

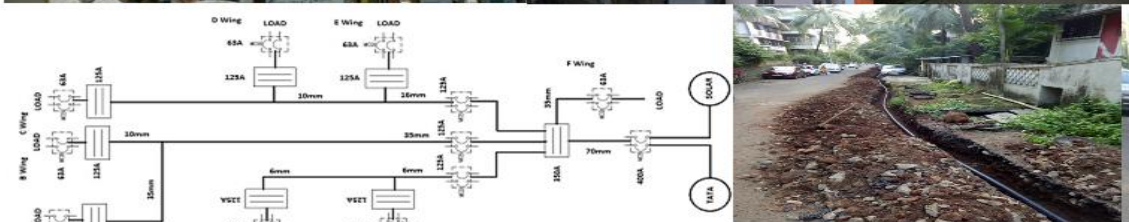
SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



- Liasoning
- Energy Audit
- Safety Audit
- Electrical Projects
- Solar Projects

Uran College of Commerce and Arts, Uran.



Report By

M/s. Saur Engineers
& Consultants Pvt.
Ltd., Mumbai.

- Registered Energy Auditor
- Power Consultant
- Channel Partner-MNRE, Govt. of India.
- Channel Partner-MEDA, Govt. of Maharashtra.
- Solar Grid Engineers, NISE, Govt. of India
- Licensed Electrical Contractor, IE&L, Govt. of Maharashtra

Solar Rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Detailed Report Energy Audit

Project Beneficiary

**Uran College of Commerce & Arts
(Konkan Gyanpeeth Trust)**

Near Uran Police Station,
Uran, District Raigad,
Maharashtra 400702.

Consultants & Auditor

SAUR
Engineers & Consultants Pvt. Ltd.

D-8, Plot No. 108, Akshay, Rsc-16,
Gorai-1, Borivali (west), Mumbai-400092
MAHARASHTRA
+919867499812/+919168402909

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164432



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Acknowledgement

Energy Audit is executed successfully for beneficiary details mentioned below under guidance of Register Energy Audit Company M/s. Saur Engineers & Consultants Pvt. Ltd. having registered office at D8, Plot No. 108, Akshay Society, Gorai-1, Borivali west, Mumbai 400091 contact id: saurengineers@gmail.com.

Name of Beneficiary: Uran College of Commerce & Arts

Registration Number: NA (Affiliated to Mumbai University)

Address: Near Uran Police station, Uran, Dist. Raigad 400702

Contact Person: Mr. Kishor Shama (I/C. Principal)

Contact Number: 9833224404

Date of Audit: 05/10/2020



[Signature]
Sign & Seal

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164434



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

INDEX

No.	Topic	Page No.
A	Executive Summary	6
1	Key finding and observations	6
2	Suggestions / Recommendations	6
3	Energy conservation table	7
B	Energy Audit Report	8
1	Introduction	8
2	Objective	9
3	Methodology	9
4	About the building	9
5	Energy audit statement	10
6	Overview	11
7	Location	12
8	Site evaluation	13 – 15
9	Site evaluation result	16
10	Manpower details	17
11	Products and services	17
12	Utility data	18 – 31
13	Load profile	32 – 34
14	Load Statement	35-38
15	Occupancy Statement	39-46
16	Load and Consumption Balance	47-52
17	Specific Consumption	53-57
18	Meter cabin safety survey	58-61
19	Building Envelope Survey	62
20	Power Quality Report	63-66
21	Disclaimer	67
22	Conclusion	67

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1, Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164435



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Executive Summary

The activity for energy audit is been executed in the entity for measuring parameters for consumption and safety. The activity has been executed under guidance of Mr. Kishor Shama, I/C. Principal; under supervision of Mr. Nandgaonkar, I/C. Electrical Maintenance, and other staff of Uran College of Commerce & Arts.

Key Findings & Observations

1. Site Evaluation score is Good (Grade B: Good).
2. Single Line Diagram of Electrical system found unavailable.
3. Design/drawing for control Panel found unavailable.
4. Entry to Control panel is restricted due to height.
5. Damage to Computers due to electrical problems occurred before audit.
6. There is no fault current protection provision observed.
7. Usage of single pole MCB observed.
8. Usage of Low sized MCB for AC observed.
9. Illumination level is below the standards observed in Class-rooms and offices.
10. No proper Ventilation is provided in class-rooms.

Suggestions/Recommendations

No Cost

1. It is recommended that each point of site evaluation need to be observed and to be worked on individually.
2. A standard operating procedure to be developed to use equipments and operate them efficiently.

Low Cost

1. Single Line diagram (SLD) has to be drawn and preserved. (It will help to find out exact location of fault, repairs, replacement and any other electrical activity; also it is requirement of government authority.) Cost to prepare SLD is Rs. 15000+ GST 18% (Total Rs. 17700/- only.)
2. Each connection point in SLD to be checked for fault current between Neutral and earthing and corrective measures to be taken. (It will minimize the risk of faults generation and may avoid situation like mentioned in observation no.5 due to fault current generated inside premise.)
3. After observation and conclusion of point 2, if found no fault then Static Voltage regulator or Transient voltage surge suppressor to be installed. (It will minimize the risk of faults generation and may avoid situation like mentioned in observation no.5 due to fault current generated outside premise.)

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164436



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

4. All the MCBs for ACs must be 32A 2Pole. (It will help to give protection to neutral path.)
5. The Main Incoming in meter cabin must have 4 Pole 100A MCB and 4Pole 100A/300mA ELCB/RCB. (It will minimize Risk of leakage current and provide proper sized breaking at peak consumption.)
6. The Computer lab must have 63A MCB and 63A/100mA ELCB/RCB. (It will minimize Risk of leakage current and provide proper sized breaking at peak consumption.)
7. Exhaust fans to be provided for removing Hot air from rooms. (It will increase ventilation hence increase efficiency of person, equipment and structure of room.)
8. All windows must have semi-transparent glasses. (It will help to increase Lux in the room hence avoid loss to vision due to poor lighting.)
9. Replace 2 Star ACs (computer lab and class room-5) to 5 star. (It will increase efficiency and save money approximately 18% of that AC expenses.)
10. Both Meter cabin has to be reconstructed as per standards. (it will provide fault free and Risk free working.)

Energy Conservation

1. All Fans to be replaced with BLDC Fans.
2. Replace 2Nos of 2 Star Ac to 5 Star Ac. (New AC Rs. 36000/- and Resale of Old AC Rs. 16000/- approximately hence investment per AC is Rs. 20000/-)

Energy Conservation table

SL No	Energy Conserving Method	Nos	Saving	Implementation Cost	Payback
			Rs	Rs	Months
1	Replace Fans with BLDC	72	8000	185000	23
2	Replace ACs to 5 Star	02	600	40000	65

Current Annual expenses	Rs	348000
Expected Annual Saving	Rs	104000
Saving	%	29.32

Date:

Sign & Seal

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Energy Audit Report –Uran College of Commerce & Arts

1. Introduction

Energy Audit is a Basic essential activity to be done for saving in electrical billing and also allied with any energy saving projects like renewable energy project and solar projects. Energy Audit is an assessment of usage, consumption and pattern of energy used in the premises based on all above parameters along with conditions and benchmarks as resource and Building Envelope Analysis, working, operational and Maintenance Procedure Analysis, Utility Data Analysis, Load Data Analysis, Analysis of Energy Consumption, Load Evaluation, consumption pattern and billing history, back-up systems and also the administrative requirements, assessment of safety concerns, assessment of operating and occupancy schedules for Equipment, Power Quality and Environmental Parameters Analysis, Efficiency and Wastage Analysis and assessment of potential risk factors.

Energy Audit is a process of systematic identification, quantification, recording, reporting and analysis of energy usage properties of institute. It aims to analyse within and surrounding the place concerned, which will see interrelation with eco-friendly atmosphere. Energy audit is a valuable means for an Institution related to educational area to determine how and where they are connected with Energy conservation drive of nation. Understanding these conditions the institution can make plans for day to day working, future expansions as well as an eco-friendly view of life while making changes and planning for savings. It provides better understanding of impact of energy consumption on working conditions to staff and visitors. As the Energy availability is becoming an increasingly important issue for the nation, the role of higher education institute is more vital and prevalent in relation with the issue.

The rapid urbanization and economic development at local, regional and global level has led to Energy availability and quality crisis. On this background it becomes essential to adopt the system of Energy efficient and safe Campus for the institution which leads for sustainable development and at the same time persisting the quality of the same while travelling on the growth path. Moreover, it is social responsibility of a High energy consuming institution to ensure that they contribute towards the saving of Energy and thus making it available who are destitute in term of energy availability.

**Solar rooftop and power plants
Load Management and extension
Substation Management**

**Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning**

**New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment**

**Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164438**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

2. Objective

In recent times, the Energy audit of an institution has becoming the paramount important for self-assessment of the Institution which reflects in the role of the institution in mitigation to current problem of reducing Energy availability and quality. The institution has been putting efforts to keep reducing and standardizing energy usage since its inception. Therefore the purpose of present Energy audit is to identification, quantification, recording, reporting and analysis of components of Energy utilization and electrical safety properties of institute framework of energy conservation in compliance with the applicable regulations, policies and standards.

The main objectives to carrying out the green audit are:-

- To have overview of premises
- To record and document geographical location data
- To record and document Utility data
- To record and document Load profile data
- To record and document basic Electrical Safety observations data
- To record and document Key Observations
- To record and document Energy Conservations (if any)
- To record and document Suggestions or Recommendations (if any) to fulfill the purpose

3. Methodology

The purpose of Energy Audit of is to ensure that the practices followed in the campus are in accordance with the Energy Conservation Policy of the Country. The methodology includes: collection of data, physical inspection of the campus, observation and review of the documentation and data analysis.

4. About the Building

Uran College of Commerce & Arts, Uran is a leading educational institute in Raigad district, giving facility to more than 1000 students in the district. The building has two parts; one is only ground floor old structure which is constructed before 100 years and previously used as Marathi school. This part is load bearing tin shed structure. The second part is G+2 structure constructed and activated in 1989. This structure is built in two RCC floors. Both the parts are having Tin shed over it as a roof. The premise is placed in the heart of Uran city and adjacent to Police station and Tahasildar office. The college provides service to approximately 750 commerce students with BCom, BAF and MCom also approximately 450 arts students with BA degree.

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/98211164439



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

5. Energy Audit Statement

The building is adopting the “Energy Efficient Campus” system for Energy conservation and sustainability. There are main three pillars i.e. Energy saving by technology and Operation & Maintenance procedures, safe working on occupational health and performance and 100% inmates demonstrating energy efficiency literacy. The goal is to maintain safe working environment, reduce energy consumption, while creating an atmosphere where inmates can work and live healthy.

**Solar rooftop and power plants
Load Management and extension
Substation Management**

**Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning**

**New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment**

**Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**10****



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

6. Overview

SL No	Head	Details
1	Name of Applicant Institution	Uran College of Commerce & Arts
3	Address	Uran, Dist. Raigad, Maharashtra 400702
4	Contact Number	9833224404
5	Registration Certificate Number	NA
6	Sector Type	Educational Institute –College
7	Senior Management Contact	Name: Kishor Shama Designation: I/C Principal
8	Contact Number	9833224404
9	Status of Institution (Pvt./Public)	Private
10	Company Turnover (Rs. In Lakhs)	250-300
11	Number of Employees	32
12	Approximate Floor Area (ft ²)	6000
13	Year of Establishment	1989
14	Plot Area (ft ²)	4200
15	Constructed Area (ft ²)	6035
16	Greenery Area (ft ²)	NIL
17	Roof Area (ft ²)	3500
18	No of Buildings	1 (two structures connected together)
19	Building Type	RCC Load Bearing + Tin Shade
20	Age of Building	30(New structure) 150 Old structure
21	Leakages/Cracks on wall/roof	NO
22	No. of workers(Footfall)	30
23	No. of Students(Footfall)	1000-1200
24	Day Vs Night activity in %	95% Vs 5%
25	Shifts per day	1
26	Hours per shift	12
27	DG Set installed	Yes 20KVA
28	Inverter Installed	YES 2.5KVA at office 2.5KVA at pump room
29	Renewable Energy System installed	NO
30	(Solar/Wind/Biomass/Biofuel/Etc.)	

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

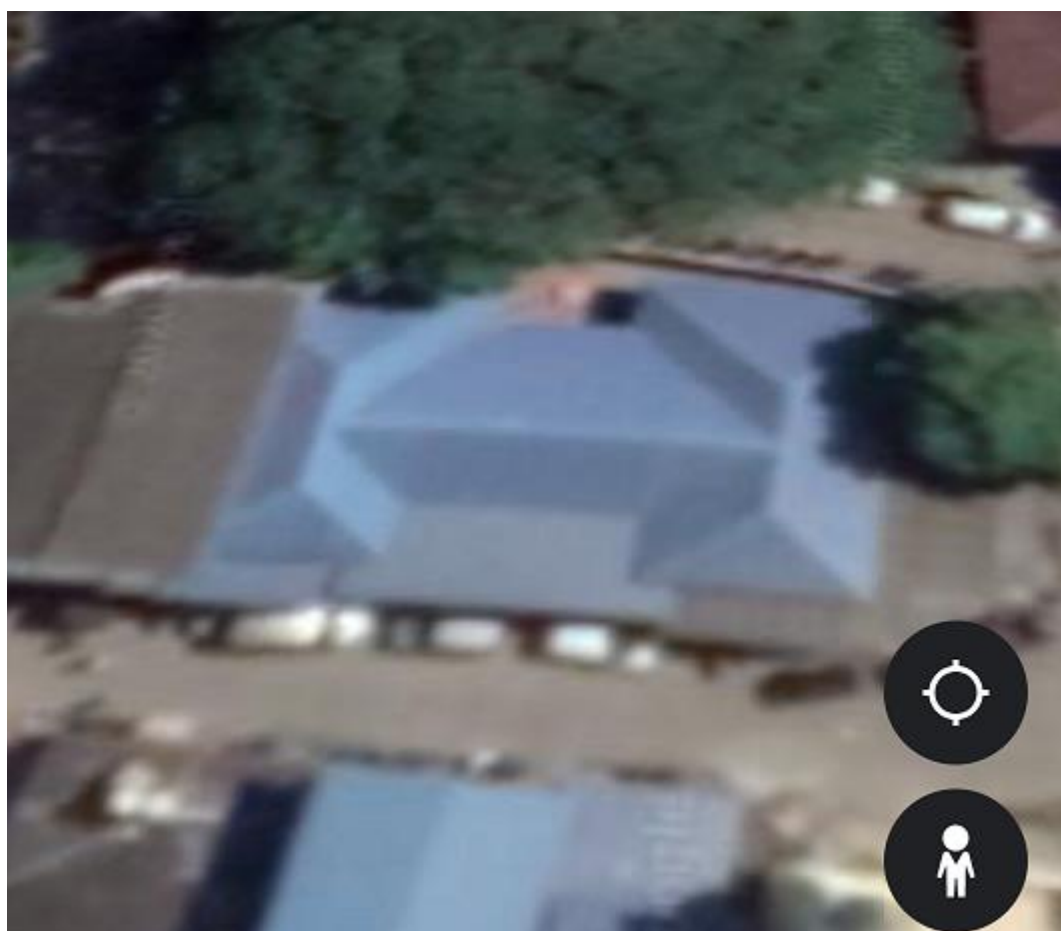
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**11**

7. Location

SL No	Head	Details	Remark
1	Name of Institute	Uran College of Commerce & Arts	Educational Institute
2	Category	Commercial- College	
3	Address	Nr. Police station, Uran	
4	State	Maharashtra	
5	Nearest Railway Station	Panvel	
6	Nearest Bus Station	Uran	
7	Nearest Airport	CSIA, Mumbai	
8	Longitude	18.5249	
9	Latitude	72.5620	

Arial View of Premises



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**12**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Site Evaluation

1. Is there any administrative Authority in Charge for electricity related works?
NO
2. Is there any authority in Charge for electricity payments?
Yes-Accountant
3. Do you pay bills on time?
Yes
4. Is there any authority in Charge for Operation and Maintenance?
NO- External Contractor for Maintenance appointed
5. What is your average electricity consumption?
3000Kwh- Rs. 30000/-
6. Name Major instruments/Loads you are using?
AC
7. Which is your largest consuming instrument?
AC
8. Have you installed proper safety devices to instrument?
YES MCB
9. Have you kept your Single Line Diagram Updated and easily accessible?
NO
10. Do you aware of routing of cables/wires throughout the plot?
YES
11. Which instruments you have given AMC for and what is schedule of it?
YES AC(Quarterly), DG Set (twice in a year)
12. Which instruments you are maintaining yourself and what is schedule of it?
NA
13. Does your staff has proper training for Operation and Maintenance of instruments?
NO- External Contractor for Maintenance appointed
14. Which instruments you have upgraded recently?
LED bulbs 4-5 years before
15. Which instruments are kept idle and not in use? From what time period?
No
16. Any Automization or process control device used?
DG-Set
17. Have you maintained name plate data of instruments used?
NO
18. Have your instruments are sized according to room?
YES
19. Have your instruments are calibrated regularly?
NO
20. When you have changed, repair/replaced wiring/Cables last known?
On fault repair, every 3-4 months

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**13**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

21. What are Back-up devices you are using? What is Fuel for the same?
DG Set , Diesel Rs. 4000pm
22. What are short circuit protections you have implemented?
No
23. What are Over-load protections you have implemented?
MCB
24. What are Arc Flash protections you have implemented?
NO
25. Any Damages to the cable Insulation?
NO
26. Any Non Insulated Joints?
NO
27. Any cables lying near hot plate/Water lines/Gas lines?
NO
28. Any damaged socket/Plug?
NO
29. Any bare wire?
NO
30. Whether grounding of metal bodies done?
YES
31. Are portable tools double insulated?
YES
32. Are circuit breakers correctly labeled?
NO
33. Are circuit breakers correctly sized?
NO
34. Are Main switch cut off installed?
YES
35. Any obstruction to Control Panel/Distribution board?
Yes one board is above accessible height
36. Have you implemented maintenance schedule for Control Panel/DB?
NO
37. Are multi-plug sockets are used?
NO
38. Tagging of faulty/out of order/Under repair equipment is done?
NA
39. Are the cables laid open along with passage?
NO
40. Do you have any activity for awareness towards Energy efficiency?
YES Display Boards, Notices on rooms/walls
41. Have you Listed Measures/ Approach towards efficient Operations?
NO
42. Have you ever experienced Fire/short circuit or other electric Mis-hap?
YES Computer screens burned

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**14**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

43. Are you maintaining earthing regularly?

YES

44. Have you designed action-plans for renovation/Reconstruction/Changes?

YES

45. Are you observing Leakages and Losses potential in building?

NO

46. Have you implemented Suitability and Access easiness in electrical panels & wiring?

NO

47. Are any structural Parameters increasing/Reducing effects on consumption?

YES- Tin Shade

48. Have you maintained schedule of checking windows, door, vents, Etc?

NO

49. Have you implemented wastage management plan?

NO

50. Have you implemented any Renewable energy project?

NO

**Solar rooftop and power plants
Load Management and extension
Substation Management**

**Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning**

**New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment**

**Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**15****



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Site Evaluation-Result

Score: 82 /125

Grade: B

Marking System:-

(Question No. 3, 9, 10, 11, 12, 20, 36, 42, 43 has 5 Marks rest all have 2 marks each.)

