



**PowerTech Energy Solutions**  
Conserve to Consume

# **Energy & Green Audit Report Akole Taluka Education Society's Agasti Arts, Commerce And Dadasaheb Rupwate Science College**



**Submitted By**

**PowerTech Energy Solutions**

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## ENERGY & GREEN AUDIT COMPLETION CERTIFICATE

This is to certify that following facility has carried out Energy & Green Audit for the academic year of 2021-22 as per guidelines laid down in The Energy Conservation Act, 2001 in the month of July 2023

<b>Name of the Installation</b>	Akole Taluka Education Society's Agasti Arts, Commerce And Dadasaheb Rupwate Science College
<b>Details of Facilities Audited</b>	Main college building including laboratories, libraries, Classroom etc.
<b>Date of Energy and Green Audit</b>	04 July 2023
<b>Name of Certified Energy Auditor</b>	Mr. Swapnil Gaikwad
<b>Certification No.</b>	EA 20121
<b>Empanelment No (With Maharashtra Energy Development Agency, Govt. of Maharashtra)</b>	MEDA/ECN/2022-23/ Class- A/EA-31
<b>Validity of the Certificate</b>	03 July 2023


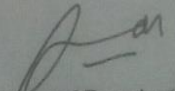
Authorised Signatory

Atul S Kakad

PowerTech Energy Solutions

## Our Certificates

### BEE Certified Energy Auditor Certificate

Regn. No. EA-20121		Certificate No. 8299
<b>National Productivity Council</b> (National Certifying Agency)		
<b><u>PROVISIONAL CERTIFICATE</u></b>		
<p>This is to certify that Mr. / Mrs./ Ms. <i>Swapnil Sanjay Gaikwad</i> son / daughter of Mr. <i>Sanjay J. Gaikwad</i> has passed the National Certification Examination for Energy Auditors held in August - 2014, conducted on behalf of the Bureau of Energy Efficiency, Ministry of Power, Government of India.</p> <p>He / She is qualified as Certified Energy Manager as well as Certified Energy Auditor.</p> <p>He / She shall be entitled to practice as Energy Auditor under the Energy Conservation Act 2001, subject to the fulfillment of qualifications for the Accredited Energy Auditor and issue of certificate of Accreditation by the Bureau of Energy Efficiency under the said Act.</p> <p>This certificate is valid till the issuance of an official certificate by the Bureau of Energy Efficiency.</p>		
Place : Chennai, India		 Controller of Examination
Date : 9 <sup>th</sup> January, 2015		

Lead Auditor Certificate – ISO 50001: Energy Management System



**PR366: ISO 50001:2018 Lead Auditor  
(Energy Management System)  
Training Course**

**Certificate of Achievement**

**Atul Kakad**

has successfully completed the above mentioned course and examination.

26th - 30th November 2019

PUNE, INDIA

Certificate No. 35258395 07

Delegate No. 222777

A handwritten signature in black ink, appearing to be "Atul Kakad".

for TÜV NORD CERT GmbH

Essen, 2020-01-08

The course is certified by CQI and IRCA (Certification No. 2088). The learner meets the training requirements for those seeking certification under the IRCA EnMS Auditor certification scheme.

TÜV NORD CERT GmbH

Langemarckstraße 20

45141 Essen

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**MEDA Registration Certificate**

**MAHARASHTRA ENERGY DEVELOPMENT AGENCY**



**Maharashtra Energy Development Agency**

(A Government of Maharashtra undertaking)

Aundh Road, Opposite Spicer College,

Near Commissionerate of Animal Husbandry, Aundh, Pune – 411 067

Ph No: 020-26614393/266144403

Email: [eee@mahaurja.com](mailto:eee@mahaurja.com), Web: [www.mahaurja.com](http://www.mahaurja.com)

ECN/2022-23/CR-44/3803

4<sup>th</sup> October, 2022

**CERTIFICATE OF REGISTRATION  
FOR CLASS 'A'**

We hereby certify that, the firm having following particulars is registered with **MAHARASHTRA ENERGY DEVELOPMENT AGENCY (MEDA)** under given category as "Energy Planner & Energy Auditor" in Maharashtra for Energy Conservation Programme of MEDA.

**Name and Address of the firm** : M/s PowerTech Energy Solutions  
Office No. 10, B-wing, 3rd floor,  
Phuge Prima, Bhosari Dighi Road Bhosari,  
Pimpri Chinchwad- 411,039.

**Registration Category** : *Empanelled Consultant for Energy Conservation Programme for Class 'A'*

**Registration Number** : *MEDA/ECN/2022-23/Class - A/EA-31*

- Energy Conservation Programme intends to identify areas where wasteful use of energy occurs and to evaluate the scope for Energy Conservation and take concrete steps to achieve the evaluated energy savings.
- MEDA reserves the right to visit at any time without giving prior information to verify quarterly activities performed by the firm and canceling the registration, if the information is found incorrect.
- This empanelment is valid till **3<sup>rd</sup> October, 2024** from the date of registration, to carry out energy audits under the Energy Conservation Programme
- The Director General, MEDA reserves the right to cancel the registration at any time without assigning any reasons thereof.

