



4

Fourth Standard

Energy and Climate Change Standards

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Energy and Climate Change Standards

S. No.	Standard Items/Indicators	Additional item/indicator activities at the university level	Activities for each item/indicator at the faculties level	Annex
4.1	Energy Conservation Program	<ul style="list-style-type: none"> Assiut University Council, in its session No. 649 held on December 30, 2014, approved Resolution No. 1746 to establish the Energy Management Centre at Assiut University (Annex 4.1.1). The Supreme Council of Universities approved Resolution No. 231 issued on September 21, 2015, for the establishment of the Energy Management Centre at Assiut University (Annex 4.1.2). 	<ul style="list-style-type: none"> The faculties have prepared an energy conservation program that includes several procedures according to the Resolution issued by Assiut University Council, including cleaning and maintaining all lamps and light bulbs and disconnecting air conditioners and light bulbs in periods when there is no one of the faculty staff members or employees inside their workplaces. Committees have been formed within each college that holds their meetings periodically to follow up on the implementation of procedures for energy conservation in addition to preparing periodic follow-up reports in this regard (Annex (4.1.3), Annex (4.7.2), Annex (4.1.4), Annex (4.1.5) Annex (4.1.6). 	<p>Annex (4.1.1) Annex (4.1.2) Annex (4.1.3) Annex (4.7.2) Annex (4.1.4) Annex (4.1.5) Annex (4.1.6)</p>
4.2	Use energy-saving	<ul style="list-style-type: none"> Assiut University Council, in its session No. 	<ul style="list-style-type: none"> Based on the recommendation of the 	Annex (4.2.1)

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	<p>devices instead of traditional devices.</p>	<p>643, held on May 31, 2014, approved Resolution No. 546 of the proposals submitted by the Council of Community Service and Environmental Development Affairs at Assiut University (Annex 4.2.1) regarding the implementation of several measures necessary for energy conservation within all university buildings and workplaces of Assiut University, for example, the following:</p> <ol style="list-style-type: none"> 1. Reducing the lighting in all offices in buildings to one-third 2. Continuous follow-up by all officials and employees of the various colleges to reduce electrical loads in general and lighting if not used and after official working hours 3. Maximizing the use of natural lighting in university buildings 4. Replacing electronic transistors in fluorescent bulbs as a substitute for the current regular transistors 	<p>Energy Conservation Committee on the need to use energy-saving devices, the concerned departments in the faculties provided and distributed energy-saving bulbs and shall take this into account when purchasing new devices and supplies.</p> <ul style="list-style-type: none"> • The faculties have implemented the necessary procedures for energy conservation pursuant to the resolution issued by Assiut University Council in its session No. 643, held on May 31, 2014, Resolution No. 546 (Annex 4.2.1). 	

S. No.	Standard Items/Indicators	Additional item/indicator activities at the university level	Activities for each item/indicator at the faculties level	Annex
		<p>5. Exchanging and replacing ordinary light bulbs with energy-saving bulbs (LED), which consume only 20% of the electric power compared to their fluorescent counterparts of the same illumination intensity, Approximately 60% of the total light bulbs in the administrative building of the university and 40% in all faculties of the university have already been replaced.</p> <p>6. Setting air-conditioning devices at a temperature of not less than 25 °C and maintaining those devices regularly</p> <p>7. Using air conditioners with a high-power factor that operate with modern technology and save energy consumption.</p>		
4.3	Renewable Energy Use Policy	<ul style="list-style-type: none"> • Approving policies to expand the application of new and renewable energy uses, Assiut University's Community Service and Environmental Development Sector has prepared a study or project (technical or 		Annex (4.3.1) Annex (4.3.2)

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		<p>financial) to optimise the construction site of Assiut University to produce electric power from its new and renewable sources. The study includes installing photovoltaic solar cells (PV) on the roofs of buildings of all faculties of Assiut University and feeding the electric power generated from these photovoltaic cells on the Egyptian Electrical Unified Network, after contracting with the Ministry of Electricity to purchase that generated energy according to the rules of Egypt's Feed-in-Tariff program for renewable energies and using the revenue to execute the rest of the plan to develop and improve energy efficiency in university buildings (Annex 4.3.1).</p> <p>In general, the project aims to:</p> <ul style="list-style-type: none"> ❖ The gradual transition to the use of new and renewable energy (solar, wind, biofuels, etc.) instead of electric power 		

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		<p>generated from traditional sources in various fields of energy use within the university</p> <ul style="list-style-type: none"> ❖ Establishing a specialized scientific center for the development, research, maintenance, training, transfer, and modernization of new and renewable energy uses for the regional and local community, ❖ Self-sufficiency and diversification of the use of new and renewable energy (wind, biofuel, biomass, etc.), ❖ Reducing the use of energy generated from traditional sources that cause increased carbon emissions and using energy savings to be used in development projects. <ul style="list-style-type: none"> • A study was conducted to light Assiut University streets with about 1,500 lightning poles that use photovoltaic solar cells. These lightning poles are controlled and connected to batteries to store electric power and use energy-saving LED bulbs (Annex 4.3.2). 		

