

**BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY**  
Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy (District), Telangana-501510

**7.1.2. The Institution has facilities for alternate sources of energy and energy conservation measures**

1. Solar energy
2. Biogas plant
3. Wheeling to the Grid
4. Sensor-based energy conservation
5. Use of LED bulbs/ power efficient equipment

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4	Capacity of the solar power generation and the bio-gas generation	9

# BHARAT INSTITUTE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, Accredited by NAAC and Accredited by NBA : UG Programmes - CSE, ECE, EEE & Mechanical  
Recognised by the Govt. of T.S. and Affiliated to JNTUH, Hyderabad.)

Sponsored by : CHINTA REDDY MADHUSUDHAN REDDY EDUCATIONAL SOCIETY

Mangalpally (Village), Ibrahimpatnam (Mandal), Ranga Reddy District - 501 510, Telangana. Tel : 08414 - 252399

Ref.:

Ref:BIET/July/2018/Admin/Alternate sources of Energy/01

Date:03/08/2021

## Policy Document on Energy Usage

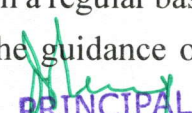
The Energy usage Policy of Bharat Institute of Engineering & Technology, Hyderabad is to manage energy in such a systematic way so as to minimize its impact on the environment. The policy implies to explore the renewable energy resources to reduce the burden of the government and to find out substitute natural resources as solutions to the energy crisis.

This energy policy is binding for all the components of the institution and applies to all its stakeholders and to the various activities undertaken by the institution. It will help us to embed efficiency and environmental awareness into our everyday activities, thus helping us to realize our responsibilities and commitment to conservation of natural resources and to limit its usage. The Renewable Energy Committee, an official platform devoted to the cause of energy awareness, to undertake green initiatives, and to conduct green literacy programmes to save energy and to protect the environment.

### **Policies:**

- To assess our energy usage and measure its impact on the environment.
- To install photovoltaic solar panels for the generation of alternate energy.
- To install LED bulbs in the complete campus to save energy.
- To develop systematic waste management mechanism.
- To under take tree plantation drive.
- To take additional measures to continuously improve our energy consumption.
- To develop and maintain an environmental management system which is ISO: 14001 and an Energy Management System based on ISO: 50001.
- To ensure the availability of necessary resources to achieve our objectives.
- To encourage use of advanced technology to minimize energy consumption, atmospheric emissions and noise, particularly from our vehicle fleets.
- To monitor and respond to emerging energy issues. To strengthen our employees and students Energy usage knowledge and skills in order to improve our own energy performance.
- To provide information and training opportunities on energy saving measures.

This policy will be communicated to the students and employees via internal communication channels, and will be made available to all the stakeholders on the institutional website. The Environment and Energy Policy, objectives and targets will be reviewed on a regular basis by the Renewable Energy Committee Convener and its members under the guidance of the Principal of the college.

  
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Ranga Reddy Dist-501 510



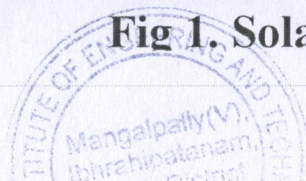
**7.1.2 The Institution has facilities for alternate sources of energy and energy conservation measures:**

1) Solar energy 2) Biogas plant 3) Sensor-based energy conservation 4) Use of LED bulbs/ power efficient equipment