General Manager (EC)

## 1 Executive Summary – Energy Audit

ECM	Area	Observations	Proposed Action	Estimated Monthly Energy Saving	Estimated Monthly CO2 Emission Reduction	Estimated Monthly Monetary Savings	Estimated Investment	Payback Period
				kWh	Tones	Rs. Lakh	Rs. Lakh	Months
ECM-1	Lighting	Some of the lighting fixtures in the College building include CFLs and fluorescent tube lights, which are present in the principal cabin and lab	The conventional lighting fixtures, such as CFLs and fluorescent tube lights, should be replaced with energy-efficient LED lighting system.	143	0.11	0.017	0.17	21
ECM-2	Ceiling Fans	At present, conventional ceiling fans of 75W are used in college campus	New energy efficient fans are available in the market which deliver same air volume at less power consumption  It is recommended to replace existing 70W ceiling fans with new energy efficient 40W BLDC fan	1329	1.04	0.16	6.63	41
<b>Total</b>				<b>1472</b>	<b>1.15</b>	<b>0.17</b>	<b>6.8</b>	<b>38</b>
<b>Monthly Energy Consumption of the Akole Taluka Education Society(kWh)</b>				<b>7000</b>				
<b>% Saving on Energy Usage</b>				<b>21%</b>				
<b>Monthly Energy Bill of the Akole Taluka Education Society (Rs. In Lakhs)</b>				<b>5.2</b>				
<b>% Savings on Energy Bill</b>				<b>3.2%</b>				

## 2 Executive Summary – Green Audit

Sr.No	Area	Observations	Remark
1	Tree Plantation and Awareness about Energy Conservation	College has carried out tree plantation activity. Several types of trees have been planted by students and staffs	Good initiative taken by college toward green campus
2	Use of renewable energy – Solar PV system for power generation & Solar water heating system	Solar PV system of 9 kW has been installed by college to generate the electricity from solar energy. It helps to reduce 90 tons of CO <sub>2</sub> emission annually	Good initiative taken by college towards use of renewable energy

## 3 Scope of Improvement

### 3.1 E-Waste Management

At present, there is no provision in campus to collect and dispose the of e-waste generated It is suggested that college shall dispose all e-waste to authorized E-waste collectors designated by Govt. authorities

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## **4 Acknowledgement**

PowerTech Energy Solutions extends gratitude Akole Taluka Education Society's Agasti Arts, Commerce, And Dadasaheb Rupwate Science College for extending us the opportunity to conduct the Energy & Green Audit.

We are thankful to the professors & supporting staff of the college for their transparency & consistent support in sharing relevant information and for providing data about policies and projects along with their other valuable information. This report would have not been possible without their support.

The study team would like to acknowledge the following distinguished Akole Taluka Education Society's Agasti Arts, Commerce, And Dadasaheb Rupwate Science College in person for the diligent involvement and cooperation.

Dr. Bhaskar Shelke

Principal

Dr. Sanjay Takte

Vice Principal

Dr. Mahejabin Sayyad

IQAC Co-ordinator

## **5 About College.**

Akole Taluka Education Society, the mother-institution of the college, is established in 1972. During 1971-1972, Maharashtra was undergoing a very dreadful famine and millions of workers were working on the employment guarantee scheme for their daily bread all over the state. Akole Taluka was no exception to this but the urge for education was so intense and strong that each worker paid one rupee each for this noble cause and with this holy, sweat-scented money, that this college was started in 1974.

The college has been started with 94 students and 6 lecturers, the college has now 4500 students and 175 staff members.

To conclude, we would like to make a humble note of our richest cultural heritage and that is Lord Agasti. All of us are aware that Lord Agasti is the first Arya who crossed the Vindhya Mountain ranges and settled at this very place. Today we also have a famous temple of Lord Agasti on the bank of river Pravara. Agasti was the pioneer grammarian of the Tamil language and a social revolutionary who married Lopamudra and it was the first inter-caste marriage.

