

County landfills power up new energy source

BY EBONY REED
AND SANDRA ARMURSTER
STAFF WRITERS

Last week's trash — full of frozen dinner boxes, banana peels and junk mail — could make your city rich, or at least save the suburban quality of life from urban Birmingham to rural areas to the north and west.

"Each year, methane from landfills is converted into electricity and saves us from using 49 million gallons of oil and over 301,000 thousand tons of coal in Michigan," said Sheila Miller, Michigan Independent Power Producers Association director of communications.

Trash in landfills naturally changes into methane as it decomposes. During decomposition, methane, at about half the energy level of natural gas, is produced. Using engines after a cleaning process, the gas is transformed into electricity.

"It's a good feeling to oversee the Lyon Land Development, a landfill that makes electricity," said Jim Atchison, Lyon Township supervisor. "It protects our environment and water."

Soon to duplicate that experience are landfills in Orion Township and Auburn Hills. The Eagle Valley Landfill on Silverbell Road in Orion Township, which is exploring expansion of its site with Orion Township officials, will soon be laying pipe for methane gas, destined for General Motors' Orion Assembly Center, which fronts both Silverbell and Brown roads. Also expected to lay pipe is a landfill on Brown

Road in Auburn Hills. The landfill is operated by Allied Waste Industries Inc. and receives Clarkston area refuse.

The methane gas will be piped in a T-formation from the two landfills to GM, according to John Spokaeski, general manager of Eagle Valley Landfill. "Methane gas will be used in place of coal for the boilers," he said. "It's a good deal. As soon as it's not so muddy, we'll be digging in and then we'll buy a generator and blowers."

Besides being a cost saving for GM, the move is expected to be more environmentally friendly as well, due to fewer coal and methane emissions.

Methane left uncontrolled or converted into electricity would contribute to the formation of smog and become a serious hazard, according to the federal Environmental Protection Agency's Landfill Methane Outreach Program.

Cash payoff

The process of making electricity from trash is more than an environmental pay off.

Each month, Lyon Township receives a \$12,000 check from Lyon Land Development. The 160-acre landfill stopped taking trash four years ago, after it reached capacity and was turned into a park. But it has not stopped making money.

Daily, two employees watch over the six engines that run 24 hours a day, converting methane into electricity after it is extracted from the ground.

While those three landfills report a success story from their methane gas-to-energy efforts, other attempts have met with different results.

Tom Waffan, general manager of the Southeastern Oakland County Resource and Recovery Authority (SOCRRA), said that its landfill in Rochester Hills is too shallow for collecting gas. "We had it tested, but we just flare the gas because there wasn't enough to make collection," Waffan said. "Besides, much of it is incinerated ash, so it has already decomposed."

SOCRRA members include Beverly Hills, Birmingham, Lathrup Village and Troy.

Like SOCRRA, Rochester Hills reports that former operating landfills on Hamlin, DeQuindre, School and Avon roads were "tested for methane gas and some people were signed up" for conversion to energy, according to Jerry Eby, manager of inspection services for the city.

"But it was never done, and the landfills were shut down in the mid-'70s," Eby said. "Methane gas has a lower energy rate than natural gas, and, depending on the type and size of landfill, the gas only lasts for 10 to 12 years."

"They had hoped to tap the landfills together, but it didn't pan out."

SOCRRA's Waffan agreed: "It's got to be economical. All the wells had to actually be capped because we couldn't keep the flares lit."



STAFF PHOTO BY JERRY ZALINSKI

Beginning here: The flow of solid waste begins at suburban curbsides, such as on Lyonhurst in Birmingham, which is fronted by stately homes and tall trees. What to do with the waste once it reaches landfills is taking on new importance.

Edison uses methane

Detroit Edison, however, found use of methane gas to be a wise move. The company purchases electricity from Lyon Land Development, and funds the township receives from the land development company are earmarked for park maintenance.

In 1996, Detroit Edison bought

42 million kilowatt hours from the Lyon Land Development. The net amount Detroit Edison spent on electricity through Lyon was \$2.1 million or about 16 percent of the company's total purchase of electricity from landfills.

Detroit Edison spent \$12.5 million purchasing 250 total kilowatt hours of electricity from landfills in 1996. The average Detroit Edison customer used 7,052 kilowatt hours in 1996, according to Mary K. Bean, Detroit Edison spokeswoman.

