



# SASURIE COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi. Affiliated to Anna University, Chennai

Near NH544, Coimbatore Bypass, Near Vijayamangalam Tollgate, Tirupur 638056

## NAAC DOCUMENTS

### QUALITY INDICATOR FRAME WORK

#### CRITERION - 3

### RESEARCH, INNOVATION & EXTENSIONS

SUBMITTED BY

# IQAC

INTERNAL QUALITY ASSURANCE CELL

### SASURIE COLLEGE OF ENGINEERING



<b>Criteria3</b>	<b>Research,InnovationsandExtension</b>	<b>110</b>
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## **KeyIndicator-3.1Resource Mobilization for Research**

**3.1.1. Endowmentsin the institution during the last five years (INR in Lakhs)**

### **SUPPORTING DOCUMENTS for Endowment**

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# HIDEL POWER PRODUCTS PVT.LTD

PHONE NO: 90548 56392  
MAIL: hidelpp@gmail.com

41/56, SAMUNDIPURAM, GANDH  
NAGAR, SALEM - 638 007

Date: 03.11.2021

TO

The Principal,  
Sasurie College of Engineering,  
Vijayamangalam - 638 056.

Dear Sir/Madam,

With the previous consultancy services offered by the Department of Electrical and Electronics Engineering in the domain of solar panel estimation and selection, we would like to continue with the same. We kindly request the consulting team to reach out to us for any additional information.

Thanks and Regards,


  
Mahaging Director

S. Naresh Chandra





Dr. M. VIJAYAKUMAR M.E., Ph.D.,  
PRINCIPAL

 SASURIE COLLEGE OF ENGINEERING,  
Vijayamangalam - 638 056, Tirupur (Dt).



Date:09.11.2021

To

Managing Director,  
Hidel Power Products Pvt.Ltd,  
41/56, Samundipuram,  
Gandhi Nagar,  
Salem – 638 007.

Respected Sir/Madam,

Greetings from Sasurie College of Engineering!

We are delighted to extend our consultancy activities for identifying the rating of solar panel for your clients. Our faculty from Electrical and Electronics Engineering Sasurie College of Engineering is designated to complete the task promptly. The cost for the proposed work estimation is approximately Rs. 85000. We await your favourable response.

Thanking You



With warm regards

PRINCIPAL



SASURIE COLLEGE OF ENGINEERING,  
Vijayamangalam - 638 056, Tirupur (Dt).

Dr.M.VIJAYAKUMAR ME., Ph.D.,  
PRINCIPAL  
SASURIE COLLEGE OF ENGINEERING,  
Vijayamangalam - 638 056, Tirupur (Dt).





HIDEL POWER PRODUCTS PVT.LTD

PHONE NO: 90548 56392  
MAIL: hidelpp@gmail.com

41/56, SAMUNDIPURAM, GANDH  
NAGAR, SALEM - 638 007

SANCTION LETTER

Date: 15.11.2021

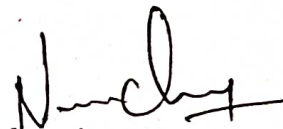
To

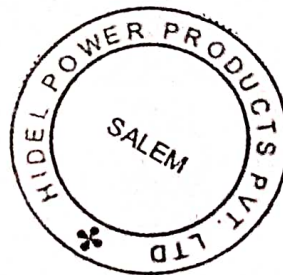
The Principal,  
Sasurie College of Engineering,  
Vijayamangalam - 638 056.


Respected Sir/Madam

We are satisfied with your quotation for the estimation of PV panel rating and its quantity for our clients and on negotiation we grant **Rs. 80000** towards the consultancy work on submission of the proposed work report within 15 days.

Thanks and Regards,

  
Managing Director  
S. Naresh Chandra



  
Dr. M. VIJAYAKUMAR ME., Ph.D.,  
PRINCIPAL  
SASURIE COLLEGE OF ENGINEERING,  
Vijayamangalam - 638 056, Tirupur (Dt).

Date: 25.11.2021

To

Managing Director,  
Hidel Power Products Pvt Ltd,  
41/56, Samundipuram,  
Gandhi Nagar,  
Salem - 638 007.

Respected Sir/Madam,

Sub: Completion of Consultancy Project - Reg.

Ref: Letter dated on 15.11.2021.

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Greetings from Sasurie College of Engineering !


We are glad to let you know that the project " Estimation of Power Rating and Numbers of Solar PV Panel Require for Installation in Domestic Appliances " has been successfully finished. We are submitting the project work document along with this.

Looking forward your response.