## 6 Energy Audit

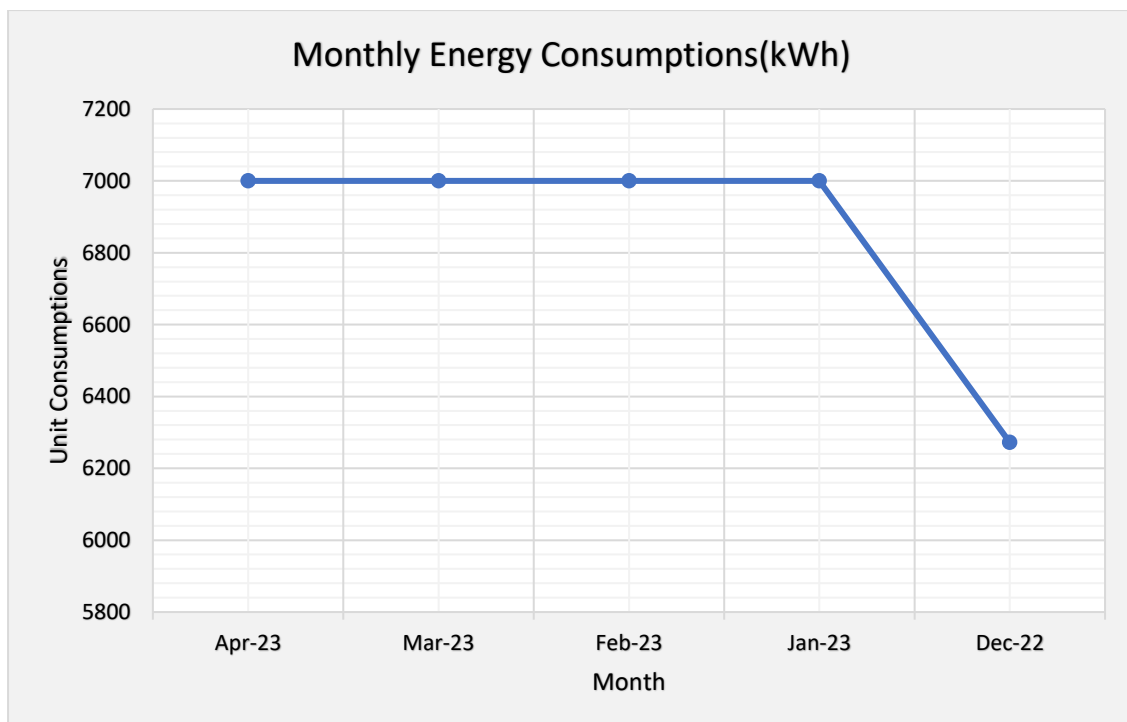
An energy audit is an inspection, survey and analysis of energy flows, for energy conservation in a building, process or system to reduce the amount of energy input into the system without negatively affecting the output(s). In commercial and industrial real estate, an energy audit is the first step in identifying opportunities to reduce energy expense and carbon footprints.

### 6.1 Electricity Bill Analysis

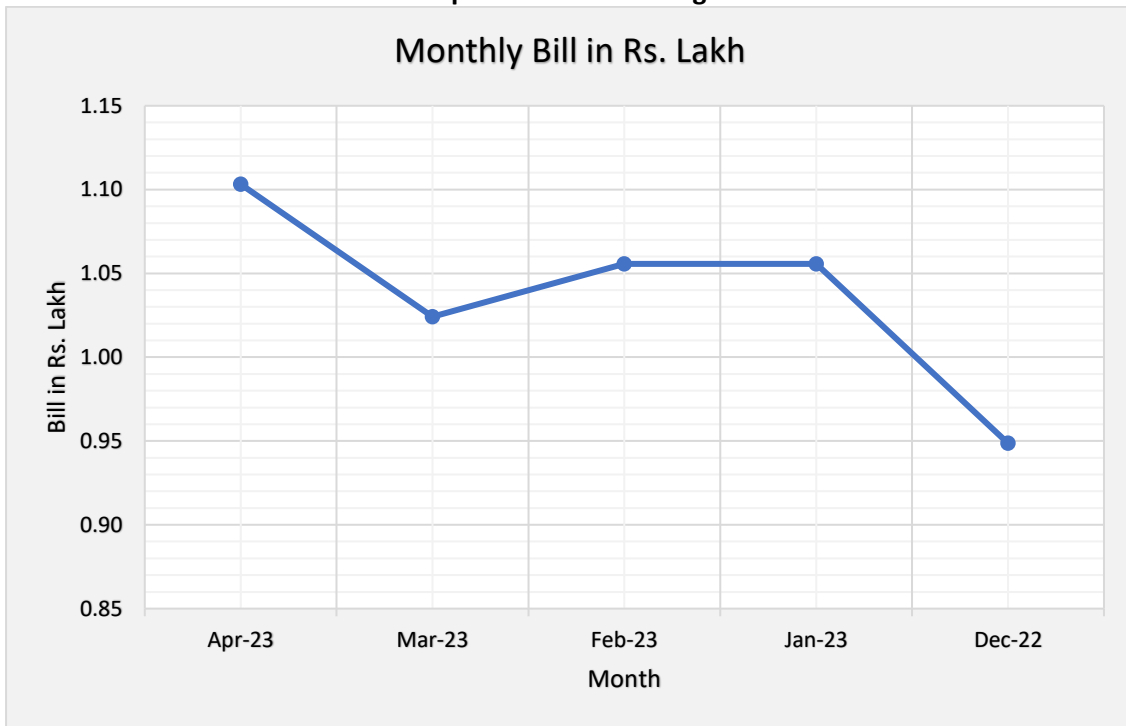
At present, one electricity meter is there for all campus. Bill analysis for the last 5 months below (Consumer number – **142680002877**)

<b>Consumer Name</b>	<b>THE DIRECTOR, AKOLE TALUKA EDUCATION SOCIET TEC</b>
<b>Consumer Number</b>	<b>142680002877</b>
<b>Sanctioned Load</b>	<b>100 kW</b>
<b>Contract Demand (KVA)</b>	<b>75 kVA</b>
<b>Connected Load</b>	<b>100 kW</b>
<b>Tariff</b>	<b>89 LT-VII B I</b>
<b>Category</b>	<b>Commercial</b>

Below graphs shows the monthly energy consumption, Bill amount etc.



