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2022 Sustainability Report

Leading the Way Through Continuous Improvement

clean.
abundant.
natural.

Mike John, President / CEO

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CEO INTRO > **CONTINUOUS IMPROVEMENT**

2021 was a transformational year for Northeast Natural Energy. We began the year discussing how we could measure our performance and differentiate our company; and ended the year by becoming the first upstream natural gas company in the United States to achieve independent certification when Equitable Origin completed its comprehensive review. We followed that up by achieving certification through MiQ. This means that 100% of our West Virginia production is certified. When we started the certification process the concept was relatively new. By the end of 2021 nearly every major shale operator had committed to certifying at least a portion of their production.

During the past year, it became obvious you can't force ESG into your culture. It must be employee-driven. From the very beginning of our journey toward independent certification, the NNE team at every level led the effort to find new and better ways to continuously improve our operations both in the field and in the corporate office. This report highlights some of the innovative solutions our team has implemented as a result of these efforts.

From its inception NNE has been steadfast in its commitment to adhering to the highest environmental standards. This last year has reinforced the importance of that commitment, and the need for continued improvement from our industry.

We dedicated resources looking for ways to improve our environmental performance, deploying multiple technologies to identify and reduce methane emissions from our production facilities. These enhancements not only enable our team to react quickly to reduce emissions, but also track and analyze key performance indicators, potentially preventing leaks before they happen.

Northeast Natural Energy's team knows that the world, led by our industry, must adapt and tackle the challenges that a changing energy landscape presents. One of the ways that NNE looks to address this is a renewed focus on utilizing the natural resources we produce to power our own operations. In 2021we partnered with US Well Service, to utilize their natural gas powered Electric-Fleet (EFLEET) and realized a significant reduction in diesel fuel consumption. We will continue to look for natural gas or dual fuel frac fleets going forward to continue down this path. Additionally, we are partnering with Patterson-UTI to use a natural gas-powered drilling rig beginning in April of this year. These ideas were developed and executed by our forward thinking operations team, in an effort to continue finding ways to improve our company's efficiencies and reduce Green House Gas emissions.

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Sustainability and Continuous Improvement

2022

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Northeast Natural Energy Company Profile

Northeast Natural Energy ("NNE") is an upstream exploration and production company focused exclusively on Appalachian dry gas development with core assets located in north central West Virginia. Since its founding in 2009, NNE has been forward-thinking in its approach to environmental issues, has been a thought leader in the methods that advance responsible development of natural gas, and has shared that knowledge with its peers to better develop the industry.

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As an unconventional natural gas development company, NNE recognizes the critical importance of water, not only in its operations but also in the communities where its employees work. As such, NNE is committed to pursuing a water -neutral approach through conservation and water management, including recycling and reusing its produced water and through water- sharing agreements with other operators.

NNE is proud to be a leader in an industry that produces reliable and affordable energy. By conducting operations in a safe and environmentally sound manner, NNE is focused on reducing greenhouse gas emissions to ensure its natural gas provides a low carbon solution that helps address climate change risk.

In 2021, NNE joined the ONE Future Coalition of Energy Producers, an organization committed to further reducing methane emissions. NNE's methane intensity levels are some of the lowest in the Appalachian Region and significantly lower than US Oil and Natural Gas industry levels reported through the EPA. NNE's methane intensity levels are validated and monitored through the ONE Future, API Environmental Partnership, and MIQ processes. NNE remains committed to operating transparently and continually measuring its performance to provide sustainable energy development. The comprehensive review through the dual certification process by Equitable Origin and MIQ validates that commitment and NNE's efforts to responsibly produce natural gas while adhering to the highest environmental standards in the industry.

For 2022, NNE has established goals and is leading the way for the industry by working towards achieving water neutrality, further reducing its methane intensity, reducing its overall carbon footprint, and engaging in far-reaching community enhancement efforts. NNE remains steadfast in its dedication to continuously improving its performance and challenging itself to stay at the forefront of the industry.

Dual Certification

Adhering to the highest ESG standards

What is:

Responsibly sourced natural gas?

