



**JANKI DEVI MEMORIAL COLLEGE**  
University of Delhi, India



# ENERGY AUDIT REPORT

Prepared by  
**EHS ALLIANCE SERVICES**



# CONTENTS

AUDIT CERTIFICATE	2
ACKNOWLEDGEMENT	3
DISCLAIMER	4
ABBREVIATION	5
INTRODUCTION OF COLLEGE	6
AUDIT PARTICIPANTS	12
EXECUTIVE SUMMARY	13
ENERGY AUDIT ANALYSIS	13
1. ENERGY CONSUMPTION	13
1.1 ELECTRICITY CONSUMPTION SUMMARY	13
2. DIESEL CONSUMPTION	15
3. ANALYSIS OF DG SETS	16
4. AC SYSTEMS	18
5. CEILING FANS ANALYSIS	20
6. ANALYSIS OF LIGHTING SYSTEM	23
6.1 BRIEF DESCRIPTION OF EXISTING SYSTEM	23
6.2 INVENTORY OF LIGHTING	23
6.3 LUX MEASUREMENT	25
7. IT INFRASTRUCTURE	27
7.1 BRIEF DESCRIPTION OF EXISTING SYSTEM	27
7.2 INVENTORY OF IT INFRASTRUCTURE	27
8. OTHER POWER CONSUMPTION	28
9. CAPACITOR BANK	29



## CERTIFICATE



CERTIFICATE NO. EHSAC52C

# CERTIFICATE

PRESENTED TO

**M/S JANKI DEVI MEMORIAL COLLEGE**

Sir Ganga Ram Hospital Marg, Old Rajinder Nagar, Rajinder Nagar, New Delhi, 110060

Has been assessed by EHS Alliance Services for the comprehensive study of Energy Audit on institutional working framework to fulfill the requirement of

## ENERGY AUDIT

The energy-saving initiatives carried out by the College have been verified in the report submitted and were found to be satisfactory.

The efforts taken by management and faculty towards all types of energy used in the College and sustainability are highly appreciated and noteworthy.

SIGNATURE



24.05.2022

DATE OF AUDIT

EHS ALLIANCE SERVICES, PLOT A-72, SURYA VIHAR, GURUGRAM, 122001  
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## ACKNOWLEDGEMENT

EHS Alliance Services would like to thank the management of Janki Devi Memorial College for assigning this important work of Energy Audit. We appreciate the co-operation to the teams for completion of assessment.

We would like to specially thank **Professor Swati Pal - Principal, JDMC** for giving us an opportunity to evaluate the environmental performance of the campus

We would also like to thank **Ms Vandana Madan (Convener, AVANI- The Environment Club, JDMC)**, for her continuous support and guidance, without which the completion of the project would not have been possible. We are also thankful to other staff members who were actively involved while collecting the data and conducting field measurements.

We are also thankful to

**Prof. Sandhya Garg** (Vice-Principal, JDMC)

**Dr Shilpa Chaudhary** (IQAC coordinator)

**Ms Karishma Ahlawat** (Member, AVANI, JDMC)

**Dr Kanika Kakar** (Member, AVANI, JDMC)

**Ms Pouriangthanliu** (Member, AVANI, JDMC)

**Dr Deepak Rawat** (Department of Environmental Studies, JDMC)

**Ms Ifrah Rehman** (Department of Environmental Studies, JDMC)

**Mr Avinash** (Assistant - Admin, JDMC)

**Mr Vijay Pratap** (Junior Assistant - Admin, JDMC)





## DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for Janki Devi Memorial College based on input data submitted by the representatives of college complemented with the best judgment capacity of the expert team.

While all reasonable care has been taken in its preparation, details contained in this report have been compiled in good faith based on information gathered.

It is further informed that the conclusions are arrived following best estimates and no representation, warranty or undertaking, express or implied is made and no responsibility is accepted by Audit Team in this report or for any direct or consequential loss arising from any use of the information, statements or forecasts in the report.

If you wish to distribute copies of this report external to your organization, then all pages must be included.

EHS Alliance, its staff and agents shall keep confidential all information relating to your organization and shall not disclose any such information to any third party, except that in the public domain or required by law or relevant accreditation bodies. EHS Alliance staff, agents and accreditation bodies have signed individual confidentiality undertakings and will only receive confidential information on a 'need to know' basis.

**Vijay Singh**  
Lead Auditor EMS & Energy



**Dr. Uday Pratap**  
Co-Auditor EMS & Energy



## **ABBREVIATION**

<b>A</b>	<b>Amps</b>
<b>AC</b>	<b>Air Conditioner</b>
<b>AC</b>	<b>Alternating Current</b>
<b>AMET</b>	<b>Academy of Maritime Education and Training</b>
<b>CFL</b>	<b>Compact fluorescent lamp</b>
<b>CIP</b>	<b>Comprehensive Inspection Programme</b>
<b>DC</b>	<b>Direct Current</b>
<b>HSD</b>	<b>High Speed Diesel</b>
<b>Hz</b>	<b>Hertz</b>
<b>kg</b>	<b>Kilogram</b>
<b>kVA</b>	<b>kilo-volt-ampere</b>
<b>kW</b>	<b>kilo Watts</b>
<b>kWh</b>	<b>kilowatt hour</b>
<b>kWp</b>	<b>Kilowatt peak</b>
<b>LED</b>	<b>Light Emitting Diode</b>
<b>LPG</b>	<b>Liquefied Petroleum Gas</b>
<b>MMS</b>	<b>Module mounting structure</b>
<b>MPPT</b>	<b>Maximum Power Point Tracker</b>
<b>NAAC</b>	<b>The National Assessment and Accreditation Council</b>
<b>SEC</b>	<b>Specific Energy Consumption</b>
<b>SPV</b>	<b>Solar Photovoltaic</b>
<b>STC</b>	<b>Standard Test Condition</b>
<b>TV</b>	<b>Television</b>
<b>V</b>	<b>Volts</b>
<b>W</b>	<b>Watts</b>
<b>W/m<sup>2</sup></b>	<b>watt per square meter</b>





## INTRODUCTION OF COLLEGE

Janki Devi Memorial College, a premier women's college of University of Delhi was founded in 1959 by the famous Gandhian Shri Brij Krishan Chandiwala in memory of his mother Smt. Janki Devi. JDMC aims to provide quality education to young women and empower them to become economically self-reliant, have the confidence to face the vicissitudes of a challenging society, contribute meaningfully to the society at large and acquire the capability to think, lead and change the world.



