



**DR. BHIMRAO AMBEDKAR
UNIVERSITY, AGRA**

ENERGY AUDIT REPORT

2022-2023

PREPARED BY
EHS ALLIANCE SERVICES

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CERTIFICATE



CERTIFICATE

PRESENTED TO

**DR. BHIMRAO AMBEDKAR UNIVERSITY,
AGRA**

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

INITIATIVE CARRIED OUT BETWEEN YEAR 2020-2023

The energy-saving initiatives carried out by the institution 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 institution and sustainability are highly appreciated and noteworthy.

A handwritten signature in blue ink, appearing to read 'H. Singh'.

SIGNATURE



28.06.2023

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 Dr. Bhimrao Ambedkar University, Agra for assigning this important work of Energy Audit. We appreciate the cooperation to the teams for the completion of the assessment.

First of all, we would like to thank **Prof Ashu Rani, Vice – Chancellor** for allowing us to evaluate the environmental performance of the campus.

We would also like to thank **Prof. B S Sharma - Audit Coordinator**, for his 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. Ajay Taneja **Pro Vice – Chancellor**

Prof. Sanjeev Kumar **Director, IQAC**

Prof. M. P. Singh **Director, I.E.T.**

Prof. R K Agnihotri **Professor, Botany**



DISCLAIMER

EHS Alliance Services Energy Audit Team has prepared this Energy Audit Report for Dr. Bhimrao Ambedkar University based on input data submitted by the representatives of University 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.

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Vijay Singh
Lead Auditor EMS & Energy



Dr. Uday Pratap
Co-Auditor EMS & Energy

ABBREVIATION

A	Amps
AC	Air Conditioner
AC	Alternating Current
AMET	Academy of Maritime Education and Training
CFL	Compact fluorescent lamp
CIP	Comprehensive Inspection Program
DC	Direct Current
HSD	High-Speed Diesel
Hz	Hertz
kg	Kilogram
kVA	kilo-volt-ampere
kW	kilo Watts
kWh	kilowatt hour
kWp	Kilowatt peak
LED	Light Emitting Diode
LPG	Liquefied Petroleum Gas
MMS	Module mounting structure
MPPT	Maximum Power Point Tracker
NAAC	The National Assessment and Accreditation Council
SEC	Specific Energy Consumption
SPV	Solar Photovoltaic
STC	Standard Test Condition
TV	Television
V	Volts
W	Watts
W/m²	watt per square meter

OVERVIEW OF THE UNIVERSITY

The foundation – of Dr Bhimrao Ambedkar University (originally known as Agra University) was laid on the 1st of July, 1927, as a result of hectic efforts of a band of enthusiastic educationists like Rev. Canon A.W. Davis, Munshi Narain Prasad Asthana, Dr L.P. Mathur, Lala Dewan Chand, Rai Bahadur Anand Swaroop and Dr Brajendra Swaroop,.

Original jurisdiction of University extended over United Provinces of Agra, Central India and Rajputana with 14 affiliated colleges and 2530 students of which, 1475 students belonged to United Provinces. Initially, there were only four faculties in the University viz. Arts, Sciences, Commerce and Law. Faculties of Medicine (1936), Agriculture (1938), Home Science (1980), Basic Sciences (1981), Fine Arts (1982) and Management (1994) were added subsequently.



The Agra University, Agra was renamed as Dr Bhimrao Ambedkar University, Agra from 24.09.1995 vide U.P. Govt. Notification No. 33/XVII-V-1-1(ka)-43-1996, dated 06.01.1996). The University now caters to the educational needs of the four districts of Agra Division Agra, Mainpuri, Firozabad, and Mathura. Besides, the University is proud of having affiliated to it, Sarojini Naidu Medical College, which is one of the oldest and premier Medical Institute of the country. At present university has 6 Govt colleges, 1 constituent college, 27 aided colleges, 540 self financed colleges and 15 residential Institutes spread out in its four residential campuses viz. Paliwal Park, Khandari Campus,

Civil Lines Campus, and Chhaleshar Campus. The University is steadily surging ahead as a centre for higher scientific vocational and job oriented education and innovative research. The goal of the University is to innovate in the field of education and to become a centre of excellence both Nationally and Internationally. The University is not only confined to impart quality education but also to satisfy the burning desire of the students who are exploring the creative intellect and learning attitude of the students. The University is making every effort to fulfill the spirit of University motto "Tamso Ma Jyotirgamay" moving from darkness to light.

