

Energy Audit Report-2025

SHIVAJI COLLEGE

(UNIVERSITY OF DELHI)

Ring Road, Raja Garden, New Delhi- 110027



Submitted by

ABP INDUSTRIES

(Certified Energy & Green Audit Agency)

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LIST OF ABBREVIATIONS

APFC	Automatic Power Factor Controller
CFL	Compact Fluorescent light
DEA	Detailed Energy Audit
DG	Diesel generator
DPR	Detailed Project Report
EE	Energy Efficiency
EEM	Energy Efficiency Measure
kWh	Kilo watt hour
LED	Light Emitting Diode
SEGR	Specific Energy Generation Ratio
SPV	Solar Photovoltaic
SVL	Sodium Vapor Lamp
TOD	Time of day
VFD	Variable Frequency Drive
SEB	State Electricity Board
°C	Degree Centigrade
CFM	Cubic Feet per minute
HP	Horsepower
Kg	Kilo Gram
kW	Kilo Watt
MJ	Mega Joule
RPM	Revolutions per minute
T or MT	Tons
V	Voltage

CONVERSION FACTORS

1 kgoe	10000 kCal
1 kWh	860 kCal
HSD	9783 kCal/ Ltr(Density = 0.8263 Kg /Lit.)
1 MTOE	10 ⁷ kCal

ACKNOWLEDGEMENT

We express our sincere gratitude to the Management of Shivaji College, University of Delhi, for providing us the opportunity to carry out the Detailed Energy Audit assignment. We are deeply thankful for their keen interest, active involvement, and continuous support throughout the course of the study.

We also appreciate the management team's cooperation and assistance, which enabled us to conduct comprehensive assessments, perform detailed measurements, and gather essential operational data for the audit.

Our interactions with the management team and staff members of the college clearly reflected their strong commitment to energy conservation, efficiency improvement, and sustainability. The proactive steps already taken toward implementing several energy-saving measures are truly commendable and deserving of sincere appreciation.

We express our heartfelt thanks to **Prof. Virender Bhardwaj, Principal**, Shivaji College, for his insightful discussions, valuable guidance and support during this audit. His consistent concern and commitment towards developing a sustainable and energy-efficient campus is highly appreciable.

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We extend our sincere thanks to **Dr. Gunjan Sirohi, Assistant Professor**, Department of Botany, Shivaji College for her dedicated involvement, insightful discussions, and effective coordination throughout the process of this audit.

Special thanks to **Dr. Ashwani Sharma, Assistant Professor**, Department of Environment Science, Shivaji College for his valuable inputs during the entire audit process.

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AUDITOR CERTIFICATE



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(भारत सरकार, विद्युत मंत्रालय)

BUREAU OF ENERGY EFFICIENCY

(Government of India, Ministry of Power)



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Sub: Application for accreditation as accredited energy auditors- reg.

विषय: मान्यता प्राप्त ऊर्जा लेखा परीक्षकों के रूप में मान्यता के लिए आवेदन

Sir,

महोदय,

The undersigned is to refer to your application for the accreditation of Energy Auditors and the subsequent Virtual interview you had before the Accreditation Advisory Committee on 11th May, 2022 at BEE office, New Delhi.

प्रत्यायन सलाहकार समिति के समक्ष ऊर्जा लेखा परीक्षकों की मान्यता के लिए आपका आवेदन और उसके बाद के आभासी साक्षात्कार के लिए आपका आवेदन 11th मई, 2022 को ऊर्जा दक्षता ब्यूरो कार्यालय, नई दिल्ली में किया गया।

We are pleased to inform that the Accreditation Advisory Committee has recommended your name for the accreditation as Accredited Energy Auditor in **Textile, Hotel, Steel and Thermal Power Plant Sector**. Your name will be included in the list of Accredited Energy Auditor for these Sectors, maintained by BEE on its website (www.beeindia.gov.in).

हमें यह बताते हुए प्रसन्नता हो रही है कि प्रत्यायन सलाहकार समिति ने मान्यता के लिए आपके नाम की सिफारिश वस्त्र, इस्पात, होटल और थर्मल पावर प्लांट क्षेत्र में मान्यता प्राप्त ऊर्जा लेखा परीक्षक के रूप में की है। आपके नाम को ऊर्जा दक्षता ब्यूरो द्वारा अपनी वेबसाइट (www.beeindia.gov.in) पर अनुरक्षित मान्यता प्राप्त ऊर्जा लेखा परीक्षक की सूची में शामिल किया जाएगा।

भवदीय

(रजनी थॉमसन)

समन्वयक (परीक्षा)

रक्षित एवं राष्ट्रहित में ऊर्जा बचाएँ Save Energy for Benefit of Self and Nation

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ENERGY AUDIT CERTIFICATE



 **ABP INDUSTRIES**
(Certified Energy & Green Audit Agency)
UTTAM NAGAR WEST, NEW DELHI-110059



ENERGY AUDIT CERTIFICATE

This certificate is awarded to
SHIVAJI COLLEGE (UNIVERSITY OF DELHI)
Ring Road, Raja Garden, New Delhi- 110027
for completion of Energy Audit of college campus performed by **ABP INDUSTRIES,**
UTTAM NAGAR WEST, NEW DELHI-110059.
This certificate is valid up to-2030

Issue Date of Certificate 05th-Feb-2026

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ABOUT THE COLLEGE

Shivaji College, affiliated with the University of Delhi, is a prestigious co-educational institution offering a diverse array of undergraduate and postgraduate programs across Humanities, Science, and Commerce disciplines.

Located in West Delhi, Shivaji College is a leader in higher education, holding an 'A' grade accreditation from NAAC. It was recognized among the top 10 Science colleges in India in a 2017 India Today survey. In 2024, the college made significant strides, advancing from 70th to 49th position in the NIRF rankings, reflecting its commitment to academic excellence.

Founded in 1961 by the distinguished Hon'ble Dr. Panjabrao Deshmukh, Union Minister for Agriculture, social activist, and farmer-leader, the college aimed to provide quality higher education to both boys and girls in the predominantly rural area of Matiala. In 1967, it was taken over by the Government of Delhi, relocated to Karampura, and eventually moved to its current campus in Raja Garden in 1976. Shivaji College has progressed significantly from its modest origins and basic facilities to a campus with impressive amenities.

Shivaji College offers 20 undergraduate courses across Science, Commerce, and Humanities, along with a self-financed Bachelor's in Business Economics program and three postgraduates (M.A.) courses. It attracts students from all over India, with over 47% of the student body coming from outside Delhi.

Shivaji College fosters research and innovation, with senior faculty supervising Ph.D. scholars and participating in UGC-sponsored research projects. The college's growth is mirrored in its infrastructure—what started in a small building with borrowed science laboratories has now expanded into a 10.35-acre campus, which includes modern academic buildings, residential complexes, and sports facilities. The newly inaugurated Jijabai Academic Block, houses state-of-the-art laboratories, multipurpose halls, and research spaces.

With a commitment to holistic development, Shivaji College boasts an impressive sports infrastructure, including a volleyball court, football field, cricket ground, and facilities for basketball, tennis, and athletics. The college also focuses on sustainability, with initiatives such as a plastic ban, tree plantation drives, solar panels, rainwater harvesting, and waste management systems.

The college takes pride in its green campus, incorporating eco-friendly initiatives like tree plantation, a no-smoking policy, and solar energy. The inclusive environment supports students from all walks of life, fostering mutual growth through academic exchanges and partnerships with other institutions.

At Shivaji College, the motto "Amritam Tu Vidya" signifies the transformative power of knowledge—shaping character, opening doors to opportunities, and contributing to a better world.

The institution remains dedicated to empowering students to pursue excellence, foster innovation, and make meaningful contributions to society.

The college management is highly committed to energy conservation and promoting a sustainable environment.

Environment & Sustainability Committee

The Environment and Sustainability Committee of Shivaji College, University of Delhi, is dedicated to promoting environmental stewardship and sustainability within the college campus. This committee oversees a wide range of initiatives aimed at enhancing ecological consciousness and sustainable practices. Key responsibilities include the maintenance of the college garden and horticultural work, fostering biodiversity and green spaces. The Eco Club plays a vital role in raising environmental awareness through various activities and campaigns. Additionally, the committee manages the installation and upkeep of rooftop solar panels, contributing to renewable energy usage. Effective solid waste management and a paper recycling unit are part of their efforts to reduce the campus's environmental footprint. The committee also conducts regular environment and energy audits to monitor and improve sustainability practices. Overseeing of the sewage treatment plant ensures proper waste management and water conservation. Through these initiatives, the committee strives to create a greener, more sustainable campus environment.

1. EXECUTIVE SUMMARY

With the advent of energy crisis and exponential hikes in the cost of different forms of energy, Energy Audit is manifesting its due importance in Industrial & institutional Establishments. The detailed energy audit at Shivaji College, Raja Garden, Delhi was carried out in month of September 2025. The study primarily covers the:

- ✚ Present energy scenario of the buildings/university.
- ✚ Detailed analysis of the data obtained through onsite measurements using portable gadgets, discussions with concerned personnel etc.
- ✚ Recommendations for energy savings in all possible areas with cost benefit analysis.
- ✚ Technical specifications for any retrofit options.

