Green Aura

Built Environment Sustainability & Transformation

ENERGY AUDIT REPORT | 2022

ADICHUNCHANAGIRI UNIVERSITY

ENERGY AUDIT REPORT 2022

CONSULTATION REPORT

Adichunchanagiri University

Submitted to:
The Registrar,
Adichunchanagiri University,
Bengaluru – Hassan National Highway (NH-75),
Nagamangala Taluk, BG Nagara – 571 448,
Mandya District, Karnataka State, India

Submitted by:
Green Aura,
692F,12th A cross Bel layout,
Bengaluru- 560091

CONTENT

ACKNOWLEDGEMENT

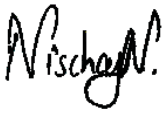
GREEN AURA, Bengaluru, Karnataka takes this opportunity to appreciate & thank the management of **Adichunchanagiri University** for giving us an opportunity to conduct Energy Audit for the University.

We are indeed touched by the helpful attitude and co-operation of all faculties and technical staff, who rendered their valuable assistance and co-operation the course of study.

Energy Audit Team

The study team constituted of the following senior technical executives from **Green Aura**:

- **Mr. Nischay N Gowda, [**Director, IGBC-AP, LEED-Green Associate]
- **Mr. Rajesh Kumar Singadiya**, [Accredited Energy Auditor, AEA-0284, Certified Energy Auditor CEA-7271 BEE, Ministry of Power, Govt. of India]
- **Mr. Sachin Kumawat** [Project Engineer]



Nischay N Gowda,
Director

EXECUTIVE SUMMARY

The executive summary of the energy audit report furnished in this section briefly gives the identified energy conservation measures in the university.

AREAS FOR IMPROVEMENT

- **POWER FACTOR IMPROVEMENT:**
  - It was observing that the power factor of university is 0.88 of year-2022. It should maintain Unity by the capacitor health check-up on regular basis.
  - It was observing that the power factor of university is 0.95 of year-2022. It should maintain Unity by the capacitor health check-up on regular basis.
- **DEMAND REDUCATION 1250 KVA TO 750 KVA.**

  It is analysed from last 01 Year electricity bills. Contract Demand of the Adichunchanagiri Hospital & Research centre is 1250 KVA. University has paid Rs. 22,91,640 extra charge on demand. So It is highly recommended to demand reduce 1250 KVA to 750 KVA. Total Expected Monitory saving is 12,48,000 per year.

  Details calculation in Chapter-05
- **LIGHTING SYSTEM:**
  - Replacement of "conventional T-12 (40 Watt)" tube light by Energy Efficient LED lighting fixture T-5 (18Watt or 20 Watt) in all Buildings, have great potential for Energy saving. Expected Energy saving is the subject of load factor and total annual operating hours.
  - Installation of "Timer control on Straight light and Focus light on Building" recommended for Energy saving in the campus.
  - Installation of Motion sensor in Non-Working Area (Wash room, Electrical Room. etc.) recommended for Energy saving in the campus.
  - Installation of "Solar Alone System" on Street lighting, campus Lighting and Building focus lighting are having good potential for energy saving as well as sustainable development and conservation of natural resources.

Chapter-01
INTRODUCTION

1.1 About University: -

The University is situated in a Lush Green Unitary Campus of 67 acres at B.G. Nagara, Nagamangala Tq., Mandya District, Karnataka on the Bangalore – Mangalore National Highway No. 75, 105 Kms from Bangalore, the Capital City of Karnataka.

The University consists of six Constituent colleges in the disciplines of Medicine, Pharmacy, Nursing, Engineering, Management, Commerce and Education. The environment-friendly campus has adequate infrastructure and physical facilities for Academics and Research. The campus possesses around 5000 students, 400 teachers and 1800 support staff.

The University employs a broad range of strategies to achieve its Vision, Mission and Objectives to expand the horizon of World Knowledge, provide instruction, Teaching-Learning, Training, Research and Development at the level of Higher Education in the faculties of Health Sciences, Engineering and Technology, Management and Technology

Following building bills and data are considered in this report Part-01

- BGS Institute of Technology
- BGS College of Education
- BGS first grade college.
- Adichunchanagiri School of Natural Science

VISION

Education for all with Value Systems of Empathy, Enrichment, Equity, Excellence, Empowerment, Entrepreneurship & Enlightenment to Serve the Society

MISSION

- Education to all for Self Reliance, Socio-Economic Change to develop an Inclusive Society with Shared Opportunities & Responsibilities
- Empathy towards the Less Fortunate, the Sick, the Suffering & the Disabled
- Enrichment to acquire Abundant Knowledge, Requisite Skills & Appropriate Attitude
- Excellence for Quality Assurance, Enhancement & Sustenance in Academics & Research to produce Graduates of Global Standards
- Equity for Fairness & Social Justice by providing Equal Opportunities
- Empowerment of Graduates to become Intuitive, Innovative & Inventive
- Entrepreneurship is a concept or idea involving the product or service to be delivered, or a new technology to be developed
- Enlightenment to attain Wisdom & Virtues in Life to think beyond Self
- Student Information System

Master Layout of the university: -

Total area of the university

AIMS College Block				
Sr. No	Building Name	Old Exiting Building Up Area (sqm)	New building Build up Area (sqm)	Total Building Build Up Area in (sqm)
1	AIMS College	12,505.20	11801	24,306.20
2	AIMS Library block	2750	4799	7,549
3	Auditorium Block	2882.62	0	2,882.62
4	AIIMS Forensic block	1103	2151	3,254
5	Animal house	372.67	0	372.67
6	AIMS Teaching block	6569.66	0	6,569.66
	Total AIMS college Buildup area			**44,934.15**

