



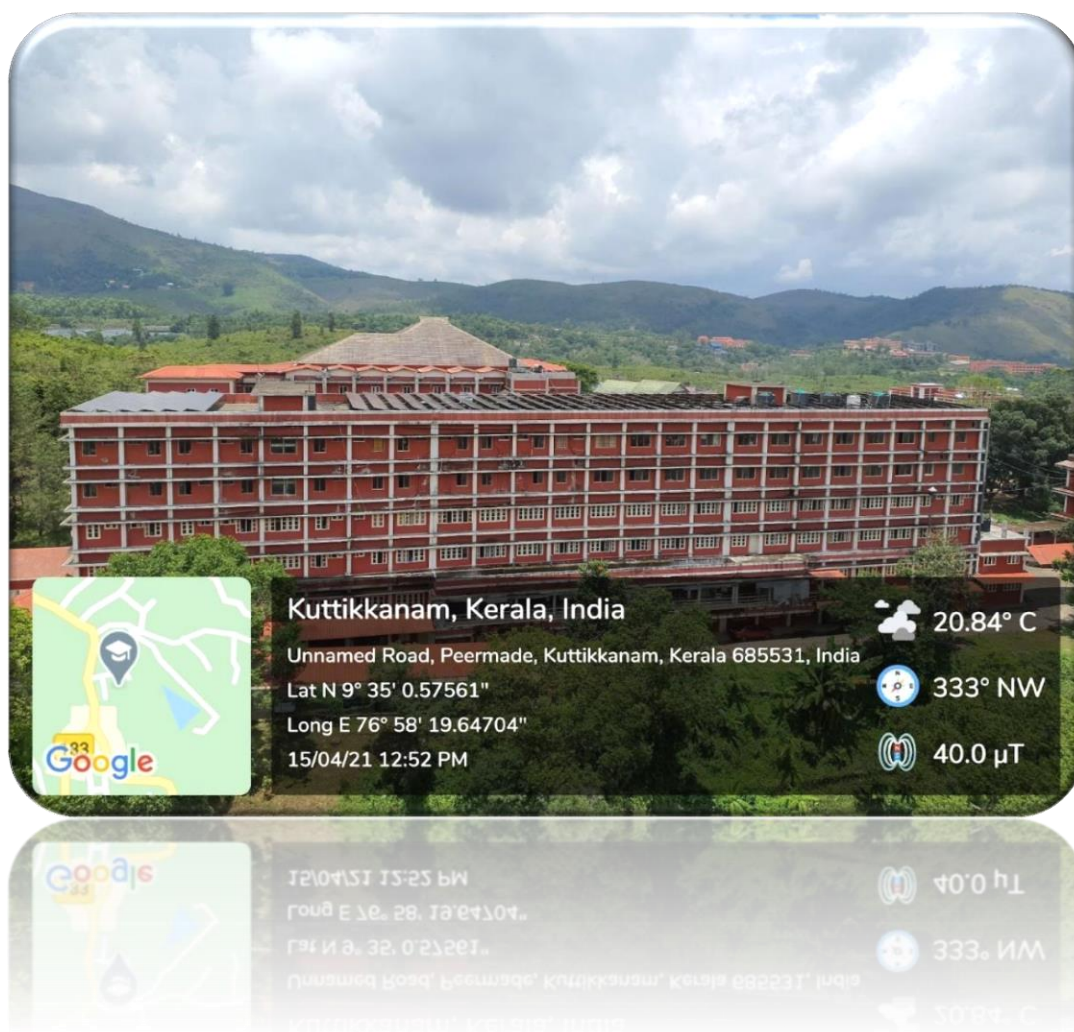
MARIAN COLLEGE KUTTIKKANAM
(AUTONOMOUS)

Solar Energy

Submitted to
THE NATIONAL ASSESSMENT AND ACCREDITATION COUNCIL (NAAC)
FOURTH CYCLE OF ASSESSMENT

7.1.2.1 Solar Energy

Solar energy panels were set up in the Marian Campus during 2018-19. The total power requirement of the College per day is computed as 199 KW, of which the Solar Photovoltaic (SPV) System provides nearly 80 KW energy. This amounts to approximately 40% of the total energy requirement. The campus is utilising the potential of solar power as a renewable energy option. The Grid Tie Solar Photovoltaic (SPV) System of 150 KW on roof tops of the institute have been effectively executed under different phases. During the year 2019, the solar energy system of the campus was connected to the distribution system of Kerala State Electricity Board and obtained substantial reduction in electricity consumption.