Situated in New Delhi Ridge in idyllic surroundings with its lush green lawns and imposing building, the college offers twelve under-graduate courses in Liberal Arts, Social Sciences, Mathematics and Commerce and eight post graduate courses. JDMC is the Centre for Non-Collegiate Women's Education Board (NCWEB) as well as School of Open Learning (SOL), University of Delhi. The college runs several Add-on courses/Certificate courses for students to enhance their skills. JDMC has MOUs with national and international agencies to provide the much-needed real world exposure to its students. It has more than thirty Societies/Clubs/Cells to give its students sufficient





platforms to excel in various domains. The college has an extremely dedicated, committed and motivated faculty and staff.



The college offers facilities and infrastructure to create a holistic atmosphere for the pursuit of academic and extracurricular activities. JDMC has recently completed its 60-year journey in pursuit of excellence. The college has provided a nurturing environment to students from all parts of India. It has the distinction of having a disabled-friendly infrastructure along with a strong assistance system in place for the students and faculty with visual disability.

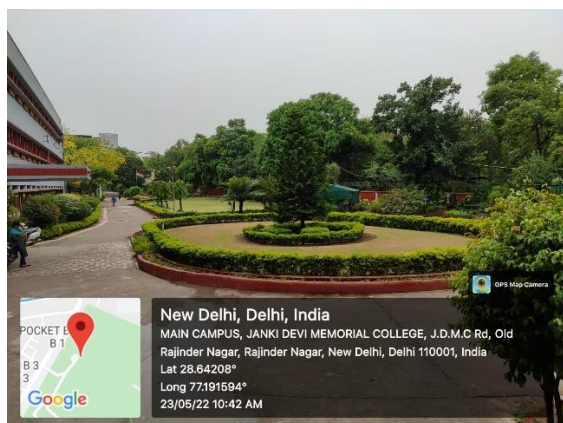
The JDMC-IQAC works in its mandated direction of internalizing and institutionalizing the quality enhancement initiatives. These initiatives encompass various stakeholders, namely students (with the aim of their integrated development), teaching staff and non-teaching staff (enhancing their capabilities and empowering them) and students' parents and Alumnae (strengthening mutually beneficial relationships).

The college has an impressive building with lush green lawns, an eco-friendly campus with solar lighting and a rain-water harvesting system. The classrooms are clean, comfortable and well ventilated; the premises contain a common room and a medical





room with a sanitary napkin vending machine, an open air auditorium; a bank, a multi-cuisine and attractive cafeteria, computer laboratories; an audio-visual room; a photocopying centre as well as a Mother Dairy booth.



JDMC has following facilities for the students

## Library

JDMC library is a repository of over 1 lakh books and over 100 journals, both academic and general. It is among the first fully automated libraries in Delhi University and provides photocopying and free internet access facilities.

## Canteen

The college has a spacious cafeteria that offers a wide variety of snacks to students and staff at reasonable rates.

## Smart Classroom

The college has 3-5 smart Classrooms which are ICT enabled with interactive smart boards to facilitate the teaching-learning process.

## Labs

JDMC has 4 computer labs, 2 Research Rooms, and an A/V room. With 200+ systems and ICT facilities, these rooms provide state-of-the-art teaching/learning environment to the students and faculty.

## Garden

The college Gardens are a source of pride for JDMC. The gardens have won many awards in different categories in the university flower show.

## Seminar Room

The Seminar Room has a seating capacity of more than 200 with a state-of-the-art audio-visual system which is updated on a regular basis. The Seminar Room functions as a multi-purpose space used to hold conferences, seminars, etc.



**Library**



**Labs**



**Smart Classroom**



**Canteen**



**Garden**



**Seminar Room**

## Vision & Mission

JDMC, a premier women's college of University of Delhi, endeavours to promote enduring knowledge which is global in its perspective and yet local in its relevance. Students are challenged & inspired to pursue excellence in liberal and performing arts, humanities, commerce and sports, in an environment which is vibrant & constantly evolving. Founded with a vision to empower women, JDMC continues to strive to help its students to develop a capacity to think, lead and change the world.

### ***MISSION STATEMENT AND CORE VALUES***

The egalitarian approach of the institution promotes the inclusion of all sections of the society. The institution is equally inclusive of all its constituencies, with their respective duties, responsibilities and achievements. The students and staff, belonging to diverse classes, castes, ethnic and religious groups cooperate in a democratic environment to take the college to newer heights of excellence. The institution besides providing education, also serves as a platform for cultural expression and excellence, constantly reminding students of the primary importance of cultural diversity, national integration and tolerance, along with the need to be in harmony with the environment.