Hospital block				
Sl. No	**Building Name**	**Old Exiting Building Up Area (sqm)**	**New building Build up Area (sqm)**	**Total Building Build Up Area in (sqm)**
1	Hospita Block	3436.77	20343	57,779.77
2	Ward Block	0	16820	16,820
3	Casualty block	0	5792	5,792
4	OBG BLOck	0	1400	1,400
5	OT Block	0	3542	3,542
6	ICU Block	0	1987	1,987
7	OPD 2nd Floor	0	3018	3,018
8	OPD 2nd Floor	0	1138	1,138
9	Medical gas generator	0	374	380
10	OT block to ward block	0	604	604
11	ICU block to ward block	0	806	307
Total Build up Area				**92,767.77**

Residential Block				
Sl. No	**Building Name**	**Old Exiting Building Up Area (sqm)**	**New building Build up Area (sqm)**	**Total Building Build Up Area in (sqm)**
1	AIMS Boys hostel	5480.92	10981	16,461.92
2	AIMS Girls hostel	12246.47	0	12,246.47
3	K B Boys PG Hostel	4361.05	0	4,361.05
4	K B Girls PG Hostel	3647.58	0	3,647.58
5	AIMS Staff quarter	12601.76	0	12,601.76
6	Nursing staff quarter	0	6977	6,977
7	Principle quarter	1253.53	0	1,253.53
8	Vijnatha bhawan	1894.28	0	1,894.28
9	Manasa complex	2328.62	0	2,328.62
10	Bank building	507.99	0	507.99
11	Working women HO	3801.11	0	3,801.11
12	Hospital canteen	351.3	0	351.3
	Total hospital buildup area			**66,432.61**
	Total area in sq mtr			**2,04,134.53**

1.2 About Energy Audit

Energy audit helps to understand more about the ways energy is used in any plant and helps in identifying areas where waste may occur and scope for improvement exists. ***The overall energy efficiency from generation to final consumer becomes 50%. Hence one unit saved in the end user is equivalent to two units generated in the power plant. (1 Unit / 0.5 Efficiency = 2Units)***

Energy audit is the most efficient way to identify the strength and weakness of energy management practices and to find a way to solve problem. Energy audit is one kind of professional approach towards a responsible way in utilizing economic, financial, and social and natural resources. Energy audits can "add value" to the management approaches being taken by the institute and is a way of identifying, evaluating the system.

The GREEN AURA, Bengaluru, Karnataka carried out the energy audit at the site to find loopholes in the energy consumption pattern for Adichunchanagiri University. A technical report has been prepared as per the need and the requirement of the project.

1.2 Objectives of Energy Auditing

The energy audit provides the vital information base for overall energy conservation program covering essentially energy utilization analysis and evaluation of energy conservation measures. It aims at:

- Identifying the quality and cost of various energy inputs.
- Assessing present pattern of energy consumption in different cost centers of operations.
- Relating energy inputs and production output.
- Identifying potential areas thermal and electrical energy economy.
- Highlighting wastages in major areas.
- Fixing of energy saving potential targets for individual cost centers.
- Implementation of measures for energy conservation & realization of savings.

1.3 Methodology:

Methodology adopted for achieving the desired objectives viz.: Assessment of the current operational status and energy savings include the following:

- Discussions with the concerned officials for identification of major areas of focus and other related systems.
- Team of engineers visited the site and had discussions with the concerned officials / supervisors to collected data / information on the operations and load distribution within the plant and same for the overall premises. The data was analyzed to arrive at a base line energy consumption pattern.
- Measurements and monitoring with the help of appropriate instruments including continuous and / or time-lapse recording, as appropriate and visual observations were made to identify the energy usage pattern and losses in the system.
- Trend analysis of costs and consumptions.
- Capacity and efficiency test of major utility equipment's, wherever applicable.
- Estimation of various losses
- Computation and **in-depth analysis** of the collected data, including utilization of computerized analysis and other techniques as appropriate were done to draw inferences and to evolve suitable energy conservation plan/s for improvements/ reduction in specific energy consumption.

Chapter – 02
Power Supply System

2.1 Transformers

The power supply for the university is from Grid with the help of 11 KV feeders under Different Tariff Category. Sectioned load of the university is 200 KVA. University has a single transformer with Capacity 250 KVA

Figure: - 250 KVA Transformer photographs

2.2 DG Sets: -

The university has 03 Nos DG sets to supply Emergency power during the grid Power Failure**.** The Capacity of the DG sets is given below.

Sr. No	DG Location	Capacity of DG	Quantity
1	Main College	100	1
2	Boys Hostel	100	1
3	Girls Hostel	62.5	1

Figure: - DG sets photographs in university

Observation

- DG set is used only in case of power failure.
- There is requirement of energy and fuel meters to monitor total unit generation with respect to fuel consumption

2.3 :- UPS System

University has installed -09 Nos UPS system for Instrument, Lab and Other Equipment's during the power failure. Details are given in the table.