As NNE evaluated how we could measure our performance and differentiate the company and the natural gas we produce, we realized that seeking dual certification struck the right balance of ESG operational performance targets and a market-based approach to rapidly reduce methane emissions.

Certified, responsibly sourced gas is natural gas that has been produced along a specific set of sustainability criteria to minimize methane leakage and harm to the environment. These criteria, some of which are defined by the standards established by Equitable Origin and MiQ, include a focus on methane leakage as well as more comprehensive environmental impact, social impact, and corporate governance standards.

Equitable Origin certifies energy production in accordance with its EO100 Standard – a set of rigorous ESG performance targets for energy development projects.

MiQ certifies using a market-based approach to rapidly reduce methane emissions across the natural gas sector.

100% of NNE's WV Gas is Certified

"Being measured by both Equitable Origin and MIQ provided a comprehensive analysis of our Environmental and Social Governance, Corporate and Operational Practices and Community Engagement."

NORTHEAST NATURAL ENERGY

1st

in the United States to achieve this certification

" NNE is helping to **lead the way** in their industry by not only meeting the stringent requirements of the EO100™ Standard, but also going above and beyond in many areas including transparency, community health and safety, land rights, and bio diversity."

Soledad Mills
Chief Executive Officer
Equitable Origin

October 19, 2021
Equitable Origin announces NNE as the first certified U.S. upstream oil and gas company

EQUITABLE ORIGIN

Dual Certification

Adhering to the highest ESG standards

EQUITABLE ORIGIN

Measuring our environmental performance, community involvement, and corporate governance

October 19, 2021

EO announced that NNE was **the first upstream oil and gas company in the United States** to achieve certification under the Equitable Origin, EO100™ standard.

EO100™ Continuous Improvement Commitment

- Developing ISO 14001 equivalent operational management system
- Developing an EO100 compliant contractor management system.
- Continually striving to reduce greenhouse gas emissions
- Stakeholder engagement
- Reporting economic impact and benefit to communities
- Annual corporate and operational audits
- Continuing to track and identify environmental and operational improvements
- Measuring our performance and operating transparency
- Identifying and implementing robust community engagement plan

APPROXIMATELY

2.5%

of the world's gas is Certified

" Our extensive assessment of Northeast Natural Energy confirmed they are performing admirably in the field and are a **leader** in responsible natural gas production in the Appalachian Basin."

Roy Hartstein
Chief Executive Officer
Responsible Energy Solutions
(Approved MiQ Assessor)

Methane Monitoring Technology + Practices + Procedures in the field + Verified Methane Intensity Rate = **A**

A-Rated by MiQ Review Standards

Dual Certification

Rapidly reducing methane emissions

Measuring company practices, methane detection and methane intensity

January 20, 2022

MiQ announced that NNE had received an **A-grade** and achieved certification of its natural gas production under the MiQ standard for methane emissions measurement and management.

MiQ Continuous Improvement Commitment

- Annual Corporate and Operational Audits
- Implementing quarterly OGI Leak Detection and Repair Surveys
- Implementing quarterly Aerial Facility Scale Surveys
- Implementing the training and weekly use of handheld methane monitors by well tenders
- Continuing to monitor and identify key performance indicators

Environmental Performance

Environmental Performance

Spotlight

Reduce Risk

Reducing risks of toxic chemicals by utilizing vendor programs that review ecotoxicology, regulatory status compliance and sustainability. We also conduct daily third-party safety and environmental Inspections.

Optimize Energy

Employing electric and natural gas-powered fleets in completions operations and natural gas engines in drilling operations to reduce the full spectrum of emissions.