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		<ul style="list-style-type: none"> An application has been submitted to the Ministry of International Cooperation to provide the required funding to start implementing the project time plan 		
4.4	Annual electricity consumption rate	<ul style="list-style-type: none"> The energy consumption of Assiut University decreased in 2022 compared to 2021 by (5.059) GWh, equivalent to (13.11%) of the annual consumption value at the university level. This is because of the measures taken by the university to conserve energy and improve its efficiency. The value of the annual consumption of the university decreased by about 25% in 2020 compared to 2019, due to the start of the Corona pandemic and the partial suspension of work and study at the university, which led to a decrease in the amount and value of annual energy consumption for the year 2020. In 2021, because of the return of study and work to their normal conditions, consumption increased by about 10.5% compared to 2020. 	<ul style="list-style-type: none"> Assiut University is one of the universities that applied to participate in the project to improve energy efficiency in university buildings among 20 other Egyptian public universities. The project is financed by a loan provided by the German Development Bank (KFW) for this purpose. The seven project proposals submitted by Assiut University are approved as models that use different methods, whether to generate energy from new and renewable energy sources or use other methods to reduce energy consumption and improve its efficiency. The German company GOPA Infra will provide technical 	<p>Annex (4.4.1)</p> <p>Annex (4.4.2)</p> <p>Annex (4.4.3)</p>

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		<p>However, the total consumption for 2021 did not return to the value it had in 2019, before the start of the Corona pandemic. Nevertheless, consumption in 2021 was reduced by about 11% compared to 2019.</p> <ul style="list-style-type: none"> • It is anticipated that the value of the annual consumption of the university will decrease by 7.5% compared to the consumption of 2022 due to the projects that have been implemented (7 projects with a cost equivalent to 1.5 million euros). These projects are funded by the Improve Energy Efficiency in University Buildings project, which is being implemented in 18 public universities under the full supervision of the Supreme Council of Universities. It is funded by the German Development Bank (KfW). In addition, the German company GOPA Infra provides technical support services for this project during the period from 2022 to 2026. 	<p>support throughout the project period between 2022 and 2026.</p>	
4.5	The ratio of renewable energy	<ul style="list-style-type: none"> • Electric power generation plants will be established as models to be expanded in the 		<p>Annex (4.4.1) Annex (4.4.2)</p>

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	production to total energy use per year	future from new and renewable energy sources represented by photovoltaic (PV) solar cells with an output of 800 watts (peak). It will be installed in several university buildings. These plants will generate about 1.4 GWh per year, which is equivalent to about 4.0% of the university's annual consumption, considering the consumption of 2022 as the base year.		Annex (4.4.3)
4.6	Greenhouse Gas Emissions Reduction Program and Return on carbon certificates	<ul style="list-style-type: none"> Based on the action taken by Assiut University according to the program of rationalizing the use of electric power over the past years in general and the last three years in particular, the gas emissions of carbon dioxide (CO₂) have been reduced. <u>Considering that reducing 1 kWh reduces carbon dioxide emissions by 0.50 kg CO₂ equivalent, as follows:</u> According to the rationalization of consumption in electrical power, the energy consumed for the year 2022 decreased by about 5.059 GWh compared to the 		Annex (4.4.1) Annex (4.4.2)

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		<p>consumption of 2021, which means a reduction in carbon dioxide (CO₂) emissions of 2,530.0 tonnes of (CO₂) equivalent compared to 2021 and because of the action taken by the university to conserve energy, raise efficiency, and improve its efficiency.</p> <ul style="list-style-type: none"> • The decrease in carbon dioxide (CO₂) emissions in 2022 compared to 2021 has occurred despite operating the Trauma and Emergency Hospital as of July 2021 (Annex 4.4.1). • Emissions, equivalent to 5,259.0 tons of carbon equivalent, are reduced because of the reduction in annual consumption in 2022 compared to 2019, despite the completion of the operation of the Faculty and Hospital of Dentistry and the Faculty of Veterinary Medicine Hospitals in 2019. As well as the loads for the faculties of fine arts and kindergarten. • The value of the annual return from credits for low carbon dioxide emissions for 2022 		