Janki Devi Memorial College is committed to the following core values:

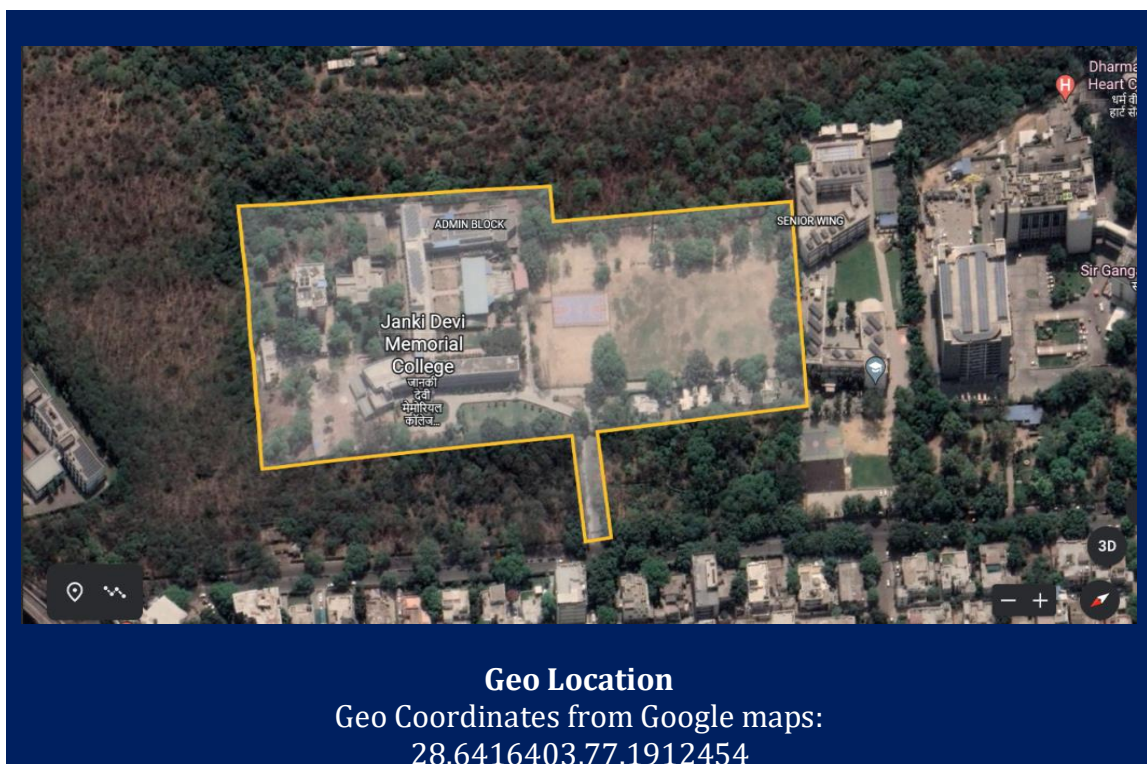
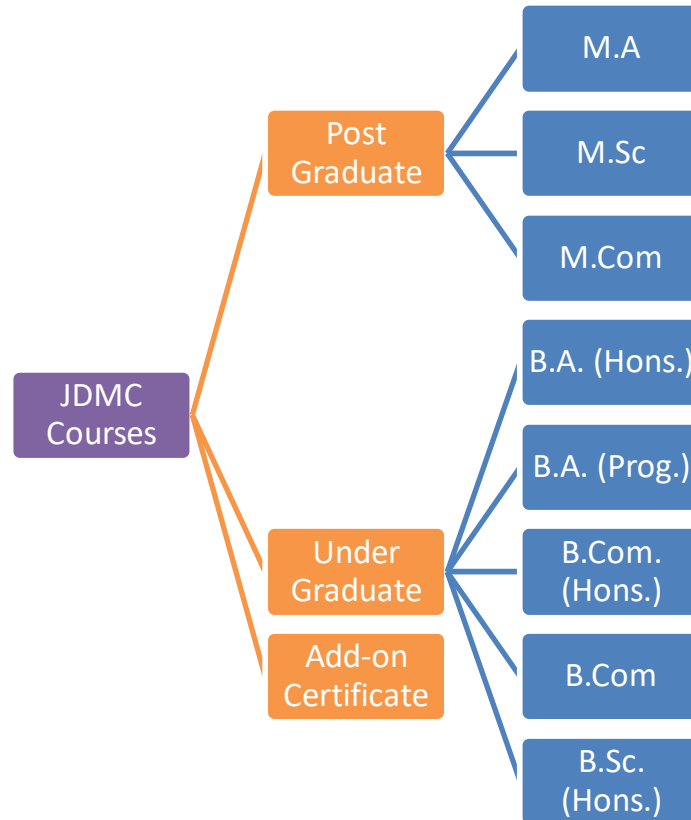
- The foundational ideal is enshrined in the upanishadic motto of the college itself, 'Vidyahi paramam Jyoti' - Knowledge is Eternal Light
- Gandhian philosophy of responsible citizenship and empowerment of women through education
- Imparting knowledge based on traditional values, yet with modern and global significance in an evolving academic world
- Education, in combination with technological skills, empowers the students both academically and economically, and proactively contributes to their brighter future

Therefore, the college creates a motivational environment to provide holistic education and personality development of the students, resulting in a synthesis of their career growth and ethical and responsible citizenship





JDMC is providing education to undergraduates and graduates in following department.





## Audit Participants

On behalf of College

Name	Designation/Department
Prof. Swati Pal	Principal, JDMC
Prof. Sandhya Garg	Vice-Principal, JDMC
Ms Vandana Madan	Convener, AVANI- The Environment Club, JDMC
Dr Shilpa Chaudhary	IQAC coordinator
Ms Karishma Ahlawat	Member, AVANI, JDMC
Dr Kanika Kakar	Member, AVANI, JDMC
Ms Pouriangthanliu	Member, AVANI, JDMC
Dr Deepak Rawat	Department of Environmental Studies, JDMC
Ms Ifrah Rehman	Department of Environmental Studies, JDMC
Mr Avinash	Assistant Admin, JDMC
Mr Vijay Pratap	Junior Assistant Admin, JDMC

On behalf of EHS Alliance Services

Name	Position	Qualifications
Dr. Uday Pratap	Lead Auditor	Ph.D. , PDIS, QCI – WASH, Lead Auditor ISO 14001:2015
Mr. Vijay Singh	Co Auditor	M. Tech (Environment Science & Engineering), Energy Auditor





## EXECUTIVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the JDMC. Reducing the energy consumption despite improving the human comfort, health and safety were of primary concern.

