

A. Biogas Power (off-grid) Programme:

1. What is a biogas?

- When microbial degradation of organic matters takes place in the absence of air, the process is known as anaerobic digestion or biomethanation, and results in the production of methane gas or biogas.
Biogas consists of 55-65% of methane, 30-40% of carbon dioxide and small quantities of Hydrogen, Nitrogen, Carbon Monoxide and Hydrogen Sulphide.

2. Which are the types of Biogas plants commonly used?

- There are mainly 2 types of Biogas Plants.
Model 1 - KVIC (Floating drum type)
Model 2 - Deenabandhu (Fixed dome)
Besides this any new model may be supported with prior approval of MNRE-GoI.

3. What are the different components of biogas plant?

- Following are the main components of a biogas based power generation system;
 - ✓ Biogas Plants
 - ✓ Gas Cleaning System
 - ✓ Engine with alternator
 - ✓ Control Panel
 - ✓ Machine Room / Shed
 - ✓ Manure management system

4. What is the equivalent quantity of other fuels in comparison with biogas?

Name of Fuel	Kerosene	Fire wood	Dry Dung	Charcoal	Furnace Oil	L.P.G.	Electricity
Equivalent Quantities of 1m ³ of Biogas	0.620 L	3.474 kg	12.296 kg	1.458 Kg	0.4171 L	0.456 kg	1.2 kWh

Note:

- The calorific value of biogas varies between 4500 - 5200 kcal/m³ or 20 MJ at around 55-65% methane content.
- Its heating value is considered around 600 B.T.U. per cubic foot.

5. What are the different wastes considered for biogas?
- Cattle dung, poultry wastes and agricultural residues/food waste from village industries
6. What is the equivalent quantity of biogas generated w.r.t different types of wastes?

Feed stock	Gas Yield m³/kg (Approximate)
Cattle dung	0.04
Segregated MSW	0.06
Poultry Waste	0.06

7. Who are the beneficiaries?
- Any village level organization, institutions, private entrepreneurs, farmers etc. those who have organic waste available with them in rural areas can avail the MNRE programme benefits.
8. Is central financial assistance (CFA) available for thermal application?
- Yes.
9. Where to submit the proposal for availing benefits under MNRE programme guidelines?
- Biogas based power generation/thermal application project proposals has to be submitted at MEDA.
10. What are the required documents?
- 1. Project proposal as per MNRE policy along with prescribed format
 - 2. Proof of possession of land
 - 3. Undertaking & affidavit
 - 4. Source of finance
11. What is the range of capacity to be installed under this policy?
- 3-250 kW or equivalent thermal project
12. What is the pattern of Central Financial Assistance?

Capacity (kW/kW _{th})	CFA (Power Generation)	CFA (Thermal Application)
3-20	40,000/kW	20,000/kW _{th}
20-100	35,000/kW	17,500/kW _{th}
100-250	30,000 /kW	15,000 /kW _{th}

13. What are the advantages & applications of biogas & biogas power?

- The calorific value of biogas is appreciably high (around 4700 kcal or 20 MJ at around 55-65% methane content). The gas can effectively be utilized for generation of power through a biogas based power-generation system after dewatering and cleaning of the gas.
- Advantages & applications of biogas & biogas power:-
 - Farmers are using power generated from biogas widely for irrigation purpose, chaff cutter & lighting purpose etc.
 - Projects helps to overcome the problem of load shedding at remote locations
 - Biogas generated is also used for thermal application viz. cooking in canteens
 - Organic manure utilization increase the soil fertility
 - Reduction in expenditure of chemical fertilizers to some extent
 - Avoidance of GHG gases emissions to the atmosphere
 - Extra income generation from sale of manure & in terms of saving in electricity bills