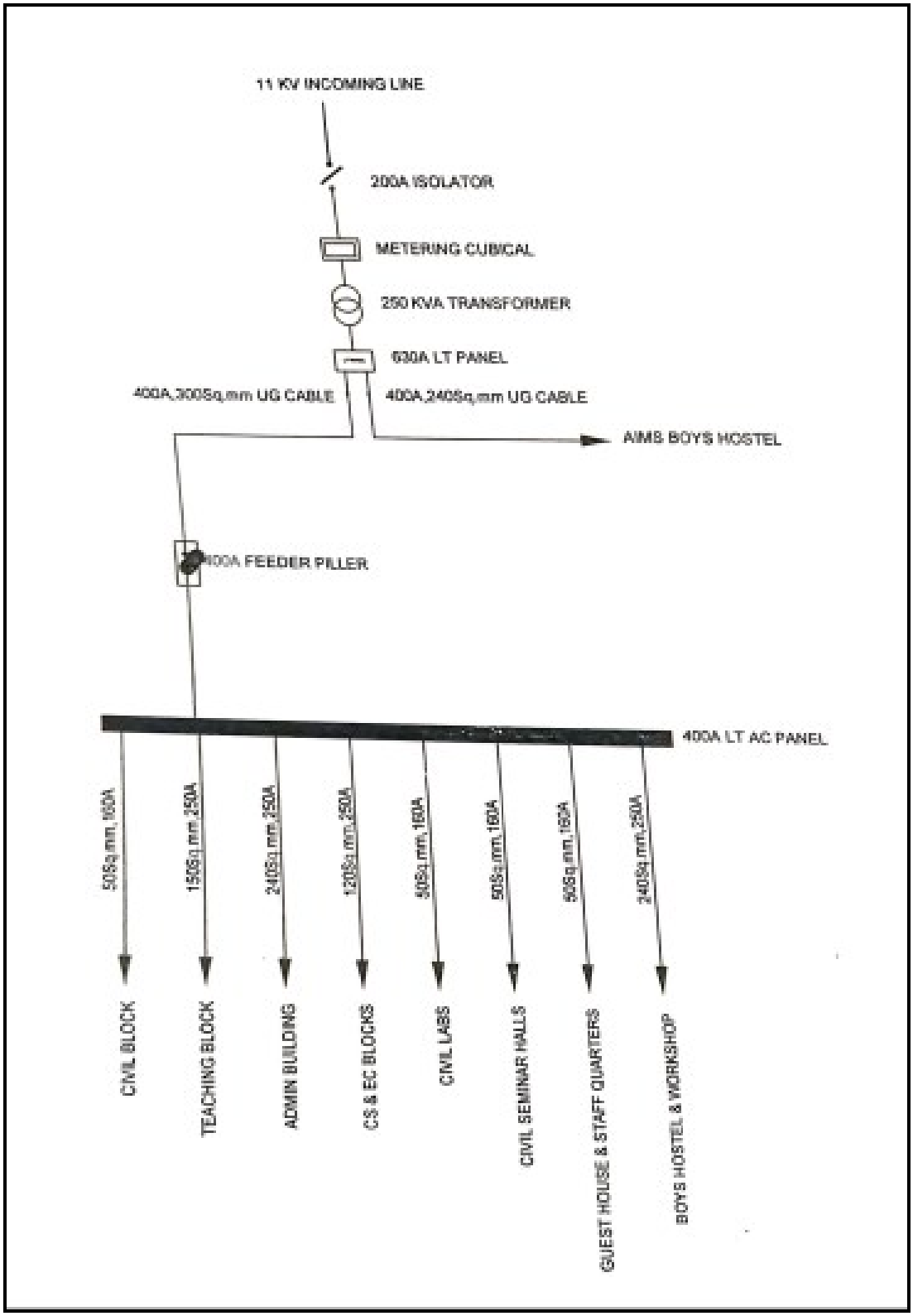
Sr. No	Department	Capacity (KVA)	Quantity
1	Office	20	1
2	BOT Lab	30	2
3	CSE	20	2
4	CSE	10	2
5	ISE	20	2
6	ECE	20	2
7	MECH	20	1
8	CIVIL	5	1
9	IS	60	2

Figure: - UPS System for Emergency Power failure

2.4 Capacitor Bank

University has installed 120 kVAr capacitor bank to maintain Power factor to the feeder. Its Appreciable.

2.5 Single Line Diagram of University



2.6 Solar system: -

University has installed 200 KWp solar system for renewable energy in the campus.

Details of unit generation in given in table

Sr. No	Month & Year	Solar Unit Generation (KWp)	No of Days	Capacity Utilization Factor (CUF) %
1	Jan-22	25,980	31	17.5
2	Feb-22	25,380	28	18.9
3	Mar-22	25,440	31	17.1
4	Apr-22	24,540	30	17.0
5	May-22	10,366	31	7.0
6	Jun-22	20,880	30	14.5
7	Jul-22	17,880	31	12.0
8	Aug-22	19,680	31	13.2
9	Sep-22	20,700	30	14.4
10	Oct-22	21,660	31	14.6
11	Nov-22	20,514	30	14.2
12	Dec-22	21,765	31	14.6
	Total	**2,54,785**	**365**	**14.6**

