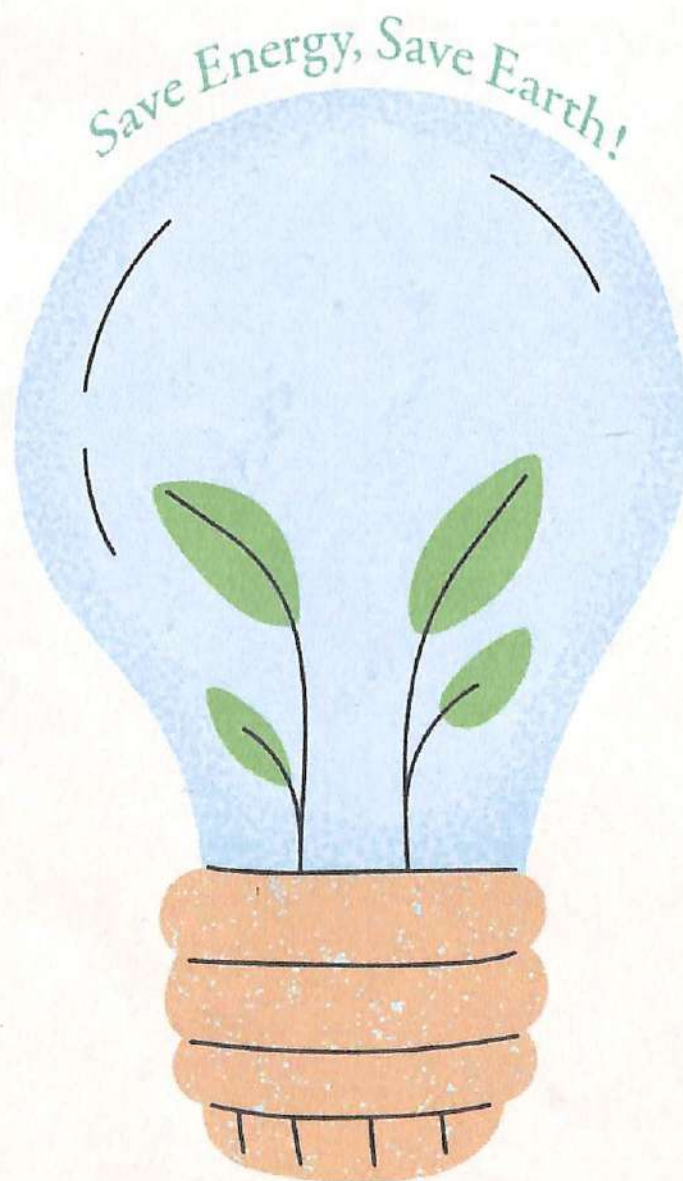


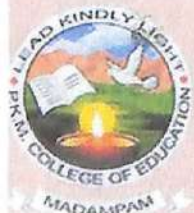
ENERGY AUDIT

2022-23




PRINCIPAL

P.K.M. COLLEGE OF EDUCATION
KAITHAPRAM. P. O., MADAMPAM
SREEKANDAPURAM, KANNUR DT.,-670631



P. K. M. College of Education

Affiliated to Kannur University
Accredited by NAAC with 'A' Grade

Energy Audit Team

External Energy Auditor:

Asst. Engineer Electrical Sector

Local Body Member : Dr. Philomina K. V.
Municipal Chairperson
Sreekandapuram Municipality

Internal Audit Members

Convenor: Dr. Prasanth Mathew
(Asst. Professor in Physical Science)

Members : 1. Dr. Veena Appukuttan
(IQAC Coordinator)
2. Dept. of Physical Science - STUDENT TEACHERS



A handwritten signature in blue ink, appearing to be "J. S. S.", written over the printed name "PRINCIPAL".

