METHANE CAPTURE & EMISSION REDUCTION

Customer Case Study

Washington state RNG plant increases production by more than 150,000 MMBTUs over 2.5 years by leveraging real-time data and control system to support on-site landfill team

Customer Problem

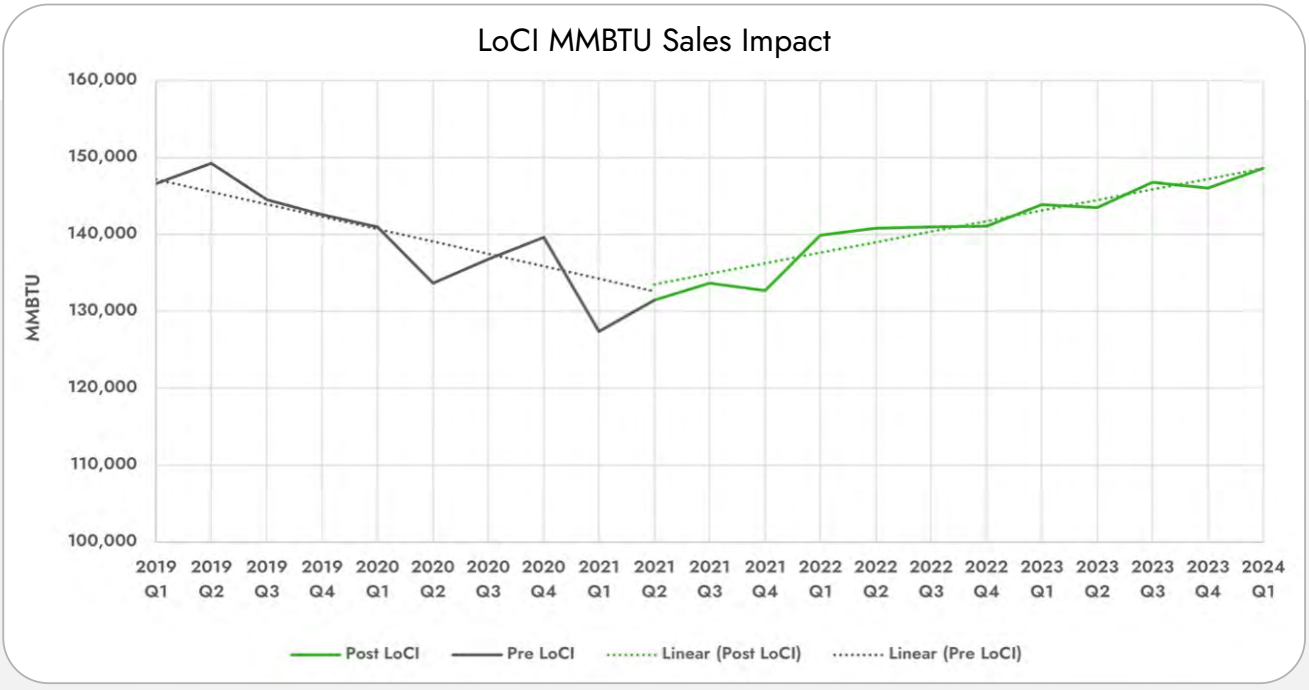
With 305 active gas collection wells at the Roosevelt Regional Landfill, Klickitat Public Utility District in Washington looked for ways to increase gas collection system efficiency while also increasing plant performance and revenue at their H.W. Hill Renewable Natural Gas Project. Historically, the gas collection operations team relied upon twice-monthly manual wellhead measurements and tuning. The Klickitat PUD team wanted the ability to make the gas collection system more efficient and support their on-site technicians — by automatically reacting to changing conditions impacting gas composition, maximizing methane capture, and driving plant MMBTU production.

LoCI Solution

LoCI installed its real-time data and control measurement devices on more than 260 of the landfill's wells — 85% of the overall wellfield. The only wells without LoCI devices were those considered "equilibrium flow" wells, or wells that produce such a small volume of gas that the valves are maintained at a minimum position and rarely, if ever, adjusted.

With LoCI's system installed and access to its cloud-connected data platform and user interface, WellWatcher®, the Klickitat PUD team gained access to readings taken every hour, rather than twice a month. If measurements fell outside the landfill's desired range, the LoCI system automatically took corrective action to keep methane collection on track, while also notifying the team of any concerns.

Results



Results

Improved RNG Plant Efficiency

Before adding LoCI's real-time data and control system, the H.W. Hill Renewable Natural Gas Project operated for three years and experienced year-over-year declines in MMBTU production. By subsequently operating with LoCI's system installed for nearly three years, **MMBTU production reversed and grew 12%** compared to the start of LoCI's installation. On-site and remote operations teams integrated the system and WellWatcher® platform into their day-to-day, resulting in a continued upward trend in RNG plant yield.

More Consistent Gas Quality Inputs

By leveraging the LoCI system to automate Roosevelt Regional Landfill's tuning strategy, the on-site landfill technician was able to control the gas quality to a significantly tighter specification than was possible with previous manual wellfield tuning. With automation and actionable insights, their team could more easily diagnose problems in the gas collection system, including locating sources of air intrusion. Real-time alerts enabled technicians to quickly identify and resolve issues in the collection system, reducing safety risks by minimizing manhours spent troubleshooting in the landfill.

The LoCI system improved inlet gas quality by maintaining both lower overall nitrogen content — **with a 7% target** — in the captured landfill gas and reducing the variability of the gas quality. Klickitat PUD's plant operators no longer had to focus on inlet gas quality and could direct their attention to other tasks — resulting in significant performance improvements and lower parasitic load, which in turn, increased the processing capacity of the RNG project.

Klickitat PUD Gas Quality Improvements

GAS	PRE-LoCI AVERAGE (%) January 2020-July 2021	POST-LoCI AVERAGE (%) August 2021-April 2024	PRE-LoCI STANDARD DEVIATION	POST-LoCI STANDARD DEVIATION	STANDARD DEVIATION % CHANGE
Oxygen	0.37	0.24	0.69	0.05	-92.1%
Nitrogen	7.99	7.03	1.64	1.13	-31.0%

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