

Template for Evidence(s) UI GreenMetric Questionnaire

University : Alexandria University
Country : Egypt ...
Web Address : <https://alexu.edu.eg/>

[2] Energy and Climate Change (EC)
[2.5] Renewable Energy Sources in Campus



Solar Energy Center at the Faculty of Agriculture (Alexandria University)



Windmill and Solar Panels (Solar Energy Center at the Faculty of Agriculture - Alexandria University)



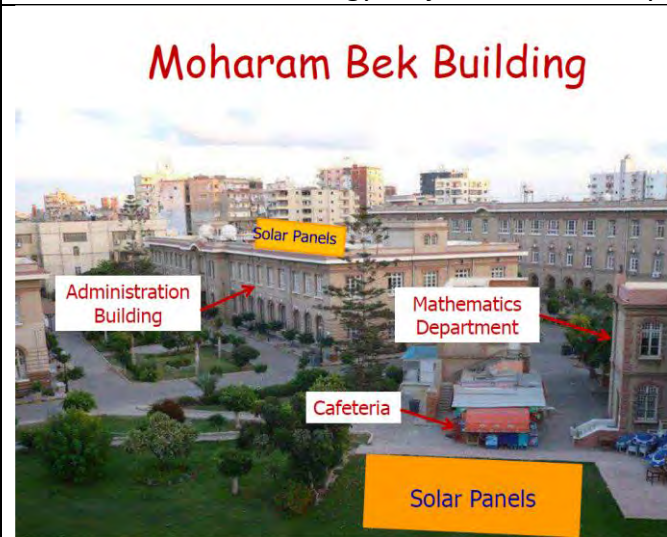
Solar Energy Center at the Faculty of Agriculture (Alexandria University)



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BIPV Façade Brise-Soleil System
Solar Energy Project at the Faculty of Science (Alexandria University)



BIPV Roof Pergola, Faculty of Science in Moharram Bek (Alexandria University)



BIPV Garden Pergola, Faculty of Science in Moharram Bek (Alexandria University)

 <p>Med-algae Production of Biodiesel from Algae</p> <p>Regional Mediterranean Centre for Bio-Processing ReMed-Bio</p> <p>Project funded by the EUROPEAN UNION</p> <p>ENPI CBCMED</p> <p>29 March 2014</p> <p>Visitors, Stakeholders & Media</p>	
<p>Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project (Faculty of Science, Alexandria University)</p>	<p>Algae Cultivated in Flat Panel Photo-Bioreactor, Med-Algae Project (Faculty of Science, Alexandria University)</p>
 <p>Faculty of Science Alexandria University</p>	
<p>Seawater tank outside the chamber, Med-Algae Project (Faculty of Science, Alexandria University)</p>	<p>Open Ponds with running algal cultures, Med-Algae Project (Faculty of Science, Alexandria University)</p>

Description:

The Faculty of Agriculture has 2 renewable energy centers and on center at the main building of the University.

1) The renewable Energy Center in Wadi El-Natroon.

There are two units from the network:

- 7 kw hybrid unit for photovoltaic cells and 5 kw for air turbine.
- 50 kw hybrid unit for photovoltaic cells and 50 kw for air turbines (under maintenance).

They are all used in student training and research for graduate students and faculty members.

2) The renewable Energy Center at the Agriculture Research and Experiments Station in Abis Campus.

- The capacity of the center is 130 kw/h connected to the electricity grid.

3) The renewable Energy Center at the main building of the University.

- The capacity of the center is 20 kw/h connected to the electricity grid.

System Application	Solar System power kWp	Air Turbine power	Energy (kWh)
Wadi El-Natroon 1, Photovoltaic cells	7		7000
Wadi El-Natroon 2, Photovoltaic cells	50		50,000
Wadi El-Natroon 1, Air turbines		5	5000
Wadi El-Natroon 2, Air turbines		50	50,000
Abis Campus			130
University Main building			20
	Total Power (kWh)		112,150

Solar Energy Center at the Faculty of Agriculture (Alexandria University)

The services provided by the center:

- 1) **Research and development:** Encouraging applied research on renewable energy at AU and through collaborations with other national and international universities. Development of hybrid systems in renewable energy and its uses in water pumping and water desalination and development of remote and desert areas. Development of research in energy from biomass and waste. Development of thermal uses of solar energy.
- 2) **Consultations:** Various consultations in renewable energy systems, especially hybrid systems, drying and solar heating.
- 3) **Education and Training:** Supporting the renewable energy education at AU. Developing and delivering courses, e-learning, workshops, training courses, and conferences on various renewable energy systems.
- 4) Serving the Egyptian community by providing all renewable energy information to the public.