With warm regards,



PRINCIPAL

 **SASURIE COLLEGE OF ENGINEERING**  
Vijayamangalam - 638 056, Tirupur (Dt).



  
Dr. M. VIJAYAKUMAR M.E., Ph.D.,  
PRINCIPAL  
 **SASURIE COLLEGE OF ENGINEERING**  
Vijayamangalam - 638 056, Tirupur (Dt).

**CONSULTANCY PROJECT WORK REPORT**

**DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING**

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

**SUBMITTED TO**

Managing Director,

Hidel Power Products Pvt.Ltd


41/56, Samundipuram,

Gandhi Nagar,

Salem – 638 007.

**DELIVERY DATE:25.11.2021**

*MS*

 **Dr. M. V. Sasurie, Ph.D.,**  
**PRINCIPAL**  
**SASURIE COLLEGE OF ENGINEERING,**  
Vijayamangalam - 638 056, Tirupur (Dt).



As requested. / Order by HDEL Power products, dated 15.11.21. the following are the details for your kind perusal.

**1. Load Estimation**

Load	Watts	Hour/Day	Number of loads	Watt-Hr
LED	10	7	5	350
BLDC Fan	30	10	3	900
LCD TV (55")	150	50	1	750
Laptop	35	6	2	420
Total Daily Wan- Hour day or Wh/day	360			2420

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

Load	Watts	Hour/Day	Number of loads	Watt-Hr
LED	10	7	5	350
BLDC Fan	30	10	3	900
LCD TV (55")	150	5	1	750
Laptop	35	6	2	420
Total Daily Wan- Hour day or Wh/day	450			3025

**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 450 [360/0.8] Watt. Then, the inverters power handling capacity should be around 500/1000 Watt an available in market.

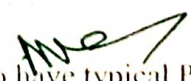

**3. Daily energy supplied to the inverter:**

The daily energy consumed by the load is 3025 Wh.

The energy input to the inverter with the efficiency of 93%, is  $(3025)/(0.93) = 3252.68$  Wh, approximated to 3253 Wh.

**4. Deciding the system voltage:**

2 Batteries each of 12V connected in series to have typical PV system voltage as 24V.

  
**Dr.M.VIJAYAKUMAR** ME., Ph.D..  
 PRINCIPAL  

**SASURIE COLLEGE OF ENGINEERING,**  
 Vijayamangalam - 638 050, Tirupur (Dt).



### 5. Sizing of batteries:

The required charge capacity =  $(3253\text{Wh}) / (24\text{V}) \approx 135.5\text{Ah}$

The number of batteries of rating 12V, 100 Ah with Depth of Discharge (DOD) of 70% required is  $(136\text{ Ah}) / (100\text{ deg} \times 0.70) = 1.94$

### 6. Sizing of PV modules:

The energy supplied at the input of battery terminal with battery efficiency of 90% is,  $(3025\text{ Wh}) / (0.90) = 3361.11\text{ Wh}$ .

The total Ampere hour to be supplied by PV Panel should be,  $3361.11\text{ Wh} / (24\text{V}) = 140.04\text{Ah}$

The total amperes from the PV modules,  $(140\text{ Ah}) / (8\text{ h}) = 17.5\text{ Ampere}$ .

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,  $18/11 = 1.63$  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 2420.

### Design Details:

SL No	Description	Rating	Quantity
1	Inverter	500 /1000 Watt	01
2	Battery	12V, 100 Ah	04
3	Solar PV Panel	440 $W_p$ , 49 V/11 A	02



PROJECT INVESTIGATOR

  
Dr.M.VIJAYAKUMAR ME., Ph.D.,  
PRINCIPAL



SASURIE COLLEGE OF ENGINEERING  
Vijayamangalam - 638 056

  
PRINCIPAL

PRINCIPAL

SASURIE COLLEGE OF ENGINEERING  
Vijayamangalam - 638 056, Tirupur (Dt).



Date:26.11.2021

### UTILIZATION CERTIFICATE

Certified that the amount of rupees **Rs.80000** (Eighty Thousand only) was sanctioned by HIDEEL Power products, Salem during the academic year (2021-2022), in favour of Department of Electrical and Electronics Engineering, Sasurie College of Engineering has been fully utilized for consultancy project titled "Estimation of Power Rating and Numbers of Solar PV Panel Require for Installation in Domestic Appliances". The purpose of amount sanctioned has been fulfilled and delivered as per conditions of grant were satisfied.

PROJECT INVESTIGATOR

PRINCIPAL



PRINCIPAL  
SASURIE COLLEGE OF ENGINEERING,  
Vijayamangalam - 638 056, Tirupur (Dt)

Dr.M.VIJAYAKUMAR ME., Ph.D.,  
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SASURIE COLLEGE OF ENGINEERING,  
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