Grading System:-

(0-25: E Worst|26-50: D Worse|51-75: C Bad|76-100: B Good|101-125: A Excellent)

Model Answer sheet (not to be disclosed to customer before questioning)

Q No	ANS	Q No	ANS	Q No	ANS	Q No	ANS	Q No	ANS
1	Y	11	Y	21	Y	31	Y	41	Y
2	Y	12	Y	22	Y	32	Y	42	N
3	Y	13	Y	23	Y	33	Y	43	Y
4	Y	14	Y	24	Y	34	Y	44	Y
5	Y	15	N	25	N	35	N	45	N
6	Y	16	Y	26	N	36	Y	46	Y
7	Y	17	Y	27	N	37	N	47	N
8	Y	18	Y	28	N	38	Y	48	Y
9	Y	19	Y	29	N	39	N	49	Y
10	Y	20	Y	30	Y	40	Y	50	Y

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**16**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Manpower Details

There are Total 32 staff including I/C Principal, 5 Administrative staff, 6 service staff and 20 Teaching and technical staff.

For Electrical related works, Mr. Nandgaonkar has been appointed as Supervisory staff on contract basis.

Product & services

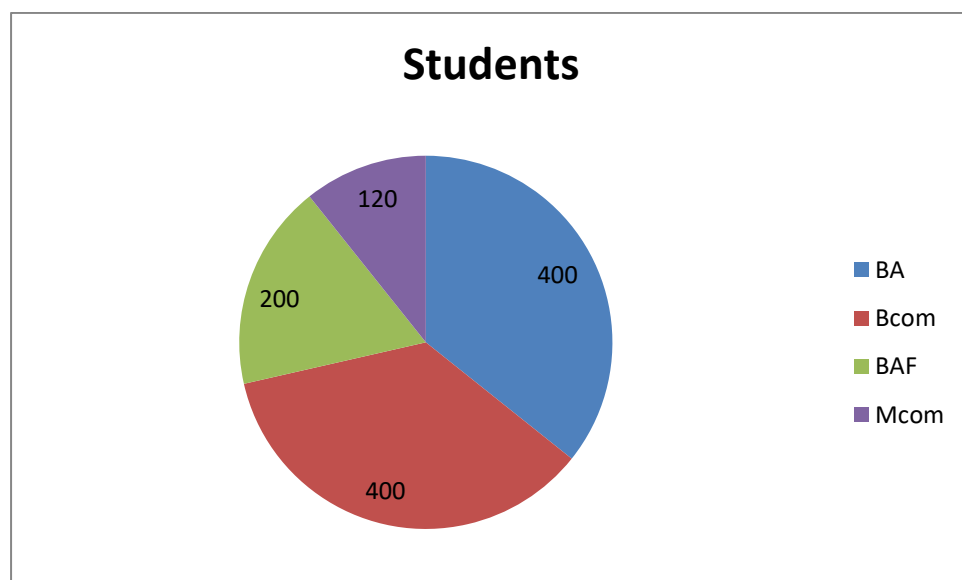
SL No	Product/Services	Installed Capacity	Actual Utilization
1	BA	900	400
2	BCom	900	400
3	BAF	900	200
4	MCom	900	120

Total capacity of seating is 3600 observed with equal opportunity to each process.

Product /Process

SL No	Name	Share in Business	Specific Customer	Description	Involved		Volume
					Room	Load	
1	BA	25%	NA		1,2,4,5,6	All in Room	400
2	BCom	35%	NA		1,2,3	All in Room	400
3	BAF	20%	NA		4,5,6	All in Room	200
4	MCom	20%	NA		3,4	All in Room	120

Process Balance:



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **17**

8. Utility Data

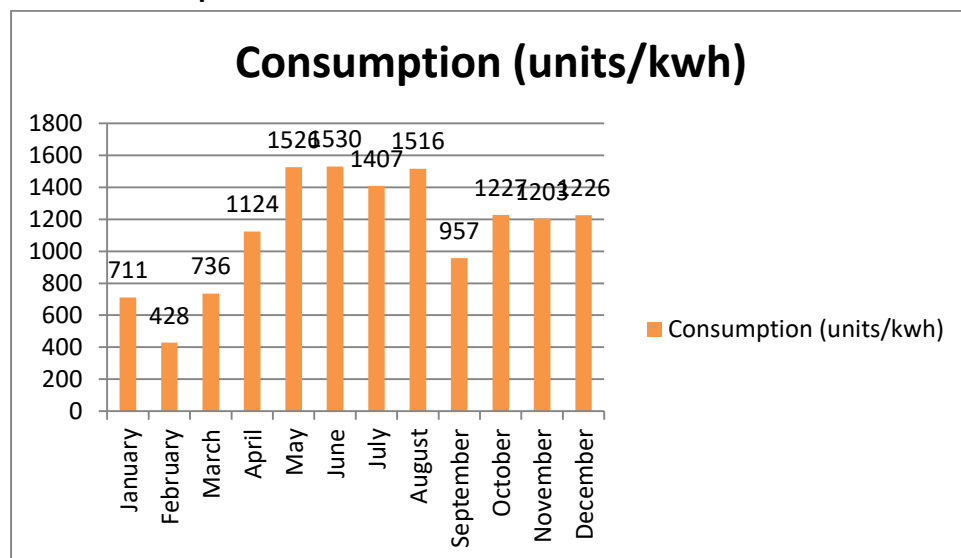
Energy Sourcing

Electric Energy Sources Meter-1

CA No	Meter No	Sanctioned Load	Usage	Phase
		KW		
025518328410	07860112134	10	Common	Three

Billing Summary			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	711	9370.0	13.18
February	428	5560.0	12.99
March	736	8130.0	11.05
April	1124	14106.2	12.55
May	1526	20875.7	13.68
June	1530	20991.6	13.72
July	1407	18924.2	13.45
August	1516	20708.6	13.66
September	957	12010.4	12.55
October	1227	15480.0	12.62
November	1203	15490.0	12.88
December	1226	16430.0	13.40

Chart Consumption



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

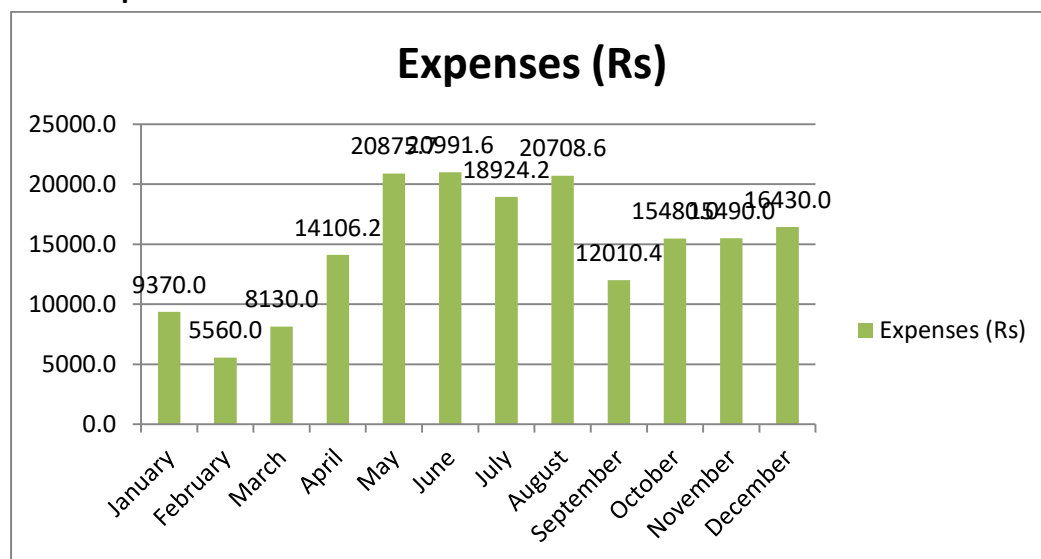
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **18**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Expenses



Consumption Summary

	Usage	Payment	Duration
	Kwh	Rs	Period
Maximum	1530	20991.6	June
Minimum	428	5560	February
Average	1132.58	14839.71	
Total	13591	178076.54	Annual

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **19**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Future Expenses Projection on Electricity Bills for Next 20 Years

It is observed past 15 years that electricity rates are increasing with an average growth of 8.5% per annum. Following table will show how much amount we are going to spend on electricity next twenty years with this growth rate and same consumption.

SL No	Year	Unit Rate	Expenses
1	2018-2019	13.20	179401
2	2019-2020	14.32	194650
3	2020-2021	15.54	211196
4	2021-2022	16.86	229147
5	2022-2023	18.29	248625
6	2023-2024	19.85	269758
7	2024-2025	21.54	292687
8	2025-2026	23.37	317566
9	2026-2027	25.35	344559
10	2027-2028	27.51	373846
11	2028-2029	29.84	405623
12	2029-2030	32.38	440101
13	2030-2031	35.13	477510
14	2031-2032	38.12	518098
15	2032-2033	41.36	562136
16	2033-2034	44.88	609918
17	2034-2035	48.69	661761
18	2035-2036	52.83	718011
19	2036-2037	57.32	779042
20	2037-2038	62.19	845260

You are going to spend **Rs. 86,00,000/- (Rs. Eighty Six Lakhs)** on electricity bills in coming 20 years; if we keep current consumption as it is.

Presently DG Set of 20KVA as a Back-Up supply is connected to all loads of this meter.

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644320



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Unit Rates

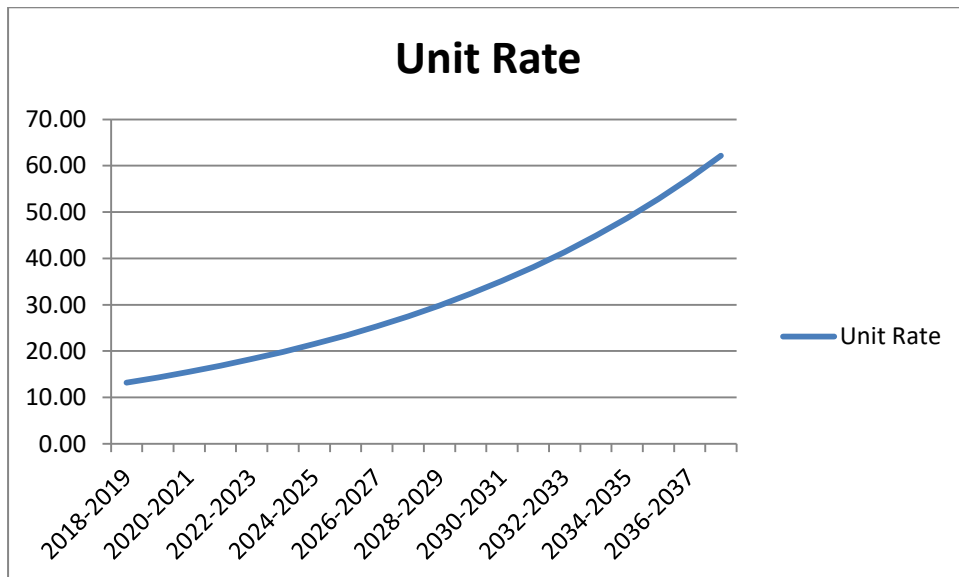
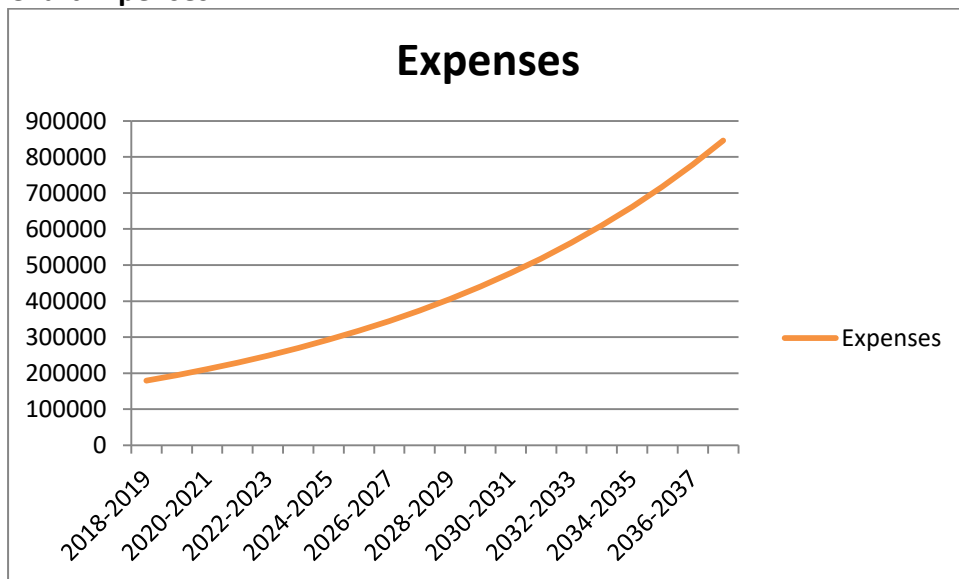


Chart Expenses



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **21**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

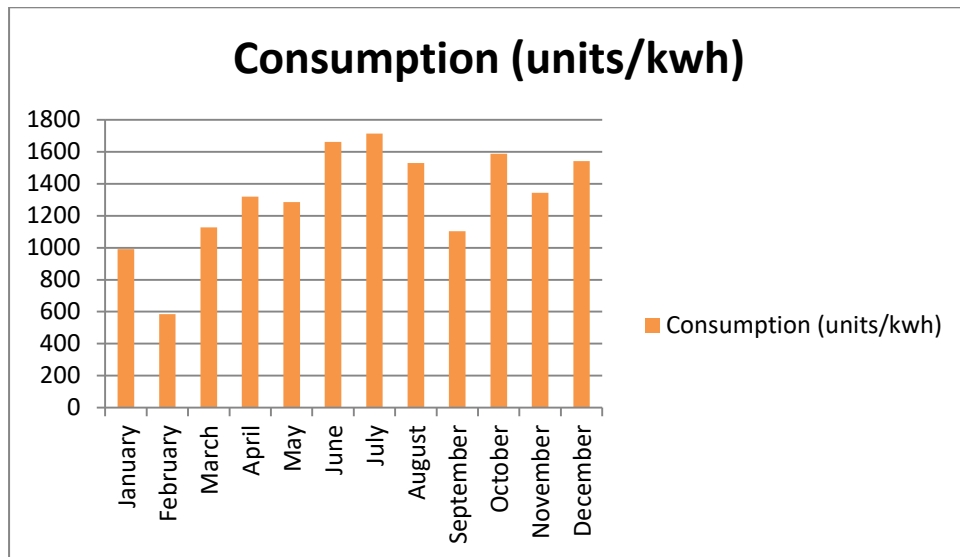
Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Electric Energy Sources Meter-2

CA No	Meter No	Sanctioned Load	Usage	Phase
		KW		
05510137879	06506506090	10	Common-2	Three

Billing Summary			
Month	Consumption	Expenses	Rate
(name)	(units/kwh)	(Rs)	(Rs/Kwh)
January	991	10700.0	10.80
February	584	6260.0	10.72
March	1127	12580.0	11.16
April	1319	13783.6	10.45
May	1285	13428.3	10.45
June	1661	18254.4	10.99
July	1713	18825.9	10.99
August	1529	16788.4	10.98
September	1103	11912.4	10.80
October	1587	16430.0	10.35
November	1343	14060.0	10.47
December	1541	16930.0	10.99

Chart Consumption



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644322



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Expenses



Consumption Summary

	Usage	Payment	Duration
	Kwh	Rs	Period
Maximum	1713	18825.87	July
Minimum	584	6260	February
Average	1315.25	14162.74	
Total	15783	169952.9	Annual

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Future Expenses Projection on Electricity Bills for Next 20 Years

It is observed past 15 years that electricity rates are increasing with an average growth of 8.5% per annum. Following table will show how much amount we are going to spend on electricity next twenty years with this growth rate and same consumption.