Energy & Green Audit Report – Akole Taluka Education Society's Agasti Arts, Commerce, And Dadasaheb Rupwate Science College



Month	Billed Demand	Unit Consumption (Commercial)	Demand Charges	Wheeling Charges @0.57/U	Energy Charges	Electricity Duty@21%	Tax On Sale@18 Ps/U	Total Current Bill	Total Current Bill	Avg. Unit Rate
	kVA	kWh	Rs	Rs	Rs	Rs	Rs	Rs	Rs.Lakh	Rs/kVAh
Apr-23	30	7000	12660	8190	68180	19179	1260	110319	1.10	13.98
Mar-23	30	7000	11520	9450	52430	17556	1260	102416	1.02	11.31
Feb-23	30	7000	11520	9450	52430	18102	1260	105562	1.06	11.75
Jan-23	30	7000	11520	9450	52430	18102	1260	105562	1.06	11.75
Dec-22	30	6272	11520	8467	46977	16200	1200	94864	0.95	11.60
Min	30	6272	11520	8190	46977	16200	1200	94864	0.95	11.31
Avg	30	6854	11748	9001	54489	17828	1248	103745	1.04	12.08
Max	30	7000	12660	9450	68180	19179	1260	110319	1.10	13.98
<b>Total</b>		34272	58740	45007	272447	89139	6240	518723	5.19	

**Energy & Green Audit Report – – Akole Taluka Education Society's Agasti Arts, Commerce, And Dadasaheb  
Rupwate Science College**

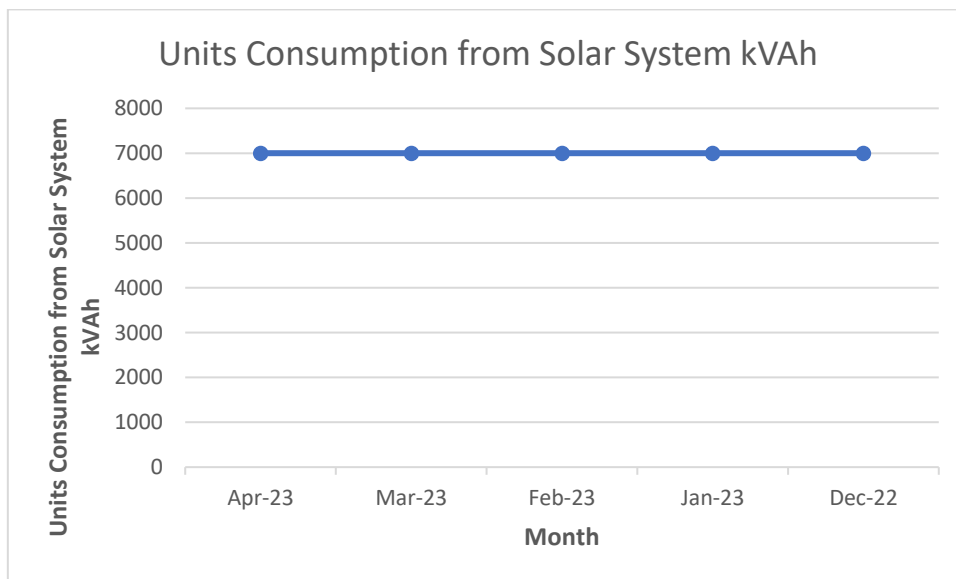
**6.2 Observations & Remark**

<b>Sr.No.</b>	<b>Parameter</b>	<b>Observation</b>	<b>Remark</b>
1	Contract Demand	Contract demand of the collage is 75 kVA	No action required
2	Sanctioned Load	Sanction load of the collage is 100 kW	No action required
3	Connected Load	Connected load of plant is 100 kW	No action required
4	Billed demand	Avg. billed demand recorded is 30 kVA	No action required
5	Unit consumption	Minimum unit consumption recorded is 6272 kWh in month of dec-22	No action required
		Avg. unit consumption recorded is 6854 Kwh	No action required
		Maximum unit consumption recorded is 7000 Kwh in month of march-23	No action required
6	Total bill	Avg. monthly electricity bill is 1 Rs Lakh	No action required

### 6.3 Generation from solar power plant.

Month	Total Solar Generation	TOD Solar Export	Units Consumption from Solar System	Solar % Use
	kVAh	kVAh	kVAh	%
Apr-23	0	0	7000	100%
Mar-23	0	0	7000	100%
Feb-23	0	0	7000	100%
Jan-23	0	0	7000	100%
Dec-22	0	0	7000	100%
Min	0	0	7000	100%
Avg	0	0	7000	100%
Max	0	0	7000	100%
<b>Total</b>	0	0	35000	

Below graphs shows the monthly energy consumption from solar power plant.