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SREEKANDAPURAM, KANNUR DT.,-670631

AUTHENTICATION

This is to certify that we have conducted an energy audit for P.K.M College of Education, Madampam, to assess the energy costs, availability and reliability of supply of energy, energy conservation technologies and ways to reduce energy consumption. The measures and actions taken by the college management to maintain energy sustainability are remarkable and appreciable.


Appachan K.T.
Rtd. Assistant Engineer
KSEB.

(External Auditor)

(Municipal Chairperson, Sreekandapuram)


Dr. K.V. Philomina Teacher
Chairperson
Sreekandapuram Municipality


Dr. Prasanth Mathew

(Internal Auditor)
Assistant Professor
Dept. of Physical Science

Date: 09/03/2023

Place: Madampam




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ACKNOWLEDGEMENT

The team responsible for this audit comprised of Dr. Veena Appukuttan (Asst. Professor in Social Science & IQAC Coordinator) under the supervision and direction of Dr. Prasanth Mathew (Asst. Professor Dept. of Physical Science, P.K.M College of Education, Madampam), would like to thank those individuals who contributed to this project, particularly the college management, Principal, P.K.M College of Education Madampam, all the faculties and staff who provided insights and comments as part of this audit.




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INTRODUCTION

About the college

P.K.M. College of Education, Madampam, Kannur is a Christian minority educational institution. The College was established in 1995 as a self-financing institution and was transformed into an aided college in 1997. It is affiliated to Kannur University and is recognized by NCTE and UGC under 2(f) & 12(B) category. This temple of learning is dedicated to the Sacred Heart of Jesus and is named after Prof. Joseph Kandoth, who was an educational visionary, social reformer and a zealous missionary. He initiated the historical migration of Knanaya Catholic Community which in turn changed the social and economic history of Malabar. P.K.M College of Education is a temple of learning with difference among the scores of educational institutions in Kerala. The institution is run by the Arch Diocese of Kottayam, belonging to the Knanaya Catholic Community and has invariable relevance as a training institution moulding the prospective teachers for the community, in particular, and society, at large. The college aims to spell out the darkness of ignorance and illiteracy and radiate the glow of enlightenment. The mission of the college is "To Nurture the Holistic Development of Prospective Teachers for a Just and Humane Society."

At present H.E. Mar. Mathew Moolakkat, Arch Bishop of Kottayam Diocese is the patron and H.E. Mar. Joseph Pandarasseril, the Auxiliary Bishop is the Manager. The college is accredited by NAAC with A grade (4-point scale), in the second cycle also.

Mission

To Nurture the Holistic Development of Prospective Teachers for a Just and Humane Society

Vision

Excellence and Committed Service in Every Realm of Teaching Endeavour.


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Table : 1.Course offered by the college

Bachelor of Education	English
	Malayalam
	Mathematics
	Natural science
	Physical science
	Social science

SOLAR POWER PLANT

In Contract with Kerala State Electricity Board, P.K.M college is equipped with a 5KW Grid-tied Solar PV power project on the Rooftop, which was installed and commissioned in 2018. The whole design aspects and installation are made in such a way that we could efficiently harvest power. Moreover, it can withstand heavy power consumption which helps to save energy.

URJAKIRAN

URJA KIRAN is an Energy Conservation Awareness Campaign (ECAC) initiated by the "State Designated Agency"- Energy Management Centre (EMC), Government of Kerala in the year 2015-16. P.K.M. College of Education has been the "Participating Agency" for Irikkur Assembly Constituency since 2015. As part of the URJA KIRAN, the college organized Energy Conservation Awareness Campaigns for the general public at different parts of the Constituency.

TARGET AREAS OF ENERGY AUDITING

The P.K.M. College of Education has a total area of 5 Acres.

