

# Arab Academy for Science, Technology & Maritime Transport



**Arab Academy**  
for Science, Technology & Maritime Transport



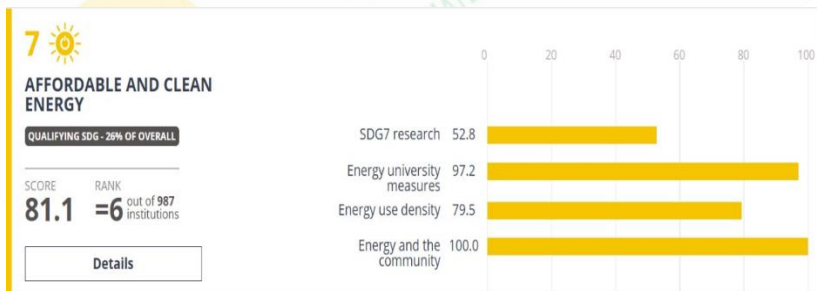
**Report 2022 / 2023**

# SDG 7

## Our Aim in 2022 -2023

• In light of AAST goal of maintaining Clean and Affordable Energy for Everyone, its 2022/2023 theme for sdg7, is “Energy Transition for Sustainable Development” via four main sectors: “Higher Energy Efficiency, Energy Saving, Expansion in Renewables Employment and Carbon Emissions Reduction”. This also extends beyond the university walls via Training, Consultancy, Workshops, Initiatives, regional and international collaborations as well as support to Governments, Startups and Innovations.

## THE Impact Ranking Scores 2021-2022



## SDG 7

## AFFORDABLE AND CLEAN ENERGY

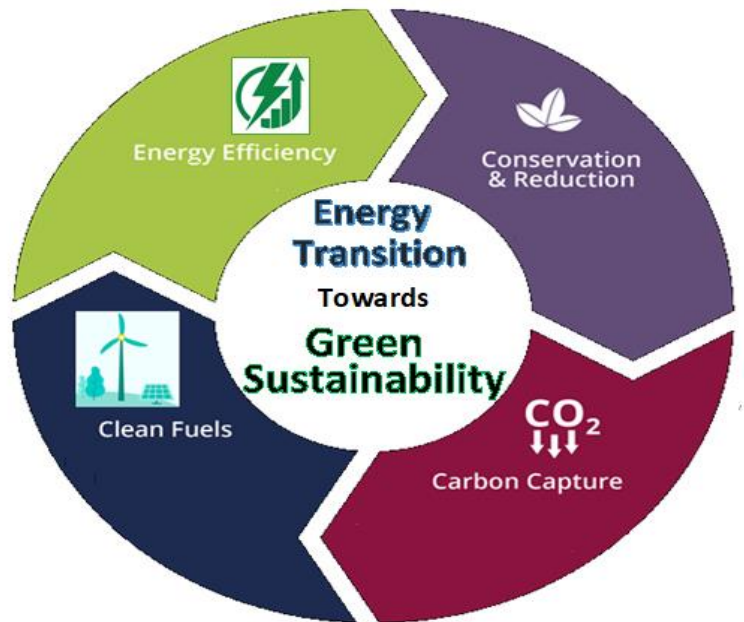
### 7 AFFORDABLE AND CLEAN ENERGY





## Key Milestones in 2022-2023

In accordance with [Green Energy and Energy Management policy](#), AASTMT Energy Management Committee put forward several strategies towards energy usage rationalization, buildings' renovation/establishments as per energy efficiency standards, carbon emissions reduction and renewables' infrastructure expansion. The effectiveness of these measures is evaluated using AASTMT energy consumption and emissions insights in AASTMT Alexandria campus (featuring multiple branches as well as largest area, energy usage and number of staff and students), from 2018-2023 as discussed in [AASTMT 2022/2023 Energy Progress Report](#).



[Green Energy and Energy Management Policy](#) on AASTMT webpage  
[AASTMT Annual Energy Progress Reports](#) on AASTMT webpage

### I. 2022/2023 Measures towards Affordable and Clean Energy

2022/2023 measures are discussed in details in [AASTMT 2022/2023 Plan towards Clean Sustainable Energy](#) and listed below;

#### ❖ Towards Energy Saving

- Online regular monitoring to energy usage 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 to identify periods of high and low demand. The difference 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.
- 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 from AASTMT president to all AASTMT campuses.
- Increasing awareness regarding energy rationalization and conservation plans among AAST staff, students, administrators and technicians through energy-related campaigns, initiatives and seminars.

#### ❖ Towards Higher Energy Efficiency

- Completing the replacement of lighting lamps and working with LED lamps as was planned for 2022/2023, where replacement rate rises 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.
- Identifying older or inefficient equipment, to be replaced.
- Regular electrical maintenance procedures.

2022/2023 renovations, stating building number and upgrading/maintenance procedure, at different branches of AAST Alexandria campus are detailed in [AASTMT 2022/2023 Plan towards Clean Sustainable Energy](#)

## ❖ Towards Expansion in Renewable Energy Employment

- The university fully utilized its photovoltaic infrastructure in 2022 where a solar power station with a capacity of 50 kilowatts is installed in 7<sup>th</sup> Engineering Building in Alexandria campus and another one of 150 kW in Aswan. Both work with net metering system.
- Solar heaters have been installed in 2023 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 installed in AASTMT different campuses to guarantee continuous maintenance and improvements to assist in consultancy, research and trainings. These Labs include;
  - **Energy Research Unit LAB in Seventh Engineering Building - Alexandria Headquarter**  
[Energy Research Unit LAB](#)
  - **Energy LAB in Electrical Energy Engineering Department - Smart village campus**  
[Electrical Energy Engineering LAB](#)
  - **Environmental Monitoring and Climate Change Laboratory - Scientific Research & Innovation Centre**  
[Environmental Monitoring and Climate Change Laboratory](#)

## ❖ Towards Carbon Emissions Reduction

- 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 was implemented that expanded across all campuses, targeting paper, plastic, and electronic waste. By 2023, AASTMT had achieved a 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, diverting approximately 10% of organic waste from landfills in 2023. Combined with increased recycling efforts, this led 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 had decreased by 25% compared to 2020.
- Additionally, AASTMT introduced an electronic waste recycling program, ensuring that all obsolete electronic equipment was disposed of sustainably, 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.