Beyond just identifying the energy consumption pattern, this audit sought to detect and categorize the most energy efficient appliances. Additionally, some daily practices relating common appliances have been shared which may help reducing the energy consumption. Data collection for energy audit of the college was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the college on actual survey and detailed analysis during the audit.

The work comprehends the area wise consumption traced using suitable equipment. The analysis was carried out by our team with the support of the staff members from JDMC. The report provides a list of possible actions to preserve and efficiently access the available source, resources and their saving potential was also identified. We look forward towards optimization that the authorities, students and staff members would follow the recommendations in the best possible way. The report is based on certain generalizations including the approximations wherever necessary. The views conveyed may not reveal the general opinion. They merely represent the opinion of the team guided by the interviews of clients. We are happy to submit this Energy audit report to the JDMC.

## ENERGY AUDIT ANALYSIS

### 1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and for analyzing the average monthly consumption we have collected electricity energy bills from May 2021 to April 2022

The details of “**Meter Connection**” at “**JDMC**” are as follows-

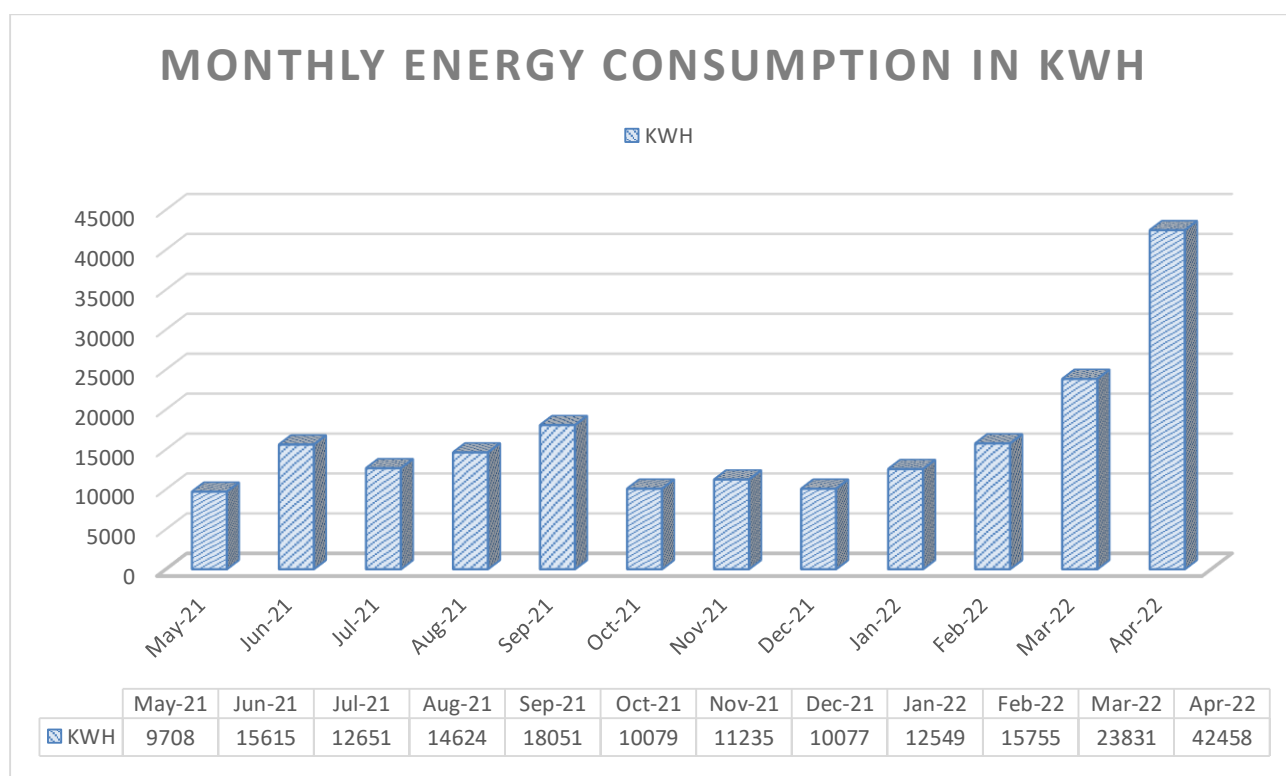
Name	-	The Principal
CA No.	-	100001930



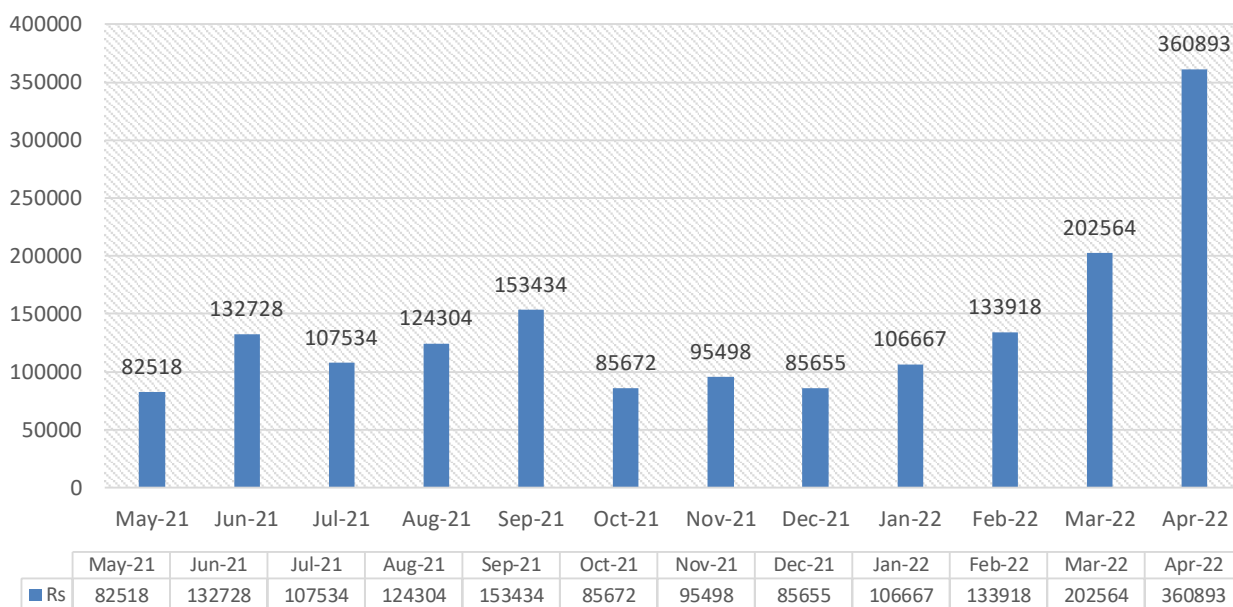
## 1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and for developing the baseline parameter we have collected monthly energy bill for the 12 months i.e. from May 2021 to April 2022