Table 3: Area details of the PKM college of education campus

Sl. No	Class Rooms	Room No	Size in sq.m
1	English	19	63.48
2	Malayalam	18	64.38
3	Mathematics	31	63.33
4	Natural Science	10	43.32




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5	Physical Science	11	64.44
6	Social Science	30	95.69
7	Staff Room	23	87.97
8	Office - 1	4	30.38
9	Office - 2	21	30.45
10	Principal Room	1	55.66
11	Multipurpose hall Auditorium	28	180.77
12	Multipurpose hall General class	16	180
13	Library cum Reading room	7	108.93
14	Seminar Hall	20	29.59
15	Canteen	24 , 26	82.67
16	IQAC	5	35.09
17	Psychology Room	17	30.63
18	Health fitness, Sports & Yoga room	33	119.94
19	Art & Drama	23	20.24
20	Visitors Room	3	40.19
21	Library store Room	9	20.11
22	IT Room	15	46.85
23	Conference hall	27	46.85
24	Common Room	34	15.88
25	Godown	36	42.84
26	Kitchen	12	7.16




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OBJECTIVES OF THE AUDIT

- To provide baseline information to enable institutions to evaluate and manage energy
- To recognize, diagnose and resolve the energy extravagant activities.
- To suggest the best protocols for sustainable utilization of energy.
- To recognize the initiative taken by institutions towards sustainable energy.

ENERGY AUDIT

An energy audit is a comprehensive inspection and analysis of energy flow for energy conservation in a building or industrial facility. It is an energy-saving opportunity in a building by examining how energy is used and where it is lost. An energy audit can help you identify and prioritize energy saving measures such as

- Upgrading to more energy efficient appliances and equipment.
- Installing programmable thermostats and lighting controls
- Adopting energy – efficient practices.

METHODOLOGY ADOPTED

Field visit

The field visit was conducted by the audit team to analyse the utilization of different energy sources. During specific intervals, the team conducted field visit and collected data on various indicators.

Survey

The team also conducted a survey by distributing and collecting questionnaire form various aspect of target areas. The department, the office, canteen and library participated in the detailed survey study.




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ENERGY AUDIT REPORT

Table 4. The energy consumption pattern of the college for a month

Sl No	Appliances/ items	Number	Power W/ unit	Total power	kW	kWh	Total consumption / month
1	Fan	84	75	6300	6.3	18.9	415.8
2	Wall fan	8	45	360	0.36	0.72	15.84
3	Bulb	92	10	920	0.92	2.76	60.72
4	Tube	83	40	3320	3.32	6.64	146.08
5	Computer	35	50	1750	1.75	1.75	38.5
6	TV	1	100	100	0.1	0.5	11
7	Printer	3	35	105	0.105	0.105	2.31
8	Photostat	2	300	600	0.6	0.6	13.2
9	Projector	6	500	3000	3.0	6	132
10	Speaker	5	100	500	0.5	1	22
11	Stage light	1	100	100	0.1	0.1	2.2
12	Water purifier	2	25	50	0.05	0.25	5.5
13	CCTV	3	10	30	0.03	0.15	3.3
14	Biometric Punching	1	12	12	0.012	0.06	1.32
15	Amplifier	2	24	48	0.048	0.144	3.168



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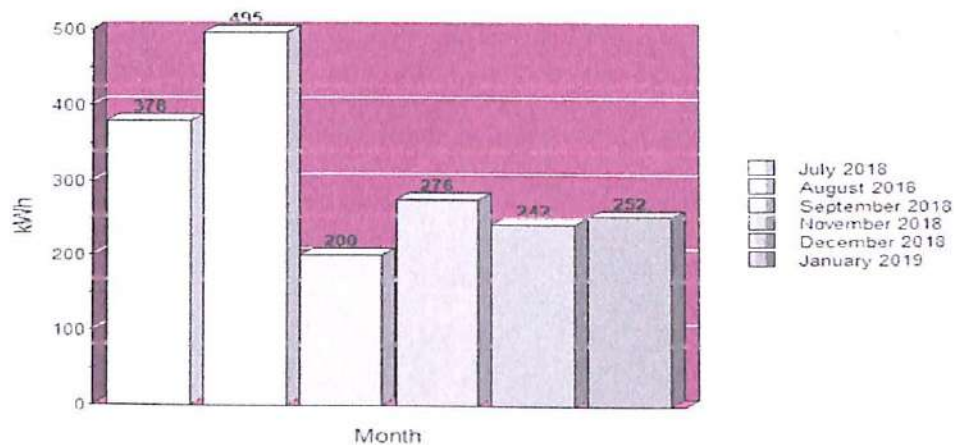
Electricity consumption (Cumulative) and bill report

