

RENEWABLE ENERGY SOLUTIONS

Turning landfills into energy sources



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All landfills generate some level of methane, and many generate sufficient quantities for re-use. Johnson Controls, a global leader in energy efficiency and sustainability, offers solutions that allow owners to harvest and reuse methane produced by their landfills. You can count on a complete solution from Johnson Controls. We'll take responsibility for the design, engineering, installation, commissioning, operation and maintenance of the gas recovery system.

Consider all your options.

When reviewing the possibilities for gas collection and re-use, consider a number of options. While all options are not viable for all landfills, the right solution often exists based on factors other than the volume of methane.

■ Generation plant development & operation

Johnson Controls can help you use landfill gas to generate electricity for direct use or resale. This provides flexibility because it doesn't require a thermal or electric load nearby.

■ Pipeline design and installation

When landfill gas volumes are high, you may be able to bring the gas to pipeline specifications. This involves substantial cleaning, boosting the BTU content and very high compression before delivering gas to the pipeline.

■ Direct use

This is most effective if a thermal load, such as a boiler or incinerator, is close-by. The process involves collection and some level of clean up of the landfill gas. The gas is then piped to the thermal load for use as boiler or burner fuel.

Technology with no boundaries

Johnson Controls is a \$32 billion leader in energy and environmental solutions. Our contracts often include a performance guarantee, reducing your risk. Our global experience in energy supply- and demand-side businesses, along with 120 years of building expertise, make us well suited for these applications. With 500 offices around the world, we can deliver solutions anywhere you need them.



LANDFILL GAS FACTS:

Each million tons of Municipal Solid Waste is equivalent to:

- Approximately 432,000 cubic feet per day of landfill gas
- Approximately 800 kilowatts of electricity
- Is composed of about 55% Methane (CH₄)
- Is composed of about 45% Carbon Dioxide (CO₂)

WHERE WE'RE WORKING:

City of Little Rock

Johnson Controls will develop a methane gas recovery system for the city's landfill and maintain the solution over the life of the contract. Once installation of the recovery system is complete, Little Rock expects to collect 90,000 MMBTUs of usable energy from landfill gas annually, which will be purchased by an area manufacturer.