



## ENERGY AUDIT REPORT

### PROVIDENCE WOMEN'S COLLEGE

#### KOZHIKKODE

  
**OTTOTRACTIONS**  
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Executed by

  
**OTTOTRACTIONS**  
Energy-Engineering-Environment

2021



Accredited Energy Auditor: AEA-33  
Empanelled Accredited Energy Auditor: EmAEA-33  
Bureau of Energy Efficiency,  
Government of India.



Empanelled Energy Auditor: EMCEEA-0211F,  
EMC (Energy Management Centre-Kerala)



**ENERGY AUDIT REPORT**  
**PROVIDENCE WOMEN'S COLLEGE**  
**CALICUT**





Energy Audit Report  
Providence Women's College  
Report No: EA 805  
2021-September



Empaneled Accredited Energy Auditor, AEA 33  
Bureau of Energy Efficiency  
Government of India



Empaneled Energy Auditor, EMCEEA-0211F,  
Energy Management Centre  
Government of Kerala.



Authorized Energy Auditor, GEDA/ENC/EAC: Autho/2014/8/103/2316,  
Gujarat Energy Development Agency  
Government of Gujarat



Empaneled Energy Auditor, India SME Technology Services Ltd  
A joint Venture of SIDBI, SBI, Indian Bank, Oriental Bank of Commerce  
& Indian Overseas Bank

## About OTTOTRACTIONS

OTTOTRACTIONS established in 2005, is an organization with proven track record and knowledge in the field of energy, engineering, and environmental services. They are the first Accredited Energy Auditor from Kerala for conducting Mandatory Energy Audits in Designated Consumers as per Energy Conservation Act-2001. Government of Kerala recognized and appreciated OTTOTRACTIONS by presenting its prestigious "The Kerala State Energy Conservation Award" for the best performance as an Energy Auditor.

## Acknowledgment

We were privileged to work together with the administration and staff of Providence Women's College for their timely help extended to complete the audit and bringing out this report.

With gratitude, we acknowledge the diligent effort and commitments of all those who have helped to bring out this report.

We also take this opportunity to thank the bona-fide efforts of audit team for unstinted support in carrying out this audit.

We thank our consultants, engineers and backup staff for their dedication to bring this report.

Thank you.

B V Suresh Babu  
Accredited Energy Auditor  
AEA 33, Bureau of Energy Efficiency  
For OTTOTRACTIONS



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ISO 9001 : 2015 Certified (22DQJE85)  
ISO 14001:2015 Certified (22DEJE84)



# OTTOTRACTIONS

Energy-Engineering-Environment

## Energy Audit Certificate

This is to certify that The data collection has been carried out diligently and truthfully;

All data monitoring devices are in good working condition and have been calibrated or certified by approved agencies authorised and no tampering of such devices has occurred;

All reasonable professional skill, care and diligence had been taken in preparing the audit report and the contents thereof are a true representation of the facts;

Adequate training provided to personnel involved in daily operations after implementation of recommendations; and

The Energy Audit for the period 2018-21 has been carried out in accordance with the Bureau of Energy Efficiency (Manner and Intervals of Time for the Conduct of Energy Audit) Regulations, 2010.

This Certificate is issued to Providence Women's College, Kozhikkode on their request.

Dated this 12<sup>th</sup> day of September 2021.

ACCREDITED ENERGY AUDITOR  
AEA-33, BUREAU OF ENERGY EFFICIENCY  
GOVERNMENT OF INDIA



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Executive Summary					
Consolidated Cost Benefit Analysis of Energy Efficiency Improvement Projects					
PROVIDENCE WOMEN'S COLLEGE					
Sl No	Projects	Investment	Cost saving	SPB	Energy saved
		(Lakhs Rs)	(Rs)/Yr	Months	kWh/Yr
1	Energy Saving in Lighting by replacing existing 186 No's T8 Lamps to 20W LED Tube	0.56	0.24	28.13	2976
2	Energy Saving in Lighting by replacing existing 115 No's T12 (55W) Lamps to 18 W LED Tube	0.35	0.34	12.21	4238
3	Energy Saving in Lighting by replacing existing 8 No's CFL(15W) Lamps to 9W LED BULB	0.01	0.005	30.36	67
4	Energy Saving by replacing existing 381 No's in-efficient ceiling fans with Energy Efficient Five star fans	8.29	0.93	107.32	11582
	<b>Total</b>	<b>9.20</b>	<b>1.51</b>	<b>44.50</b>	<b>18863.35</b>
(The saving are projected as per the assumed operation time observed based in the discussions with the plant officials. The data of saving percentages are taken from BEE guide books and field measurements.)					
<b>Consolidated Cost Benefit Analysis of Renewable Energy Projects</b>					
5	Installation of 40 kWp Solar Power Plant	30.00	4.09	88.06	51100



