

Energy Consumption Reduction Plan for GMR Institute of Technology

Objective: The primary goal of this documentation is to outline the strategies and methods employed by GMRIT to reduce energy consumption and contribute to a more sustainable and environmentally-friendly campus.

Energy Consumption details:

Month & Year	EB Power Bill		Solar Power Bill		Solar Export to EB	Consumed Units	Total Bill Amount
	Units	Amount	Units	Amount			
Apr-21	62738	494586.63	75737	527887	30779	107696	1022473.63
May-21	55374	313962.44	83486	581897	47632	91228	895859.44
Jun-21	52510	385149.90	76591	533839	34664	94437	918988.90
Jul-21	98160	907738.07	73220	510343	13521	157859	1418081.07
Aug-21	120399	1159297.61	75917	529141.5	9386	186930	1688439.11
Sep-21	117969	1126143.00	71603	499072.9	11160	178412	1625215.90
Oct-21	97863	880946.43	79057	551027.3	17882	159038	1431973.73
Nov-21	103546	923200.16	64846	451976.6	16650	151742	1375176.76
Dec-21	87420	684453.52	79400	553418	31482	135338	1237871.52
Jan-22	73879	472945.00	94424	658135.3	45200	123103	1131080.30
Feb-22	79507	603823.68	93036	648460.9	33840	138703	1252284.58
Mar-22	115496	1012043.36	96184	670402.5	17952	193728	1682445.86
Total	1064861	8964290	963501	6715601	310148	1718214	15679891

Month & Year	EB Power Bill		Solar Power Bill		Solar Export to EB	Consumed Units	Total Bill Amount
	Units	Amount	Units	Amount			
Apr-22	132819	1373478.00	86339	601783	9292	209866	1975261.00
May-22	130249	1328771.20	89743	625508.7	8922	211070	1954279.90
Jun-22	125994	1318936.01	69386	483620.4	5200	190180	1802556.41
Jul-22	121439	1279049.00	66500	463505	8913	179026	1742554.00
Aug-22	105816	1113412.29	71401	497665	12257	164960	1611077.29
Sep-22	118908	1242503.33	71471	498152.9	10765	179614	1740656.23
Oct-22	88419	886224.73	74874	521871.8	22140	141153	1408096.53
Nov-22	99369	953302.00	85982	599294.5	26087	159264	1552596.50
Dec-22	101087	973578.53	82221	573080.4	25277	158031	1546658.93
Jan-23	84478	734424.00	87214	607882	37380	134312	1342306.00
Feb-23	86654	828836.13	87101	607094	27610	146145	1435930.13
Mar-23	110254	1108540.38	85912	598806.6	18374	177792	1707346.98
Total	1305486	13141056	958144	6678264	212217	2051413	19819320

The institute has devised a comprehensive plan to enhance the energy efficiency of the campus. The following measures have been scheduled to increase efficiency:

1. By 2024, we plan to replace all incandescent bulbs, fluorescent tube lights, compact fluorescent (CFL) bulbs, and streetlights with energy-efficient LED lights.
2. By 2025, we will upgrade the HVAC systems to enhance energy performance.
3. All toilets within the institute are now equipped with sensor-based controls to conserve power effectively.
4. We have also implemented timer-based control systems for external lighting, ensuring efficient use of energy resources.
5. Solar water heaters are installed in all hostels for capturing the solar energy and reducing the power usage for heating applications.

The following are the planned strategies for reducing the energy consumption.

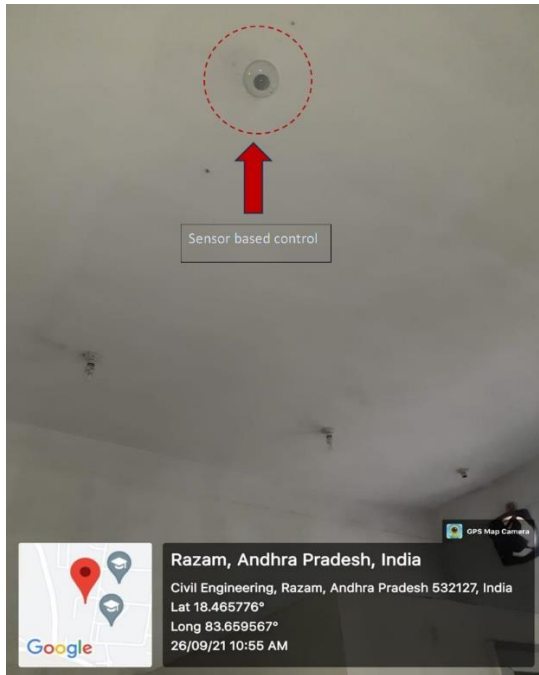
The first strategy is based on improving the energy efficiency