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		amounts to about 75,900.0 euros.		
4.7	Projects implemented in the University to confront climate change	<ul style="list-style-type: none"> 7 projects will be implemented at a total cost of 1.5 million euros within the "Improving Energy Efficiency in University Buildings Project," in which 18 Egyptian public universities participate under the supervision of the Supreme Council of Universities and are funded by the German Development Bank (KFW). These projects are models that can be expanded in the future at the level of Assiut University and will lead to a reduction in consumption of about 3.2 GWh. 		Annex (4.4.3) Annex (4.4.4)

**Based on the ECR (i.e., ECR: Effective Carbon Rate, which is the total price that applies to CO₂ emissions from energy use as a result of taxes and emissions trading, net of fuel subsidies.) price for Egypt, EUR 30 /tCO₂ for all fossil fuels.*



University Council

Secretariat Affairs Administration

Resolutions of

Assiut University Council

Session No. (649) held on 30/12/2011.

First: Approval of the minutes of the previous session

1724. The minute of Session No. (648) held on 30/11/2014.

Resolution: The Council approved the minutes.

Second: Review of the implementation of the resolutions of the previous session

1725. A memorandum on the implementation of the resolutions of the previous session held on November 30, 2014

Resolution: The council was informed of the implementation.

Third: planning, coordination, organization, and general topics

1726. The proposal of the Council of Education and Student Affairs on December 24, 2014, to approve the proposal of the Faculty of Nursing regarding the amendment of its internal regulations of the "bachelor stage" after reviewing it by the committee formed by the Resolution of the Council of Education and Student Affairs is finalized.

Resolution:

1. Approval of the internal regulations of the Faculty of Nursing (bachelor's level) issued by Ministerial Resolution No. 965 issued on 09/07/2000 AD, as amended and reviewed by the committee formed by the Resolution of the Education and Student Affairs Council, and it is finalized.
2. This shall be written to the Higher Council of Universities.

1727. The proposal of the Council of Education and Student Affairs dated 24/12/2014 AD, regarding the approval of the proposal of the Faculty of Computers and Information to amend the provision of paragraph (a) of Article (15) of its internal regulations issued under the Ministerial Resolution No. (498) dated 25/02/2012 AD, regarding the "Bachelor's Stage" (credit hours system), the calculation of the cumulative average of students enrolled in courses in which they failed more than once shall be amended as follows:

Paragraph (A) after amendment:

1746. The memorandum of the General Administration of Private Funds and the accounts of private units, attached to the proposed financial and administrative regulations of the Energy Management Center at Assiut University (a private unit), according to the forms and instructions of the Ministry of Finance issued in this regard

Resolution:

1. The approval of the financial and administrative regulations of the Energy Management Center at Assiut University (a private unit) according to the forms and instructions of the Ministry of Finance issued in this regard.

2. This shall be written to the Higher Council of Universities.

1746. The memorandum of the General Administration of Private Funds and the accounts of private units, attached to the proposed financial and administrative regulations of the Energy Management Center at Assiut University (a private unit), according to the forms and instructions of the Ministry of Finance issued in this regard

Resolution:

1. The approval of the financial and administrative regulations of the Energy Management Center at Assiut University (a private unit) according to the forms and instructions of the Ministry of Finance issued in this regard.

2. This shall be written to the Higher Council of Universities.

1747. The memorandum of the General Administration of Private Funds and the accounts of private units to consider the approval of adding the University Press, Conference Centre, and Guest House to the Center for Environmental Studies and Research at Assiut University, whose regulations are approved by the Ministry of Finance, based on the clarifications stated in the memorandum.

Resolution:

1. The approval of adding the University Press, Conference Center, and Guest House to the Center for Environmental Studies and Research at Assiut University, whose regulations are approved by the Ministry of Finance, is based on the clarifications stated in the memorandum.

2. This shall be written to the Higher Council of Universities.

1748. The memorandum of the General Administration of Private Funds and the accounts of private units regarding the inclusion of the Faculty and Leadership Development Center to the Education Development Centre, whose regulations are approved by the Ministry of Finance based on the clarifications stated in the memorandum.

Resolution:

1. The approval of the inclusion of the Faculty and Leadership Development Center to the Education Development Center whose regulations are approved by the Ministry of Finance based on the clarifications stated in the memorandum.

2. This shall be written to the Higher Council of Universities.

1749. The memorandum of the General Administration of Private Funds and the accounts of Private Units should consider adding the following special study programs:

1. Open Education Center, Assiut University
2. English Program, Faculty of Commerce
3. Students Orientation Center
4. Clinical Pharmacy Program, Faculty of Pharmacy
5. Mechatronics and Robotics Program, Faculty of Engineering.
6. Interior and Architectural Design Engineering Program, Faculty of Engineering to the educational services fund account at the university, whose regulations are approved by the Ministry of Finance based on the clarifications stated in the memorandum.