# 1

## Introduction

A detailed energy audit has been carried out at Providence Women's college, Kozhikkode by OTTOTRACTIONS in September 2021. During the energy audit energy saving opportunities has been identified to help improving energy efficiency of the facility. OTTOTRACTIONS is an Accredited Energy Auditor of Bureau of Energy Efficiency and Empaneled Energy Auditor of Energy Management Centre, Government of Kerala. The energy audit has identified energy conservation opportunities and recommended projects to improve energy efficiency of the facility.

This energy audit report complies with the clauses in *Energy Conservation Act, 2001* on mandatory energy audit (**Form 4** [refer regulation 6(2)] guidelines for preparation of energy audit report) and complies with the G.O (Rt) No.2/2011/PD dated 01.01.2011 issued by Government of Kerala on mandatory energy audit.

### 1.1. General Building details and descriptions

Providence Women's College, Calicut, Kerala, founded by the sisters of Apostolic Carmel came into being on 1st July, 1952. It was the sacred mission of Mother Veronica the foundress of the congregation to train young women who had embraced religious life and send them far and wide on vocations of service to the community. Providence Women's College was the result of the efforts of such a committed group, headed by Mother Gabrielle, who became the Founder Principal. This was a dream come true for the young women in the Malabar region who had to otherwise go as far as Mangalore or Madras in search of a women's college. Thus, this college opened a new chapter in the annals of Malabar, as its first women's college. The college is registered under the Apostolic Carmel Education Society, S No.4 of 1957, Calicut. The Managing



Governing Body includes the Provincial Superior, Educational Secretary, the Principal, the Local Manager, a representative of the management and a religious staff nominated by the Provincial Superior.

<b>Occupancy Details</b>			
<b>Particulars</b>	<b>2018-19</b>	<b>2019-20</b>	<b>2020-21</b>
Total Students	1793	1778	1848
Staffs	84	83	85
Total Occupancy of the college	1877	1861	1933

For calculating specific energy consumption, the total built-up area is taken into account.

### **Energy audit team**

The Energy Audit team is listed below. Besides this list various domine experts also participated in this project.

1. Suresh Babu B V, Accredited Energy Auditor, AEA 33
2. B. Zachariah, Chief Technical Consultant
3. Abin Baby, Project Engineer
4. Devan J, Project Engineer

# 2

## Process description

The energy audit has been carried out at Providence Women's college. The following is the baseline data of this building.

Form-A							
BASELINE DATA SHEET FOR GREEN AUDIT							
1	Name of the Organisation	PROVIDENCE WOMEN'S COLLEGE					
2	Address (include telephone, fax & e-mail )	Providence College Rd, Malaparamba, Kozhikode, Kerala 673009,providencecollegecalicut@gmail.com					
2	Year of Establishment	1952					
3	Name of building and total No. of Electrical Connections/building	HT (1)					
4	Total Number of Students	Boys	-	Girls	-	Total 1848	
5	Total Number of Staff	85					
6	Total Occupancy	1933					
7	Total area of green cover (Acre)	37					
8	Type of Electrical Connection(nos)	HT	1	LT	0		
9	Contract Demand (KVA) /Connection	70					
10	Average Maximum Demand (KVA)	57.75					
11	Total built up area of the building (m <sup>2</sup> )	21506					
12	Number of Buildings	7					
13	Average system Power Factor	0.94					
14	Details of capacitors connected	NA					
15	Transformer Details (Nos., kVA, Voltage ratio)	TR 1	TR 2	TR 3	TR 4	TR 5	TR 6
		NA	NA	NA	NA	NA	NA
15	DG Set Details (kVA)	DG1	DG2	DG3	DG4	DG5	Remarks
		10	NA	NA	NA	NA	-
16	Details of motors	Rating		Nos.		Remarks	
		5 to 10		NA		NA	
		10 to 50		NA		NA	
		Above 50		NA		NA	



# 3 Energy and utility system description

## 3.1.1 Electricity

Electricity is purchased from KSEB under HT II (A) GENERAL tariff, the details are given below. One 37kWp solar power plant installed in the building.