## II. Energy Consumption and Emissions Insights

To assess AASTMT's progress in energy efficiency and rationalization as well as carbon emissions reductions, it is essential to establish a baseline using data from 2018 to 2021. This period serves as a foundation for future energy consumption and emissions and allows for a clear comparison with data from 2022 and 2023. Detailed AASTMT Insights are given in [AASTMT 2022/2023 Insights](#).

### ❖ Energy Consumption

Analyzing Figure 1, it is clear that the maximum consumption in the entire Alexandria campus (total of energy usage in all its branches) was in 2018 with a full load of 12,698,059 kWh before Covid19, then the lowest load in 2020 during Covid 19, then it gradually increased until all the branches returned to their full load in 2022 with a value 11,257,258 kWh, as well as 2023, with a value of 10,972,312 kWh. Note that despite the return of total operation and the increase in expansions and new buildings, there is a decrease in the total load in 2023 by 13.59%, compared to 2018 and by 2.5% compared by 2022 **which verifies the effectiveness of AASTMT plan and measures towards energy efficiency and saving in AASTMT entire Alexandria campus.**

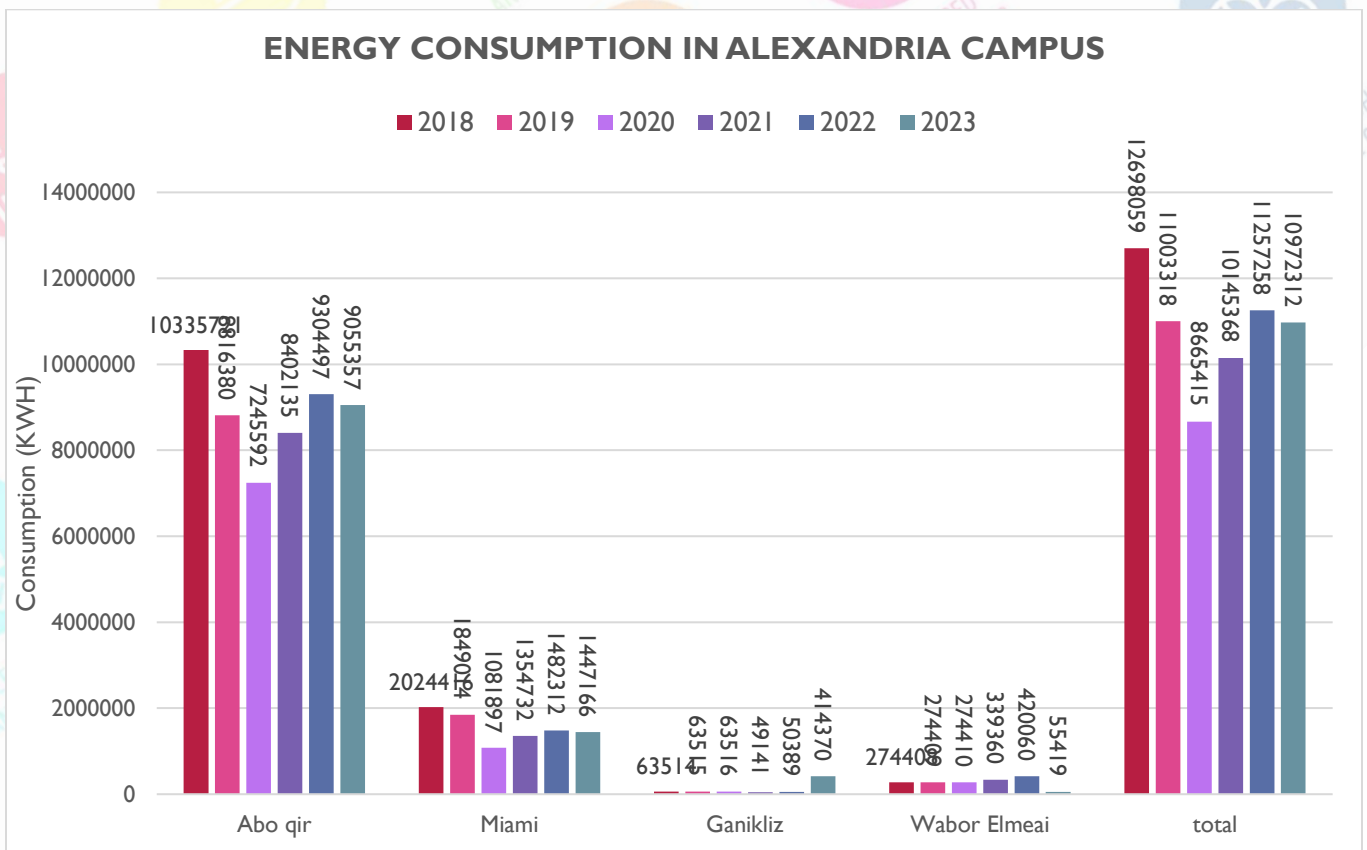


Figure 1. Energy consumption of AASTMT Alexandria campus (2018-2023)

## ❖ Renewable Energy Share Growth

AASTMT energy consumption is supplied mainly from the national grid in addition to solar energy in average 214 kW installed on AASTMT campuses buildings. Since, renewable energy share in the national grid has increased to more than 21% in 2023, this contributed, besides the already installed 214 kW solar energy, to increase AASTMT average renewable energy share in supplying its total energy demand to around 24% in 2022/2023.

