

ANNUAL REPORT 2021

Improving the Oil and Natural Gas
Industry's Environmental Performance



Our Mission



To continuously improve the industry's environmental performance by **taking action**, **learning** about best practices and technologies, and fostering **collaboration** to responsibly develop our nation's essential oil and natural gas resources.

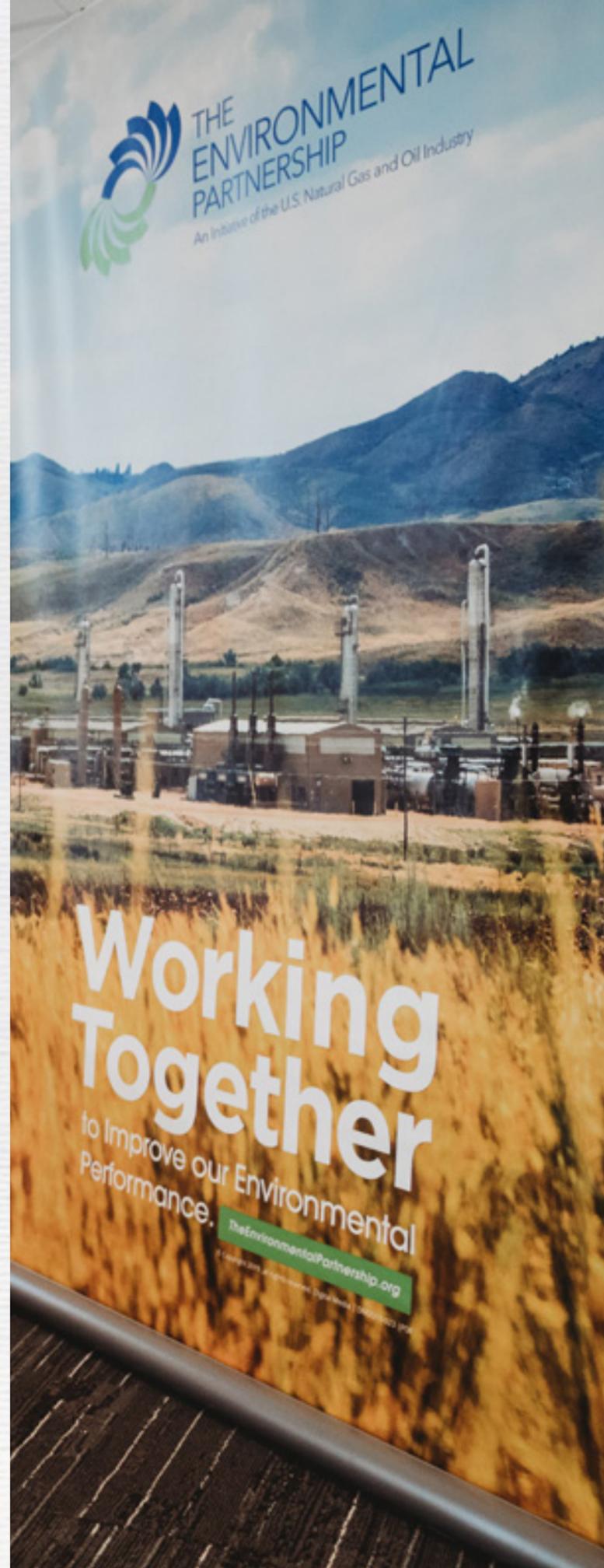


Table of Contents



<i>Messages from Leadership</i>	4
<i>The Environmental Partnership Program Summary</i>	8
<i>2020 Participating Companies</i>	12
<i>2020 Performance Highlights</i>	14
<i>Accelerating Progress</i>	16
<i>Improvement Through Learning and Collaboration</i>	18
<i>2021 Acknowledgments</i>	20

