062,26	12.009,20	38.776,28	241.589,70	**397.976,12**
December	72.533,84	12.982,41	17.881,76	13.058,58	12.869,20	39.730,55	264.530,48	**433.586,82**
Total	**786.859,82**	**105.979,96**	**168.277,72**	**120.265,50**	**136.028,60**	**391.749,61**	**2.814.253,00**	**4.523.414,21**

*The values are expressed in kWh.

When examining natural gas consumption data for 2024, it can be seen that consumption is high during the winter months (January: 44.874 m³, February: 39.709 m³, March: 36.311 m³, December: 45.005 m³). These four months comprise the majority of total consumption. During the spring and summer months, natural gas consumption decreases significantly, particularly in July, August, and September, where it remains below 100 m³. This indicates that heating needs are correlated with seasonal effects. A total of 207.392 m³ of natural gas was consumed, and these data reveal that the energy usage varies according to the months and weather conditions.

Table 8. Total Natural Gas Energy Consumed in 2024 (m³)

Months	Natural Gas Consumption (m³)
January	44.874
February	39.709
March	36.311
April	17.631
May	1.051
June	829
July	81
August	62
September	41
October	2.166
November	19.632
December	45.005
Total	**207.392**

*The values are expressed in m³.

When comparing fuel consumption amounts for 2023 and 2024, it can be seen that there has been an increase in electricity and natural gas consumption and a decrease in gasoline consumption. Electricity consumption rose from 3.901.005,16 kWh in 2023 to 4.523.414,21 kWh in 2024. One of the main reasons for this increase is the expansion of the university's campus and the start of additional academic activities. Similarly, natural gas consumption increased from 123.936 m³ in 2023 to 207.392 m³ in 2024. This increase was influenced by colder winter months, heating systems being activated one month earlier, increased weekend activities in the buildings, and the additions of radiators/central heating systems.

A decrease in gasoline consumption from **10.600,32** liters to **7.692,00** liters has been observed. This decrease can be considered an indicator of the transition to more efficient vehicle use and an increase in the number of low-emission vehicles in line with sustainability policies. Diesel consumption, on the other hand, showed a very slight increase from 24.692,56 liters to 25.112,00 liters; this situation can be associated with the intensity of service vehicle usage.

The table below shows the amount of energy consumed by energy type in 2024.

Table 9. Energy Consumption by Energy Type in 2024

Energy Type	**Consumption Amount**	**Unit**
Gasoline	7.692,00	Litre
Diesel	25.112,00	Litre
Natural Gas	207.392,00	m3
Electricity	4.523.414,21	kWh

7.2.6. Divestment Policy

IGU does not pursue a direct or indirect investment policy in energy sources based on fossil fuels such as coal and petroleum, which cause high carbon emissions and harm environmental sustainability. The university's investment priorities are based on environmental and social impact criteria, and there is no policy of providing any funding, partnership, or sponsorship to carbon-intensive energy industries. On the contrary, priority is given to increasing the use of renewable energy and investing in environmentally friendly technologies in line with corporate sustainability goals.

This approach demonstrates that the university prioritizes environmentally friendly choices not only in its energy investments but also in all strategic planning processes. In line with this, the Carbon Emissions and Nature Conservation Policy, Waste Management and Reduction of Environmentally Harmful Products Policy and Sustainable Procurement and Supplier Policy are also actively in force. These policies contribute to reducing the university's environmental impact, increasing its social contribution, and achieving its long-term sustainable development goals.

7.3 Energy Use Density

IGU regularly monitors energy consumption intensity according to its sustainable energy management goals and assesses efficiency levels by analyzing energy usage per unit area. The table below shows Istanbul Gelişim University's energy consumption intensity per square meter for different energy types as of 2024. Energy consumption intensity (GJ/m²) is calculated by dividing the total consumption amount for each energy type by the university's total enclosed area. This indicator is an important measure for assessing the extent to which energy usage is proportional to the physical area.

7.3.1. Energy Usage per Sqm

The table below shows IGU's energy consumption intensity per square meter for different types of energy in 2024.

