Carbon Reduction & Emission Reduction Process

Menoufia National University (MNU), a newly established fourth-generation university, applies a comprehensive carbon reduction and emission management process across all campus buildings. The process is aligned with the Green Building Implementation Framework **(Following Table)** and focuses on energy efficiency, indoor air quality, sustainable site management, water efficiency, and material sustainability.

This process integrates operational practices, continuous monitoring, and future upgrades to reduce overall carbon emissions and enhance environmental performance.

2. Process Components

2.1 Energy Efficiency & Operational Performance

All campus buildings demonstrate strong compliance with energy-efficiency elements:

✓ Minimum Energy Efficiency performance
✓ Lighting zoning to reduce unnecessary loads
✓ Enhanced re-commissioning across all buildings
✓ Sustainable maintenance programs
✓ LED lighting and energy-saving equipment installed campus-wide

Planned Enhancements:

- Installation of electrical sub-metering for real-time energy tracking
- Integration of renewable energy systems (solar panels in collaboration with AOI)
- Full commissioning system for new facilities

2.2 Indoor Environmental Quality (IEQ)

All buildings meet core indoor environmental quality criteria:

✓ Minimum IAQ performance
✓ Environmental Tobacco Smoke (ETS) control campus-wide
✓ Mold prevention through humidity control
✓ Thermal comfort via controllable HVAC systems
✓ Universal daylighting and visual comfort design
✓ Occupancy comfort surveys conducted regularly

Planned Enhancements:

- IAQ monitoring before/during occupancy
- Improvement of internal noise control in selected buildings

2.3 Sustainable Site Planning & Management

The campus follows sustainable site practices including:

✓ Green vehicle priority parking
✓ Increased landscaping
✓ Building exterior sustainability management

Campus Mobility:

- Internal buses are not required due to compact campus layout
- Bicycle- and pedestrian-friendly pathways
- Adoption of the national initiative "Your Bike, Your Health"

Planned Enhancements:

- Integrated pest management and erosion control measures
- Heat island reduction through extended greenery

2.4 Materials & Resources Management

All buildings comply with:

✓ Materials reuse and sustainable selection

✓ Sustainable purchasing policy

✓ Storage and collection of recyclables

✓ Use of refrigerants with low environmental impact

Planned Enhancements:

Expansion of recycled-content materials

Introduction of a campus-wide waste segregation smart system

2.5 Water Efficiency and Conservation

Current water efficiency practices include:

✓ Permeable surfaces for rainwater absorption

✓ Water-efficient irrigation through sprinklers

✓ Water-efficient fittings in all buildings

Planned Enhancements:

- Installation of water harvesting systems
- Leak-detection and water-metering systems
- Greywater recycling where feasible

2.6 Innovation & Environmental Initiatives

The university actively promotes:

✓ Innovation in building management

✓ Environmental initiatives related to energy, water, and waste

✓ Participation in SDG 6, 7, 11, and 13 activities

✓ Continuous development of sustainable campus policies

Planned Enhancements:

- Appointment of certified Green Building Index (GBI) facilitators
- Innovation incubators specializing in low-carbon technologies

3. Carbon Reduction Mechanisms

The university reduces carbon emissions through:

- Energy efficiency improvements (lighting zoning, efficient HVAC, commissioning)
- Material and resource optimization (reuse, sustainable purchasing)
- Reduced operational carbon via maintenance and performance monitoring
- Behavior-based carbon reduction programs for staff and students
- Future renewable integration to offset grid-based emissions

4. Continuous Monitoring and Reporting

MNU follows a structured monitoring cycle:

1. Quarterly performance data collection (energy, water, waste)
2. Annual building performance review
3. Emission reporting integrated into sustainability assessment
4. Corrective actions and upgrades planned annually
5. Transparent public reporting through official publications

Elements of Green Building Implementation as Reflected in All Buildings

GBI Non-Residential Existing Building	Administration building	Central Laborat-ories Building	Medical Sciences Building (A)	Medical Sciences Building (B)	Engineering Sciences Building (C)	Engineering Sciences Building (D)
Element 1· Energy Efficency	√	√	√	√	√	√
Design & Performance						
Minimum EE Performance	√	√	√	√	√	√
Lighting Zoning	√	√	√	√	√	√
Electrical Sub-metering						
Renewable Energy						
Advanced or Improved EE Performance - BEI						
Commissioning						
Enhanced or Re-commissioning	√	√	√	√	√	√
On-going Post Occupancy Commissioning						
Monitoring, Improvement & Maintenance						
EE Monitoring & Improvement						
Sustainable Maintenance	√	√	√	√	√	√
Element 2· Indoor Environmental Quality	√	√	√	√	√	√
Air Quality						