1.1 ANNUAL ENERGY CONSUMPTION DATA

Table 1: Annual Energy Consumption details

Sl. No.	Item	Values
1	Contract Demand (kVA)	203 kVA
2	Installed capacity: DG Sets (kVA)	2 nos. (200 kVA & 100 kVA)
3	Annual Electricity Consumption, purchased from Grid – FY-2024-25	292956 kWh
4	Annual Electricity generation through DG Sets – FY-2024-25	476 kWh
5	Annual Electricity generation through Solar Power System -	71606
6	Total Annual Electricity Consumption, Grid + DG Sets+ Solar Generation – FY-2024-25	292956 kWh (Grid Supply) 476 kWh (DG Supply) 71606 kWh (Solar Generation) Total: 365038 kWh per annum
7	Annual Cost of Electricity, purchased from Grid – FY-2024-25	Rs 4426554
8	Annual Fuel Cost of Electricity generated through DG Sets – FY-2024-25	Rs 11924
9	Total Annual Electricity Cost, Purchased Power+ DG Sets	Rs 4426554 (Grid Supply) Rs 11924 (DG Fuel Supply) Total: Rs 4438478 per annum
10	Working hours	<u>Office Building Lighting</u>

Sl. No.	Item	Values
		<p>2080 Hrs./annum (8 hrs./day, 260 Days/Annum 6 Days/week)</p> <p><u>Compound Lighting</u> 3650 Hrs./annum (10 hrs. /day & 365 days)</p> <p><u>Air Conditioning</u> 1720Hrs./annum (8 hrs. /day,215Days/Annum &6 days a week)</p> <p><u>Ceiling Fans for office building</u> 2640 Hrs./annum (12 hrs. /day, 220 Days/Annum)</p>
11	Working days/week	6 days per week
12	HSD Consumption in DG Sets in the year	136 Ltr.

1.2 ANNUAL ENERGY CONSUMPTION IN MTOE TERMS

Table 2: Annual Energy Consumption in MTOe

Source of Energy	Consumption	Calorific Value	kCal/annum	MTOE/annum
Average Purchased Power per annum	292956	860	251942160	25.2
	kWh/annum	kCal/ kWh		
HSD for DG Set	476	11840	5635840	0.6
	Ltr. /Annum	kCal/Ltr		
Total				25.8

1.3 CUMULATIVE ENERGY SAVING MEASURES (EEM)

Table 3: Energy Efficiency Measures

Description	Annual Energy Savings	Estimated Investment	Simple Payback Period

	kVAh	kWh	Rs in Lacs	(Rs in Lacs)	(months)
EEM-1: Set minimum temperature of all ACs at 25-degree Celsius	-	20000	1.56	Nil	Immediate
EEM-2: Replace existing conventional tube lights with LED tube lights	-	1536	0.12	0.10	9.62
EEM-3: Replace existing conventional 60-Watt Fan with 28-Watt BLDC Fan	-	57108.5	4.45	14.87	40.06
EEM-3: Replace existing conventional 120-Watt Fan with 28-Watt BLDC Fan	-	11901.1	0.93	1.08	13.94
EEM-4: Replace existing no star or low star rated ACs with 5-star Acs	-	408	1.78	16.80	113.12
Total	-	90954	8.84	32.85	44.56

Table 4: Monetary benefit analysis detail

Particulars	Values
Annual Purchased Power Bill	Rs 44.38 Lacs
Annual Purchased HSD Bill	Rs. 0.12 Lacs
Total Annual Energy Bill	Rs. 44.40 Lacs
Total Annual Energy Saving Potential identified	Rs. 8.84 Lacs
Percentage Energy Cost Saving Potential	19.73%

2. INTRODUCTION

2.1 THE PROJECT

With the advent of energy crisis and exponential hikes in the cost of different forms of energy, Energy Audit is manifesting its due importance in Industrial Establishments.

Energy Audit is the key to a systematic approach for decision-making in energy management as it attempts to evaluate the energy usage pattern in an establishment. Also, it serves to identify all the energy streams in an establishment, so that potential areas wherein energy savings are practically feasible are identified.

It was with this objective of study team that was entrusted by Integral University Management team for the energy audit of their university campus situated in Lucknow.

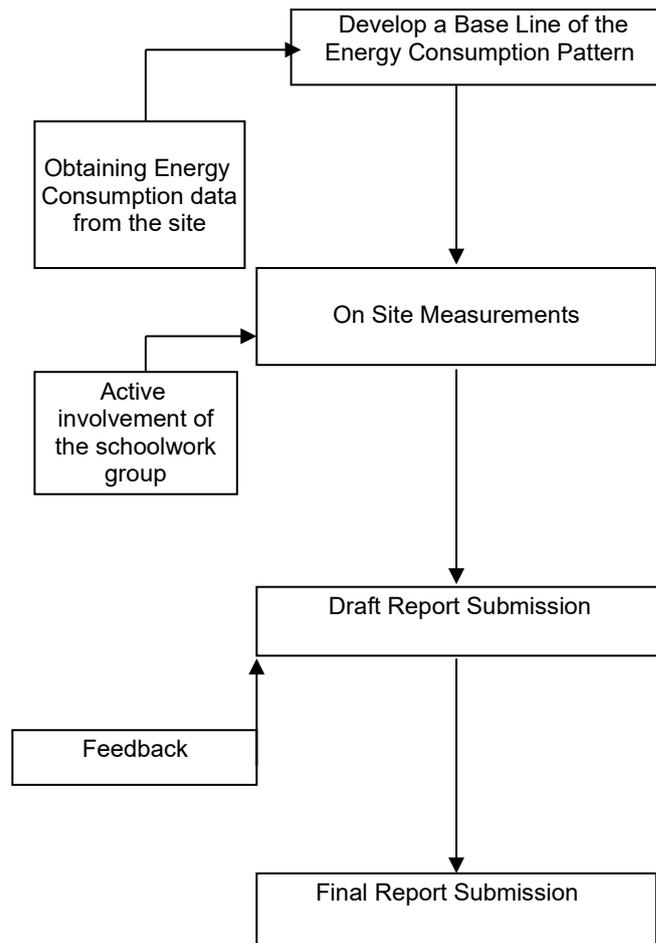
2.2 DELIVERIES

- ✚ Present energy scenario of the building.
- ✚ Detailed analysis of the data obtained through onsite measurements using portable gadgets, discussions with concerned personnel etc.
- ✚ Recommendations for energy savings in all possible areas with cost benefit analysis.
- ✚ Technical specifications for any retrofit options and
- ✚ List of suppliers / manufacturers of energy efficient technologies.

2.3 METHODOLOGY

Methodology adopted for achieving the desired objectives viz: Assessment of the Current operational status and Energy savings include the following:

- ✚ Discussions with the concerned officials for identification of major areas of focus and other related systems.
- ✚ A team of engineers visited the campus premises and had discussions with the concerned officials/ supervisors to collect data/ information on the operations and energy distribution in the building. The data was analyzed to arrive at a base line energy consumption pattern.
- ✚ Measurements and monitoring with the help of appropriate instruments including continuous and/ or time-lapse recording, as appropriate and visual observations were made to identify the energy usage pattern and losses in the system.
- ✚ Computation and in-depth analysis of the collected data, including utilization of computerized analysis and other techniques as appropriate were done to draw inferences and to evolve suitable energy conservation plan/s for improvements/ reduction in specific energy consumption.
- ✚ Draft Report submission on the findings of the audit.
- ✚ Final report submission after incorporating the observations/ comments made by Shivaji College management team.



2.4 LIST OF INSTRUMENTS USED

Table 5: List of instruments

Sr. No.	Instruments	Make	Image
1	Three Phase Power Analyser, ALM 31	Krykard	
2	Three Phase Power Analyser, ALM 20	Krykard	
3	Ultrasonic Water Flow Meter	Handheld Ultrasonic	

2.5 OPERATING HOURS CONSIDERED FOR CALCULATION PURPOSE

Table 6: Operating hours of electrical equipment

Particulars	Values
Office Building Lighting (8 hrs./day, 300 Days/Annum)	2400 hrs. per annum
Compound Lighting (10 hrs./day, 365 days a year)	3650 hrs. per annum
Air Conditioning (8 hrs./day, 215 Days/Annum & 6 days a week)	1720 hrs. per annum
Ceiling Fans for Office Building (12 hrs./day, 220 Days/Annum)	2640 hrs. per annum

3. POWER SUPPLY SYSTEM AND ENERGY CONSUMPTION PATTERN

3.1 POWER SUPPLY SYSTEM

The Power Supply to the building is sourced from the BSES Rajdhani Power Limited at 11 kV. The voltage is stepped down to 433 V using one transformer is located in the campus of, 630 kVA. Billing is on KWH basis. The additional power is generated in-house 2 DG Sets of one 200 kVA and one 100 kVA operated time to time as per requirement and load profile in the campus. University has also installed solar power plant on roof top of the buildings having 75 kWp capacity. Single line diagram of existing system is mentioned below:

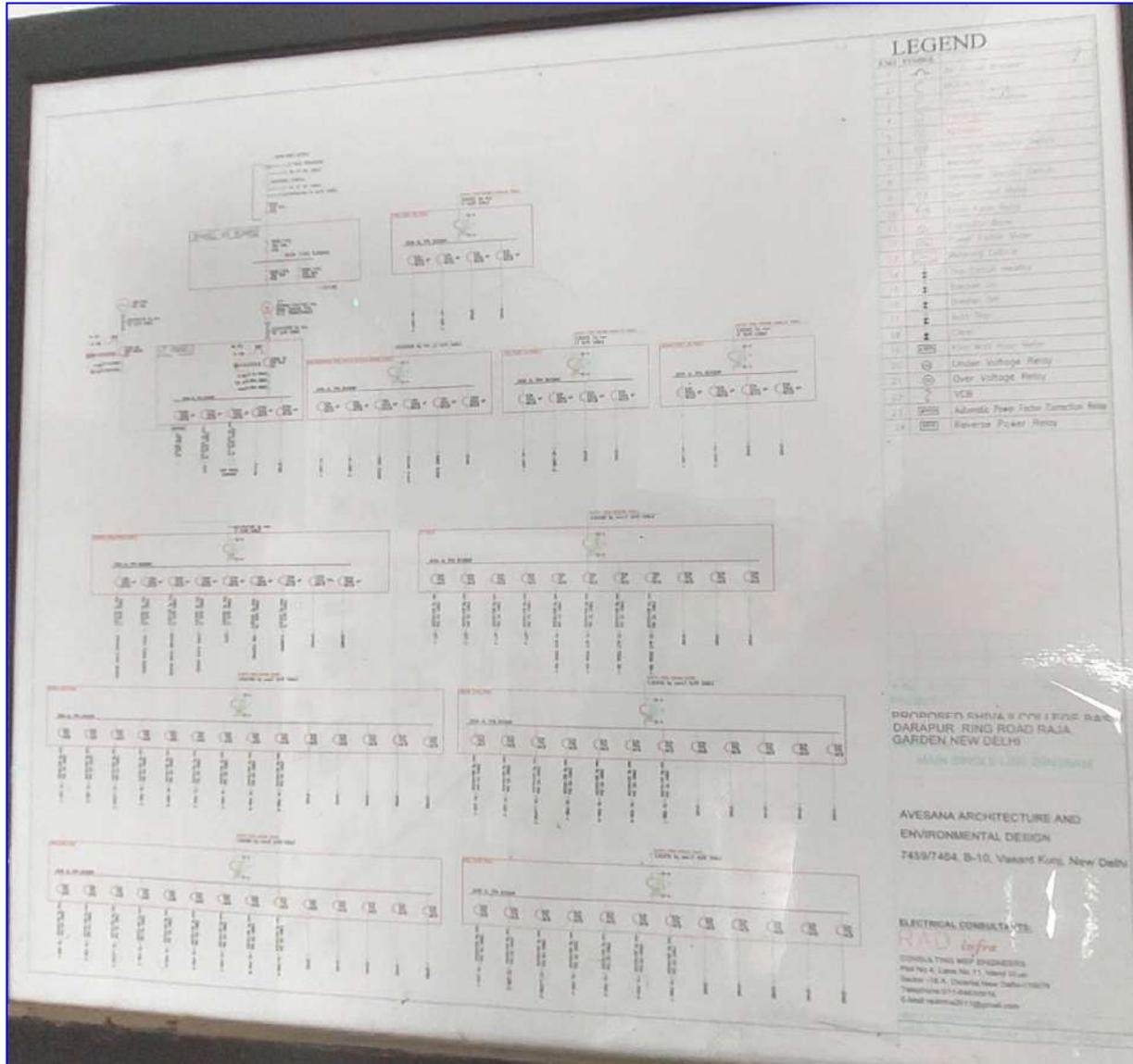


Figure 1: Electrical distribution network

Table 7: Existing Transformer Specification

Particulars	TR-1
Make	Universal Power
Rating	630 kVA
Voltage Ratio	11kV/433V
LT Current	33.1/840 Amp
Year	2019

Table 8: Existing DGs Specification

Particulars	DG-1	DG-2
Make	Sudhir	Rishabh
Capacity	200 kVA	100 kVA
Rated Voltage	415 V	415 V

3.2 MONTHLY PURCHASED POWER CONSUMPTION PATTERN FROM GRID

Table 9: Electricity Bill Analysis

Consumption Month	Unit Consumed (KWH)	Unit Consumed (KVAH)	CD (KVA)	MDI (KVA)	Power Factor	Total Amount	Energy Charges Rs.	Unit Cost (Rs/kWH)
Apr-24	25704	25730	203	192.0	0.999	403937	202685.0	7.885
May-24	32916	33015	203	216.0	0.997	481800	260875.5	7.925
Jun-24	30648	30771	203	180.0	0.996	459389	242497.5	7.912
Jul-24	26004	26056	203	204.0	0.998	403426	205246.5	7.893
Aug-24	33216	33249	203	240.0	0.999	490286	263100.5	7.921
Sep-24	37392	37429	203	324.0	0.999	544635	296449.5	7.928
Oct-24	27852	27880	203	264.0	0.999	427262	220012.5	7.899
Nov-24	18348	18403	203	96.0	0.997	301435	144187.5	7.858
Dec-24	17832	17886	203	72.0	0.997	281375	139867.5	7.844
Jan-25	15276	15322	203	48.0	0.997	235251	119451.0	7.820
Feb-25	12600	12753	203	48.0	0.988	201297	98155.5	7.790
Mar-25	15168	15275	203	96.0	0.993	196460	118716.0	7.827
Total	292956	293769	-	-	0.997	-	192603.7	7.875

Table 10: Yearly Diesel Bill Analysis

Year	Units generated, kWh	Amount of Diesel, Lit	Specific fuel consumption, kWh/Lit
FY-2024-25	476	136	3.50

3.3 TRANSFER LOADING

Time lapse recording of various electrical parameters was done during the energy audit. Based on the measurements made, the average load of the office buildings and hostels was measured, and Summarized results are given below and recorded parameters of the transformers are attached in Annexure:



Figure 2: Transformer Picture

4. AIR CONDITIONING & REFTREGERATION SYSTEM

4.1 AIR CONDITIONING SYSTEM

Majority of cooling load is met by split and window ACs. Details of installed ACs are mentioned below in following table.

Table 11: Installed Air conditioners detail in new building

Sr.	Location of the building	Split AC	Cassette AC	Split AC
		No star/2star/3 star		5 Star 1.5 ton
1	Jijabai Hall	4		
2	Auditorium Hall		4	
3	Paeshva Baji Rao		4	
Second Floor				
4	Zoology Lab	2	2	
5	Recording Lab	1		
6	Research Lab	1		
7	Botany Staff Room		1	
8	Botany Lab 1&2		2	
Third Floor				
9	Auditorium Hall (Tanhaji Malusare)	4		
10	Bio- Chemistry Lab		4	3
11	Bio-Chemistry Staff Room	1		
12	Bio- Chemistry CMR Projector Room	2		
13	Bio- Chemistry CEDM Room	1		
14	Bio- Chemistry Research Lab	1		
15	English Staff Room		1	
Total		17	18	3

Table 12: Installed Air conditioners detail in old building

Sr.	Location of the building	Window AC	Split AC	Split AC	Fridge	Cassette AC	Split AC
			3 Star				5 Star 1.5 ton
Ground Floor							
1	Chemistry Staff Room			1			
2	IQ AC Room			1			
3	Help Desk						
4	Principal Office		3				
5	Conference Hall			1			
6	Principal Room						2
7	Barsar Room		1				
8	Old Political Science Room		1				
9	Old Political Science Staff Room						3
10	Old Political Science Staff Meeting Room						1
11	Kitchen				1		
12	Vice Principal Room	1					
13	Math Lab Staff Room	1					
14	Computer Lab III						6
15	Computer Lab III Staff Room	1					
16	Math Staff Room	1					
17	Department of History						1
18	Department of Physical Education		1				
19	Research Lab			1			
20	Room No-7		2				
21	Room No-8		2				
22	Room No-9		2				
23	Canteen		4				
24	Girls Common Room						1
25	Toilet (Male & Female)						
26	Office				1		5
27	Department of Commerce						1
28	Department of Hindi						1
29	Department of Economics						1
30	Room No-106	1					
31	Chankaya Auditorium					12	
32	Library						
33	Reading Hall			2			
34	E-Research Center			1			
35	Technical Section			1			
36	Computer Lab-I						2
37	Department of Physics	2			1		

Sr.	Location of the building	Window AC	Split AC	Split AC	Fridge	Cassette AC	Split AC
			3 Star				5 Star 1.5 ton
38	Computer Staff Room						1
39	Toilets						
40	Department of Environment Studies						1
41	Zoology Staff Room						1
42	Museum Zoology			1	2		
43	Zoology Lab-I						
44	Zoology Lab-II						
45	Preparation Room						
46	Room No-201						
47	Room No-202						
48	Plant Tissue Culture Room			1			
49	Old Botany Staff Room						1
50	Room No-203						
51	Botany Museum						1
2nd Floor							
52	Room No-204						
53	Room No-205						
54	Room No-206						
55	Room No-207						
56	Room No-208						
57	Room No-209						
58	Room No-210						
59	Room No-211						
60	Room No-212						1
61	Room No-213						
62	Room No-214						1
3rd Floor							
63	Room No-303			1			
64	Health Counter (Old)			1			
65	Health Counter (New)			4			
Total		7	16	16	5	12	31

Observations:

During the Energy Audit at the campus, it was found that the facility has installed more 5-star rated ACs in the place of 2/3-Star ACs, but some locations we are found 2/3-Star ACs in campus.

Suggestions:

It is suggested to replace all 2/3-star ACs with 5-star rated ACs.



Figure 3: Picture of ACs Labs & Canteen

4.2 SET MINIMUM TEMPERATURE OF ALL ACs AT 25-DEGREE CELSIUS

In order to promote energy conservation and operational efficiency, all Air Conditioners (ACs) within the premises are maintained at a minimum temperature setting of 25°C. This initiative ensures optimal comfort levels while significantly reducing electricity consumption.

By maintaining the AC temperature at 25°C, the energy saving is approximately 10–15% compared to lower temperature settings. This small adjustment not only reduces the overall energy load on the system but also enhances the life of the equipment and supports the organization’s commitment toward sustainable and environment-friendly practices.

Table 13: Temperature Setting at 25°C

Sr. No	Description	UOM	Value
1	Total no. of Existing Air Conditioner	Nos	125
2	Annual Running Hours (Estimated)	Hrs	1600
3	Estimated Energy Consumption per AC	kW/Hr	1
4	Annual Energy Consumption of AC	kWh	200000
5	Power cost Per KWh (Approx)	Rs	7.8
6	Reduction in Energy consumption per hour after increasing the Temp 22°C to 27° C, Approx Saving 10 % of Total Consumption	kWh	0.1
7	Annual Energy Saving	KWh	20000
8	Annual Monetary saving	Rs	156000

4.3 REPLACE EXISTING NO STAR OR LOW STAR RATED ACs WITH 5 STAR ACs

To improve energy performance and reduce electricity consumption, it is recommended to replace all existing non-star or low star-rated Air Conditioners (ACs) with BEE 5-Star rated energy-efficient models.