Month	Units (KWH)	Amount (INR)
May-21	9708	82518
Jun-21	15615	132728
Jul-21	12651	107534
Aug-21	14624	124304
Sep-21	18051	153434
Oct-21	10079	85672
Nov-21	11235	95498
Dec-21	10077	85655
Jan-22	12549	106667
Feb-22	15755	133918
Mar-22	23831	202564
Apr-22	42458	360893
<b>Total</b>	<b>196633</b>	<b>1671381</b>



## Monthly Energy Charges - May 2021 to April 2022



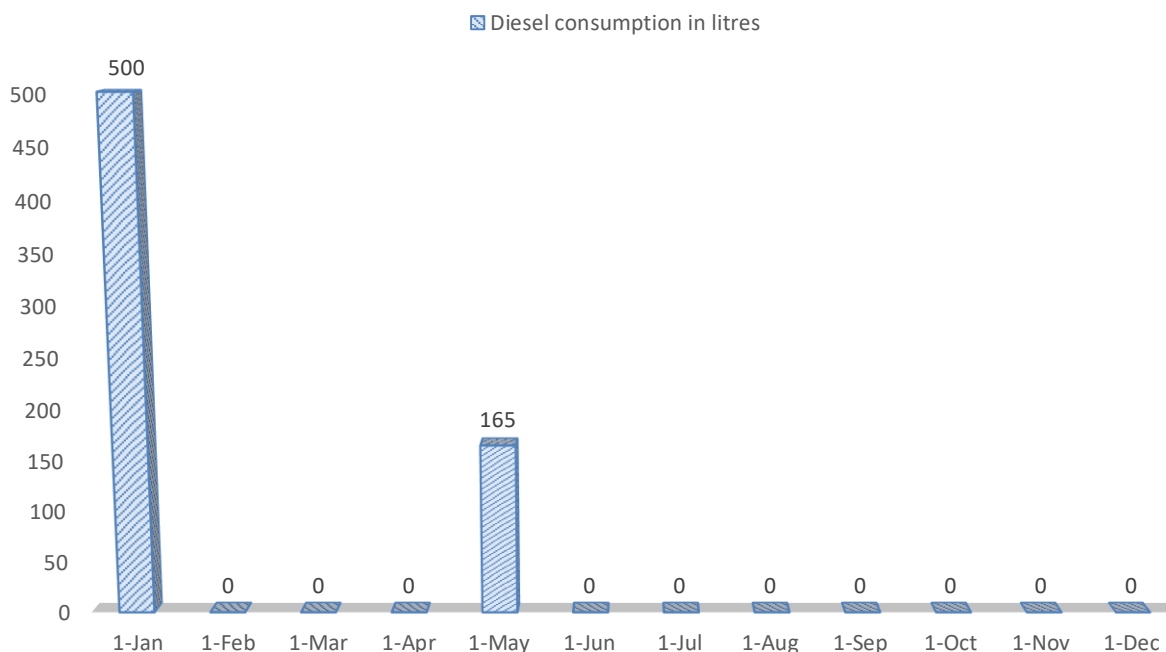
## 2. DIESEL CONSUMPTION

Below is the diesel consumption details in litres from May 2021 to April 2022.

Period	Diesel consumption (in litres)
May-21	165
Jun-21	0
Jul-21	0
Aug-21	0
Sep-21	0
Oct-21	0
Nov-21	0
Dec-21	0
Jan-22	500
Feb-22	0
Mar-22	0
Apr-22	0
<b>Total</b>	<b>665</b>

\*The total consumption of the diesel is very low because of COVID-19 situation

## DIESEL CONSUMPTION (LITRES) MAY. 2021 TO APRIL. 2022



### 3. ANALYSIS OF DG SETS

In the college, there is one Diesel Generator (DG) sets for its electrical power needs in case of Grid power failure. Total installed DG sets capacity is 250 kVA.

DG Set Performance				
Description	Unit	DG at Station DG 1	DG at Station DG 2	DG at Station DG 3
Rated capacity	kVA	125	160	62.5
Hz		50	50	50
Sl No.		6H.3516/0801590	1308061708370	1308031807948
Make		kirloskar	Greaves	Greaves
Volts	Volts	415	415	415
PF		0.8	0.8	0.8



Phase		3	3	3
RPM		1500	1500	1500
Amps	Amps	173.9	223	87
Mfg.		8-Aug	17-Aug	18-Jul

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	64.38
Energy Generation	kWh	36.85
Load	KVA	97.4
Fuel consumption during testing	Litre	10
Specific energy generation	kWh/litre	3.42