The University has over the years developed a sizeable residential wing consisting of following Institutes & independent Teaching Departments:

- ✓ K. M Institute of Hindi & Linguistics(1953)
- ✓ Institute of Social Sciences (1957)
- ✓ Institute of Home Science (1968)
- ✓ Institute of Basic Science (1984)
- ✓ Department of Library Information Science (1984)
- ✓ Department of History (1985)
- ✓ Department of Adult and Continuing Education & Extension (1989)
- ✓ Department of Physical Education (1989)
- ✓ S.P.C.J. Institute of Commerce, Business Management & Economics (1993)
- ✓ Dau Dayal Institute of Vocational Education (1994)
- ✓ Institute of Engineering & Technology (1998)
- ✓ Deen Dayal Upadhyaya Institute of Rural Development (1998)
- ✓ School of Life Sciences (1998)
- ✓ Department of Contemporary Social Studies & Law (1998)
- ✓ Lalit Kala Sansthan (Institute of Fine Arts) (2000)
- ✓ Institute of Computer and Information Science (2004)
- ✓ Institute of Hotel and Tourism Management (2004)

MISSION, VISION & CORE VALUES

MISSION

- ✓ To make our education relevant and excellent.
- ✓ To contribute to the advancement of knowledge through research, publication and disseminations
- ✓ To develop student aptitudes and skills as well as make them conscious of their duty to the country and to fellow human beings.
- ✓ Promote a culture of excellence in all activities of the University by implementing good practices

VISION

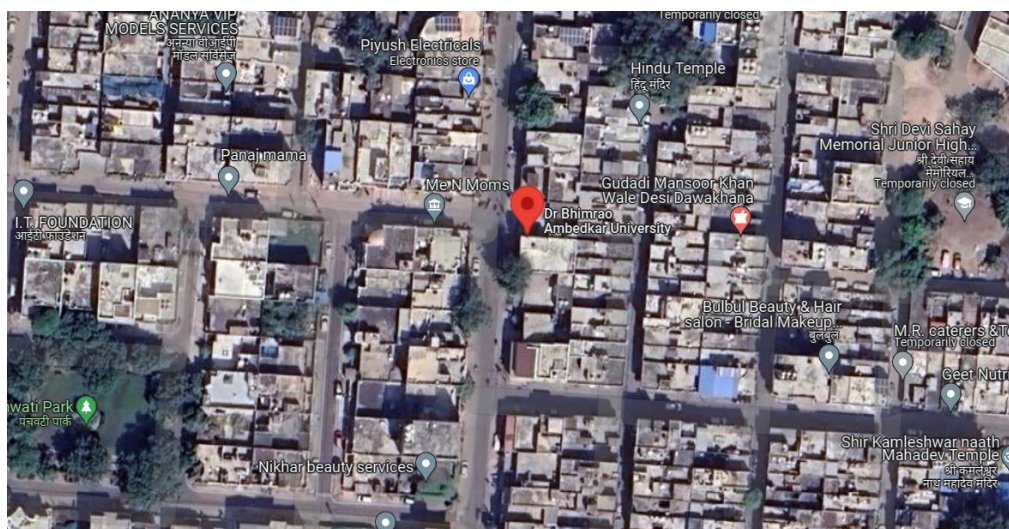
To be a quality higher education Institution by producing students with knowledge, professional skill and ethical values and remain as preferred partner to the Industry and Community for their progress and development

CORE VALUES

- ✓ Academic freedom and flexibility
- ✓ Collegiality and team work
- ✓ Concern for the environment and society
- ✓ Transparency and accountability for all stake holders.

Geo Location

Geo Coordinates from Google maps:
27.215253, 78.0252238



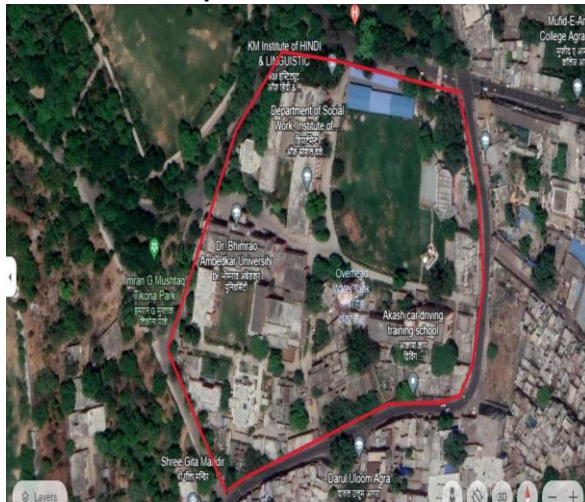
Campus wise map is shown below:



Chhaleshar Campus



Sanskriti Bhawan, Civil Lines Campus



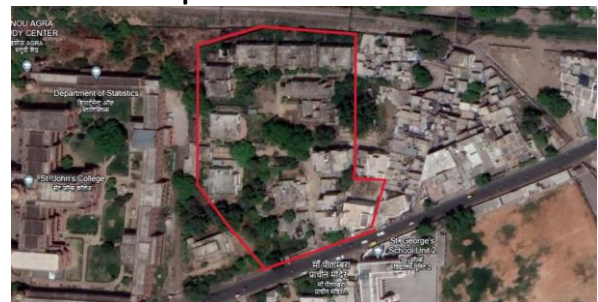
Paliwal Campus



Khandari Campus



Sultan Ganj Campus



Gopal Kunj Residential Campus



AUDIT PARTICIPANTS

On behalf of the University

Name	Designation
Prof Ashu Rani	Vice - Chancellor
Prof. Ajay Taneja	Pro Vice - Chancellor
Prof. B S Sharma	Professor, EVS
Prof. Sanjeev Kumar	Director, IQAC
Prof. Manu Pratap Singh	Professor & Director, IET
Prof. R K Agnihotri	Professor, Botany
Dr. Rajeev Kumar	Registrar
Er. Harimohan	University Engineer

On behalf of EHS Alliance Services

Name	Position	Qualifications
Mr. Vijay Singh	Lead Auditor	M.Sc. M. Tech (Environment Science & Engineering), Energy Auditor, Post Diploma in Industrial Safety Management
Dr. Uday Pratap	Co-Auditor	Ph.D., EMS: Lead Auditor ISO14001:2015, QCI-WASH



EXECUTIVE SUMMARY

The purpose of this Energy Audit was to seek opportunities to improve the energy efficiency of the Dr. Bhimrao Ambedkar University. 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 campus was carried out by the EHS Alliance Team. The Energy Audit Report accounts for the energy consumption patterns of the institution 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 Dr. Bhimrao Ambedkar University. 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 Dr. Bhimrao Ambedkar University.

ENERGY AUDIT - ANALYSIS

1. ENERGY CONSUMPTION

To understand the Energy Consumption trends and to analyze the average monthly consumption we have collected electricity energy bills from July 2022 to June 2023

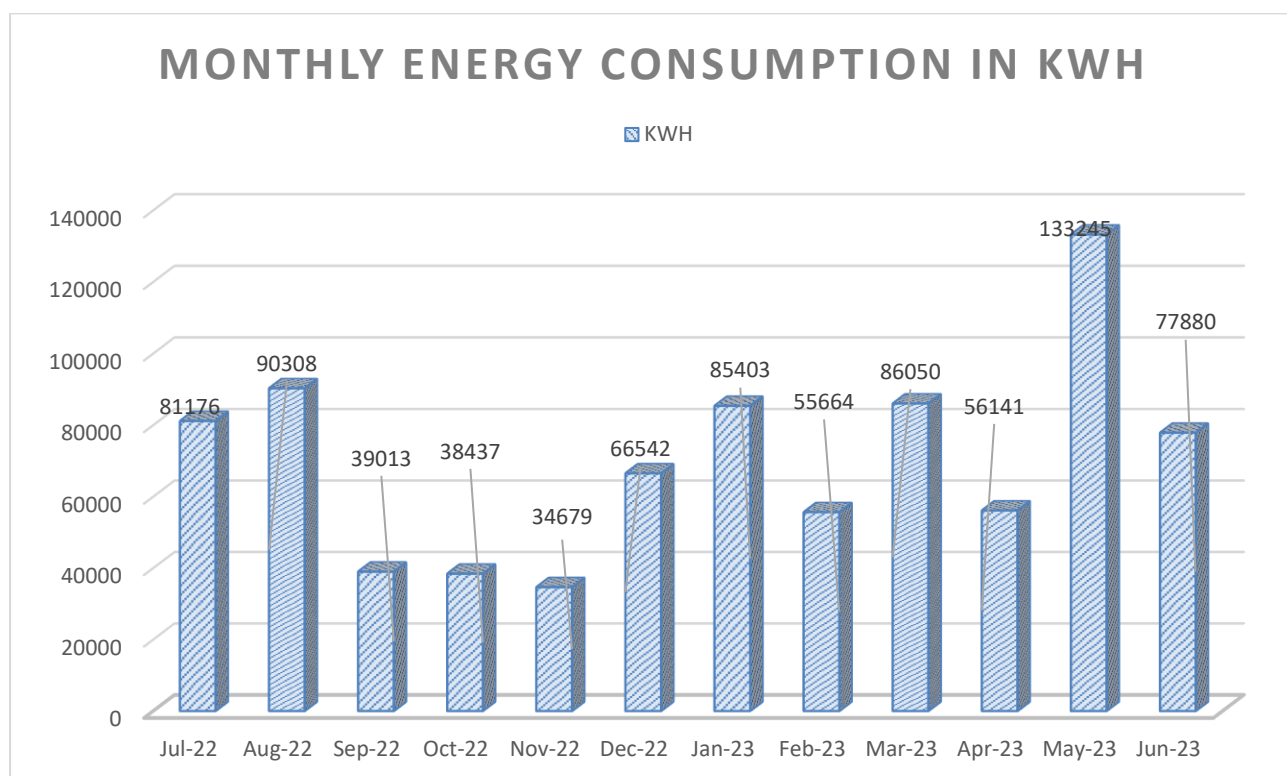
The details of “**Meter Connection**” at “**Dr. Bhimrao Ambedkar University**” are as follows-