Minimum IAQ Performance	√	√	√	√	√	√
Environmental Tobacco Smoke (ETS) Control	√	√	√	√	√	√
Carbon Dioxide Monitoring and Control						
Indoor Air Pollutants						
Mould Prevention	√	√	√	√	√	√
Thermal Comfort						
Thermal Comfort: Controllability of Systems	√	√	√	√	√	√
Air Change Effectiveness						
Lighting, Visual & Acoustic Comfort	√	√	√	√	√	√
Daylighting	√	√	√	√	√	√
Daylight Glare Control						
Electric Lighting Levels	√	√	√	√	√	√
High Frequency Ballasts						
External Views	√	√	√	√	√	√
Internal Noise Levels	√					
Verification						
IAQ Before/During Occupancy						
Occupancy Comfort Survey: Verification	√	√	√	√	√	√

Element 3· Sustainable Site Planning & Management	V	V	V	V	V	V
Facility Management						
GBI Rated Design & Construction						
Building Exterior Management	V	V	V	V	V	V
Integrated Pest Management, Erosion Control & Landscape Management						
Transportation						
Green Vehicle Priority - Low Emitting & Fuel Efficient Vehicles	V	V	V	V	V	V
Parking Capacity		V				
Reduce Heat Island Effect						
Greenery & Roof	V	V	V	V	V	V
Building User Manual						
Element 4· Materials & Resources	V	V	V	V	V	V
Reused & Recycled Materials						
Materials Reuse and Selection	V	V	V	V	V	V
Recycled Content Materials						

Sustainable Materials & Resources and Policy						
Sustainable Timber						
Sustainable Purchasing Policy	V	V	V	V	V	V
Waste Management						
Storage, Collection & Disposal of Recyclables	V	V	V	V	V	V
Green Products						
Refrigerants & Clean Agents	V	V	V	V	V	V
Element 5· Water Efficiency	**V**	**V**	**V**	**V**	**V**	**V**
Water Harvesting & Recycling						
nterlocking Areas / **permeable surfaces** for rainwater absorption	V	V	V	V	V	V
Water Recycling						
Increased Efficiency						
Water Efficient - Irrigation/Landscaping	V	V	V	V	V	V
Water Efficient Fittings	V	V	V	V	V	V
Metering & Leak Detection System						
Element 6· Innovation	**V**	**V**	**V**	**V**	**V**	**V**
Innovation & Environmental Initiatives	V	V	V	V	V	V

Green Building Index Facilitator						

While the university **does not yet have renewable energy systems**, it is **collaborating with the Arab Organization for Industrialization** to install solar panels. Indoor air quality is maintained through ETS control and mold prevention, and **thermal comfort is ensured via controllable systems**.

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A.O.I
Arab Renewable Energy Co
ARECO

الهيئة العربية
الشركة العربية / المتجددة

محضر معاينة موقع محطة طاقة شمسية

إنه فى يوم [illegible] الموافق [illegible] تم معاينه الموقع المذكور أدناه بتواجد كلاً من مندوب الشركة العربية للطاقة المتجددة " الهيئة العربية للتصنيع
ومندوب ....

بيانات التواصل

اسم العميل : ....
العنوان : جامعة المنوفية الأهلية
رقم التليفون : .... رقم الفاكس : ....
البريد الالكتروني : ....

بيانات الموقع

اسم الموقع : جامعة المنوفية الأهلية عنوان الموقع : محافظة المنوفية
نوع أرضية الموقع (أرض فضاء / سطح مسلح / تنده / .....) : سطح
نوع أرض الفضاء (رملية / طينية / صخرية /.............) : لا يوجد
درجة ميل الموقع عن الأفقى (مستوى/مائل) : .... مدى احتياج الأرض للتسوية باللودر : ....
عدد أدوار المبنى : 6 .إرتفاع الدور: 5 م ارتفاع السور المحيط بالموقع : [illegible]
إرتفاع المبانى المحيطة بالموقع والتى تؤثر بالظلال على المحطة الشمسية : لا يوجد
المسافة الأفقية بين المبانى المرتفعة وموقع المحطة : [illegible]
زاوية ميل الموقع على الجنوب : .... سمك خرسانة أرضية السطح : ....
خطوط الطول ودوائر العرض أو إرفاق صورة الموقع من جوجل ....
الاشغالات الموجودة بالموقع (أشاير/ تكييفات / دشات /.........) : [illegible]
إمكانية تركيب خوابير بالسطح بدل القواعد الخرسانية (يتم الاتفاق مع العميل) : [illegible]
المعدات المطلوبة للرفع والتركيب (ونش / أفراد) : ونش
الوصول للموقع من خلال (سلم المبنى / سلم بحارى/ لايوجد سلم) : سلم المبنى
وتم الاتفاق على :-