Table 10: Energy Consumption per Square Meter

Energy Type	Consumption Amount (Gj)	Energy Consumption Intensity (Gj/m2)
Gasoline	254,436	0,0009
Diesel	901,646	0,0033
Natural Gas	7.424,630	0,0276
Electricity	16.284,290	0,0605
Total	**24.865,006**	**0,0924**

7.4. Energy and the Community

Istanbul Gelisim University does not limit its energy policies to institutional efficiency alone, but also focuses on raising awareness in society, creating awareness about sustainable energy use, and acting with a sense of social responsibility. The work carried out in this context shows that the university has adopted an approach that integrates with society in its energy transformation.

7.4.1. Local Community Outreach for Energy Efficiency

IGU produces various events and digital content to inform the local community and raise awareness about energy efficiency. In this context, social events have been organized on sustainable energy use and energy saving as well as discussions, workshops, and awareness-raising activities with the participation of students, academics, and the local community.

The university's Sustainability Academy is an important platform with activities focusing on energy efficiency, environmental awareness, and social transformation.

The Sustainability Short Film Festival organized as part of the Academy aims to provide a creative perspective on environmental, social, and economic sustainability themes. Additionally, film screenings for elementary and high school students contribute to developing energy and environmental awareness at a young age.

Click for news about the Sustainability Short Film Festival.

In addition, awareness is raised on issues such as energy efficiency, renewable energy, and carbon footprint through content published on the university's YouTube channel. Seminars held on the university campus, student club activities, and social responsibility projects also raise awareness among the local community, teachers, and students about energy issues and promote sustainable living practices.

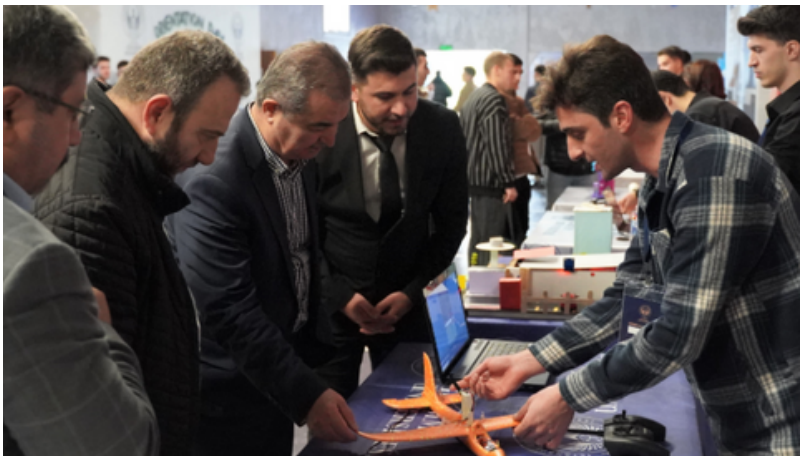
Click here for the Accessible and Clean Energy 1 video.

Click here for the Accessible and Clean Energy 2 video.

Throughout the year, student clubs, academic units, and sustainability-focused organizations at IGU organize various events on energy efficiency, environmental awareness, and sustainable living. Some examples of these activities are listed below.

1 **Event Name:** Electronic Circuits Project Exhibition
Event Date: 05.01.2024
Event Content: Projects by students from the Electrical and Electronic Engineering and Avionics departments were exhibited with the aim of raising awareness of sustainable energy, inspiring participants to develop their own projects, and demonstrating the impact of technological innovations on energy efficiency. During the event, information was provided on the principles of operation of electrical systems, sustainability, and energy efficiency, with the goal of increasing participants' knowledge and interest in clean energy technologies. This event aimed to contribute to the transition to renewable energy in line with SDG 7.

Event Link



2

Event Name: Light Up Your Future with Solar Energy
Event Date: 07.05.2024
Event Content: Under SDG 7, it was aimed to raise awareness by highlighting the environmental and economic benefits of solar energy. In the opening speech, the role of renewable energy in sustainable development was emphasized, and the importance of solar panels was discussed. At the event, expert speakers shared information about energy efficiency and solar energy technologies, with the aim of increasing participants' knowledge of clean energy. Accordingly, the event contributed to raising public awareness of sustainable and environmentally friendly energy use.