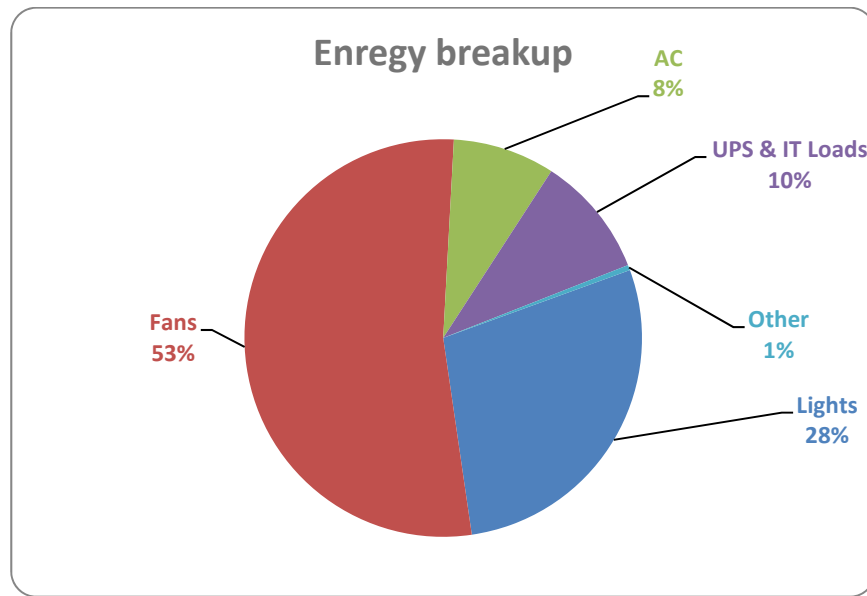
Electricity Connection Details		
PROVIDENCE WOMEN'S COLLEGE		
1	Name of the Consumer	PROVIDENCE WOMEN'S COLLEGE Providence College Rd, Malaparamba, Kozhikode, Kerala 673009,providencecollegecalicut@gmail.com
2	Tariff	HT II(A) GENERAL
3	Consumer Number	1365980025581
5	Connected Load Total	50kVA
6	Annual Electricity Consumption (kWh)	122273

## 3.2. Thermal Energy / Transportation

There is no buses operated from college for transportation. LPG is used for cooking in the canteen and diesel is used to operate Diesel Generators and buses.

# 4

## Energy Balance



53 % of the total energy consumed in this facility is used to operate Fans. Lighting uses 28%. AC and IT Equipment uses 18%.



# 5

## Performance evaluation of major utilities and process equipment's /systems.

### 5.1. List of equipment and process where performance testing was done.

5.1.1. Electrical System

5.1.2. Lighting & Fans

### 5.2. Results of performance testing

#### 5.2.1. Electrical System

The average unit cost of electricity is **8.20 Rs/kWh**. This is taken as the basis for the financial analysis of electrical energy efficiency projects. The information on average energy consumption is taken from the historical electricity bill analysis. The electricity is fed from a centralized substation.

## Electricity Consumption

Electricity Bill Details (2021-22)												
Month	Name of the Consumer				PROVIDENCE WOMEN'S COLLEGE							
	Contract Demand(kVA)		50		Consumer number & Section			1365980025581				
	Tariff		HT II(A) GENERAL					Karaparamba				
	kWh				kVA			PF	PF Incentive	PF Penalty	Rs (Total)	Rs/kwh
Z1	Z2	Z3	Total	Z1	Z2	Z3						
Apr	3408	1610	2712	7730	31.93	26.67	28.48	0.9	1099.98		63803.04	8.25
May	369	1008	1906	3283	22.06	25.93	15.73	0.91	370.78		35325.19	10.76
Jun	0	473	1430	1903	27.44	14.28	15.37	0.89	349.27		25461.33	13.38
Jul	411	764	1327	2502	21.73	16.78	15.39	0.89	500.24		30378	12.14
Aug	1710	878	1567	4155	31.2	16.61	15.66	0.92	352.99		40437.13	9.73
Sep												
Oct												