Save Water

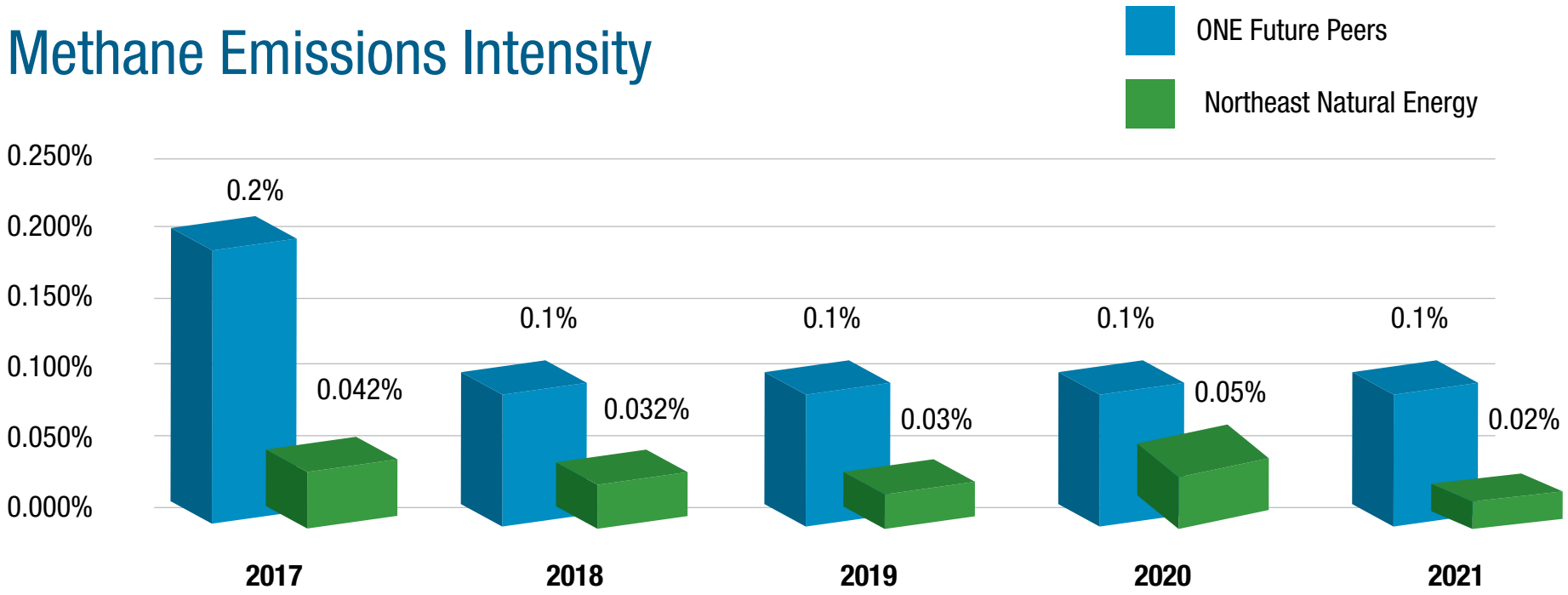
Achieving 108.2% water recycling/reuse for drilling and completions programs across our operations.

Reducing Methane Emissions

Improving our methane intensity performance

New assessments / certifications = increased focus and investment in technology

Methane Emissions Intensity



As leaks are identified, the information is entered into **Leak Tracker Pro** system.

Our well tenders are trained to log—

AVO

(Audio-Visual Olfactory) well tenders are equipped with **Huberg Metrex** gas detectors

Monitoring and Reducing Methane Emissions

The data we collect from Leak Tracker Pro will be utilized to identify patterns and proactively address situations to avoid future methane leaks.

NNE continues to look for new ways to identify and limit our methane emissions. We view methane emission abatement as a combination of training and technology. It starts in the field, where our well tenders are trained to daily complete and log Audio-Visual-Olfactory ("AVO") inspections. Additionally, in 2021 NNE equipped each well tender with a Huberg Metrex gas detector, which is a hand-held monitor that pinpoints methane leaks that may not otherwise be detected using AVO inspections alone. Frequent monitoring helps identify and eliminate leaks early and results in a significant reduction of fugitive emissions.

Avitas
Lumen Terrain

Fixed-location methane monitoring technology

NNE was the first Appalachian Basin company to utilize the technology created by Avitas.

Fixed-Location Methane Monitoring

In September 2021 we deployed the Avitas Lumen Terrain, fixed-location methane monitoring technology to help us identify and address methane leaks in our operations. Seven sensors are positioned around the location providing our team with real time data upon methane detection.

