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La Crosse County Landfill – Biogas Utilization

La Crosse County Landfill provides solid waste disposal services to its surrounding counties both in Wisconsin and Minnesota. It accepts wastes from residential, commercial, industrial and institutional sources. The landfill opened in 1977 and is expected to run until 2033. It operates as an enterprise fund, meaning that the money it collects from customers in tipping fees is used to pay the expenses of running the landfill. In this regard, La Crosse County Landfill has a similar operation model to private businesses.

Challenge

La Crosse County Landfill is required by the DNR to collect and burn its landfill gas. Starting in 2004, the landfill began collecting gas and burned it off in a flare. It started off with 137 scfm (standard cubic feet per minute). The amount of gas fluctuates from year to year but in 2012, it came up to 245-255 scfm. The La Crosse County Solid Waste Department saw that flare and thought it was energy wasted as it didn't add value to any process.

In the spring of 2009, the landfill commissioned an external company to conduct a feasibility study, and found out that their gas had 50% methane content and had minimal contamination (except moisture). These results opened the door to looking for a partner.

Strategy

In January 2010, La Crosse County Landfill issued a Request For Interest (RFI) to evaluate interest in a partnership for a biogas utilization project. Gundersen Health System was one of the respondents, and they indicated both interest and ability to move forward with a part of the project. Contract negotiations were entered into that summer. The negotiation process went smoothly. The contract provided that the landfill would provide landfill gas to a generator on Gundersen's Onalaska campus. La Crosse County agreed to contract with Gundersen for 15 years for landfill gas sales. Both parties agreed to coordinate maintenance down time so as to minimize a disruption in supply. Because of the complexity of the landfill operations, La Crosse County decided to maintain control of the landfill and gas production. As a result, La Crosse County Landfill is responsible to treat the gas – to take the moisture out – and pump it to Gundersen's generator on the Onalaska campus, which is connected to the landfill with a 1.6 mile-pipe.

The project had its ground-breaking ceremony in June 1, 2011. Methane gas was pumped to Gundersen beginning in March 2012.

Results

La Crosse County Landfill received a \$1.5 million loan from the La Crosse County Solid Waste Department to finance the pipeline, gas collection and treatment equipment. Payment on this loan is made from the revenues from the sale of biogas. The landfill made between \$15,000 and \$19,000 per month during the first three months of the project's full operation (March-May 2012). They are expecting to



Because of the gas utilization project, the flare to burn off landfill gas is no longer active

Photo from *La Crosse Tribune*

complete repayment of their loan in 6-7 years. Nick Nichols, Sustainability Coordinator for La Crosse County, said that if they reach the point where they are producing more gas than Gundersen can use, it is possible that they will look into additional outlets for their gas.

La Crosse County Landfill is not the only beneficiary in this partnership, of course. First of all, the landfill gas accounts for 100% of the energy consumption on Gundersen's Onalaska campus. The clinic is now energy independent, and is the first known medical campus to be able to make this claim in the country. The heat generated by Gundersen's generator is captured and then used to heat the buildings on the Onalaska campus which total 350,000 square feet of space. Gundersen sells all the electricity to the utility which is then consumed via the grid by local homes and businesses. These benefits reduce Gundersen's electricity and gas bills tremendously.

This is a success story for a public-private partnership. Both parties enjoy financial and environmental benefits from this project. The flare observed back in 2009 is no longer active because flaring would signify a breakdown in the production or distribution system. It is estimated that this innovative partnership prevents emissions equivalent to 4,600 metric tons of CO₂e per year.

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