



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakar
Opp Athikalathu Alangara Maligai, Pudukkottai - 6220
Phone: 9655287856, 96552895
Mail: pvsolarpowertech@gmail.co
www.pvsolarpowertech.co

Date: 17.11.2021

To

The Principal,
Sri Bharathi Engineering College for women,
Kaikkurichi,
Pudukkottai - 622 303

Respected Madam,

Satisfied with the prior consultancy work of the Department of Electrical and Electronics Engineering of your institution in solar panel estimation and selection, we request assigning faculty members for on-site evaluation and estimation.

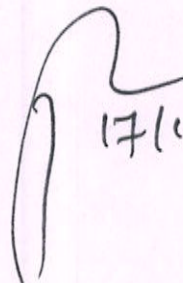


For PV SOLAR POWER TECH


PROPRIETOR

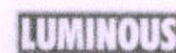
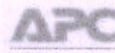
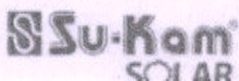
Forwarded to

HOD/ECE


17/11/21


Dr. S.THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurichi - 622 303, Pudukkottai Dt.

"The Experts"





SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Pudukkottai - Aranthangi Road,

Kaikkurichi, Pudukkottai - 622 303.

Date : 24/11/2021

To,
PV Solar Power Tech,
2700/3, Pallavankulam,
Vadakarai,
Pudukkottai - 622 001.

Dear Sir,

Greetings from Sri Bharathi Engineering College for Women!

With reference to the letter dated 17/11/2021, we are in immense pleasure for offering the opportunity to carry out the technical assistance in Estimation of rating and numbers of Solar PV Panel required for your clients. Our college faculty from Department of Electrical and Electronics Engineering will carry out the proposed work within stipulated time. We would like to bring to your kind notice that the work may cost around Rs.3250 in total for a single estimation.

We are looking for your kind consideration and reply.

Thanking you

Dr. S. THILAGAVATHI M.E., Ph.D.,
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Kaikkurichi - 622 303, Pudukkottai Dt.

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KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT



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Phone: 9655287856, 96552895

Mail: pvsolarpowertech@gmail.com

www.pvsolarpowertech.com

Date: 1.12.2021

From

PV Solar Power Tech,
2700/3, Pallavankulam,
Vadakarai,
Pudukkottai - 622 001.

To

The Principal,
Sri Bharathi Engineering College for Women,
Kaikkurichi,
Pudukkottai - 622 303

Respected Madam,

We would like to confirm the quotation that we have received from your institution. We insist to start the work once you have received this letter and finish the work within 7 to 10 days.



For PV SOLAR POWER TECH

Cskh
PROPRIETOR

Itad / EEG

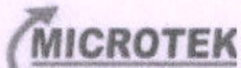
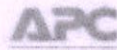
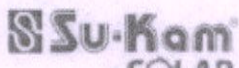
for necessary action
please

J
01/12/21

S. Thilagavathi

Dr. S. THILAGAVATHI M.E., Ph.D.,
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CONSULTANCY PROJECT WORK

REPORT

**Estimation of Power Rating and Numbers of Solar PV Panel Require For
Installation in Domestic Appliances**

SUBMITTED

TO

PV Solar Power Tech,
2700/3, Pallavankulam,
Vadakarai,
Pudukkottai – 622 001.

REPORT DATE: 8.12.2021


Dr. S.THILAGAVATHI M.E., Ph.D.
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Kaikkurichi - 622 303, Pudukkottai Dt.

As requested, / Order by PV Solar Power Tech, Pudukkottai dated 1.12.21, the following are the details for your kind perusal.

1. Load estimation

Load	Watts	Hour/Day	Number of loads	Watt-Hr
CFL	20	5	3	300
HID	29	6	2	348
Fan	60	8	3	1440
LCD TV (42'')	120	7	1	840
Desktop computer	210	5	1	1050
Total Daily Watt-Hour/day or Wh/day	628			3978

1.a. Load Estimation with power factor of 0.8 approximately.

Load	Watts	Hour/Day	Number of loads	Watt-Hr
CFL	20	5	3	300
HID	29	6	2	348
Fan	60	8	3	1440
LCD TV (42'')	120	7	1	840
Desktop computer	210	5	1	1050
	785			4973

2. Determining the inverter rating:

The require energy is supplied from a battery bank through an inverter. The total load that would be connected to the inverter is around $785[628/0.8]$ Watt.

Then, the inverters power handling capacity should be around 1000 Watt as available in market.

3. Daily energy supplied to the inverter:

The daily energy consumed by the load is 4973 Wh.

The energy input to the inverter with the efficiency of 93%, is $(4973)/(0.93) = 5347.31$ Wh, approximated to 5347.31 Wh.

4. Deciding the system voltage:

1 Battery of 24V can be used to have typical PV system voltage as 24V.


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5. Sizing of batteries:

The required charge capacity = $(5347 \text{ Wh}) / (24 \text{ V}) = 222.79 \text{ Ah}$.

The number of batteries of rating 24V, 200 Ah with Depth of Discharge (DOD) of 70% required is $(222.79 \text{ Ah}) / (100 \times 0.70) = 3.18$.

6. Sizing of PV modules:

The energy supplied at the input of battery terminal with battery efficiency of 90% is, $(4973 \text{ Wh}) / (0.90) = 5525.55 \text{ Wh}$.

The total Ampere hour to be supplied by PV Panel should be, $5525.55 \text{ Wh} / (24 \text{ V}) = 230.23 \text{ Ah}$.

The total amperes from the PV modules, $(230.23 \text{ Ah}) / (8 \text{ h}) = 28.77 \text{ Ampere}$.

The typical value of voltage and current of 440 W_p module at maximum power point (V_m and I_m) would be about 49 V and 11 A, respectively.

The number of PV modules required is, $28.77 / 11 = 2.61$ Therefore, 3 PV Panels required as per calculation.

Considering various environmental factors and solar efficiency 2 panels of rating 440 W_p is required to deliver Total Daily Watt- Hour/day of 3978.

Design Details:

Sl. No	Description	Rating	Quantity
1.	Inverter	1000 Watt	01
2.	Battery	24V, 200 Ah	02
3.	Solar PV Panel	440 W_p , 49 V / 11 A	03

A. Baath

PROJECT INVESTIGATOR

A. ABDUL BASEETH, AP/EEE

[Signature]
Dr. S. THILAGAVATHI M.E., Ph.D.,
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Kaikkurichi, Pudukkottai - 622 303.

Date : ...8/12/2021

Utilization certificate

Certified that the amount of rupees Rs.3250 (Three thousand two hundred and fifty only) sanctioned by PV Solar Power Tech, Pudukkottai, during the academic year (2021-2022), in favour of Department of Electrical and Electronics Engineering has been utilized for Estimation of Solar PV Panel requirement. The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.

A. Baseeth

PROJECT INVESTIGATOR

A. ABDUL BASEETH, AP/EEE

[Signature]

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[Signature]
PRINCIPAL
08/12/21

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