## 6.4 Connected Load

### Lighting Load

Lighting load of the college is given in below table

Area	Type of Light	Watt	Total Qty	Daily Running Hrs	Monthly Working Days	Total Load (kW)	Monthly Energy Consumption (kWh)
Principal Cabin	FTL	40	1	3	25	0.04	3
Principal Cabin	LED	24	1	3	25	0.02	2
Staff Room	LED	24	5	8	24	0.12	23
Lab	LED	20	46	6	24	0.92	132
Lab	FTL	40	49	6	24	1.96	282
Class Room 1	LED	24	73	8	24	1.75	336
Class Room 2	LED	24	73	8	24	1.75	336
Computer Lab	LED	24	12	4	24	0.29	28
Office	LED	24	10	8	24	0.24	46
Office	LED	12	2	8	24	0.02	5
Department	LED	24	8	3	24	0.19	14
<b>Total</b>						<b>7.31</b>	<b>1207</b>

### Ceiling Fan Load

Ceiling fan load of the college is given in below table

Area	Type of Fan	Watt	Total Qty	Daily Running Hrs	Monthly Working Days	Total Load (kW)	Monthly Energy Consumption (kWh)
Principal Cabin	Conventional	75	2	3	25	0.15	11
Staff Room	Conventional	75	4	8	24	0.30	58
Lab	Conventional	75	53	6	24	3.98	572
Class Room 1 + 2	Conventional	75	138	8	24	10.35	1987
Computer Lab	Conventional	75	10	4	24	0.75	72
Office	Conventional	75	8	8	24	0.60	115
Department	Conventional	75	6	3	24	0.45	32
<b>Total</b>						<b>16.58</b>	<b>2848</b>



### 6.5 Energy Saving Measure 1 –LED Light

It has been observed that conventional lights are used at different areas in college. It is recommended to replace existing conventional lighting fixtures, such as fluorescent tube lights should be replaced with 20W LED lighting system. Below table shows the estimated energy and monetary saving along with payback period.

Area	Type of Light	Watt	Total Qty	Daily Running Hrs	Monthly Working Days	Total Load (kW)	Monthly Energy Consumption (kWh)	Monthly Energy Saving (kWh)	Monthly Monetary Saving (Rs)	Investment (Rs)	Payback Period (Months)
Principal Cabin	FTL	20	1	3	25	0.02	2	2	18.12	375	21
Lab	FTL	20	49	6	24	0.98	141	141	1704.73	35280	21
<b>Total</b>						<b>1.00</b>	<b>143</b>	<b>143</b>	<b>1723</b>	<b>35655</b>	21

## 6.6 Energy Saving Measure 2 – Energy-Efficient Ceiling Fans

It has been observed that conventional ceilings fans are used at different areas in college. It is recommended to replace existing 75W ceiling fans with 40W energy efficient fans. Below table shows the estimated energy and monetary saving along with payback period.

Area	New Fan Type	Watt	Total Qty	Daily Running Hrs.	Monthly Working Days	Total Load (kW)	Monthly Energy Consumption (kWh)
Principal Cabin	BLDC	40	2	3	25	0.08	6
Staff Room	BLDC	40	4	8	24	0.16	31
Lab	BLDC	40	53	6	24	2.12	305
Class Room 1 + 2	BLDC	40	138	8	24	5.52	1060
Computer Lab	BLDC	40	10	4	24	0.40	38
Office	BLDC	40	8	8	24	0.32	61
Department	BLDC	40	6	3	24	0.24	17
<b>Total</b>						<b>8.84</b>	<b>1519</b>

Below table shows the cost saving benefit analysis

Area	Monthly Energy Saving (kWh)	Monthly Monetary Saving (Rs)	Investment (Rs)	Payback Period (Months)
Principal Cabin	5	63	6000	95
Staff Room	27	325	12000	37
Lab	267	3227	159000	49
Class Room 1 + 2	927	11203	414000	37
Computer Lab	34	406	30000	74
Office	54	649	24000	37
Department	15	183	18000	99
<b>Total</b>	<b>1329</b>	<b>16055</b>	<b>663000</b>	<b>41</b>

