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National Grid agrees to buy power from biogas facility planned for R.I. Central Landfill

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A developer is on the verge of tapping into a new source of renewable energy in Rhode Island with a plan to build a facility at the Central Landfill that would generate electricity using gas from decomposing food.

National Grid has agreed to buy power from Orbit Energy's biogas facility for 9.5 cents per kilowatt-hour in 2013, the first year of operation. The price would increase 2 percent annually. The 15-year agreement was filed with the Public Utilities Commission late Wednesday and is awaiting approval.

Although National Grid is required to sign long-term contracts for renewable energy, it had already met its obligation under state law when it signed the agreement with the Raleigh, N.C.-based Orbit a month ago. Jennifer Brooks Hutchinson, senior counsel for National Grid, said the utility was attracted to Orbit's proposal because of the relatively low price and its use of new technology.

"I was amazed that you can do this," said Brooks Hutchinson. "Your waste product can turn into power."

The biogas plant would be the first of its kind in Rhode Island. It would have two generators with a total capacity of 3.2 megawatts, about twice the size of the wind

turbine at Portsmouth High School. It would produce enough power for about 2,000 homes.

The plant would use a “high-solids anaerobic digester” to produce gas, a technique that is better than conventional biogas technology that has been used in Europe because it works more efficiently and produces no solid or liquid waste, according to National Grid’s filings with the PUC. The new process was developed by the U.S. Department of Energy’s National Renewable Energy Laboratory, in Golden, Colo.

Orbit Energy operates a pilot biogas facility in Clinton, N.C., that uses food waste from Wal-Mart and Fort Bragg, the U.S. Army base. Like its plant in North Carolina, the Rhode Island facility would take food waste from restaurants and grocery stores to use as fuel. About 120 tons of food waste and other material would be fed into the digester every day and be combined with bacteria, which would speed up decomposition, said Anwar Shareef, CEO of Orbit.

In several days, the waste would be turned into material that could be used as fertilizer or compost that could be used in gardens. The material would be virtually pathogen-free because the digester would heat it up to 131 degrees.

During the process, biogas, which is about two-thirds the quality of natural gas, would be emitted and burned in generators to produce energy. It is a closed system, so the process is odorless and produces no emissions.

The \$15-million project is set to go into operation in September 2013. Orbit has plans for 15 other facilities across the country, with projects in California, Washington and another in North Carolina set to begin construction this year.

“For too long as a society, we’ve treated food waste as a liability,” Shareef said. “Societies are beginning to recognize that that is not the right way to conduct business.”

Orbit originally proposed locating its Rhode Island plant in Woonsocket, but moved the site to the Central Landfill in Johnston to have easier access to organic waste. On June 14, the board of commissioners of the Rhode Island Resource Recovery Corporation, which operates the landfill, approved leasing 5 acres to Orbit. Under the 20-year lease, with an option to buy, Orbit would pay about \$125,000 annually, according to Michael OConnell, executive director of Resource Recovery.

The new plant would be the second facility planned at the landfill that would generate electricity from waste products. Broadrock Renewables will begin construction in the next month of a 32-megawatt plant that would create power from methane released from the landfill.

Orbit's proposal may help extend the life of the landfill by diverting organic waste, which amounted to about 140,000 tons last year, a fifth of the 700,000 tons of trash buried at the facility.

Other companies have come forward with similar plans, but OConnell said he believes that Orbit will succeed because of its agreement with National Grid.

"We've been hoping to get a company like that for a long time," he said. "It's in line with our mission to extract organics out of the landfill stream and convert them to energy."

Greg Gerritt, of the Environment Council of Rhode Island, organized a conference in March that pushed for more composting in the state. Although the council has not taken a position on Orbit's plan, Gerritt said he personally supports it.

"The fact that we can create renewable energy and compost from something that we now bury has to be a good thing," he said.

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