This report provides the details of the average electricity consumption and the average electricity bill amount for the college. It is to be noted that the energy consumption from the electricity board is less due to the energy generation from the solar panels situated at the college roof.

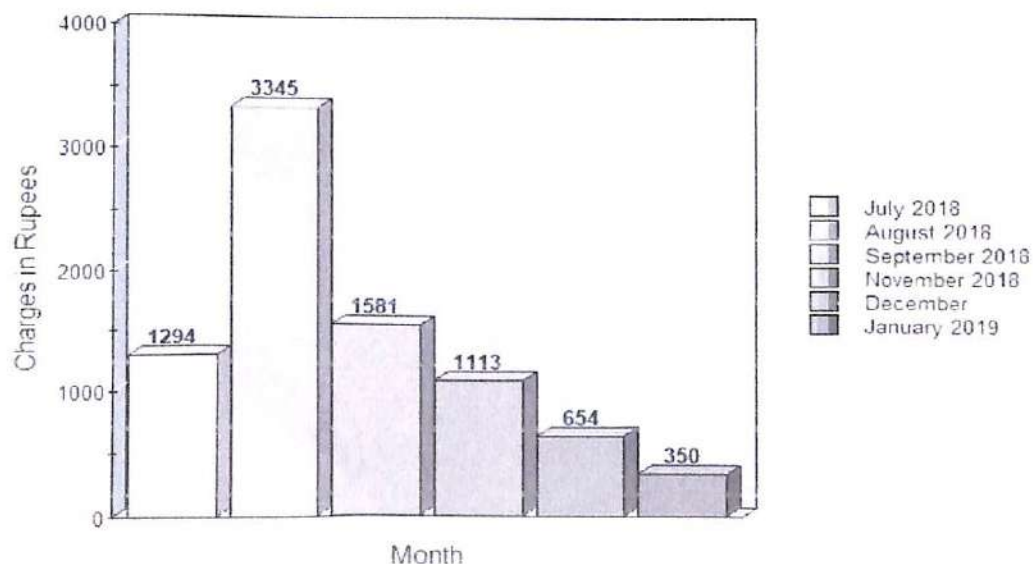
In conclusion, the electricity and bill amount are important parameters that help in monitoring the energy usage and the cost incurred by the college. Regular monitoring and review of these parameters can help in identifying any potential areas for improvement and cost savings

