

September 18, 2019

The Environmental Partnership

CH4 Connections



The Environmental Partnership

Mission

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



Program Growth in 2018

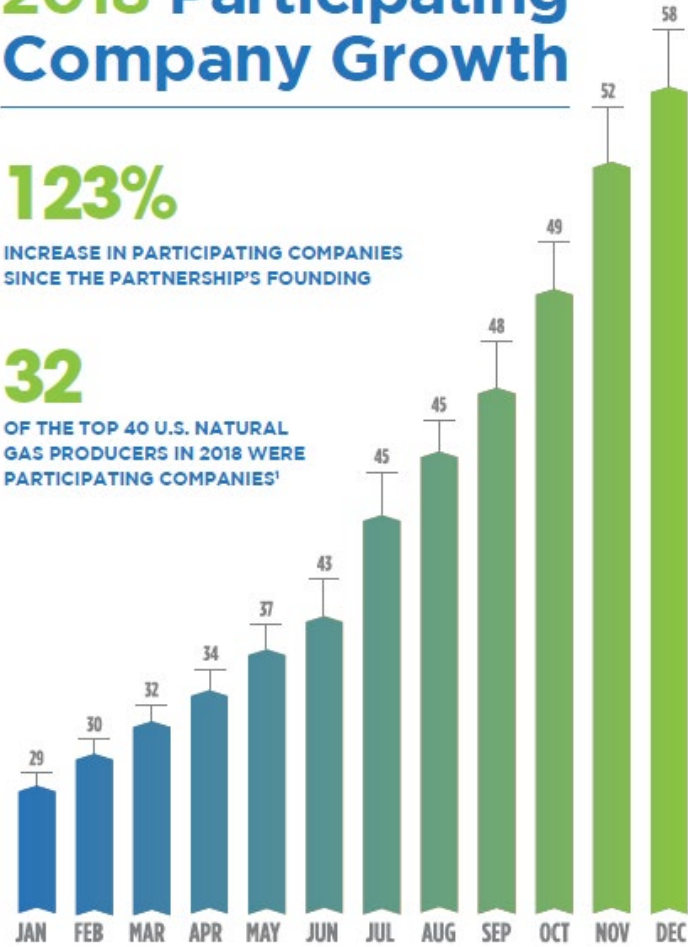
2018 Participating Company Growth

123%

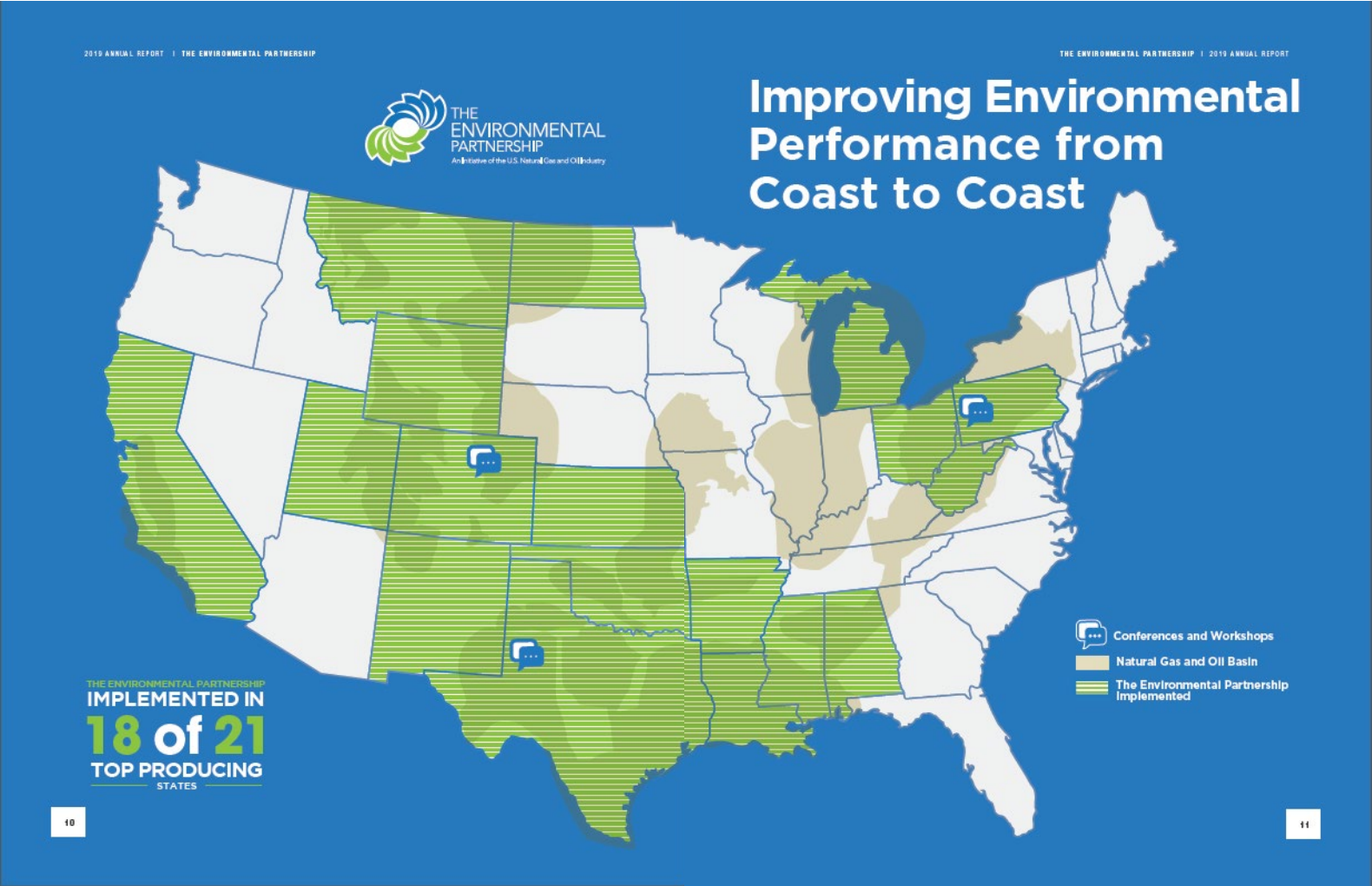
INCREASE IN PARTICIPATING COMPANIES SINCE THE PARTNERSHIP'S FOUNDING

32

OF THE TOP 40 U.S. NATURAL GAS PRODUCERS IN 2018 WERE PARTICIPATING COMPANIES¹



Building Broad & Diverse Participation



67 Participating Companies

1. Aera Energy
2. Aethon Energy
3. Alta Resources
4. American Petroleum Partners
5. Anadarko
6. Antero Resources
7. Apache
8. Ascent Resources
9. BHP
10. BP
11. Cabot Oil and Gas
12. California Resources Corporation
13. Callon Petroleum
14. Chesapeake
15. Chevron
16. Cimarex
17. ConocoPhillips
18. Continental Resources
19. CrownQuest
20. Denbury Resources
21. Devon
22. Encana
23. EOG Resources
24. EQT
25. Equinor
26. Equitrans Midstream
27. Extraction Oil & Gas
28. ExxonMobil
29. Felix Energy
30. Fieldwood Energy
31. FLYWHEEL ENERGY
32. Gulfport Energy
33. Hess
34. HHEX Energy
35. HighPoint Resources
36. Hunt Oil Company
37. JKLM Energy
38. Lime Rock Resources
39. Marathon Oil
40. Murphy Oil
41. Noble Energy
42. Oasis Petroleum
43. Occidental Petroleum
44. PDC Energy
45. Penn General Energy
46. PennEnergy Resources
47. Pioneer Natural Resources
48. QEP Resources
49. Range Resources
50. Red Bluff Resources
51. Repsol
52. Riviera Resources
53. Sable Permian Resources
54. Seneca Resources
55. Sequitur Energy
56. Shell
57. SM Energy
58. Southwestern
59. Summit Discovery Resources
60. Surge Energy
61. Total
62. Trinity Operating
63. Warwick Energy
64. Western Gas
65. Whiting Petroleum
66. WPX Energy
67. XTO Energy

