

CASE STUDY

Preparing Critical Support Facilities for New RNG Plant

When EDL Energy decided to build a new landfill gas plant in northern Ohio to convert methane into renewable natural gas, it knew it would need both a new switchyard to power the facility and a connection to a nearby major gas transmission pipeline. Getting those projects completed on schedule meant the new facility could be productive immediately upon its completion.



Challenge

Since 2001, EDL Energy had operated a facility at the Lorain County Landfill in Ohio to reclaim landfill gas and use it to generate electricity on-site. The company decided to retire that facility and build a new processing plant to convert methane from the landfill into renewable natural gas (RNG).

To make the most of the new facility, EDL would need a connection to the nearby NEXUS Gas Transmission pipeline to distribute the RNG it will produce. It would also require a switchyard to help power the operation. Both elements would need to be in place before the RNG facility itself was completed.

Project Stats

Client

EDL Energy

Location

Lorain County, Ohio

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**MILES OF 6-INCH CARBON
STEEL PIPELINE**

69-kV

**THREE-BREAKER RING
BUS SWITCHYARD**

75%

**REDUCTION IN GREENHOUSE
GAS EMISSIONS PLEDGED
BY NEARBY CITY**

Achieving that objective would require overcoming several challenges, including supply chain constraints and environmental complexities on and around the project footprint.

Solution

EDL awarded the pipeline development, which was in its early stages, to Burns & McDonnell under an engineer-procure-construct (EPC) delivery model. The first phase included routing, preliminary engineering, right-of-way acquisition support, surveying, environmental field delineations and early permitting agency consultations. It concluded with competitive bidding for the construction, equipment and materials for the pipeline connection.

Land acquisition was successfully accomplished despite challenges. As a developer-led project, routing had to be achieved through cooperation with landowners and municipalities; EDL had no condemnation rights and could not utilize public right-of-way.

The second phase of the pipeline work consisted of detailed design, procurement, expediting and construction of the 3 miles of 6-inch carbon-steel pipeline and the interconnecting station with the NEXUS pipeline. This was completed despite the construction schedule getting pushed from summer into the Ohio wintertime. We worked alongside EDL's prime contractors at the RNG facility and with the interconnecting gas transmission company to maintain progress.

In the meantime, Burns & McDonnell was also selected for an EPC contract for the switchyard at the landfill facility, which would require more power than the previous landfill gas plant. This scope included design of a new 69-kV, three-breaker ring bus switchyard, a 50-kW backup generator, a control building, and transmission lines into and out of the substation.

The switchyard needed to be completed within about nine months of the contract signing. Given lead times for equipment extending up to 34 weeks, early procurement and construction sequencing were critical to timely performance. Site conditions were another hurdle. The site itself was heavily wooded and needed to be cleared promptly due to environmental constraints, and its proximity to wetlands necessitated a reduced switchyard footprint. The engineering team worked with all stakeholders to design an atypical overhead ring bus configuration to help save space.



Results

Both the pipeline connection and the switchyard were completed on schedule, ahead of completion of the new RNG facility. The pipeline was commissioned just 1.5 years after development began. The switchyard project was completed in just over a year and energized a few months before pipeline completion.

Under the EPC delivery model, the integrated team was able to react nimbly to each challenge, adjusting resources and sequencing to maximize productivity, and quickly identifying alternative solutions wherever needed.

With these vital elements in place, EDL is poised to begin utilizing the RNG facility immediately upon its completion. Once the captured methane has been cleaned to pipeline quality, the RNG can be transported to help meet clean energy goals. Locally, the project helps capture greenhouse gases (GHG) that otherwise would have seeped from the landfill, thus helping the community meet its goals for reducing GHG emissions.

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