**1) SOLAR ENERGY**



**Fig 1. Solar Energy**





## 2) BIOGAS PLANT



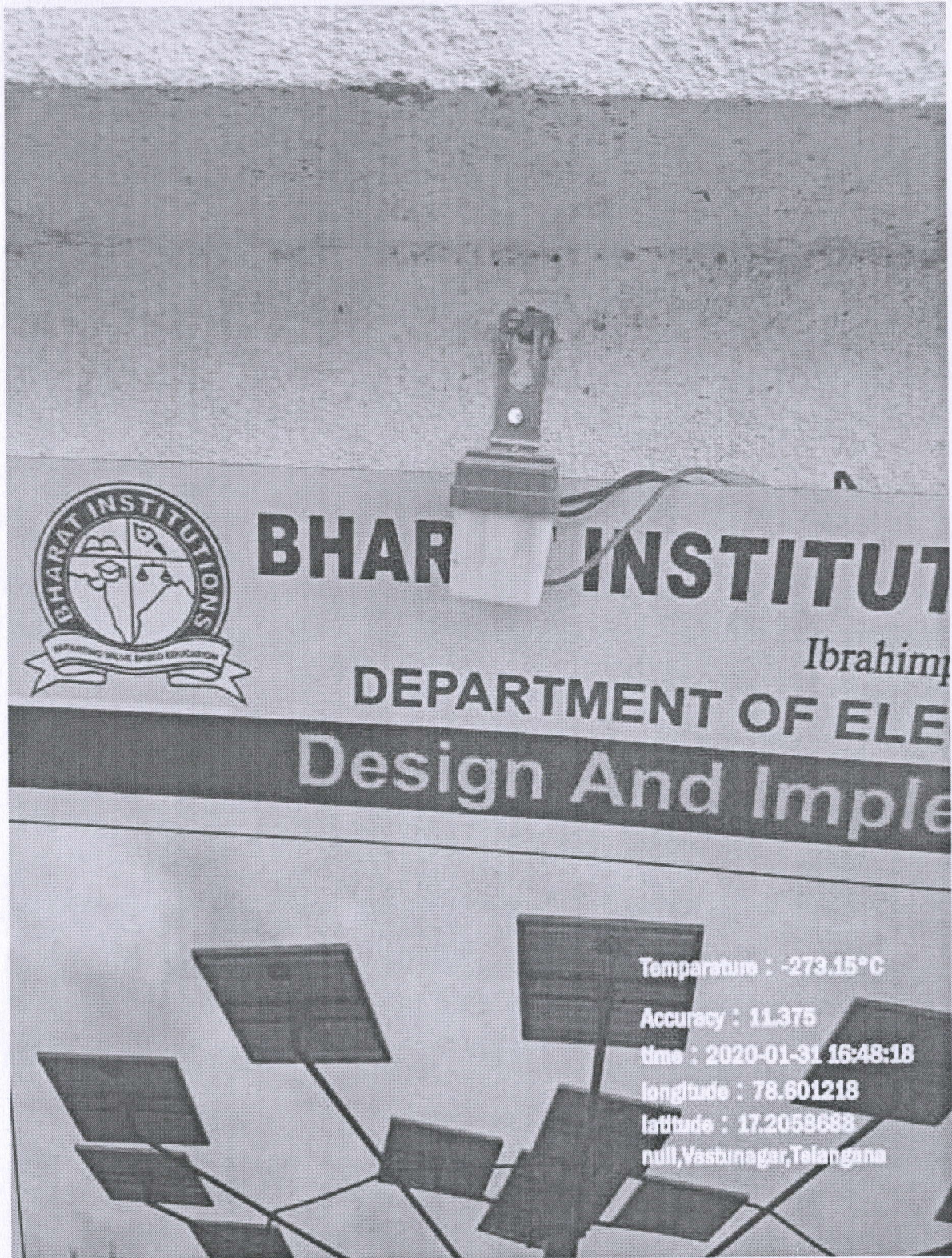
**Fig 2: Biogas plant**



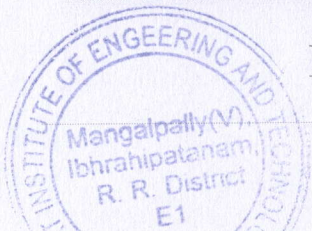
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### 3) SENSOR-BASED ENERGY CONSERVATION



**Fig 3: Sensor-based energy conservation**



*Shreyas*  
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Institute of Engg. & Tech  
Ibrahimipatanam  
510



#### 4) USE OF LED BULBS



**Fig 4: Use of LED bulbs/ power efficient equipment**



*[Signature]*  
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Ibrahimpatnara (M)  
510

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Name of the Item : SOLAR TREE

**BHARAT  
FIXED ASSET REGISTER**

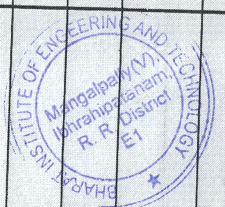
**INSTITUTIONS  
FOR STORES (for fixed assets only)**