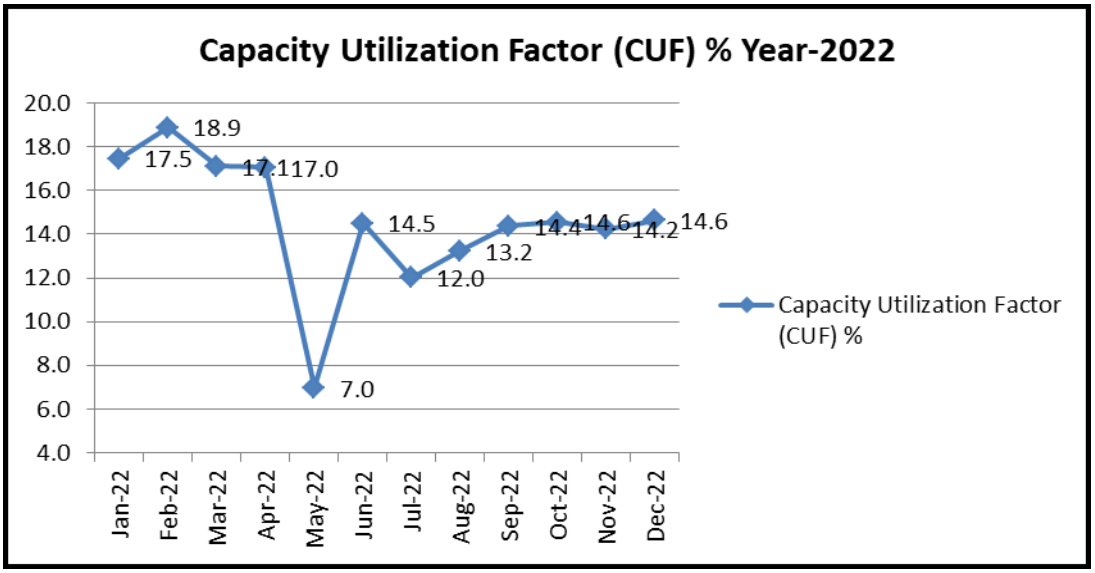


Figure: - Capacity Utilization factor of Solar System Year 2022

Observation: -

Total unit generation of Jan-2022 to Dec-2022 is 2,54,785 units. And average capacity utilization factor is 14.6 %. Which is lower It is recommended to cleaning of solar panel frequently to increase CUF.

Chapter-03
Energy Bill analysis

3.1 Electricity Bill Analysis:-

Energy audit team was analysed Electricity bills of last one year. Details of unit consumption, annual average power factor and annual per unit charges are determined as follow:

Sr. No	Month & Year	Unit Consumption (KVA)	Unit Consumption (kWh)	Power Factor	Billing Amount (Rs)	Overall per unit Charges (Rs/ kVAh)
1	Jan-22	50,430	44,380	0.88	3,64,536	7.2
2	Feb-22	45,990	38,340	0.83	3,43,441	7.5
3	Mar-22	61,150	57,390	0.94	4,54,660	7.4
4	Apr-22	59,440	50,940	0.86	4,48,142	7.5
5	May-22	57,280	50,900	0.89	4,02,897	7.0
6	Jun-22	55,570	49,780	0.90	4,44,251	8.0
7	Jul-22	56,156	50,526	0.90	4,50,779	8.0
8	Aug-22	54,310	48,330	0.89	4,33,564	8.0
9	Sep-22	56,130	49,970	0.89	4,63,898	8.3
10	Oct-22	46,460	38,740	0.83	3,71,233	8.0
11	Nov-22	52,030	45,220	0.87	4,24,271	8.2
12	Dec-22	47,625	42,253	0.89	3,81,000	8.0
	Total	**6,42,571**	**5,66,769**	**0.88**	**49,82,672**	**7.8**

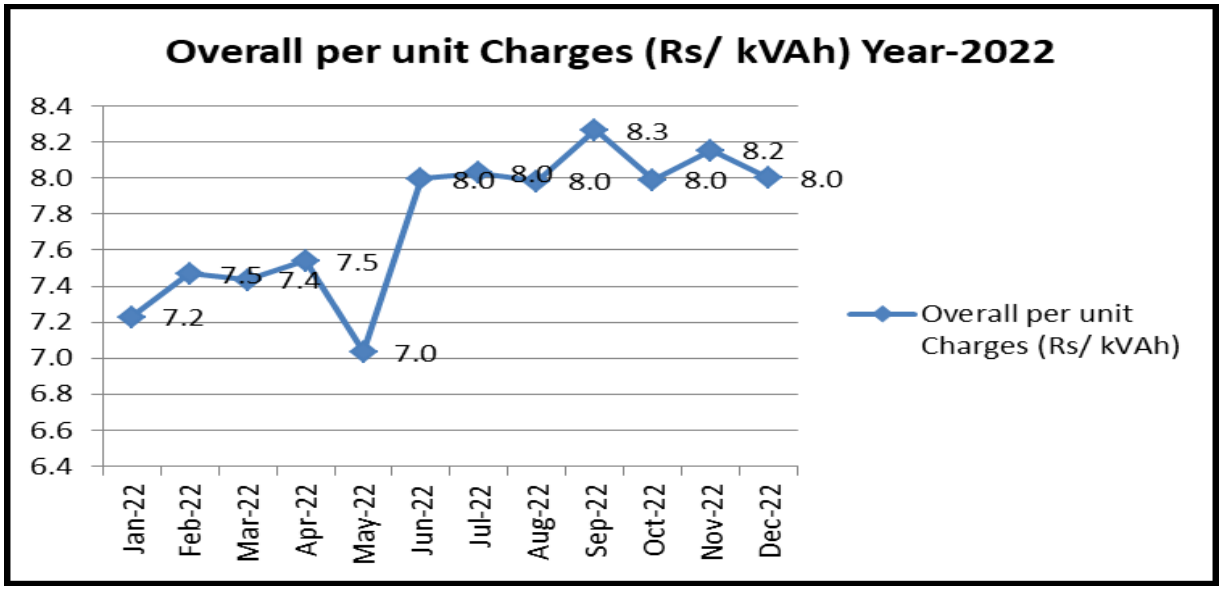


Figure:- Graphical Presentation of Overall per unit charges year-2022

Observation:

It was found that total energy consumption in the last 12 months was 6,42,571 units. The average annual energy charges is Rs 7.8 /kVAh.

