



**By converting biogas into electricity,  
the waste has been successfully transformed into  
an important renewable energy source.**

**HEYUAN ZHENGBO NEW ENERGY DEVELOPMENT COMPANY - CHINA**

**IN 2018, AT THE INITIATIVE OF THE GOVERNMENT, THE COMPANY INVESTED IN A LANDFILL POWER PLANT IN HEYUAN CITY, INSTALLING 3 SETS OF GAS ENGINE WITH LEROY-SOMER™ ALTERNATORS LSA 50.2 IP23 1204 kVA.**

Heyuan, a city in southern China, has a permanent population of 2.84 million.

A huge amount of energy is consumed to keep the city running, and hundreds of tons of waste are produced every day.

In particular, the landfill gas produced by the decomposition of organic wastes is extremely harmful to the environment.

**How to make use of these waste and turn it into a resource** has become an urgent requirement of the society.

Methane CH<sub>4</sub> (40%-60%) and carbon dioxide CO<sub>2</sub> (30%-40%) are the main gases produced by the decomposition of organic waste. The greenhouse effect of the direct emission of CH<sub>4</sub> is 20 times that of CO<sub>2</sub>. If not properly treated, it will cause great harm to the atmosphere, water and the environment.

However, CH<sub>4</sub> is a **combustible gas**, which is a kind of **clean energy** without harmful substances after combustion. It is estimated that 1 cubic metre of landfill gas is equivalent to 0.45 litres of diesel or 0.6 litres of petrol when the waste is decomposed in landfills and concentrated to produce gas. It has a **significant economic value**.

The landfill, which can hold up to 400 tonnes of organic waste a day, is reinforced with a layer of impermeable clay around the base, depending on the site. After the waste has been added, a piece of impermeable film is laid over the pit to prevent the waste from leaking through.

Then, it will be covered with layers of soil and plants so that the landfill can blend in with the surroundings. In sealed landfills, due to lack of oxygen, organic waste begins to ferment.

This natural process produces a large mixture of gases, including CH<sub>4</sub>, CO<sub>2</sub>, N<sub>2</sub> and O<sub>2</sub>. The gas is transported through vertical and horizontal wells that criss-cross the waste layer. After purification, **the gas is fed to the gensets that produce electricity** to the grid.

The **genset is the key equipment for energy conversion**. Continuous and safe production can improve the economic benefits of the landfill gas power plant.

Firstly, Leroy-Somer™ alternator greatly improves the **reliability of power produce** and **reduces the downtime loss** caused by equipment failure.

Secondly, the composition of landfill gas varies due to the different wastes, but the same power equipment must meet the different conditions, which requires the **alternator with excellent performance**. Meanwhile, the changes in gas production is also a factor that affects the efficiency of the power produce.



Leroy-Somer™ alternator can maintain high efficiency within a wide range of load, which truly realizes the environmental benefits.

More sustainable and green development helps people to enjoy working and enjoy life.



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