5-Star rated ACs consume 25–35% less energy compared to conventional or low-rated units, resulting in substantial energy and cost savings over their operational life. These ACs are equipped with advanced inverter technology, which adjusts compressor speed based on cooling demand, thereby enhancing comfort and reducing power wastage.

Implementation of this measure will lead to lower electricity bills, improved system reliability, and reduced greenhouse gas emissions, aligning with the organization’s goals of sustainability and energy efficiency.

Table 14: Replacement of 2/3-star ACs with 5-star ACs

Sr. No	Particulars	UOM	3 Star	5 Star
1	Minimum Energy Efficiency Ratio (Watt/ Watt)	EER	3.1	3.5
2	Maximum Energy Efficiency Ratio (Watt/ Watt)	EER	3.29	3.59
3	Cooling Capacity	kcal/hr	5221	5353
4	Rated Power Consumption	KW	1.566	1.43
5	Operating	Hours / Year	3000	3000
6	Energy Consumption	KW/year	4698	4290
7	Energy Saving Per AC	Kwh/year	408	
8	Electricity Cost	Rs/Kwh	7.8	
9	Total No of Old AC which to be replace	Nos	56	
10	Annual Monetary Saving	Rs.	178214	
11	Total Cost of 5 Star AC	Rs.	1680000	
12	Payback	Months	113.1	

4.4 OVEN AND GEYSERS

Details of installed oven & geyser are mentioned below in following table.

Table 15: Installed Oven and Geysers detail

Sr.	Location of the building	Oven	Gyser
Ground Floor			
1	Principle Office Toilet		1
2	Kitchen	1	
3	Math Lab	5	
Total		6	1



Figure 4: Picture of Geyser at Principal office toilet

5. LIGHTING AND FANS

5.1 LIGHTING SYSTEM

Installed lighting system in the building is mentioned below in table:

Table 16: Installed lighting detail in new building

Sr.	Location of the building	LED light
		18 W
1	Jijabai Hall	16
2	Auditorium Hall	16
3	Paeshva Baji Rao	16
First Floor		
4	LR-J- 101	6
6	LR-J- 102	11
6	LR-J- 103	7
Second Floor		
7	LR-J- 201	6
8	LR-J- 202	11
9	LR-J- 203	7
10	Zoology Lab	29
11	Recording Lab	3
12	Research Lab	3
13	Botany Staff Room	5
14	Botany Lab 1&2	30
15	Botany Theory Room	16
Third Floor		
16	LR-J- 301	8
17	LR-J- 302	11
18	LR-J- 303	7
19	Auditorium Hall (Tanhaji Malusare)	30
20	Bio- Chemistry Lab	74
21	Bio-Chemistry Staff Room	5
22	Bio- Chemistry CMR Projector Room	4
23	Bio- Chemistry CEDM Room	1
24	Bio- Chemistry Research Lab	2
25	LR-J01	12
26	CEC Hindi North	11
27	CEC Hindi South	9
28	English Staff Room	5
Total		356

Table 17: Installed lighting detail

Sr.	Location of the building	LED light	LED light	LED Light	Tube Light	Bulb
		20 W	2x2	1X1	36W	
Ground Floor						
1	Room-3	7				
2	Chemistry Staff Room	3				
3	Chemistry Lab-I	9				
4	Chemistry Lab-II	20				
5	Instrument Lab	6				
	Lab Incharge Room	5				
6	Store Room	3			2	
7	IQ AC Room	2				
8	Help Desk	1				
9	Principal Office		6			
10	Conference Hall		6			
11	Principal Room		9			
12	Kitchen	2				
13	Toilet	1				
14	Barsar Room	2				
15	Entrance		1			
	Toilet	1				
16	Old Political Science Room	2				
17	Old Political Science Staff Room		9			
18	Old Political Science Staff Meeting Room		2			
19	Kitchen	2				
20	Vicce Principal Room	6				
21	Math Lab	2		5		
22	Math Lab Staff Room	3				
23	Computer Lab III	24				
24	Computer Lab III Staff Room	4				
25	NCC Room (Boy)	2				
26	Store Room	1				
27	Math Staff Room	2			1	
29	Department of Physical Education	2			3	
30	Store Room				2	
31	Research Lab	3				
32	Entrance	1				
33	NCC Girls	1				
34	Room No-5	4				
35	Room No-6	6				
36	Room No-7	9				

Sr.	Location of the building	LED light	LED light	LED Light	Tube Light	Bulb
		20 W	2x2	1X1	36W	
37	Room No-8	9				
38	Room No-9	9				
39	Room No-10	4				
40	Room No-11	3				
41	Canteen					
42	Counter	3				
43	Kitchen	6				
44	Girls Common Room	4				
45	Toilet (Male & Female)	2				
46	Office		18	16		
47	Electrical Room	1				
48	Hawa Mahal	15				
49	Stair	2				
51	Department of Commerce	2				
52	Lobby	17				
53	Department of Hindi	2				
54	Department of Economics	2				
55	Room No-106	4				
56	Room No-107	3			1	
57	Room No-108	3			1	
58	Room No-109	5				
59	Room No-110	5				
60	Room No-111	4				
61	Chanakya Auditorium	27				
62	Library	50			22	
63	Reading Hall		5			
64	E-Research Center		4			
65	Technical Section		8			
66	Library					
67	Toilets	3				
69	Physics Lab-I	15				
70	Physics Lab-II Store	11				
71	Digital Lab	4				
72	Optics Lab	2				
73	Thermal Room	3				
74	Computer Lab-I	6				
75	Department of Physics	4				
76	Computer Staff Room	2				
77	Toilets	2				

Sr.	Location of the building	LED light	LED light	LED Light	Tube Light	Bulb
		20 W	2x2	1X1	36W	
78	Department of Environment Studies	2				
79	Room No-101	1				
80	Room No-102	9				
81	Toilets (Male & Female)	2				
82	Zoology Staff Room	4				
83	Museum Zoology	2				
84	Zoology Lab-I	5				
85	Zoology Lab-II	9				
86	Preparation Room	3				
87	Room No-201	2				
88	Room No-202	2				
89	Plant Tissue Culture Room	2				
90	Old Botany Staff Room	3				
91	Room No-203	7				
92	Botany Museum	5				
2nd Floor						
93	Room No-204	1				
94	Room No-205	3				
95	Room No-206	2				
96	Room No-207	4				
97	Room No-208	4				
98	Room No-209	5				
99	Room No-210	5				
100	Room No-211	3				
101	Room No-212	3				
102	Room No-213	4				
103	Room No-214	3				
104	Lobby	4				
105	Cabin	1				
106	Botany Lab-I	7				
107	Botany Lab-II	6				
108	Lab Incharge Room	4				
109	Room No- LTR	2				
3rd Floor						
110	L-1	2				
111	L-2	3				
112	L-3	2				
113	L-4	2				
114	L-5	3				

Sr.	Location of the building	LED light	LED light	LED Light	Tube Light	Bulb
		20 W	2x2	1X1	36W	
115	L-6	6				
116	L-7	6				
117	Toilets	2				
118	Lobby	3				
119	Room No-301	2				
120	Room No-302	1				
121	Room No-303					4
122	Room No-304					4
123	Room No-305	1				8
124	Health Counter (Old)	15				
125	Health Counter (New)	12				
	Total	549	68	21	32	16



Figure 5: Pictures of Lightings at Classrooms & Library

Observations:

During the Energy Audit at the campus, it was found that the facility has installed more LED lights in the place of Conventional Tube lights, but some locations we are found conventional tube lights in campus.

Suggestions:

It is suggested to replace all conventional fluorescent tube lights with LED tube lights.

5.2 REPLACE EXISTING CONVENTIONAL TUBE LIGHTS WITH LED TUBE LIGHTS

To enhance energy efficiency and reduce electricity consumption, it is recommended to replace all existing conventional fluorescent tube lights with energy-efficient LED tube lights.

LED tube lights consume 40–50% less power compared to traditional fluorescent fittings while providing the same or better illumination levels. Additionally, LEDs have a longer lifespan, require lower maintenance, and produce less heat, thereby improving the overall lighting quality and reducing the building’s cooling load.

Implementation of this measure will result in significant energy savings, reduced maintenance costs, and lower greenhouse gas emissions, contributing to the organization’s sustainability goals.