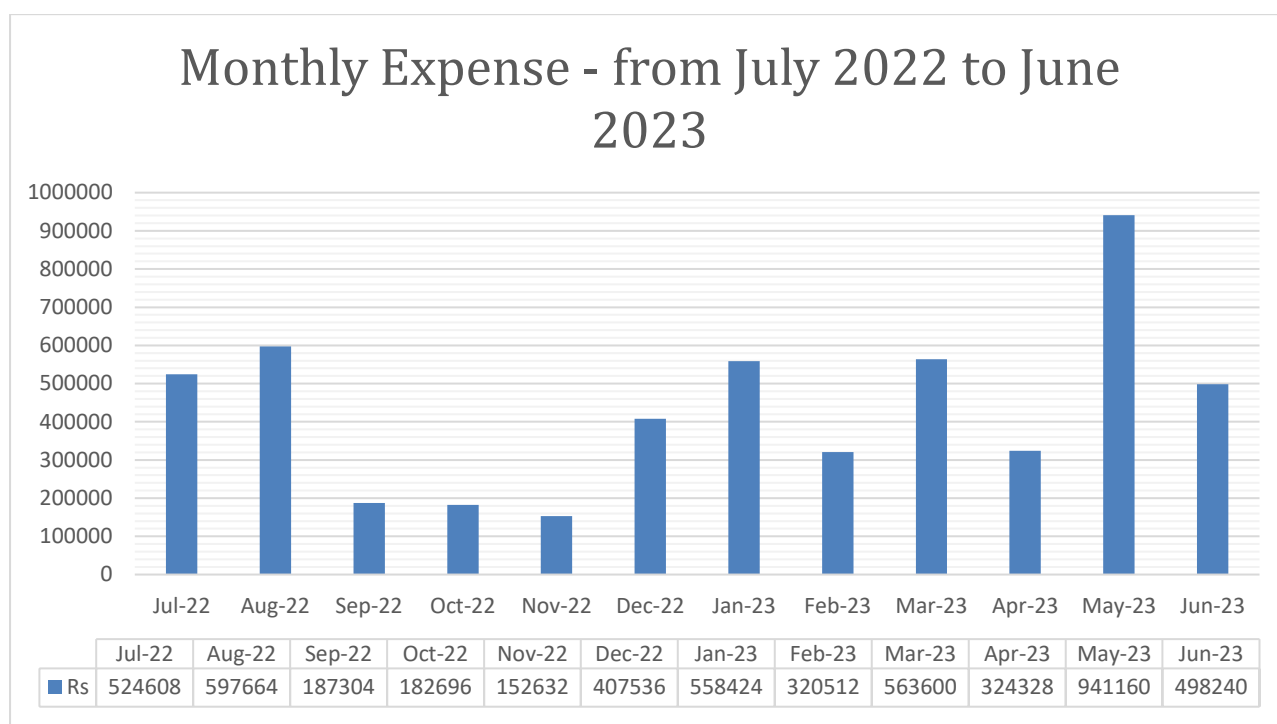
Name	-	The Registrar, Agra University
Account Details	-	A/C 670001311, A/C 674052283 A/C 670002133, A/C 670011354 A/C 670036906, A/C 670014505