"This is a good environmental benefit," said Curt Ranger, DTE Biomass Energy president, Detroit Edison's sister company. Ranger said DTE is building an energy plant fueled from methane in Ann Arbor and in North Carolina.

Browning-Ferries Industries Inc., the company that owns the Lyon Land Development, also owns a methane electrical plant in Washtenaw County.

The BFI Arbor Hills Landfill, which receives solid waste from West Bloomfield among other communities, gives 2.5 percent of its total revenue to Salem Township. Washtenaw County receives 3 percent of BFI's total revenue. The township and county each receive an estimated \$9.5 million yearly from BFI.

"What we are talking about is recycling and reuse. It's legal to burn the gas and that's a waste, if you look at the benefits we gain," said Duane Brown, BFI community affairs specialist.

EPA view

In March 1996, the EPA recognized the benefits of using methane to make electricity and established regulations to encourage more landfills to operate like Lyon Land Development.

"The EPA decided controlling landfill gas was a worthwhile effort of protecting the environment," said Dave Derenzo,

Derenzo & Associates, senior project manager. "The guidelines basically say existing landfills must collect the gas and control it. EPA left regulations up to state governments for existing landfills. The state of Michigan is in the process of developing guidelines for existing landfills."

Nationwide, there are 120 and in Michigan 16 landfill gas-to-energy plants operating.

"I encourage readers to talk to legislators about how important renewable energy is to Michigan," Miller said.

In the meantime, Oakland County officials and community officials are meeting Thursday, Jan. 15, to discuss development of a new plan to deal with solid waste. Significantly, some communities are finding that landfills can remain problematic.

Rochester Hills' Eby added that the landfill locations closed in Rochester Hills continue to cause problems because of soil erosion, since they weren't properly capped with several feet of soil. Landfill owners were allowed to operate without posting a proper bond, he said, and now "no one wants the liability of using the sites." That includes one site designated for use as a park, around which the city owns property.

For the time being, Eby is glad that all garbage from Rochester Hills is trucked out to, among other places, Eagle Valley.

"It's out of our community and we're better off for it," he said. North Oakland County communities of Oxford Village and the townships of Oxford and Addison are finding landfills costly. Those areas found themselves part of a lawsuit alleging delivery of household hazardous waste materials to a landfill in Metamora. They now are close to agreement over helping to fund cleanup of the site.

Plant converts trash into treasure

BY EBONY REED
STAFF WRITER

All that separates a Lyon Township neighborhood from a gas plant is a small, knee-high, brown fence.

Within walking distance are baseball diamonds, volleyball nets and playscapes.

"People constantly use the (\$3 million) park," said Patricia Carocne, Lyon Township treasurer. "We were unfortunate to have a landfill, but we are fortunate to have turned it into a park."

Inside the plant, six engines — each worth a million dollars — convert methane into electricity among two small "Danger: Headsets Needed" and "No Smoking" signs.

The one-minute process of changing trash into electricity begins after it is converted into methane.

After methane is given off, 50 pumps inside the ground at the Lyon Land Development suck the gas up through a vacuum.

The plant manager can turn up the power of the vacuum to suck more gas as needed.

Once methane is inside the

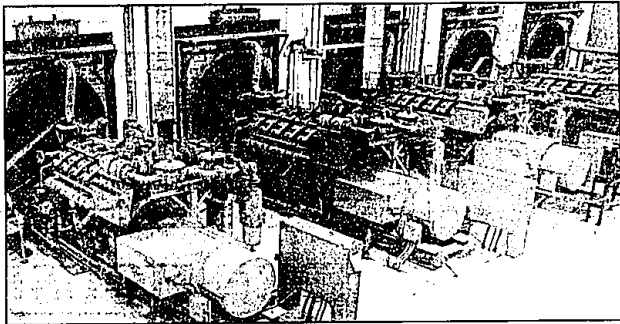


PHOTO BY SCOTT BENEDICT

Energy source: Generators convert methane gas to electricity in Lyon Township. Similar methods will be used in Orion Township for a General Motors plant.

vacuum, it goes through two vessels or scrubbers that remove liquids from the gas. Then the gas is sent through a refrigeration system that removes any additional liquids.

Finally, the gas makes its

way to the engines. Once the gas is inside one of the six engines, it becomes a fuel and turns a generator.

As the generators turn 1,200 revolutions per minute, the gas is converted into electricity.