3.2: - Average Power Factor of the university

Sr. No	Month & Year	Power Factor
1	Jan-22	0.88
2	Feb-22	0.83
3	Mar-22	0.94
4	Apr-22	0.86
5	May-22	0.89
6	Jun-22	0.90
7	Jul-22	0.90
8	Aug-22	0.89
9	Sep-22	0.89
10	Oct-22	0.83
11	Nov-22	0.87
12	Dec-22	0.89
	Average	**0.88**

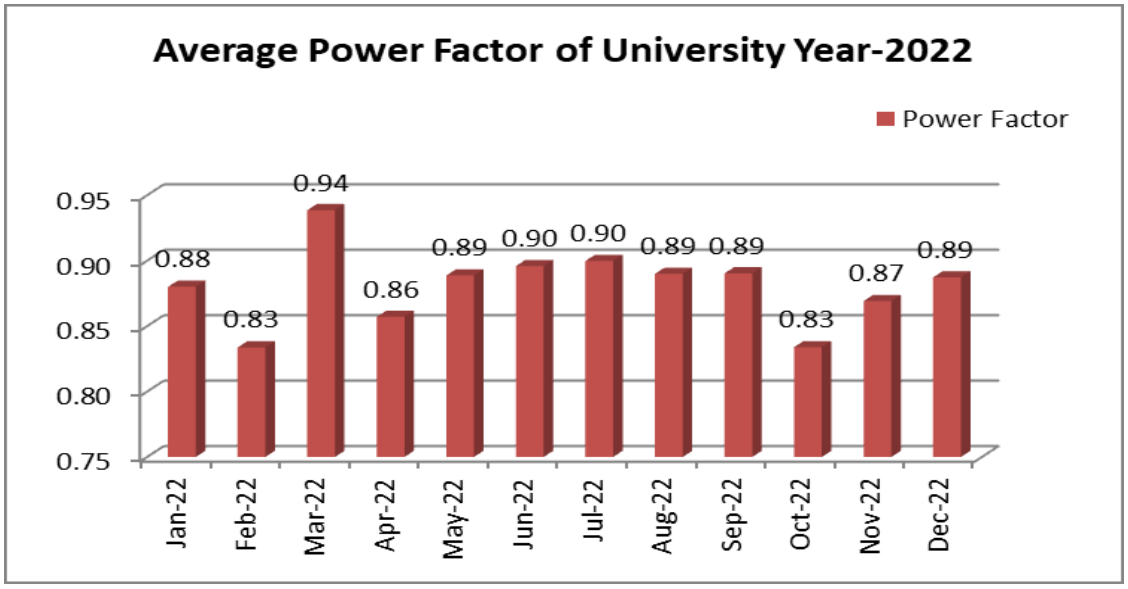


Figure: - Graphical presentation of average power factor of the university Year-2022

Observation:

- The average power factor was 0.88 for the year 2022. It is the recommended to maintain power factor unity.

Chapter-04
Connected Load System

4.1 HVAC system

University has installed Package chillier, Split AC, Window AC for cooling system in university. Details are given in below.

Sr. No	Types of Equipment's	Quantity	Capacity	Unit
1	Chillers/ Window /Split	56	346	TR
2	Split AC	47	70.5	TR
3	Exhaust Blower	2	20	kW

4.2 Electrical Motors in University.

University has installed various type of motor for different application. Details are given in the table.

Sr. No	Department	Capacity (HP)	Capacity (KW)	Quantity (Nos)	Total kW
1	Mechanical Department	1	0.746	15	11.19
2		10	7.46	1	7.46
3		5	3.73	1	3.73
4		1	0.746	9	6.714
5		0.5	0.373	1	0.373
6	Water Supply	5	3.73	1	3.73
7		3	2.238	3	6.714
8		2	1.492	2	2.984
9	Boys Hostel	3	2.238	4	8.952
10		2	1.492	3	4.476
11		1	0.746	3	2.238
12	Heat Pump	6	4.476	2	8.952
13	Fire Hydrant	5	3.73	1	3.73
14	Garden Water Pump	5	3.73	1	3.73
	Total KW in Motors			47	74.973

4.3 Lighting system of university: -

University has installed different types of lighting system. Details are given in the table

Sr. No	Location	Rated Power (Watt)	Quantity	Total Power (kW)
1	Tube light	40	416	16.64
2	LED Light	20	9	0.18
3	LED Light	18	40	0.72
4	LED Light	9	11	0.099
	Total Lighting load in kW			17.639

PART-02: - Adichunchanagiri Hospital & Research centre

Following building bills and data are considered in this part-02

- Adichunchanagiri Institute of medical Science
- Adichunchanagiri College Medical Science
- Adichunchanagiri College Nursing
- Adichunchanagiri College of Pharmacy

Chapter 2.2.1
Power Supply System

2.2.1 Transformers Adichunchanagiri Hospital & Research Centre

The power supply for the Adichunchanagiri Hospital & Research Centre is from grid, with the help of 11 KV feeders under Different Tariff Category. Sectioned load of the university is 1250 kVA. University has 04 Nos transformer for Adichunchanagiri Hospital & Research Centre 02 Transformer is 1000 KVA and two other is 500 KVA.

Figure: - 1000 KVA Transformer Photographs

2.2.2 DG Sets Transformers Adichunchanagiri Hospital & Research Centre

The university has 04 Nos DG sets to supply Emergency power during the grid Power Failure**.** The Capacity of the DG sets is given below.

Sr. No	Capacity of DG	Quantity
1	750	1
2	500	2
3	200	1

Observation

- DG set is used only in case of power failure.
- There is requirement of energy and fuel meters to monitor total unit generation with respect to fuel consumption

2.2.3: - UPS System

University has installed 750 KVA UPS system for Instrument, Lab and Other Equipment's during the power failure for emergency power supply. **Its appreciable**

Figure: - UPS System for Emergency Power failure

2.2.4 Capacitor Bank

University has installed three no's of capacitor bank to maintain Power factor to the feeder. Its Appreciable. Details are given in below.

- 350 kVAr = 02
- 250 kVAr =01

2.2.5 Solar system Adichunchanagiri Hospital & Research Centre

University has installed solar system for renewable energy in the campus.

