NORTH DAKOTA CLIMATE INITIATIVE – SECTOR STORY 2

Fargo Fuels the Future with Landfill Energy Generation

The proverb “waste not, want not” is a timeless reminder to use resources wisely and act frugally. In Fargo, it is the driving principle behind electricity generation at the City’s landfill. Since 2002, the City of Fargo has captured gas from decomposing garbage to use as a renewable energy source. What began as an effort to be a good neighbor to the properties around the landfill by reducing odorous gases has since become a powerful sustainability effort that’s contributing to Fargo’s climate resiliency.

Landfills are the largest source of human-produced methane emissions in the U.S. Landfill methane is produced when organic materials are decomposed by bacteria under anaerobic conditions. This means that when trash is buried underground at a landfill, away from oxygen, it creates potent greenhouse gases that are eventually released into the atmosphere.

In 2002, the Fargo landfill began turning trash into treasure by installing an active gas collection system of 20 wells which provided a withdrawal capacity of about 600 cubic feet per minute (cfm). Drilled directly into the buried waste, the wells are interconnected by piping to form a wellfield. The wells use vacuum pressure to draw gas out of the buried waste mass before it has a chance to escape into the atmosphere. Once the gases are captured, they are transferred to a central blower station where they begin a new life as a useful fuel source for energy generation. The landfill has undergone four phases of expansion since 2002. The current wellfield consists of 62 gas wells, which provide a total withdrawal capacity of approximately 1,300 cfm.

According to the City, captured gas creates a renewable energy source that helps it reduce its reliance on fossil fuels in three major ways:

1. A portion of the captured gas is sold to a Cargill Inc. oilseed processing plant which uses the gas to power its boiler.
2. A landfill gas-fueled generator utilizes a portion of the captured gas to produce clean electricity which is sold to Minnkota Power Cooperative and Cass County Electric Cooperative.
3. Exhaust heat produced by the landfill gas generator helps meet the heating needs of the City’s solid waste operations.

In 2024 alone, the operation kept the equivalent of 45,638 metric tons of carbon dioxide out of the atmosphere and has produced 524,917 kilowatt-hours of climate-friendly electricity—that's the carbon equivalent to taking 10,645 gasoline-powered automobiles off the roads for one year. **The landfill gas collection project not only makes sense from an environmental standpoint—it also is an economically smart choice for the City of Fargo**. Selling electricity from captured gas:

- ✓ Provides a revenue stream for the City, which can support other projects that benefit the community.
- ✓ Helps the City lower its electricity bills by using the gas to supply the electrical load for the entire landfill facility, office/shop, scale house, leachate pumps, and the landfill gas collection compressors.

The Division of Solid Waste has made significant investments in renewable energy projects at the landfill, and the City reports that these efforts have already recouped their costs, generating financial returns while delivering environmental benefits.

Fargo's Landfill Gas Renewable Energy Project has become to follow as they seek to reduce their reliance on fossil fuels. As the North Dakota Department of Environmental Quality (NDDEQ) pursues the state's first ever Climate Initiative and sustainability plan, this project represents the countless opportunities to leverage ordinary operations in the state to support climate resilience. Through this unique project, Fargo is proving that landfill gas capture is nothing to trash talk about.