The approximate location is also identified based on which sensor detected the presence of methane, coupled with wind direction data being collected by the system. Our ability to address leaks in real-time will enable us to target an additional 10-20% decline in our methane emissions.

7 sensors are positioned around the location providing our team with real time data upon methane detection.

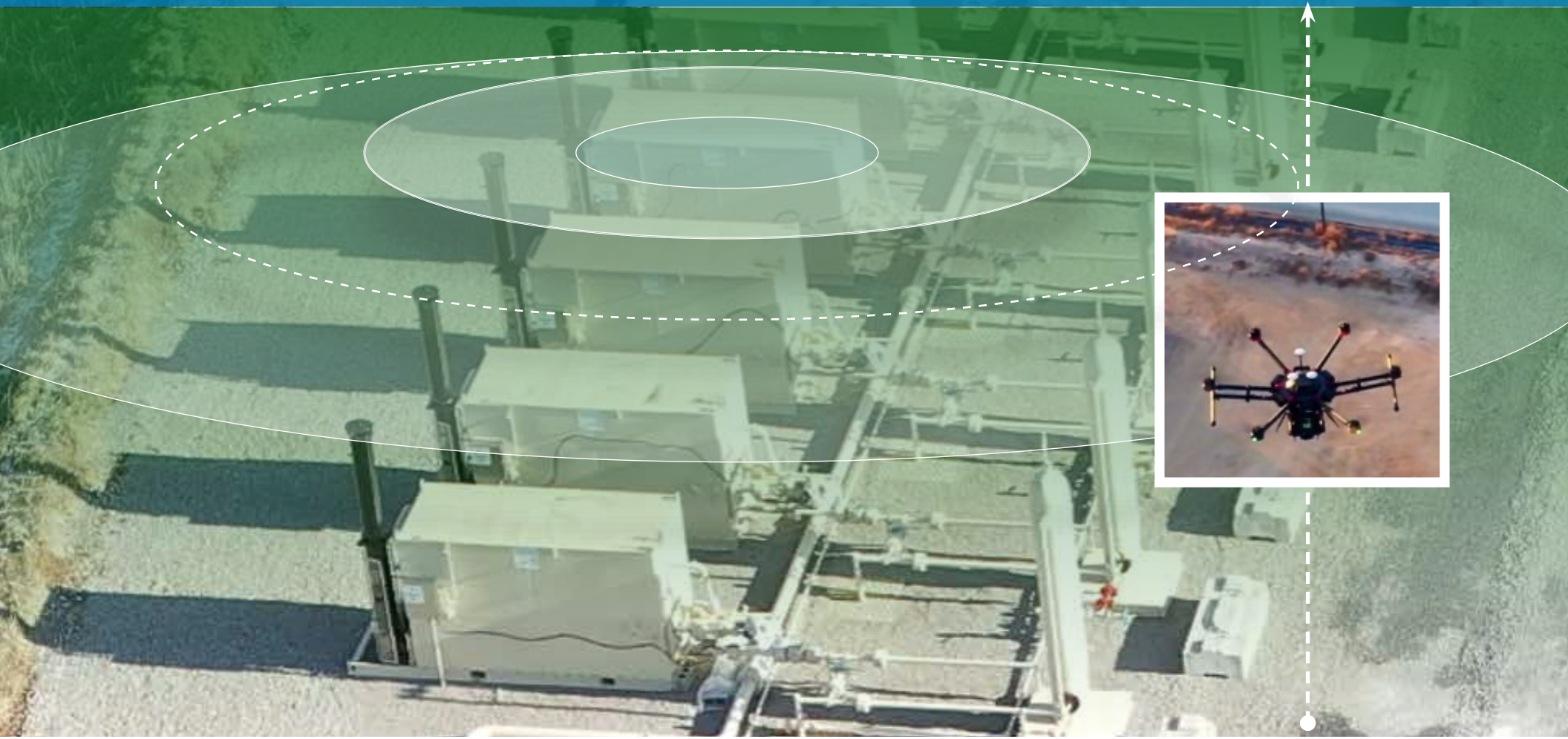
Avitas
Lumen Terrain

Fixed-location methane monitoring technology

Northeast Natural Energy uses drone and OGI camera technology to survey and map our sites, providing overhead imagery and data to improve methane leak detection and mitigation.