**GUIDELINES:**

- Stores Incharge should follow up the vendor for timely delivery of the Asset and deliver the asset to the concerned indenter(s) / department(s) as per the approved Indent.
- Stores Incharge should ensure make, specifications, model, quality and quantity as per purchase order along with Indenter and Purchase Committee.
- Entry should be passed in Fixed Asset Register (FAR) only after receiving the total accepted quantity.**
- Only after the 'Demo' and 'Successful Installation' by the Vendor in the presence of purchase committee, Stores Incharge should take up the responsibility of sending Purchase Procurement Indent, Purchase Order, Purchase Minutes, Payment Advice Slip, Invoice, Delivery Challan, Gatepass and Copy of **Successful Installation Certificate** documents to Accounts Department without any delay. For any delay in payment to the Vendor due to delay in forwarding documents on time to Accounts Department, concerned person where the delay occurs will be penalised.
- Once the Fixed Asset is purchased, purchase wise Asset Personal File is to be opened by Stores Incharge which should contain the following documents - File Index, Procurement Indent, Purchase Order, Successful Installation Certificate, Invoice, Payment Advice Slip, Warranty Cards, copy of Manual, copy of approved comparative statement along with Purchase minutes, details of accessories & AMC details. If the Asset requires maintenance (which runs with electricity) a separate AMC file is to be maintained by the Receiving custodian with all the above documents.

- Asset Personal File No.:-** Asset Personal File No. is - **FILE INDEX**
- Stores Incharge should obtain the signature of the Receiving custodian.
- An asset which is not in a working condition and irreparable should be scrapped register is to be maintained to record the scrapped out Assets, v
- Asset Personal File should be destroyed after one year of scrapping.
- Asset Identification No.** should be in this manner : **College Code**  
Example :- College Code : **BIET**, Year of Purchase : **09**, Location Code  
**Item Code** : Short name of the Item, **Size** of the Item, **Description**  
**FAR Folio No. - Entry No. : Fixed Asset Register Folio No. - Entry**  
**Asset No. : (Asset Sl.No. - Quantity Prior to current purchase - Total**

Sl. No.	Date of Receipt	Supplier / Received from (Name, Address & Tel Nos.)	Make or Manufacturer Name	Brief Description / Specifications of the Asset / Configuration (as mentioned in Purchase Order)	Manufacturer Serial No.		Purchase Procurement Indent No. & date	Purchase Order No. & Date	Purchase Register		Bill / Invoice No. with date	Delivery Challan No. with date	Successful Installation Certificate No. & Date	Total Cost of the Asset (inclusive of all taxes)			Warranty Period		Asset Location Register		Asset Personal File No.	Asset No.		Stores Incharge			
					From	To			Folio No.	Entry No.				A	B	A x B	From	To	Folio No.	Entry No.		From	To	Name	Signature		
					Quantity (in Units)	Unit Cost			Total Cost	From-To				From-To													
	06/03/2019	Vinayak Automation products, West Maradpally, Sec - 500026	Vinayak	Solar tree		85644010					1520		01		R. 12000/-	R. 12600/-	NIL	NIL									
	11/10/19	Big Apple Lifestyle Pvt. Ltd. IDA, Azamabad, Hyd- 20	Big Apple	LED modules		94054090					652-3238-1920	11/10/19	03		R. 1559/-	R. 4679/-	11/10/19	10/10/20									



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**One Item should be entered in a Single Folio**

Name of the Item : Ro Plant / BIO GAS

**GUIDELINES:**

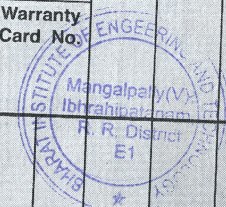
- (1) Stores Incharge should follow up the vendor for timely delivery of the Asset and deliver the asset to the concerned indenter(s) / department(s) as per the approved Indent.
- (2) Stores Incharge should ensure make, specifications, model, quality and quantity as per purchase order along with Indenter and Purchase Committee.
- (3) **Entry should be passed in Fixed Asset Register (FAR) only after receiving the total accepted quantity.**
- (4) Only after the 'Demo' and 'Successful Installation' by the Vendor in the presence of purchase committee, Stores Incharge should take up the responsibility of sending Purchase Procurement Indent, Purchase Order, Purchase Minutes, Payment Advice Slip, Invoice, Delivery Challan, Gatepass and Copy of **Successful Installation Certificate** documents to Accounts Department without any delay. For any delay in payment to the Vendor due to delay in forwarding documents on time to Accounts Department, concerned person where the delay occurs will be penalised.
- (5) Once the Fixed Asset is purchased, purchase wise Asset Personal File is to be opened by Stores Incharge which should contain the following documents - File Index, Procurement Indent, Purchase Order, Successful Installation Certificate, Invoice, Payment Advice Slip, Warranty Cards, copy of Manual, copy of approved comparative statement along with Purchase minutes, details of accessories & AMC details. If the Asset requires maintenance (which runs with electricity) a separate AMC file is to be maintained by the Receiving custodian with all the above documents.