- إزالة الاشغالات التالية للتمكن من استلام الموقع :
....
- تحديد موقع مذبذب التيار: ....
- تحديد أماكن الربط المقترحة لكابل الربط على الشبكة فى حالة الربط قبل وبعد العداد وتحديد طول كابل الربط من موقعى الربط إلى الإنفرتر :
....
- وصف مسار الكابل ومدى احتياج مد الكابل إلى حفر فى شارع أو عمل فتحات فى حائط المبنى :
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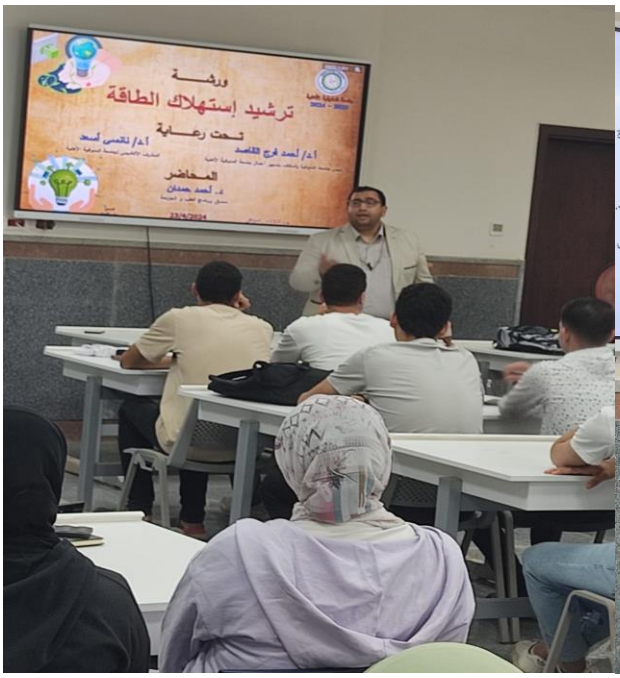
2023-2024 Activities & Initiatives for Affordable & Clean Energy

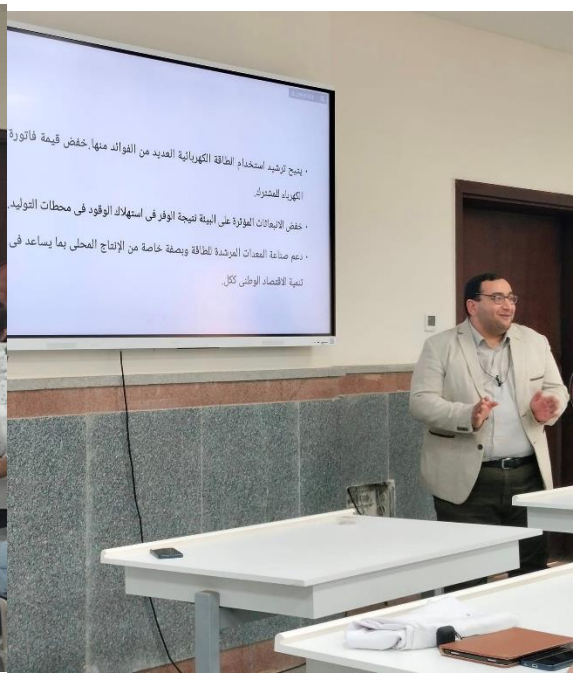
Awareness Seminar on the Importance of Energy Conservation at Menoufia National University – July 14, 2024

As part of the **First Environmental Week** organized by **Menoufia National University (MNU)** under the patronage of **Prof. Dr. Ahmed Al-Kased**, Acting President of Menoufia National University, and **Prof. Dr. Nancy Asaad**, Academic Supervisor, the university held an awareness seminar titled **"The Importance of Energy Conservation."**

The seminar was delivered by **Dr. Ahmed Hamdan**, Coordinator of the Faculty of Medicine, who discussed several key aspects related to the **rational use of electrical energy**. He explained that conserving electricity offers numerous benefits, including **reducing household electricity bills**, **lowering harmful emissions** from fuel-based power generation, and **supporting local manufacturing of energy-efficient equipment**, which contributes to national economic development.