Event Link

3

Event Name: Applied Communication Festival-2 Communication and Sustainability: Shine a Light on the Future!
Event Date: 21.05.2024 - 24.05.2024
Event Content: "The Applied Communication Festival-2" (İletfest2) aims to contribute to the professional and cultural development of students in the field of communication and media by bringing them together with leading professionals in the industry. Held over five days from May 20-24, 2024, the event featured four different activities each day, including various panels, conferences, workshops, film screenings, and discussions. The event focused on the relationship between sustainability and communication technologies and content, opening up a discussion on how students can integrate the communication profession with sustainable development principles. In this context, topics such as energy efficiency, renewable energy, and environmental awareness were addressed within the framework of sustainability communication, emphasizing that communicators must take on strategic roles that contribute to SDG 7 goals. Thus, İletfest2 highlighted the transformative impact of the communication discipline in raising social awareness about clean and accessible energy.
Event Link

4

Event Name: Climate Change and Youth Solutions
Event Date: 22.05.2024
Event Content: The event, organized in collaboration with the Avcılar Municipality Climate Change and Zero Waste Directorate, aimed to draw attention to climate change, the most critical environmental issue of the 21st century, and to evaluate solutions in this area together with students. The event addressed topics such as the role of scientific research in climate change, green energy investments, energy efficiency, forest conservation, international environmental policies, and social awareness. The strategic importance of renewable energy sources such as solar, wind, and hydroelectric power in combating climate change was emphasized; in this context, the themes of access to clean energy and energy efficiency, which are fundamental components of SDG 7, were highlighted. Throughout the event, participants actively engaged in the discussion by asking questions to the experts; they gained insight into the role of local governments in combating the climate crisis and developed a sense of environmental responsibility.

5

Event Name: IGU Model United Nations Simulation
Event Date: 24.05.2024 - 26.05.2024
Event Content: The Model United Nations event was conducted as a simulation in which various sub-topics of the United Nations were addressed and solutions to global problems were developed. In this organization, which included representatives from each country, the representatives tried to produce solutions by exchanging views in accordance with certain procedures within the framework of topics previously determined by the academic team. The aim of the event was to enable young participants to develop innovative and sustainable perspectives on today's world problems. The solution proposals prepared as a result of three days of discussions were organized by the secretariat and submitted to the United Nations as a letter of recommendation. This process significantly contributed to the participants' development of public speaking skills, gaining experience in group work, and enhancing their ability to think critically through discussion. Additionally, the event focused on solution proposals related to SDG 7 goals, such as sustainable energy access and clean energy use.

Event Link

6

Event Name: Faculty of Applied Sciences Exhibition
Event Date: 28.05.2024 - 31.05.2024
Event Content: The faculty exhibition has provided a platform for students and academics to showcase their creative and academic work. The aim of the exhibition was to support participants from different disciplines within the faculty in sharing their scientific research, artistic works, and innovative projects. The main theme of this year's exhibition was "Social and Technological Projects Undertaken by Departments in Our Faculty," with a particular emphasis on topics related to SDG 7, such as sustainability, environmental protection, and social responsibility. Participants presented innovative solutions and projects developed in the fields of science, technology, engineering, art, and design, thereby encouraging interdisciplinary collaboration and knowledge sharing. The event enabled participants to generate solutions for sustainable development goals, such as clean and accessible energy, highlighting their potential to make positive contributions to society and the global community.

Event Link

7

Event Name: Innovative Steps for the Future of Energy Renewable Energy Project Exhibition
Event Date: 30.05.2024
Event Content: Energy plays a vital role not only in maintaining humanity's standard of living but also in ensuring the environmental sustainability of the planet. Due to the limited nature of fossil fuels and their environmental impact, the need for renewable energy sources has increased day by day. In this context, the event organized by the students of the IGU Electrical Engineering Program was held to raise social awareness of renewable energy, introduce sustainable energy technologies, and encourage interest in this field. The exhibition shared innovative projects, technical applications, and environmentally friendly systems aimed at producing solutions for the energy needs of the future with participants. The event provided an opportunity for students to showcase their knowledge and creativity while also serving to raise awareness that will contribute to the transition to accessible, reliable, and sustainable energy systems in line with SDG 7 goals.