Details of unit generation in given in table

Sr .no	Month & Year	Solar Energy Generated (KWH)
1	Jan-22	29,760
2	Feb-22	30,562
3	Mar-22	29,256
4	Apr-22	29,653
5	May-22	26,636
6	Jun-22	27,017
7	Jul-22	28,437
8	Aug-22	28,569
9	Sep-22	27,337
10	Oct-22	29,046
11	Nov-22	29,900
12	Dec-22	27,000
	Total	3,43,173

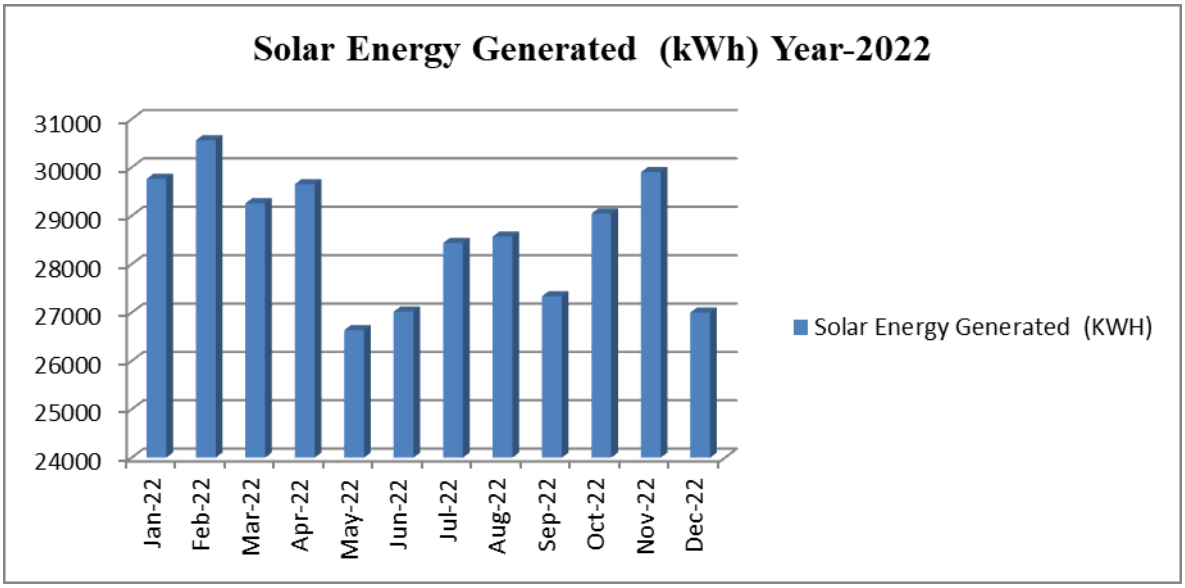


Figure: - Capacity Utilization factor of Solar system Year 2022

Observation: -

Total unit generation of Year-2022 is 3,43,173 units.

Chapter-03
Energy Bill analysis

3.3.1 Electricity Bill Analysis Adichunchanagiri Hospital & Research:-

Energy audit team was analysed Electricity bills of last one year. Details of unit consumption, annual average power factor and annual per unit charges are determined as follow:

Sr.no	Month & Year	Energy Consumption (kWh)
1	Jan-22	1,64,625
2	Feb-22	1,66,800
3	Mar-22	2,27,250
4	Apr-22	2,58,825
5	May-22	2,58,225
6	Jun-22	2,31,925
7	Jul-22	2,26,950
8	Aug-22	2,17,650
9	Sep-22	2,18,625
10	Oct-22	2,03,475
11	Nov-22	1,83,900
12	Dec-22	1,91,250
	Total	25,49,500

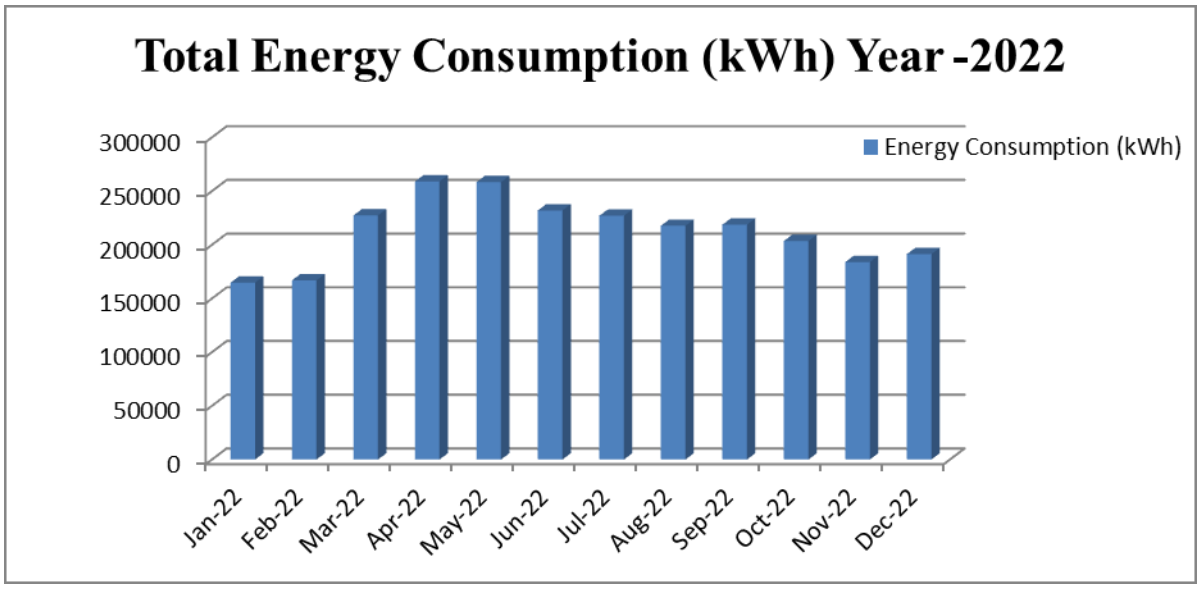


Figure :- Graphical Presentation of Overall per unit charges year-2021-22

Observation:

It was found that total energy consumption in the last 12 months was 25,49,500 units

Chapter-04
Connected Load System

4.2.1 HVAC system

University has installed following HVAC equipment's system for Hospital and research centre. Details are given in table.