Energy Efficiency:

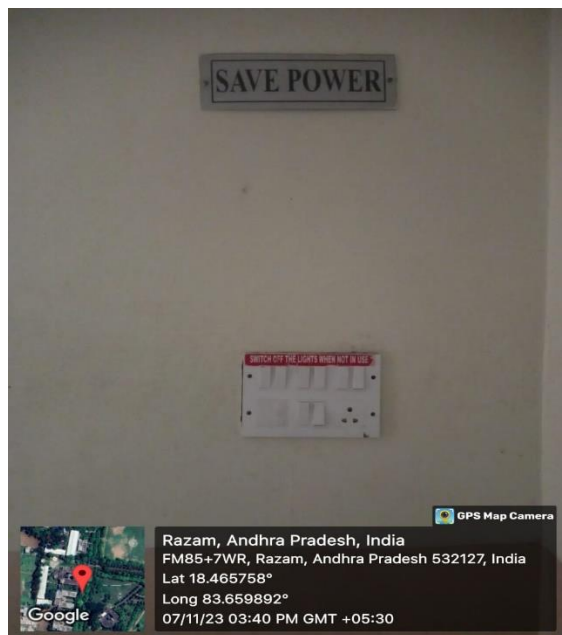
- Replace all the incandescent bulbs, tubelights, LFC bulbs, streetlights with LED lights



- Upgraded HVAC systems for better energy performance.
- Sensor based control is installed in all toilets in the institute for saving power.



- External Lighting systems is controlled by Timer based controller systems
- Encourage responsible energy usage through signage and communication.

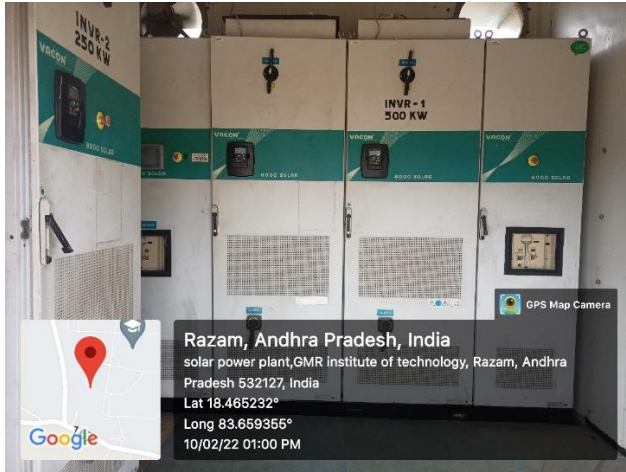


- Promoted the use of natural light and ventilation.

The second strategy is based on installation and utilization of renewable energy resources.
Renewable Energy:

- Installed solar power plant to generate clean energy.
The institute is equipped with a grid connected solar photovoltaic solar power plant of 700kW capacity. The details of the solar power plant are as follows:
 - a. Capacity of the Plant: 700 kW
 - b. Daily Units Production Average: 2,420 Units
 - c. Monthly Units Production Average: 72,780 Unis
 - d. Yearly Units Production Average: 8,73,342 Units





- Installed solar water heaters in the hostels



Energy saving initiatives at campus & saving for the year 2022:

S.No.	Energy saving initiatives – 2022	Energy saving/year in Rs. (Lakhs)
1	Motion sensors at Academic Blocks Toilets – 33 no's	0.98
2	Motion sensors at Boys Hostels Toilets – 36 no's	0.95
3	2000 no's 36 W conventional tube lights replaced with 20 W LED tube lights.	6.08
4	Corridor, streetlights, Pole lights replaced with LED lights. instead of CFL lights	1.6
5	Megatron Air conditioners Energy saver-5 no's	0.31
6	Solar Energy water heaters	0.22
	Total	10.14