Equipment at the center:

- 1) The center has many devices for different applications of renewable energy.
- 2) A hybrid system to generate electricity from the sun with a capacity of about 130 kilowatts.
- 3) E-learning courses on the site.

The Faculty of Science:

Research Project: Development and implementation of decentralised solar-energy-related innovative technologies for public buildings, in the Mediterranean Basin

System Application	Number of modules	Solar System kWp	Energy (kWh)
BIPV façade brise-soleil	120	17.28	26350
BIPV garden pergola	90	8.1	23270
BIPV roof pergola	30	4.1	
	Total Power (kWh)		49,620

The Faculty of Science:

Research Project: Production of Bio-Diesel from Algae in Selected Mediterranean Countries: Med-Algae Project

The project objective is to explore:

- 1- The development of microalgae-based biodiesel production and other valuable products in six Mediterranean countries (Cyprus, Egypt, Greece, Italy, Lebanon and Malta).



2- The current level of technology, the relevant market structure, and the governmental and environmental boundaries will be mapped in the participating countries, in order to identify the most promising strategies in each country.

Studied Strains *Chlorella* sp was chosen to be the common examined strain between the partners. In addition, native algal strains from each participant country were isolated and identified. Both *Chlorella* sp and locally isolated microalgae have been examined under lab and out-door scale.

University administration building

The project of "supplying, installing and operating the photovoltaic solar plant with a capacity of 20.1 kW above the administration building of Alexandria University in Shatby was launched by the Arab Renewable Energy Company, on 2/14/2020. The capacity of the station per month is 20.1 kW, while the capacity consumed from the building is 255 kW / month, meaning that the station provides within 8% of the total monthly consumption. Total Solar energy per year = **241.2 KWh**.

Higher Institute of Public Profession

The Institute has two initiatives to exploit solar energy at the Institute through two units of photovoltaic cells (50 watts each) that are currently installed and are exploited to provide the electrical energy necessary to operate the Ultra-Filtration unit located in one of the laboratories of the Department of Materials Science for educational purpose. Moreover, five units of photovoltaic cells (260 watts each) were installed to operate the discussion room at the Institute and to provide it with sufficient energy for lighting purposes and to operate its display device. Total Solar energy per year = **360 KWh**.

Future Plan:

The Faculty of Engineering:

All purchase procedures for the implantation of the new Solar Station are completed. The implementation of the solar photovoltaic panels will be performed in December 2022 with an estimated capacity of 150 kilowatts on the 2000 m² roof top of the building of the Mechanical Engineering Department at the Faculty of Engineering.

Additional evidence link: <https://alexu.edu.eg/index.php/about-us-ar>

Link for LED lighting:

https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5935&catid=21&lang=ar-AA

Link for Solar Energy:

https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5936&catid=21&lang=ar-AA

Link for Sustainable Development: <https://alexu.edu.eg/index.php/en/sustainable-development>

Link for Green University:

https://alexu.edu.eg/index.php/?option=com_content&view=article&id=5932&catid=21&lang=ar-AA

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Community Service & Environment Development
The Faculty of Science:

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Environmental Benefits

Life time CO ₂ emission savings	556,935 kg
Life time SO ₂ emission savings	2,004 kg
Life time NO _x emission savings	668.322 kg

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Community Service & Environment Development

Ratio of renewable energy production divided by total energy usage per year

No	Renewable Energy	Production (in kWh)
1	Solar panel	57,150 + 49,620 + 241.2 + 360
2	Windmill	55,000
	Total	162,371.2

Alexandria University have generalized this initiative in some of the faculties of Alexandria University in gradual stages.

Sincerely,

Prof. Ashraf Elghandour, MD
Vice president of graduate Students & Research
Acting Vice president Community Service &
Environment Development
Alexandria University