Dr. Hamdan also presented **statistics on electricity consumption** in Egypt compared to other countries, as well as the **distribution of energy use across different sectors**. He highlighted the role of **renewable energy sources** in reducing dependence on fossil fuels and emphasized practical tips for saving energy at home and work — such as using **LED lights**, unplugging chargers, minimizing unnecessary appliance use, lowering water heater temperatures, and optimizing the use of heating and cooling systems.





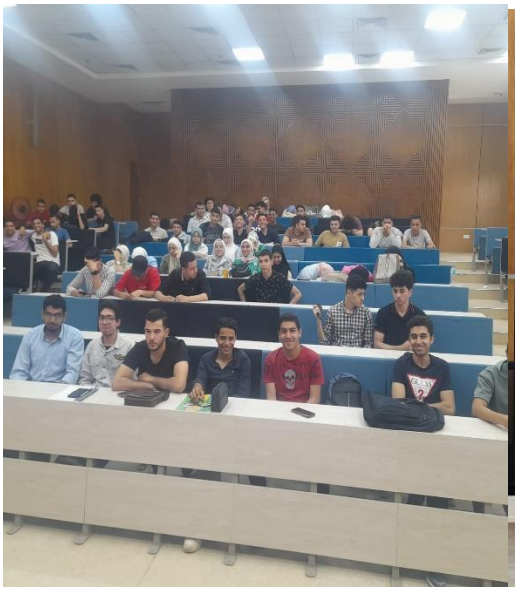
On Earth Day: Menoufia National University Highlights the Future of Renewable Energy – April 22, 2024

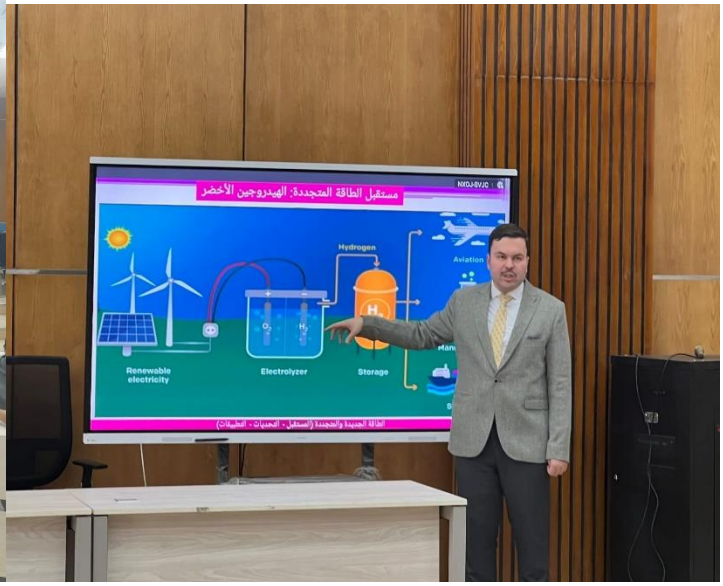
In celebration of **World Earth Day**, which aims to promote a healthy, safe, and sustainable planet, **Menoufia National University (MNU)** organized an awareness seminar titled **"Renewable Energy: Future, Challenges, and Applications"** as part of its **First Environmental Week**. The event was held under the patronage of **Prof. Dr. Ahmed Al-Kased**, Acting President of Menoufia National University, and **Prof. Dr. Nancy Asaad**, Academic Supervisor.

The seminar was delivered by **Dr. Taha Sherif**, Assistant Lecturer at the Faculty of Engineering, under the supervision of **Dr. Ibrahim Hashem**, Dean of the Engineering Sector. The lecture addressed key topics related to **new and renewable energy**, their **environmental and societal impacts**, and their role in achieving **sustainable development** in alignment with **Egypt's Vision 2030**.

The session also introduced various **renewable energy sources** and explored the **challenges and opportunities** for implementing them in Egypt. Practical applications of advanced technologies, such as **green hydrogen**, **solar power**, and **wind energy**, were discussed, emphasizing their potential to support national sustainability and reduce carbon emissions.