The Environmental Partnership

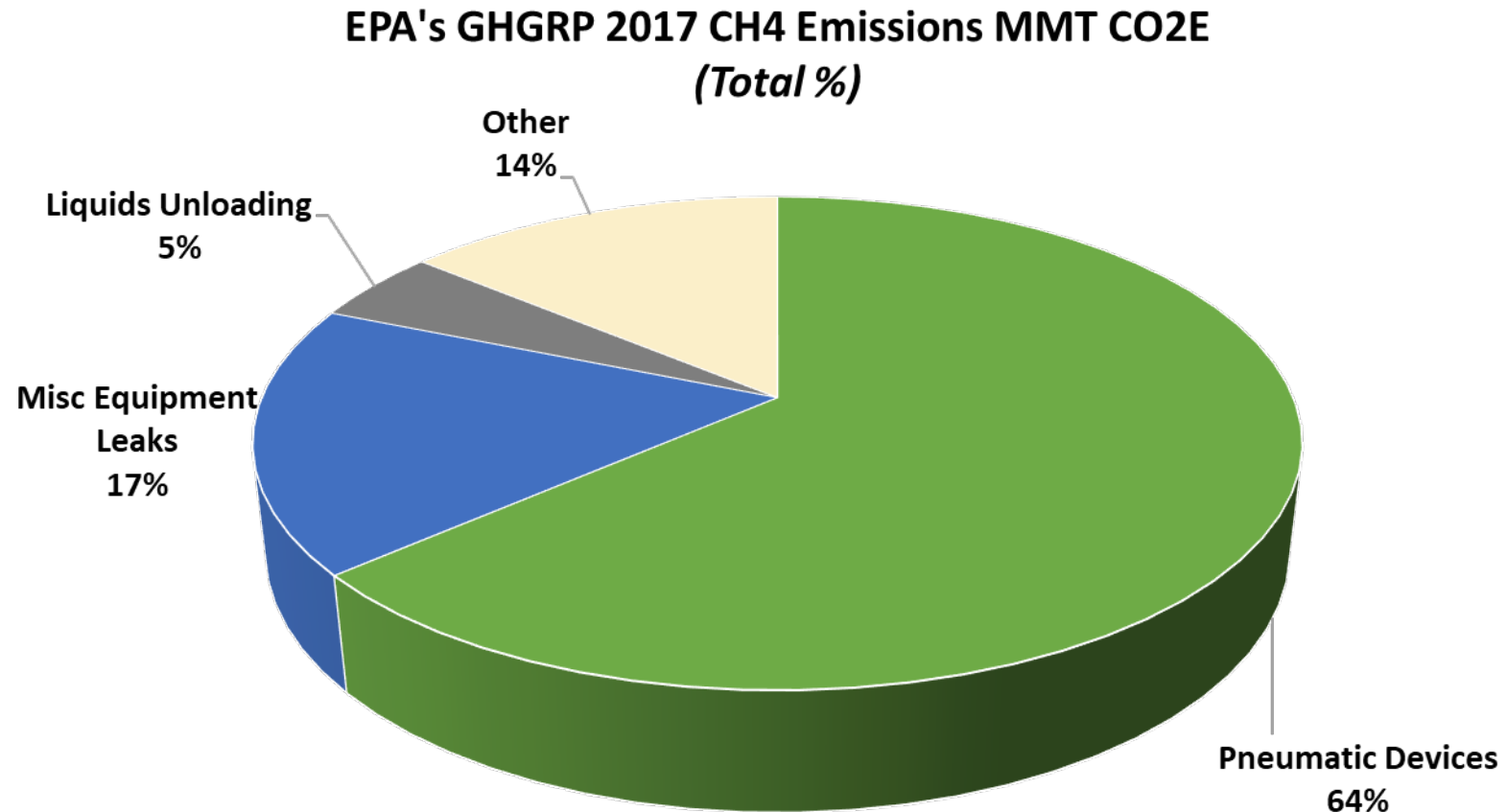
Take Action



Emission Sources of Interest

Focus on highest emitting sources:

- Equipment Leaks
- High-Bleed Pneumatic Controllers
- Liquids Unloading



Environmental Performance Programs

To address top-emitting sources, participating companies will implement the following Environmental Performance Programs in a manner that best suits their unique operations:

1. Detection and timely repair (within 60 days) of leaking equipment using optical gas imaging cameras or portable analyzers
2. Replacement or retrofitting of high-bleed pneumatic controllers with lower-emitting or zero-bleed controllers
3. Implementation of a best practice to minimize emissions by monitoring manual liquids unloading events



Leak Detection and Repair Program

- Participating companies utilize the latest technology and increase their efforts to detect and capture fugitive emissions at their facilities.
- Example technologies include:
 - Optical Gas Imaging Cameras (OGI)
 - Portable Analyzers
 - Drones
- Fugitive emissions detected must be repaired within 60 days unless delay of repair required



Leak Detection and Repair Program

2018 Highlights



0.16%
LEAK OCCURENCE RATE



MORE THAN
156,000
SURVEYS CONDUCTED

MORE THAN
78,000
SITES SURVEYED



MORE THAN
56
MILLION
COMPONENTS INSPECTED



Pneumatic Controller Program

- Participating companies replace *onshore gas-powered, continuous, high-bleed pneumatic controllers* with one of the following technologies:
 - Continuous-low-bleed controller
 - Intermittent-vent controller
 - Electrically operated or mechanical controller
 - Convert to compressed air to replace natural gas as the motive gas
 - Remove from service where feasible with no replacement

2018 Highlights



Gas Well Liquids Unloading Program

- Gas well liquid unloading is a procedure, implemented periodically, where liquids that have accumulated are removed from the well to surface equipment
- As part of the program, companies are implementing a work practice to monitor the liquid unloading event to shut the well in when the process is complete to minimize the emissions

2018 Highlight

EMISSIONS MINIMIZED BY
MONITORING MORE THAN
132,000
MANUAL LIQUIDS UNLOADING
EVENTS IN 2018



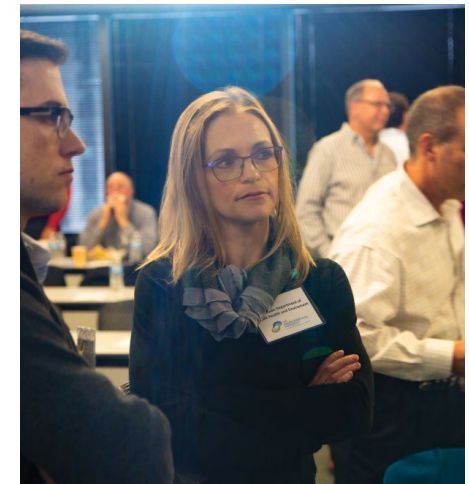
The Environmental Partnership

LEARNING and COLLABORATING



Industry Workshops and Conference

- The Partnership provides a forum for natural gas and oil industry operators to attend workshops to share their experiences and knowledge with one another.
- Program is fostering collaboration with others outside the industry—including regulators, researchers (including CSU's METEC), and equipment manufacturers— to build upon the collective understanding of emissions and opportunities to further reduce them.



2019 Annual Report

- The Environmental Partnership's First Annual Report was released on July 30th.
- Please visit www.TheEnvironmentalPartnership.org and click on "Annual Report" to find out more!

Contact:

Matthew Todd, Program Director
toddm@theenvironmentalpartnership.org