2018-19

Monthly Energy Consumption kWh



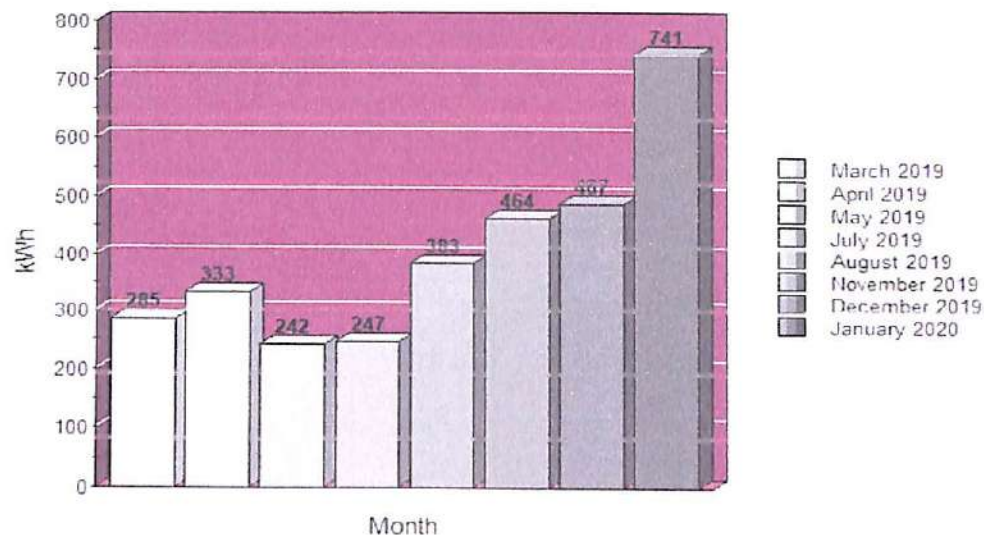
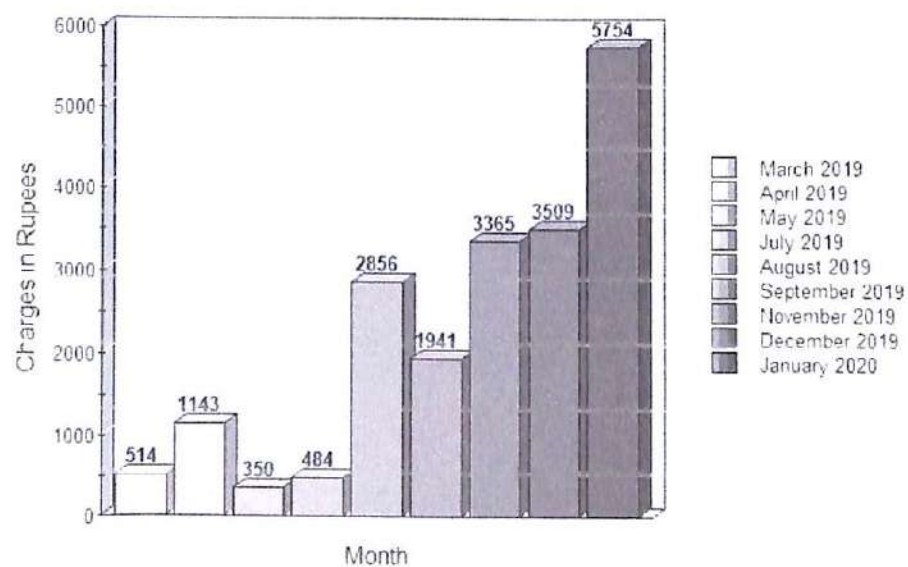
Monthly charges - March 2018 to January 2019