Sr. No	Types of Equipment's	Quantity	Capacity	Unit
1	AHU	17	285.6	HP
2	FCUs Unit	47	800	HP
3	Packaged Acs	2	26.4	HP
4	Split Ac	50	120	HP
5	Exhaust Blower	55	275	HP
6	Fresh Air Blower	10	50	HP
7	Bore well	6	30	HP
	Total HVAC Load in HP		1597	

Chapter-05
Energy Conservation Measures

Case Study-01
Demand Reduction of the Adichunchanagiri Hospital & Research centre

Observation: - It is analysed from last 01 Year electricity bills. Contract Demand of the Adichunchanagiri Hospital & Research centre is 1250 KVA. University has paid Rs. 22,91,640 extra charge on demand.

Minimum Recorded demand in Jan-2022 = 375 KVA.
Maximum Recorded demand in May-2022 = 701 KVA
Average Recorded Demand (Oct-2021 to Sep-2022) = 519 KVA.

Sr.No.	Month & Year	Contract Demand (KVA)	Maximum Demand (KVA)	Unused Demand (KVA)	Extra Amount pay on demand (RSs)
1	Oct-21	1250	425	825	2,14,500/-
2	Nov-21	1250	425	825	2,14,500/-
3	Dec-21	1250	394	856	2,22,560/-
4	Jan-22	1250	375	875	2,27,500/-
5	Feb-22	1250	405	845	2,19,700/-
6	Mar-22	1250	554	696	1,80,960/-
7	Apr-22	1250	680	570	1,48,200/-
8	May-22	1250	701	549	1,42,740/-
9	Jun-22	1250	594	656	1,70,560/-
10	Jul-22	1250	564	686	1,78,360/-
11	Aug-22	1250	539	711	1,84,860/-
12	Sep-22	1250	530	720	1,87,200/-
		Total Extra Amount pay on Demand Charge			**22,91,640/-**

Recommendation: -
There is good potential to demand reduced 1250 KVA to 750 KVA.
Details calculation in below

1250 KVA- 750 KVA = 400 KVA.
Saving Calculation: -

400 KVA X 260 X 12 = Rs 12,48,000. **(Rs 260 per KVA Demand Charge)**

Total Investment: - NIL

Annex 1
ISO17020:2012

UKcert
Certification & Inspection

Certificate of Registration

This is to certify that the
Conformity Assessment Certification
of
GREEN AURA
at
#692 F, 12TH A CROSS BEL LAYOUT, BHARATHNAGAR, MAGADI ROAD, BENGALURU KARNATAKA, 560091, INDIA

has been independently assessed and is
compliant with the requirements of:

ISO/IEC 17020:2012

For the following scope of activities:

GREEN BUILDING SERVICES, CONSTRUCTION, INTERIOR DESIGN, GREEN AUDITING, SUSTAINABLE SERVICES

Certificate Number: UQ - 2023011404

Validity of this certificate can be verified at www.ukcertifications.org.uk/verify

Date of Certification	14th January 2023
1st Surveillance Audit Due	13th January 2024
2nd Surveillance Audit Due	13th January 2025
Certificate Expiry	13th January 2026

Authorised Signatory

This certificate is the property of UK Certification & Inspection Limited and shall be returned immediately on request.
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Website:- www.ukcertifications.org.uk, email:- info@ukcertifications.org.uk
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Annex 2
ISO9001:2015

QRO
QUALITY RESEARCH ORGANIZATION

Certificate of Registration

This is to certify that

GREEN AURA

#692 F, 12TH A CROSS BEL LAYOUT, BHARATHNAGAR, MAGADI ROAD, BENGALURU KARNATAKA, 560091, INDIA

has been independently assessed by QRO
and is compliant with the requirement of:

ISO 9001:2015

Quality Management System

For the following scope of activities:

GREEN BUILDING SERVICES, CONSTRUCTION, INTERIOR DESIGN, GREEN AUDITING, SUSTAINABLE SERVICES

Date of Certification: 14th January 2023
1st Surveillance Audit Due: 13th January 2024
2nd Surveillance Audit Due: 13th January 2025
Certificate Expiry: 13th January 2026

Certificate Number: 3050230114O2Q

QRO EGAC IAF

Head of Certification

Validity of this certificate is subject to annual surveillance audits to be done successfully on or before 365 days from date of the audit.
(In case surveillance audit is not allowed to be conducted: this certificate shall be suspended / withdrawn).
The Validity of this certificate can be verified at www.qrocert.org
This certificate of registration remains the property of QRO Certification LLP, and shall be returned immediately upon request.