Solar Panels atop hostels





Solar Panels on roof tops



Solar panels installed on top of Paul Iby Hostel



These solar systems were set up on the recommendations of the Energy Audit in 2018. The electricity produced inside the campus was connected to the distribution system of KSEB during 2019. This installation provides a reasonable quantum 4 KW energy per day. Based on the recommendation of the Audit, the College had set up the first phase of Rooftop Solar System (30 KW) , connecting the outputs to the distribution system of KSEB. The total power requirement of the College per day is computed as 199 KW of which the SPV system provides nearly 80 KW energy which amounts to approximately 40% of the total energy requirement. This energy is predominantly utilised for the working of water filters and purification, heaters and lighting requirements, , especially LED bulbs. The commissioning of the extended solar power system is anticipated to contribute towards increased energy needs of the campus. Substantial reduction in energy consumption and associated monetary benefits. Positive environmental results such as reduced carbon footprint are expected in the long term installation of SPV.

The **KSEB** Electricity bill for the month of **January 2019** was Rs. **2, 26,564** and it was reduced to Rs. **79,692** after the installation of solar power project in the campus.

The proofs are attached below:



KERALA STATE ELECTRICITY BOARD LIMITED
Office of the Special Officer (Revenue), Pattom, Thiruvananthapuram
DEMAND NOTICE for JANUARY 2019
(As per CHAPTER VII OF KERALA ELECTRICITY SUPPLY CODE -2014)

1356120031901 Bill Date 05-Jan-2019 Due Date 14-Jan-2019 Bill No 25726170201743 Ver 0
HT II (R) GENERAL Last Date 29-Jan-2019 CD(cash) 442040750

MARIAN COLLEGE
MARIAN COLLEGE 2/475-H,
Kuttikkanam, Kuttikkanam,
Idukki, 685531
email id-mariancollege@mariancollege.org
Mobile no-9447368419

LCN :25/7020

Arrears as on 30-Nov-2018
☐ Undisputed ☐ Disputed

Date of Previous Reading 30-Nov-2018
Date of Present Reading 31-Dec-2018

Supply Voltage 11 kV HT
Billing Type D+S
Section Peermade
Circle Thodupuzha

Controlled Demand (KVA) 75% of CD (KVA) 130% of CD (KVA) Connected Load (KVA)
60.0 60.0 124.0 269.73

Average
MD (KVA) Consumption (kWh) PF
94.66 28153 0.88

Reading Details of meter 25-7020-M-Working (KVA, KWh, KVAh & KVAh) for 12-2018

1. Energy Consumption (KWh)					3. Energy Consumption (KVAh)				
Zone	FR	IR	MF	Units	Zone	FR	IR	MF	Units
1	750750		735648	1.00	15102	1	866	866	1.00
2	298743		293434	1.00	5309	2	1184	1174	1.00
3	293499		288133	1.00	5366	3	1188	1188	1.00
				25777					0

2. Energy Consumption (KVAh)					4. Demand (KVA)				
Zone	FR	IR	MF	Units	Zone	FR	IR	MF	Units
1	805091		759524	1.00	16467	2		94 285	1.00
2	313762		308120	1.00	5642	3		78 526	1.00
3	327919		321375	1.00	6544			62 679	1.00
				25553					94 29
									78 53
									62 68
									0.0
									0.0
									0.0

Avg PF = KWh/KVAh 0.88

INVOICE

Unit	Rate (Rs)	Amount (Rs)	Amount
1. Total Demand Charge			
a. Demand Charge - Normal	94.0	400.000	37600.00
b. Demand Charge - Peak	3.0	400.000	0.00
c. Demand Charge - Off peak	3.0	400.000	0.00
d. Excess Demand Charge (Normal)	14.0	200.000	2800.00
e. Excess Demand Charge (Peak)	0.0	200.000	0.00
f. Excess Demand Charge (Off peak)	0.0	200.000	0.00
Sub Total (a+b+c+d+e+f)			40400.00
2. Total Energy Charges			
a. Energy charges - Normal	15102.0	6.200	93632.40
b. Energy charges - Peak	5309.6	9.300	49373.70
c. Energy charges - Off peak	5366.0	4.950	24951.90
Sub Total (a+b+c)			167958.00
3. PF Incentives (Penalty)			0.00
Total Energy Charge			167958.00
4. Energy Charges on Lighting load			
a. Factory Lighting	0	0.21	
b. Colony Lighting	0	0.2	
Sub Total (a+b)			0.00
5. Electricity Duty			
6. Dis. Surcharge	167958	0.100	16795.80
7. Duty on self generated energy	25777	0.025	644.43
8. Penalty for non sign. of light load	0	0.012	0.00
10. Total (add 1 to 9)			226564.23
Plus/Minus (Round off)			0.00
UnDisputed Am Amount			226564.23
Less: 1. Advance at Credit			
2. CD Interest			
3. CD Refund			
Net Payable			226564.23

(Rupees Two Lakh Twenty Six Thousand Five Hundred Sixty Four Only)