1.1 Summary of Monthly Electricity Consumption and Total Bill Amount

To understand the Energy consumption trend and to develop the baseline parameter we have collected monthly energy bill for the 12 months i.e. from July 2022 to June 2023

Month	Grid Billing	Solar PV	Total Readings	Rate INR	Amount in INR
Jul-22	65576	15600	81176	8.00	524608
Aug-22	74708	15600	90308	8.00	597664
Sep-22	23413	15600	39013	8.00	187304
Oct-22	22837	15600	38437	8.00	182696
Nov-22	19079	15600	34679	8.00	152632
Dec-22	50942	15600	66542	8.00	407536
Jan-23	69803	15600	85403	8.00	558424
Feb-23	40064	15600	55664	8.00	320512
Mar-23	70450	15600	86050	8.00	563600
Apr-23	40541	15600	56141	8.00	324328
May-23	117645	15600	133245	8.00	941160
Jun-23	62280	15600	77880	8.00	498240
SUM	657338	187200	844538		5258704





Below are the campus-wise consumption details (kWh)

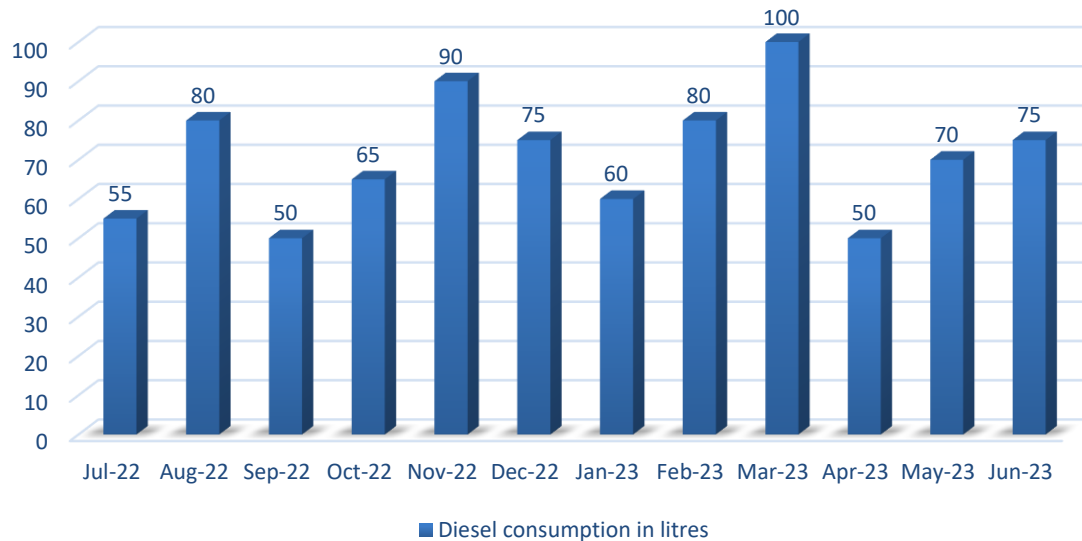
Month	Campus-1	Campus-2	Campus-3	Campus-4	Campus-5	Campus-6
Jul-22	13874	1305	14091	26404	4951	4951
Aug-22	21598	9821	6452	15080	9406	12351
Sep-22	10341	919	494	4501	6361	797
Oct-22	11383	1054	666	5255	1228	3251
Nov-22	10104	768	316	4389	662	2840
Dec-22	11664	4678	13364	8371	9302	3563
Jan-23	30713	18302	4225	14129	1480	954
Feb-23	19321	1344	579	8459	720	9641
Mar-23	12985	2823	5262	7138	26397	15845
Apr-23	12422	10000	1365	1374	18742	6638
May-23	31288	15054	24231	6711	25813	4548
Jun-23	32353	2356	1287	16248	3506	6530
SUM	218046	68424	72332	118059	108568	71909

2. DIESEL CONSUMPTION

Below is the diesel consumption details in liters from July 2022 to June 2023.