Table1 shows the entire AAST energy density in GJ/m<sup>2</sup>. It is worth noting that 270 GJ were supplied from renewable energy resources which reflects **AASTMT efforts to divert to clean energy and its commitment to its long-term goal of increasing renewables share to 40% by 2040.**

Table 1. Energy Density in GJ/m<sup>2</sup> for the entire AAST in 2022/2023

Total Floor Area (m <sup>2</sup> )	Usage from grid (GJ)	Total energy (GJ) = (Grid + Renewables)	Density (GJ/m <sup>2</sup> )
735569.7	71702.89	71972.892 = (71702.89+270)	0.09784

## ❖ Carbon Emissions

Table 2 presents the emissions across Scope 1, Scope 2, and Scope 3, using the Greenhouse Gas Protocol's framework, providing insights into direct and indirect emissions, to identify key areas for improvement

Table 2: AASTMT-Alexandria campus- Carbon Emissions from 2018 to 2023 (kg CO<sup>2</sup>-e)

Year	Scope 1 (kg CO <sup>2</sup> -e)	Scope 2 (kg CO <sup>2</sup> -e)	Scope 3 (kg CO <sup>2</sup> -e)	Total Emissions (kg CO <sup>2</sup> -e)
2018	1,244,230.50	1,240,286.52	98,997,739.78	101,482,256.80
2019	1,374,252.42	1,151,281.20	152,068,847.38	154,594,380.99
2020	972,551.04	869,471.36	87,130,328.87	88,972,351.27
2021	1,561,942.92	1,008,256.20	112,858,633.63	115,428,832.75
2022	1,300,000.00	950,000.00	110,000,000.00	112,250,000.00
2023	1,150,000.00	925,000.00	105,000,000.00	107,075,000.00

**Scope 1 Emissions**, encompass direct emissions from university-controlled sources, include fuel usage for the campus transport fleet and emissions from refrigerant leaks in air conditioning and refrigeration systems. On the other hand, **Scope 2 Emissions** arise from indirect emissions due to purchased electricity while **Scope 3 Emissions** account for indirect emissions from activities as waste disposal, water usage, and paper consumption. Analyzing data in Table 2, it's clear that the three emissions levels decreased in 2022 with a further reduction in 2023.

**Scope1 Emissions** reduction was primarily driven by the electrification of a portion of the university's vehicle fleet, reducing reliance on fossil fuels as well as continuous efforts to replace fuel-dependent vehicles and improvements in refrigerant management. On the other hand, **Scope 2 Emissions** reduction is owing to the expansion in solar panels and photovoltaics installation while **Scope 3 Emissions** decrease is related to improved waste management and reduced paper consumption.

In summary, the total emissions for 2023 reflect a steady decrease by 4.6% from 2022 emissions a notable reduction of 30% from 2019 which witnessed the highest emissions rate since 2018. (Note that 2020 was the Covid year, that's why emissions were the lowest). **These reductions demonstrate AASTMT's commitment to its long-term goal of 50% carbon reduction by 2040.**

## Community Engagement

AASTMT put a lot of efforts towards sustainable community development in 2022/2023. This is reflected in its participation in related research projects and grants, besides its national, regional and international collaborations towards green sustainable energy. Moreover, the university offers paid and free training and consultancy services to government and industry as well as support to startups and innovation.

### I. Research Projects and Grants

AASTMT has participated in a number of related Funded Projects within the years 2022, 2023.

[Research Projects on AASTMT webpage](#)

[AASTMT RESEARCH PROJECTS on AASTMT webpage](#)

Project Name	Start date	End Date	Link
Strengthening education and research in Applied Informatics for Energy System Integration ( <b>AI-ESI</b> )	1/1/2022	31/12/2026	<a href="#">AI-ESI</a>
Promoting the role of youth as active change-makers in addressing climate change in Egypt through education ( <b>Uni-Green</b> )	1/9/2021	31/8/2024	<a href="#">Uni-green</a>
Mobilizing new sectors to invest and work together for a better quality of life for all ( <b>MAIA TAQA</b> )	1/9/2019	31/8/2023	<a href="#">MAIA TAQA</a>
Smart Integrated On-Board Battery Charger for Electric Vehicle Applications	1/7/2021	31/7/2023	<a href="#">Smart Integrated On-Board Battery Charger for EV</a>
A Smart Public Parking System	1/1/2021	31/12/2023	<a href="#">A Smart Public Parking System</a>
Integration of sustainable Development goals in universities for better climate change management” ( <b>INVOLVE</b> )	15/1/2021	14/1/2024	<a href="#">INVOLVE</a>
Application of renewable energy technologies for green ports: Egyptian ports as a case study	1/10/2021	30/9/2022	<a href="#">Egyptian ports as a case study</a>
Research on Optimizing the Effect of Loads on Characteristics of Power Electronics Converters for Renewable Energy Applications	1/10/2021	30/9/2022	<a href="#">Research on Optimizing Loads' Effect</a>
Multidimensional Study of Wind Energy Potential in Alamein	1/10/2021	30/9/2022	<a href="#">Multidimensional Study of Wind Energy</a>
Carbon Stock Assessment of Mangrove Forests along the Red Sea Coast of Egypt: Towards Climate Change Mitigation	1/10/2021	30/9/2022	<a href="#">Carbon Stock Assessment</a>
Innovative Photovoltaics Envelopes for adaptive energy and comfort management of Harsh Climate Areas in Upper Egypt toward nearly zero energy buildings	1/10/2021	30/9/2022	<a href="#">Innovative Photovoltaics Envelopes</a>
Improved of Recast of Climatic Changes and its Socioeconomic implications along the Northern Coastal zone of Egypt using integrated satellite data and open source modelling	1/10/2021	30/9/2022	<a href="#">Improved of Recast of Climatic Changes</a>
Carbon Footprint Estimation and Reduction in the AASTMT Campus Towards developing a Model for Promoting Sustainable Development Goals (Green Campus)	1/10/2021	30/9/2022	<a href="#">Green Campus</a>

Moreover, in 2022/2023, a number of outcomes, that have significant impacts on industry, resulted from AAST collaboration in joint grants and funded projects.