SL No	Year	Unit Rate	Expenses
1	2018-2019	10.77	169983
2	2019-2020	11.69	184431
3	2020-2021	12.68	200108
4	2021-2022	13.76	217117
5	2022-2023	14.93	235572
6	2023-2024	16.19	255596
7	2024-2025	17.57	277322
8	2025-2026	19.06	300894
9	2026-2027	20.68	326470
10	2027-2028	22.44	354220
11	2028-2029	24.35	384329
12	2029-2030	26.42	416996
13	2030-2031	28.67	452441
14	2031-2032	31.10	490899
15	2032-2033	33.75	532625
16	2033-2034	36.62	577898
17	2034-2035	39.73	627020
18	2035-2036	43.10	680316
19	2036-2037	46.77	738143
20	2037-2038	50.74	800885

You are going to spend **Rs. 82,00,000/- (Rs. Eighty Two Lakhs)** on electricity bills in coming 20 years; if we keep current consumption as it is.

Presently DG Set of 20KVA as a Back-Up supply is connected to all loads of this meter.

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644324



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Unit Rates

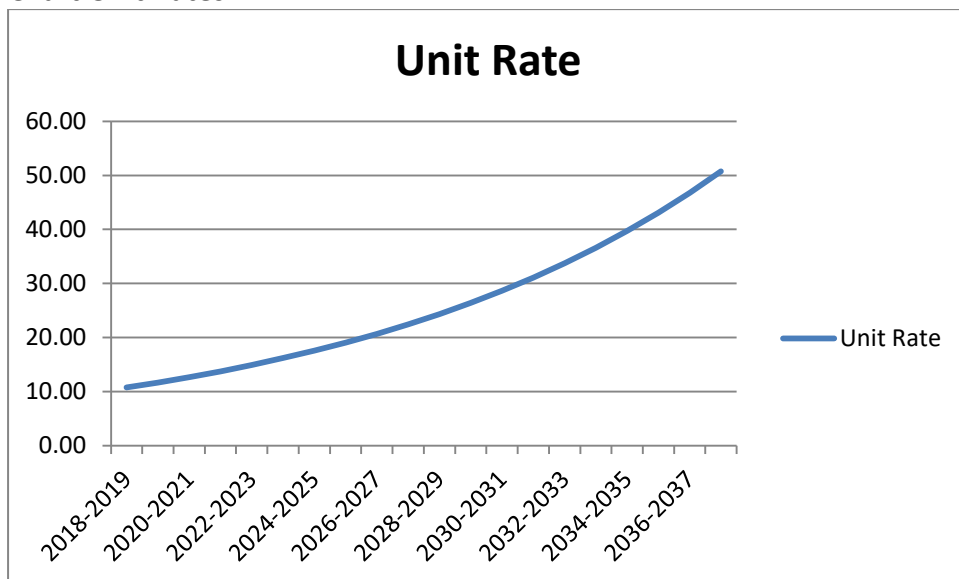
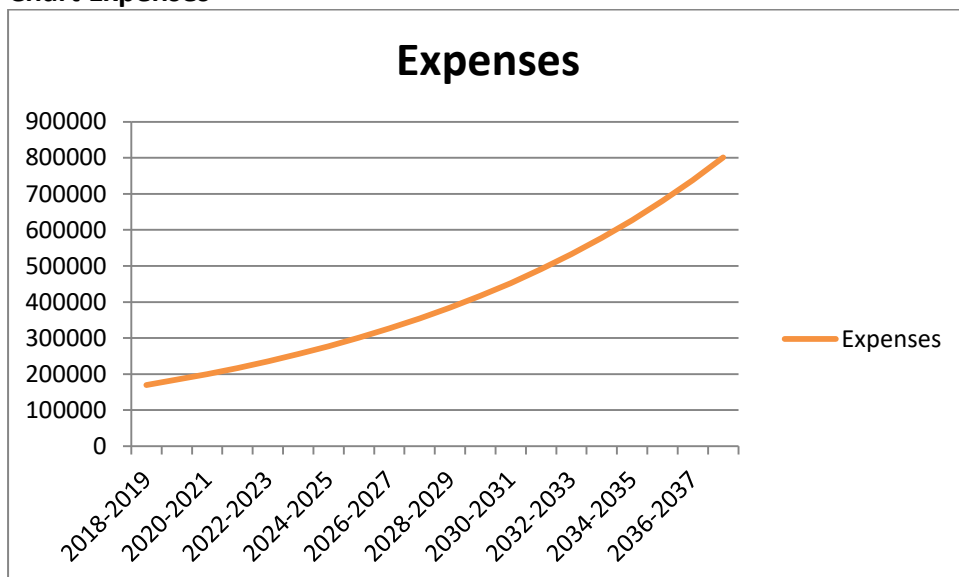


Chart Expenses



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **25**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Other Energy Sources

SL No	Energy/Fuel	Please Mark In appropriate Box	Unit	Consumption per Annum	Cost Per Annum (Rs)
1	Coal		NA		
3	Lignite		NA		
4	Fuel wood & Biomass		NA		
5	High Speed Diesel		NA		
6	Light Diesel		NA		
7	LSHS		NA		
8	LPG		LPG		
9	Natural Gas	<ul style="list-style-type: none"> • PNG • LNG • CNG 	NA		
10	Electric Power		NA		
11	Captive (DG Set)		Ltrs	650	50000

Summary of Energy Bill for Last Twelve Months

SL No	Month & Year	Electricity Bill (Rs.)	Fuel Bills (Rs.)	Total (Rs.)
1	Jan-20	20070.0	4000	24070.0
2	Feb-20	11820.0	4000	15820.0
3	Mar-20	20710.0	4000	24710.0
4	Apr-20	27889.8	4000	31889.8
5	May-20	34303.9	4000	38303.9
6	Jun-20	39246.0	4000	43246.0
7	Jul-20	37750.0	4000	41750.0
8	Aug-19	37497.0	4000	41497.0
9	Sep-19	23922.8	4000	27922.8
10	Oct-19	31910.0	4000	35910.0
11	Nov-19	29550.0	4000	33550.0
12	Dec-19	33360.0	4000	37360.0

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

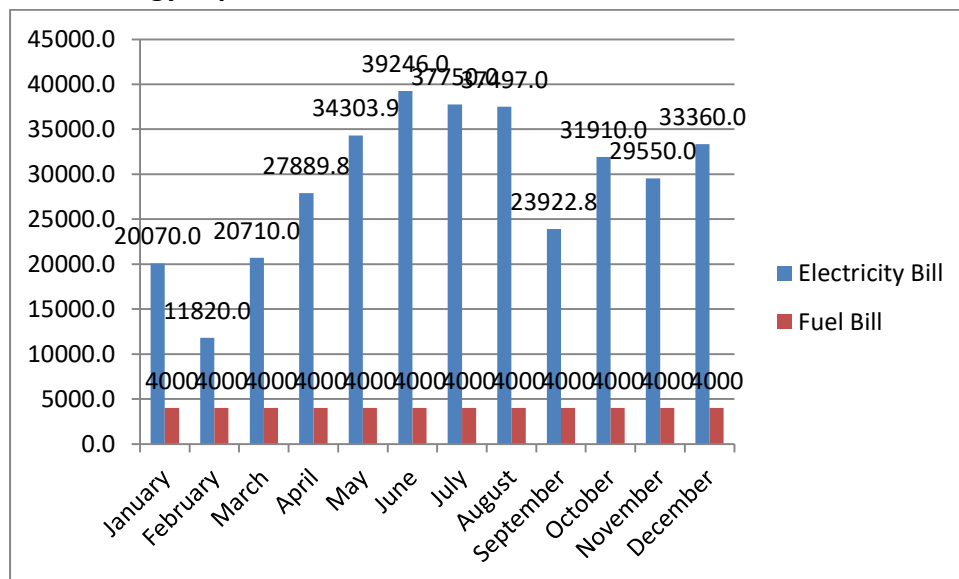
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644326



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Energy Expenses



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644327



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

About Unit

Year of Establishment:- 1989

LT/HT:- LT

Power Supply details

Meter-1

Supply Details of Feeder

SL No.	Particulars	Remark
1	Utility Company	MSEDCL
2	Consumer Number	025518328410
3	Meter Number	07860112134
4	MRU/BU/Unit	0337 Uran
5	Phase	Three
6	Tariff	LT II Commercial

Substation and Transformer Details

SL No.	Particulars	Remark
1	Substation/ Zone	Raigad
2	Transformer Number	4126012
3	Capacity	Common

Billing Details

SL No.	Particulars	Any One Month	Annual
1	Electrical Units (Kwh)	1124	13591
2	Power Factor	NA	NA
3	KVA Contract Demand	NA	10
4	KVA Registered Max Demand	NA	NA
5	Bill Amount	14106.2	178076.54

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**28**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Meter-2

Supply Details of Feeder

SL No.	Particulars	Remark
1	Utility Company	MSEDCL
2	Consumer Number	05510137879
3	Meter Number	06506506090
4	MRU/BU/Unit	0337 Uran
5	Phase	Three
6	Tariff	LT-X Pub Ser

Substation and Transformer Details

SL No.	Particulars	Remark
1	Substation/ Zone	Raigad
2	Transformer Number	4126012
3	Capacity	Common

Billing Details

SL No.	Particulars	Any One Month	Annual
1	Electrical Units (Kwh)	1319	15783
2	Power Factor	NA	NA
3	KVA Contract Demand	NA	10
4	KVA Registered Max Demand	NA	NA
5	Bill Amount	13783.55	169952.88

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644329



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Observations

SL No	Head	Conditions Observed					
	Electric Power Distribution	Individual Metering	Defined Usage	Peak warning	Demand Control	SOP	Maintenance
1	MSEDCL	Common Metering	NO	NO	NO	NO	NO
2	MSEDCL	Common Metering	NO	NO	NO	NO	NO

Meter-1

Line	Min	Max	Average
R	3.2	24.6	13.9
Y	2.1	19.7	10.9
B	2.8	18.8	10.8
N	0.5	4.7	2.6
R-Y	230	236	233
R-B	228	236	234
Y-B	228	238	238
R-N	412	428	420
Y-N	410	424	417
B-N	410	424	417

Meter-2

Line	Min	Max	Average
R	4.2	28.6	16.4
Y	3.1	23.7	13.4
B	3.8	24.8	14.8
N	0.5	8.7	4.6
R-Y	230	236	233
R-B	228	236	234
Y-B	228	238	238
R-N	412	428	420
Y-N	410	424	417
B-N	410	424	417

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644330



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Back-up Supply

Back-up	DG	Inverter	Renewable			
Name	DG-SET	UPS	NA			
Capacity	20KVA	2.5+2.5	NA			
Running Hours	50hrs	Continue	NA			
Fuel	Diesel	Electricity	NA			
Usage/Day	2hrs	2 hrs	NA			
Fuel/Day	2 Ltr	10 Kwh	NA			
Purpose	Backup	Backup	NA			
Load Connected	All	Office	NA			
Location	Outdoor	Office	NA			
Rooms Connected	All	Office	NA			
Fuel Bills	4000pm	3600pm	NA			

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**31**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

9. Load profile

Meter-1

Room-1: Office

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	8	600
2	Tubes	10	220
3	AC 2T 5*	3	4800
4	PC	6	1200
			6820

Room-2: Class Room-1

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Room-3: Class Room-2

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Room-4: Class Room-3

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644332



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Meter-2

Room-1: Staff Room

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	1	75
2	Lights	2	80
3	TV	1	250
			405

Room-2: Computer Lab

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	1	75
2	Lights	2	80
3	PC	15	2250
4	AC 2T 2*	1	1800
			4205

Room-3: Library and Exam Room

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	8	600
2	Lights	20	440
3	AC 2T 5*	5	8000
4	PC	4	600
5	Xerox	2	2000
6	Hotplate	1	1000
			12640

Room-4: Gymkhana

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	4	300
2	Lights	5	200
3	Bulbs	2	400
4	Fans	2	80
			980

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644333



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Room-5: Pump room and passage

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Pump	1	378
2	Tubes	5	110
3	Toilet Lights	5	110
			598

Room-6: Class Room-4

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Room-7: Class Room-5

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Room-8: Class Room-6

SL No	Load	Connections	Total
	Name	Numbers	Wattage
1	Fan	7	525
2	Lights	7	154
3	AC 2T 5*	2	3200
4	PAS	1	350
			4229

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

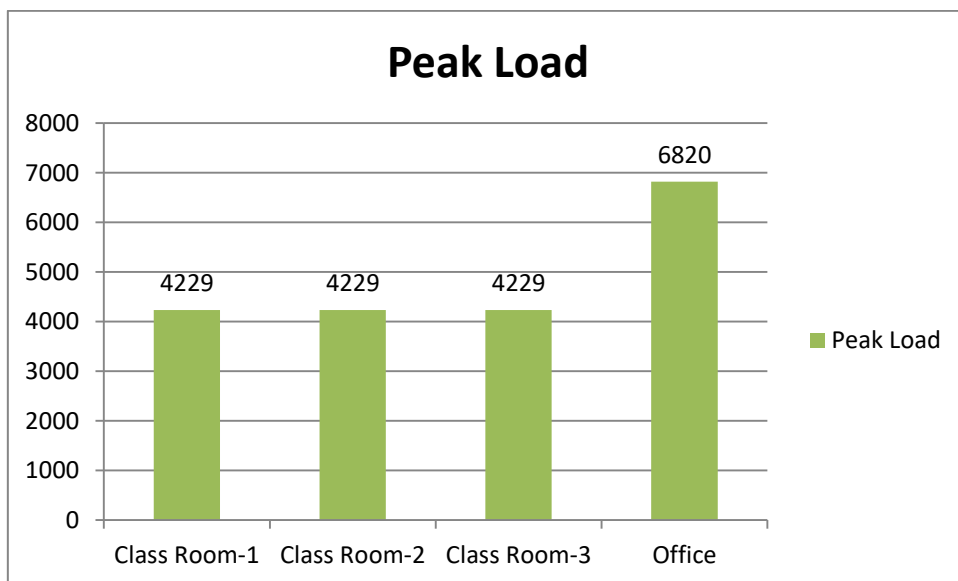
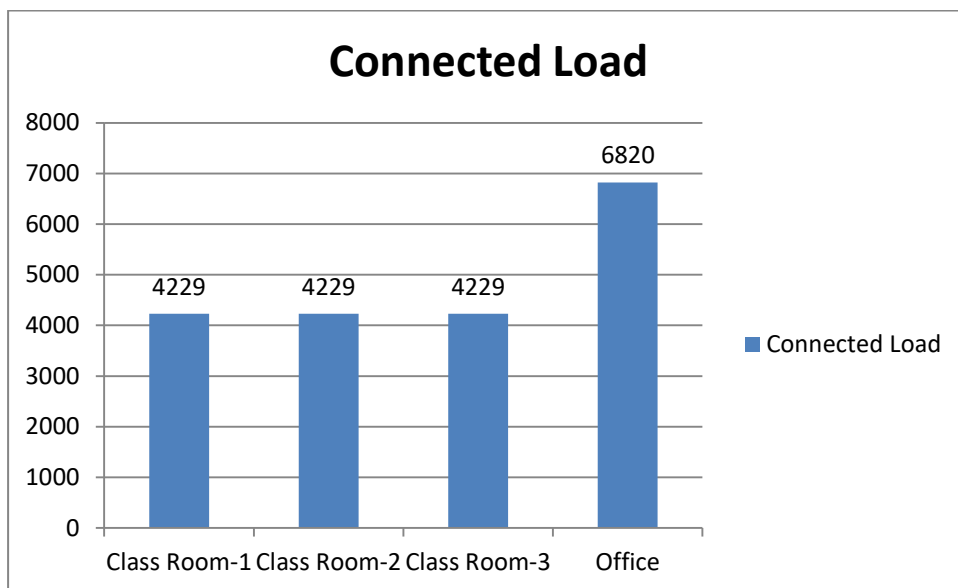
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644334

