



2022/2023 AASTMT Plan towards Clean Sustainable Energy

AASTMT Plan and measures towards clean and affordable energy, within the period 2022/2023, in accordance to the university updated **AASTMT Green Energy and Energy Management Policy (2023-2025)**, cover the following four main aspects; **Towards: Energy Saving, Higher Energy Efficiency, Renewable Energy Employment and Carbon Emissions Reduction.**

1. Towards Energy Saving

Smart building management systems play a critical role in improving energy saving. These systems allow real-time monitoring and optimization of energy use in major campus buildings, reducing electricity waste and improving operational efficiency. Moreover, engaging staff and students in initiatives and awareness campaigns towards energy saving will contribute well in serving this goal. Thus, 2022/2023 measures towards energy conservation will include;

- Online regular monitoring to energy consumption and determine load priorities for efficient energy management.
- Data from local energy meters in each building are used to track building energy use during different times (day/night, weekdays/weekends, and seasonal variations) to identify periods of high and low demand. Differences between peak energy consumption and off-peak consumption are compared to identify potential overuse or unnecessary use. Hence, buildings of high energy wastage will be selected for internal audits to identify reasons of energy inefficiencies and take suitable measures to rationalize energy consumption in such places.
- Continuous checking for unnecessary use of energy in high energy wastage buildings where lighting, air conditioners or computers are left on even if the place is unoccupied.
- Spreading instructions and directions towards energy saving and conservation as per the letter addressed to all AASTMT campuses from AASTMT president.

[Letter addressed to all AASTMT institutes from AASTMT president regarding energy saving](#)

- Increasing awareness regarding energy rationalization and conservation plans among AAST staff, students, administrators and technicians through energy-related campaigns, initiatives and seminars as shown in the Events Section found in the following link:

[Energy-related Events](#)

2. Towards Higher Energy Efficiency

Besides, the pre-discussed energy saving procedures, more buildings' renovation and upgrading all over Alexandria campus (since it features multiple branches, oldest infrastructure and largest number of staff and students i.e. highest energy consumption and energy wastage) are to be carried out in 2022/2023 to include energy-efficient technologies. In each Alexandria branch, data from local meters at each building is collected to analyze energy use of this building during different times and identify its subjection to energy wastage or energy inefficiencies. Buildings with highest wastage are to be selected for internal audits and measures are to be taken towards these building;

Accordingly, the following measures are to be taken in 2022/2023 for higher energy efficiency;

- Completing the replacement of lighting lamps and working with LED lamps as was planned for 2022/2023, so that replacement rate would rise to more than 95% leading to a significant reduction in electricity consumption.
- Increasing the operating efficiency of air-conditioning systems (energy-efficient HVAC systems).
- Applying motion-sensor lighting in common areas and energy-saving modes for conditioners. to increase building efficiencies during unoccupied periods.
- Identify older or inefficient equipment, to be replaced.
- Regular electrical maintenance procedures.

Detailed renovations and maintenance procedures, in Alexandria different branches (Abukir, Miami, Ganaklis, Wabour elmaei) are listed in Table 1.

Table 1: 2022/2023 Upgrading and maintenance Plan in each Alexandria branch

Alex. Branch	Procedures
Abukir	<ul style="list-style-type: none"> ➤ Proceeding on Operating Building B in College of Engineering and Technology with full capacity using energy efficient VRF system for central air-conditioning systems and VSD for local ones in Pharmacy College Building. ➤ Upgrading to LED lighting in; <ul style="list-style-type: none"> - Corridors of the Engineering Building C and D on the second and third floors. - All classrooms in Engineering Building C and D (1st floor), Building A (ground floor) - All bathrooms of the Marine Colleges buildings as well as entire Marine C Building and 8 halls in the Marine D Building. - Stairs of Engineering Building A. - Al-Nadouri Hall on the ground floor of the Marine Examinations Authority building as well as the Publishing Offices of Computer Engineering building on ground floor. - 4 classrooms on Architectural Engineering Building 4th floor with 50 LED flashlights. - Main Library Building on the first and second floors. - Entire Swimming Pool - Entire Main Stadium with 14 100-watt flashlights. - External lighting of the Industry Service Complex (ISC) as well as all its corridors with 60 LED flashlights 60*60. - External lighting of the Hotel Buildings as well as Hotel Restaurant on the ground floor with 30 40-watt LED flashlights and 40 18-watt LED spot lights. - External lighting for the Restaurant Building. - Old Gym Building with 30 40-watt LED flashlights and 20 24-watt LED spotlights while the New Gym Entrance lighting was replaced by 20 5-watt spotlights.