Grant		Outcome
<p><b>MAIA-TAQA</b></p>	<p>The main outcome of this project is “The Innovation One Stop Shop (IOSS)” LAB which was installed and operated in the Energy research Unit in 2022. The IOSS main purpose is to support startups and SMEs in building their innovative ideas with business models as well as offering training and consultancy with components related to Renewable Energy. <a href="#">One-Stop-and-Shop LAB</a></p>	
<p><b>Smart Solar-Powered Public Parking System</b></p>	<p>As an output for this project, AASTMT Research and Development Center designed and implemented two setups (PV-based Electric Vehicle Charger and Solar Power Smart Parking Meter) in AAST Abukir Campus in 2023 as a prototype for more duplicates. <a href="#">Smart Solar-Powered Public Parking System</a></p>	
<p><b>Environmentally Friendly Electric Car Project</b></p>	<p>An electric car, that uses water and hydrogen, was invented by a student team from the Institute of Technical and Vocational Studies at AASTMT Industry Service Complex (ISC) in 2023 <a href="#">Environmentally friendly electric car</a></p>	
<p><b>Monitoring, Assessment and Innovative Treatment Technology to Enhance Groundwater Quality for Irrigation Purposes toward Climate Change Adaptation (TREATMENT)</b></p>	<p>In 2023, a <b>Renewable, Innovative and Integrated Water Treatment Unit</b> is designed to use energy harnessed from <b>solar photovoltaic system</b> to be used to lift water from a well, and subsequently, the water is directed through the four-stage nano-filter, where it undergoes a rigorous purification process. The end result is clean, potable water or water suitable for irrigation and cultivation. <a href="#">Treatment Project (2022-2023)</a></p>	

## II. Paid Services by AASTMT Productivity and Quality Institute (POI)

AASTMT offers Paid training and consultancy services through AASTMT PQI as follow;

[AASTMT Productivity and Quality Institute](#) on AASTMT webpage.

### ❖ Energy and Environmental Management Training

Paid Energy and Environmental Management Courses offer Specialized Paid Training in the principles and practices essential for addressing the complex challenges of energy consumption and environmental sustainability. These courses cover key topics such as renewable energy technologies, energy efficiency, waste management, pollution prevention, and environmental regulations.

[Energy and Environmental Management](#) on AASTMT webpage

### ❖ ISO 50001 Energy Management System Consultancy (EnMS)

AASTMT PQI offers Paid Consultancy service in the form of ISO 50001 Energy management Systems Consultancy Service (EnMS) to the following corporates.

- Elab
- Eprium
- ABB
- Suez Steel
- Wood Technology Company

The purpose of the EnMS is to enable organizations to establish or re-structured the systems and processes necessary to improve energy performance, including energy efficiency, use, consumption and reduce running cost.

[ISO 50001 Energy management Systems Consultancy Service](#) on AASTMT webpage

## III. Free Services by AASTMT Energy Research Unit

Within the framework of the MAIA-TAQA project, AASTMT Energy Research Unit held the “Innovation One-Stop Center (IOSS)” launch event on 25<sup>th</sup> of September 2022 at AASTMT- Abukir. It provides many free training and consultancy services in the field of innovative renewable energy, all under one roof.

[One-Stop Center \(IOSS\)” launch](#)

[IOSS overview](#) on AASTMT webpage

Free services offered by the Energy Research Unit through the the IOSS centre include;

[Energy Research Unit](#) on AASTMT webpage

### ❖ Free Training

Free training courses offered by AASTMT- Energy Unit

1. Renewable Energy System
2. Solar energy
3. Practical fundamental solar energy
4. Wind Energy System
5. Energy Management and Auditing (EMA)
6. Building Management system (BMS)



❖ **Free Consultancy**


Governmental Institute		Consultancy Purpose
Visit to water company in Egypt (May 2023)	Disseminate PV pilot unit and the energy efficient toolkits that can be implemented within the Alexandria water company	
Visit to the Industrial Technical Secondary School for Drinking Water and Sanitation in Alexandria (28 Dec. 2022)	Visit and preparation of development plan, to the Industrial Technical Secondary School for Drinking Water and Sanitation in Alexandria, to rationalize energy consumption, increase energy saving and improve its efficiency <a href="#">Visit to Industrial Technical Secondary School for Drinking Water and Sanitation</a>	
AASTMT visit to Alexandria Water Company (4 Nov. 2022)	Discuss the joint work between both entities and improve energy efficiency in the company. <a href="#">Visit to Alexandria Water Company</a>	
Visit to AbuKir National Hospital (9 Feb 2022)	Investigating the hospital facilities and preparation of a development plan. <a href="#">Visit and preparation of development plan, for AbuKir National Hospital</a>	

#### IV. AASTMT Participation locally, Regionally, Nationally and Globally

In 2022/2023, AASTMT participated nationally, regionally and internationally through joint co-operations, summits, conferences and events to develop policies, agreements and plans towards energy sustainability and green environment.