10. Load Statement

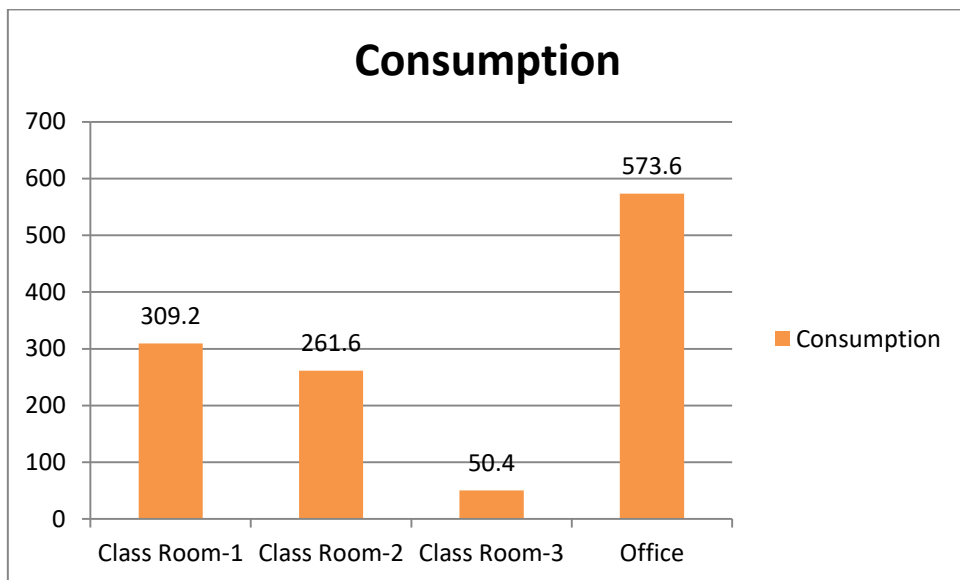
Meter-1

Room No	Connected Load	Active Load	Consumption	Peak Load
Class Room-1	4229	4229	309.2	4229
Class Room-2	4229	4229	261.6	4229
Class Room-3	4229	4229	50.4	4229
Office	6820	6820	573.6	6820



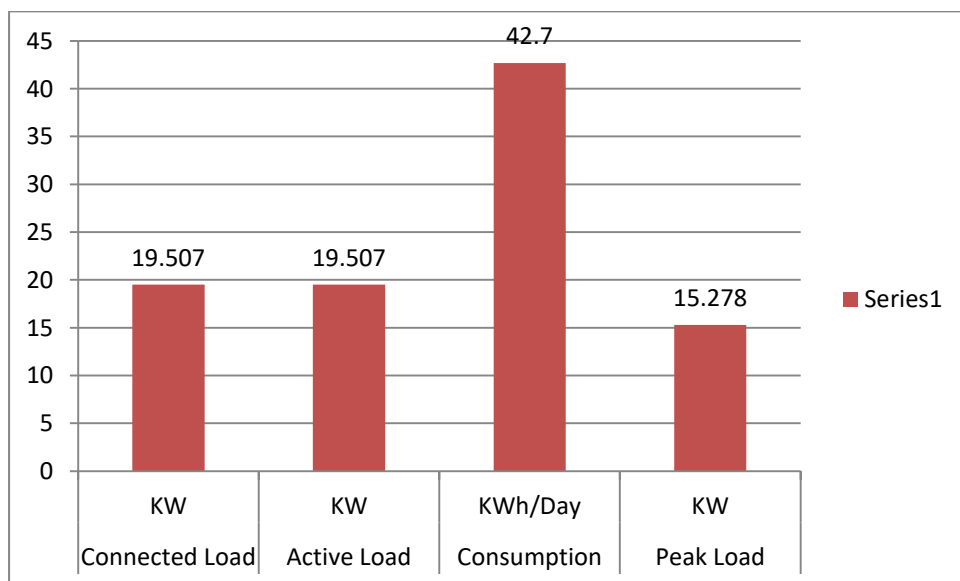
SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



Load Statement Summary

Connected Load	Active Load	Consumption	Peak Load
KW	KW	KWh/Day	KW
19.507	19.507	42.7	15.278



Solar rooftop and power plants
Load Management and extension
Substation Management

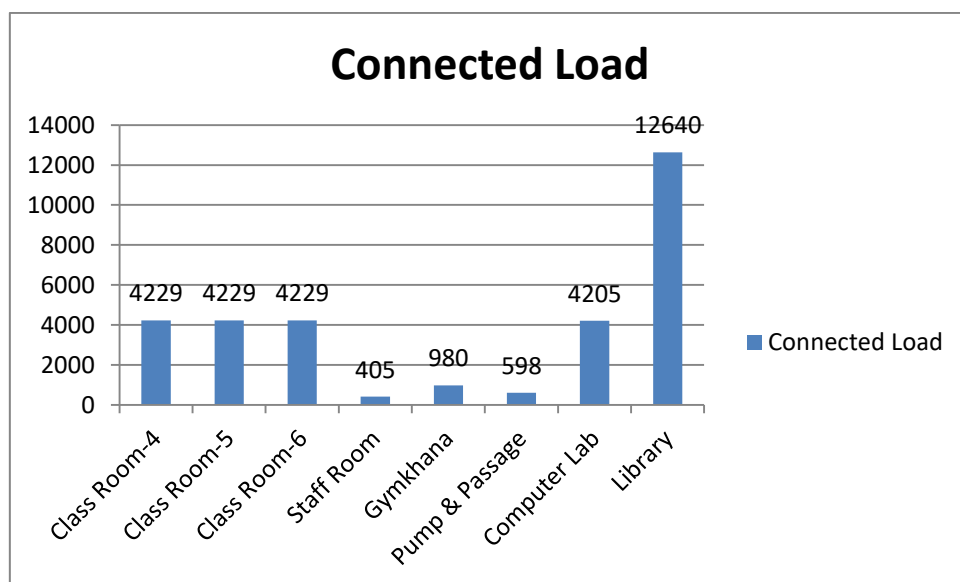
Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644336

Meter-2

Room No	Connected Load	Active Load	Consumption	Peak Load
Class Room-4	4229	4229	64.6	4229
Class Room-5	4229	4229	71.9	4229
Class Room-6	4229	4229	71.9	4229
Staff Room	405	405	9.8	405
Gymkhana	980	980	29.1	980
Pump & Passage	598	598	13.4	598
Computer Lab	4205	4205	21.8	4205
Library	12640	12640	139.2	6440



Solar rooftop and power plants
Load Management and extension
Substation Management

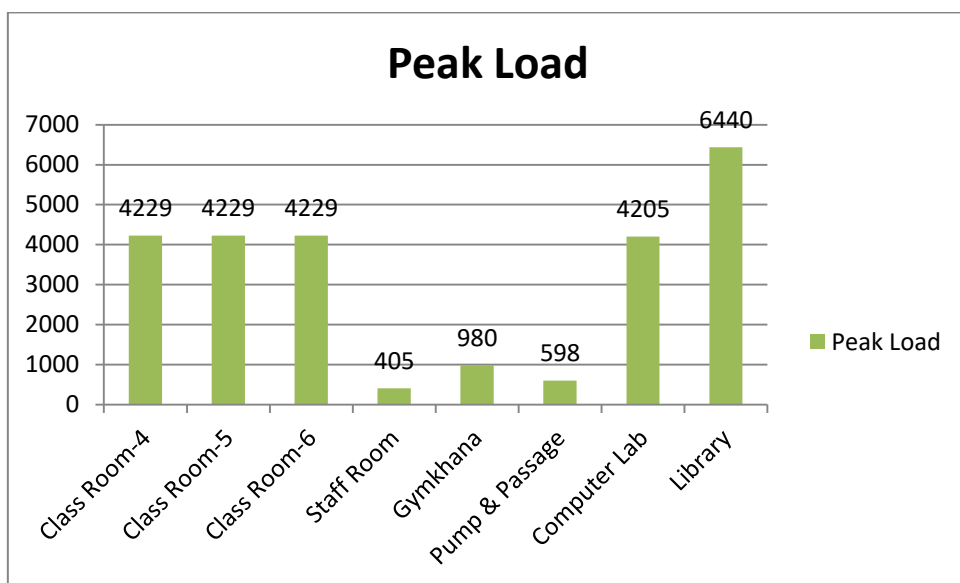
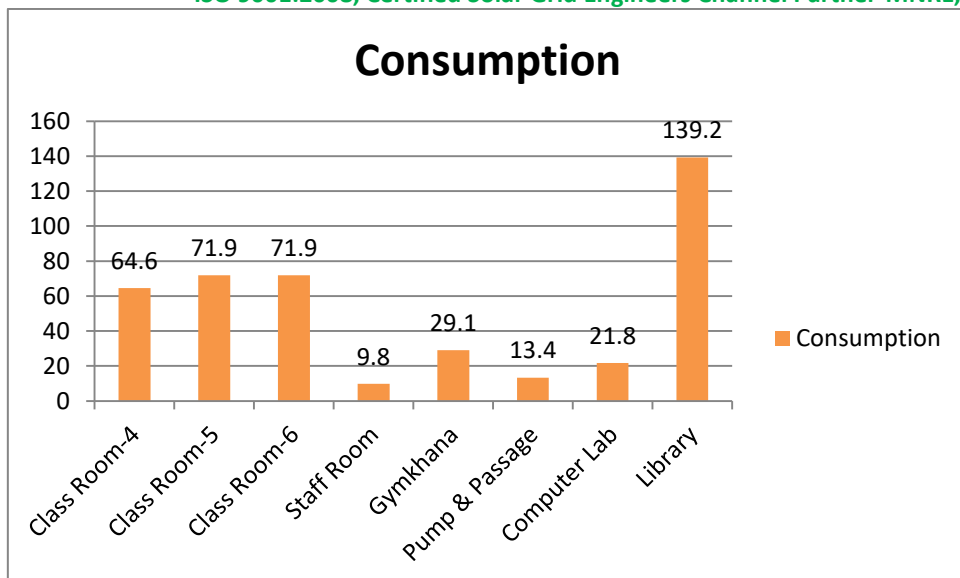
Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**37**

SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



Load Statement Summary

Connected Load	Active Load	Consumption	Peak Load
KW	KW	KWh/Day	KW
31.515	31.515	60.24	25.315

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

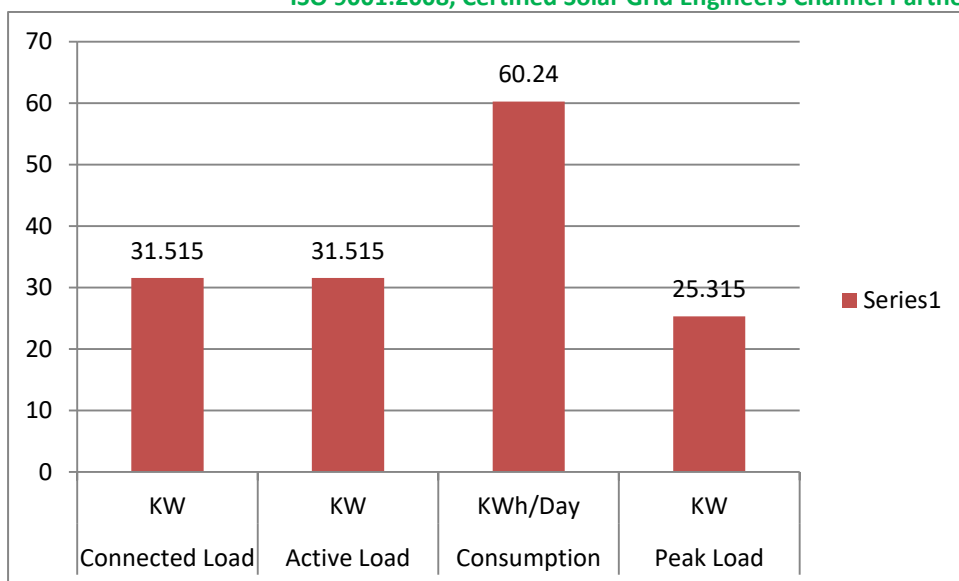
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**38**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**39**

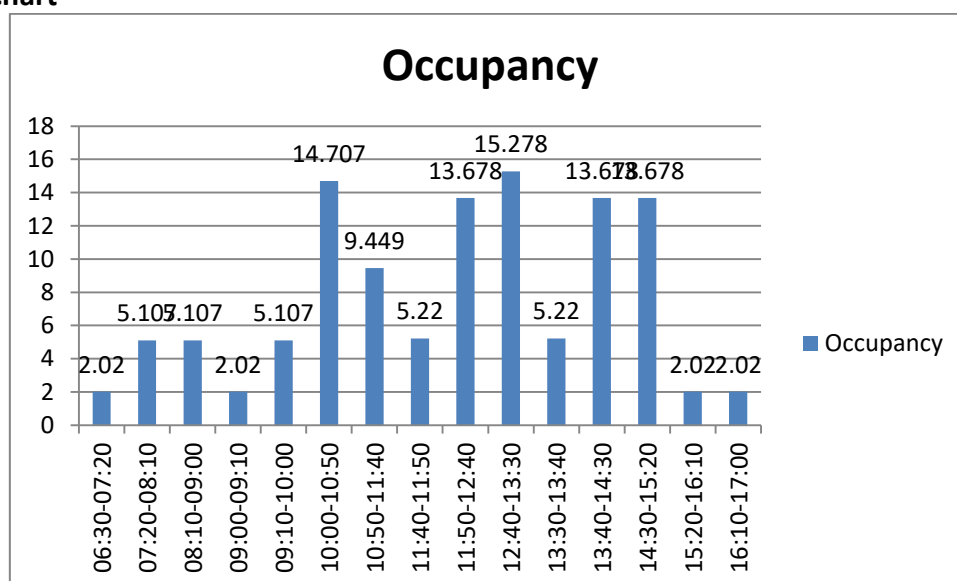
11. Occupancy Statement

The institute is having different schedule on every days of a week. Every classroom is occupied for different time in a week. At 17:00 every day institute closes and Main switches are put OFF hence there is NO consumption after that; similarly at 06:30 every day institute opens and Main switches are put ON hence consumption starts after that. Some classrooms are Not in Use (OFF in week) for particular time in a week. As per information provided by institute representatives and The Time table provided following occupancy Tables are generated.

Meter-1

Time	Class Room-1	Class Room-2	Class Room-3	Office	Total Load
06:30-07:20	0	0	0	2.02	2.02
07:20-08:10	1.029	1.029	1.029	2.02	5.107
08:10-09:00	1.029	1.029	1.029	2.02	5.107
09:00-09:10	0	0	0	2.02	2.02
09:10-10:00	1.029	1.029	1.029	2.02	5.107
10:00-10:50	4.229	4.229	4.229	2.02	14.707
10:50-11:40	4.229	0	0	5.22	9.449
11:40-11:50	0	0	0	5.22	5.22
11:50-12:40	4.229	4.229	0	5.22	13.678
12:40-13:30	4.229	4.229	0	6.82	15.278
13:30-13:40	0	0	0	5.22	5.22
13:40-14:30	4.229	4.229	0	5.22	13.678
14:30-15:20	4.229	4.229	0	5.22	13.678
15:20-16:10	0	0	0	2.02	2.02
16:10-17:00	0	0	0	2.02	2.02

Load Chart



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644340



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Room-1: Class Room1

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	180	1080	0	1080	18	18.522			
2949	300	1800	-50	1750	29.2	86.0125			
	480	2880				104.5	0.0363	27.223	77.3

Room-2 Class Room2

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	180	1080	0	1080	18	18.522			
2949	250	1500	0	1500	25.0	73.725			
	430	2580				92.2	0.0358	26.816	65.4

Room-3 Class Room3

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	160	960	0	960	16	16.464			
2949	50	300	0	300	5.0	14.745			
	210	1260				31.2	0.0249	18.579	12.6

Room-4 Office

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1010	50	300	0	300	5	5.05			
2020	310	1860	0	1860	31.0	62.62			
3940	220	1320	0	1320	22.0	86.68			
4900	50	300	0	300	5.0	24.5			
	630	3780				178.9	0.0473	35.486	143.4

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

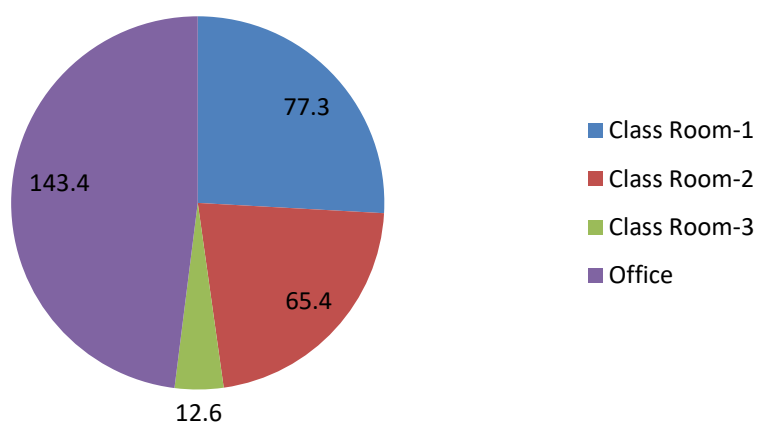
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644341

