

Concept Paper

On-line Capacity Building of Professionals from Member State Bhutan on Commercial Scale Biogas Plants

Background:

Energy shortages and pollution problems have continued to accelerate interest in biogas power plants for industry and agriculture sectors. In the SAARC Region, the continuous declining levels of indigenous gas resources in Member States have forced them to look for alternate options. Recently, several commercial scale anaerobic-digestion facilities have come on stream in the wake of declining natural gas supplies. These commercial scale biogas power plants are being installed to supplement energy requirements for dairies and farms. These biogas power plants are decentralized energy system that can lead to self-sufficiency in heat and power requirements, and at the same time reduces environmental pollution.

The power plants based on biogas are well-suited to wet organic material and are commonly used for treating biodegradable waste materials such as leftover food, sewage and animal waste. The components of a modern biogas power plant include manure collection, anaerobic digester, effluent treatment plant, gas storage, and CHP or electricity generating equipment.

The final energy source in form of processed biogas fuel or the electricity generated from it can be used for multiple purposes i.e., captive use by the industry itself, transportation sector and for selling to the electricity grid. Furthermore, residues from the anaerobic digestion process constitute a nutrient-rich digestate, which can be used as an enriched organic manure to supplement the use of chemical fertilizers.

Introduction:

This capacity building activity was requested by the Government of Bhutan. In order to support the Member States, SAARC Energy Centre shall conduct an on-line capacity building event under its thematic area of “Program to Successfully Implement Technology Transfer (POSIT)”. This on-line event shall be conducted for the professionals of SAARC Member States who may join it virtually. The activity shall feature presentations and interactive discussion sessions led by experienced resource person(s) who shall be hired by SEC from international market. The on-line event shall be attended by 8-10 professionals from each Member State.

Objectives:

The objective of this on-line event is to enhance capacity building of SAARC professionals on

commercial scale biogas power plants. The participants may be able to get information about the transition and challenges of commercial scale biogas plants, to learn technical information, and to get new ideas on the way of transferring the technology.

Major Aspects to be covered:

This on-line activity will cover, but is not limited to the following aspects of the biogas power plants:

1. Feedstock type and potential;
2. Components of biogas plants;
3. Electric generator interconnection with grid;
4. Type of commercial technologies in biogas sector;
5. Commissioning/ civil works;
6. Financing mechanisms and business models;
7. Economic viability of plants based on IRR;
8. Tariff structure of power generation through biogas plants;
9. Comparison of electricity tariff of biogas plant with other technologies/fuels;
10. Energy Purchase Agreement/ sovereign guarantees;
11. Required policy intervention;
12. Required technical knowledge; and
13. Operation and maintenance issues.

Venue of the Activity:

This on-line training shall be broadcasted from the office of SEC.