Participation	Overview
<p><b>(30 Nov. 2023)</b></p> <p>Joint workshop between the Egyptian Ministry of International Cooperation and the United Nations</p> <p><a href="#">Joint Workshop</a></p>	<p>As representative of universities and Research Centers, AAST participated in this workshop which is joint between the Egyptian Ministry of International Cooperation and the UN was in light of their partnership for sustainable development 2023-2027. The workshop aimed on crystallizing ideas and project proposals related to technology and innovation in fields of electricity and renewable energy.</p> 
<p><b>(30 Oct. 2023)</b></p> <p>RENEW – AAST Joint event</p> <p><a href="#">AAST-RENEW-MENA</a></p>	<p>Being effectively engaged with Energy – related regional and international organizations, AASTMT held a RENEW – AAST Joint event on “Enhancing Education and Gender Inclusion for Energy Transition and Climate Action in MENA”. This event is the first joint event for the World Bank supporting Regional Network in Energy for Women in MENA.</p> 
<p><b>(23 August 2023)</b></p> <p>Arab Union for Sustainable Development and Environment visit to AASTMT</p> <p><a href="#">Arab Union visit</a></p>	<p>AAST President hosted a delegation from the Arab Union for Sustainable Development and Environment to discuss ways of strengthening cooperation and partnership in the fields of sustainable development and environment research and training in the Arab Region.</p> 






<p><b>(22 August 2023)</b></p> <p>East Port-said Port Assembly <a href="#">Port Assembly</a></p>	<p>AASTMT President, attended the East Port-Said Port assembly which was organized by ministry of transport and Suez Canal Authority. In this assembly, AASTMT participated to discuss and set commitment contracts for new solar and wind stations and the start of supplying ships with green fuel.</p>	
<p><b>(14 May 2023)</b></p> <p>Workshop at Alexandria chamber of commerce <a href="#">Alexandria Chamber of Commerce Workshop</a></p>	<p>Head of AASTMT Energy Research Unit participated in a workshop at Alexandria chamber of commerce, in light of its cooperation with the UN, where he gave a presentation on the future of energy efficiency in public building</p>	
<p><b>(Nov. 2022)</b></p> <p>Conference of the Parties to the United Nations Framework Convention on Climate Change (COP27) <a href="#">AAST-COP27</a></p>	<p>A delegation from the College of Engineering and Technology at AASTMT participated in the conference session entitled: "Climate and Energy Impact Showcase" where they discussed the impacts of energy different aspects and climate change on environment. This was in light of AAST participation in COP27 conference hosted in Egypt through the program "Egypt University Partnership Accelerator U.S. Exchange"</p>	
<p><b>(11-12 Oct. 2022)</b></p> <p>UniGreen Workshop <a href="#">AAST-Unigreen</a></p>	<p>UniGreen is the first workshop on the project "Enhancing the role of youth in reducing the effects of climate change." which is funded by the European Union and implemented in partnership between the Life Makers Egypt Foundation, and AASTMT through the Arab Institute for Leadership Development. This project, focus on enhancing youth role towards green environment and emissions reduction.</p>	

## V. Support to Startups by AASTMT Entrepreneurship Center






AASTMT Entrepreneurship Center is keen on supporting startups in the field of green economy, energy management, industry efficiency and sustainability, through trainings and spin-offs.

[Entrepreneurship Center on AASTMT webpage](#)

### ❖ Trainings

Training	Preview	Logo	Link
AAST Startup School	AAST Startup School acts as the educational arm of the center. The main objective of this program is equipping early stage entrepreneurs with the essential, substantial, and core knowledge & skills. On another side, supporting existing startups through advanced trainings and technical, industry-related mentorship programs.		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200095">https://ec.aast.edu/contenttemp.php?page_id=48200095</a>
Advanced Pre-Incubation Program	This is an advanced pre-incubation training program for AAST students & alumni to provide them with the necessary knowledge & support to put their ideas into action. The program starts with a validation exercise, then during this pre-incubation journey, students learn how to assess their business, compare between ideas to choose the best and develop a business model.		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200094">https://ec.aast.edu/contenttemp.php?page_id=48200094</a>
Inspire AAST Fresh Grads find their Passion	Grads to Business is a program dedicated to all AAST fresh graduates. Through this program AAST EC strives to help AASTians start their career and find an opportunity that meets their passion.		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200096">https://ec.aast.edu/contenttemp.php?page_id=48200096</a>

### ❖ 2022/2023 Spinoffs

Spin-offs	Preview	Logo	Link
Fuelin	Fuelin solves the problem of fleet expense management by building an all-in-one platform for fleet expense management, distinguishing itself from existing solutions by integrating fuel payment, maintenance, insurance, and tolls into a single system.		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200350">https://ec.aast.edu/contenttemp.php?page_id=48200350</a>
Ecomilez	Provides Green Transformation - Operations optimization - Cost savings - improving social sellers volume		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200359">https://ec.aast.edu/contenttemp.php?page_id=48200359</a>
Caionix Robot Systems	Caionix is a robotics system integrator, and automation solution provider to help factories manage energy use, scale their production, raise their quality, create savings		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200353">https://ec.aast.edu/contenttemp.php?page_id=48200353</a>
Tatbeek	Provide Integrated Business Solutions to enhance machines efficiency in all factories using IoT, cloud computing, and machine learning technologies, thus maximizing Efficiency, and minimizing Waste		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200351">https://ec.aast.edu/contenttemp.php?page_id=48200351</a>
Garrar	Garrar is a technology platform transforming B2B land transportation in Egypt. It connects shippers and carriers, streamlining the logistics process and driving efficiency		<a href="https://ec.aast.edu/contenttemp.php?page_id=48200357">https://ec.aast.edu/contenttemp.php?page_id=48200357</a>

## VI. Support to Innovation by AASTMT Scientific Research & Innovation Centre

In light of AASTMT concentration on Environmental Impacts, Sustainability and green energy, a number of programs and policies are implemented by this center to support energy-related research and innovation.