Table 18: Replacement of Tube lights with LED

Sr. No	Description	UOM	Value
1	Total no. of Existing T-8, 40 W Tube light	Nos	32
2	Avg. Energy Consumption of Per Tube Light	Watt	40
2	Annual Running Hours @300 Days @ 8 Hrs/Day	Hrs	2400
3	Energy Consumption of LED Light	Watt	20
4	Estimated daily Energy saving @ 8 Hrs per day	KW	5.12
5	Power cost Per KWh (Approx)	Rs	7.8
6	Estimated cost 1 No. of LED Light	Rs	300
7	Total Estimated Investment	Rs	9600
8	Annual Energy Saving @ 300 Days	KWh	1536
9	Annual Monetary saving	Rs	11980.8
10	Pay Back Period	Month	9.62

5.3 FANS

Installed Fans in the building is mentioned below in table:

Table 19: Installed Fan detail in new building

Sr.	Location of the building	Ceiling Fan	Exhaust Fan
		60 W	
1	Jijabai Hall	16	
2	Auditorium Hall	13	
3	Paeshva Baji Rao	12	
First Floor			
4	LR-J- 101	6	
5	LR-J- 102	5	
6	LR-J- 103	4	
Second Floor			

Sr.	Location of the building	Ceiling Fan	Exhaust Fan
		60 W	
7	LR-J- 201	6	
8	LR-J- 202	5	
9	LR-J- 203	4	
10	Zoology Lab	13	
11	Recording Lab	1	
12	Research Lab	1	
13	Botany Staff Room	2	1
14	Botany Lab 1&2	13	
15	Botany Theory Room	4	
Third Floor			
16	LR-J- 301	6	
17	LR-J- 302	5	
18	LR-J- 303	4	
19	Auditorium Hall (Tanaji Malusare)	16	
20	Bio- Chemistry Lab	31	
21	Bio-Chemistry Staff Room	2	1
22	Bio- Chemistry CMR Projector Room	2	
23	Bio- Chemistry CEDM Room	1	
24	Bio- Chemistry Research Lab	1	
25	LR-J01	6	
26	CEC Hindi North	5	
27	CEC Hindi South	4	
28	English Staff Room	2	1
Total		188	3

Table 20: Installed Fan details

Sr.	Location of the building	Ceiling Fan		Wall fan	Exhaust Fan
		60 W	120 W	35 W	
Ground Floor					
1	Room-3	7	2		
2	Chemistry Staff Room	1			
3	Chemistry Lab-I	5	2		4
4	Chemistry Lab-II	14	6		3
5	Instrument Lab	4			
6	Lab Incharge Room	3			
7	Store Room	0	1		1
8	IQ AC Room	1			

Sr.	Location of the building	Ceiling Fan		Wall fan	Exhaust Fan
		60 W	120 W	35 W	
9	Help Desk			1	
10	Principal Office	2			1
11	Conference Hall	2			1
12	Principal Room	4			
13	Kitchen	1			
14	Toilet	1			1
15	Barsar Room	1		1	
16	Toilet				1
17	Old Political Science Room	1			
18	Old Political Science Staff Room	6		2	
19	Old Political Science Staff Meeting Room	1			
20	Kitchen	1			
21	Voice Principal Room	3			
22	Math Lab	11			
23	Math Lab Staff Room	1			
24	Computer Lab III	11			
25	Computer Lab III Staff Room	1		1	
26	NCC Room (Boy)	0	1		
27	Store Room	0	1		
28	Math Staff Room	2			
29	Department of History	2			1
30	Department of Physical Education	2			
31	Store Room	2			
32	Research Lab			1	
33	Entrance			1	
34	NCC Girls	1			
35	Room No-5	5			
36	Room No-6	9			
37	Room No-7	9			2
38	Room No-8	9			2
39	Room No-9	9			2
40	Room No-10	7			
41	Room No-11	5			
42	Canteen	9			
43	Counter	1			
44	Kitchen				1
45	Girls Common Room	2		2	
46	Office	18		3	
47	Electrical Room	1			

Sr.	Location of the building	Ceiling Fan		Wall fan	Exhaust Fan
		60 W	120 W	35 W	
48	Department of Commerce	2			
49	Property Counter	1			
50	Department of Hindi	1		1	
51	Department of Economics	1		1	
52	Room No-106	2			
53	Room No-107	4			
54	Room No-108	4		2	
55	Room No-109	4			
56	Room No-110	7			
57	Room No-111	4			
58	Chankya Auditorium	12			2
59	Library	1	36	4	7
60	Reading Hall	4			
61	E-Research Center	1			
62	Technical Section	9		3	
63	Toilets				1
64	Physics Lab-I	12		1	
65	Physics Lab-II Store	10		1	1
66	Digital Lab	4		1	
67	Optics Lab	3			
68	Thermal Room	4		2	1
69	Computer Lab-I	6			
70	Department of Physics	4			
71	Computer Staff Room	2			
72	Toilets				1
73	Room No-101	1			
74	Room No-102	6			
75	Toilets (Male & Female)				2
76	Zoology Staff Room	4			
77	Museum Zoology	3			1
78	Zoology Lab-I	4			1
79	Zoology Lab-II	3			1
80	Preparation Room	2			1
81	Room No-201	4			
82	Room No-202	5			
83	Plant Tissue Culture Room	1			
84	Old Botany Staff Room	1			
85	Room No-203	9			
86	Botany Museum	5			1

Sr.	Location of the building	Ceiling Fan		Wall fan	Exhaust Fan
		60 W	120 W	35 W	
Second Floor					
87	Room No-204	1			
88	Room No-205	4			
89	Room No-206	3		2	
90	Room No-207	6			
91	Room No-208	6			
92	Room No-209	9			
93	Room No-210	6		2	
94	Room No-211	3			
95	Room No-212	3			
96	Room No-213	8			
97	Room No-214	2			
98	Cabin			1	
99	Botany Lab-I	4		2	2
100	Botany Lab-II	4		1	
101	Lab Incharge Room	2			
102	Room No- LTR	3			
Third Floor					
103	L-1	3			
104	L-2	3			
105	L-3	2			
106	L-4	3			
107	L-5	4			
108	L-6	8			
109	L-7	8			
110	Toilets				2
111	Lobby	1			
112	Room No-301	2			
113	Room No-302	1			
114	Room No-303	3			
115	Room No-304	3			
116	Room No-305	6			
117	Health Counter (Old)	6			
118	Health Counter (New)	6			
Total		448	49	36	37



Figure 6: Pictures of Existing Fans at Labs, Library & Classrooms

Observations:

During the Audit, it was found that some Conventional Fans are installed in different location in campus.

Suggestions:

It is suggested to replace all conventional fans with BLDC fans. Detailed calculation of Energy Saving potential and Payback are given table below:

5.4 REPLACE EXISTING CONVENTIONAL 60-WATT FAN WITH 28-WATT BLDC FAN

The existing conventional ceiling fans (60 W) are presently in satisfactory working condition and are effectively meeting the ventilation and comfort requirements of the occupied spaces. Their continued operation ensures reliable air circulation without any immediate operational issues. However, in order to further enhance energy efficiency and reduce electricity consumption in the long term, it is recommended that these conventional fans may be gradually replaced with energy-efficient Brushless Direct Current (BLDC) fans (28 W).

BLDC fans operate with advanced motor technology that ensures up to 50% energy saving compared to conventional induction motor fans, without compromising on air delivery or comfort. These fans also offer features such as remote-control operation, lower heat generation, and higher service life.

By implementing this measure, the facility can achieve significant energy and cost savings, reduced maintenance requirements, and contribute toward sustainable and energy-efficient operations.

Table 21: Replacement of 60-watt fan with BLDC

Sr. No	Description	UOM	Value
1	Total no. of Existing Ceiling Fan	Nos	676
2	Avg. Energy Consumption of Per Ceiling Fan	Watt	60
2	Annual Running Hours (Estimated)	Hrs	2640
3	Energy Consumption of BLDC Fan	Watt	28
4	Estimated daily Energy saving @ 8 Hrs per day	KW	21.63
5	Power cost Per KWh (Approx)	Rs	7.80
6	Estimated cost 1 No. of BLDC Fan	Rs	2200
7	Total Estimated Investment	Rs	1487200
8	Annual Energy Saving @ 250 Days	KWh	57108.48
9	Annual Monetary saving	Rs	445446.1
10	Pay Back Period	Month	40.1

5.5 REPLACE EXISTING CONVENTIONAL 120-WATT FAN WITH 28-WATT BLDC FAN

The existing conventional ceiling fans (120 W) are presently in satisfactory working condition and are effectively meeting the ventilation and comfort requirements of the occupied spaces. Their continued operation ensures reliable air circulation without any immediate operational issues. However, in order to further enhance energy efficiency and reduce electricity consumption in the long term, it is recommended that these conventional fans may be gradually replaced with energy-efficient Brushless Direct Current (BLDC) fans (28 W).

BLDC fans operate with advanced motor technology that ensures up to 50% energy saving compared to conventional induction motor fans, without compromising on air delivery or comfort. These fans also offer features such as remote-control operation, lower heat generation, and higher service life.

By implementing this measure, the facility can achieve significant energy and cost savings, reduced maintenance requirements, and contribute toward sustainable and energy-efficient operations.

Table 22: Replacement of 120-watt fan with BLDC

Sr. No	Description	UOM	Value
1	Total no. of Existing Ceiling Fan	Nos	49
2	Avg. Energy Consumption of Per Ceiling Fan	Watt	120
2	Annual Running Hours (Estimated)	Hrs	2640
3	Energy Consumption of BLDC Fan	Watt	28
4	Estimated daily Energy saving @ 8 Hrs per day	KW	4.51
5	Power cost Per KWh (Approx)	Rs	7.80
6	Estimated cost 1 No. of BLDC Fan	Rs	2200
7	Total Estimated Investment	Rs	107800
8	Annual Energy Saving @ 250 Days	KWh	11901.12
9	Annual Monetary saving	Rs	92828.7
10	Pay Back Period	Month	13.9



Figure 7: DGs Pictures installed at Campus

7. RENEWABLE ENERGY GENERATION

Introduction of solar system:

A solar power plant is a system that converts sunlight into electricity. Solar panels capture sunlight and generate Direct Current (DC), which is then converted into Alternating Current (AC) by an inverter so it can be used in homes, industries, or supplied to the electricity grid.