## 6.7 Observation & Remark

Sr. No.	Area	Observation	Remark
1	Principal cabin and lab	<p>There are total 50 nos. of conventional lighting fixtures are installed</p> <p>Total lighting load is 1 kW</p> <p>Monthly energy consumption of lighting is 2848 units</p>	<p>The conventional lighting fixtures, such as CFLs and fluorescent tube lights, should be replaced with energy-efficient LED lighting system.</p> <p>Estimated monthly energy saving potential is 143 units</p> <p>Estimated monthly monetary saving potential is Rs.1723</p> <p>Estimated investment is Rs. 35655/-</p> <p>Payback period is 21 months</p>
2	All college area	<p>At present, conventional ceiling fans of 75W is installed in college</p> <p>There are total 221 no. of ceilings fans installed</p> <p>Total ceiling fan load is 16.58 kW</p>	<p>New energy efficient fans are available in the market which deliver same air volume at less power consumption</p> <p>It is recommended to replace existing 75 ceiling fans with new energy efficient 40W BLDC fan</p> <p>Estimated new load of fan is 8.84 kW</p> <p>Estimated monthly energy saving is 1329 units</p> <p>Estimated monthly carbon emission reduction is 1.04 Tones</p> <p>Estimated monthly monetary saving is Rs.0.17 Lakh</p> <p>Estimated investment is Rs.6.63 Lakh</p> <p>Payback period is 41 months</p>

## 7 Requirements of NAAC

### 7.1 Alternative Energy Initiative

Percentage of power requirement met by renewable energy sources

= (Power requirement met by renewable energy sources / Total power requirement) X 100

= (35000/35000) X 100

**= 100%**

Reference data is shown below

Month	Total Solar Generation	TOD Solar Export	Units Consumption from Solar System	Solar % Use
	kVAh	kVAh	kVAh	
Apr-23	0	0	7000	100%
Mar-23	0	0	7000	100%
Feb-23	0	0	7000	100%
Jan-23	0	0	7000	100%
Dec-22	0	0	7000	100%
Min	0	0	7000	100%
Avg	0	0	7000	100%
Max	0	0	7000	100%
<b>Total</b>	0	0	35000	

### 7.2 Percentage of lighting power requirement met through LED bulbs

= (Lighting power requirement met through LED bulbs / Total lighting power requirement) X 100

= (80/280) X 100

**= 28.5 %**

## 8 Green Audit

Green audit was initiated with the beginning of 1970s with the motive of inspecting the work conducted within the organizations whose exercises can cause risk to the health of inhabitants and the environment. It exposes the authenticity of the proclamations made by multinational companies, armies and national governments with the concern of health issues as the consequences of environmental pollution. It is the duty of organizations to carry out the Green Audits of their ongoing processes for various reasons such as; to make sure whether they are performing in accordance with relevant rules and regulations, to improve the procedures and ability of materials, to analyze the potential duties and to determine a way which can lower the cost and add to the revenue. Through Green Audit, one gets a direction as how to improve the condition of environment and there are various factors that have determined the growth of carrying out Green Audit. Some of the incidents like Bhopal Gas Tragedy (Bhopal; 1984), Chernobyl Catastrophe (Ukraine; 1986) and Exxon-Valdez Oil Spill (Alaska; 1989) have cautioned the industries that setting corporate strategies for environmental security elements have no meaning until they are implemented.

Green Audit is assigned to the Criteria 7 of NAAC, National Assessment and Accreditation Council which is a self-governing organization of India that declares the institutions as Grade a, Grade B or Grade C according to the scores assigned at the time of accreditation.

The intention of organizing Green Audit is to upgrade the environment condition in and around the institutes, colleges, companies and other organizations. It is carried out with the aid of performing tasks like waste management, energy saving and others to turn into a better environmentally friendly institute.

### 8.1 Goals of Green Audit

- The objective of carrying out Green Audit is securing the environment and cut down the threats posed to human health.
- To make sure that rules and regulations are taken care of
- To avoid the interruptions in environment that are more difficult to handle and their correction requires high cost.
- To suggest the best protocols for adding to sustainable development

## 8.2 Benefits of Green Audit

- It would help to shield the environment
- Recognize the cost saving methods through waste minimizing and managing
- Point out the prevailing and forthcoming complications
- Authenticate conformity with the implemented laws
- Empower the organizations to frame a better environmental performance
- It portrays a good image of a company which helps building better relationships with the group of stakeholders
- Enhance the alertness for environmental guidelines and duties

## 9 Initiatives by College towards Sustainable Environment

### 9.1 Tree Plantation

"Tree Plantation at Home" program was organized by NCC Sub Unit ACS College Akole on the occasion of the Birth Anniversary of Hon. Shri Madhukarrao Pichad Saheb, Chief Trustee, ATES Akole, Ex-MLA, Ministry for Tribal Development, Government of Maharashtra, and World Environment Day on 07.06.2021.

In accordance with the 'COVID-19 Regulations, 2020' ("Regulations"), states have exercised their powers under the Act to enforce students to stay at home during these times to break the chain of disease. This event witnessed the enthusiastic participation of a maximum number of NCC cadets who planted various types of trees at their respective homes.

The program was organized under the guidance of Hon. Lt. Gen. Gurbirpal Singh, D.G. N.C.C., Maj. Gen. YP Khanduri, ADG, Maharashtra Directorate, Brig. M V Vitekar, Group Commander, Aurangabad Group, Col. Pankaj Sawhney, Commanding Officer, and Lt. Col. Narain Dass, A.O. 57 MAH BN NCC Ahmednagar.