Event Link

8

Event Name: The Impact of Young People on the Environment: Local Solutions and Climate Change

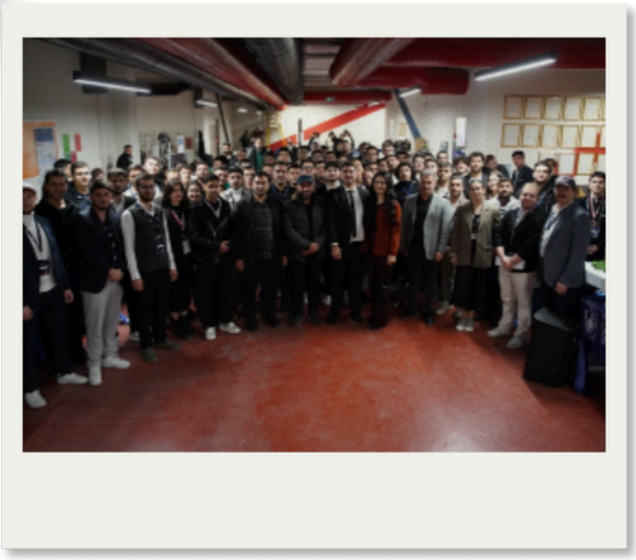
Event Date: 11.12.2024

Event Content: The event titled "The Impact of Young People on the Environment: Local Solutions and Climate Change" was held to raise awareness among young individuals about environmental issues and to help them discover how they can contribute to the fight against climate change at the local level. During the event, participants were provided with information about environmental threats, the concept of sustainability, and examples of local solutions. Interactive presentations, group work, and discussions were used to support young people's sense of social responsibility. The event emphasized that renewable energy sources offer an effective solution to the climate crisis. In this context, the importance of promoting solar, wind, and other clean energy technologies was discussed. According with SDG 7 goals, the feasibility of implementing energy efficiency and accessible clean energy solutions at the local level was discussed. One of the main outcomes of the event was to nurture young people to become individuals who can actively contribute to environmental, economic, and social development by adopting sustainable energy-based lifestyles.

9

Event Name: IV. Electronic Circuits Project Exhibition
Event Date: 26.12.2024
Event Content: The IV. Electronic Circuits Project Exhibition brought together participants interested in engineering and technology. The event showcased over 60 projects where students demonstrated their technical knowledge and creativity; innovative circuit designs, applied systems, and energy efficiency-focused solutions stood out. The projects featured in the exhibition revolved around themes such as renewable energy applications, smart energy management systems, and low-energy electronic circuit designs. They raised awareness among young engineering candidates in the field of energy technologies while also paving the way for the development of creative solutions in line with the vision of sustainable development.

Event Link



10 **Event Name:** The Importance of Sustainable Development and Renewable Energy in Businesses
Event Date: 06.11.2024
Event Content: The event addressed the environmental and financial advantages that renewable energy technologies offer businesses in line with sustainable development principles, focusing on energy efficiency practices and best practices. Participants learned how the efficient use of energy resources can create long-term competitive advantages for businesses and gained insight into the impact of environmentally friendly production and supply strategies on reducing carbon footprints.

[Event Link]

11 **Event Name:** What Would Happen If the World Ran on Solar Energy?
Event Date: 15.11.2024
Event Content: This event aimed to explore the possibilities and challenges of a scenario where the world runs entirely on solar energy. Participants discovered the environmental, economic, and technological impacts of such a transformation, particularly its benefits such as reduced carbon emissions and energy independence. Innovations needed to make solar energy more efficient, accessible, and sustainable were discussed. Through expert panels and interactive sessions, the importance of renewable energy in combating climate change was emphasized. The event aimed to inspire a future shaped by solar energy.

[Event Link]

12 **Event Name:** Innovation and Artificial Intelligence in Energy
Event Date: 28.02.2024
Event Content: In this event, it was aimed to provide students with information about innovation and artificial intelligence applications in the energy sector and enable them to explore future developments in this field. Additionally, It aimed to raise awareness among our students about energy efficiency, renewable energy sources, and the role of artificial intelligence in energy production, while also contributing to the development of sustainable solutions in this field.

7.4.2. 100% Renewable Energy Pledge

IGU has made the transition to 100% renewable energy use a strategic goal, based on sustainability in energy consumption. In this regard, internationally recognized Renewable Energy Certificates (I-REC) are used to ensure that the electricity consumed on campuses is supplied from renewable sources. Currently, all of the university's electricity consumption is provided by renewable energy sources that are certified with these certificates. In addition, technical and feasibility studies are being conducted to install solar energy systems on university roofs and suitable campus areas. In the medium and long term, the goal is for campuses to reach a capacity where they can generate a major portion of their own electricity needs on-site. Furthermore, the increase in the share of renewable energy is supported by practices such as LED conversion, automation systems, and the use of high-efficiency devices to reduce energy consumption.