Annex: 4.1.3



Assiut University

www.aun.edu.eg/faculty_engineering

The Faculty has accreditation and quality certification.



Faculty of Engineering

Vice Dean for Community Service and Environmental Development Office

Date: Monday, 22/10/2018

Dear Prof. Nobi Mohamed Hassan,
Dean, Faculty of Engineering

After Compliment,

Subject: Formation of the Energy Conservation Committee at the Faculty

The Vice Dean for Community Service and Environmental Development Office is pleased to extend to you the best greetings and wish you continued success in all your work.

Kindly approve the formation of the committee for "Energy Conservation" in the faculty departments, as follows:

S. No.	Name	Notes	
1	Prof. Nobi Mohamed Hassan	Dean	Chairman
2	Prof. Gaber Alsady Ahmed Taha	Vice Dean for Community Service and Environmental Development	CEO
3	Prof. Galal Abdelazem Ibrahim	Department of Mining and Metallurgical Engineering	Member
4	Dr. Nabil Yasen Abdelshafi	Department of Mechanical Engineering	Member
5	Prof. Mohamed Khaled Nafady	Department of Civil Engineering	Member
6	Prof. Mohamed Ahmed Mohamed	Department of Electrical Engineering	Member
7	Eng. Ahmed Hosny Ali	Department of Architecture Engineering	Member
8	Mr. Khaled Abdellatif Hassan	Secretary	Member
9	Mr. Mokhtar Mahmoud Ahmed	Head of Maintenance Department	Member
10	Mr. Moamen Mohamed Sayed	Security Director	Member
11	Student. Mohamed Suliman Abu Hasiba	Third-year student, Department of Mechanical Engineering	Member

Best Regards,

Resolution: Approved by the Council.

19/11/2018

Vice Dean for Community Service and Environmental Development

Prof. Gaber Alsady Ahmed Taha

(Signed)

Phone No.: 088/2411125

088/2411119

2080366

Fax No.: 088/2080553

Email: vd.enviro@engau.edu.g

Annex: 4.1.2

Arab Republic of Egypt

Ministry of Higher Education

The Minister

Resolution

of the President of the Supreme Council of Universities

No. (231) dated 21/08/2015,

Regarding the establishment of the Energy Management Center at Assiut University and the approval of its financial and administrative regulations as a private unit

The Minister of Higher Education and President of the Supreme Council of Universities:

** Having considered Law No. 49 of 1970 regarding the organization of universities as amended,

** Presidential Decree No. 809 of 1975 issuing the executive regulations for the Universities Organization Law and the amending Resolutions thereof,

** The approval of Assiut University Council, in its session held on 30/12/2014, and

** The Resolution of the Supreme Council of Universities in its session held on 13/07/2015

Resolution

Article (1)

Approving the establishment of the Energy Management Center and its financial and administrative regulations at Assiut University as a private unit

Article (2)

All competent authorities shall implement this Resolution.

A true copy of the original
approved by the Head of the Central Administration

17/11/2015 AD

(Ms. Nahed Saad)

Minister of Higher Education

and the President of the Supreme Council of Universities

(Prof. Alsayed Ahmed Abdelkhalek)

(Signed)

Annex: 4.1.3



Faculty of Education
Accredited by The National Authority for
Quality Assurance and Accreditation of Education

A committee for water and energy conservation was formed on Thursday, 5/11/2020, based on the resolution of Prof. Hassan Mohamed Huwail, Vice Dean for Community Service and Environmental Development Affairs as follows:

- | | | |
|---|-------------------------|----------|
| 1 | Dr. Mostafa Abdelmohsen | Chairman |
| 2 | Dr. Nahla Abdelrazek | Member |
| 3 | Eng. Mohamed Mamdouh | Member |
| 4 | Secretary | Member |
| 5 | Assistant Secretary | Member |

The Committee follows up on the process of water and energy consumption periodically. It submits a report to the Vice Dean to be discussed periodically.

Chairman of the Committee

Dr. Mostafa Abdelmohsen

(Signed)

Annex: 4.1.4

Energy Conservation Committee
held on 02/04/2017.

=====

It is on Sunday, April 2, 2021. The Energy Conservation Committee met at 10:00 a.m. The meeting was chaired by Prof. Ragab Sayed Ibrahim Ali, Vice Dean for Community Service and Environmental Development, with the membership of Messrs.