Electricity Bill Details (2020-21)												
Month	Name of the Consumer				PROVIDENCE WOMEN'S COLLEGE							
	Contract Demand(kVA)		50		Consumer number & Section			1365980025581				
	Tariff		HT II(A) GENERAL					Karaparamba				
	kWh				kVA			PF	PF Incentive	PF Penalty	Rs (Total)	Rs/kwh
Z1	Z2	Z3	Total	Z1	Z2	Z3						
Apr	2398	1513	2535	6446	39.84	26.52	20.57	0.94		183.93	56047.18	8.7
May	0	0	813	813	16.63	19.17	8.38	0.90		85.36	18003.05	22.1
Jun	0	0	1521	1521	15.39	22.39	14.94	0.91		127.76	21428.91	14.1
Jul	835	715	1140	2690	21.19	10.57	10.37	0.89		541.45	31685.7	11.8
Aug	766	769	1272	2807	20.05	17.01	11.1	0.88		724.12	32753.06	11.7
Sep	152	588	955	1695	19.15	16.4	6.59	0.83		931.13	25815.05	15.2
Oct	1735	1227	1934	4896	22.9	20.18	16.61	0.92		422.18	45936.46	9.4
Nov	2195	1415	2344	5954	22.95	21.95	22.27	0.91		680.46	52361.35	8.8
Dec	2038	1047	1725	4810	25.68	21.27	18.41	0.89		960.84	45217.14	9.4
Jan	1483	839	1208	3530	22.42	17.83	14.41	0.85		1531.95	38171.71	10.8
Feb	2744	1144	1622	5510	29.74	24.81	14.42	0.87		1748.36	50836.35	9.2
Mar	2874	1339	2038	6251	29.76	25.75	19.2	0.89		1256.56	55096.93	8.8

Electricity Bill Details (2019-20)												
Month	Name of the Consumer				PROVIDENCE WOMEN'S COLLEGE							
	Contract Demand(kVA)		50		Consumer number & Section			1365980025581				
	Tariff		HT II(A) GENERAL					Karaparamba				
	kWh				kVA			PF	PF Incentive	PF Penalty	Rs (Total)	Rs/kwh
	Z1	Z2	Z3	Total	Z1	Z2	Z3					
Apr	7335	1594	2998	11927	40.62	20.24	24.28	0.95	-1616.56		88128.15	7.39
May	3596	913	1613	6122	31.23	18.87	16.32	0.91	-166.73		55217.31	9.02
Jun	2861	550	1049	4460	23.1	13.89	7.98	0.87	724.59		45799.23	10.27
Jul	5952	1274	2041	9267	43.03	28.83	15.47	0.95	-1268.16		73508.4	7.93
Aug	7605	1852	3031	12488	42	30	21	0.95	-669.71		96066.16	7.69
Sep	6624	1690	2742	11056	44.2	25.01	19.78	0.96	-314.03		88393.85	8.00
Oct	6222	1520	2418	10160	49.76	26.63	24.52	0.97	-577.67		82829.81	8.15
Nov	8242	1944	3148	13334	48.52	29.61	23.44	0.96	-378.53		102611.9	7.70
Dec	9349	2085	3532	14966	57.75	23.7	24.11	0.97	-847.03		114160.2	7.63
Jan	6705	1557	2639	10901	47.93	24.59	23.18	0.96	-308.55		87455.64	8.02
Feb	5904	1959	3283	11146	47	31	22	0.91	1266.13		88572.04	7.95
Mar	2398	1513	2535	6446	39.84	26.52	20.57	0.94	183.93		56047.18	8.69

### Observations

- PF shall be improved to unity, so that the maximum demand may be controlled.
- Due to low power factor penalty is there.



## Diesel

The campus has one Diesel Generator set in operation. The details of DG is given below.