7.4.3. Energy Efficiency Services for Industry

IGU supports various academic and research projects aimed at providing consulting, training, and awareness services to industry in the field of energy efficiency. Within this scope, studies are conducted to both promote the use of energy-saving technologies and to disseminate applications that will reduce carbon emissions. The table below shows an example of one of the projects supported by the university:

Project Name: Awareness Research on Reducing the Carbon Footprint of Solar Panel Use Enlighten the Future, Lighten the Carbon Footprint

Proje Content: Nowadays, as the climate crisis deepens, the use of renewable energy sources is critical to reducing carbon footprints. Solar panels stand out as an effective method for achieving this goal. The study examined the relationship between individuals' carbon footprint and solar panel usage while assessing their awareness levels. An online survey was conducted with students from the Faculty of Applied Sciences; data were analyzed using the KMO test and Cronbach Alpha, using the SPSS 25.0 program.

Results and Contributions: The research findings indicate that the use of solar panels is effective in reducing the carbon footprint. This study also directly aligns with the United Nations' Sustainable Development Goals 7 (“Affordable and Clean Energy”) and 13 (“Climate Action”). The results obtained are intended to raise awareness of the potential of solar panel technology increasing energy efficiency in industrial and production facilities, and to serve as a basis for consulting, training, as well as application projects for the sectors. The project was supported by the IGU BAP Coordination.

Project Link

7.4.4. Policy Development for Clean Energy Technology

IGU contributes to the development and dissemination of clean energy and energy efficiency technologies by providing guidance to policy-making institutions and organizations through the production of information, projects, and applications. The university's sustainability vision is integrated into its education, research, and campus management policies and supports efforts to promote environmentally friendly energy solutions.

IGU contributes to policy development processes by:

- Developing innovative and sustainable methods in waste management through recycling-focused campus practices,
- Ensuring students become proficient in clean energy technologies, energy efficiency, and climate change through sustainability-themed academic programs and projects,
- Conducting physical infrastructure investments and awareness campaigns to increase the use of renewable energy,
- Supporting the dissemination of low-carbon technologies through research projects and sectoral collaborations.

These practices enable the university to contribute towards clean energy technology policies and strategies not only on its own campus but also in collaboration with public institutions, the private sector and civil society organizations.

7.4.5. Assistance to Low-Carbon Innovation

IGU's Technology Development Center (IGU TEKMER) provides comprehensive support to startups operating in the fields of low-carbon economy and sustainable technology.

IGU TEKMER also offers a shared workspace for entrepreneurs developing innovative solutions at the intersection of biotechnology and electronics, software, robotics, and mechatronics. It particularly encourages the development of products that reduce the carbon footprint and increase energy efficiency in areas such as health, food, agriculture, and environmental technologies.

The main incentives and support provided by IGU TEKMER are as follows:

R&D and Design Deduction: All R&D expenditures are deducted from the institution's or commercial income.

Income Tax Withholding Incentive: Income tax exemption of 80-95% is provided on the salaries of R&D and support personnel.

Insurance Premium Support: 50% premium support is provided.

Stamp Duty Exemption: No stamp duty is levied on any documents related to R&D and innovation activities.

Customs Duty Exemption: Equipment imported under R&D projects is exempt from customs duties and fees.

In addition, the following infrastructure and services are offered to entrepreneurs:

- Well-equipped laboratories and testing facilities
- Rental offices and flexible workspaces
- Event and seminar organizations
- Partner collaborations and investor access
- Mentoring support and expert guidance
- Opportunity to benefit from the university's qualified workforce

Thanks to this extensive support, startups can develop innovative products that are sustainable and have a low carbon footprint, such as medical devices, biosensors, smart health applications, robotic solutions, and food and agriculture technologies. IGU TEKMER aims to help young entrepreneurs contribute to a low-carbon future by increasing their competitiveness in both national and international markets.

7.5. Low-Carbon Energy Use

Istanbul Gelişim University prioritizes increasing the use of low-carbon sources in energy management and reducing dependence on fossil fuels in line with its sustainability goals. In this context, the rate of use of renewable and environmentally friendly energy technologies is regularly monitored and reported each year.