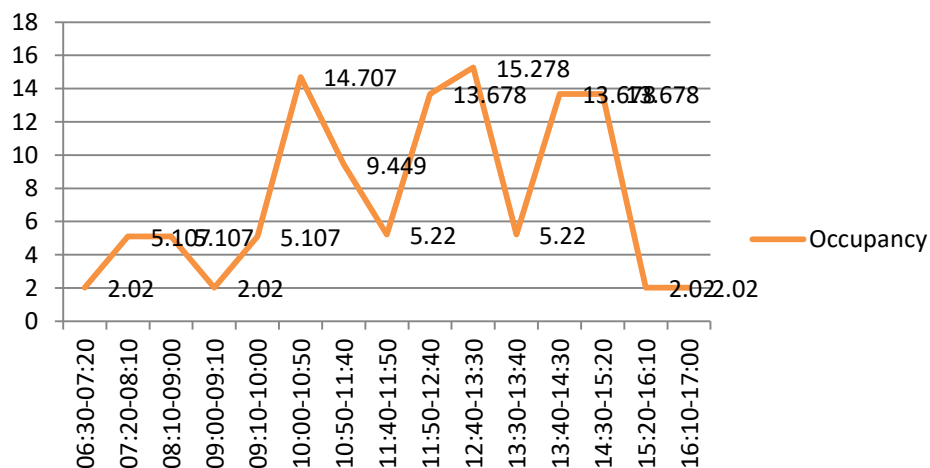
Load Occupancy Summary

SL No	Room	Consumption
		(Kwh)
1	Class Room-1	77.3
2	Class Room-2	65.4
3	Class Room-3	12.6
4	Office	143.4

Consumption (Kwh)



Occupancy



Solar rooftop and power plants
Load Management and extension
Substation Management

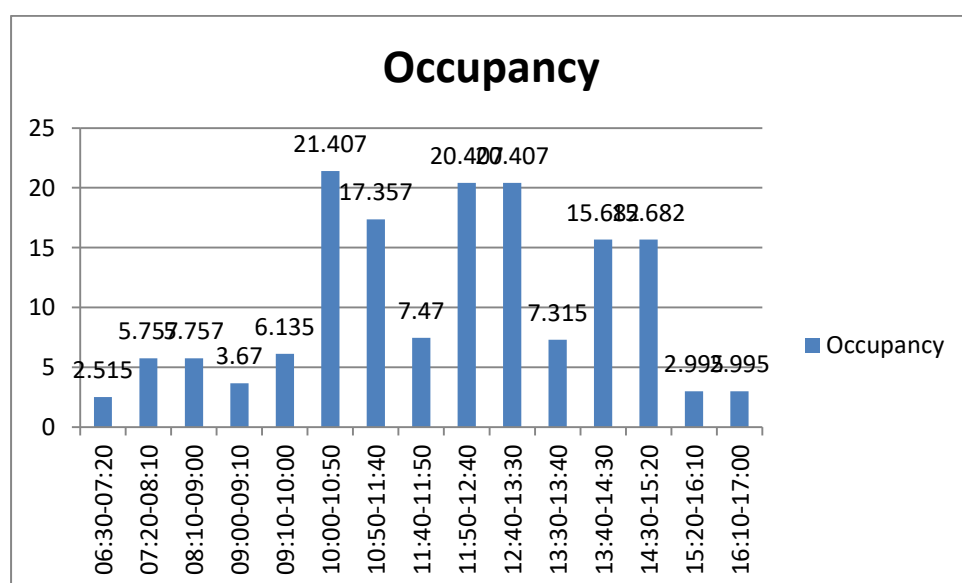
Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644342

Meter-2

Time	Class Room-4	Class Room-5	Class Room-6	Computer Lab	Library	Pump Room	Staff Room	Gym-khana	Total Load
06:30-07:20	0	0	0	0	1.64	0.22	0.155	0.5	2.515
07:20-08:10	1.029	1.029	1.029	0.155	1.64	0.22	0.155	0.5	5.757
08:10-09:00	1.029	1.029	1.029	0.155	1.64	0.22	0.155	0.5	5.757
09:00-09:10	0	0	0	0.155	2.64	0.22	0.155	0.5	3.67
09:10-10:00	1.029	1.029	1.029	0.155	1.64	0.598	0.155	0.5	6.135
10:00-10:50	4.229	4.229	4.229	4.205	3.64	0.22	0.155	0.5	21.407
10:50-11:40	4.229	4.229	4.229	0.155	3.64	0.22	0.155	0.5	17.357
11:40-11:50	0	0	0	0.155	6.44	0.22	0.155	0.5	7.47
11:50-12:40	4.229	4.229	4.229	0.155	6.44	0.22	0.405	0.5	20.407
12:40-13:30	4.229	4.229	4.229	0.155	6.44	0.22	0.405	0.5	20.407
13:30-13:40	0	0	0	0	6.44	0.22	0.155	0.5	7.315
13:40-14:30	4.229	4.229	4.229	0	1.64	0.22	0.155	0.98	15.682
14:30-15:20	4.229	4.229	4.229	0	1.64	0.22	0.155	0.98	15.682
15:20-16:10	0	0	0	0	1.64	0.22	0.155	0.98	2.995
16:10-17:00	0	0	0	0	1.64	0.22	0.155	0.98	2.995



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Room-1: Class Room4

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	180	1080	0	1080	18	18.522			
2949	300	1800	-400	1400	23.3	68.81			
	480	2880				87.3	0.0303	22.743	64.6

Room-2: Class Room5

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	180	1080	0	1080	18	18.522			
2949	300	1800	-200	1600	26.7	78.64			
	480	2880				97.2	0.0337	25.303	71.9

Room-3: Class Room6

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
1029	180	1080	0	1080	18	18.522			
2949	300	1800	-200	1600	26.7	78.64			
	480	2880				97.2	0.0337	25.303	71.9

Room-4: Computer Lab

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
4205	50	300	100	400	6.7	28.033			
155	320	1920	0	1920	32.0	4.96			
	370	2220				33.0	0.0149	11.146	21.8

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644344



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Room-5: Library

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
820	100	600	0	600	10	8.2			
1820	50	300	0	300	5.0	9.1			
3640	100	600	0	600	10.0	36.4			
6440	120	720	0	720	12.0	77.28			
1640	260	1560	0	1560	26.0	42.64			
	630	3780				173.6	0.0459	34.448	139.2

Room-6: Pump Room & passage

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
598	50	300	100	400	6.7	3.9866 67			
220	580	3480	0	3480	58.0	12.76			
	630	3780				16.7	0.0044	3.3228	13.4

Room-7: Staff Room

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
405	100	600	0	600	10.0	4.05			
155	530	3180	0	3180	53.0	8.215			
	630	3780				12.3	0.0032	2.4335	9.8

Room-8: Gym-Khana

Load (W)	Daily Use	Weekly Use	Weekly off	Net Weekly use	Net Weekly use	Units Used	DG Factor	DG-Offset	Actual Use
Watt	Minutes	Minutes	Minutes	Minutes	Hours	Kwh		Kwh	Kwh
980	100	600	0	600	10.0	9.8			
500	530	3180	0	3180	53.0	26.5			
	630	3780				36.3	0.0096	7.2024	29.1

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644345



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

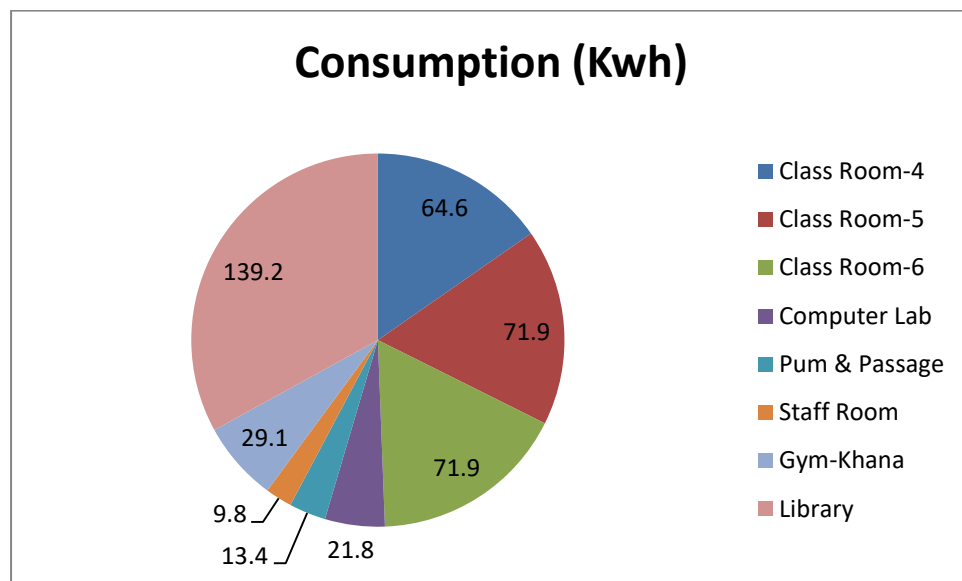
Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Notes:

1. Usage of library equipments such as Xerox machine and printer are as per demand. Values considered here are from information provided during interview of librarian.
2. DG factor and offset are figures derived to finalize the consumption settled by DG set. It is based on the information provided and mentioned in Back-up supply.

Load Occupancy Summary

SL No	Room	Consumption
		(Kwh)
1	Class Room-4	64.6
2	Class Room-5	71.9
3	Class Room-6	71.9
4	Computer Lab	21.8
5	Pum & Passage	13.4
6	Staff Room	9.8
7	Gym-Khana	29.1
8	Library	139.2



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

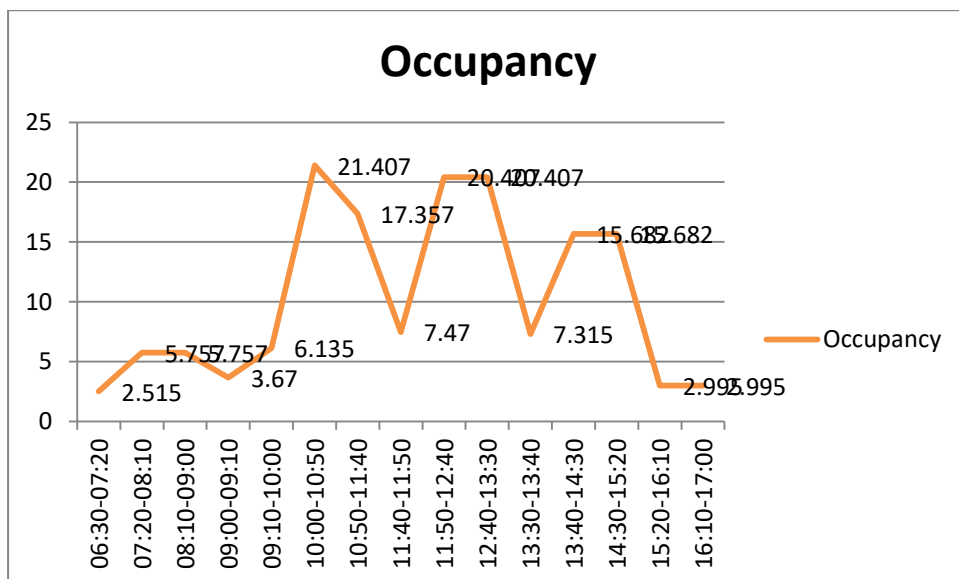
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**46**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644347



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

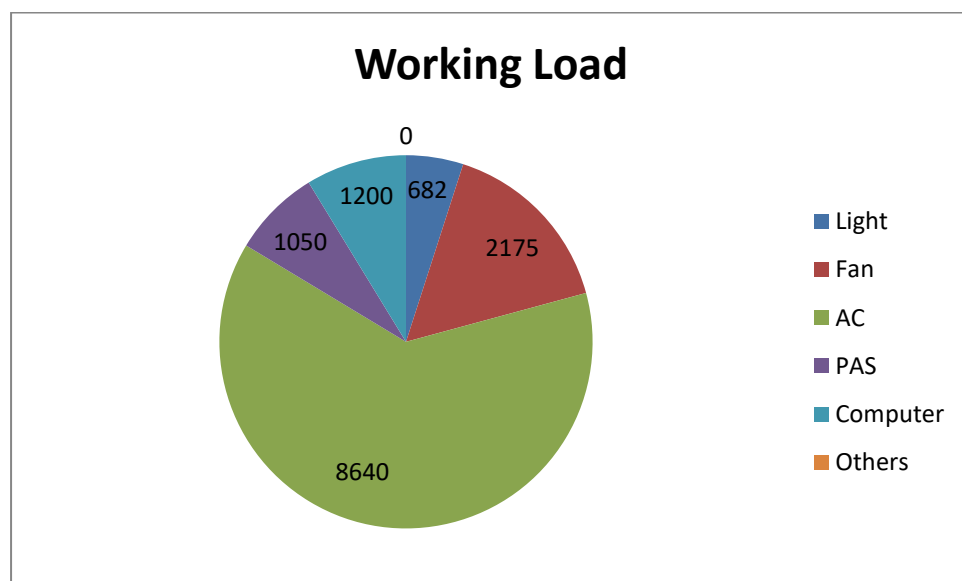
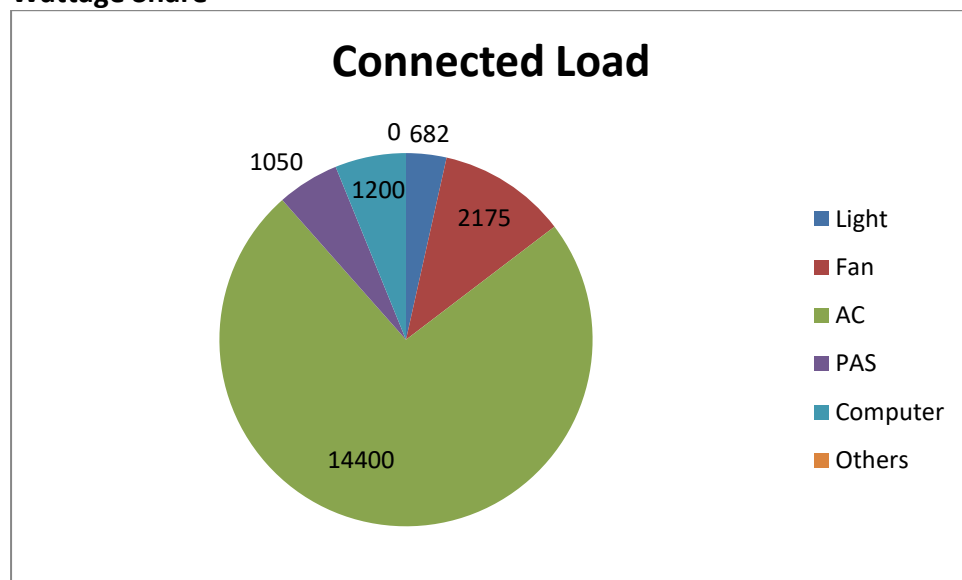
Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Load Balance

Meter-1

Load	Connected Load	Percentage	Working Load	Percentage
Light	682	3.50	682	4.96
Fan	2175	11.15	2175	15.82
AC	14400	73.82	8640	62.85
PAS	1050	5.38	1050	7.64
Computer	1200	6.15	1200	8.73
Others	0	0.00	0	0.00

Wattage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

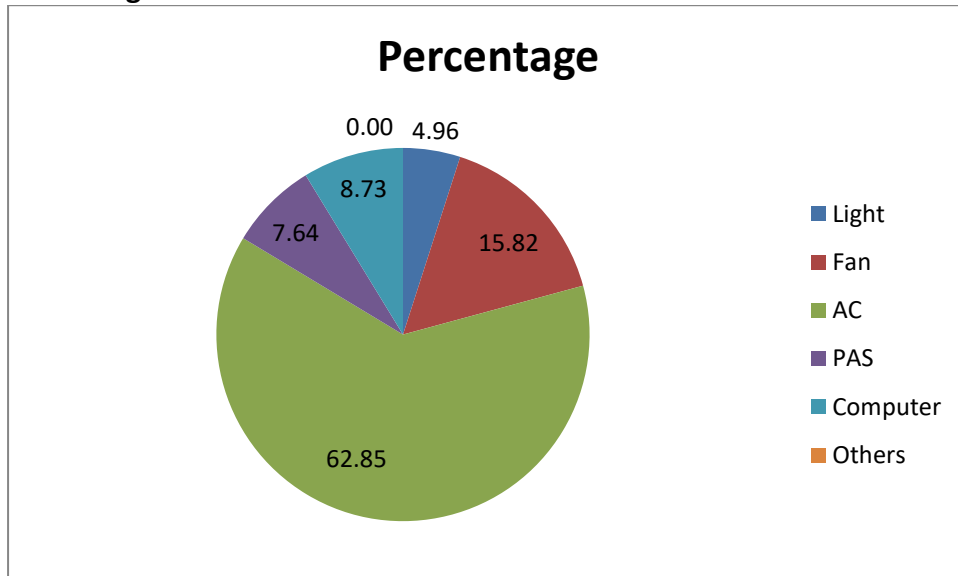
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644348