Joint Message

from the Chair and Director

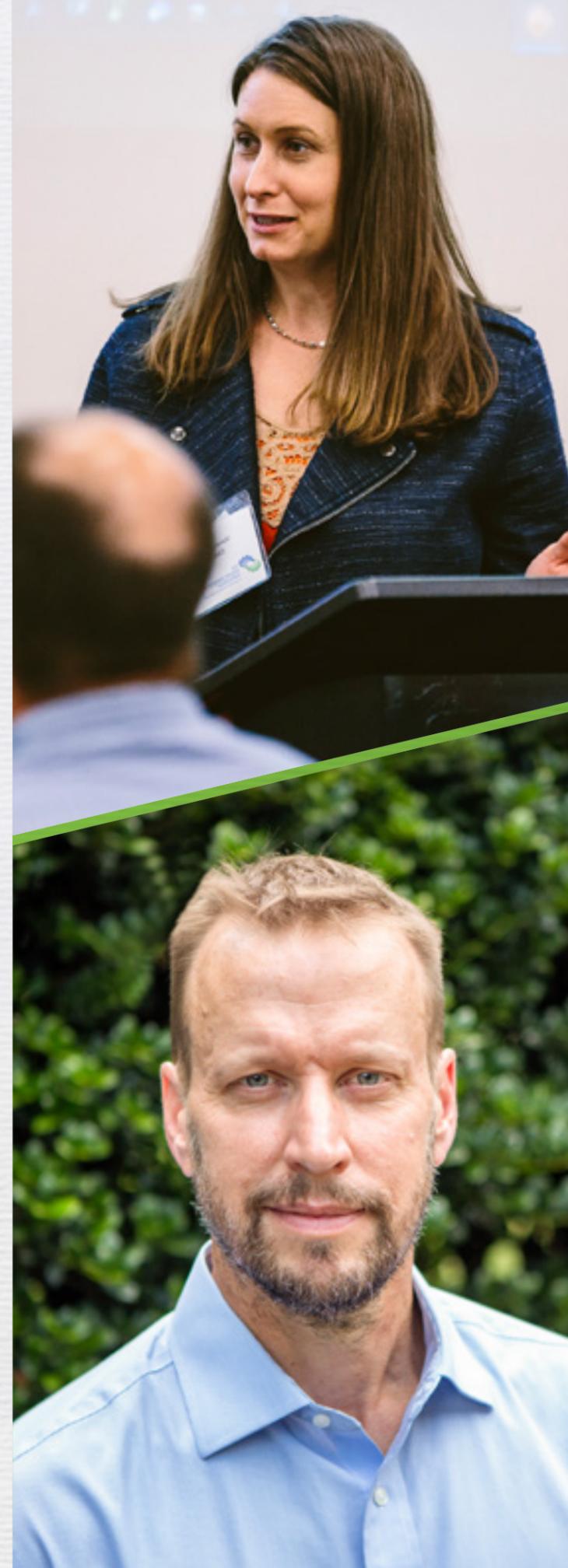
While much of life felt like it came to a standstill last year, The Environmental Partnership and its growing coalition of participating companies pressed forward to demonstrate the oil and natural gas industry's commitment to reduce emissions and deliver improved environmental performance - by Taking Action, Learning, and Collaborating.

Our companies continued to Take Action last year by implementing the program in every major oil and natural gas basin across the country. While many companies have already taken robust steps to reduce flaring of associated gas, there was widespread agreement within The Partnership that more can and should be done to further reduce flaring. By creating and launching The Partnership's new Flare Management Program, companies are using available practices to avoid flaring and minimize emissions when flaring is necessary. To gauge our progress in future years, the participating companies also committed to reporting a key metric, flare intensity, to measure flare volumes relative to production.

Midstream companies that safely process and transport oil and natural gas across the nation also began implementing two new Environmental Performance Programs last year to further reduce emissions. We're thrilled to see the robust participation in the new programs and the addition of new midstream companies that continue to join The Partnership.

While the pandemic may have prevented us from hosting in-person workshops, it did not stop us from pushing forward with our core program principles of Learning and Collaborating. We continued our commitments to advance and improve cutting-edge methane detection technologies by funding operations and research at Colorado State University's Methane Emissions Test and Evaluation Center. The ongoing collaboration will help the development of many new emission detection technologies and will be partly facilitated by the participating companies that are providing site access to conduct rigorous field testing this year.