7.5.1. Low-Carbon Energy Use

IGU aims to reduce greenhouse gas emissions by increasing the use of low-carbon sources in energy management. The university regularly monitors and reports energy consumption data to measure its environmental impact and strengthen its sustainability strategies. In this context, the low-carbon energy usage data for 2024 is presented below:

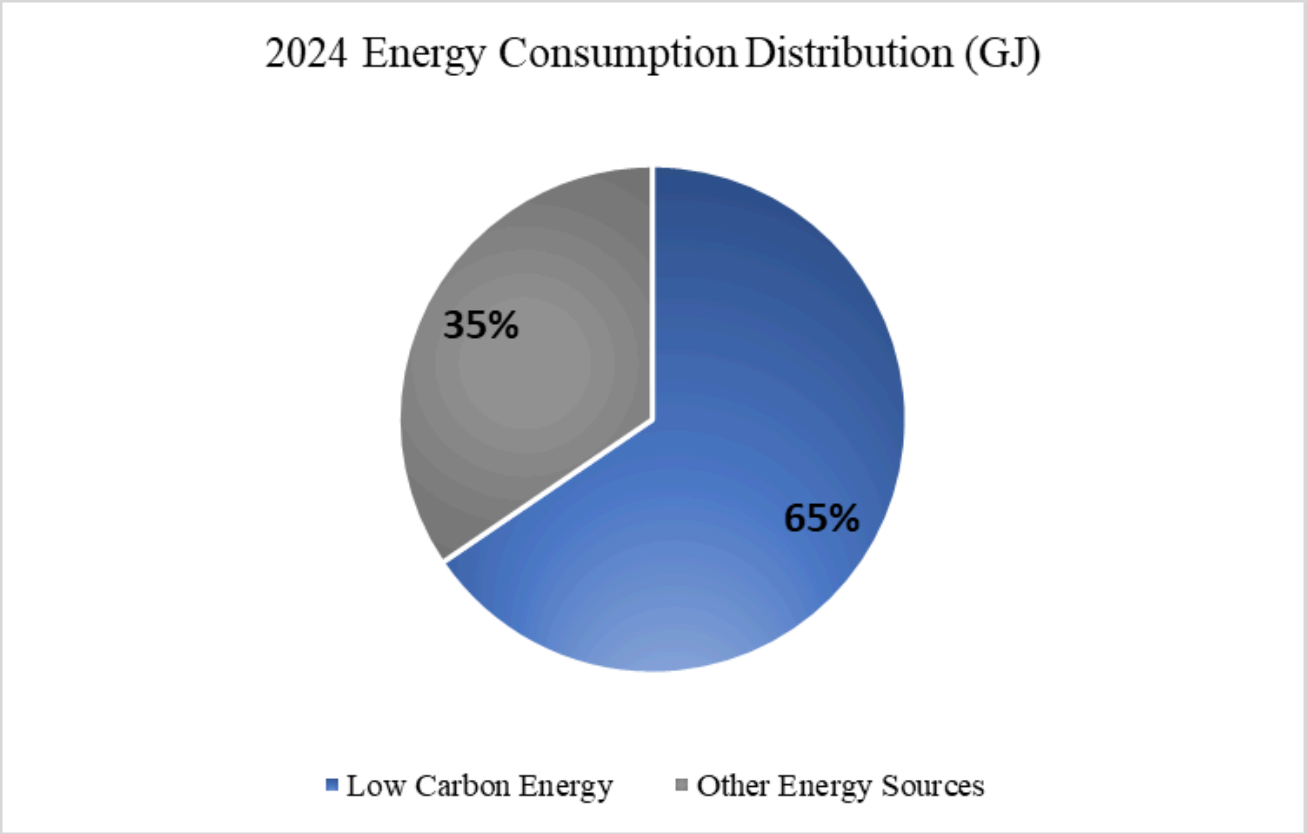


Figure 3. Energy Consumption Distribution in 2024

In 2024, the university's total energy consumption was 24.865,005 GJ, and 65% of this amount, corresponding to 16.284,291 GJ, was supplied from low-carbon energy sources. When this consumption amount is compared to the university's total enclosed area of 269.160 m², the low-carbon energy usage intensity is calculated as 0,0605 GJ/m².

ISTANBUL GELISIM UNIVERSITY

THE GLOBAL GOALS

For Sustainable Development