



Karunya INSTITUTE OF TECHNOLOGY AND SCIENCES

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

MoE, UGC & AICTE Approved

NAAC A++ Accredited

7.2.3 Carbon reduction and Emission Reduction Process

Following are the steps taken to conserve the energy and making the campus Green with less carbon footprint.

1. Usage of Solar Energy – Steps taken, energy saved per annum.

- (i) 120kW Grid-Tied “**Solar Power plant**” is installed in College campus and in other campus and from which we saved **1, 59,580 units/Annum.**
- (ii) 27 Nos of “**Solar water heating systems**” are installed in hostel campus from which we save **11, 73,150 Units/Annum.**

2. Conversion to LED - Energy saved every year

- (i) 2,424 Nos of Conventional tube lights converted to LED Tube lights & 77 Nos of Street light SV lamp fittings converted to LED Street light fittings in Hostel & College Campus respectively from which we saved **1,11,586 units/Annum**

3. Censor in Pumping, Water supply – Water/Electricity Saved

- (i) 36 HP of Motor which pumps water to Overhead tank manually is converted to wireless automated water level controller system from which we save **29,734 Units/Annum.**

4. Other Steps taken to save energy

- (i) It is proposed for Conversion of 5,000 Nos of 36W Conventional Tube lights to 18W LED tube lights in hostel campus from which we can save **1,94,400 Units/Annum**
- (ii) It is proposed and work in progress for conversion of 3,544 Nos of 36W Conventional Tubelights to 18 W LED Tubelights in College campus from which can Save **1,37,790 Units/Annum.**
- (iii) To maintain Unity Power factor, capacitors are installed at the load end in order to save **2, 25,000 Units/Annum.**
- (iv) The water purifiers in all the buildings are switched off during holidays to save power.
- (v) The timer is fixed for Street Lights in the campus to switch on the lights based on the daylight in order to save electrical energy.
- (vi) Training Programs conducted to all the technician to be implemented for energy savings and safety awareness.

Located in the foothills of Western Ghats, KITS is known for its floral and faunal biodiversity. Taking up the challenges of conserving natural resources and ecosystems, and biodiversity,

KITS is actively engaged in developing innovative scientific and technological interventions to build a green campus.

Our university reports its carbon emissions in line with the United Nations Framework Convention on Climate Change

Below mentioned are the details providing the total Scope 1 and 2 carbon emissions in tCO₂e (tonnes (t) of carbon dioxide (CO₂) equivalent (e).

- a) Base line Year: 2015
 Total Power Consumption: 7417799 kWh
 CO₂ Emission- 4989.8 tonnes

- b) Previous reporting year (2021-2022)
 Total Electricity Consumption for the campus and residences: 3862181 kWh
 CO₂ Emissions – 2598 tonnes

Vehicles:

- No. of buses from KITS to Coimbatore -10
 - Running 2000 km approximately per month – 10 *2000 *12 = 2,40,000 km
 - **CO₂ Emission – 28.68 tonnes**
- No. of cars – 10
 - Running 3000 km approximately per month – 10*3000*12 = 3,60,000 km
 - **CO₂ Emission – 49.395 tonnes**

CO₂ Emissions - Previous Reporting Year (2021-2022) – **2676.075 tonnes**

Renewable Energy sources:

Sl.No	Description of Item	Qty	Power Savings/year
1	Solar Water heating system	85,600 LPD	15,45,718 kWh

Sl.No	Description of Item	Year	Qty	Power Consumption
1	18W LED Tube lights	2019	5944 Nos	278179
2		2020	1705 Nos	79794
3		2022	2860 Nos	133848
4		2023	4089 Nos	191365

Previous reporting year (2021-2022) = (2019+2020+2022) = 339997+97526+163592 = 601115 kWh

Renewable Energy Sources (Power in kWh)

Source	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022
Solar PV	129750	131560	129260	128720	123419	157783
Solar Water heating system	1545718	1545718	1545718	1545718	1545718	1545718
LEDs						601115
Total	1675468	1677278	1674978	1674438	1669137	2304616

CO2 emission reduction - **1550.2 tonnes**

2. SOLAR STREET LIGHTING IN KARUNYA UNIVERSITY



Total lights Installed in Karunya University are ----- 7 lights

Street Light Installed Place	Panel Used	No. of Lights	Present Condition
Guest House	Crystalline Type	4	Working
Opposite to S&H Auditorium	Crystalline Type	2	Working
Mechanical Building Yard	Crystalline Type	1	Working

Specifications for Solar Street Lights

Electrical Parameters

Panel Type	: Crystalline Type
Cell Type	: High efficiency Solar Cells
Nominal Capacity	: 1*120 W
Peak Power Voltage	: 16.2 Volts
Peak Current	: 8.3 Amps
Tolerance	: $\pm 5\%$

Mechanical Parameters

Front cover glass	: Toughened Glass
Encapsulate	: Ethylene Vinyl Acetate (EVA)
Mounting frames	: Anodized aluminium channel
Rear panel	: Polyvinyl Fluoride (PVF)
Junction box	: ABS moulded box
Weight	: 5.4 Kgs

Battery

Electrical Parameters

Normal capacity	: 100 Ampere Hours
Rated current Discharge	: C/10
Normal voltage	: 12V
Self-discharge	: About 0.5% per week
Expected life	: About 1500 cycles

General parameters

Types	: low maintenance lead acid
Construction	: 12V block
Container material	: polypropylene

Solar light controller:

Charge Controller Type And Rating	: Series Pulsed Two Step 15A max.
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Cable Assembly:

Module to Light Controller	: 4.0 m ² - cable with ring terminal
Luminary to Lighting Controller	: 1.5 m ² dual sheathed cable
Battery to Lightning	: 4.0 m ² with ring and fork terminal