Below are some reference images of tree plantation activity



Energy & Green Audit Report – Akole Taluka Education Society's Agasti Arts, Commerce, And Dadasaheb Rupwate Science College





# अगस्ती महाविद्यालयात स्वातंत्र्य दिन, वृक्षारोपण उपक्रमासह साजरा

अकोले  
गांवकरी प्रतिनिधी

अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान (अकोले) महाविद्यालयात ध्वजारोहण - राष्ट्रगीताने स्वातंत्र्य दिन, शासकीय नियमांचे पालन करून संपन्न झाला. याप्रसंगी

महाविद्यालय परिसरात एन्. सी. सी. च्या उपक्रमांतर्गत एन सी सी युनिटच्या वतीने २६/११ च्या हल्ल्यातील शहिदांना अभिवादन करण्यात आले. अकोले तालुका एज्युकेशन सोसायटीच्या वतीने संस्थेचे अध्यक्ष जे. डी. आंबरे पाटील तसेच महाविद्यालयात प्राचार्य डॉ. भास्कर शेळके यांच्या

हस्ते ध्वजारोहण करण्यात आले. याप्रसंगी महाविद्यालय परिसरात एन्. सी. सी. च्या उपक्रमांतर्गत अध्यक्ष मा. जे. डी. आंबरे पाटील तसेच प्राचार्य डॉ. भास्कर शेळके यांच्या हस्ते, उपप्राचार्य डॉ. संजय ताकटे, उपप्राचार्य प्रा. बी. एच्. पळसकर, शिक्षणाधिकारी एस् पी मालुंजकर, एम्. बी.

ए. डायरेक्टर डॉ. प्रशांत तांबे प्रा. बाळासाहेब मेहेत्रे, डॉ. साहेबराव गायकवाड, इथज, श्री सोपानराव साळवे स्टाफ सेक्रेटरी, डॉ. एस. बी. खेमनर, एन. एस. एस. समन्वयक, मेजर बी. आर. शिंदे एन्. सी. सी. प्रमुख लेफ्टनंट प्रा. सचिन पलांडे, श्री बाळासाहेब गोर्डे, अध्यक्ष, विद्यार्थी मंडळ, कनिष्ठ म



हाविद्यालय श्री राजू सय्यद वरिष्ठ छात्र सेना छात्रसैनिकांच्या लिपिक, सर्व शिक्षक व शिक्षकेतर उपस्थितीत वृक्षारोपण कर्मचारी आणि सर्व राष्ट्रीय करण्यात आले.

## अगस्ती व रुपवते महाविद्यालयात क्रांतिदिनी स्मारकास अभिवादन



### ▶ अकोले । वीरभूमी –

आज ९ ऑगस्ट या क्रांतीदिनी अगस्ती कला, वाणिज्य व दादासाहेब रुपवते विज्ञान महाविद्यालयातील २६-११ या स्मारकास अभिवादन करण्यात आले. संस्थेचे अध्यक्ष जे. डी. आंबरे पाटील, प्राचार्य डॉ. भास्कर शेळके यांनी या स्मारकास पुष्पचक्र अर्पण करून हुतात्म्यांना अभिवादन करण्यात आले. महाविद्यालयातील एन. सी. सी. युनिटने सलामी देत हुतात्म्यांना आदरांजली वाहिली. यानंतर महाविद्यालय परिसरात वृक्षारोपणही करण्यात आले. यावेळी मेजर सचिन पाळंदे, प्रा. बाळासाहेब मेहेत्रे, प्रा. डॉ. साहेबराव गायकवाड, प्रा. सुरेखा गुंजाळ, मेजर प्रा. बी. आर. शिंदे उपस्थित होते.

## 9.2 Use of renewable energy – Solar PV System

The college has taken an eco-friendly initiative by installing a 10-kW solar PV (photovoltaic) plant on its premises. This plant harnesses solar energy from the sun and converts it into usable electricity that can be utilized by the college.

The solar panels of the plant are mounted on the rooftop of the building in a manner that maximizes their exposure to sunlight. The panels are connected to an inverter that converts the direct current (DC) electricity produced by the panels into alternating current (AC) electricity, which can be used to power the college's electrical appliances and equipment.