Avitas Lumen Sky

Drone-based methane monitoring technology



Goal of less than 1% Methane intensity

<1%

ONE Future Commitment

Northeast Natural Energy remains an active member of ONE Future and the 50+ member companies committed to lowering methane intensity to less than 1% across the natural gas value chain.

NORTHEAST NATURAL ENERGY - 2021 INTENSITY RATE

Actual .02%

Verified Methane Intensity Rate

In 2021, NNE's methane intensity rate was .02%. That's half of our 2020 rate and two orders of magnitude lower than the ONE Future commitment.

NNE will continue to explore opportunities to reduce methane emissions and maintain our best-in-class intensity rating.

Water Use and Recycling

Improving our stewardship of our resources

Measuring and focusing on ways to improve how we use and recycle water

Northeast Natural Energy recycled—

108.2%

of the wastewater it generated (2021)

We accomplished this by **utilizing the excess water** in our own completion operations, and through **water sharing agreements** with other oil and gas drilling and production companies.

2020	2021
97.7%	108.2%

Water Use and Recycling

Improving our stewardship of our resources

Measuring and focusing on ways to improve how we use and recycle water

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Recycled/Reused
108.2% of
Produced Water

NNE 2021 Water Usage Summary

- Water withdrawn from surface streams: **6,802,892 bbls**
- Water Produced: **1,801,962 bbls**
- Produced water recycled/reused via operations: **1,788,583 bbls**
- Produced water recycled/reused via third party operators: **161,110 bbls**
- Produced water sent to approved disposal facilities: **13,379 bbls**

NNE's water infrastructure **eliminated 83,000** truckloads and **2.3 million** trucking miles in 2021.

Approximately **50,000 lbs of plastic pipe will be recycled** into kayaks and other recreational vehicles.

50,000 lbs ≥ 1,400+

APPROXIMATELY

Kayaks / Boats

We contracted with Plasticycle of Nashville, Tennessee to recycle approximately 50,000 pounds of plastic pipe. The recycled plastic will be used to make boats, kayaks and other recreational vehicles.

Environmental Performance

Northeast Natural Energy has initiated a project to recycle HDPE pipe we originally purchased for water transportation.

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Operational Improvements

2021 Total Reportable Incident Rate (TRIR)

0.0

(Down from .565 in 2020)

Committed to Safety

NNE's 2021 Total Reportable Incident Rate (TRIR) – 0.0

NNE Implemented KPA EHS software to record and track safety inspections, to assign corrective action tasks and to follow up on item resolution.

No OSHA Reportable or Lost Time Incidents!

Resilience and Flexibility

48%

Increased Production*
(*during a global pandemic)

NNE nimbly shifted to remote oriented workspaces, to protect employees in response to the COVID pandemic – and still managed to increase production by 48% during this time.

1.4 Mil

Lateral Feet of Production

Producing through 279 miles of well laterals in Pennsylvania and West Virginia.

Operational Improvements - Drilling

Currently the only operator in the Appalachian Basin to utilize field gas to power a drilling rig.

Operational and Environmental Improvements were made starting out 2021 utilizing a top-down approach with a single drilling rig. Traditionally NNE had utilized an air rig for the top hole or vertical section drilling to an average depth of 8,000 ft. Once all top holes were drilled, this rig would demobilize, and a larger horizontal rig would be moved in to complete the horizontal section of the wells. By converting to a top-down approach, combined with longer laterals, NNE was able to increase efficiency, reduce its operational footprint, and eliminate two rig moves per pad.

Additional improvements have been implemented in 2022 with the transition to natural gas-powered engines for the drilling rig. This is expected to save, on average, 4,500 gallons of diesel fuel per day, and further reduce our greenhouse gas emissions.