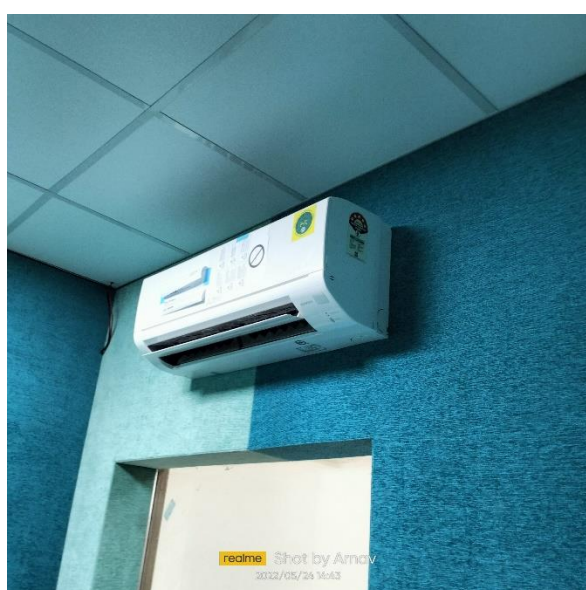


**Observation and Suggestions:-** As per the trial taken during the energy audit the percentage loading of DG set is 64.38% which is ok and specific energy consumption of DG Sets 3.42 KWH/Litre which is satisfactory because as per manufacturer recommendation, best practices for SEC in DG sets range from 3.0 to 3.5 kWh/litre and above.

## 4. AC SYSTEM

**Energy Efficiency Ratio (EER):** Performance of smaller chillers and rooftop units is frequently measured in EER rather than kW/ton. EER is calculated by dividing a chiller's cooling

Capacity (in Btu/h) by its power input (in watts) at full-load conditions. The higher the EER, the More efficient the unit. The cooling effect produced is quantified as tons of refrigeration (TR). The above TR is also called as air-conditioning tonnage.



There are Split ACs installed in Janki Devi Memorial College in various areas of various capacity which detail is given below:-

S. No.	Location	Type of AC (Split – S, Window – W)	Quantity	Rated capacity (TR)	Room Temp. (°C)	AC-Tout (°C)	AC-Tin (°C)	Room-RH (%)	Area (m2)	Air velocity (m/s)	Enthalpy Hout	Enthalpy Hin	Heat Load in TR	KW supplied	(Eff.)Power per Ton (KW/TON)	EER
1	Library	S	4	1.5	23	13	20	52	0.03	2.3	26	38	0.31	0.53	1.74	2.02
2	Seminar	S	1	1.5	23	12	20	52	0.03	2.2	25	38	0.32	0.55	1.74	2.03



3	Committ ee	S	1	1.5	23	12	19	52	0.03	2.3	24	37	0.33	0.58	1.74	2.02
4	Medical	S	1	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
5	Bank	S	2	1.5	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
6	Principal room	S	1	1.5	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
7	Lab II,III	S	3	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
8	Server room	S	2	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
9	Admin	S	2	1.5	23	11	21	53	0.03	2.5	24	40	0.42	0.74	1.77	1.99
10	Ao	S	1	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.65	1.69	2.08
11	So	S	1	1.5	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
12	Music	S	1	1.5	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
13	Staff room	S	2	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
14	Audio video room	S	2	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
15	Sta room	S	1	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
16	Pa	S	1	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
17	Account	S	1	1.5	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
18	Sports	S	1	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
19	Principal office	S	2	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
20	Researc h room lib-2	S	3	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
21	Researc h Room staff room	S	1	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
22	Hostel	S	5	1.5	23	11	19	53	0.03	2.4	22	38	0.4	0.81	2.02	1.74
23	Library	W	7	1.5	22	11.5	22	52	0.03	2.1	23	43	0.44	0.77	1.77	1.99
24	Gcr	W	1	1.5	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
25	Seminar	W	4	1.5	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
26	Committ ee	W	2	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
27	Audi Control room	W	1	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
28	Union room	W	1	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
29	Lab II,III	W	2	1.5	24	12	20	53	0.03	2.5	25	38	0.34	0.6	1.79	1.97
30	Music	W	1	1.5	24	12	20	53	0.03	2.4	25	38	0.33	0.58	1.78	1.98
31	Staff room	W	2	1.5	22	10.5	21	52	0.06 2	2.4	22	39	0.88	1.53	1.74	2.02
32	Account	W	2	1.5	22	10.5	20	52	0.06 2	2.1	21	38	0.77	1.28	1.67	2.1
33	Sports	W	1	1.5	22	10.5	21	52	0.06	2.4	22	39	0.88	1.53	1.74	2.02

								2								
34	Pio	W	1	1.5	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
35	Department	W	1	1.5	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1
36	Hostel	W	18	1.5	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
37	Research room lib-2	S	2	2	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
38	Audio video room	S	2	2	22	10.5	21	52	0.062	2.4	22	39	0.88	1.53	1.74	2.02
39	Server room	S	2	2	22	10.5	20	52	0.062	2.1	21	38	0.77	1.28	1.67	2.1

**Remarks:** - We have checked Energy Efficiency Ratio of AC's and EER of AC's is fairly OK. But in future you should purchase 5-Star rated inverter based split AC's because power consumption of Inverter based BEE 5-Star rated AC's is less than non-star rated AC's.

## 5. CEILING FAN ANALYSIS

In the JDMC College, 934 Ceiling Fans are installed, out of which 279 fans are of 25W and 65 fans are 70W. The observation and suggestion are given below.