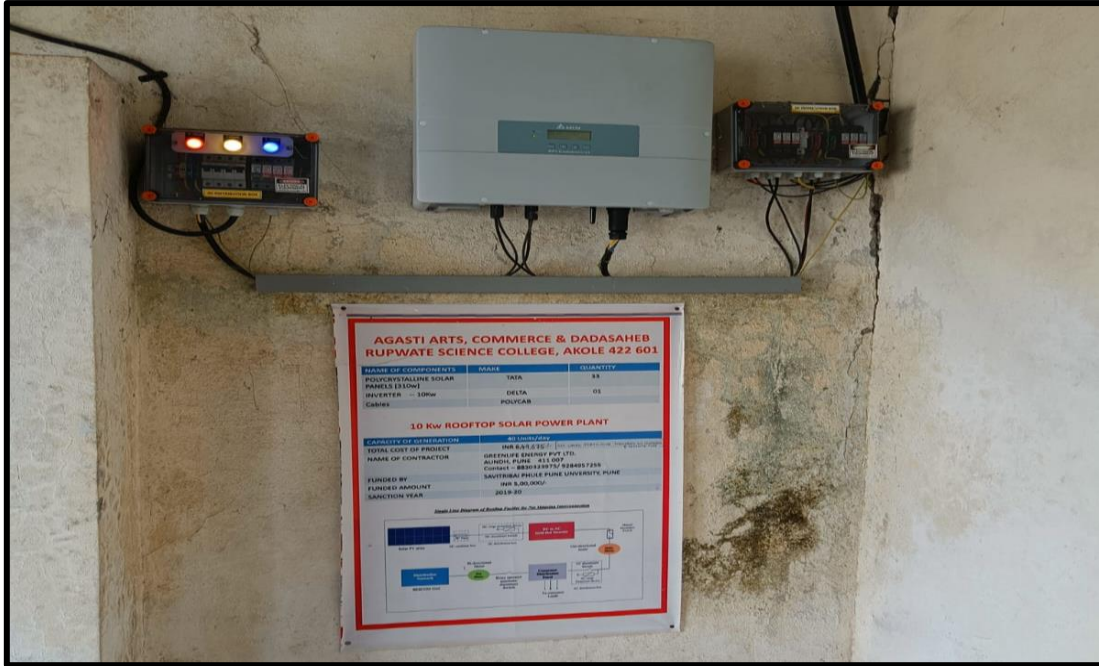
The 9-kW solar PV plant generates a significant amount of electricity that helps to reduce the college's reliance on traditional sources of electricity, such as coal and natural gas. This, in turn, helps to reduce carbon emissions and promote sustainability.

Overall, the installation of the 10-kW solar PV plant is a positive step towards creating a more sustainable and eco-friendly future.

Following are some actual images of installed solar PV plant.



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Rooftop solar

### 9.3 Rain Water Harvesting

The major water source for the College is tap water supplied by a bore well located on the campus. Additionally, water collected in rainwater harvesting pits is utilized for gardening purposes.

The water is stored in an underground storage tank with a capacity of 40,000 liters. It is then transferred to a total of 17 overhead tanks using a 5HP pump. From there, the water is distributed to various areas such as washrooms, basins, kitchens, laboratories, and water purifiers/coolers installed in the College building. The water purifiers are based on Reverse Osmosis Technology (RO) and are equipped with coolers. The water purified by the RO system is sent to a dedicated drinking water unit located near the main office and exam office. The College has appointed third-party contractors for the maintenance of the RO system and water purifiers.

The Rainwater Harvesting (RWH) system at the College consists of both rooftop and surface runoff collection mechanisms.

In certain washrooms, water conservation faucets such as non-concussive taps and aerator taps have been installed. The College follows a practice of dry and wet mopping for floor cleaning, contributing to water conservation efforts. Any instances of tap water leakage are promptly attended to by the maintenance department. To promote water conservation, a sprinkler system has been installed in all gardens on the campus.



## 9.4 Other Initiatives by College

### **1. Recycling Bin Installation:**

The college actively promotes the use of recycling bins, which have been installed in various areas across the campus.

### **2. Centre Switch Installation:**

To ensure efficient energy consumption, the college has installed a centralized switch system. This one-button switch facilitates the complete shutdown of the power system in each department, eliminating any unintentional energy usage.

### **3. Digitalization Efforts:**

Recognizing the digital advancements of the modern world, our college has embraced electronic alternatives to reduce paper consumption. Computer classes, a digitally-equipped library, and a dedicated digital studio have been established. All library entries are now made electronically, online lectures are conducted, and videos are recorded. Additionally, the exam department, admissions process, and other administrative tasks are carried out digitally. This transition has significantly minimized the use of paper, with students being provided with soft copies of notes.

### **4. Water Refilling Stations:**

In light of the environmental impact caused by plastic bottle waste, the college has installed water taps throughout the campus. Students are strongly encouraged to bring their own reusable water bottles, reducing plastic waste and promoting environmental consciousness.

### **5. Student-focused Campaigns:**

The college has initiated special campaigns designed to engage and inspire students to take concrete actions in protecting the environment. These campaigns include:

- Tree Plantation Campaigns organized by NCC and NSS units.
- Implementation of strict regulations to park vehicles outside the college campus, promoting an environmentally friendly approach.
- Organization of guest lectures on environmental issues and pollution.
- Active participation of students in cleaning both the streets and the college campus.
- Arrangement of poster presentation competitions centered around green initiatives.

By implementing these green campus initiatives, the college aims to foster an environmentally conscious community that actively contributes to the preservation of our ecology.

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