Operational Improvements - Completions

Eliminated 1.5 million Gallons of Diesel Fuel

25% Reduction in CO_2 emissions

In 2021 NNE made a commitment to utilize Tier IV frac fleet technology or better. We also looked for additional opportunities to reduce emissions during completions operations which led us to a partnership with US Well Service ("USWS") utilizing their clean fleet e-frac. This frac fleet was powered by a natural gas turbine replacing 100% of the diesel fuel that would normally be consumed with NNE field gas. This led to a significant reduction in greenhouse gas emissions and gained operational efficiency with a reduced maintenance cycle for electric pumps, allowing for more stages per day and reducing time on pad compared to standard frac fleet performance.

Operational Improvements - Production

All NNE production facilities are self-sufficient

All NNE production facilities are self-sufficient in terms of generating electricity for operations. We achieved this utilizing a variety of technologies including thermoelectric generators, solar-powered telemetry, and natural gas generators. Further operational improvements focused on reducing fugitive methane emissions. In 2021, NNE conducted a pilot project using natural gas-powered air compressors to actuate air pneumatic controllers. As a result of this project, NNE is now implementing air pneumatic controllers at all new production facilities and retrofitting existing production facilities where appropriate.

Ongoing efforts to reduce emissions include a partnership with WVU to evaluate specific emission sources to capture and reuse fugitive methane emissions. NNE has also ordered combustion equipment to eliminate methane emissions from its production tanks as part of a pilot vapor recovery project.

NNE is now implementing air pneumatic controllers at all new production facilities

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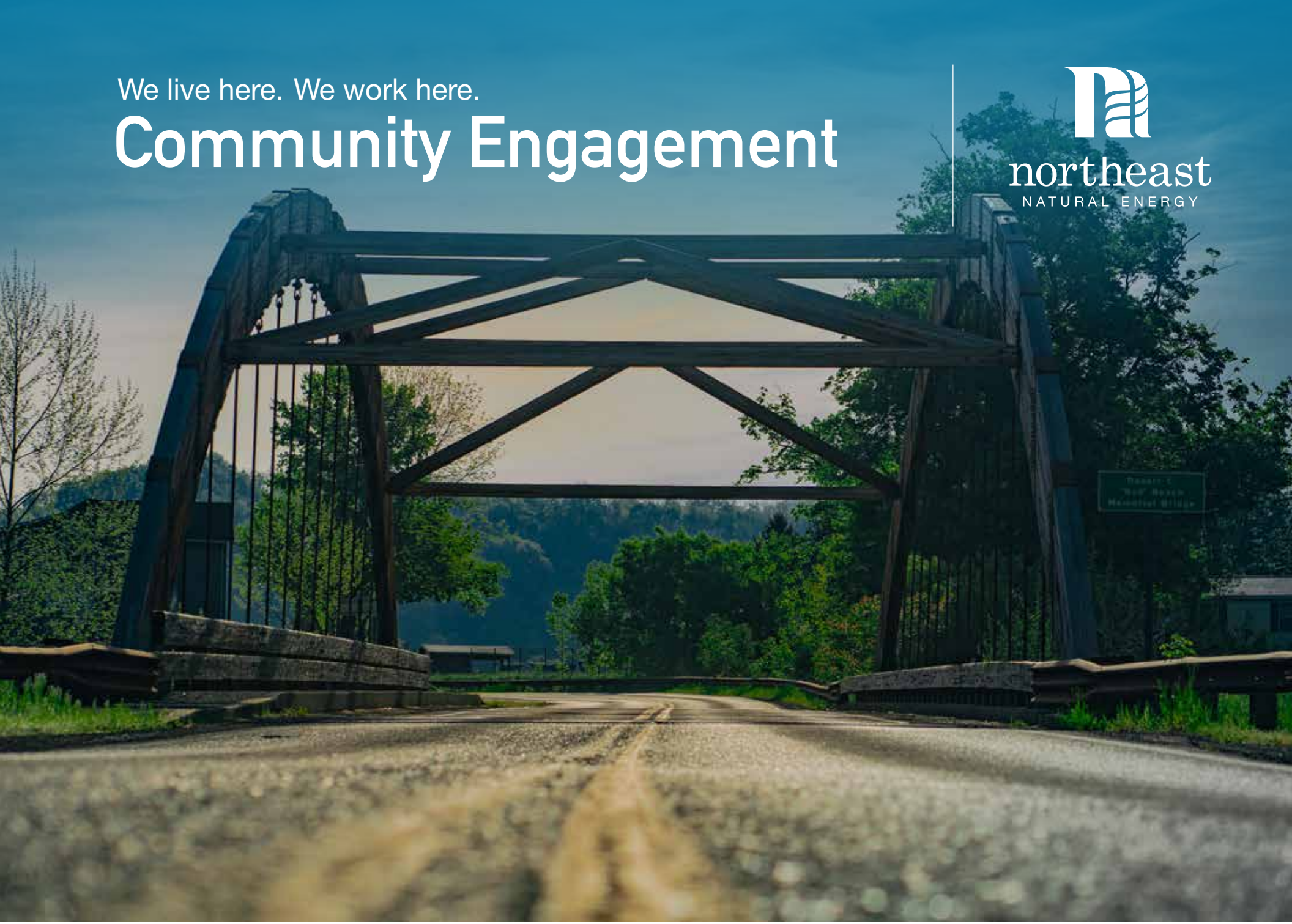
We live here. We work here.