**BHARAT  
FIXED ASSET REGISTER**

**INSTITUTIONS  
FOR STORES (for fixed assets only)**

- (6) **Asset Personal File No.:** - Asset Personal File No. is -
- (7) Stores Incharge should obtain the signature of the Recd.
- (8) An asset which is not in a working condition and irreparable scrap register is to be maintained to record the scrapped.
- (9) Asset Personal File should be destroyed after one year.
- (10) **Asset Identification No.** should be in this manner : **C**  
**Example :-** College Code : BIET, Year of Purchase : 09,  
**Item Code :** Short name of the item, Size of the Item  
**FAR Folio No. - Entry No. :** Fixed Asset Register Fo  
**Asset No. :** (Asset SI No. - Quantity Prior to current pu

Sl.No.	Date of Receipt	Supplier / Received from (Name, Address & Tel Nos.)	Make or Manufacturer Name	Brief Description / Specifications of the Asset / Configuration (as mentioned in Purchase Order)	Manufacturer Serial No.		Purchase Procurement Indent No. & date	Purchase Order No. & Date	Purchase Register		Bill / Invoice No. with date	Delivery Challan No. with date	Successful Installation Certificate No. & Date	Total Cost of the Asset (inclusive of all taxes)			Warranty Period		Asset Location Register		Asset Personal File No.	Asset No.	
					From	To			Folio No.	Entry No.				A	B	A x B	From	To	Folio No.	Entry No.		From	To
1		Ro plant 250 Ltrs / PHR	Honeybee	Ro plant 250ltrs	NA	NA	18/5/17 B	18/5/17	NA	NA				1	117250	117250					24		
2	8/7/2017	Clauia water system Plot no 87 H No 10-13 Narasim Colony Kothapet	clauia	Ro Plant 250 Ltr	NA	NA	3025-211/17 22012-21/17 BTTCL/AN/11/16/17 BIET/7 RDP Gu/16/17 + 24 7003	16007	05	47	12/5/17		8051 9/7/17	-	100000	100000	May-11	May-12			24		
3	19/11/11	Aakaa Enterprises 3-1-135, S.V. Street, Rashpet Rd, Subed - 002 AP 2021 No. 040-66327394 040-66317374	Aqua Maxxi	water purifier	NA	NA	PI = 30036/dt: 25/11/11 PI: 19042/dt: 25/11/11 6 MSU/AD/11/04/11 SUN-1/AN/11/04/11 dt: 25/11/11	16007	04	NO. 20/28-10-11	NO. 86/28-10-11		050401	-	4,68,800/-	4,68,800/-	2011	2020	on daily			24	
4	9/11/2017	Kings Engineering works Ibrahim Patnam	Kings	BIO-GAS	-	-		19	19/11/2017						20,000/-	60,000/-							



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## Capacity of Solar Tree and BioGas

### SOLAR TREE DESCRIPTION

The proposed solar tree 21 structure is done with 17 poly-crystalline panels 20 and the rating of the panel having capacity of **1KW** is given in the below

#### Panel specifications

Maximum power (Pmp)	60Wp
Open circuit voltage (Voc)	21.5V
Short circuit current (Isc)	3.71A
Voltage at Maximum Power (Vmp)	17.5V
Current at Maximum Power (Imp)	3.5A

### DESIGN OF SOLAR TREE:

The design of the solar tree 21 is having the following parts, Trunk (10), Lower Arm (Branch) (11), Top arm (12), Angular frame for panel (13), Panel support pipe (14), Top Circular Ring (15), Bottom Circular Ring (16), Stud top closing round plate (17), Base plate (18), Panel nuts & bolts (19), Arms support bolts & nuts, Base plate, Nuts, double Bolts & washers (19).

### BIOGAS PLANT

Biogas is a combustible gaseous fuel that is collected from the microbial degradation of organic matter in anaerobic conditions. Biogas is principally a mixture of methane (CH<sub>4</sub>) and carbon dioxide (CO<sub>2</sub>) along with other trace gases. Biogas can be collected from landfills, covered lagoons or enclosed tanks called anaerobic digesters. It has typically 60% methane & 35% carbon dioxide. There is also some percentage of hydrogen, nitrogen, oxygen, ammonia, moisture etc.

A biogas plant was constructed in BIET campus, behind the canteen building near main block with a capacity of **2 cubic meters** by taking all the preliminary measures required to implement it. The biogas produced from it is used for cooking purposes in the canteen. The sources used for the generation of biogas are animal slurry, human excreta, vegetable & fruit waste, food processing waste water etc.

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