Each engine daily makes 850

kilowatts of electricity.

"It's a federal law that the methane must be extracted for up to 30 years," said Steven Korsgaard, plant manager. "It's also a law that Detroit Edison purchase the electricity."

Eliminating waste takes on creative solutions

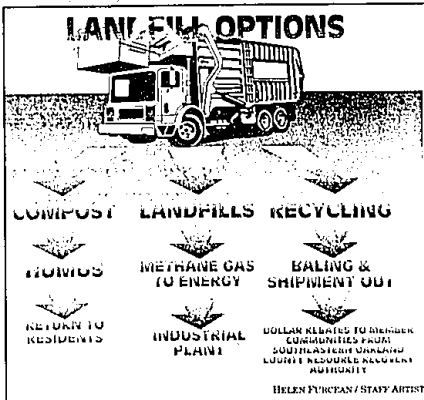
BY SANDRA ARMURSTER
OAKLAND COUNTY EDITOR

For two Oakland County groups, dealing with solid waste is being resolved through options other than landfills. That's good news for all who add to the stream of solid waste, from apple cores to used oil.

True, the Southeast Oakland County Resource and Recovery Authority (SOCRRA) members use large landfills at 29 Mile and Gratiot in Macomb County's Lenox Township and in Wayne County's Sumpter Township, according to general manager Tom Waffan.

But its efforts in composting and recycling actually amount to rebates to member communities, which include Birmingham, Beverly Hills, Lathrup Village and Troy.

"Landfills are cheaper (than incinerators) and it's very hard for incinerators to compete due to clean air regulations," Waffan said. Besides, he added, a Rochester Hills landfill produces a rich humus from composting leaves and grass that member residents use in their spring gar-



HELEN FURCEAN/STAFF ARTIST

dening. "We've also encouraged residents to leave their lawn clippings on the lawn. In 1990, we got 24,000 tons of grass. This past year, we got just under 7,000 tons," Waffan said.

Other products such as paper plastic bags, glass and cans are recycled, amounting to a \$2 million rebate to member cities, according to Waffan.

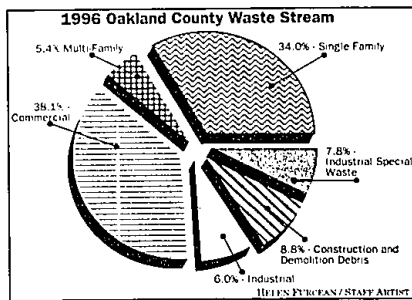
whose members include Farmington, Farmington Hills, Novi, South Lyon, Southfield, White Lake, Wixom and Lyon Township.

The sister operation to SOCRRA is a government entity, said Heidi Wayne, recycling coordinator. Its main effort is in recycling, with off-shoots in education and composting. Five member communities have an umbrella contract for everything from garbage pickup (and deliv-

Sites exist in both urban, rural areas

Waste disposal sites have been located throughout Oakland County, sometimes amid controversy. Their locations follow.

1. Collier Road Landfill, 575 Collier Road, Pontiac: 220 acres; operated by City of Pontiac.
2. Eagle Valley Recycle and Disposal Facility Landfill, 600 West Silverbell Road, Orion Township: 330 acres; future expansion governed by consent judgment filed in Oakland County Circuit Court in 1991; operated by Waste Management of Michigan Inc.
3. Wayne Disposal - Oakland Landfill, 2330 Brown Road, Auburn Hills: 175 acres; operated by Allied Waste Industries Inc.
4. SOCRRA Landfill, 741 Avon Road, Rochester Hills: 183 acres; operated by Southeast Oakland County Resource Recovery Authority. Site is currently operated as a yard waste composting and yard waste debris disposal site. A consent judgment was filed in 1994 in



9. Resource Recovery and Recycling Authority of Southeast Oakland County — materials recovery facility, 20000 W. Eight Mile, Southfield; separates out recyclable materials from members and other communities.
10. Browning Ferris Industries site, 1591 Highway, Pontiac: 40 acres acting as transfer site, recovery area.
11. City Management Corporation, 1523 West Highwood, Pontiac: 15 acres; construction is pending.

Closed disposal areas

1. General Motors Truck and Bus Division, South Boulevard, Bloomfield Township; shredded waste from GM facilities. Closed April 1997.
2. Lyon Land Development Company Landfill, 5380 Milford

Please see SITES, A6

Please see OPTIONS, A6