Community Engagement



Community Engagement

Monongalia County Broadband Initiative

"Our Broadband Initiative is one of the most important economic development projects in Monongalia County and we are blessed to have corporate partners like Northeast Natural Energy stepping up and being part of the solution to the overall benefit of all of our citizens."

Sean P. Sikora
Monongalia County
Commissioner

Northeast Natural Energy LLC has partnered with the Monongalia County Comprehensive Broadband Strategic Planning Project Team to provide private residents, schools and businesses in Western Monongalia County with a reliable network of fiber-optic and broadband access. Surveys indicate that 1,363 households in the county have no internet subscription and 2,970 have cellular internet only. NNE's participation in the development of the project will help facilitate a reduced construction timeline while helping to reduce costs and environmental impacts, all while helping our neighbors.

Deckers Creek

Special Project Update: Monongalia County

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Implementing strategies to make our communities better places to live.

The contractor has been chosen and construction has started!

Stream treatment to begin 2023

Our employees passion for their local environment led us to partner with the WVDEP and the USDA to construct and maintain an active treatment system, bringing life back to Deckers Creek.

We announced our partnership in April of 2021, and since then we have been working with the regulatory agencies to complete the necessary steps to move the project forward.

The State of West Virginia awarded the project to a qualified contractor late in 2021, and construction is underway, with the plant expected to be operational in 2023.

Deckers Creek, a tributary of the Monongahela River, has been degraded by more than 100 years of acid mine drainage due to underground coal mining. While active coal mining ceased in the Deckers Creek drainage area in the 1950's, acid mine drainage has continued to impact Deckers Creek to the point where aquatic life is practically non-existent. By installing a treatment system located outside of Morgantown, WV, the impacted section of Deckers Creek will be restored to a point where aquatic life can thrive.

Deckers Creek

Special Project Update: Monongalia County

Things to Know

1.2 Billion Barrels of Water Per Year*

Northeast Natural Energy is making a difference in the world and in our community.

*NNE will help maintain the treatment systems that will clean harmful metals from 1.2 billion barrels of water per year.

2 days

NNE will be water-neutral within 2 days of water flowing at the new plant

200,000 lbs

of heavy metals will be removed from the stream each year

Community Engagement

Stocking Trout in Paw Paw Creek

Partnering with the WV DNR to stock our streams

Over 400 lbs of trout !

Our employees are passionate about being engaged in the health of our local streams.

NNE employees participated in a trout-stocking day for Paw Paw Creek, in Marion County, WV. Approximately 400 pounds of trout were released along a roughly 3-mile stretch of the stream. NNE uses Paw Paw Creek as a source of fresh water for completions operations. Plans are underway to adopt a portion of Paw Paw Creek, under WV DEP's Save Our Stream Program, whereby NNE volunteers will conduct cleanup efforts and collect water quality data.