Advantage of Solar Power Plant:

- ✚ Renewable & clean source of energy
- ✚ Reduces dependence on grid electricity
- ✚ Low carbon emissions

Shivaji College has installed 75 kWp solar power generation system as a net metering system, this is a good initiative as renewable energy source, pictures of solar system are given below:

Table 23: Monthly Solar generation details-2024-25

Month	Solar Generation (KWH)
Apr-24	7313
May-24	5826
Jun-24	7614
Jul-24	6188
Aug-24	6173
Sep-24	3128
Oct-24	3139
Nov-24	5051
Dec-24	5448
Jan-25	8293
Feb-25	6812
Mar-25	6622
Total	71606

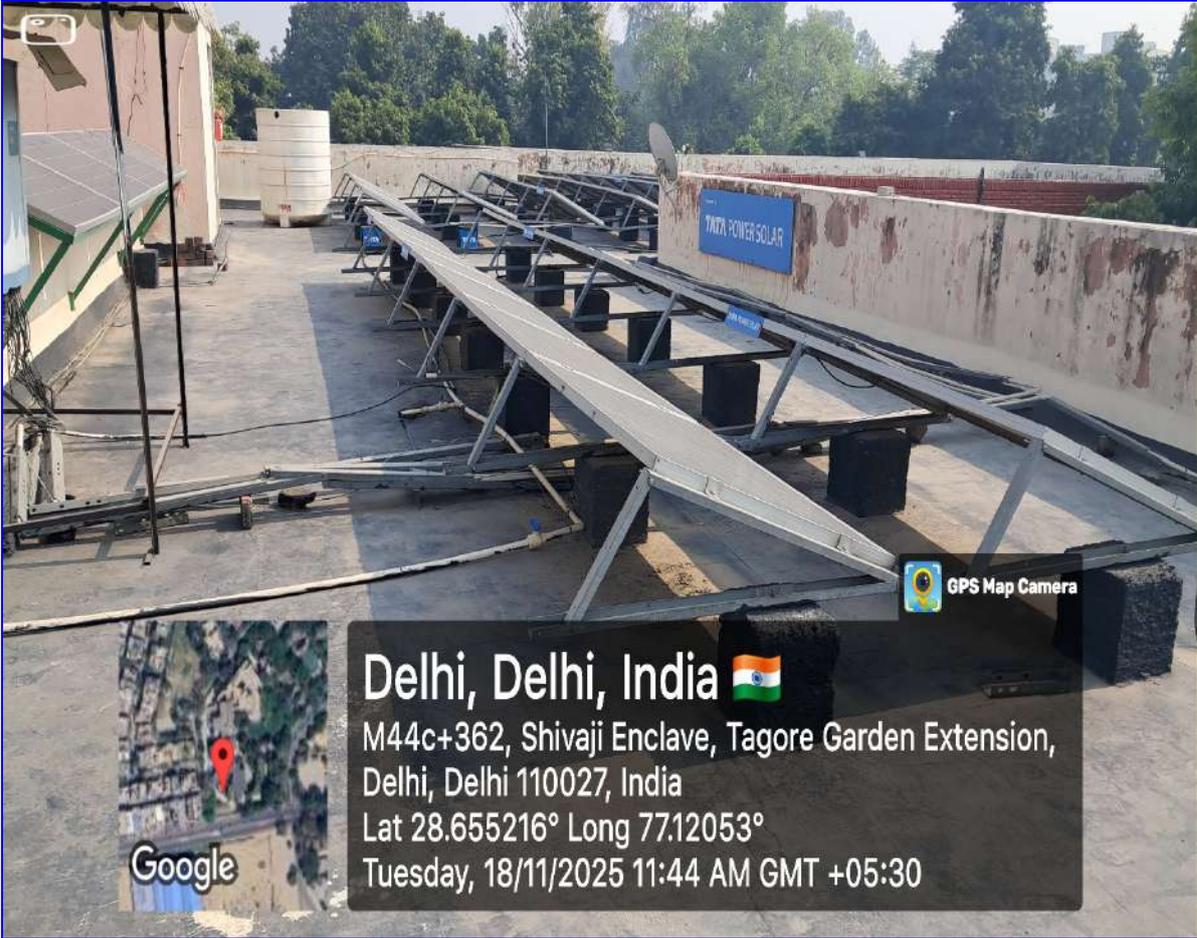




Figure 8: Solar Pictures installed at rooftop

Observations : Shivaji College has installed 75 kWp solar power generation system as a net metering system, this is a good initiative as renewable energy source. The College has generated **71606 kWh** units through solar in FY-2024-25 and save almost **25%** of the total grid power consumption.

Suggestions : It is suggested to enhance the solar power plant capacity and installation of solar street light to reduce energy consumption during nights .

8. CONCLUSION

The Energy Audit of the Shivaji College reveals that the overall energy management practices are satisfactory and the existing electrical systems are operating within acceptable performance limits. The audit helped in identifying the current pattern of energy consumption and assessing the efficiency of major energy-consuming equipment and systems.

It was observed that the College has adopted several energy-efficient practices and there is scope for further improvement through optimization of operating practices, regular maintenance, and adoption of energy-efficient technologies. Implementation of the recommended energy conservation measures will result in reduction in energy consumption, operating cost savings, and improved system performance without affecting productivity.

Overall, the current Energy Audit provides a clear roadmap for improving energy efficiency. Continuous monitoring of energy usage, periodic energy audits, and timely implementation of conservation measures which help in achieving sustained energy savings and promote efficient and responsible energy management.

This is to certify that Shivaji College has undertaken systematic initiatives for electrical energy conservation and on-site energy generation through the adoption of modern, sustainable, and energy-efficient technologies. These measures reflect the institution's commitment towards responsible energy management and environmental sustainability. This certificate shall remain valid for a period of five (5) years, up to the year 2030.

9. ANNEXURES & SITE PHOTOGRAPHS

Electricity Bill Copy



WHATSAPP
Simply say "Hi" &
send it to +91-88009 19123

MOBILE
BRPL Power App
Download from
Play Store / App Store

BSES Rajdhani Power Limited

Call Us **19123** (TOLL FREE)

Bill of Supply for Electricity

Due Date (देय तिथि):

26-12-2024

Name : M/s. THE PRINCIPAL
Billing Address : SHIVAJI COLLEGE RING ROAD NA NEW DELHI 110027
Supply Address : SHIVAJI COLLEGE TING ROAD RAJA GARDEN NEW DELHI 110027
Mobile / Tel. No. : 9871691935
Email ID : SHIVAJICOLLEGE.AC@GMAIL.COM
District / Division : Tagore Garden
Walking Sequence : VELKC0029A0AA
Bill Month : DEC-24
Bill Date : 10-12-2024

Sanctioned Load : 203.00 (kW)
Contract Demand :
M D I : 96.00 (kW)
Power Factor : 0.997
Pole No. : NA
Meter Reading Status : DL
Cycle No. : KC
Tariff Category : Domestic [GOVT & Non-Res.]

CA No. : 100000924
Energisation Date : 21-08-1976
Meter Type : 3PSK
Supply Type : LT
Bill No. : 100069830538
Bill Basis : Actual
O.D. No. : R/24/10445236181
CCTV Tagged : No
Street Light Tagged : No
WI-FI Tagged : No

BRL Customer

Meter No. (मीटर नं.)	Unit (यूनिट)	Billed Consumption (Current) (बीलिंग पीरियड की तिथि)	Reading (रीडिंग)	Billed Consumption (Previous) (बीलिंग पीरियड की तिथि)	Reading (रीडिंग)	Multiplication Factor (गुणांक)	Current Consumption (सर्जन चक्र) (दिवस)	Unit (यूनिट)
Meter Details in Annexure								

Billing Details (बिल का विवरण)									
Current Period Charges (वर्तमान अवधि का शुल्क) (07-11-2024 to 05-12-2024)									
Fixed Charge - "A" (स्थायी शुल्क)	Consumption Measured During (इस अवधि में मापा)	Energy Units Consumed/ Billed (इस अवधि में खपित/बीलिंग यूनिट)	Slabwise Energy Charge (स्लाब-वाइज एनर्जी चार्ज)	Slabwise Power Purchase Adjustment Charge (स्लाब-वाइज पावर पर्सचार्ज)	Time of Day (TOD) Charge (टॉड चार्ज)	Surcharge @ 8% on (Energy Charge + Fixed Charge - Rebate) (सर्चार्ज)	Electricity Tax @ 8% on (Energy Charge, Surcharge on Energy Charge, PPAC amount & TOD Surcharge) (इलेक्ट्रिसिटी टैक्स)	Total Amount (कुल राशि)	
48785.48 (0.96Mth(s))	192.00	3.00	576.00	35.83	206.38	15437.84	13508.11	301435.48	
PPAC on Fixed Charge - "G"	193.00	4.50	868.50	35.83	311.18				
17479.84	384.00	6.50	2496.00	35.83	894.32				
	385.00	7.00	2695.00	35.83	965.62				
	17194.00	8.00	13752.00	35.83	49284.88				
CCTV Units									
Street Light Units									
Wi-Fi Units									
Total Units =		18348	Total (B) = 144187.50	Total (C) = 51662.38	Total (D) =				

Past Dues / Refunds / Subsidy (पिछला बकाया/वापसी/सब्सिडी)		Arrears (संचय)		Late Payment Surcharge (LPSC) (देरी से शुल्क पर वसूली)	Total Charges Payable (कुल देय शुल्क)	Rebate / Subsidy (रूट/सब्सिडी)	Net Amount Payable (कुल देय राशि)
Refund Unit	Refund Amount	Amount (राशि)	Period to which it relates (वित्त वर्ष से संबंधित)		301435.48		301435.48

Bill Amount Payable (बिल देय राशि)	
₹ 301440.00	Due Date of Payment (भुगतान देय तिथि) 26-12-2024

Interest accrued for FY 2023-24 already adjusted in bill no. 100099083626 (generated for the period 06-03-2024 to 05-04-2024). ₹ (48858.00)

Interest for FY 2024-25 will be adjusted in your first bill to be generated in FY 2025-26

Last payment ₹ 427260.00 received on 25-11-2024. Payment accounted upto 07-12-2024.

