



GASIFICATION POWER

CASE STUDY/INSIGHT

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Gasification is an old technology which was widely used during World War II, for running vehicles. After the World War II, this technology remained dormant for a long period. Serious R&D efforts were made only during the last 15 years to achieve some breakthrough. Small scale power generation is the main advantage of gasification technology, where steam turbine technology is not viable for capacity less than 1 MW.

Gasification based power generation is often attractive when compared to diesel based electricity generation. Gasification technology is used for several applications such as water pumping, thermal usage and power generation.

Indian and Chinese equipment suppliers were successful in reducing the equipment cost comparable to or even less than that of steam thermal technology. Although there are several suppliers, who claim that their technology is the best in the market, only few suppliers have mastered it. It remains a great challenge for the buyers to identify the right suppliers who have really mastered the technology.

We have done extensive study on small scale power generation using gasification. Though several gasification plants for electricity generation are in operation in Asia, not all projects are successful. Several suppliers are still carrying out some R&D to further fine tune their systems to increase the reliability and availability and reduce tar removal problems. Some engine manufacturers are also working on their engines to handle tar.

There are different types of gasifiers available in the market and the selection of the technology mainly depends on the type of fuel used. Significant R&D is also going on in countries like Europe, USA, India, Japan, and China. Proven gasification technology with good reliability and availability is ideal for rural electrification.

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It is advisable to do a proper feasibility study through a knowledgeable, un-biased gasification expert with realistic assumptions in financial models before implementing gasification plants for power generation.

Gasification based on large scale power generation has also progressed to advanced stage of commercialization. Several such plants have been installed in developed countries. Efforts are being made to reduce the investment cost, which is presently on the higher side.

For power generation, either a gas engine or modified diesel generator is used. With a gas engine, it is possible to use producer gas alone (100%) to generate electricity. Constant cleaning is required to remove tar deposits from the gas engine. However, if modified diesel generator is used, then 15 to 20% diesel can also be used along with producer gas to generate electricity. In wrongly designed plants, diesel consumption can be higher. We have worked on several gasification power plants in Asia and Africa.