Diesel Consumption Details		
Year	in L	Rs
16-17	58.5	3800
17-18	357.1	25000
18-19	145.4	12356
19-20	59.9	5394
20-21	0	0

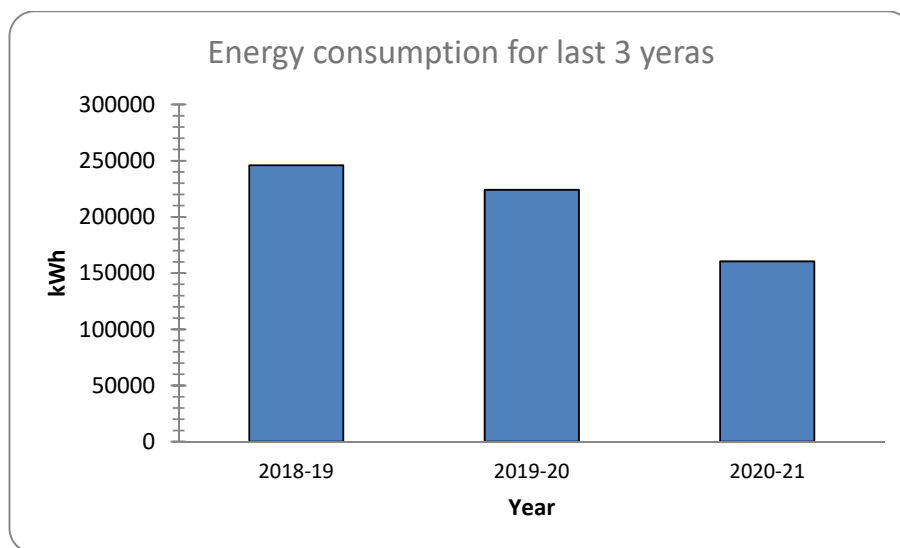
## LPG

LPG Consumption in college		
Year	Cost	Consumption (kg)
18-19	9365	177.935
19-20	4224	80.256
20-21	4650	73.625

LPG Consumption in Hostel	
Year	Consumption (kg)
18-19	1368
19-20	1414
20-21	456

Base Line Energy Data				
PROVIDENCE WOMEN'S COLLEGE				
		2018-19	2019-20	2020-21
1	Electricity KSEB (kWh)	102126	103932	39885
2	Electricity Solar - Off grid (kWh)	47268	47268	47268
3	Electricity (KSEB + Off grid) kWh	149393	151200	87152
4	Electricity Grid Tied (kWh)	0.00	0.00	0.00
5	Diesel (L)	145.36	59.93	0.00
6	LPG (kg)	1546	1494	530
7	Biogas(Kg)	20700	14490	18630

Energy Consumption Profile				
Sl No	Fuel	2018-19	2019-20	2020-21
		(kCal)		
1	Electricity	128478238	130031613	74950763
2	Diesel	1526329	629300	0
3	LPG	18551220	17926272	6355500
4	Biogas	63000000	44100000.00	56700000.00
Total (kCal)		211555787	192687185	138006263
Total (kWh)		245995.1	224054.87	160472.399





# 6

## Energy efficiency in utility and process system

The specific energy consumption is normally taken as the ratio of total energy consumed to the total area of building.

OTTOTRACTIONS- ENERGY AUDIT				
PROVIDENCE WOMEN'S COLLEGE				
Energy Performance Index (EPI)				
Sl No	Particulars	2018-19	2019-20	2020-21
1	Total building area (m <sup>2</sup> )	21506	21506	21506
2	Annual Energy Consumption (kCal)	211555787	211587185	144306263
3	Annual Energy Consumption (kWh)	245995.1	246031.6	167797.98
4	Total Energy in Toe	21.16	21.16	14.43
5	Specific Energy Consumption kWh/m <sup>2</sup>	11.44	11.44	7.80

The Energy Performance Index (EPI) is

**7.80 kWh/m<sup>2</sup>**

This may be due to the lesser occupancy during pandemic shut downs, so the benchmark year may be taken as 2019-20. All the proposals for energy savings are prepared based on the data during 2019-20.

# 7

## Evaluation of energy management system

### Energy management policy

There is no written energy policy available, but environment policy is available which includes energy conservation also. A draft energy management policy is given below. The management may constitute an energy management policy and display the same in the plant to motivate the staff.

#### PROVIDENCE WOMEN'S COLLEGE

##### ENERGY POLICY

*(Draft)*

*We are committed to optimally utilize various forms of energy in a cost effective manner to effect conservation of energy resources. We are committed to conserve the energy which is a scarce resource with the requisite consistency in the efficiency, effectiveness in the cost involved in the operations and ensuring that production quality and quantity, environment, safety, health of people are maintained. We are also committed to increase the renewable energy share of the total energy we use.*

***We are also committed to monitor continuously the saving achieved and reduce its specific energy consumption by minimum of 2% every year.***

Date -----

Head of the Institution

### 7.1. Energy management monitoring system

- **Energy Management Cell** has to be constituted with an objective to revise action plan for energy conservation thereby reducing the production cost.
- Energy conservation tips/ posters are displayed in crucial points.
- Use of renewable energy has to be encouraged.