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Percentage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

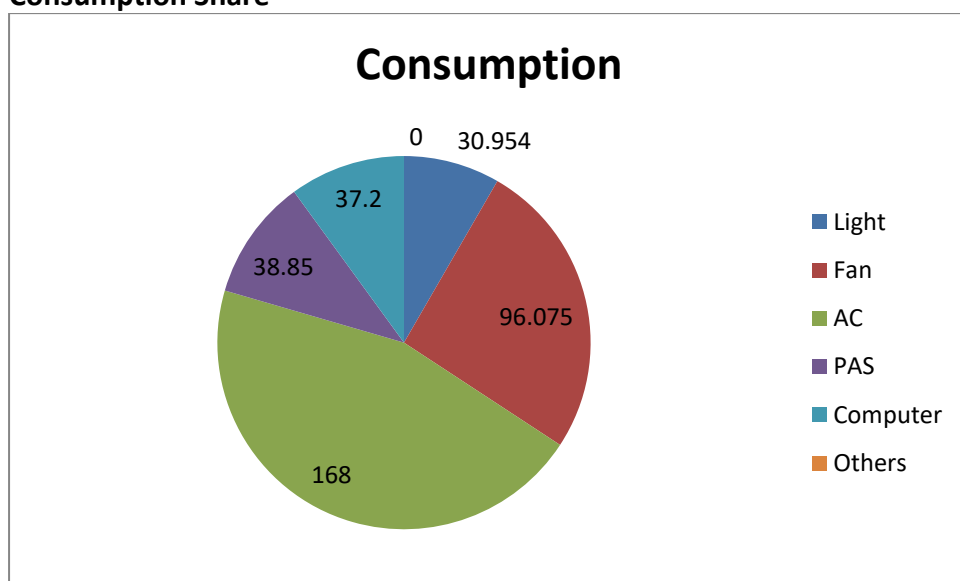
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**49**

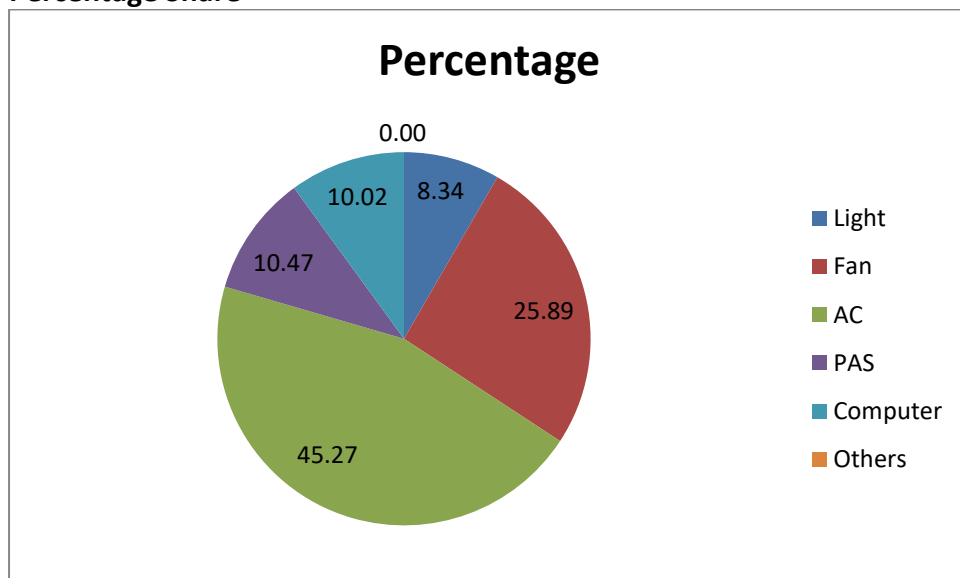
Consumption Balance

Load	Consumption	Percentage
Light	30.954	8.34
Fan	96.075	25.89
AC	168	45.27
PAS	38.85	10.47
Computer	37.2	10.02
Others	0	0.00

Consumption Share



Percentage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

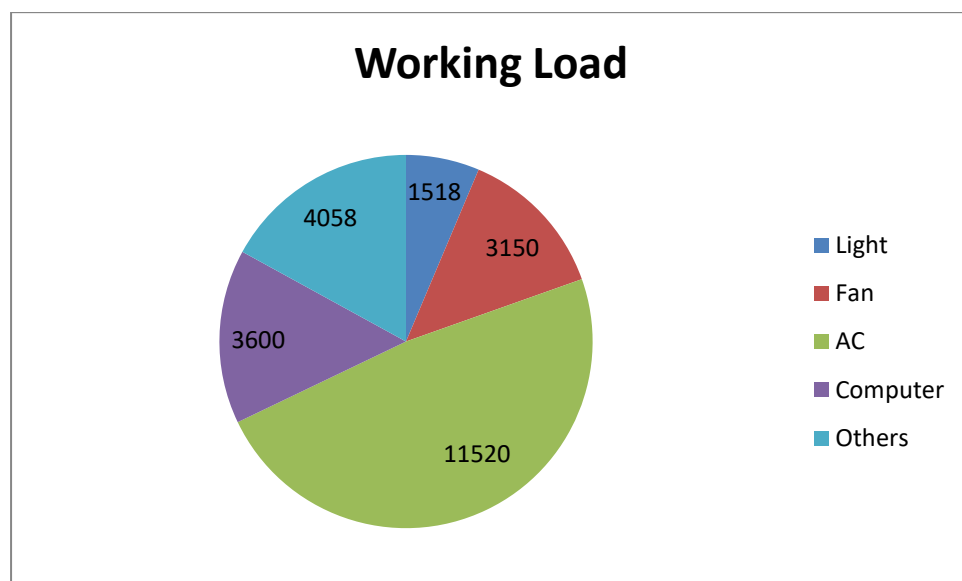
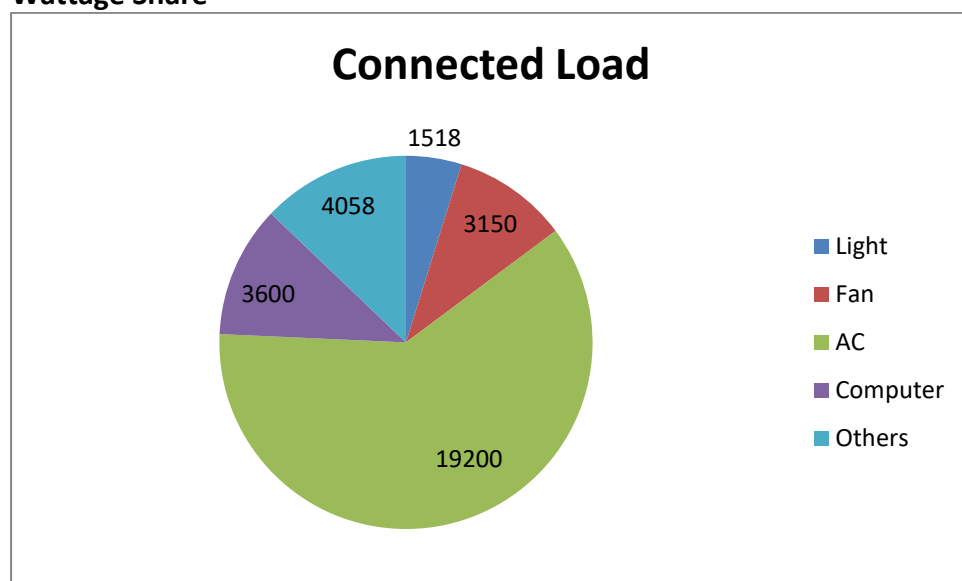
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644350

Meter-2

Load	Connected Load	Percentage	Working Load	Percentage
Light	1518	4.82	1518	6.37
Fan	3150	9.99	3150	13.21
AC	19200	60.90	11520	48.31
Computer	3600	11.42	3600	15.10
Others	4058	12.87	4058	17.02

Wattage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

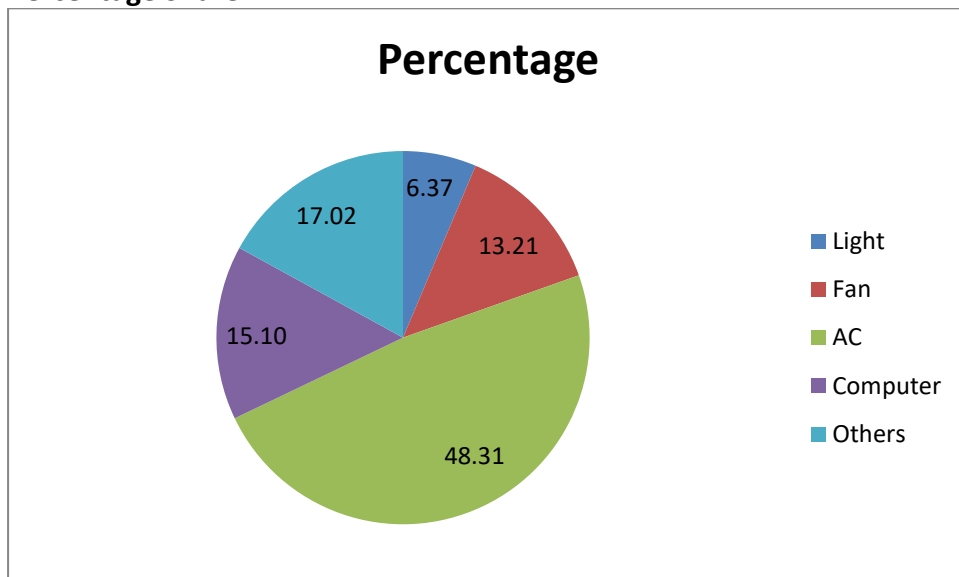
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644351



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Percentage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644352



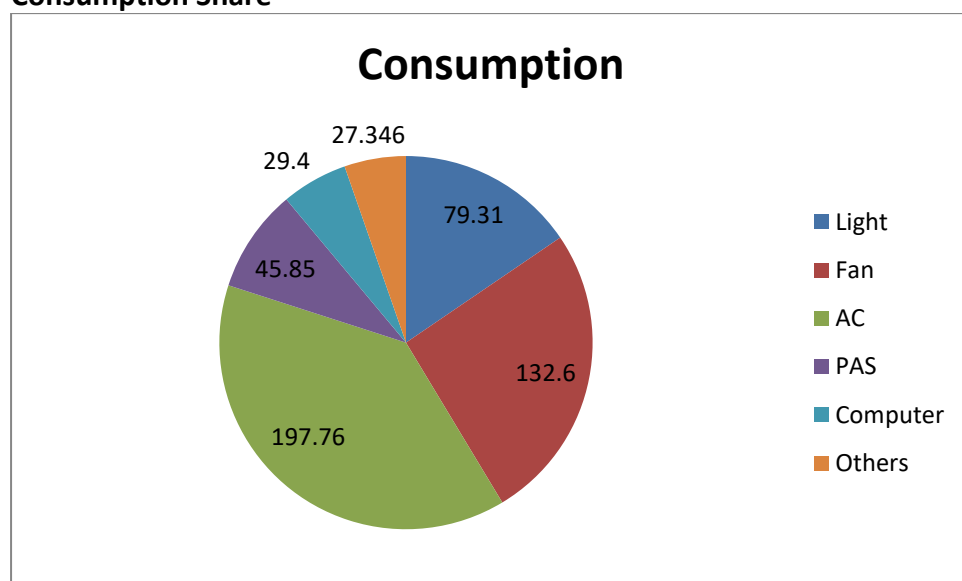
SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

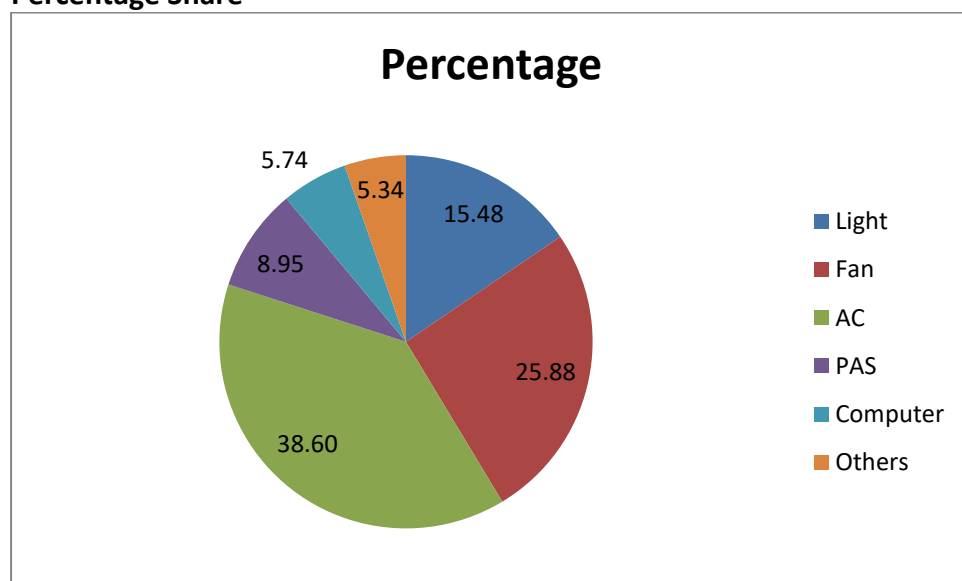
Consumption Balance

Load	Consumption	Percentage
Light	79.31	15.48
Fan	132.6	25.88
AC	197.76	38.60
PAS	45.85	8.95
Computer	29.4	5.74
Others	27.346	5.34

Consumption Share



Percentage Share



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

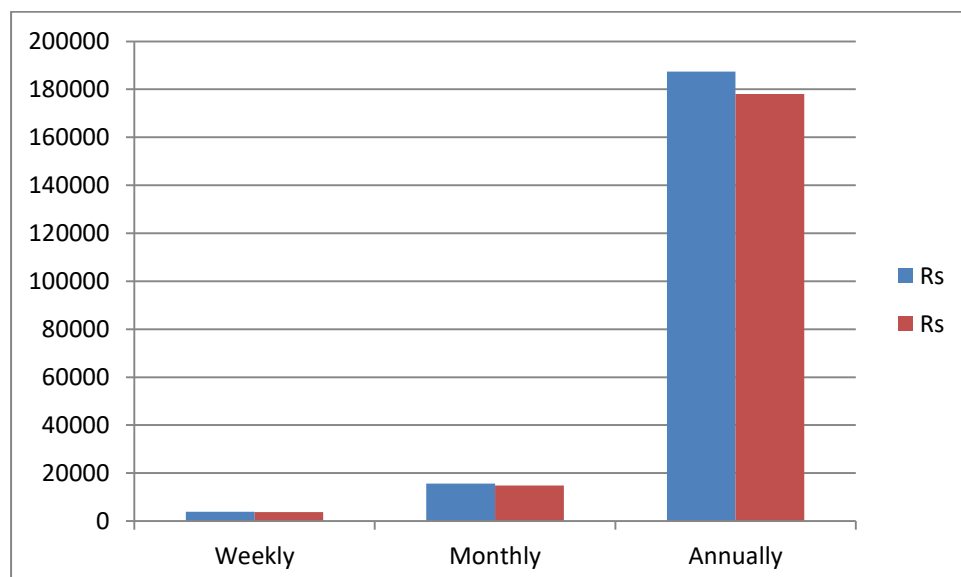
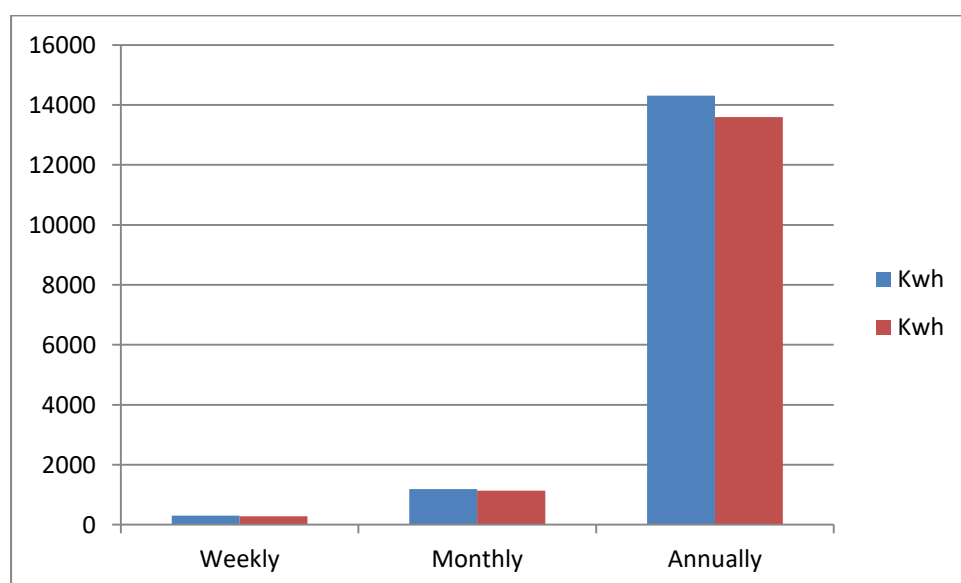
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **53**