[Scientific Research & Innovation Centre](#) on AASTMT webpage

### ❖ Energy Conservation Program

[Energy Conservation Program](#) on AASTMT webpage

### ❖ Energy-related Policies & Reports

[Policies & Reports](#) on AASTMT webpage

### ❖ Environmental Monitoring and Climate Change Laboratory - Scientific Research & Innovation centre

Environmental Monitoring, Modelling and Training Research Facilities at AASTMT at Scientific Research & Innovation centre are advanced and fully- equipped facilities dedicated for comprehensive study of environmental, energy and climate change research parameters. These facilities foster collaboration with national and international research institutions, government bodies, and industry stakeholder to support innovation and startups, encourage information exchange, generate solutions to global environmental issues and energy aspects and promote sustainable practices within and beyond the AASTMT community. They also carry related research studies and consultations as well as training.

[Environmental Monitoring and Climate Change Laboratory](#)

### ❖ Innovation Awards

AASTMT students and staff are distinguished for their ability to design and implement innovative ideas in prototypes and projects.

Innovation/Award	Overview
<p>(Nov. 2023)</p> <p>Technical and Financial support for “Autonomous Electric Bus” Project from Valeo Egypt.</p>	<p>Students of AASTMT Mechanical Eng. and Computer Eng. departments are entitled to receive <b>technical and financial support from Valeo Egypt</b>, for their distinguished project “Autonomous Electric Bus”, which is considered an important addition in the field of green smart land transportation.</p> <p><a href="#">Autonomous Electric Bus Fund</a></p>



<p><b>(21 Oct. 2023)</b> First place award for project <b>“Biogas Production to Improve the Heavy Fuel Performance by Reusing the Sewage on Ships”</b></p>	<p>The newly graduated July 2023 batch, from AAST Marine and Platforms Engineering Department, won <b>first place for their project “Biogas Production to Improve the Heavy Fuel Performance by Reusing the Sewage on Ships” in the 2023 Marine Engineering Graduation Projects Competition</b> organized by the Society of Marine and shipbuilding engineers at the Alexandria Engineers Syndicate. <a href="#">Biogas Production Project</a></p>	
<p><b>(Sep. 2023)</b> Presentation of <b>“EV powered by fuel cell”</b> project, Egypt Hydrogen Summit</p>	<p>Students of the Institute of Technical and Vocational Studies at AAST Industrial Service Complex (ISC) – implemented the “EV powered by fuel cell” project, which was presented at <b>Egypt Hydrogen Summit (HES 2023)</b>, as an Egyptian model for hydrogen applications. <a href="#">Fuel cell-based EV Presentation</a></p>	
<p><b>(17/7/2023)</b>  IEEE YESISTS Prelims Award for <b>“PV-based Electric Scooter Charging Stall”</b> Project</p>	<p>AASTMT Electrical and control Engineering Students Won <b>IEEE YESISTS Prelims Award</b> for their project in the energy-related Track: We Power with theme: Reducing carbon Footprints and Sustain the Availability of Energy for Future Generations. <a href="#">IEEE YESISTS Prelims Award</a></p> 	
<p><b>(July 2023)</b> First place in <b>“ASME Efx Cairo 2023</b></p>	<p>AASTMT Students won <b>First place in “ASME Efx Cairo 2023 - Green Sprint Competition for Small Cars”</b> which are powered by renewable energy <a href="#">ASME Efx Cairo 2023 Award</a></p> 	

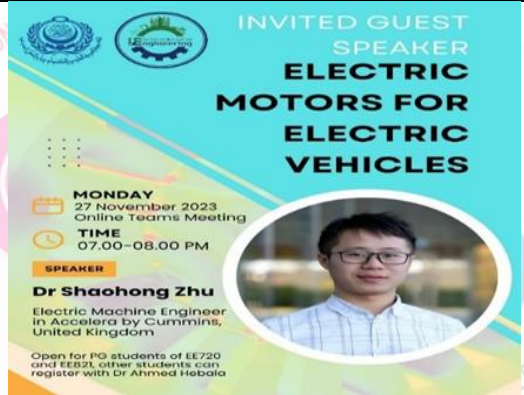
## Events

AASTMT is keen on promoting Green Energy Sustainability within and beyond university walls through organizing related workshops, seminars and visits as well as launching related campaign, initiatives, and competitions.

### I. Visits, Workshops and Seminars

[Activities](#) on AASTMT webpage

Activity	Overview
<p><b>(27/11/2023)</b> Electric Motors for Electric Vehicles Seminar</p>	<p>Presented by Dr. Shaohong Zhu, Electric Machine Engineer in Accelerator by Cummins, United Kingdom, this free seminar is prepared for AASTMT graduate students, final year students, and all those interested in the field of motors in electric vehicles towards green and clean energy.</p>
<p><b>(27/11/2023)</b> Tesla USA and how to apply for summer training in Tesla USA” Seminar</p>	<p>AASTMT hosted Engineer Jalal Salama (Senior Manufacturing Controls Engineer at Tesla, Texas USA and a graduate of the Mechanical Engineering Department at the Academy’s main headquarters in Abu Qir) to inform about his experience at Tesla and how to apply for summer training in Tesla US <a href="#">Tesla Seminar</a></p>
<p><b>(31/10/2023)</b> Trip to Egypt Energy 2023” exhibition</p>	<p>Department of Electrical and Control Engineering and Department of Mechanical Engineering – AAST Abu Qir Headquarters prepared a joint trip for their students to the “Egypt Energy 2023” exhibition <a href="#">Egypt Energy 2023</a></p>
<p><b>(2/10/2023)</b> EGYPT-TEXAS Collaborative Workshop: ENERGY-WATER NEXUS</p>	<p>This free workshop was implemented within the framework of cooperation between AASTMT and the University of Texas to faculty members and graduate students. <a href="#">ENERGY-WATER NEXUS Workshop</a></p>





