ANNUAL REPORT 2021
Improving the Oil and Natural Gas Industry’s Environmental Performance

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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

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

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.
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

**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.
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.
Performance Highlights

2021 Annual Report

**LEAK DETECTION AND REPAIR PROGRAM**
- More than 85,000 sites surveyed
- More than 430,000 surveys conducted
- More than 2,700 leak detection and repair programs
- More than 235 million component inspections performed

**PNEUMATIC CONTROLLERS PROGRAM**
- More than 920 additional gas driven controllers replaced or removed from service
- More than 970 high bleed pneumatic controllers replaced, retrofitted, or removed from service

**MORE THAN**
- More than 2,700 zero-emission pneumatic controllers installed at new sites
- More than 0.04% leak occurrence rate, or less than 1 component leaking in two thousand

**MANUAL LIQUIDS UNLOADING PROGRAM**
- More than 44,000 manual liquids unloading events
- More than 5,500 sites that utilized flares exceeding >98% DRE***
- More than 900 sites with flares exceeding >98% DRE***
- More than 1,000 sites that utilized flares exceeding >98% DRE***

**COMPRRESSOR PROGRAM**
- More than 3,200 reciprocating compressors
- More than 580 sites with flares monitored onsite or remotely
- More than 5,500 sites that utilized flares exceeding >98% DRE***

**Flare Management Program**
- More than 3,04% gas flare intensity**
- More than 1.31% energy intensity**
- More than 171,000,000 mcf of flare gas avoided or diverted from flare for beneficial use

**Performance Highlights**

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 over as their oil and natural gas production remained consistent. The flare management program, The Partnership’s latest environmental performance program, was released on the initiative’s core mission to share information on best practices, develop 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**

<table>
<thead>
<tr>
<th>2019 DATA</th>
<th>2020 DATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FLARE MANAGEMENT PROGRAM</strong></td>
<td><strong>FLARE MANAGEMENT PROGRAM</strong></td>
</tr>
<tr>
<td>More than 2,000 ROD PACKINGS CHANGES</td>
<td>More than 400 EMISSION REDUCTION METHODS IMPLEMENTED DURING PIPELINE BLOWDOWNS</td>
</tr>
<tr>
<td>More than 570 SITES UTILIZED ALTERNATIVE TECHNOLOGY FOR BENEFICIAL USE</td>
<td>No data provided</td>
</tr>
<tr>
<td>More than 580 SITES WITH FLARES REMOTELY</td>
<td>No data provided</td>
</tr>
<tr>
<td>More than 900 SITES THAT UTILIZED FLARES EXCEEDING &gt;98% DRE***</td>
<td>No data provided</td>
</tr>
</tbody>
</table>

**GAS FLARE INTENSITY**
- More than 3.04% in 2019
- More than 1.49% in 2020

**ENERGY INTENSITY**
- More than 1.31% in 2019
- More than 0.66% in 2020

**MCF OF FLARE GAS AVOIDED OR DIVERTED FROM FLARE FOR BENEFICIAL USE**
- More than 157,000,000 mcf in 2019
- More than 171,000,000 mcf in 2020

*Emphasis on reducing flaring events and improving efficiency through the use of alternative technologies.
**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

<table>
<thead>
<tr>
<th>Neutrally</th>
<th>Count</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nearly 20,000</td>
<td>Nearly 7,600</td>
<td>Additional gas driven controllers replaced or removed from service</td>
</tr>
<tr>
<td>More than 5,600</td>
<td></td>
<td>High-bleed pneumatic controllers replaced, retrofitted, or removed from service</td>
</tr>
</tbody>
</table>

More than 5,600 zero-emission pneumatic controllers installed in the past two years.

### 2018 – 2020 Leak Detection and Repair Program

<table>
<thead>
<tr>
<th>More than 770,000</th>
<th>Average of 2</th>
<th>More than 350 million</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surveys conducted</td>
<td>Leak surveys every working minute</td>
<td>Component inspections performed</td>
</tr>
</tbody>
</table>

0.07% leak occurrence rate, or less than 1 component leaking in a thousand.

Source: Performance highlights data sourced from participating company reporting.
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

“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.”

– Dan Zimmerle, Director of the Methane Emissions Technology Evaluation Center (METEC) at Colorado State University’s Energy Institute.
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
- Merit Energy Company
- Navitas Midstream Partners
- Sheridan
- SilverBow Resources
- EnerPower
- Targa Resources
- High Peak
- Uplift Energy