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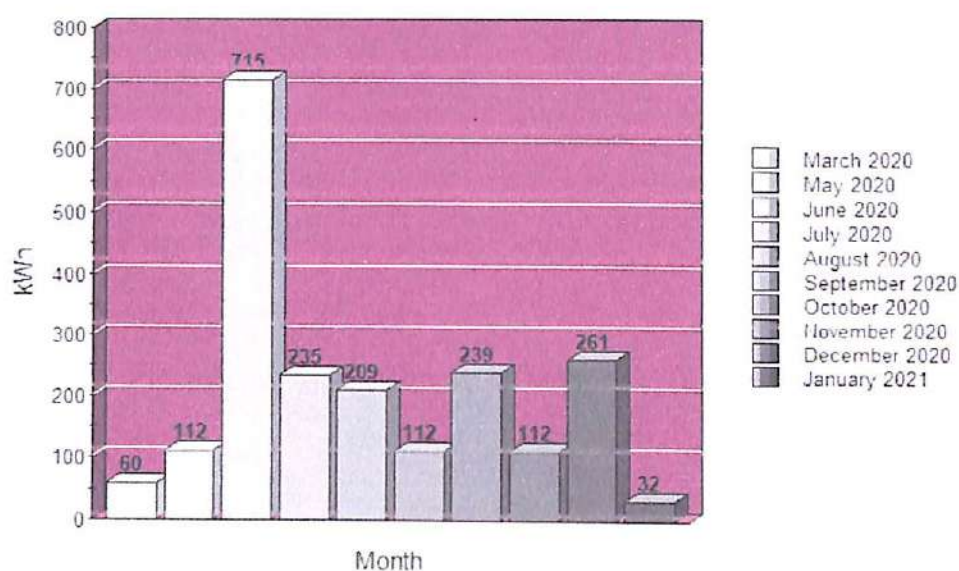
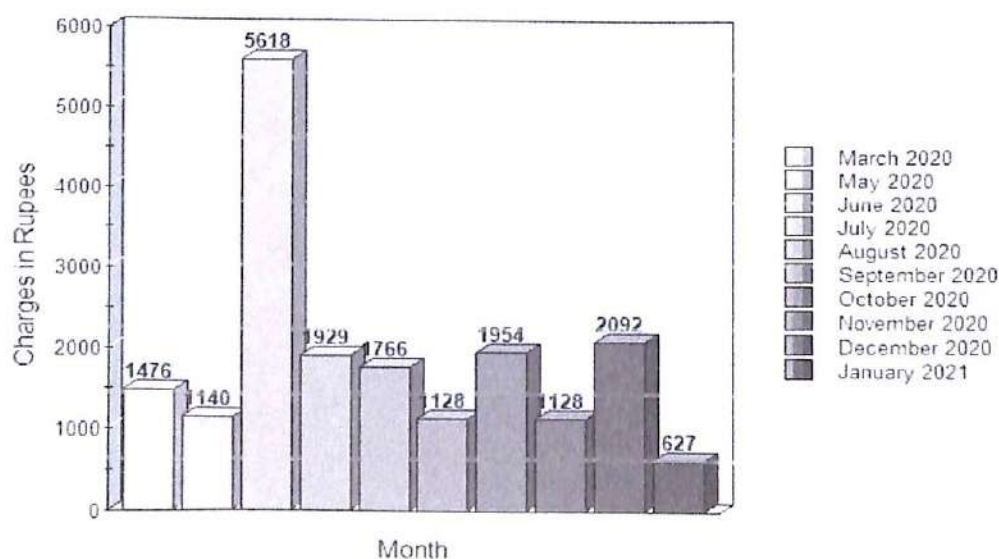
2019-20

Monthly Energy Consumption kWh**Monthly charges - March 2019 to January 2020**

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2020-21

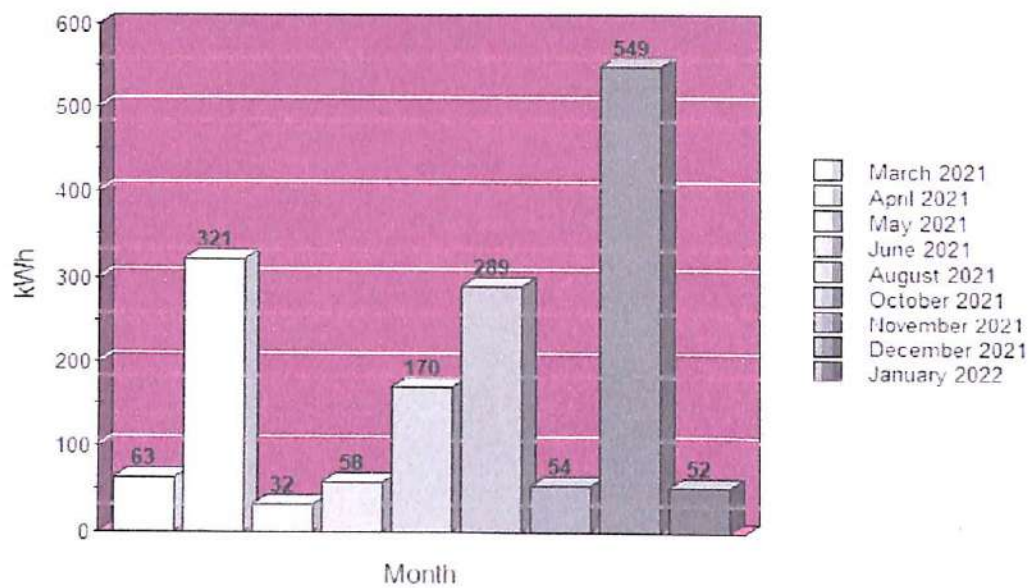
Monthly Energy Consumption kWh**Monthly charges - March 2020 to January 2021**