<p><b>(9/5/2023)</b></p> <p>Trip to The <b>Solar Show - MENA</b></p>	<p>This trip is organized by AAST Dep. of Mechanical Eng., in cooperation with AAST Electrical and Control Eng. Dep. for undergraduate students to Solar Show-MENA.</p> <p><a href="#">Solar Show-MENA Trip</a></p>	
<p><b>(28/5/2023)</b></p> <p>Sustainable Steam Systems Unleashed: Feeding a Greener Future with Oxygen”</p> <p><b>Workshop</b></p>	<p>The IEEE team - in the College of Engineering and Technology – in AAST Headquarter-Abukir-organized a workshop under the name “Sustainable Steam Systems Unleashed: Feeding a Greener Future with Oxygen”</p> <p><a href="#">Sustainable Steam Systems Workshop</a></p>	
<p><b>(16/3/2023)</b></p> <p><b>EXPERT TALK:</b> Optimal use of energy for sustainable development</p>	<p>This talk is organized by AASTMT Electrical &amp; Control Engineering Department, Abu Kir Campus, the National Youth Council, Eduvate educational platform, and the student branch of the Society of Electrical and Electronics Engineers IEEE AAST Alex SB.</p> <p><a href="#">Experts talk</a></p>	
<p><b>(9/1/ 2023)</b></p> <p>Solar Power Plant Visit</p>	<p>This visit is organized by AASTMT Electrical and Control Engineering Department for undergraduate students attending the Course: "Fundamentals of Renewable Energy".</p> <p><a href="#">Solar Power Plant Visit</a></p>	
<p><b>(4-5 /12/2022)</b></p> <p>Electrical Energy Efficiency Toward the Achievement of SDGs in Marine Applications Workshop</p>	<p>This is a joint workshop which is organized by AAST college of Engineering and Technology-Headquarter- in cooperation with the research team of the University of Twente in the Netherlands and ABB Electrical Industries.</p> <p><a href="#">Electrical Energy Efficiency Workshop</a></p>	



<p><b>(29/11/2022)</b></p> <p>Eco-friendly Electric Vehicles (EV) <b>Workshop</b></p>	<p>Computer Engineering and Mechanical Engineering dept. at AAST - Headquarter, in partnership with the international company Bright Skies, are organizing a workshop on Eco-friendly Electric Vehicles (EV), presented by Engineer Ali Abu Al-Oyoun who is Electric Vehicles (EV) Team Leader at Bright Skies.</p> <p><a href="#">Eco-friendly EV Workshop</a></p>	
<p><b>(21/11/2022)</b></p> <p>“Marine Renewable Energy” <b>Workshop</b></p>	<p>AASTMT Department of Marine Engineering and Platforms Engineering organized a workshop entitled “Marine Renewable Energy” Delivered by Professor Dr. Mustafa Abdel Jalil, Head of the Energy Research Unit, in addition to practical training on the solar energy unit and the wind energy unit.</p> <p><a href="#">Marine RE Workshop</a></p>	
<p><b>(18/11/2022)</b></p> <p>Green Environment <b>Workshop</b></p>	<p>AASTMT Chemical and Petrochemical Engineering department organized a workshop: “Green Environment” delivered by Prof. Dr. Ibrahim Hassan – Head of the Department of Chemical and Petrochemical Engineering. Several important topics were discussed about the green environment and clean energy, such as processes for producing green hydrogen and green ammonia, and methods for treating and recycling unsustainable waste.</p> <p><a href="#">Green Environment Workshop</a></p>	



**(6/11/2022)**  
Visit to "The Arab Renewable Energy Company Organization (ARECO)"

Visit to "The Arab Renewable Energy Company Organization (ARECO)" was organized by AASTMT department of Electrical Engineering and Control-Abukir headquarter.  
[Visit to ARECO](#)



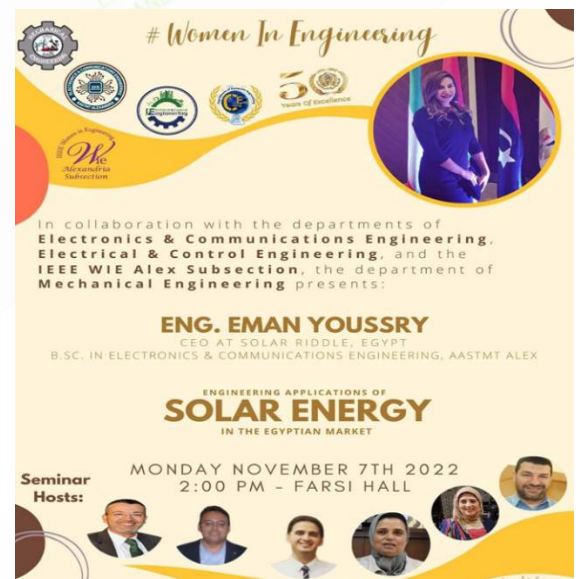
**(6-7/12/2022)**  
"Climate Change Resilience" Event

AASTMT College of Engineering and Technology hosted the Climate Change Resilience event organized by the IEEE-HKN Mu Beta Honor Society chapter. The event includes lectures and a solid-works workshop by professionals.  
[Climate Change Resilience Event](#)



**(8/10/2022)**  
"Engineering applications of solar energy in the Egyptian market" Seminar

AAST Department of Mechanical Engineering in the headquarters in cooperation with the IEEE Women In Engineering Alexandria Subsection organized a seminar on: "Engineering applications of solar energy in the Egyptian market" by Eng. Iman Yousry, CEO at Solar Riddle EG, Cairo, Egypt  
[Solar Energy Seminar](#)