As emission detection technologies continue to evolve, participating companies have been eager to engage and help increase their use through The Partnership. One approach that continues to grow rapidly is using aerial surveillance of operations to identify emissions. Our collaboration with a team from the University of Arizona and NASA's Jet Propulsion Laboratory, led by Riley Duren, provided participating companies access to emissions detected during their aerial surveys. To further our understanding of common emissions sources, The Partnership also conducted an aerial survey pilot project using a different detection technology in the Permian and Denver-Julesberg basins.



The project used the technology to deliver actionable data and identified opportunities for further improvements to tackle within the program.

As the country continues to recover from the ongoing impact of the pandemic, we're hopeful for the future and grateful for the community of dedicated women and men of our industry that steadfastly do their part to keep the nation moving forward. While many of us adjusted to a virtual work environment, there were hundreds of individuals involved in The Partnership's programs that were taking steps, every day, to ensure safe operations and protect local communities and the environment. The Environmental Partnership's scope and implementation continued to grow despite the challenges of the previous year, and we're confident in our industry's resolve to tackle new challenges as we strive to meet the mission of the program and never stop improving.

Sincerely,

Vanessa Ryan
Chair
Chevron

Matthew Todd
Director
The Environmental Partnership

Message from Mike Sommers

////// President and CEO, API

As global leaders consider climate solutions, the natural gas and oil industry is already there, focused on delivering meaningful energy and environmental progress. The Environmental Partnership serves as a model for industry-led emissions reductions, and I'm proud that this initiative has paved the way for additional policies and programs designed to ensure the long-term viability of the U.S. energy sector.

Its success doesn't come a moment too soon. After all, climate change exists as the greatest challenge - and opportunity - for the current generation and those to come. Our industry has seized this moment by investing in strategies to both expand energy development and accelerate emissions reductions. API's new Climate Action Framework outlines ideas that will enable the U.S. to deliver a lower-carbon energy future, and this coalition plays a key role. Its track record shows nothing but promise ahead.

Since 2017, The Environmental Partnership has expanded to incorporate 94 (as of August 3rd, 2021) participating companies, including midstream operators and 19 of the top 20 U.S. natural gas producers. This growth reflects our enduring commitment to safety, sustainability, and environmental performance, as well as the recognition that climate solutions can be cost-effective and improve industry's operational performance.



Far from a happy coincidence, our efforts align with those of the new administration in Washington. For example, methane emissions rates in America's largest energy-producing regions continued to decline, even as production increased - production that supported fuel-switching in power generation to natural gas and away from coal. And operators are continuously improving performance, particularly in reducing natural gas flaring.

By sharing information, implementing technologies, and collecting data, companies are developing innovative approaches to economy-wide emissions reductions. Economy-wide means everyone, and we are proud to do our part.

The Partnership's collaborative, action-driven principles and clear-eyed vision for responsible resource development are instructive as our industry aims to safeguard America's energy security and promote environmental progress. Companies work best when they share best practices and capitalize on each other's breakthroughs. And that's The Environmental Partnership in a nutshell. Its ethos has always involved acknowledging major challenges and providing realistic solutions together. This program has set the standard for industry-wide climate reporting and methane emissions reductions, delivering a blueprint for a more sustainable energy future.

Sincerely,

Mike Sommers

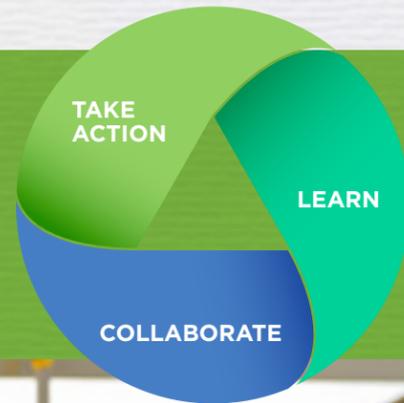
President and CEO

American Petroleum Institute

Program Summary

Our Mission and Principles

To continuously **improve the industry's environmental performance by taking action, learning about best practices and technologies, and fostering collaboration** to responsibly develop our nation's essential oil and natural gas resources.



