



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001
Phone: 9655287856, 9655289556
Mail: pvsolarpowertech@gmail.com
www.pvsolarpowertech.com

Date: 12.3.2019

To

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

Forwarded to

HOD / EEE

12/03/19

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

C. S. K.
PROPRIETOR

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

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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 : 19/3/2019

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 12.3.2019, 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.5000 in total for a single estimation.

We are looking for your kind consideration and reply.

Thanking you

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

PRINCIPAL
19/03/19
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001
Phone: 9655287856, 9655289556
Mail: pvsolarpowertech@gmail.com
www.pvsolarpowertech.com

Date: 27.3.2019

To

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

HOD / EGG

for necessary action
please
27/3/19

Respected Madam,

We would like to confirm the quotation that we have received from your institution and approve Rs.5000, as an endowment towards successful submission of the estimation. 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

C. S. S.
PROPRIETOR

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

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

Kaikkurichi, Pudukkottai - 622 303.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

CONSULTANCY PROJECT WORK

REPORT

**Estimation of Power Rating and Numbers of Solar PV Panel Require for
Installation in Mobile Store**

SUBMITTED

TO

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

REPORT DATE: 4.4.2019

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

As requested, / Order by PV Solar Power Tech, Pudukkottai dated 27.3.2019, the following are the details for your kind perusal.

1. Load estimation

Load	Watts	Hour/Day	Number of loads	Watt-Hr
Tube Light	40	9	3	1080
CFL	22	9	10	1980
Fan	60	10	3	1800
Plasma TV (32'')	160	9	2	2880
Laptop	40	4	1	160
Personal computer	230	7	1	1610
Total Daily Watt-Hour/day or Wh/day	1110			9510

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

Load	Watts	Hour/Day	Number of loads	Watt-Hr
Tube Light	40	9	3	1080
CFL	22	9	10	1980
Fan	60	10	3	1800
Plasma TV (32'')	160	9	2	2880
Laptop	40	4	1	160
Personal computer	230	7	1	1610
Total Daily Watt-Hour/day or Wh/day	1388			11888

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 1388 [1110/0.8] Watt.

Then, the inverters power handling capacity should be around 1500 Watt as available in market.


3. Daily energy supplied to the inverter:

The daily energy consumed by the load is 11888 Wh.

The energy input to the inverter with the efficiency of 93%, is $(11888)/(0.93) = 12782.79$ Wh, approximated to 12783 Wh.

4. Deciding the system voltage:

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


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

5. Sizing of batteries:

The required charge capacity = $(12783 \text{ Wh}) / (24 \text{ V}) = 532.62 \text{ Ah}$.

The number of batteries of rating 24V, 200 Ah with Depth of Discharge (DOD) of 70% required is $(532.62 \text{ Ah}) / (100 \times 0.70) = 7.60$.

But in practical 4 battery of 24V with 200Ah battery is enough.

6. Sizing of PV modules:

The energy supplied at the input of battery terminal with battery efficiency of 90% is, $(11888 \text{ Wh}) / (0.90) = 13208.88 \text{ Wh}$.

The total Ampere hour to be supplied by PV Panel should be, $13208.88 \text{ Wh} / (24 \text{ V}) = 550.37 \text{ Ah}$.

The total amperes from the PV modules, $(551 \text{ Ah}) / (8.5 \text{ h}) = 64.82 \text{ Ampere}$.

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, $64.82 / 11 = 5.89$ Therefore, 6 PV Panels required as per calculation.

Considering various environmental factors and solar efficiency 6 panels of rating 440 W_p is required to deliver Total Daily Watt- Hour/day of 9510.

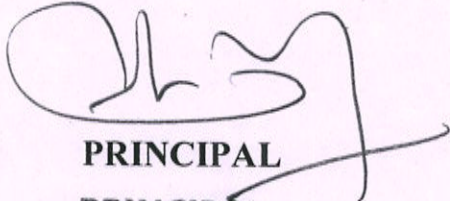
Design Details:

Sl. No	Description	Rating	Quantity
1.	Inverter	1500 Watt	01
2.	Battery	24V, 200 Ah	04
3.	Solar PV Panel	440 W_p , 49 V / 11 A	06

A. Dimrose

PROJECT INVESTIGATOR

A. PRINROSE, AP/EEE


PRINCIPAL

PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT


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



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 :4/4/2019..

Utilization Certificate

Certified that the amount of rupees Rs.5000 (Five thousand only) was sanctioned by PV Solar Power Tech, Pudukkottai during the academic year (2018-2019), in favour of Department of Electrical and Electronics Engineering, Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has been fully utilized for Estimation of solar PV Panel requirement for your clients. The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.