SI No.	Location/Identificatio	Ceiling Fan (250 W)	Ceiling Fan-70W
1	Seminar	8	
2	Staff Room	6	
3	Research Room	2	
4	Canteen	24	
5	Control Room (Audi)	0	
6	Auditorium	24	
7	1	5	
8	2	5	
9	3	3	
10	4	3	
11	5	3	
12	6	2	
13	7 AV	5	





14	8	5	
15	11(ncweb)	7	
16	12	7	
17	13	7	
18	13A	2	
19	14	7	
20	15 A/V	7	
21	16 A/V	7	
22	17	5	
23	17A	5	
24	18Tut	2	
25	19Tut	2	
26	20Tut	2	
27	21Tut	1	
28	22Tut	1	
29	23Tut	1	
30	24Tut	1	
31	25Tut	1	
32	26Tut	1	
33	27Tut	1	
34	28Tut	1	
35	29Tut	1	
36	30Tut	2	
37	31Tut	1	
38	32Tut	1	
39	33Tut	2	
40	34Tut	1	
41	35Tut	1	
42	36Tut	3	
43	60Tut	2	
44	38	2	
45	39A	3	
46	39	3	
47	40 A/V	7	
48	41A	3	
49	41	3	
50	42 A/V	5	
51	43	2	2
52	43A	4	1
53	56	2	
54	52		2
55	53	2	2
56	54		2
57	55	4	4
58	NCC	2	
59	57	2	
60	58	2	



61	59		
62	44	5	
63	45	5	
64	46	5	
65	47	5	
66	48	5	
67	49	3	
68	L1-20	3	
69	L2-20	3	
70	Music room		
71	1	4	
72	2	2	
73	3	2	
74	Computer Lab		
75	II -	4	
76	III	10	
77	Sports Room		
78	Sports Changing		
79	61		2
80	62		2
81	63		4
82	64		4
83	65		8
84	66 A/V		8
85	67		8
86	68 A		8
87	69		8
<b>Total</b>		<b>279</b>	<b>65</b>

### Observation and Suggestions:-

In the college, old ceiling majority of fans are of 250 W but BEE 5 Star Rated of 30W Ceiling Fans are present in the market. Therefore we suggest to replace BEE 5 Star rated fans of 30W.

*ECRM-1-Energy saving by replacing 70/250 W fans with energy efficient 30W ceiling fans*

<b>Total no of Ceiling Fans (70W)</b>	<b>=</b>	<b>65</b>	<b>Nos.</b>
<b>Total no of Ceiling Fans (250W)</b>	<b>=</b>	<b>279</b>	<b>Nos.</b>



<b>Total wattage of 70W Ceiling Fans</b>	=	4550	Watt
<b>Total wattage of 250W Ceiling Fans</b>	=	69750	Watt
<b>Total wattage of BEE 5 Star rated Fans (30W)</b>	=	10320	Watt
<b>Total saving in Wattage after replacement</b>	=	63980	Watt
<b>Operating hours per day</b>	=	8	Hours
<b>Operating days per annum</b>	=	180	Days
<b>Energy charges per unit in Rs.</b>	=	8.5	INR
<b>Saving in Rs./annum</b>	=	783115.20	INR
<b>Investment INR</b>	=	1032000	INR
<b>Payback period:- Months</b>	=	0.75	YEARS

Note:- Energy saving will increase or decrease if operating hours of machine /equipment will be increase or decrease and payback period will also increase or decrease if cost of investment(Cost of machine/equipment/accessories of machine) will increase or decrease because cost of investment is taken on tentative basis.

## 6. ANALYSIS OF LIGHTING SYSTEM

### 6.1 Brief description of existing system

For assessing energy efficiency of lighting system, Inventory of the Lighting System has been noted / collected, with the aid of a lux meter, measurement and documentation of the lux levels at various locations at working level has been done.

### 6.2 Inventory of Lighting

Sl. No.	Location/Identification	36W Light	32W LED	150W LED	20W LED	20W LED-FOB Aly Side	10W LED Glow Shine
1	Seminar	-	-	-	25	-	-
2	Staff Room	-	-	-	14	-	-
3	Pol.Sci Dept	-	-	-	2	-	-
4	English Dept	-	-	-	2	-	-
5	commerce Dept	-	-	-	2	-	-
6	philosophy Dept	-	-	-	2	-	-
7	History Dept	-	-	-	2	-	-
8	Hindi Dept	-	-	-	2	-	-
9	sociology Dept	-	-	-	2	-	-



10	Admin Office	-	-	-	6	-	-
11	SO (Admin)	-	-	-	2	-	-
12	Account Office	-	-	-	8	-	-
13	voice principles	-	-	-	3	-	-
14	Principle Office	-	-	-	6	-	-
15	Committee Room	-	-	-	14	-	-
16	PA Room	-	-	-	3	-	-
17	Vice Principle	-	-	-	3	-	-
18	AO Office	-	-	-	3	-	-
19	Reception	-	-	-	2	-	-
20	Canteen	-	-	-	44	-	-
21	Library	-	-	-	40	-	-
22	1	-	-	-	4	-	-
23	2	-	-	-	4	-	-
24	3	-	-	-	6	-	-
25	4	-	-	-	5	-	-
26	5	-	-	-	5	-	-
27	6	-	-	-	4	-	-
28	7 AV	-	-	-	6	-	-
29	8	-	-	-	7	-	-
30	11(ncweb)	-	-	-	6	-	-
31	12	-	-	-	6	-	-
32	13	-	-	-	6	-	-
33	13A	-	-	-	3	-	-
34	14	-	-	-	6	-	-
35	15 A/V	-	-	-	6	-	-
36	16 A/V	-	-	-	8	-	-
37	17	-	-	-		-	-
38	17A	-	-	-	2	-	-
39	38	-	-	-	2	-	-
40	39A	-	-	-	3	-	-
41	39	-	-	-	4	-	-
42	40 A/V	-	-	-	6	-	-
43	41A	-	-	-	3	-	-
44	41	-	-	-	3	-	-
45	42 A/V	-	-	-	4	-	-
46	43	-	-	-	4	-	-
47	43A	-	-	-	3	-	-
48	56	-	-	-	4	-	-
49	52	-	-	-	2	-	-
50	53	-	-	-	2	-	-
51	54	-	-	-	2	-	-