Period	Diesel consumption (in litres)
Jul-22	55
Aug-22	80
Sep-22	50
Oct-22	65
Nov-22	90
Dec-22	75
Jan-23	60
Feb-23	80
Mar-23	100
Apr-23	50
May-23	70
Jun-23	75
Total	850

**Diesel Consumption (Litres)
July 2022 to June 2023**



3. ANALYSIS OF DG SETS

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

Description	Unit	Description	DG Station -1	DG Station -2
Design details:		Rated capacity		
Rated capacity	kVA	Hz	5 kVA	62 kVA
Hz		Sl No.	50	50
Sl No.		Make	Not Clear	7839K
Make		Volts	Field Marshal	Kirloskar
Volts	Volts	PF	230	415
PF		Phase	0.8	0.8
Phase		RPM	1	3
RPM		Amps	800	1200
Amps	Amps	Mfg.	33.5	35.7
Mfg.		Mfg.	Very Old	22.03.2014

DG Set Operation details		
Operating hours during testing	Hours	0.50
% Loading	%	62.76
Energy Generation	kWh	32.24
Load	kVA	86.74
Fuel consumption during testing	Litre	8
Specific energy generation	kWh/litre	3.02

Observation and Suggestions: -

The institution has installed 2 DG sets for power backup, out of which 1 are very old. We recommend to replace both the DG sets (5kVA).

As per the trial taken during the energy audit, the percentage loading of DG set is 62.76% which is ok and the specific energy consumption of DG Sets 3.02 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.

We recommend University to initiate periodic maintenance schedules and stack monitoring of DG set (62 kVA) through an authorized lab.



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.

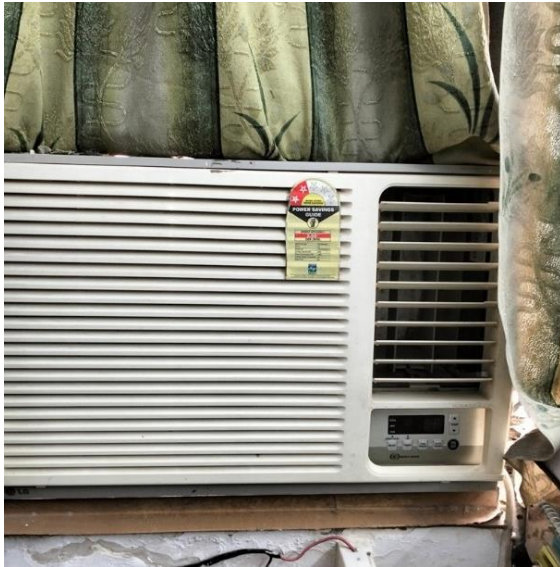
There are Split, windows and Cassette ACs installed in Dr. Bhimrao Ambedkar University in various areas of various capacity which detail is given below:-

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Sl No.	Location/ Identification	AC Type	count	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	Camp Office/ Bungalow	S	2	1.5	24	11	19	52	0.03	2.6	24	37	0.38	0.57	1.52	2.31
2	Camp Office/ Bungalow	W	2	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
3	Campus-1	S	12	1.5	24	10	18	52	0.03	2.4	24	37	0.35	0.53	1.53	2.3
4	Campus-1	S	4	2.0	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
5	Campus-1	S	2	4.0	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
6	Campus-1	S	6	8.0	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
7	Campus-1	W	16	1.5	23	11	19	52	0.03	2	22	37	0.33	0.58	1.74	2.02
8	Campus-1	W	2	2.0	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
9	Campus-1	C	1	20.0	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
10	Campus-2	S	4	1.5	23	12	20	52	0.03	2.3	25	38	0.33	0.55	1.67	2.11
11	Campus-2	W	8	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
12	Campus-3	S	10	1.5	23	11	19	52	0.03	2	22	37	0.33	0.58	1.74	2.02
13	Campus-3	S	4	2.0	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
14	Campus-3	S	4	8.0	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
15	Campus-3	W	14	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
16	Campus-4	S	8	1.5	23	13	20	52	0.03	2.3	26	38	0.31	0.53	1.74	2.02
17	Campus-4	W	12	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
18	Campus-5	S	16	1.5	23	12	20	52	0.03	2.2	25	38	0.32	0.55	1.74	2.03
19	Campus-5	S	4	2.0	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
20	Campus-5	S	4	4.0	23	12	20	52	0.03	2.5	25	38	0.34	0.63	1.87	1.88
21	Campus-5	S	4	8.0	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
22	Campus-5	S	1	12.0	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
23	Campus-5	W	22	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98
24	Campus-5	W	2	2.0	23	12	22	52	0.03	2.3	24	43	0.46	0.76	1.67	2.11
25	Campus-6	S	16	1.5	23	12	19	52	0.03	2.3	24	37	0.33	0.58	1.74	2.02
26	Campus-6	S	4	8.0	24	11	18	53	0.03	2.4	22	37	0.38	0.67	1.78	1.97
27	Campus-6	W	18	1.5	24	11	20	52	0.03	2.3	22	38	0.38	0.68	1.77	1.98