Principles



1 LEARN
Participants have committed to continuous learning about the latest industry innovations and best practices that can further reduce their environmental footprint while safely and responsibly growing energy production.

2 COLLABORATE
Participants have committed to collaborate with one another and with academics, researchers, and regulators on the best strategies, tools, and tactics to improve environmental performance.

3 TAKE ACTION
Participants have committed to taking action to improve their environmental performance. This is being accomplished through The Partnership's six environmental performance programs, which companies can implement and phase into their operations.



Background

The U.S. oil and natural gas industry is committed to protecting human health, safety, and the environment. Even as the United States is leading the world in oil and natural gas production, methane emissions from petroleum and natural gas systems have fallen (1990-2019), thanks to industry leadership and investment in new technologies.

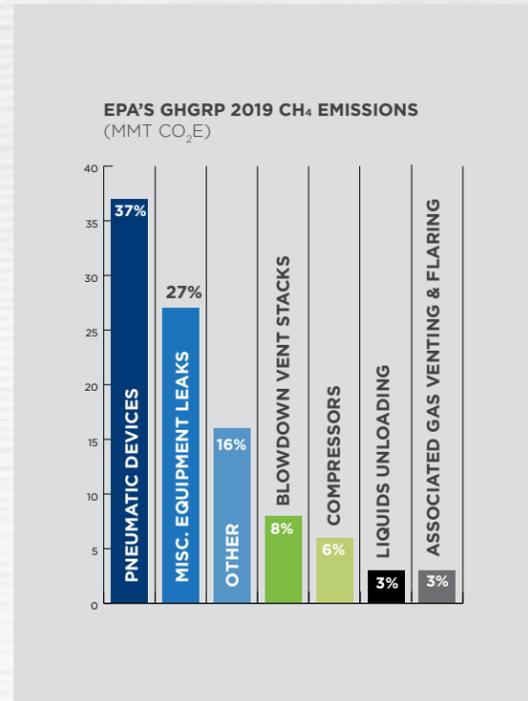
Seeking to build on this success, a group of 23 oil and natural gas production companies formed The Environmental Partnership in December 2017.

The Environmental Partnership's first initiative is focused on taking action to further reduce emissions, including methane and volatile organic compounds (VOCs), associated with oil and natural gas production.

Methane is a greenhouse gas, emitted both in nature and through human activity. Because methane is the primary constituent of natural gas, minimizing its release is important to industry from an environmental and business standpoint. VOCs are naturally occurring compounds containing carbon that can be emitted during production and are an important target for reductions because they are a precursor to ground-level ozone formation and smog.

OUR ENVIRONMENTAL PERFORMANCE PROGRAMS

Since its launch, The Partnership has expanded to cover more emission sources across the supply chain. Informed by EPA's Greenhouse Gas Reporting Program data, there are now six Environmental Performance Programs that oil and natural gas companies can implement:

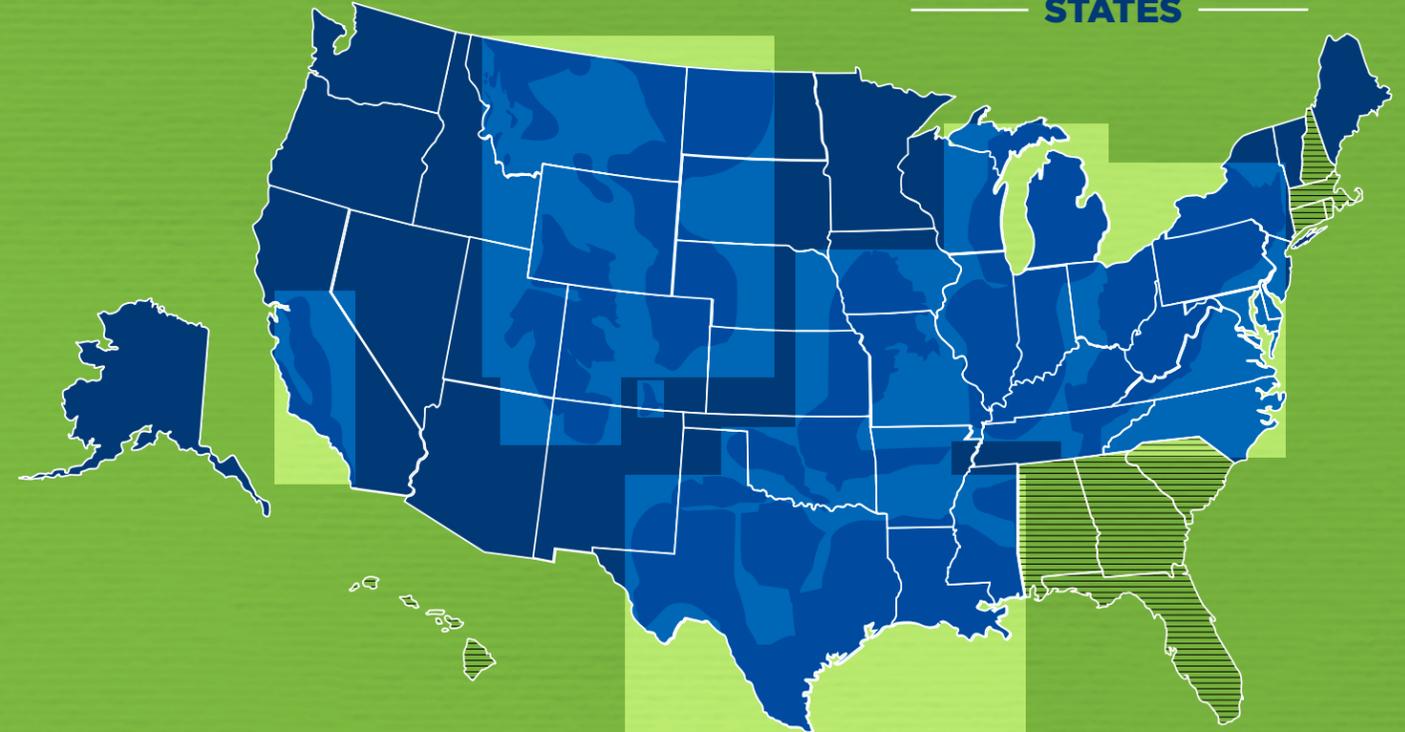


- LEAK DETECTION AND REPAIR:** Participants are committed to leak monitoring, followed by timely repair, at selected sites using detection methods and technologies such as Method 21 or Optical Gas Imaging cameras.
- FOCUS ON HIGH-BLEED PNEUMATIC CONTROLLERS:** Participants are committed to replace, remove, or retrofit high-bleed pneumatic controllers with low- or zero-emitting devices.
- IMPROVING THE MANUAL LIQUIDS UNLOADING PROCESS:** Participants are committed to implement an industry best practice that minimizes emissions associated with the removal of liquids that, as a well ages, can build up and restrict natural gas flow.
- COMPRESSOR PROGRAM:** Participants are committed to implement reduction practices that minimize emissions associated with centrifugal and reciprocating compressors.
- PIPELINE BLOWDOWN PROGRAM:** Participants are committed to implement reduction practices that minimize emissions during pipeline blowdowns.
- FLARE MANAGEMENT PROGRAM:** Participants are committed to implement approved flare volume and emission reduction practices and will report the company's flare volumes to demonstrate progress.