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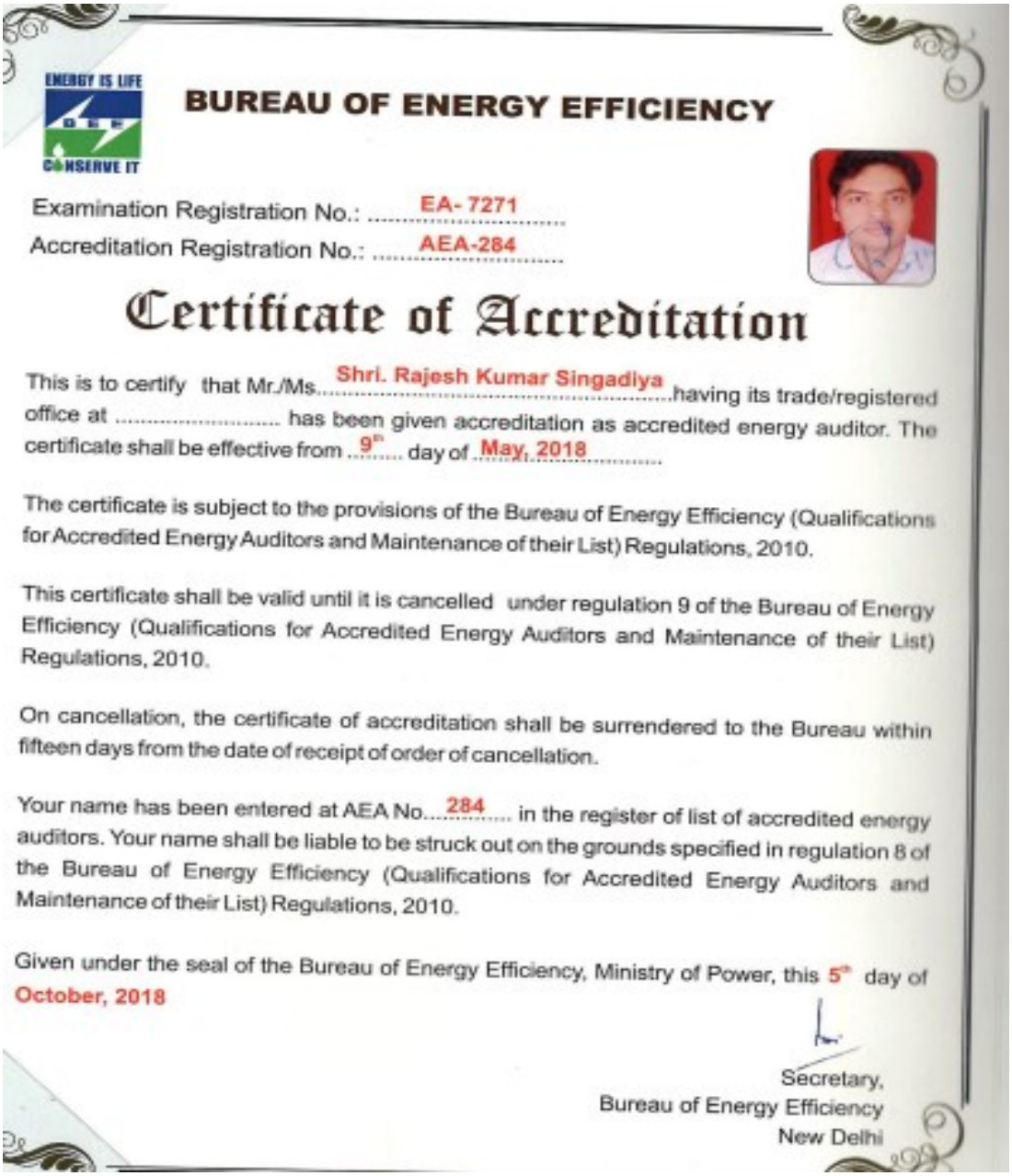
Website : www.qrocert.org, E-mail : info@qrocert.org

Annex 3
Green and Energy certification



ENERGY IS LIFE
CONSERVE IT

BUREAU OF ENERGY EFFICIENCY

Examination Registration No.: EA- 7271
Accreditation Registration No.: AEA-284

Certificate of Accreditation

This is to certify that Mr./Ms. Shri. Rajesh Kumar Singadiya having its trade/registered office at ..... has been given accreditation as accredited energy auditor. The certificate shall be effective from 9th day of May, 2018

The certificate is subject to the provisions of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

This certificate shall be valid until it is cancelled under regulation 9 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

On cancellation, the certificate of accreditation shall be surrendered to the Bureau within fifteen days from the date of receipt of order of cancellation.

Your name has been entered at AEA No. 284 in the register of list of accredited energy auditors. Your name shall be liable to be struck out on the grounds specified in regulation 8 of the Bureau of Energy Efficiency (Qualifications for Accredited Energy Auditors and Maintenance of their List) Regulations, 2010.

Given under the seal of the Bureau of Energy Efficiency, Ministry of Power, this 5th day of October, 2018

Secretary,
Bureau of Energy Efficiency
New Delhi

GREEN BUSINESS CERTIFICATION INC. CERTIFIES THAT

Nischay N

HAS ATTAINED THE DESIGNATION OF

LEED® Green Associate™

by demonstrating the knowledge and understanding of green building practices and principles needed to support the use of the LEED green building program.

Mahesh Ramanujam

MAHESH RAMANUJAN
PRESIDENT & CEO, U.S. GREEN BUILDING COUNCIL
PRESIDENT & CEO, GREEN BUSINESS CERTIFICATION INC.

CII
Confederation of Indian Industry
CII-Sohrabji Godrej Green Business Centre

Indian Green Building Council

The Indian Green Building Council

hereby certifies that

Nischay N

has successfully demonstrated knowledge on the Green Building Design & Construction, Building Standards & Codes, IGBC Resources & Processes and Green Design Strategies & their Impacts, required to be awarded the title of

IGBC Accredited Professional

S Raghupathy
Executive Director
CII-Godrej GBC

02-Apr-16

Dr Prem C Jain
Chairman
Indian Green Building Council


Green
Aura
Built Environment Sustainability & Transformation


Green
Aura
Built Environment Sustainability & Transformation