The event was coordinated by **Dr. Amr Kamal**, Coordinator of the Faculty of Pharmacy, and organized under the supervision of **Accountant Mohamed Saeed El-Gazir**,





In celebration of Sinai Liberation Day,

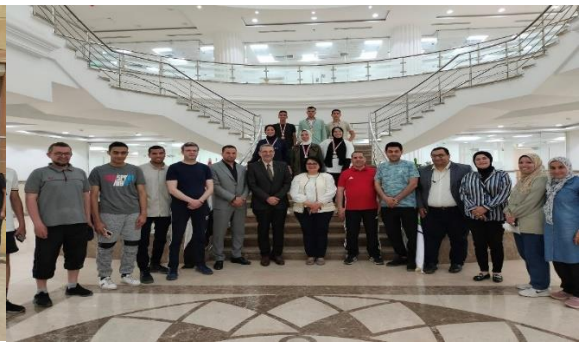
Menoufia National University highlights sustainability by promoting running as an eco-friendly alternative to short-distance transportation 23 April 2024

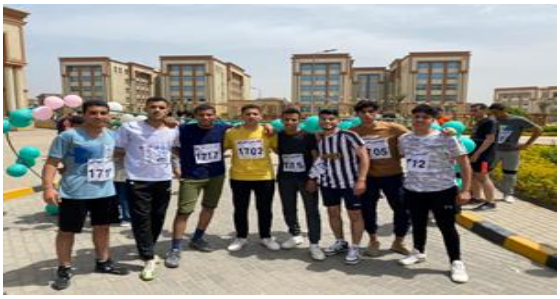
In conjunction with Egypt's celebrations of the 42nd anniversary of Sinai Liberation Day, Menoufia National University organized a major sports marathon that not only celebrated a national occasion but also promoted the principles of environmental sustainability. The marathon encouraged students and staff to adopt healthy, low-carbon modes of movement—such as running and walking—as alternatives to short-distance car use, thereby contributing to the reduction of carbon emissions on campus.

Dr. Ahmed El-Kased, President of Menoufia University and Acting President of Menoufia National University, extended heartfelt congratulations to His Excellency President Abdel Fattah El-Sisi, the Egyptian people, and the Egyptian Armed Forces. He emphasized that the university's celebration reflects a dual commitment: honoring a historic national milestone and fostering a culture that supports Egypt's sustainable development goals, particularly SDG 13 (Climate Action) and SDG 11 (Sustainable Cities and Communities).

Dr. Nancy Asaad, Academic Supervisor of Menoufia National University, explained that organizing a sports marathon aligns with the university's strategy to enhance students' sense of belonging and national pride, while also promoting environmentally responsible behavior. She noted that encouraging physical activity such as running helps reduce reliance on vehicles for short movements within and around campus, which contributes to lowering greenhouse gas emissions and improving overall air quality.

The marathon included running competitions and football matches, offering a platform to discover athletic talents and foster a community that embraces sustainability, health, and active living.





Menoufia National University organizes a seminar on carbon footprint and its importance in reducing global warming 29 April 2024

Menoufia National University, under the patronage of Dr. Ahmed El-Kased, President of Menoufia University and Acting President of Menoufia National University, and Dr. Nancy Asaad, Academic Supervisor of the University, organized an awareness seminar for students titled *"The Carbon Footprint."*
The lecture was delivered by Dr. Osama Abdel-Raouf, Dean of the Faculty of Artificial Intelligence, and the seminar was coordinated by Dr. Amr Kamal, Coordinator of the Faculty of Pharmacy and General Coordinator of Environmental Week activities.

During the seminar, Dr. Osama Abdel-Raouf explained the concept of the carbon footprint, which is considered one of the most critical factors influencing climate change—a major threat facing the planet. He highlighted that the carbon footprint is used to measure the total amount of greenhouse gases emitted from various sources, and therefore it plays a vital role in limiting global warming and reducing the health impacts associated with carbon emissions and deaths resulting from carbon dioxide–related air pollution.

Dr. Abdel-Raouf emphasized that international organizations concerned with climate change are making strenuous efforts to limit climate-related risks, improve the efficiency of natural resource use, encourage the adoption of renewable energy, promote smart transportation systems, and raise community awareness about how to address this global challenge.