Improving Operations from Coast to Coast

COMPANIES REPRESENT MORE THAN **70%** OF U.S. ONSHORE OIL AND NATURAL GAS PRODUCTION

THE ENVIRONMENTAL PARTNERSHIP IMPLEMENTED IN **41 of 50** STATES

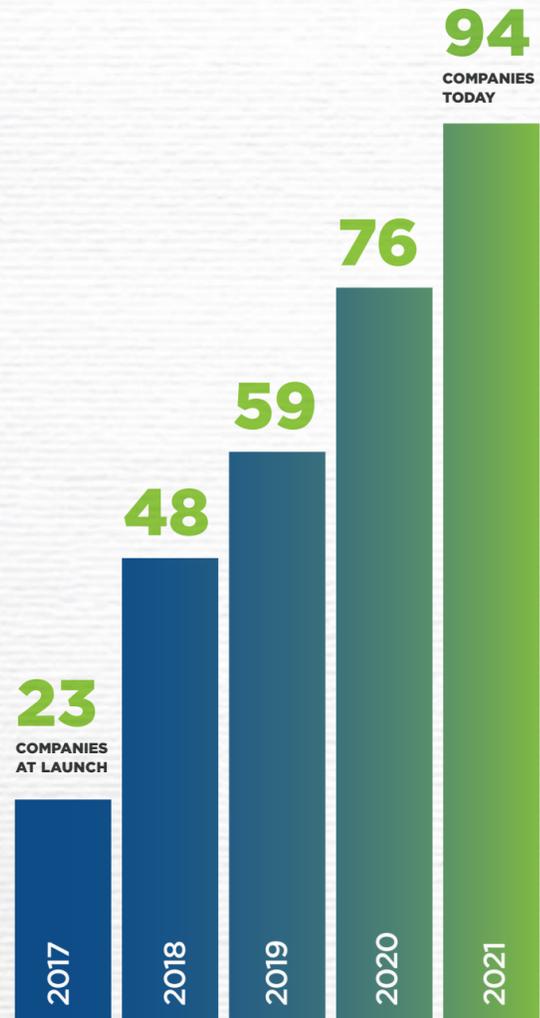


 **2X**
PROGRAM IMPLEMENTED IN TWICE AS MANY STATES SINCE LAUNCH

-  States Where Program Is Implemented
-  States Where Program Is Not Implemented
-  Oil and Natural Gas Basins

2020 Participating Companies

Program Growth: 23 companies at launch, 94 companies to-date.



Note: 2017 is based on the number of companies at program launch. Subsequent data are based on the number of companies at year-end or year-to-date.

The following table lists the logos of the 94 participating companies shown in the grid:

- AERA
- AETHON
- ALTA
- Antero Resources
- Apache
- ASCENT RESOURCES
- bp
- Cabot Oil & Gas Corporation
- CAERUS
- CALIFORNIA RESOURCES CORPORATION
- CALLON PETROLEUM
- CENTENNIAL RESOURCE DEVELOPMENT, INC.
- CHESAPEAKE ENERGY
- Chevron
- CIMAREX
- CONCHO
- COMSTOCK RESOURCES
- ConocoPhillips
- Continental Resources
- Crestwood
- CROWNQUEST
- Denbury
- devon
- DIAMONDBACK Energy
- EAGLECLAW MIDSTREAM
- ENBRIDGE
- enerPLUS
- ENERVEST
- eog resources
- EQT
- Where energy meets innovation.
- equinor
- equitrans Midstream
- EXTRACTION Oil & Gas
- ExxonMobil
- FIELDWOOD ENERGY
- FLYWHEEL ENERGY
- Gulfport ENERGY
- HESS
- HighPoint RESOURCES
- HIGH ROAD RESOURCES
- HUNT OIL COMPANY
- Indigo
- INTENSITY MIDSTREAM
- JKLM ENERGY LLC
- LIME ROCK RESOURCES
- Marathon Oil Corporation
- MODA midstream
- MURPHY EXPLORATION & PRODUCTION CO.
- noble energy
- OASIS PETROLEUM
- OXY
- Occidental
- OLYMPUS ENERGY
- Ovintiv
- PDC ENERGY
- PENNERGY RESOURCES
- PGE
- PIONEER NATURAL RESOURCES
- QEP RESOURCES
- RANGE RESOURCES
- RED BLUFF RESOURCES
- REPSOL
- ROCKCLIFF ENERGY OPERATING LLC
- Rio Oil and Gas II, LLC
- Riviera Resources, Inc.
- SABLE PERMIAN RESOURCES
- SENECA RESOURCES A NATIONAL FUEL GAS COMPANY
- Sequitur ENERGY RESOURCES LLC
- SHELL
- SM ENERGY
- STEWART ENERGY
- SUMMIT DISCOVERY RESOURCES LLC
- SURGE Energy
- SWN Southwestern Energy
- TALLGRASS ENERGY
- TC Energy
- TRINITY OPERATING
- TRP ENERGY
- WARWICK GROUP
- Western Midstream
- WHITING
- Williams
- WPXENERGY
- XTO ENERGY

