THE - Impact Rankings 2026

13.2.1 Low carbon energy tracking

Low Carbon Energy Tracking at Kalasalingam Academy of Research and Education (KARE)

Kalasalingam Academy of Research and Education (KARE) has made a strong commitment to renewable energy and sustainable campus operations through the installation of large-scale solar power systems across its main campus. KARE has strategically invested in solar power generation to reduce dependency on conventional energy sources and to promote an environmentally responsible academic environment. These solar installations form a key component of KARE's sustainability strategy, providing clean, renewable energy that significantly lowers the university's carbon footprint while contributing to cost savings on electricity consumption.

To tap the alternate energy sources, KARE has installed 1124.22kWp rooftop solar power panels on top of nine blocks. About 45% of the energy consumption is met by the solar energy leading to the reduction in carbon foot print. The institution has also installed 152 solar street lights throughout the campus which amounts to a saving of about 9.56 kWh per annum. Further, solar water heaters are installed in the hostels and solar pumps are installed in the agriculture farms to tap solar energy.

KARE continuously monitors its renewable energy production through a dedicated energy tracking system that measures the contribution of solar power to the total energy mix. The solar systems at KARE generate thousands of kilowatt-hours of clean energy annually, moving the institution closer to its goal of achieving a carbon-neutral campus.

Months	Solar Generation								
	Lib rary	5th block	ADMIN & 8,9 th block	Core Building	11th Block	KMCH, A, B , block	Total solar Power Generation	Energy consumed from Electricity Board (EB)	Total
Jul-23	25930	28080	31542	28656	28245	28954	171407	226489	397896
Aug-23	28940	27460	32565	29983	29256	28156	176360	253536	429896
Sep-23	35190	28960	30253	31523	27245	27815	180986	220069	401055
Oct-23	36100	29370	29562	26841	26258	25154	173285	220562	393847
Nov-23	33870	29710	31568	27587	25425	27154	175314	201449	376763
Dec-23	31220	39320	34582	29482	24525	28452	187581	212488	400069
Jan-24	28065	22670	30256	29641	24156	28235	163023	205896	368919
Feb-24	29250	25150	31452	31256	27451	27516	172075	221247	393322
Mar-24	32060	24920	32546	29345	28425	28128	175424	212504	387928
Apr-24	31440	25140	29586	30651	27240	28654	172711	221333	394044
May-24	29530	31590	30568	30009	25256	29415	176368	195116	371484
Jun-24	27050	24890	28451	28820	23245	26128	158584	181777	340361
Total							**2083118**	**2572466**	**4655584**

Solar plant – Block 8

Solar Plant – (Block 9)

Solar Plant – (Admin Block)

Solar Plant – Library

Solar Plant – Tifac Core	Solar Plant – Block 5

KALASALINGAM
ACADEMY OF RESEARCH AND EDUCATION
(DEEMED TO BE UNIVERSITY)

Under sec. 3 of UGC Act 1956. Accredited by NAAC with "A++" Grade

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Solar Streetlights

1. Energy produced by Biogas Plant

There are totally 7 hostels in the campus and approximately 3400 students are residing in the campus at any point of time. The food is prepared in a common kitchen and distributed to the various hostels. The fresh vegetable peels are collected from the cooking area and part of it was utilized for biogas production. The collected waste is chopped into small pieces using a mixer and fed into the digester.

For the production of biogas, a fixed dome digester was constructed to utilize part of the kitchen waste. The radius of the digester is 1.25 m and its height 2.5 m. The total volume of the digester is 12 m^3. About 1500 kg of kitchen waste is processed everyday resulting in the production of **4.6 kg of biogas per day**. This results in savings in the usage of LPG in the kitchen.

Biogas Plant

Biogas generally has an energy content of around **6 kWh per cubic meter (m^3)**. For mass-to-volume conversion, **1 kg of biogas is roughly 0.5 to 0.6 m^3**, depending on the composition of the gas.

Assuming the average value of 1 kg = 0.55 m^3,

Calculate the volume of biogas produced per day:

$$\text{Volume} = 4.6\ \text{kg/day} \times 0.55\ m^3/\text{kg} = 2.53\ m^3/\text{day}$$

Calculate the energy produced from the biogas:

Energy per day=2.53 m^3/day×6 kWh/m^3=15.18 kWh/day

Adjust for conversion efficiency:

Biogas-to-electricity conversion efficiency in a generator can be around **30-40%**. Assuming 35% efficiency:

Electricity output=15.18 kWh/day×0.35=5.31 kWh/day

So, **4.6 kg of biogas per day can produce approximately 5.31 kWh of electricity per day** under typical conditions.

Total Renewable Energy generation (in kWh per annum)

S. No	Renewable Energy Source	in kWh	Total CO2 emission reduction
1	Solar Plant	3910216	3910.2
2	Solar Street lights	9.56	0.008
3	Biogas	1938	1.59
Total		39,12,163.56	3911.79

Totally **3911.79 tCO2** tonnes of CO2 emission is reduced through Renewable Energy sources.