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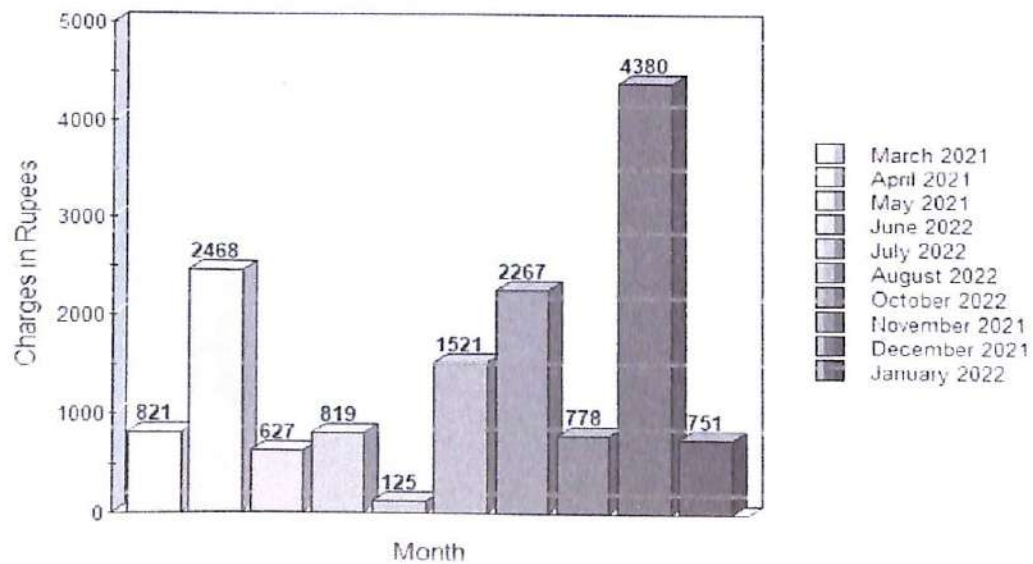
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2021-22