Performance Highlights

2021 Annual Report

2020 DATA

LEAK DETECTION AND REPAIR PROGRAM

MORE THAN
85,000
SITES SURVEYED

MORE THAN
430,000
SURVEYS CONDUCTED

MORE THAN
235 million
COMPONENT INSPECTIONS PERFORMED

0.04%
LEAK OCCURRENCE RATE, OR LESS THAN 1 COMPONENT LEAKING IN TWO THOUSAND

PNEUMATIC CONTROLLERS PROGRAM

MORE THAN
9,200
ADDITIONAL GAS DRIVEN CONTROLLERS REPLACED OR REMOVED FROM SERVICE

MORE THAN
970
HIGH-BLEED PNEUMATIC CONTROLLERS REPLACED, RETROFITTED, OR REMOVED FROM SERVICE

MORE THAN
2,700
ZERO-EMISSION PNEUMATIC CONTROLLERS INSTALLED AT NEW SITES

54
PARTICIPATING COMPANIES NO LONGER HAVE HIGH-BLEED PNEUMATIC CONTROLLERS IN THEIR OPERATIONS

MANUAL LIQUIDS UNLOADING PROGRAM

EMISSIONS MINIMIZING BY MONITORING MORE THAN
44,000
MANUAL LIQUIDS UNLOADING EVENTS

COMPRESSOR PROGRAM

ROD PACKINGS CHANGES ON MORE THAN
2,000
RECIPROCATING COMPRESSORS

APPROVED EMISSION REDUCTION PRACTICES UTILIZED ON MORE THAN
320
COMPRESSORS

PIPELINE BLOWDOWN PROGRAM

MORE THAN
400
EMISSION REDUCTION METHODS IMPLEMENTED DURING PIPELINE BLOWDOWNS

Focus On Flaring

The Environmental Partnership Launches New Program to Reduce Flaring

Participants in The Environmental Partnership's new flare management program reported a 50% reduction in flare volumes from 2019 to 2020 even as their oil and natural gas production remained consistent. The flare management program, The Partnership's latest environmental performance program, expands on the initiative's core mission to share information on best practices, advance new and proven technologies, foster collaboration to reduce emissions, and collect data to assist efforts to minimize flaring.

As part of the new program, companies are advancing best practices to reduce flare volumes, promote the beneficial use of associated gas, and improve flare reliability and efficiency when flaring is necessary. Typically, flaring is used when there is a lack of gas gathering lines or processing capacity, during facility or gathering maintenance, or during unplanned events for safety measures to alleviate pressure. In these instances, flaring is the better environmental

option. Rather than venting the gas into the air, flaring burns the gas, which releases fewer greenhouse gases than venting.

To gauge progress, participants in the flare management program have committed to report data to calculate flare intensity, a measurement of flare volumes relative to production. To capture ongoing flaring trends and reduction efforts, companies have reported data from both 2019 and 2020.