Name	Notes	
1. Prof. Thabet Abdelmenam Ibrahim	Professor, Forensic Medicine Department	Member
2. Prof. Ahmed Abdelrady Mahmoud	Professor, Animal Medicine Department	Member
3. Dr. Khaled Ahmed Sayed	Assistant Professor, Animal Medicine Department	Member
4. Dr. Mahmoud Abdelkarem Mahmoud	Lecturer, Anatomy Department	Member
5. Mr. Mostafa Mohamed Hassan Mokhaimr	General Secretary	Member
6. Mr. Abdelazem Sayed Ibrahim	Security Supervisor	Member
7. Mr. Saber Saad Mohamed	Environmental Affairs Office	Member
8. Mr. Khaled Swifi	Security	Member
9. Mr. Adel Hamam Farghaly	Security	Member
10. Student. Mohamed Hamdy Ali Ahmed	Fifth Year	Member

The session was opened by the Chairman of the Committee. A discussion of the listed topics has been initiated.

Article (1) Some proposals for energy conservation in buildings and workplaces were presented as follows:

Executing some proposals as follows:

1. Paying attention to raising awareness among the university employees and putting up posters for energy conservation,
2. Using natural light whenever possible and lighting the lights as needed,
3. Ensuring that lights and any electrical devices are turned off before leaving,
4. In air-conditioned places, windows, doors and curtains shall be closed.
5. Air conditioners shall be set to 25 °C, taking into account cleaning filters constantly and not operating the air conditioner if the place is high.
6. Boilers and electric heaters shall not be used in offices.
7. Reduce interior lighting in corridors, bathrooms, and offices,
8. Separating electrical appliances from the source to save about 15% of their consumption,
9. Purchasing air conditioners as needed,
10. Reducing at least 25-50% of the total energy consumption in each building,

* Appointing an energy official in each building to perform the following tasks:

1. Take advantage of natural lighting as much as possible and ensure the cleanliness of the bulbs and headlights periodically.
2. Ensure that all electrical loads are disconnected after the building's working hours and educate individuals to disconnect the switches when the places are empty.
3. Distributing lighting loads to more than one switch for easy control as needed.
4. In case of repainting the building, the ceilings shall be painted white and the walls in light colors.
5. Ensuring that the lighting levels in the building are in line with the needs of the place.
6. Ensuring that doors or windows are not left open and closed tightly.

7. Adjusting the air-conditioning regulator at (25 °C), in addition to cleaning the air filter periodically, the external surface, and the pipes of both the building and the condenser.

Resolution: The committee approved the proposals submitted.
The Committee concluded its work at 11:00 am.
Issued on 02/04/2017 AD.

Vice Dean
for Community Service and Environmental Development
Prof. Ragab Sayed Ibrahim Ali



Annex: 4.1.5

Assiut University
Faculty of Dentistry

Dentistry Hospital at Assiut University
Energy Conservation Report

First: compressed Air Terminal

1. The air pressure responsible for operating the dental units shall be automatically controlled so that it works only when needed.
2. It shall be turned on manually and daily with the start of work in the hospital and turned off after the completion of work.
3. If there is any malfunction in the electricity, whether high or low voltage, the air terminal shall be disconnected.

Second: central air conditioning in clinics:

1. The temperature is automatically controlled.
2. Setting the temperature at (25 °C)
3. Disconnect the air conditioner in case of any malfunction in the electricity.

Third: medical maintenance:

The electricity of the dental units shall be turned on when needed and disconnected upon completion of work in all departments according to the nature of work in each clinic. The electricity of the sterilization units shall be turned on when needed and disconnected upon completion of work in all departments according to the nature of work in each clinic.

Head of Maintenance Manager
(Signed)
13/11/2019

Hospital Manager
Dr. Mohamed Nahedh Attia
(Signed)
14/11/2019

4. The power supply shall be disconnected from the dental units and turned on after handing it over to the intern doctor or student.

Fourth: Medical devices (central sterilization and sterilization devices in clinics)

1. The company's technician shall visit once a week to review connections and wires.
2. Central sterilization devices shall not be turned on until the tools are placed in the appropriate quantity.
3. Sterilization devices shall be monitored in terms of efficiency and safety through weekly follow-up and biological tests.

Fifth: Water Filtration Unit

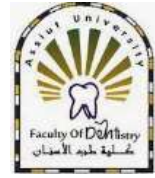
1. The valves that come out of the water filtration unit to the hospital shall be opened after the completion of work in the clinics and before work daily.
2. The electricity shall be completely disconnected from the filtration unit after the completion of work on Thursday, the end of the week, and before the public holidays.
3. The technician of the current supplying and operating company of the filtration unit shall do a weekly visit for all electricity and water connections in the unit.

