



# LANDFILL GAS POWER

**CASE STUDY/INSIGHT**

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Landfill gas (LFG) is a by-product during the decomposition of MSW. Until 2000, landfill gas sites were not given importance in Asia. But, once CDM became matured, many project developers started identifying landfill sites to develop landfill gas recovery projects under CDM. Most of the old sites in Asia were of open dump type. Nowadays engineered landfills are being widely used for MSW waste disposal.

Over a period of time, the disposed MSW from a landfill site undergoes anaerobic digestion leading to the production of landfill gas that contains 45 – 50% methane. Gas emission depends on the waste composition, weather condition and landfill management. For good LFG generation, the amount of waste dumped should be greater than 1 million tonnes in a site with a depth of more than 10 m, preferably without any major fire. If rainfall is low, then the LFG generation will be low but will last longer. Generally, around 3 to 12 m<sup>3</sup> of LFG can be generated per tonne of MSW.

The landfill gas can be recovered using a network of perforated gas collection pipes and can be used for power generation. Open or closed flares are used.





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The production of LFG starts in a landfill site within a few months of waste disposal and lasts for about 10 years or more depending upon the composition of waste, its availability and moisture content. Generally depth of a landfill gas well is 80% of the height of the landfill site.

The gas is usually pumped out using a blower and the moisture is removed in the moisture trap and cleaned using SO<sub>2</sub> scrubber before passing it on to the compressor and engine for electricity generation. LFG production potential can be estimated either by thumb rule or model estimates. For reasonably accurate measurements, expensive test wells are needed. Landfill is the least cost option for MSW management. However, there is risk of soil and ground water contamination during rainfall in the absence of proper leachate treatment system. In addition, it requires a large space which is another hindrance for the Landfill projects.