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.

Also, we recommend Dr. Bhimrao Ambedkar University to organize periodic maintenance schedule and take corrective actions for insulating of AC's refrigerant lines in order to protect energy losses.



5. FANS ANALYSIS

In the Dr. Bhimrao Ambedkar University, there are 1596 fans installed, of different wattage. Details of the same are shown below.

Sl No.	Location/ Identification	Ceiling Fan- 35W	Ceiling Fan- 50W	Ceiling Fan- 60W	Ceiling Fan- 70W	Ceiling Fan- 80W	Ceiling Fan- 100W	Pedestal 45W	Pedestal 60W	Pedestal 100W
1	VC Bungalow	3	4	1	0	0	0	1	0	0
2	Campus-1	3	45	76	14	46	8	12	2	2
3	Campus-2		56	79	22	32	12	10	6	3
4	Campus-3		52	134	18	71	4	6	5	0
5	Campus-4		76	54	9	19	4	14	0	0
6	Campus-5		88	200	42	60	7	5	0	2
7	Campus-6		112	97	21	51	4	4	0	0
	TOTAL	6	433	641	126	279	39	52	13	7

Observation and Suggestions: -

In the University, all the ceiling fans and pedestal fans are of different wattage. BEE 5 Star Rated of 30W Ceiling Fans are present in the market. We recommend replacing the high-wattage fans (70W, 80W and 100W) to BEE 5 Star-rated 30W fans.

Total no of Ceiling Fans (60W)	Nos.	654
Total no of Ceiling Fans (70W)	Nos.	126
Total no of Ceiling Fans (Other W)	Nos.	810
Total wattage of 60W Ceiling Fans	Watt	39240
Total wattage of 70W Ceiling Fans	Watt	8820
Total wattage of Other W Ceiling Fans	Watt	50910
Total wattage of BEE 5 Star rated Fans (30W)	Watt	47700
Total saving in Wattage after replacement	Watt	51270
Operating hours per day	Hours	6
Operating days per annum	Days	180
Energy charges per unit in Rs.	INR	8
Saving in Rs./annum	INR	442973
Investment INR	INR	1950000
Payback period:- Months	YEARS	4.40

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

6. ANALYSIS OF LIGHTING SYSTEM

6.1 Brief description of the existing system

For assessing the energy efficiency of the lighting system, an 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 the working level have been done.

6.2 Inventory of Lighting

Sl. No.	Location/ Identification	50W Flood Light	18W LED Flood Lights	9W LED	10W LED	18W LED Light	20W LED	12W LED Round	36W LED	36W Tube Lights
1	VC Bungalow	1	8	17	31	36	32	13	73	31
2	Campus-1	2	17	34	25	64	46	6	87	64
3	Campus-2	4	21	34	48	87	63	13	150	50
4	Campus-3	4	24	14	22	25	36	14	231	34
5	Campus-4	4	6	11	46	62	73	20	199	91
6	Campus-5	4	17	18	25	45	34	11	190	112
7	Campus-6	4	8	11	64	56	57	17	339	76
	TOTAL	23	101	139	262	375	342	92	1268	458

6.3 Lux Measurement

Description	Lux	Remark
Class Rooms	120 to 235	Acceptable
Offices	130 to 240	Acceptable
Corridors	35 to 90	Acceptable
Washrooms	45 to 76	Acceptable
Outdoor	36 to 95	Acceptable
Computer Lab	150 to 289	Acceptable
Parking area	45 to 94	Acceptable
Canteen	69 to 185	Acceptable

Observation

The university has initiated LED based lighting solution, but still there are 458 (36W) tube lights. LEDs save energy, the life span is much greater and emit virtually no heat. We recommend replacing the tube lights with LEDs.