**Head of Medical Maintenance
(Signed)**

19/12/2019



Annex: 4.1.6



**Assiut University
Faculty of Dentistry**

Energy Conservation Minute for December 2019

First: Air Terminal

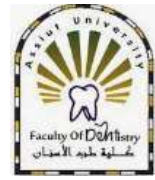
1. Only one piston shall be operated.
2. Air filters shall be maintained regularly.
3. The operation shall begin at 08:00 am, and it shall be closed at the end of work in the clinics.
4. connections and pistons shall be checked to ensure their integrity.
5. Reducing the operation of suction units in the absence of any electric loads from clinics (oral and maxillofacial surgery, pediatric dentistry, prosthodontics, and orthodontics).

Second: Central Air Condition

1. It shall be turned on at 08:00 a.m., and shall be closed at the end of work in the clinics.
2. Turn the central air conditioning off in the clinic if it is closed for cleanliness.
3. The New Cooler Company, which implements central air conditioning, insulates packaging for air ducts to reduce heat loss in summer.
4. The company was assigned to carry out comprehensive maintenance of all central air conditioners in the clinics before the final delivery.

Third: Medical devices in clinics (dental units)

1. The company's technician shall visit (2) clinics per day in his weekly visits.
2. Dental units shall be checked periodically after each section daily.
3. Any malfunction shall be reported immediately to the company's technician to fix it.



Assiut University
Faculty of Dentistry
Vice Dean for Community Service and
Environmental Development office

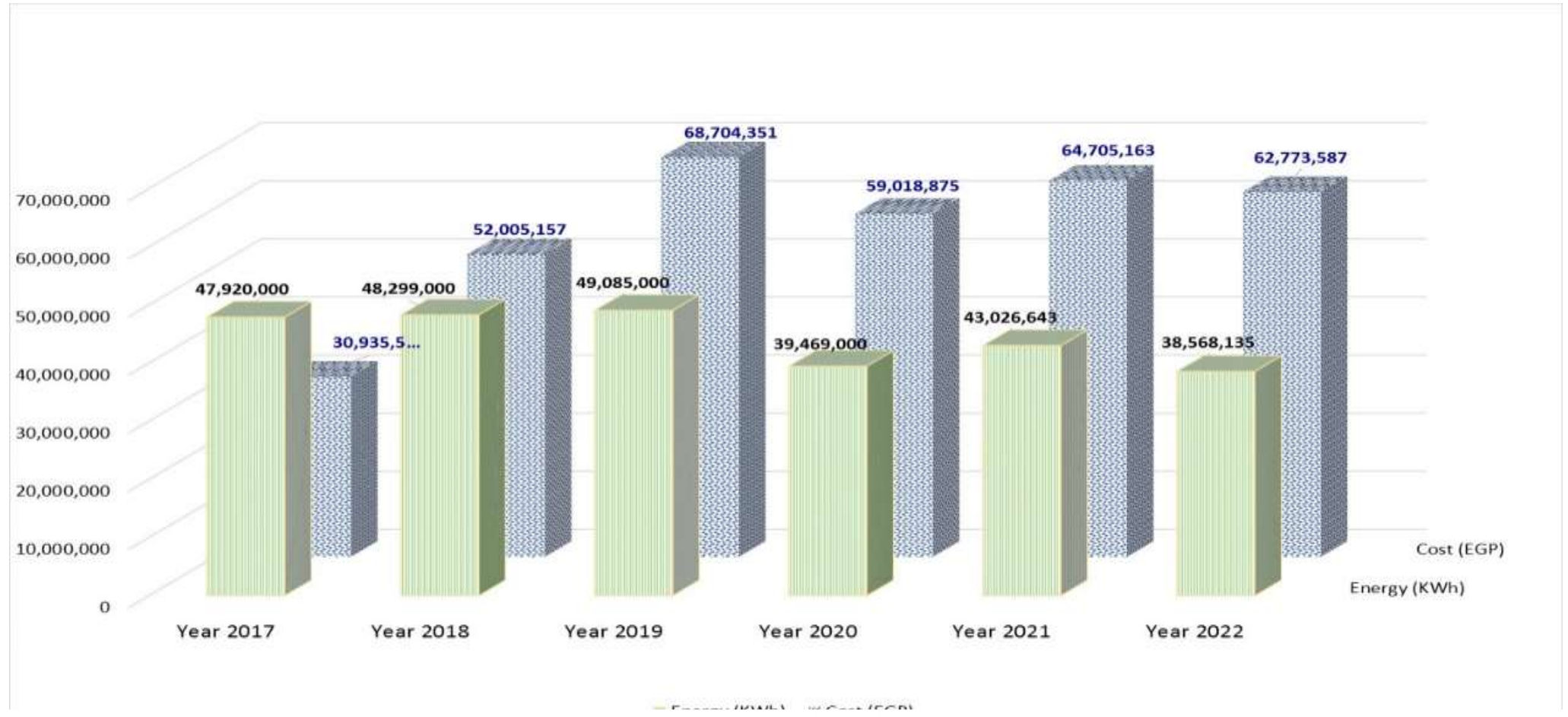
- Greenhouse gas emission reduction program
- Reply
- There are extractors in laboratories and bathrooms.