FLARE VOLUMES REDUCED BY MORE THAN 50%



FROM 2019 TO 2020
While Oil and Natural Gas Production Among Participating Companies Remained Consistent

2019 DATA		2020 DATA
3.04%	GAS FLARE INTENSITY*	1.49%
1.31%	ENERGY INTENSITY**	0.66%
MORE THAN 157,000,000	MCF OF FLARE GAS AVOIDED/DIVERTED FROM FLARE FOR BENEFICIAL USE	MORE THAN 171,000,000
MORE THAN 570	SITES THAT UTILIZED ALTERNATIVE TECHNOLOGY FOR BENEFICIAL USE	MORE THAN 580
MORE THAN 3,200	SITES WITH FLARES MONITORED ONSITE OR REMOTELY	MORE THAN 5,500
MORE THAN 900	SITES THAT UTILIZED FLARES EXCEEDING >98% DRE***	MORE THAN 1,000

*Gas Flare Intensity - Flaring Relative to Gas Production in Oil Fields (MCF gas flared / MCF gas produced)
**Energy Intensity - Flaring Relative to Oil and Gas Production (BOE gas flared / BOE produced)
***DRE: Destruction and Removal Efficiency

Source: Performance highlights data sourced from participating company reporting.

Accelerating Progress

//// 2021 Annual Report

2018 - 2020 PNEUMATIC CONTROLLER PROGRAM

NEARLY

20,000

ADDITIONAL GAS DRIVEN CONTROLLERS REPLACED OR REMOVED FROM SERVICE

NEARLY

7,600

HIGH-BLEED PNEUMATIC CONTROLLERS REPLACED, RETROFITTED, OR REMOVED FROM SERVICE

MORE THAN

5,600

ZERO-EMISSION PNEUMATIC CONTROLLERS INSTALLED IN THE PAST TWO YEARS

2018 - 2020 LEAK DETECTION AND REPAIR PROGRAM

MORE THAN

770,000

SURVEYS CONDUCTED

AVERAGE OF

2

LEAK SURVEYS EVERY WORKING MINUTE

0.07%

LEAK OCCURRENCE RATE, OR LESS THAN 1 COMPONENT LEAKING IN A THOUSAND

MORE THAN

350 MILLION

COMPONENT INSPECTIONS PERFORMED



Improvement Through Learning and Collaboration

//// 2021 Spotlights

In addition to the **Actions** that each participating company took to further reduce the industry's environmental footprint, The Partnership continued to advance the program's **Learning** and **Collaborating** principles.

The Environmental Partnership has grown to become an effective tool to coordinate and facilitate communications to companies

participating in key oil and gas basins across the country. The Partnership in 2020 fostered the collaboration that supported new methane detection technologies through substantive engagement with Colorado State University, Bridger Photonics, and NASA's Jet Propulsion Laboratory Methane Source Finder team.



"We welcomed the opportunity to engage The Environmental Partnership and use our Gas Mapping LiDAR technology to advance the mission of the program. **It's a fast-moving field and the industry is really pushing the envelope to better understand and mitigate methane emissions. We're thrilled to work with them and be a part of the solution.**"

- Peter Roos, CEO, Bridger Photonics



"Our methane research program has conducted numerous aerial remote-sensing surveys across the United States. The Partnership provided a platform to share our data with participating companies in the Permian basin to investigate and take steps to address emissions. **The collaboration provided us an opportunity to connect our efforts with the operators on the ground that would not exist otherwise.**"

- Riley Duren, Research Scientist, U. Arizona; CEO, Carbon Mapper; Engineering Fellow, NASA Jet Propulsion Laboratory



DAN ZIMMERLE

Director of the Methane Emissions Technology Evaluation Center (METEC) at Colorado State University's Energy Institute.

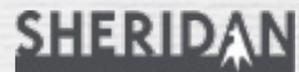
"Since its inception, The Environmental Partnership has been an active supporter of the efforts at our METEC. With the funding they provided, Colorado State University was able to secure a grant from the Department of Energy to advance the development of cutting-edge methane detection technologies. **We look forward to continuing this work and our engagement with the participating companies to test these technologies at their facilities in the field this year.**"

2021 Acknowledgements:

We would like to thank all of the dedicated individuals that contribute to The Environmental Partnership, and look forward to the future as we continue to welcome new companies, including:



BTA OIL PRODUCERS



LEARN MORE AT:
TheEnvironmentalPartnership.org

