



Case study

Northeast Natural Energy Collaborates with Baker Hughes Emissions Management to earn “A” Grade MiQ Certification



Northeast Natural Energy (NNE) is a private company providing clean, safe, and reliably developed natural gas for the world. Established in 2009, NNE’s experienced team has more than 150 years of combined knowledge and expertise.

NNE’s dedication to energy independence is evidenced in its efficient production of affordable, domestic natural gas. Operations are focused in the Appalachian basin and have achieved a proven track record of safety and reliability. NNE operates with a strong combination of unwavering integrity and cutting-edge skills.

“With the help of Baker Hughes LUMEN technology, we are proactively monitoring and limiting our methane emissions to less than 0.05% per our MiQ “A” grade certification. This achievement validates our responsibly sourced natural gas production concurrent to managing our methane emissions.”

—Mike John, Northeast Natural Energy CEO

Overview

Northeast Natural Energy (NNE), using Baker Hughes LUMEN technology, has achieved dual, independent certification for its natural gas production and emissions measurement and management. By working with Equitable Origin (EO) and MiQ in pursuit of joint certification, while also leveraging LUMEN technology (specifically LUMEN Terrain and LUMEN Sky), NNE became the first U.S. based natural gas producer to earn an EO100™ certification and the first Appalachian producer to earn an “A” grading from MiQ for nearly all of its production base.

An “A” grading represents a methane intensity of less than or equal to 0.05% and the achievement of the highest possible score in company practices and the deployment of monitoring technology. To put this in perspective, One Future, a consortium of energy companies committed to reducing methane emissions, had a gas methane intensity goal of 0.283% in 2020 for production companies and the Oil and Gas Climate Initiative (OGCI) has a target of 0.25% by end of 2025.

MiQ A-F Grading System

Grade	Score requirements		
	Methane intensity	Company practices (improved practices points)	Monitoring technology deployment
A	≤ 0.05%	≥ 12	12
B	≤ 0.10%	≥ 8	8
C	≤ 0.20%	≥ 4	4
D	≤ 0.50%	0	0
E	≤ 1.00%	0	0
F	≤ 2.00%	0	0

Source: miq.org/the-technical-standard/



Achieving this “A” grading and two certifications provides widely accepted third-party verification of NNE as a responsibly sourced gas (RSG) producer. In the U.S., demand for RSG is increasing due to its ability to accelerate decarbonization initiatives. RSG certification is based on ensuring environmentally responsible practices, including emissions, water and land use, as well as community impacts.

As a privately owned company headquartered in Charleston, West Virginia, NNE proactively pursued the dual certifications to enable full operational transparency and accountability in limiting methane emissions. NNE chose Baker Hughes LUMEN technology (LUMEN Terrain and LUMEN Sky) to meet stated MiQ standards for frequent, direct methane measurement technology across NNE facilities. Both certifications were achieved in less than one year.

Challenges

NNE wanted to achieve RSG certification of its natural gas production from EO and MiQ, both independent agencies. NNE’s goal was to achieve the highest grades possible. RSG certification from independent agencies represents a highly credible and objectively verifiable assessment that translates into differentiation and a unique advantage—for consumers, citizens, the environment, and NNE.

One of the specific requirements in pursuing RSG certification from EO and MiQ was the need for direct, high-frequency measurements of fugitive and venting methane emissions across NNE sites. To achieve an “A” grading, stringent monitoring requirements had to be met with highly accurate and reliable technology solutions. MiQ technology requirements included parameters such as:

- “Super Emitter” identification
- Source/component level identification
- Continuous and quarterly facility inspection
- High fidelity measurements across sites with the ability for quantification
- Top-down and bottom-up technology for scanning and source identification
- Direct measurements that enable estimation and validation of methane intensity
- Monitoring technology detection sensitivity to be suitable for site level inspection

Solutions

NNE chose Baker Hughes LUMEN Terrain and LUMEN Sky to pursue the dual RSG certifications.

In the first phase of NNE’s grading achievement, NNE deployed LUMEN Terrain, a ground-based, solar-powered, wireless system. LUMEN Terrain creates a “digital mesh” network around a facility, indoors and outdoors. It monitors

and reports methane emissions 24 hours a day, either continuously or on a set cycle. NNE used LUMEN Terrain to identify and locate methane emissions from areas such as compressors, valves, tanks, etc. NNE then used these insights to prioritize plans for minimization and abatement.

LUMEN Sky, drone-based detection system, was then deployed by NNE to gain a holistic understanding of emission sources and corrective actions. NNE employed state-of-the-art optical gas imaging (OGI) technologies with high-definition aerial video streaming via LUMEN Sky. This helped NNE to develop accurate 3D models of their assets, detect issues, automate quantification, and pinpoint localization for timely remediation, while also complying with EPA 40 CFR Part 60 Subpart OOOOa - Federal regulations for monitoring and reporting methane emissions.

With LUMEN technology, NNE is able to automatically track methane concentration data (parts per million or PPM) in near real time, along with the location and rate of the methane leak.



Results

- Awarded “A” grading from MiQ, representing methane emission intensity of less than 0.05%
- Became the first West Virginia producer to earn MiQ’s “A” grading
- Deemed the first US based natural gas producer to achieved EO100™ certification
- Became one of few privately owned companies to achieved dual MiQ-EO certification
- Succeeded in earning credible, verifiable certification toward RSG

Summary

NNE’s extraordinary achievement of joint certifications in less than one year were, to a large degree, enabled by the effective use of LUMEN technology to measure and monitor methane emissions. Using the MiQ “A” grading and EO100™, along with emissions management, will allow NNE to provide a unique advantage for consumers, citizens, the environment, and NNE.

To learn more, please contact Baker Hughes at [bakerhughes.com/emissions-management](https://www.bakerhughes.com/emissions-management)