Monthly Energy Consumption kWh



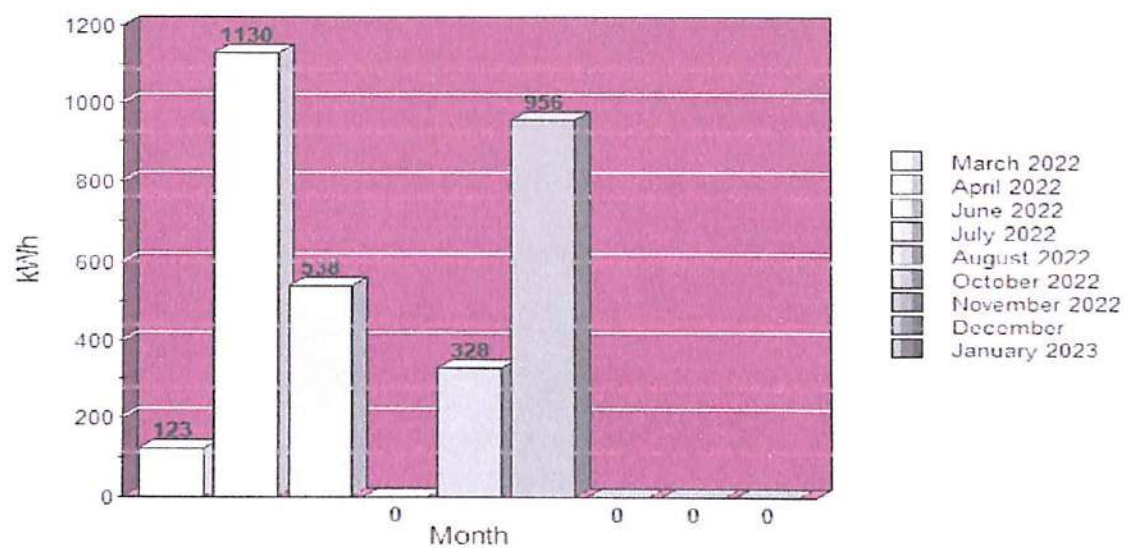
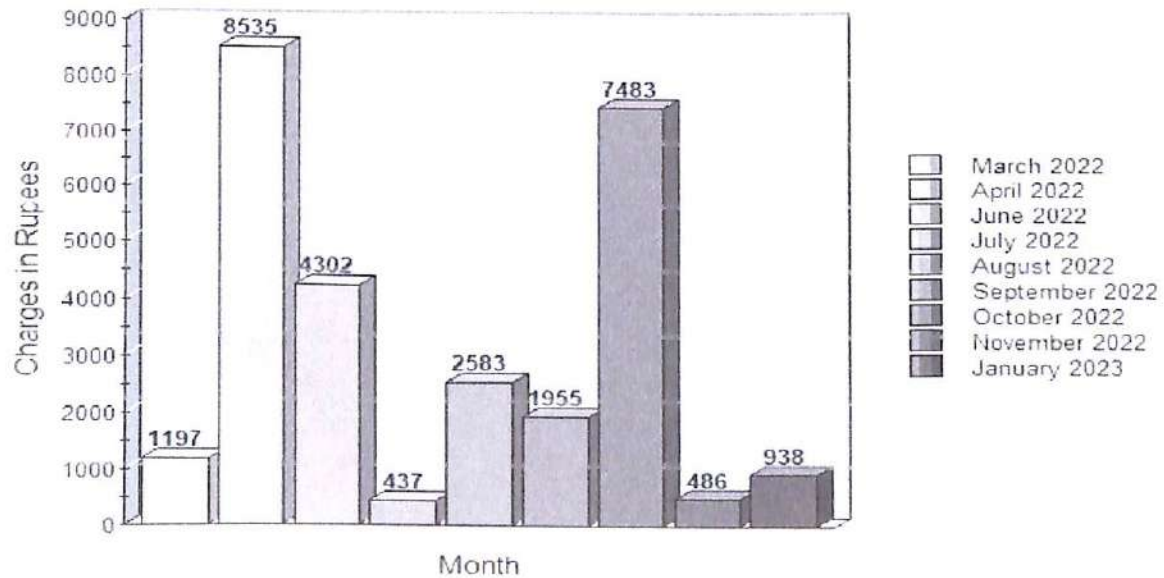
Monthly charges - March 2021 to January 2022



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2022-23

Monthly Energy Consumption kWh**Monthly charges - March 2022 to January 2023**


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Recommendations by External Audit Team

- Install new set of solar panels in the new building in order to manage the energy consumption
- Audit Building Envelope: Check for air leaks, insulation levels, and the condition of windows and doors.
- Inspect HVAC Systems: Evaluate the efficiency of heating, ventilation, and air conditioning systems, including filters, ductwork, and controls.
- Examine Lighting: Assess the type of lighting used, its efficiency, and the potential for lighting upgrades or controls.
- Check Appliances and Equipment: Evaluate the efficiency of appliances and equipment, including refrigerators, computers, and other office equipment.




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