## II. Campaigns, Initiatives and Competitions

Events on AASTMT webpage

Event	Overview	
<p><b>(22/12/2023)</b> Launch of Uni-Green Climate Change Competition</p>	<p>AASTMT in operation with Life Makers Foundation and funded by the European union announced the launch of this competition in fields of small-sale renewable energy, greenhouse gas emissions mitigation, waste management and recycling, biodynamic agriculture and halting desertification. <a href="#">Uni-Green Climate Change Competition</a></p>	
<p><b>(25-10-2023)</b> Dean's Lecture at Businessmen Association</p>	<p>Within the framework of the role played by AAST in serving the community and supporting environmental development goals, Dean of the Faculty of Engineering and Technology- Abukir campus- delivered a lecture at the Businessmen Association in Alexandria, under the title: "The role of the business community towards implementing innovative solutions in the field of renewable energy through the Global Program for Sustainable Development in Ports" <a href="#">Dean Lecture at the Businessmen Association</a></p>	
<p><b>(July and Sep. 2023)</b> IEEE-YESIST12 Preliminary and International Competition</p>	<p>IEEE-YESIST12 International Competition preliminary stage of in Egypt was held at AASTMT- the College of Engineering and Technology in Abu Qir on 16-17 July 2023. The competition consists of five competitive tracks. The winning teams in each track were qualified to participate in the international finals, which will be held for the first time, in Africa and the Middle East, in Egypt at AASTMT-main quarters in September 2023. One of the tracks is We Power Track with theme: Reducing carbon Footprints and Sustain the Availability of Energy for Future Generations <a href="#">IEEE-YESIST12</a></p>	



**(16/11/2023)**

Toward a Green and Sustainable Future - **School Initiative: Competition Finals (Phase 3)**

This initiative included three stages;

- Awareness sessions at AAST for school students and teachers about sdgs
  - Physical visits of the AAST sustainability team to schools and online interactions
  - Implementing innovative ideas by school students and guiding them through development
- Finally, this was concluded by a competition, held at AAST headquarter, among these innovative ideas presented by school students.

[School Initiative: Competition Finals](#)



**(25/5/2023)**

Towards a Green Sustainable Future" **School Initiative: Visit to Ryada School (Phase 2)**

In the framework of the second phase of this initiative As collaboration between AAST with community towards sustainability, Ryada school hosted some of sustainability team professors to spread awareness about sdgs.

[School Initiative: Visit to Ryada School](#)



**(10/11/2022)**

"GO GREEN: Save your Planet Earth using GREEN ICT Technology" **Initiative**

In light of AAST role in serving sustainability and green environment, AAST computer engineering department, at the headquarters, launched this initiative.

[Go Green Initiative](#)





(19/11/2022)

**TV Interview**  
on COP 27  
climate  
conference

The “**Hiwar Al-Youm**” television program on Channel 5 of Alexandria TV hosted Professor Ibrahim Hassan – Head of AASTMT Department of Chemical and Petrochemical Engineering - and the episode will cover the activities of the COP 27 climate conference, the green environment, and Egypt’s effective regional and African role in this field.

[TV Interview on COP 27](#)



(15/11/2022)

**TV Interview**  
on  
Employment  
of Renewable  
Energy

The “**Hiwar Al-Youm**” television program on Channel 5 of Alexandria TV hosted Associate Professor Ahmed Abdel Salam – Lecturer at AAST Department of Mechanical Engineering at the main headquarters - and the episode will address the topic:

“Employment of renewable energy in Engineering and Technology Applications”

[TV Interview on Employment of Renewable Energy](#)



(13/9/ 2022)

**Towards a  
Green and  
Sustainable  
Future- School  
Initiative  
(Phase 1)**

With the participation of the university sustainable development team, AAST College of Engineering and Technology hosted this initiative which aim to open avenues of cooperation between AAST and schools to educate students and educational institutions towards sustainable development goals.

In the first phase of this initiative, The participants visited the solar power plant at the Faculty of Engineering, which is the largest plant in Egypt on the roof of an educational building, and visited the renewable energy lab to explain the methods of producing energy from sustainable means such as wind and green hydrogen. Measuring vital indicators of climate and water and how to purify and desalinate water. The visit also included a visit to the Aquaculture Center, where he explained modern farming methods with use limited water resources and recycled wastage.

[Towards a Green and Sustainable Future-School Initiative](#)



## Upcoming Goals

Looking ahead, AASTMT remains committed to achieving its long-term renewable energy and climate action sustainability goals, as follows;

- **30% Carbon Reduction by 2025:** AASTMT has already succeeded to achieve almost 30% carbon reduction target in 2023 compared to 2019 which experienced highest emissions rate. To maintain this reduction by 2025 and even achieve more, AASTMT plans to continue expanding its renewable energy capacity, with the goal of sourcing 25% of its energy from renewables by 2025. Additional solar power installations and adoption of clean technologies, plays a key role in reducing energy-related emissions.
- **50% Carbon Reduction by 2040:** By 2040, AASTMT aims to achieve a 50% reduction in carbon emissions compared to 2019 levels. This will involve further efforts in sustainable transportation, including a huge transition to electric vehicles on campus. Moreover, AASTMT will implement advanced smart grid technologies to optimize energy consumption and storage, as well as increasing energy from renewables to 40% by 2040 for further minimization of carbon emissions. Finally, AASTMT continues to work effectively towards its Zero-Waste Goal by 2040.

Continuous progressing towards these goals will push AASTMT to eventually reach its **ULTIMATE GOAL** of: **Zero Emissions and 100% Renewable Energy**