52	55	-	-	-	6	-	-
53	NCC	-	-	-	2	-	-
54	57	-	-	-	2	-	-
55	58	-	-	-	2	-	-
56	59	-	-	-		-	-
57	44	-	-	-	2	-	-
58	45	-	-	-	4	-	-
59	46	-	-	-	4	-	-
60	47	-	-	-	4	-	-
61	48	-	-	-	4	-	-
62	49	-	-	-	5	-	-
63	L1-20	-	-	-	4	-	-
64	L2-20	-	-	-	4	-	-
65	Music room	-	-	-	4	-	-
66	1	-	-	-	2	-	-
67	2	-	-	-	2	-	-
68	3	-	-	-	2	-	-
69	4	-	-	-	2	-	-
70	Computer Lab	-	-	-	16	-	-
71	II -	-	-	-	12	-	-
72	III	-	-	-	12	-	-
73	Sports Room	-	-	-	6	-	-
74	Sports Changing	-	-	-	2	-	-
75	61	-	-	-	4	-	-
76	62	-	-	-	4	-	-
77	63	-	-	-	6	-	-
78	64	-	-	-	6	-	-
79	65	-	-	-	12	-	-
80	66 A/V	-	-	-	12	-	-
81	67	-	-	-	12	-	-
82	68 A	-	-	-	12	-	-
83	69	-	-	-	12	-	-
<b>Total</b>					<b>496</b>		

### 6.3 Lux Measurement

Description	Lux	Remark
<b>Class Rooms</b>	120 to 235	Acceptable
<b>Offices</b>	130 to 240	Acceptable



<b>Corridors</b>	35 to 90	Acceptable
<b>Washrooms</b>	45 to 76	Acceptable
<b>Outdoor</b>	36 to 95	Acceptable
<b>Computer Lab</b>	150 to 289	Acceptable
<b>Parking area</b>	45 to 94	Acceptable
<b>Canteen</b>	69 to 185	Acceptable

## Observation

College has implemented LED based lighting solution in the campus. LEDs save energy, the life span is much greater and emit virtually no heat. College has installed solar lights for street lights in the campus. JDMC is doing their bit for the energy conservation.

Table below shows the performance characteristics comparison of all luminaries.

Table - Luminous Performance Characteristics of Commonly Used Luminaries					
Type of Lamp	Lumens/Watt		Colour Rendering Index	Typical Application	Typical Life
	Range	Avg.			
<b>Incandescent</b>	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
<b>Fluorescent lamps</b>	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
<b>Compact fluorescent Lamps (CFL)</b>	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
<b>High pressure mercury (HPMV)</b>	44-57	50	Fair (45)	General lighting in factories, garages, car parking. flood lighting	5000
<b>Halogen lamps</b>	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000



<b>High pressure sodium (HPSV) SON</b>	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
<b>Low pressure sodium (LPSV) SOX</b>	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
<b>Metal halide lamps</b>	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
<b>LED Lamps</b>	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

## 7. IT INFRASTRUCTURE

### 7.1 Brief description of existing system

For assessing energy efficiency of IT Infrastructure, Inventory of the equipment has been noted / collected.

### 7.2 Inventory of IT Infrastructure

SI No.	Location/Identification	Desktop	Laptop	Printers	Scanners	Servers	Others
1	Computer Lab I	-	32	1	-	-	-
2	Computer Lab II	49	14	2	-	-	-
3	Computer Lab III	50	-	2	1	-	-
4	Research Room	8	-	1	-	-	-
5	Pol.Sci	-	-	-	-	-	-
6	English	-	-	-	-	-	-
7	commerce	-	-	-	-	-	-
8	philosophy	-	-	-	-	-	-
9	History	-	-	-	-	-	-
10	Hindi	-	-	-	-	-	-
11	sociology	-	-	-	-	-	-
12	Library	17	24	5	-	1	-
13	Admin	6	-	6	-	-	-
14	SO	1	-	-	-	-	-



15	Account	8	-	5	-	1	-
16	Principle Off	1	2	1	-	-	-
17	Committee	1	-	-	-	-	-
18	PA	1	-	1	-	-	-
19	Anty Room	-	-	-	-	-	-
20	AO office	1	-	1	-	-	-
21	Reception	-	-	-	-	-	-
22	Sports	1	-	1	-	-	-
23	Union Room	-	-	-	-	-	-
24	PIO	-	-	-	-	-	-
25	Medical	-	-	-	-	-	-
26	Server Room	1	-	1	-	-	3
27	Corridors I,II,III	-	-	-	-	-	-
28	Principal Lobby	-	-	-	-	-	-
29	Canteen	-	-	-	-	-	-
30	Sports Changing room	-	-	-	-	-	-
31	Seminar	-	-	-	-	-	-
32	Staff Room	-	-	-	-	-	-
33	E Resource Centre	-	43	-	-	-	-
<b>Total</b>		<b>145</b>	<b>115</b>	<b>27</b>	<b>1</b>	<b>2</b>	<b>3</b>

## Observation

We recommend JDMC to replace all the old computers/scanners/printers, etc. as the lifespan of electronic equipment can be decreased by a variety of factors, such as operating temperature and usage intensity. JDMC should organize regular inspection of the devices and should sell the old ones to the e-waste management organization. All Computers/laptops that are more than 3 year or 5 years old (as per their prescribed life span) should be replaced with new computers/laptops.

## 8. OTHER POWER CONSUMPTION

<i>60W Exhaust Fan</i>	25
<i>160W Exhaust Fan</i>	4
<i>Water Cooler-200W</i>	8
<i>180W-Desert Cooler</i>	0
<i>180W-Circulating Fan</i>	0
<i>5 hp Pump</i>	1
<i>1 hp Pump</i>	1





## Observation

There should be regular maintenance schedule of equipment like geyser, water coolers, pumps, etc.

## 9. CAPACITOR BANK

Sl. No.	Identification	Capacity in KVAR
1	Substation I	25 KVAR

\*\*\*\*\* END OF THE REPORT \*\*\*\*\*