Assiut University, Faculty of Dentistry, Vice Dean for Community Service and Environmental Development office

Annex 4.1.6

Assiut University's consumed electrical power and its annual cost during the period from 2017 - 2022

Annex: 4.4.1



Assiut University's consumed electrical power and its annual cost during the period from 2017 - 2022

Notes	Value of carbon credit as a result of annual reduction in CO2 emissions (EUR)**	Annual reduction in CO2 emissions from the previous year (1 ton of carbon equivalent)*	The amount of savings in consumption for the previous year (GWh) and the percentage of this savings from the annual consumption (%)	Annual consumption cost (One million Egyptian pounds)	The amount of electric power consumed annually (GWh)	Year
	-----	-----	-----	30.936	47.920	2017
<ul style="list-style-type: none"> • The load of the Faculty and Hospital of Dentistry has entered the service. • The Load of the Faculty of Veterinary Medicine Hospitals has entered the service 	-----	-----	-----	52.005	48.299	2018
<ul style="list-style-type: none"> • The electrical load of the Faculty and Hospital of Dentistry was completed and began to enter service. • The Load of the Faculty of Veterinary Medicine Hospitals completed and entered the service 	-----	-----	-----	68.704	49.085	2019
<ul style="list-style-type: none"> • The start of the Corona pandemic (COVID-19) and the subsequent procedures to reduce working hours and the application of the distance learning system (Online) 	144,240.0	4,808.0	9.616 / 24.3%	59.019	39.469	2020

<ul style="list-style-type: none"> The return of work and the study system to their previous and normal status before the Corona pandemic. However, consumption has not returned to the level it was before the start of the pandemic in 2019. 	-----	-----	-----	64.705	43.627	2021
<ul style="list-style-type: none"> There are savings as a result of consumption reduction measures and improvements in energy efficiency, even though the trauma and emergency hospital's load has begun to provide services. 	75,885.0	2529.5	5.059 / 13.11%	62.773	38.568	2022

* The reduction of the annual consumption by 1.0 GW reduces carbon dioxide (CO₂) emissions by 500 tons of carbon equivalent.

** Considering that the annual return of carbon certificates for Egypt is equal to 30.0 Euros / 1 ton of carbon equivalent.

- The average annual power factor shall not be less than 0.92.

Projects implemented by Assiut University, amounting to 1.5 million Euros, in cooperation with the Supreme Council of Universities and their revenues.

Through "Improving Energy Efficiency in University Buildings" project during the period (2022-2026) funded by the German Development Bank (KfW)

Annex: 4.4.3

Project No./ Name, Average Energy Consumption (MWh)/year	Project no. 1 Elect. Eng. Dept. / Main Building		Project no. 2 Elect. Eng. Dept. / Lab. Building		Project no. 3 Dormitory Building		Project no. 4 Majary Pump Station		Project no. 5 University Street Lightning		Project no. 6 Main Administrative Building of Assiut University		Project no. 7 Architectural Eng. Dept.		Total Cost for Each Opportunity (€*10 ³)/ Total Energy Saving (MWh) / Average cost/MWh saving (€)
	103		70		322		424		36		12588.1		380.0		
Energy Saving (MWh),% , Cost (€*10 ³) EE/RE Opportunities	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	
RE – PV Installation/ <i>KW_p</i>	--	--	365** /520%	180	273.7 /85 %	135	--	--	--	--	547.5 / 4.35 %	270	182.5 / 48 %	90.0	675 / 1369.0
			200	493.15 €/MWh	150	493.15 €/MWh					300	493.15 €/MWh	100	493.15 €/MWh	800
Solar water heater	--	--	--	--	--	--	--	--	--	--	222.3 / 1.765%	8.86	--	--	8.86/ 222.3
											39.85 €/MWh				39.1 €/MWh
EE- Replacement of Fluorescent lamps by LED lamps	10.4/ 50%	10.96	13.05 /50%	11.44	--	--	--	--	--	--	349/ 28.68%	108.27	--	--	130.67 /373.0
		1053.8 €/MWh		876.63 €/MWh							310.0 €/MWh				396.0 €/MWh
EE- Replacement of Air Fans by Energy Saving fans	2.3 /50%	2.275	6.29/ 50%	3.978	--	--	--	--	--	--	--	--	--	--	6.253 /8.6
		989.1 €/MWh		632.43 €/MWh											213.5 €/MWh
EE -Replacement of Air Conditions (HVAC) by Energy Saving one	90.9 /50%	56.82	60.0/ 85.7%	51.113	--	--	--	--	--	--	283.54	90.0	90.0	481.47 /798.0	
		625.1 €/MWh		851.89 €/MWh							506 /29.2%	560.35 €/MWh	141 / 61%	638.3 €/MWh	603.4 €/MWh