Specific Consumption

Meter-1

SL No	Tenure	Benchmarked		Observed		Index	
		Kwh	Rs	Kwh	Rs	Kwh	Rs
1	Weekly	298	3904.565	284	3721.1	1.049	1.049
2	Monthly	1192	15618.26	1132	14832.1	1.053	1.053
3	Annually	14304	187419.1	13591	178077.0	1.052	1.052



Solar rooftop and power plants
Load Management and extension
Substation Management

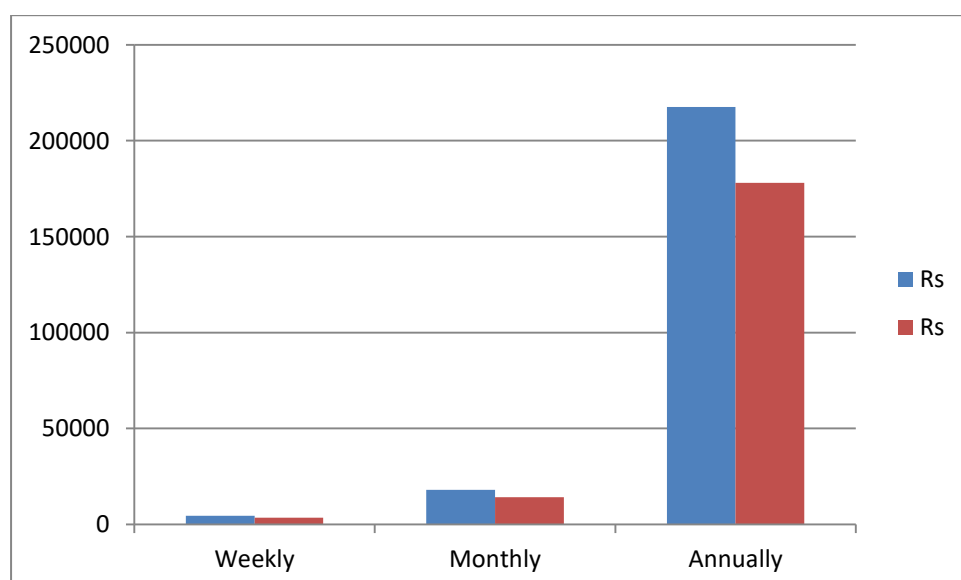
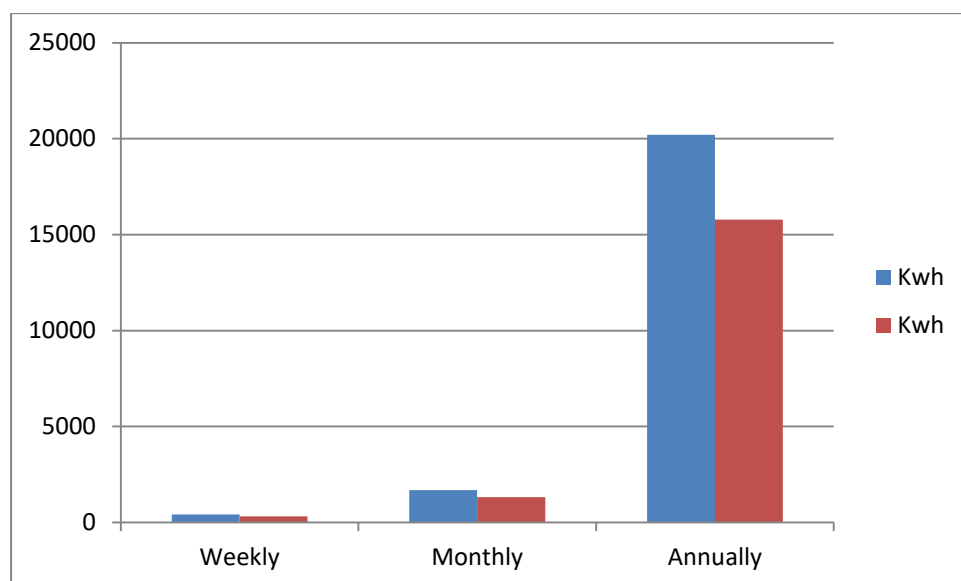
Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644354

Meter-2

SL No	Tenure	Benchmarked		Observed		Index	
		Kwh	Rs	Kwh	Rs	Kwh	Rs
1	Weekly	421	4534.17	329	3543.3	1.280	1.280
2	Monthly	1684	18136.68	1316	14173.3	1.280	1.280
3	Annually	20208	217640.2	15783	178077.0	1.280	1.222



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644355



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Service Specific Consumption

Per Student		Per Month	
SL No	Room	Consumption	Expense
	Name	Kwh	Rs
1	Class Room-1	0.257	3.37
2	Class Room-2	0.218	2.86
3	Class Room-3	0.063	0.83
4	Class Room-4	0.215	2.82
5	Class Room-5	0.240	3.14
6	Class Room-6	0.240	3.14
7	Office	0.478	6.26
8	Staff	0.033	0.43
9	Gym	0.097	1.27
10	Pump	0.045	0.59
11	Computer	0.073	0.95
12	Library	0.464	6.08

Total Electricity Expenses per person per month is Rs. 31.73/-

Table-1 Arts

Per Student		Per Month	
SL No	Room	Consumption	Expense
	Name	Kwh	Rs
1	Class Room-1	102.933	1348.53
2	Class Room-2	87.200	1142.41
3	Class Room-3	0.000	0.00
4	Class Room-4	86.133	1128.43
5	Class Room-5	95.867	1255.95
6	Class Room-6	95.867	1255.95
7	Office	191.200	2504.91
8	Staff	13.067	171.19
9	Gym	38.800	508.32
10	Pump	17.867	234.07
11	Computer	29.067	380.80
12	Library	185.600	2431.55

Total Electricity Expenses on Arts per month is Rs. 12362.10/-

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

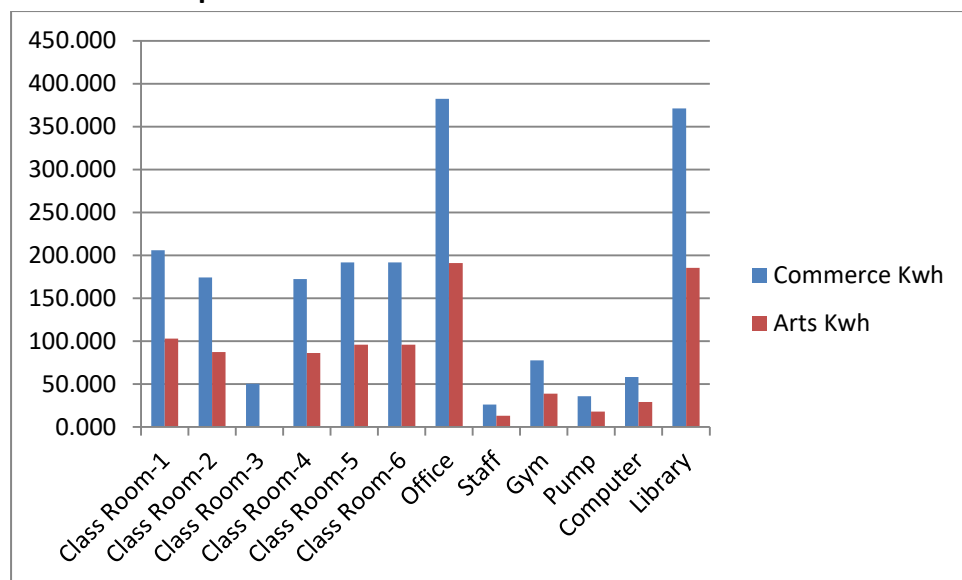
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644356

Table-2 Commerce

Per Student		Per Month	
SL No	Room	Consumption	Expense
	Name	Kwh	Rs
1	Class Room-1	205.867	2697.06
2	Class Room-2	174.400	2284.81
3	Class Room-3	50.400	660.29
4	Class Room-4	172.267	2256.87
5	Class Room-5	191.733	2511.90
6	Class Room-6	191.733	2511.90
7	Office	382.400	5009.82
8	Staff	26.133	342.37
9	Gym	77.600	1016.64
10	Pump	35.733	468.14
11	Computer	58.133	761.60
12	Library	371.200	4863.09

Total Electricity Expenses on Commerce per month is Rs. 25384.50/-

Chart Consumption

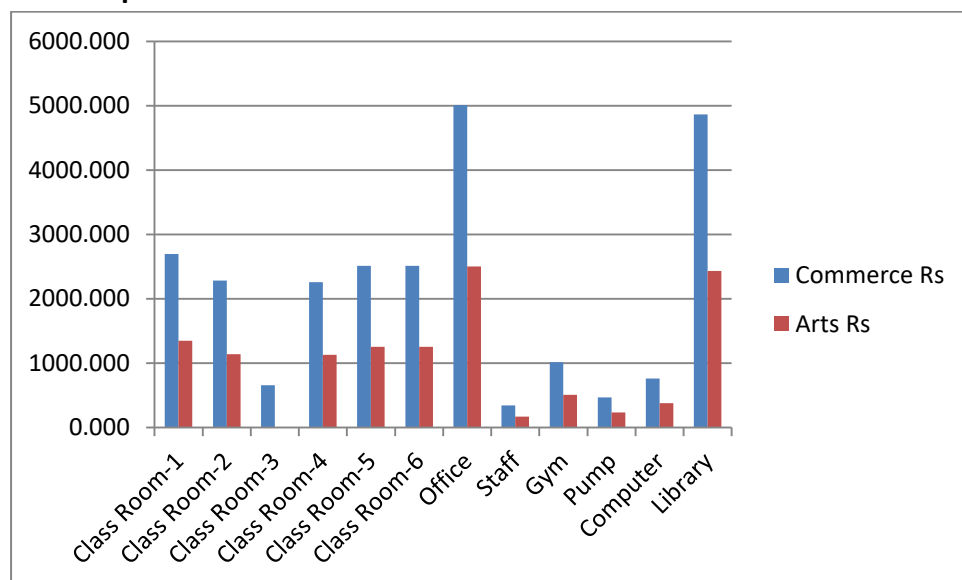




SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Chart Expenses



Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443 **58**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Meter Cabin Safety Survey

Meter-1

1. Total Connected Load:
20 Kw
2. Required Cable size:
16Sqmm/25qmm for Al OR 10Sqmm/16qmm for Cu (Supply/Load Sides)
3. Actual Cable Size (at meter):
16SqmmAl/16qmm for Cu
4. Year of Installation:
1995
5. Required Cut-out Size:
100A
6. Actual Required Cut-out Size:
63A
7. Year of Installation:
2010
8. Required ELCB Size:
100A
9. Actual Required ELCB Size:
NO
10. Year of Installation:
NO
11. No of Earthing:
One
12. Type (Traditional/Maintenance Free):
Traditional
13. Year Of Installation:
NA
14. Year of last maintenance:
2018
15. Megger Values:
10MOhms
16. Power Quality Values:
Attached Report

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**59**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

17. PF Value:
NA
18. Meter Cabin Condition:
BAD
19. Availability of Fire extinguisher/ Sand Buckets:
NA
20. Water proofing/Seepage:
NA
21. Damages/Tampering:
Average
22. Adequacy in connections/Termination/Joints:
Joints
23. Ease of accessibility:
Easy
24. Lightning Arrestor:
NA
25. Year of Installation:
NA
26. Year of last maintenance:
NA
27. Megger Values:
NA
28. Danger Signs:
Not Installed

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

**Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**60****



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Meter-2

1. Total Connected Load:
25 Kw
2. Required Cable size:
16Sqmm/25qmm for Al OR 10Sqmm/16qmm for Cu (Supply/Load Sides)
3. Actual Cable Size (at meter):
16SqmmAl/16qmm for Cu
4. Year of Installation:
1995
5. Required Cut-out Size:
100A
6. Actual Required Cut-out Size:
63A
7. Year of Installation:
2010
8. Required ELCB Size:
100A
9. Actual Required ELCB Size:
NO
10. Year of Installation:
NO
11. No of Earthing:
One
12. Type (Traditional/Maintenance Free):
Traditional
13. Year Of Installation:
NA
14. Year of last maintenance:
2018
15. Megger Values:
10MOhms
16. Power Quality Values:
Attached Report
17. PF Value:
NA
18. Meter Cabin Condition:
BAD

**Solar rooftop and power plants
Load Management and extension
Substation Management**

**Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning**

**New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment**

**Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**61****



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

19. Availability of Fire extinguisher/ Sand Buckets:

NA

20. Water proofing/Seepage:

NA

21. Damages/Tampering:

Average

22. Adequacy in connections/Termination/Joints:

Joints

23. Ease of accessibility:

Difficult due to height

24. Lightning Arrestor:

NA

25. Year of Installation:

NA

26. Year of last maintenance:

NA

27. Megger Values:

NA

28. Danger Signs:

Not Installed

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**62**



SAUR ENGINEERS & CONSULTANTS PVT. LTD.

Registered Energy Auditor, Licensed Electrical Contractor, IE&L, Registered Electrical Contractor (A-GRADE) Channel Partner-MEDA, Govt. of Maharashtra, ISO 9001:2008, Certified Solar Grid Engineers Channel Partner-MNRE, GOI.

Building Envelope Survey

Room	Temperature	Humidity	Light	Windows	Door	Walls	Ceiling	General
Name	Degree Cel.	%	Lux					
Class Room-1	30.9	81	93	To be Semi transparent	Good	Good	Average	Poor Ventilation
Class Room-2	30.6	78.1	95	To be Semi transparent	Good	Good	Average	Poor Ventilation
Class Room-3	30.5	81.5	195	Average	Good	Good	Average	Poor Ventilation
Class Room-4	29.4	83	78	To be Semi transparent	Good	Minor leakage on Back wall	Average	Poor Ventilation
Class Room-5	31	79.5	316	Average	Good	Good	Average	Poor Ventilation
Class Room-6	30	82.2	206	Average	Good	Good	Average	Poor Ventilation
Office	30.8	78	92	Good	Good	Good	Average	Good
Staff Room	31	81	96	Average	Good	Good	Average	Good
Gym-Khana	32	74.6	48	Average	Good	Good	Average	Mezzanine Floor Poor Ventilation
Pump & Passage	30.6	76	85	Average	Good	Good	Average	Good
Computer lab	31	82	102	To be Semi transparent	Good	Good	Average	Average
Library	31.4	76	854	Good	Good	Good	Average	Average

Notes:

1. Building has poor ventilation.
2. Class Room No4. Wall has minor leakage.
3. Lux Level is below 100Lux in 7/12 rooms.

Solar rooftop and power plants
Load Management and extension
Substation Management

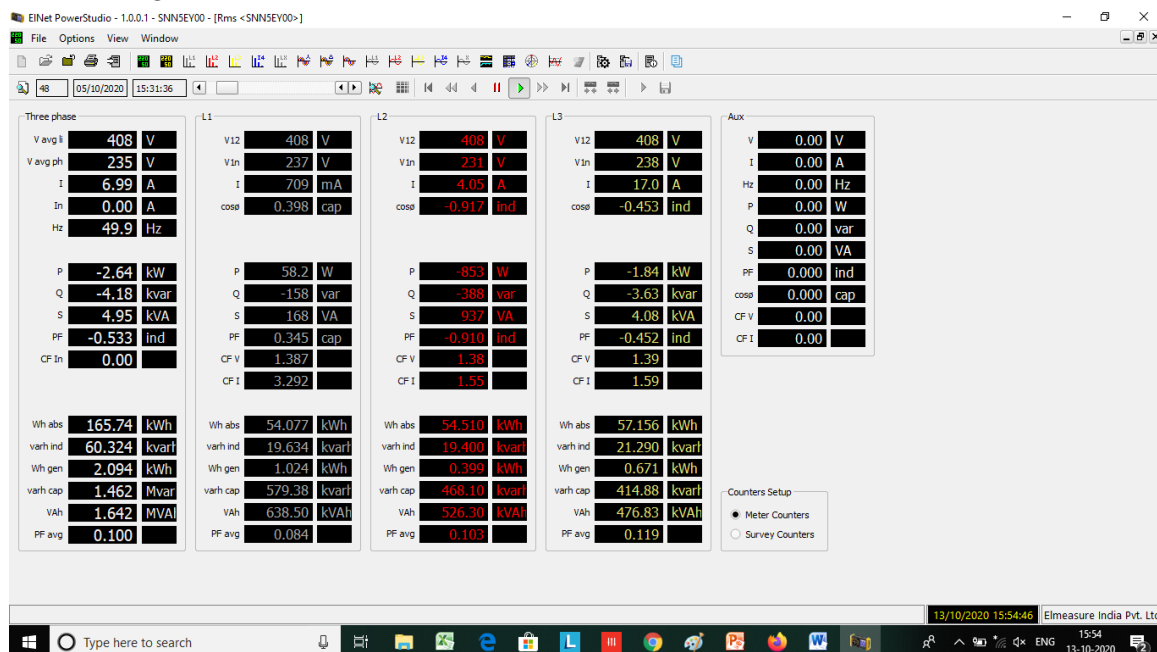
Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