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Community Engagement- Exploratory Geothermal Well

Working Together

- A n**ew partnership with WVU and the US DOE** to study geothermal industrial energy potential near Morgantown, WV
- NNE selected as operator of choice
- Will determine feasibility of a geothermal heating system for the WVU
- Supports student and faculty research
- Drilling in 2022

Taxes and Royalties Paid

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# of Royalty Owners	2021 Royalties Paid
4,240	**$ 50,254,314**

Severance taxes	$ 15,233,852
PA Impact fee	$ 108,500
Property taxes	$ 1,940,938
Total Taxes & Fees	**$ 17,283,290**

NNE's Impact

$67.4
MILLION

NNE distributed over $67 million in taxes and royalties, increasing the standard of living for all stakeholders in its operating area.

MSEEL
(Marcellus Shale Energy and Environmental Laboratory)

Another example of how Northeast Natural Energy is Leading the Way.

The project was the first-of-its-kind living laboratory to study all aspects of unconventional shale development. Not only were novel down-hole technologies tested and, in some cases, improved, but environmental and social effects of shale development were studied by researchers at these top-class institutions. All of this was done over a long period of time, which allowed for baselines to be established and for changes to best practices to be incorporated and analyzed.

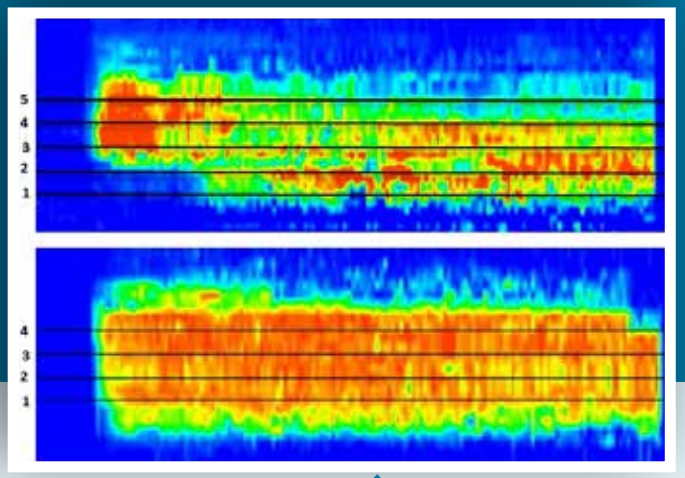
COMPLETED IN 2021

7 Year Study

Joint partnership between NNE, WVU, the National Energy Technology Laboratory and the U.S. Department of Energy

MSEEL

Optimizing fracture distribution



This scientific project and all the data generated have been made freely available to the public on the mseel website. Some of the highlights of the project are listed here.

mseel.org

MSEEL Project Highlights

- **Reduced footprint of pad site locations** and surface disturbance
- **Reduced the amount of noise and light pollutants** in our operations
- Reduced GHG, VOC's, and dust emissions
- Extensive surface and subsurface **water testing conducted by WVU indicated no effect from shale development to drinking water** or surface water sources during the entire length of the project
- **Hundreds of researchers used the data gathered to generate thousands of publications,** presentations, and informational items **to improve processes, educate the populace,** and illuminate what unconventional shale development brings to society.

Leading the Way - Looking Forward

2022 has already brought new operational initiatives and improvements, borne from our continuous performance evaluations. NNE looks forward to increasing production while continuing to operate safely, responsibly and with the highest environmental standards. We will continue to be measured and demonstrate transparency with our ongoing corporate, operational, social, and environmental audits and continuous improvement plans. NNE's team will continue to evaluate operational improvements, including emission reduction opportunities.

NNE will also continue to explore opportunities to engage with the community, including instituting a company policy that provides paid volunteer hours to our employees to support local charitable programs. Our engagement efforts are well underway to support local educational, environmental, and recreational projects. Our team is excited to interact with our neighbors at community events and hopes that they enjoy the benefits of NNE supported initiatives like the Monongalia County Broadband Initiative, STEM education, Decker's Creek remediation, Paw Paw Creek clean up, and emergency responder support.

Northeast Natural Energy strives to be a leader in our industry and a good neighbor in the communities where we work and live.

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Sustainability and Continuous Improvement

2022