E & O E

Balance Advance at Credit, if any

Instructions overleaf

*Ans Rev
= 8.75*

J. Sankaran

Electricity bill of 5th January 2019

KERALA STATE ELECTRICITY BOARD LIMITED
Office of the Special Officer (Revenue), Pattom, Thiruvananthapuram
DEMAND NOTICE FOR JULY 2021
(As per CHAPTER VII OF KERALA ELECTRICITY SUPPLY CODE -2014)

Con. Code	1306120031901	Est. Date	06-Jul-2021	Due Date	13-Jul-2021	BS No	2102011099654 Ver : 0	
Tarif	HT II (B) GENERAL	Last Date	28-Jul-2021	LD (month)	442040	BS	0	
MARIAN COLLEGE MARIAN COLLEGE, 2475-H, Kuttikkanam, Kuttikkanam, Idukki, 685531 Mobile no- 9447368410		RRI Virtual A/c No (IFS Code: SBIN0070403) KSEBHT25C7020 Consumer GSTIN ID : KSEB (S) GST ID : 32AAFGK227TNB21 TOS for FY-21_21 & 2016						
LCN -257020								
Amount as on 31-May-2021		Date of Previous Reading		31-May-2021		Email: mariancollege@mariancollege.		
<input checked="" type="checkbox"/> Disputed <input type="checkbox"/> Undisputed		Date of Present Reading		30-Jun-2021		Supply Voltage		
Control Demand (KVA) 90.0		75% of CD (KVA) 60.0		150% of CD (KVA) 135.0		Connected Load (KW) 289.73		
Average MD (KVA) 92.35		Consumption (kWh) 17881		PF 0.96		BE-g Type DPS		
Section Thodupuzha								
Reading Details of meter 7020-net-Working (KVA, KWh, KVAh & KVArh) for 06-2021								
1. Energy Consumption (KWh)				3. Energy Consumption (KVArh) Lag and				
Zone	FR	RR	MP	Units	Zone	FR	RR	
1	245713.00	241085.00	1.000	3428	1	84049.00	82634.00	
2	135192.50	133101.00	1.000	2895	2	32801.00	32270.00	
3	151892.00	148094.00	1.000	3886	3	85873.00	49700.00	
Total				12019	Total sVArh (Lag)			
2. Energy Consumption (KVArh)				4. Demand (KVA)				
Zone	FR	RR	MP	Units	1	32.790	1.000	
1	280001.00	281710.00	1.000	4357	2	39.310	1.000	
2	140733.00	137301.00	1.000	2762	3	27.410	1.000	
3	163469.00	159468.00	1.000	4003	5. Factory Lighting			
Total				11110	6. Colony Lighting			
Avg. P=KWh/KVAh				0.96	7. Generator			
INVOICE								
Unit				Rate (Rs)	Amount (Rs)		Amount	
1. Total Demand Charge				0.0	440.000		0.00	
a. Demand Charge - Normal				0.0	440.000		0.00	
b. Demand Charge - Peak				90.0	440.000		25600.00	
c. Demand Charge - Off peak				0.0	440.000		0.00	
d. Excess Demand Charge (Normal)				0.0	220.000		0.00	
e. Excess Demand Charge (Peak)				0.0	220.000		0.00	
f. Excess Demand Charge (Off peak)				0.0	220.000		0.00	
Sub Total (a+b+c+d+e+f)					26400.00			
2. Total Energy Charges				3428.0	4.200		21253.60	
a. Energy charges - Normal				2805.0	9.300		25083.50	
b. Energy charges - Peak				3895.0	4.650		18116.40	
c. Energy charges - Off peak							64432.50	
Sub Total (a+b+c)					-322.17			
3. 1/4% Incentive / Discount					64511.33			
Total Energy Charge								
4. Energy Charge on Lighting load				0	0.2		10. Total (add 1 to 9)	
a. Factory Lighting				0	0.00		58190.71	
b. Colony Lighting				0	0.00		0.29	
Sub Total (a+b)					6443.35		0.00	
5. Electricity Duty				64434	0.100		Plus/Minus (Round off)	
6. Elec. Surcharge				10019	0.025		Ln/Disputed Amt Amount	
7. Duty on self generated energy				3712	0.012		Less 1. Advance / Credit	
8. Penalty for non-sign. of light load					44.65		2. CD Interest	
							3. CD Refund	
							Net Payable	
							79692.00	
(Rupees Seventy Nine Thousand Six Hundred Ninety Two Only)								
B & O.E				Balance Advance at Credit, if any				
Please follow our official Facebook page fb.com/ksebl for information & announcements.								
SPECIAL OFFICER (REVENUE)				April 2021				
1306120031901				2102011099658				
MARIAN COLLEGE				Rs. 79692.00				
Date								
DD/Payment Instruction								
Name of the Bank								

Electricity bill of 5th July 2021 showing substantial reduction in energy consumption