Period	No. of Days	Units (kWh/kVAh)	Total Bill Payable	Bill Basis
06-10-2024	32	278.52	427260.00	Actual
06-09-2024	30	373.92	544630.00	Actual
07-08-2024	30	332.16	490290.00	Actual
06-07-2024	32	260.04	403430.00	Actual
06-06-2024	30	306.48	459390.00	Actual
09-05-2024	28	329.16	481800.00	Actual

(This bill is computer generated, hence does not require any signature.)

IMPORTANT MESSAGE (महत्वपूर्ण सूचना)
Power Purchase Adjustment Charge (PPAC) @ 35.83% has been levied on energy & fixed charge w.e.f 01.05.2024. CCTV Bill amount include Energy, RA, PPAC, PTC and Electricity Tax on CCTV consumption. In case any variation in SLD charges noted, consumer may visit divisional office for requisite correction. Pension Surcharge @ 7.00% has been levied on energy & fixed charge w.e.f. 01.10.2021. The amount of Security Deposit against your connection is mentioned herewith under the heading "Security Deposit with DISCOM". Please check this amount and report any discrepancy by furnishing documentary proof in that regard available with you, at the customer care centre of respective division office. Anyone treating Electricity Bill as conclusive proof of Residence is advised to verify the particulars. Switch off lights and appliances from mains when not in use. This will conserve energy and reduce your electricity bill. ELCCB is a safeguard against faulty internal wiring and prevents shock, fire and etc.

Payment Slip
Make your Cheque/DD payable to BRPL CA No. 10000924
Bill Month : DEC-24
Bill Amount payable : ₹ 301440.00 Cheque DD No.: Date: _____



11 of 3 KCC_RKC - 823 / 818

ELECTRICITY BILL

Adopt e-bills, Save trees, Profile email details to us through web@bripl.com

Scan & Pay QR code Powered by BOB

101000000092400003014400020241226000000010

Tariff structure

Categories	Description	Fixed/Demand Charge		Energy Charge					Categories	Description	Fixed/Demand Charge	Energy Charge	Temporary	
		Load(kW)	(₹/month)	0-200 Units	201-400 Units	401-600 Units	601-120 Units	Above 120 Units					Fixed Charge	Energy Charge
Domestic	Individual connections: Domestic Light / Mixed Domestic Power Farm House upto 21kW	Upto 2kW	200kVA/mth	₹3.00	₹4.50	₹6.50	₹7.00	₹8.00	Agriculture	Agriculture	125 kVA/mth	₹1.50k/Wh	Same as Domestic	Same as Domestic
		>2kW to 5kW	500kVA/mth						Mushroom	Mushroom Cultivation upto 100 kW	200kVA/mth	₹3.50k/Wh	Including GHS	Same as relevant category
		>5kW to 15kW	100kVA/mth						Public Utility	Delhi Jal Board, DMRC, Public Lighting etc.	250kVA/mth	₹6.25k/Wh		Same as relevant category
	>15kW to 25kW	200kVA/mth						Delhi International Airport Limited (DIAL)	250kVA/mth	₹7.75k/Wh				
	>25kW	250kVA/mth						Advertisements and Hoardings	250kVA/mth	₹8.50k/Wh				
	Single point supply at 11kV for G-S -Domestic Lighting / Fan and Power	150kVA/mth						Charging Stations for E-Rickshaw/ E-Vehicle on Single Point Delivery	LT	₹4.50k/Wh				
Non-Domestic	Shopkeepers Other Non-Domestic	Upto 3kVA >3kVA	250 kVA/mth						HT	₹4.00k/Wh				
Industrial	Industrial	250kVA/mth												

Schedule of Time of Day (TOD) Tariff

Month	Peak hours	Surcharge on Energy Charges	Off Peak hours	Rebate on Energy Charges
May-September	1400-1700 hrs and 2200-0100 hrs	20%	0400-1000 hrs	20%

Disclaimer- This electricity bill is only for electricity supply to the premises occupied by the consumer and should not be construed as having bearing on the rights or titles over the premises.

For other than peak & off-peak hours normal energy charges are applicable. Mandatory for >10kW / 11kVA other than Domestic. Optional for 3 Phase Domestic Consumers.

अवधीकरण: यह बिजली का बिल उपभोक्ता के लिए / कचरे/सूरा पर बिजली की आपूर्ति के लिए है और इसे उच्च स्थान पर उपभोक्ता के अधिकार या स्वामित्व समान न समझा जाय।

As per CE regulation 31 and 32 : Consumers are advised that all electrical installation works shall be got done and checked periodically through licensed electrical contractors only. In case there is any damaged cable /insulation damaged - it shall be either replaced or suitably repaired through licensed electrical contractors since such joints are prone to electrical heat / fire.

Customer Complaint Management:

For any query/complaint, you may contact us using any of the following options:

- Call Center No. 19123 (24x7 Toll Free)
- Customer Care Centers (Timing Mon to Fri : 9:30 AM to 5:30 PM & Sat: 9:30 AM to 1:00 PM)
- Email - brpl.customer.care@reliancecda.com
- www.bsesdelhi.com

Escalation matrix for complaints:

1. In case you are not satisfied with the resolution of your query/complaint, you may contact the below listed BRPL officials-
 - Customer Care officer (Timing 09:15AM to 3:15 PM)
 - Business Manager (between 10AM to 11AM on any working day)
 - Circle Head (with prior appointment)
2. **Head-Customer Care.**
 - BSES Rajdhani Power Limited,
 - BSES Bhawan, Nehru Place, New Delhi-110019
 - Email - brplhead.customer.care@reliancecda.com
3. **Consumer Grievance Redressal Forum (CGRF):** In case you are not satisfied with the response of the above, you may approach CGRF-BRPL, Sub-station Building, Sector-V, Pushp Vihar, New Delhi-110017. Email cgrfbrpl@gmail.com
4. **Electricity ombudsman:** An appeal against the CGRF order may be filed with Electricity Ombudsman. B-53, Paschim Marg, Vasant Vihar, New Delhi-110057

उपभोक्ता शिकायत प्रबंध:

किसी तरह के पूछाछ/ शिकायत के लिए कृपया आप हमें निम्नलिखित विकल्पों के जरिए संपर्क कर सकते हैं:

- कॉल सेंटर नंबर 19123 (24x7 टॉल फ्री)
- कस्टमर केयर सेंटर (सोमवार से शुक्रवार सुबह 9:30 बजे से अक्टूबर 5:30 बजे और शनिवार सुबह 9:30 बजे से अपराह्न 1:00 बजे तक)
- brpl.customer.care@reliancecda.com पर ईमेल करें
- www.bsesdelhi.com

शिकायतों के लिए सहायी भी संपर्क करें:

1. अगर आप अपने पूछाछ/ शिकायत के निवारण से संतुष्ट नहीं हैं तो आप निम्नलिखित अधिकारियों से संपर्क कर सकते हैं-
 - कस्टमर केयर ऑफिसर (सुबह 9:15 बजे से अपराह्न 3:15 बजे)
 - बिजनेस मैनेजर (किसी भी कार्यदिन के दिन सुबह 10 बजे से 11 बजे तक)
 - सर्किल हेड (पूर्व में रिजर्वेशन करना)
2. **हेड कस्टमर केयर,**
 - बीएसईएस भवन, नेहरु प्लेस, नई दिल्ली 110019
 - ईमेल: brplhead.customer.care@reliancecda.com
3. **कंज्यूमर ग्रीवेंस रेड्रेसल फोरम (सीजीआरएफ):** यदि आप अपने शिकायत पर सेवा प्रदाता के जवाब से संतुष्ट नहीं हैं तो आप सीजीआरएफ-बीएसईएस, सब स्टेशन बिल्डिंग, सेक्टर-V, पुष्पविहार, नई दिल्ली 110017, ईमेल cgrfbrpl@gmail.com में अपनी शिकायत दर्ज कर सकते हैं।
4. **इलेक्ट्रिसिटी ऑम्बुड्समैन:** सीजीआरएफ के आदेश को विफल अपील करने के लिए ऑम्बुड्समैन, बी-53, पश्चिम मार्ग, वसंत विहार, नई दिल्ली-110057 में अपील कर सकते हैं।

GoNCTD vide Order No. F.6/85/Power/2024/447-459 dated 14.03.2024 has extended subsidy to Domestic Consumers for Financial Year 2024-2025 of tariff bill amount upto 200 Units/month. Slab 201-400 Units/month will get subsidy upto Rs 800/month. No subsidy consumption above 400 Units/month

बिजली सारकार की आदेश तत्पश्चात F.6/85/Power/2024/447-459 दिनांक 14.03.2024 के अनुसार घरेलू उपभोक्ताओं के लिए सबसिडी वितरित की 2024-2025 तक बढ़ा दी है, 200 यूनिट/माह तक के संपूर्ण बिल पर, स्लेब 201-400 यूनिट/माह पर ₹ 800 सबसिडी वितरित। 400 यूनिट प्रतिमाह से ऊपर खर्च के लिए कोई सबसिडी नहीं है।

मुफ्त कानूनी सहायता (Free Legal Aid)

हर बिजली बिल के साथ मुफ्त कानूनी सहायता (DLSA) के तहत 400 से अधिक यूनिटों के उपभोक्ताओं को मुफ्त कानूनी सहायता प्रदान करने के लिए।

क्या आप बिजली बिल के संबंध में किसी भी प्रकार की शिकायत कर चुके हैं? क्या आप बिजली बिल के संबंध में किसी भी प्रकार की शिकायत कर चुके हैं?

