

"Biogas plant for organic waste"

Name of the Project:

"ABD 22 Biogas plant for organic waste"

Background:

- The industrial revolution that began in the second half of the 18th century changed the world, with new methods of machine-based manufacturing leading to a profound increase in economic growth, population growth and quality of life. At the time, the long-term consequences could not even be conceived of, much less felt : however, the burning of vast quantities of fossil fuels, such as coal and oil, has caused a great deal of harm to the environment. Most climatologists agree that the use of fossil fuels has contributed significantly to global warming. This term refers to the measured increase in the earth's surface temperature since the late 19th century and the environment effects of this change.
- The primary goal of developing green source of energy is to generate power while minimizing both waste and pollution, thereby reducing the impact of energy production on the environment. Scientists who advocate the use of green energy say that using such source will reduce the rate at which climate change occurs, although it cannot stop or reverse the temperature increase. Another important objective is creating energy sources that are renewable. This is in contrast to fossil fuel sources, which are finite and estimated to be depleted before the end of the 22th century.

Vision:-

To treat the organic waste in decentralized model generated from APMC market, which will subsequently reduce the transportation cost and generate the revenue in form of energy.

Sector: Solid Waste Management Department (Drainage Department)

Funding pattern:

| | |
|--------------------------------|---------------|
| ▪ SCP Cost | :Rs. 5.00 Cr |
| ▪ DPR Cost | :Rs. 7.00 Cr. |
| ▪ Tender Estimated Cost | :Rs. 7.00 Cr. |
| ▪ Tender Sanctioned Cost | : Rs.6.60 Cr. |
| ▪ Convergence Scheme/PPP/SMC – | : PPP mode |

Brief Technical Details:-

At Akshar Bioscience Technology, the manufacturing process uses a two staged thermophilic bio-methanation for ensuring high efficiency in converting sub stages to biogas, low environmental footprint and low capital cost of plant and machinery, and availability of plant independent of climate and weather conditions.

The biogas is separated into biomethane and carbon dioxide using pressure swing adsorption system that recovers over 97% of the component gases of 97% purity.

The separated biomethane is compressed to 200 bar using high efficiency compressor and filled in cascades of standard cylinders of 10 kg capacity. The gas is directly supplied to customer as vehicle fuel at retail outlets, using state of the art gas dispenser.

The separated CO₂ is compressed to 20 bar using high efficiency compressor and filled in standard cylinder of 25 kg capacity which can be sold directly to industrial units.

Most of the water used for the process is recovered and recycled from the biogas slurry, to cut down on make up process water requirement, thus reducing on the water footprint of the project.

All the macro nutrient in the feedstock and recovered in the form of solid and liquid organic fertilizer, with ultra- filtration and reverse osmosis plant, thus forming a virtuous closed loop.

Highlights of Bio CNG Project

| Description | Unit | Quantity |
|---|---------------------|----------|
| Capacity of the Biogas plant | M ³ /Day | 5200 |
| Raw material-Food waste requirement/day | MT/day | 50 |
| Production of CNG/day | Kg/day | 2200 |
| Production of CO ₂ / day | Kg/day | 3000 |
| Production Solid Fertilizer/day | Kg/day | 2600 |
| Production of Liquid Fertilizer/day | Kg/day | 30.50 |
| Net sales realization/ day @88% PLF | Rs Lakhs/ day | 3.02 |
| Project cost | Rs Lakhs | 795 |

| | | |
|---------------------|--------------|-----------------|
| Pay Back | Years-months | 3 years-5 years |
| IRR on project cost | % | 35.31 |

Speciality/ Benefits:

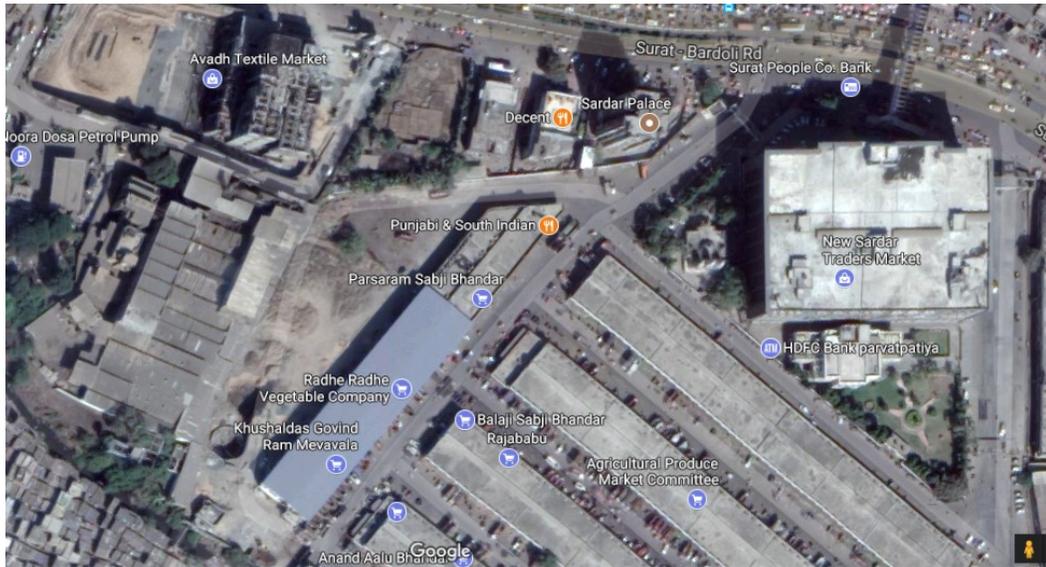
- Production of valuable green energy in the form of electricity, heating & cooling by highly efficient energy conversion of wet biomasses.
- Sale of biogas and bio CNG as replacement of high cost LPG.
- Reduction of the emissions of greenhouse gases.
- Sale of CO₂ in solid, liquid and gaseous form.
- Sale of Organic Fertilizer produced as by- products.
- Providing chilling services for cold storage / air conditioning plants.
- Reduction of odour emissions (manure processing plants)
- Sale of carbon credits generated through avoided methane emissions, electricity generation and chilling services provision.
- reduction of pathogens.
- Sale of electricity at attractive price through short term contracts.
- Sale of renewable energy certificates from sale of electricity.

Implementation plan:

Current status of the project - Work Completed. Project inauguration on 22/06/2017 by CM Shri Vijaybhai Rupani.

Likely completion date of project:-20/06/2017

Site Plan (Google Map)



Site Photographs (High Resolution Image, before & after implementation)