### 7.2. Training to staff responsible for operational and Documentation.

- The staff and students need to be made more aware of the importance of energy saving and management.
- Log books shall be maintained to record Electricity Consumption and Diesel consumption.
- Meter reading shall be taken and compared with KSEB regularly.
- Better operating practices regarding appliances and fixtures should be taught to the staff.

### 7.3. Best Practices

- Have solid waste management program
- Conducted Green Audit.
- Installed solar power plant
- Installed 50m<sup>3</sup> latrine connected biogas plant.
- Have different social and environmental clubs
- Installed LED bulbs
- Conducted Energy Conservation Training Programs



# 8

## Energy Conservation Measures and Recommendations

OTTOTRACTIONS- ENERGY AUDIT						
PROVIDENCE WOMEN'S COLLEGE						
Greenhouse Gas Mitigation through Major Energy Efficiency Projects						
SI No	Projects	Energy saved (Yearly)		Sustainability (Years)	First year ton of CO <sub>2</sub> emitted	of CO <sub>2</sub> mitigated through out
		(kWh)	MWh			
1	Energy Saving in Lighting by replacing existing 186 No's T8 Lamps to 20W LED Tube	2976	2.98	10	2.17	21.72
2	Energy Saving in Lighting by replacing existing 115 No's T12 (55W) Lamps to 18 W LED Tube	4238	4.24	10	3.09	30.94
3	Energy Saving in Lighting by replacing existing 8 No's CFL(15W) Lamps to 9W LED BULB	67	0.07	10	0.05	0.49
4	Energy Saving by replacing existing 381 No's in-efficient ceiling fans with Energy Efficient Five star fans	11582	11.58	10	8.46	84.55
Total		18863	19	10	13.77	138

Energy Saving Proposal Code EA 804.01	
<b>Energy Saving in Lighting by replacing existing 186 No's T8 Lamps to 20W LED Tube</b>	
<b>Existing Scenario</b>	
186 numbers of T8 lamps were identified during the energy audit field survey in the facility. During discussion with staffs it is observed that the average utility of these fittings are of 30%.	
<b>Proposed System</b>	
The existing T8 may be replaced to LED tube of 20 W in phased manner and the savings will be of 50 % (inclusive of improved light output and reduced energy consumption)	
<b>Financial Analysis</b>	
Annual working hours (hr)	2000
No of fittings	186
Total load (kW)	7.44
Annual Energy Consumption (kWh)	5952
Expected Annual Energy saving for replacing all fittings (kWh)	2976
Cost of Power	8.00
Annual saving in Lakhs Rs (1st year)	0.24
Investment required for complete replacements [Rs 300 per fittings](Lakhs Rs)	0.56
Simple Pay Back (in Months)	28.13

OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal Code EA 804.02	
Energy Saving in Lighting by replacing existing 115 No's T12 (55W) Lamps to 18 W LED Tube	
Existing Scenario	
115 numbers of T12(55 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%.	
Proposed System	
The existing T12 may be replaced to LED Tube of 18 W in phased manner and the savings will be of 67% (inclusive of improved light output and reduced energy consumption)	
Financial Analysis	
Annual working hours (hr)	2000
No of fittings	115
Total load (kW)	6.33
Annual Energy Consumption (kWh)	6325
Expected Annual Energy saving for replacing all fittings (kWh)	4238
Cost of Power	8.00
Annual saving in Lakhs Rs (1st year)	0.34
Investment required for complete replacements [Rs 300 per fittings](Lakhs Rs)	0.35
Simple Pay Back (in Months)	12.21