Additionally, we recommend to install motion sensor-based lights in common areas such as library, washrooms, corridors, etc.

We also recommend to use solar lights for open areas like parking, ground, street lights, etc. 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.			
Incandescent	8-18	14	Excellent (100)	Homes, restaurants, general lighting emergency lighting	1000
Fluorescent lamps	46-60	50	Good w.r.t coating (67-77)	Offices, shops, hospitals, homes	5000
Compact fluorescent Lamps (CFL)	40-70	60	Very Good (85)	Hotels, shops, homes, offices	8000-10000
High pressure mercury (HPMV)	44-57	50	Fair (45)	General lighting in factories, garages, car parking. flood lighting	5000
Halogen lamps	18-24	22	Excellent (100)	Display, flood lightening, stadium exhibition grounds, construction areas	2000 - 4000
High pressure sodium (HPSV) SON	67-121	90	Fair (22)	General lighting in ware houses, factories, street lighting	6000 - 12000
Low pressure sodium (LPSV) SOX	101-175	150	Poor (10)	Roadways, tunnels, canals, street lighting	6000 - 12000
Metal halide lamps	75-125	100	Good (70)	Industrial bays, spot lighting, flood lighting, retail stores	8000
LED Lamps	30-50	40	Good (70)	Reading lights, desk lamps, night lights, spotlights, security lights, signage lights, etc.	40000 - 100000

7. OTHER POWER CONSUMPTION

7.1 Inventory of IT Infrastructure

Department / Institute	Xerox Machine	Number of Computers in the Department /Institute
Lalit Kala Sansthan	1	5
Department of library and information science	1	16
History and culture	1	6
KM Institute of Hindi and Linguistics	1	45
University Computer Centre , IBS, Khandari Campus	1	35
Physics	1	20
Institute of Tourism and Hotel Mgt	1	9
Institute of Social Sciences	1	35
Seth Padam Chand Jain institute of management	1	8
Department of Zoology, School of Life Science	1	8
Department of Chemistry	1	22
Department of Botany, School of Life Sciences, Khandari Campus, DBRAU Agra, U.P.	1	6
Dept. Of Computer Science	1	30
Department of Biotechnology, School of Life Sciences,	1	3
Department of Environmental Studies SLS	1	4
Central Library, Sanskriti Bhawan	1	10
Institute of Pharmacy and Paramedical Sciences	1	7
Department of Physical Education	0	1
Mathematics	1	40
Institute of Home Science	1	9
Department of Microbiology, School of Life Sciences	1	3
Department of Biochemistry SLS Dr. Bhimrao Ambedkar University Agra	1	3
DDU. Institute of Rural Development	1	1
Dau Dayal Institute of Vocational Education	1	25
Department of Forestry, School of Life Sciences, Khandari Campus, DBRAU, Agra, U.P.	0	1
Institute of Engineering & Technology, Khandari Campus, Agra	2	250
Central Library	1	10
Administrative Block	5	41
Total	31	653

7.2 Water pump details

Sr. No.	Description	Unit	Campus No.-1	Campus No.-2	Campus No.-3	Campus No.-4	Campus No.-5	Campus No.-6
1	Rated Power of Motor	KW	7.3 x 3	2.2 x 8	2.2 x 7	2.2 x 4	1.5 x 4	1.5 x 4
2	Motor Eff.	%						
3	Discharge Head	m	151	36	50	5	4	4
4	Suction Head	m		10	10	3	3	34
5	Pump Type (Submersible/Mono block/Centrifugal Etc.)		Submersible	Monoblock	Monoblock	Monoblock	Monoblock	Monoblock

7.3 Other details

Sl No.	Location/Identification	Water Cooler-200W	Desert Coolers 400W	Exhaust Fan 180W
1	Campus-1	6	2	1
2	Campus-2	0	4	2
3	Campus-3	2	2	1
4	Campus-4	4	4	0
5	Campus-5	5	2	0
6	Campus-6	0	0	0
	TOTAL	17	14	4

ANALYSIS

There should be regular maintenance schedule of equipment like pumps, exhaust fans and IT equipment. Electronics such as computers, printers, scanners, etc. more than 3 year or 5 years (as per their life) should be replaced with new computers/laptops. Ideal Temperature should be maintained for all electronic appliances.

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