A. Primrose

PROJECT INVESTIGATOR

A. PRIMROSE, AP/EEE

[Signature]
PRINCIPAL
04/04/19

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

PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303,
PUDUKKOTTAI DISTRICT



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001
Phone: 9655287856, 9655289556
Mail: pvsolarpowertech@gmail.com
www.pvsolarpowertech.com

Date: 28.12.2018

Forwarded to

HOD/EEG

28/12/18

To

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

Respected Madam,

We look forward the quotation, for Estimation of rating of Solar Photovoltaic Panel for domestic loads and other necessities, for our clients. In this connection the technical assistance may be invited from your institution by submitting as proposal for the above-mentioned work.



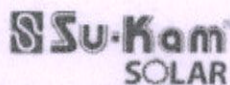
For PV SOLAR POWER TECH

Cablu
PROPRIETOR

[Handwritten Signature]

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

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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 : 03.01.2019

To

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

Dear Sir,

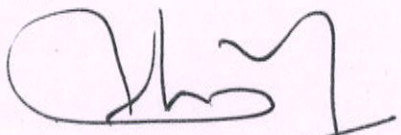
Greetings from Sri Bharathi Engineering College for Women!

With reference to the letter dated 28.12.2018, 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.3000 in total for a single estimation.

We are looking for your kind consideration and reply.

Thanking you


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


PRINCIPAL
03/01/19
PRINCIPAL
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COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001

Phone: 9655287856, 9655289556

Mail: pvsolarpowertech@gmail.com

www.pvsolarpowertech.com

Date: 10.1.2019

To

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

100/EEE

for necessary action
please
10/1/19

Respected Madam,

We would like to confirm the quotation that we have received from your institution and approve Rs. 3000, as an endowment towards successful submission of the estimation. We insist to start the work once you have received this letter and finish the work within 5 to 7 days.



For PV SOLAR POWER TECH

Ch...
PROPRIETOR

[Handwritten signature]

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

"The Experts"

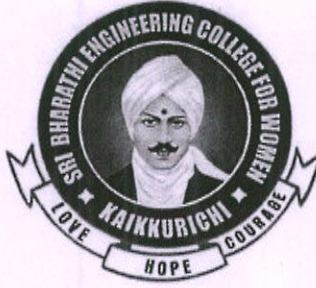
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(Approved by AICTE, New Delhi and Affiliated to Anna University, Chennai)

Kaikkurichi, Pudukkottai - 622 303.

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: 18.01.2019


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

As requested, / Order by PV Solar Power Tech, Pudukkottai dated 10.1.2019, the following are the details for your kind perusal.

1. Load estimation

Load	Watts	Hour/Day	Number of loads	Watt-Hr
LED	25	6	5	750
Fan	60	5	1	300
Fan	60	14	1	840
LCD TV (30'')	60	6	1	360
Laptop	40	1	3	120
Total Daily Watt-Hour/day or Wh/day	425			2370

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

Load	Watts	Hour/Day	Number of loads	Watt-Hr
LED	25	6	5	750
Fan	60	5	1	300
Fan	60	14	1	840
LED TV (30'')	60	6	1	360
Laptop	40	1	3	120
Total Daily Watt-Hour/day or Wh/day	531.25			2963

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 531.25 [425/0.8] 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 2963 Wh.

The energy input to the inverter with the efficiency of 93%, is $(2963) / (0.93) = 3186.02$ Wh, approximated to 3186 Wh.

4. Deciding the system voltage:

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


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

5. Sizing of batteries:

The required charge capacity = $(3186 \text{ Wh}) / (24 \text{ V}) = 132.75 \text{ Ah}$.

The number of batteries of rating 24V, 200 Ah with Depth of Discharge (DOD) of 70% required is $(133 \text{ Ah}) / (100 * 0.70) = 1.9$.

But in practical 1 battery of 24V with 200Ah battery is enough.

6. Sizing of PV modules:

The energy supplied at the input of battery terminal with battery efficiency of 90% is, $(2963 \text{ Wh}) / (0.90) = 3292.22 \text{ Wh}$.

The total Ampere hour to be supplied by PV Panel should be, $3292 \text{ Wh} / (24 \text{ V}) = 137.16 \text{ Ah}$.

The total amperes from the PV modules, $(137 \text{ Ah}) / (9 \text{ h}) = 15.22 \text{ Ampere}$.

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, $15.22 / 11 = 1.38$ Therefore, 2 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 2370.

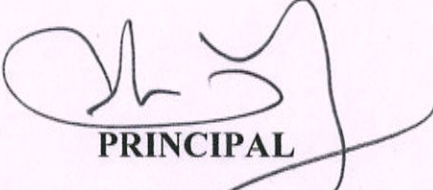
Design Details:

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

A. Primrose

PROJECT INVESTIGATOR

A. PRIMROSE, AP/BEE


PRINCIPAL

PRINCIPAL

SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303,
PUDUKKOTTAI DISTRICT


Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL

SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 622 303, Pudukkottai Dt.



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 : 18/01/2019

Utilization certificate

Certified that the amount of rupees Rs.3000 (Three thousand only) was sanctioned by PV Solar Power Tech, Pudukkottai, during the academic year (2018 - 2019), in favour of Department of Electrical and Electronics Engineering, Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has been fully utilized for Estimation of solar PV Panel requirement for your clients. The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.