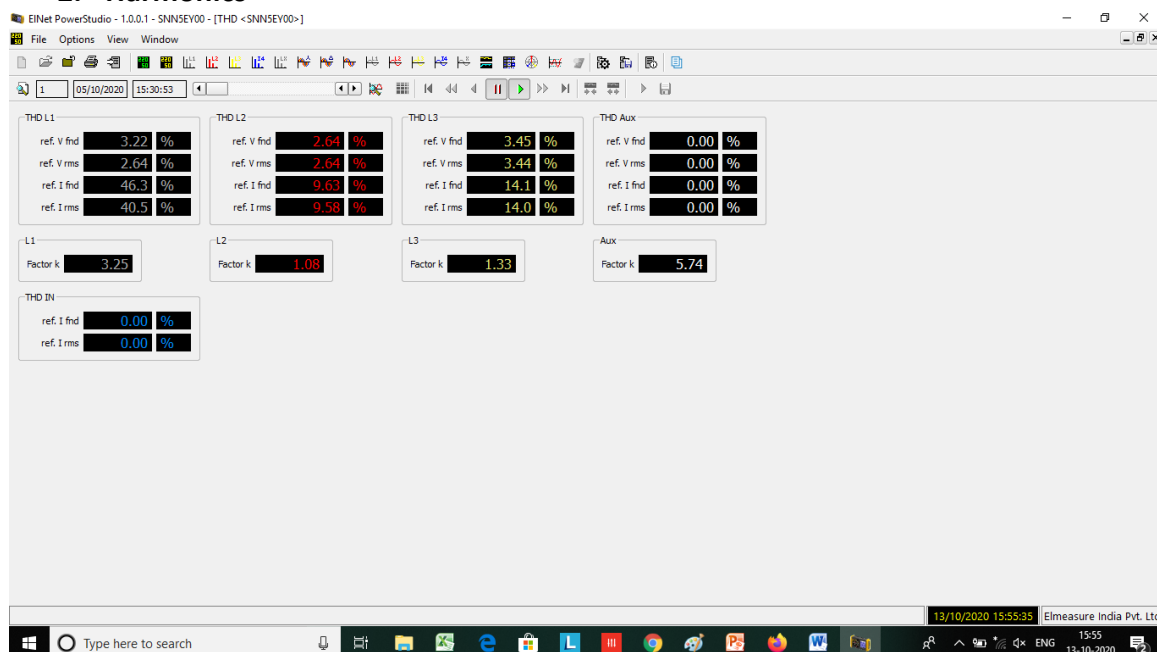
Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1, Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**63**

Power Quality Report

1. RMS



2. Harmonics



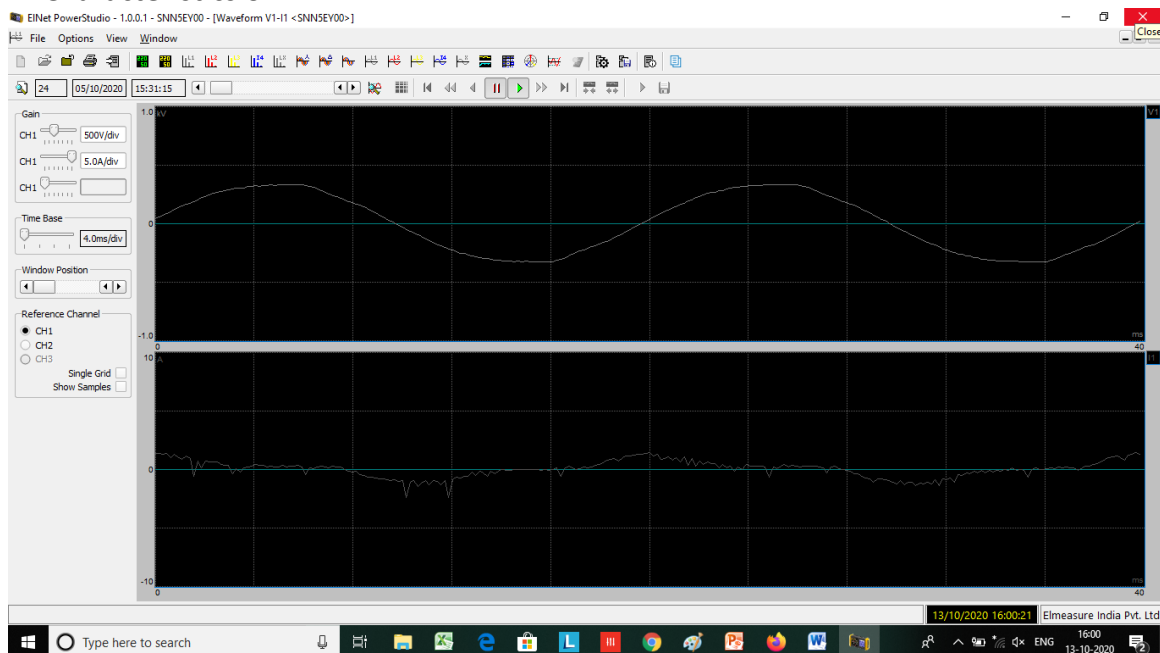
Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

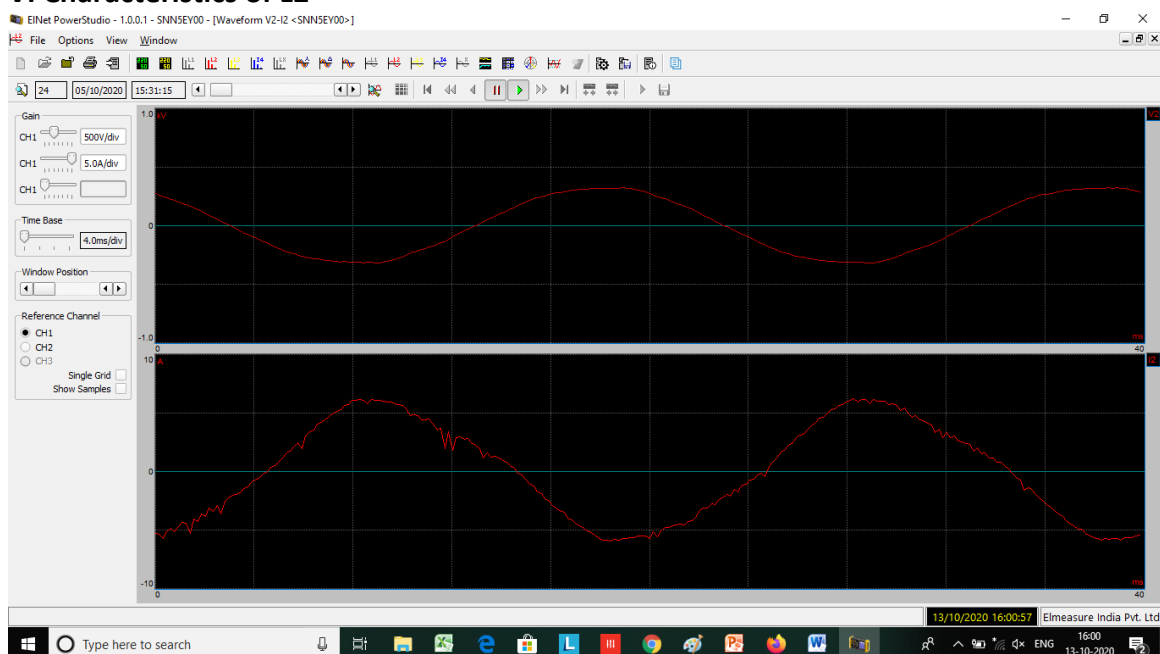
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644364

3. VI Characteristics of L1



4. VI Characteristics of L2



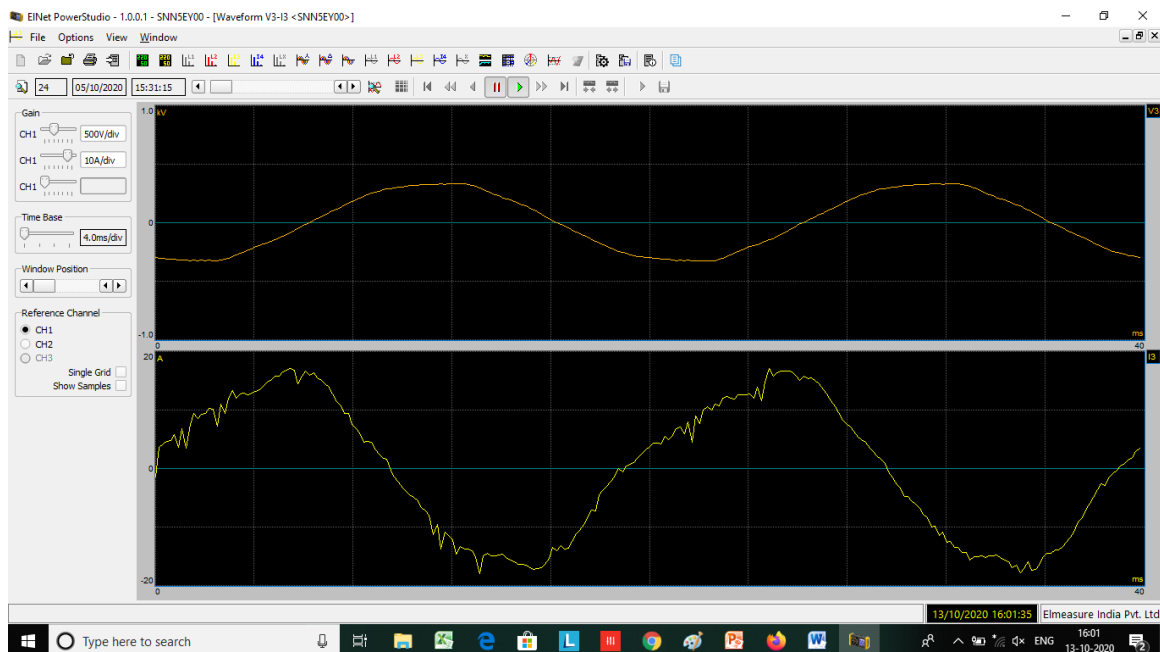
Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

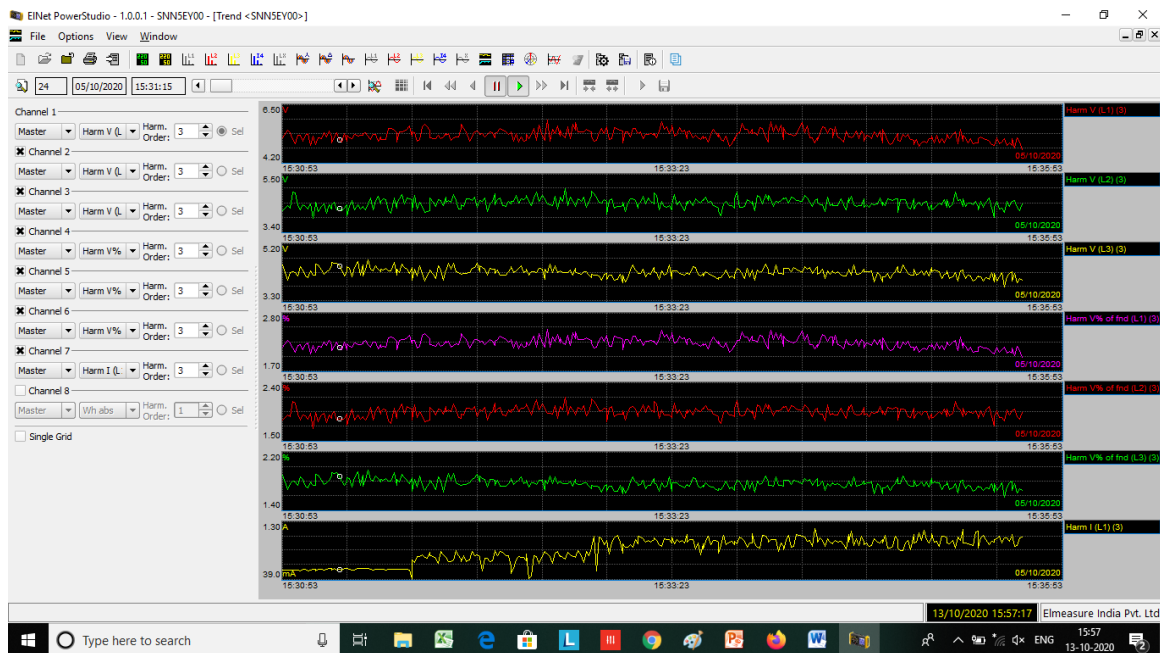
New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**65**

5. VI Characteristics of L3



6. 3rd Level harmonic Trend



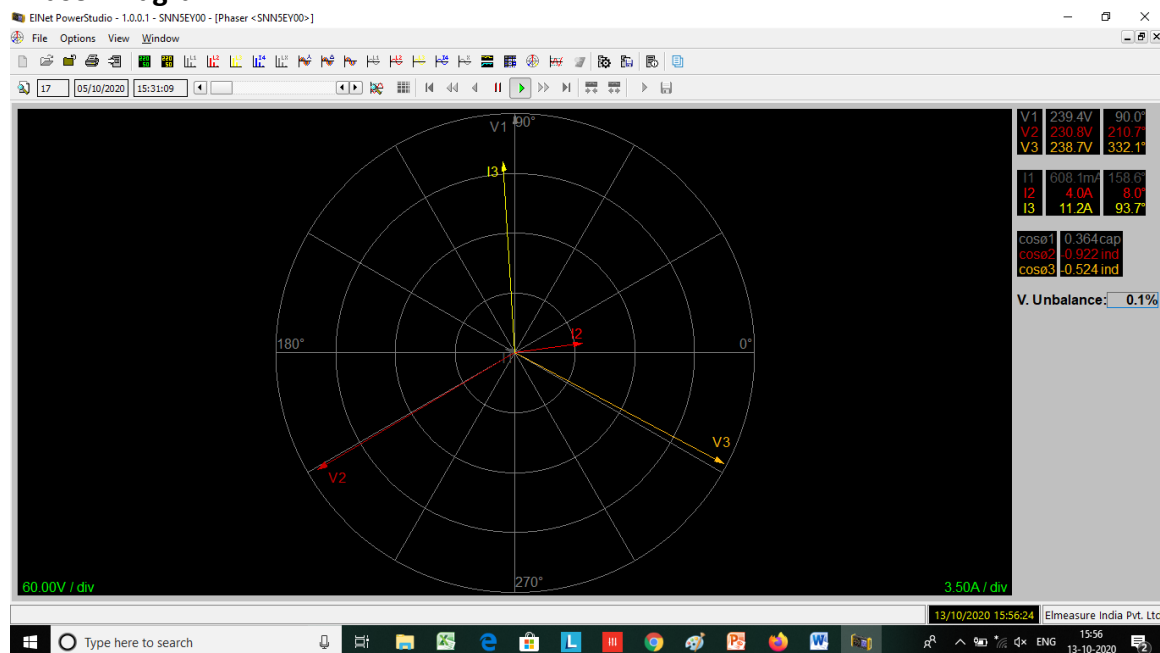
Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/9821116443**66**

7. Phasor Diagram



Disclaimer

The report is generated from data, information, answer to asked questions, standards and procedures defined by different and concerned authorities time to time, available site condition, weather condition, operational and availability conditions provided by beneficiary on the day of survey. If any changes on above said measures on any other parameters affecting these measures may lead to change, alter, in-corrections even falsifying calculations, results, recommendations and suggestions. The values, figures, amounts mentioned are indicative to the site situation and condition; it may not reflect each and every aspect of it. The report is generated restricted to given scope and available conditions and measures.

Conclusion

We hereby conclude report for "Energy Audit" of the Work done under scope of WORK ORDER given by your office vide above Reference number; for work: "Energy Audit of Uran College of Commerce and Arts, Uran, Dist. raigad". Please study it thoroughly and implement recommendations and suggestions at earliest.

Solar rooftop and power plants
Load Management and extension
Substation Management

Solar and Electric Consultation
Change of Name on Bills
Permissions, approvals, liasoning

New Electric Connections
Meters (New, Shifting, additional)
Electrical & Safety Audits& Assessment

Plot No. 108 / D - 8, Akshay Co. op. Society, Opp. Swami Vivekananda High School, Gorai- 1,
Borivali (W), Mumbai - 400092. saurengineers@gmail.com 9168402909/9867499812/982111644367