Name, Average Energy Consumption (MWh)/year	Project no. 1 Elect. Eng. Dept. / Main Building		Project no. 2 Elect. Eng. Dept. / Lab. Building		Project no. 3 Dormitory Building		Project no. 4 Majary Pump Station		Project no. 5 University Street Lighting		Main Administrative Building of Assiut University		Project no. 7 Architectural Eng. Dept.		Total Cost for Each Opportunity (€*10 ³)/ Total Energy Saving (MWh) / Average cost/MWh saving (€)
	103		70		322		424		36		12588.1		380.0		
Energy Saving (MWh), % Cost (€*10 ³)	Energy Saving (MWh) / %*	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	Energy Saving (MWh) / %	Cost (€*10 ³)	
EE – Reducing of Electric stoves & use of Water Boilers	--	--	--	--	111.2 /34%	0.760 6.84 €/MWh	--	--	--	--	--	--	--	--	0.760 /111.16 6.84 €/MWh
EE- Using of Variable Speed Drive (VSD)	--	--	--	--	--	--	58.8/ 14.4 70%	13.0 221.1 €/MWh	--	--	--	--	--	--	13.00 /58.8 221.1 €/MWh
EE – Street Lightning Energy Control through PV Panels	--	--	--	--	--	--	--	--	19.64 /54%	5.681 289.22 €/MWh	--	--	--	--	5.681 /19.65 289.22 €/MWh
EE – Nano Window Film on Window Glazing	50.0 /44%	43.43 868.7 €/MWh	45.0/ 64.3%	58.67 1,303.8	--	--	--	--	--	--	--	--	50.9/ 39%	61.0 1198.4 €/MWh	163.1 /146.0 1184.0 €/MWh
EE-Nano Painting on External Building Envelope	--	--	--	--	--	--	--	--	--	--	--	--	37.6/ 39%	34.0 904.3 €/MWh	34.0 /37.6 904.3 €/MWh
Total Project (s) Cost (€* 10³)	113.488		305.201		135.76		13.000		5.681		670.67		275.0		1,518.80

*Percentage of Energy saving with reference to the opportunity itself only and not with respect to the total annual consumption.

**Always assuming that the average no. of annual working hours = 1825 (i.e. 5 hours/day)

- ❖ Total expected annual energy savings due to the execution of improving energy efficiency projects and the use of new and renewable energies = 3.2 GWh/year
- ❖ The ratio of additional energy saved attributed to the total annual consumption of the university, from new projects, taking 2022 as the reference year = 8.3%
- ❖ The value of the decrease in CO₂ emissions due to savings in annual consumption of new projects = 1,600.0 tons of carbon equivalent (considering that every 1 GWh reduces emissions by 500 tons of carbon equivalent).
- ❖ The return value of the carbon credits due as a result of the additional annual reduction in CO₂ emissions as a result of the new projects = 48,000.0 Euro (1 ton of carbon equivalent amounting to 30 Euro).

List of universities participating in “Improving Energy Efficiency in University Buildings” project

The maximum amount of special funding available for each university participating based on the number of students of each university in “Euro”

Annex: 4.4.4

No.	University Name	No. of Students	Range of Number of Students (< / >)	Amount/University	Sub-total Per Range
1	Ain Shams University	247,000	More than 200,000 Students	2 Million EURO	6 Million EURO
2	Cairo University	231,500			
3	Helwan University	220,000			
4	Alexandria University	188,000	Less than 200,000 and more than 100,000 Students	1.5 Million EURO	7.5 Million EURO
5	Mansoura University	166,000			
6	Zagazig University	162,000			
7	Tanta University	137,000			
8	Assiut University	109,000	Less than 100,000 and more than 50,000 Students	1 Million EURO	3 Million EURO
9	Banha University	93,000			
10	Beni-Suef University	82,000			
11	Minia University	55,000	Less than 50,000 and more than 25,000 Students	0.5 Million EURO	3 Million EURO
12	Fayoum University	45,000			
13	Suez Canal University	38,000			
14	Damietta University	32,000			
15	Sadat University	31,000			
16	Aswan University	30,000			
17	Port-Said University	28,000			
18	Suez University	14,000	Less than 25,000 Students	0.25 Million EURO	0.75 Million Euros
19	Arish University	8,000			
20	New Valley University	4,800			
Grand Total				20.25 Million EURO	