बिजली बिल के संबंध में शिकायत के प्रकार / उपभोक्ता के बिल के तहत:

- बिल के तहत - BLS (PLA/BLS) (बीएसईएस सहायक, बीएसईएस सहायक, और सेक्टर हेड के लिए) जहां मुफ्त है, अतिरिक्त के लिए, नई दिल्ली - 110002.
- स्थानीय क्षेत्र - BLS (PLA/BLS) (बीएसईएस सहायक, बीएसईएस सहायक, और सेक्टर हेड के लिए) जहां मुफ्त है, अतिरिक्त के लिए, नई दिल्ली - 110002.

आपका बिल भुगतान

बिल भुगतान सुचना

- भुगतान विकल्प**
1. आप 4000 रुपये तक के अपने बिल का भुगतान क्रेडिट / बैंक / डीबी / पे ऑर्डर के माध्यम से कर सकते हैं। 4000 रुपये से अधिक की रकम का भुगतान बैंक / डीबी / पे ऑर्डर के माध्यम से कर सकते हैं।
 2. डीएमआरए के हार्डवेयर डीबी ऑर्डर के माध्यम से भुगतान करने वाले उपभोक्ताओं को (लेवू कुर्मी और भारतम की सेवा के माध्यम से) के लिए भारतीय के बैंक भारतीय के बैंक से अधिक की रकम का भुगतान 1 अक्टूबर, 2024 से डिजिटल माध्यम से करें।
 3. अगर क्रेडिट ऑर्डर और डिजिटल डीबी ऑर्डर पर लगे हार्डवेयर डीबी ऑर्डर से आप अपना बिल खरीते हैं। डीबी ऑर्डर को डिजिटल ऑर्डर के माध्यम से कर सकते हैं।
 4. बिल भुगतान की रकम 9 बजे से शाम 3 बजे तक खुले रहेंगे।
 5. पंचम नगर बैंक और बैंक ऑफ इंडिया की शाखाओं में 60000 रुपये तक बिजली का भुगतान भुगतान से कर सकते हैं।

बिल भुगतान करने समय ये बातें याद रखें

1. कंप्यूटरीकृत बिल पत्र के बाद ही अपने बिजली बिल का भुगतान करें।
2. अनधिकृत एजेंटों/दलालों को भुगतान न करें।
3. अगर आपका बैंक बिल द्वारा भुगतान के /अधीनस्थ होकर आपका बिल आ जाते हैं तो बैंक सहायी सुलभ (विजुड) 200 रुपय + जीएसटी, सेवा लगे। सुलभ (विजुड) और निगोशिएशन इन्स्ट्रुमेंट एक्ट 1988 की धारा 133 के तहत कार्रवाई की जायेगी।
4. कोई संपर्क और ऑनलाइन के द्वारा 5000 रुपये से अधिक के भुगतान पर लगे जाने दुर्घिका सुलभ को उपभोक्ता को लगे करना होगा। सुलभ के विरुद्ध खर्च के लिए कृपया हमारे वेबसाइट www.bsesdelhi.com पर जाएं।

Paying your electricity bill (Bill payment information)

Payment Options

1. You can pay your bill by cash/cheque/DD/Pay Order up to Rs-4000/- and for amount more than Rs 4000/- by cheque/DD/Pay Order
2. According to DERDs recent tariff order, it is mandatory for all consumers (except Domestic, Agriculture & Mushroom Cultivation) to pay their monthly electricity bills exceeding Rs 20 (bill) through digital mode as of October 2021
3. Drop your cheque in our drop boxes at every RW offices and at BRPL Counters. The list of drop boxes is available on the website
4. Bill payment counters are open from 09:00 AM to 12:00 PM, from Monday to Saturday
5. Bill payment upto Rs 50,000/- can be paid in cash at Bank branches of PNB and Bank of Baroda

Points to remember while paying your bill

1. Please pay your electricity bill only on obtaining computer generated bill
2. Do not make payment to unauthorized agents/vendors.
3. In case your cheque returns unpaid/disbursed by bank, cheque return charges (presently Rs 200/- GST as applicable) will be imposed and action will be taken under Section 138 of the Negotiable Instruments Act 1881.
4. Convenience fee on card swipe and online payments applicable or payment amount above Rs 5000/- is to be borne by the consumer. For charge details, kindly visit our website www.bsesdelhi.com.

Pay your electricity bills conveniently by any of the following options:

Payment Options	Timings
<ul style="list-style-type: none"> • Bharat Bill Pay (BBPS) - Pay option at all BBPS enabled Payments App (Paytm etc.) (Zero Charges) • QR code on bill - Powered by BQB • BBES Mobile App/Website - UPI, IMPS, Internet Banking, Credit/Debit Cards, Mobile Wallets, QR Code • RTGS/NEFT/EGS 	24x7
<ul style="list-style-type: none"> • BRPL Cash Counters. • Cash Upto Rs. 4000/- • Cheque & Demand Draft: No amount limit for Domestic, Agriculture & Mushroom Cultivation category consumers and for other category consumers maximum allowed is upto Rs. 20,000/- • Credit/Debit Cards • UPI 	9AM - 3PM
24*7 self payment Kiosk	24x7
<ul style="list-style-type: none"> • Bank of Baroda and PNB • Cash-Upto Rs. 50,000/- only for Domestic, Agriculture & Mushroom Cultivation category consumers and for other category consumers maximum permissible limit is upto Rs. 20,000/- • Cheque & Demand Draft: No amount limit for Domestic, Agriculture & Mushroom Cultivation category consumers and for other category consumers maximum allowed is upto Rs. 20,000/- • Transfer by account holders 	Bank Timings
<ul style="list-style-type: none"> • Select RW/VA locations • BRPL owned drop boxes at counters 	24x7
Cheque Drop boxes	9AM - 5PM
Cheque by Post	24x7

वोटोटर

वोट लिस्ट में जाते अपना नाम, सुनिश्चित होगा मतदान

यश दुल

मुख्य निर्वाचन अधिकारी, दिल्ली

आर.टी.सी. रोड, अंधा बिंदी, दिल्ली-110006

www.ceoedli.gov.in

The connection shall be liable for disconnection on non-payment of all dues (including arrears of previous bill/s) by due date, after notice as per Section 56(1) of the Electricity Act, 2003. Charges for reconnection - Single phase ₹200, Three phase ₹500.)

BSES Powered by **BHARAT BILLPAY**

- Cheque should not be post dated.
- Cheque should be account payee and payable at Delhi.
- Write your telephone number on backside of the cheque.
- Do not staple. Only clip the cheque to payment slip.

For detail log on to our website www.bsesdelhi.com. Alternatively, you can visit our Customer Care Center or simply call at: 19123 (24x7 Toll Free)

Regd. Office: BSES Rajdhani Power Limited (A joint venture of Reliance Infrastructure Ltd. and Govt. of NCT of Delhi) BSES Bhawan, Nehru Place New Delhi 110 019. CIN No.: U40109DL2001PLC111527, GSTIN: 07AA6C53187H2Z3, Tel. No. 19123 (24x7 Toll Free), Fax No.: 011 39999890, Website: www.bsesdelhi.com



BSES Rajdhani Power Limited

Meter Details Annexure

Name : M/s. THE PRINCIPAL	Sanctioned Load : 203.00 (kW)	CA No. : 100000924
Billing Address : SHIVAJI COLLEGE RING ROAD NA NEW DELHI 110027	Contract Demand :	Energisation Date : 21-08-1976
Supply Address : SHIVAJI COLLEGE TING ROAD RAJA GARDEN NEW DELHI 110027	M D I : 96.00 (kW)	Meter Type : 3PSK
Mobile / Tel. No. : 9871691935	Power Factor : 0.997	Supply Type : LT
Email ID : SHIVAJICOLLEGE.AC@GMAIL.COM	Pole No : NA	Bill No. : 100069830538
District / Division : Tagore Garden	Meter Reading Status : DL	Bill Basis : Actual
Walking Sequence : VELKC0029A0AA	Cycle No. : KC	O.D. No. : R/24/10445236181
Bill Month : DEC-24	Tariff Category : Domestic [GOVT & Non-Resi.]	CCTV Tagged : No
Bill Date : 10-12-2024		Street Light Tagged : No
		Wi-Fi Tagged : No

Net Meter Consumption Details (Date of Reading : 05-12-2024)															
Total Solar Generation Units	For the Billing Period			Cumulative Generation in FY			Solar Installation Details			Date of Installation			Capacity kWp		
		3128			53606						15-02-2017			75	
B/F Units (if any)	Export Reading			Import Reading			Net Difference			Moderate Units			Excess Gen Units	Shared by Prim.	C/F Units (If any)
	Normal	Peak	OffPeak	Normal	Peak	OffPeak	Normal	Peak	OffPeak	Normal	Peak	OffPeak			
0	12	0	0	18360	0	0	18348	0	0	0	0	0	0.00	0	0

(Consumption in the above table are in kWh/kVah, as applicable)

Meter No	Units	Billed Consumption (Current)		Billed Consumption (Previous)		Multiplication Factor	Current Consumption	
		Date of Meter Reading (24:00 Hrs)	Reading	Date of Meter Reading	Reading		Days	Units
29017376	kWh	05-12-2024	17053.92	06-11-2024	16975.71	40.00	29	3128.00
29017376	kW	05-12-2024	0.83			40.00		33.20
29017376	kVAh	05-12-2024	17547.30	06-11-2024	17463.95	40.00	29	3334.00
29017376	kVA	05-12-2024	0.83			40.00		33.20
48695482	kWh	05-12-2024	313.11	06-11-2024	297.81	1200.00	29	18360.00
48695482	kW	05-12-2024	0.08			1200.00		96.00
48695482	kVAh	05-12-2024	313.81	06-11-2024	298.47	1200.00	29	18408.00
48695482	kVA	05-12-2024	0.08			1200.00		96.00
48695482	kWH_N	05-12-2024	5.47	06-11-2024	5.46	1200.00	29	12.00