

# Stink makes cheap electricity for Edison

By Penny Wright

WHO SAYS "you can't turn a sow's ear into a silk purse?"

Wayne Disposal Inc. of Belleville may disprove the old saying. The innovative landfill operator plans to take the bothersome and potentially dangerous by-product of garbage disposal dumps — methane gas — and turn it into a clean and usable energy source.

The process will add nearly \$500,000 per year to Wayne Disposal's pocketbook and the equivalent of 300 homes-worth of electrical power to the Detroit Edison Co.'s system.

"What we have here is a means of controlling the gas and gaining some benefit from doing it by the sale of electricity," said Mike Miller, manager of planning and development at Wayne Disposal.

AS MILLER conducted a tour of the new \$2 million landfill gas (LFG) recovery facility, he explained the factors leading to its construction.

Methane gas is a hydrocarbon formed by the decay of organic matter in an anaerobic (airless) environment. A filled and capped landfill with at least 30 feet of organic stuff — banana peels, paper products, oil-based plastics and so forth — is the perfect site for gas production.

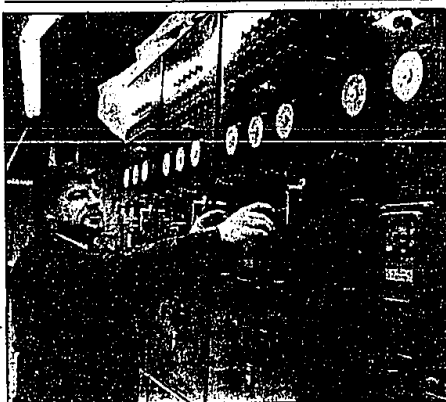
Methane is lighter than air and will tend to rise out of a landfill. If the gas is allowed to drift into the air in small amounts, it is harmless, yet stinky due to sulphur-based impurities.

If the gas travels laterally through the ground and collects somewhere — say, in the basement of a nearby home — it can reach explosive concentrations.

"With good engineering practices in the development of landfills, that shouldn't be a problem. But there have been several incidents around the country where migration has created hazardous conditions," said Miller.

**"Rather than burning off the gas as some do, if we can get benefits from the gas in the form of heat or electricity, why waste it?"**

— Mike Miller  
Wayne Disposal Inc.



Jerry Allen, head operator of Wayne Disposal Co.'s power plant, adjusts controls which recycle dump gas into electricity.

requirements that landfill operators manage a site and set up long-term methane control mechanisms.

"Rather than burning off the gas as some do, if we can get benefits from the gas in the form of heat or electricity, why waste it?" Miller asked.

The benefits of collecting the gas, purifying it, and using it to generate electricity are attractive for both Wayne Disposal and its customer, Detroit Edison.

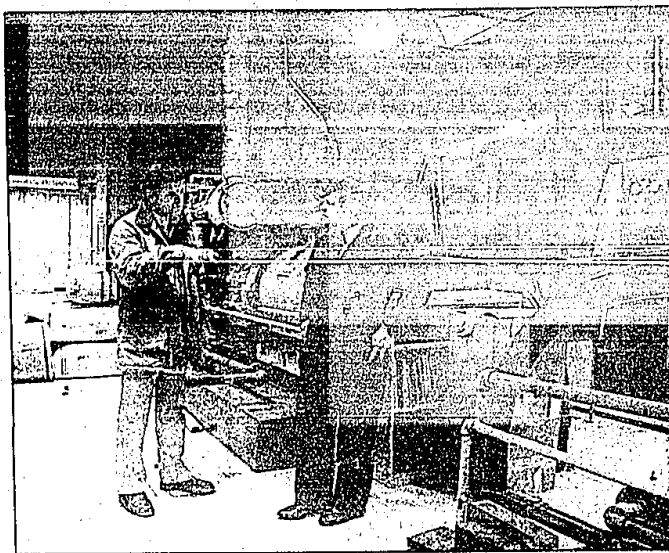
According to Chuck Loehner of Detroit Edison, when the power connections are completed some time in 1986, his company will pay 4-6 cents

per kilowatt (KW) of electricity the methane plant generates over the next 35 years.

"During the course of the contract, the price of other power (coal-fired plants currently produce power at two cents per kilowatt) will probably escalate, but this contract price will remain the same," said Loehner who coordinates Edison's cogeneration task force department.

THE CAPACITY of the whole Edison system is 8,000 megawatts (one megawatt equals 1,000 KW). By comparison, the Wayne Disposal facility is rated at 1,400 kilowatts. Loehner noted the new plant will provide one additional power source his company could rely on during peak periods.

"We are very supportive of such projects," said Loehner. "Given



Mike Miller (left), manager of planning and development for Wayne Disposal Co., and Jerry Allen, head operator of the power plant, talk about

converting methane gas into electricity for Detroit Edison customers.

enough of this type of power (LFG), we could delay building a power plant.

The first sale of landfill gas occurred in California in 1975. Over the last 10 years, applications of the recovery technology have slowly increased. Currently, some 44 LFG plants are operating in the United States. Only one plant is now operating in Michigan.

"The technology of tapping landfills is not presently being used on the scale that it will be in the future," said Miller of Wayne Disposal. He

pointed to a trend across the state and country toward restoring closed landfills to useful purposes with controlled gas production.

ONLY CERTAIN landfills are suited to profitable energy generation, remarked Miller. Some landfills could be too small, be too old, contain non-organic trash, be isolated from power users or lack development funds to tackle such a venture.

Miller admits that the payback on his company's investment will take time despite existing depreciation,

energy and alternate fuel tax benefits.

"If we had more use for the power on site, we could get more bonuses from doing this," said Miller.

Both Wayne Disposal and Detroit Edison have plans for further ventures in landfill gas recovery. Wayne Disposal is planning similar recovery operations at its Canton and Auburn Hills landfills. And Detroit Edison is talking to three or four other landfills to get projects going.

"We are very supportive of such plants and see some half-dozen LFG projects down the road," said Loehner.

THE RESULT has been statewide

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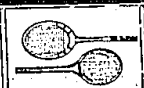
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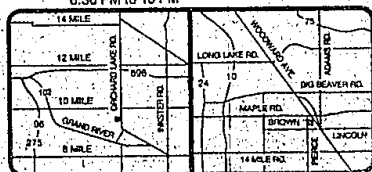
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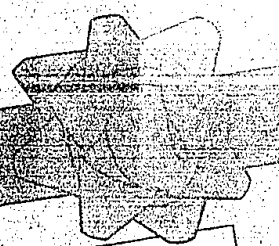
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