A. Primrose

PROJECT INVESTIGATOR

A. PRIMROSE, AP/EEE

[Signature]
PRINCIPAL
18/01/19

PRINCIPAL

Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL

SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN

Kaikkurichi - 622 303, Pudukkottai Dt.

SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT

Ph: 04322 - 242768 Mobile: 99422 28029, 97509 28029

website : www.sbec.edu.in e-mail : sribharathienggcollege@gmail.com



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001
Phone: 9655287856, 9655289556
Mail: pvsolarpowertech@gmail.com
www.pvsolarpowertech.com

Date: 4.9.18

To

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

Itud / EEE

Necessary assistance
may please be
provided.

[Signature]
4/9/18

Respected Madam,

With reference to the brochure we look forward the quotation, for Estimation of rating of Solar Photovoltaic Panel for domestic loads and other necessities, for our clients. In this connection the technical assistance may be invited from your institution by submitting as proposal for the above-mentioned work.



For PV SOLAR POWER TECH

[Signature]
PROPRIETOR

[Signature]
Dr. S. THILAGAVATHI M.E., Ph.D.,
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
Kaikkurchi - 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 : 10.9.2018.....

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 4.9.18, 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 member 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.3500 in total for a single estimation.

We are looking for your kind consideration and reply.

Thanking you

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

PRINCIPAL
PRINCIPAL
SRI BHARATHI ENGINEERING
COLLEGE FOR WOMEN
KAIKKURICHI - 622 303.
PUDUKKOTTAI DISTRICT



PV SOLAR POWER TECH

2700/3, Pallavangulam, Vadakarai,
Opp Athikalathu Alangara Maligai, Pudukkottai - 622001
Phone: 9655287856, 9655289556
Mail: pvsolarpowertech@gmail.com
www.pvsolarpowertech.com

Date: 18.9.2018

To

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

HOD / EEE

for necessary
action please

[Handwritten signature]
18/9/18

Respected Madam,

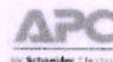
We would like to confirm the quotation that we have received from your institution and approve Rs. 3000, as an endowment towards successful submission of the estimation. We insist to start the work once you have received this letter and finish the work within 4 to 7 days.



For PV SOLAR POWER TECH

[Handwritten signature]
PROPRIETOR

"The Experts"



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



SRI BHARATHI ENGINEERING COLLEGE FOR WOMEN

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

Kaikkurichi, Pudukkottai - 622 303.

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: 24.09.2018

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

As requested, / Order by PV Solar Power Tech, Pudukkottai dated 18.9.2018 the following are the details for your kind perusal.

1. Load Estimation

Load	Watts	Hour/Day	Number of loads	Watt-Hr
CFL	10	5	3	150
Tube Light	40	4	2	320
Fan	60	7	2	840
CRT TV (24")	120	8	1	960
Desktop Computer	195	4	1	780
Total Daily Watt-Hour/day or Wh/day	545			3050

1.a. Load Estimation with power factor of 0.85 approximately.

Load	Watts	Hour/Day	Number of loads	Watt-Hr
CFL	10	5	3	150
Tube Light	40	4	2	320
Fan	60	7	2	840
CRT TV (24")	120	8	1	960
Desktop Computer	195	4	1	780
Total Daily Watt-Hour/day or Wh/day	641.17			3588.23

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 642 [545/0.85] 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 3589 Wh.

The energy input to the inverter with the efficiency of 93%, is $(3589)/(0.93) = 3859.13$ Wh, approximated to 3860 Wh.

4. Deciding the system voltage:

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


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

5. Sizing of batteries:

The required charge capacity = $(3860 \text{ Wh}) / (24 \text{ V}) = 160.83 \text{ Ah}$.

The number of batteries of rating 24V, 200 Ah with Depth of Discharge (DOD) of 70% required is $(161 \text{ Ah}) / (100 * 0.70) = 2.3$, so 2 number of batteries can be preferred.

6. Sizing of PV modules:

The energy supplied at the input of battery terminal with battery efficiency of 90% is, $(3589 \text{ Wh}) / (0.90) = 3987.7 \text{ Wh}$.

The total Ampere hour to be supplied by PV Panel should be, $3987.7 \text{ Wh} / (24 \text{ V}) = 166.15 \text{ Ah}$.

The total amperes from the PV modules, $(166.15 \text{ Ah}) / (9 \text{ h}) = 18.46 \text{ Ampere}$.

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, $18.46 / 11 = 1.67$ Therefore, 2 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 3050.

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	02

A. Primrose

PROJECT INVESTIGATOR

(A. PRIMROSE, AP/EEE)

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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 : 24/9/2018

Utilization certificate

Certified that the amount of rupees Rs.3000 (Threethousand only) was sanctioned by PV Solar Power Tech, Pudukkottai during the academic year (2018 - 2019), in favour of Department of Electrical and Electronics Engineering, Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai has been fully utilized for Estimation of solar PV Panel requirement for your clients. The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.

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