	<ul style="list-style-type: none"> ➤ Upgrading lighting and accessories in; <ul style="list-style-type: none"> - Two offices in the Information and Documentation Building 106 and 105. - Entire fourth floor of the Housing Hotel D. ➤ Installing <ul style="list-style-type: none"> - 2 rectifier panels for 2 UPS devices in the Finance Ministry. - 3 air conditioning panels for server rooms in Housing Buildings A, B, C, D, E and F. - 2 control panels for Housing A and Housing B water motors. - control panel for swimming pool motors - A services panel in the Main Stadium and separate panels for all irrigation caissons. - A control panel for 2 air compressor equipment in the Campaign Building. - Control panels for water engines in Marine Safety Buildings, Industrial Modernization, and Housing. - Disconnection and operation switches for lighting in all the corridors of College of Engineering buildings on all floors and assembling them on the ground floor to facilitate the disconnection and operation process. The same was executed in Marine Colleges Buildings. ➤ Renovating electricity, data, lighting and air conditioning outlets in <ul style="list-style-type: none"> - Electricity Hall 108 of College of Computer Engineering building. - 4 offices (117, 317, 315, 417) in Building A of the College of Engineering. - 2 offices on the ground floor of the Admission and Registration Building. - Entire fourth floor of Housing Hotel C and second floor of Iskan Hotel building.
Miami	<ul style="list-style-type: none"> ➤ Upgrading the lighting in Building B hall on the ground floor with 30 24-watt LED flashlights while in the second and third floors with 60 40-watt LED flashlights ➤ Upgrading the external lighting to LED in the Administrative Building ➤ Upgrading 3 offices in Administrative Building (lighting + signs + accessories + networking)
Ganiklis	<p>Complete development of four offices and one meeting room (lighting + banners + accessories + networking work).</p>
Wabor elmaei	<ul style="list-style-type: none"> ➤ Upgrading to LED lighting for Halls 103 and 105 as well as replacing lighting in the entire ground floor corridors with 50 LED flashlights ➤ Installing four overload voltage control units on the air conditioning motor panel ➤ Installing a control panel for 2 water motors ➤ Installing 1 current rectifier board for the UPS device in the Studio.

3. Towards Expansion in Renewable Energy Employment

Over the course of 2022 and 2023, AASTMT aims at transitioning to renewable energy sources, with a particular focus on solar power. The university will expand its solar infrastructure by operating 214 kW of photovoltaics and solar panels in 2023. Moreover, AASTMT will expand its contributions to renewable energy and climate change through research and projects.

Related measures to be taken in 2022/2023 are listed below

- Full utilization of photovoltaic infrastructure in 2022 where a solar power station with a capacity of 50 kilowatts is installed in the Seventh Engineering Building in Alexandria campus and another one of 150 kW in Aswan. Both work with net metering system. Improvements in the maintenance and operation of existing solar installations in 2023 help to maintain and even improve their output power thus enhancing renewables energy share in AAST consumption.
- Solar heaters are installed to replace the electric heaters in students' dorms – Alexandria campus- Abukir branch as planned in 2022, besides the already applied solar heaters in the Pharmacy college.
- Participate in further renewable energy-related research projects and improve the outcomes of already existing ones to serve the industry and community effectively and resourcefully.
- Investments in Energy-related LABs intalled in AASTMT different campuses to guarantee continuous maintenance and improvements, thus assisting in consultancy, research and trainings. These Labs include;
 - **Energy Research Unit LAB in 7th Engineerring Building - Alexandria Headquarter**
[Energy Research Unit LAB](#)
 - **Energy LAB in Eletrical Energy Engineering Department - Smart Village Campus**
[Eletrical Energy Engineering LAB](#)
 - **Environmental Monitoring and Climate Change Laboratory - Scientific Research & Innovation Centre**
[Environmental Monitoring and Climate Change Laboratory](#)

4. Towards Carbon Emissions Reduction

Measures taken by AASTMT in 2022/2023 to contribute to emissions reduction are discussed in details in AASTMT 2022/2023 Progress Report of Carbon emissions and Climate Action.

[AASTMT Climate Action Plan 2022-2023](#)

These measures are summarized as;

- Conduct regular assessments of carbon emissions to implement strategies for reduction.
- Prioritize renewable energy projects and the exploration of available clean energy sources.
- Implement efficiency measures such as upgrading to LED lighting, enhancing HVAC systems, and incorporating smart building technologies.

- Towards Zero-Waste Strategy, a comprehensive recycling program is implemented that expanded across all campuses, targeting paper, plastic, and electronic waste. By 2023, AASTMT will achieve 50% waste diversion rate, a significant milestone in reducing the amount of waste sent to landfills.
- In addition to recycling, the university introduced composting facilities in dining areas in 2022. These composting stations allowed for the proper disposal of food waste, thus diverting approximately 10% of organic waste from landfills in 2023. Combined with increased recycling efforts, this leads to a total reduction in landfill waste by 15% compared to 2020 levels.
- The university also made progress in reducing paper consumption by encouraging the use of digital platforms. By 2023, paper usage is decreased by 25% compared to 2020.
- Additionally, AASTMT introduces an electronic waste recycling program, ensuring that all obsolete electronic equipment is disposed, further contributing to its zero-waste goals.
- Promote behavioral change among staff and students to reduce energy consumption, foster awareness, and encourage sustainable practices.
- Engage students and faculty in research on climate adaptation, with a focus on vulnerable regions such as the Middle East and North Africa.
- Integrating sustainability topics into 90% of AASTMT undergraduate and postgraduate programs.

The previously discussed AASTMT measures and efforts towards Clean Sustainable Energy supports the university to progress towards its long-term goal

- By 2025: AASTMT plans to continue achieve 30% carbon emissions reduction and expand its renewable energy capacity, with the goal of sourcing 25% of its energy from renewables.
- By 2040: AASTMT aims to achieve a 50% reduction in carbon emissions. This will involve further efforts in the Zero-Waste approach and in sustainable transportation, including a huge transition to electric vehicles on campus, besides expansion in renewable energy infrastructure, where AASTMT aims at increasing energy from renewables to 40% by 2040

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