OTTOTRACTIONS- ENERGY AUDIT	
Energy Saving Proposal Code EA 804.03	
<b>Energy Saving in Lighting by replacing existing 8 No's CFL(15W) Lamps to 9W LED BULB</b>	
<b>Existing Scenario</b>	
8 numbers of CFL(15 W) lamps were identified during the energy audit field survey in the facility. During discussion with officers it is observed that the average utility of these fittings are of 30%.	
<b>Proposed System</b>	
The existing CFL may be replaced to LED bulb of 9W in phased manner and the savings will be of 40% (inclusive of improved light output and reduced energy consumption)	
<b>Financial Analysis</b>	
Annual working hours (hr)	2000
No of fittings	8
Total load (kW)	0.12
Annual Energy Consumption (kWh)	168
Expected Annual Energy saving for replacing all fittings (kWh)	67
Cost of Power	8.00
Annual saving in Lakhs Rs (1st year)	0.01
Investment required for complete replacements [Rs 170 per fittings](Lakhs Rs)	0.01
Simple Pay Back (in Months)	30.36

Energy Saving Proposal Code EA 804.5	
<b>Energy Saving by replacing existing 381 No's in-efficient ceiling fans with Energy Efficient Five star fans</b>	
<b>Existing Scenario</b>	
There are 381 numbers of ceiling fans installed in the facility with minimum 8 hrs a day operation. All are conventional type and most of them are very old.	
<b>Proposed System</b>	
There is an energy saving opportunity in replace the existing fans with new five star labelled fans. The five star labelled fans give a savings up to 38% with higher service value (air delivery/watt).	
<b>Financial Analysis</b>	
Annual working hours (hrs)	2000
Total numbers of ordinary fans	381
Total load (kW)	30.48
Annual Energy Consumption (kWh)	30480
Expected Annual Energy saving, for total replacement(kWh)	11582
Cost of Power (Rs)	8.00
Annual saving in Lakhs Rs (1st year)	0.93
Investment required for a total replacement (Lakhs Rs)[@2175 Rs per Fan with 50W at full speed]	8.29
Simple Pay Back (in Months)	107.32

### Energy Saving Proposal Code 804.06

Installation of 40 kWp Solar Power Plant	
<b>Existing Scenario</b>	
<p>There is a good potential of solar power electricity generation. The availability of sunlight is very high. There are some canopies available in the proposed site, but by having proper trimming of trees this may be avoided. If the SPVs are placed in the roof top it will help in improving RTTV (Roof Thermal Transmittance Value) of the building.</p>	
<b>Proposed System</b>	
<p>It is proposed to have a Solar Power Plant of 40kW at the beginning stage. The state and central government is pushing and giving good assistance to the installation. It can be installed as an internal grid connected system which is much cheaper than off grid system. Now days the technology provides trouble free grid interactive and connected system. The installation will provide 25yrs trouble free generation with only 20% efficiency loss at the 25th year.</p>	
<b>Financial Analysis</b>	
Proposed Solar installed Capacity (kW)	40
Total average kWh per day expected (3.5kWh/day average)	140.00
Total annual Generating Capacity (kWh)	51100
Cost of energy generated annually Lakhs Rs	4.09
Investment required (INR lakh)(Approx)	30.00
Simple Pay Back (in Months)	88.06
Life cycle in Yrs	25
Total Saving in Life Cycle (Approx) RS lakh	102.20

# Technical Supplements

PROVIDENCE WOMEN'S COLLEGE												
LOCATION	LIGHT					FAN		IT		AC		
	T8	T12	CFL	LED TUBE	LED BULB	CF	EF	PC	Projector	1.5	2tr	3tr
Hall	4					5			1			
Classroom 1-5	5					10						
Computer room	1					2		5				
Staffroom	1					2						
Principal room	1					2						
Auditorium	10					32						
Science Block												
Physics section	6	3			1	8						
Chemistry section Staffroom		1				3						
Chemistry lab		5		2		9	4					
Classroom 1-2				2		2						
Class 1		1				1						
Class 2	1					1						



Hostel *137	137					137						
canteen						3						
Library Block		39				48						
Office Block	5	4		2		6		1				
Conference room		8		1		3						
Audio visual room	3		8	4		4						
Network admin	1					1						
Principal room	3	1		2		3						
Classroom 1-8	8					16						
Computer lab						10		101		1		1
Class 1-5		10				10						
Assembly block		43				21		4				
PG Block *3					12	42				3	5	
<b>Total</b>	<b>186</b>	<b>115</b>	<b>8</b>	<b>13</b>	<b>13</b>	<b>381</b>	<b>4</b>	<b>111</b>	<b>4</b>	<b>6</b>	<b>0</b>	<b>1</b>