Natural Gas Infrastructure R&D and Methane Emissions Mitigation Workshop

Leak Detection/Fugitive Emissions Monitoring and Advanced Sensors, Controls, Models and Platforms Panel

November 12, 2014

EDF
ENVIRONMENTAL DEFENSE FUND®
Finding the ways that work

POUND FOR POUND METHANE TRAPS
84X MORE HEAT OVER 20 YEARS

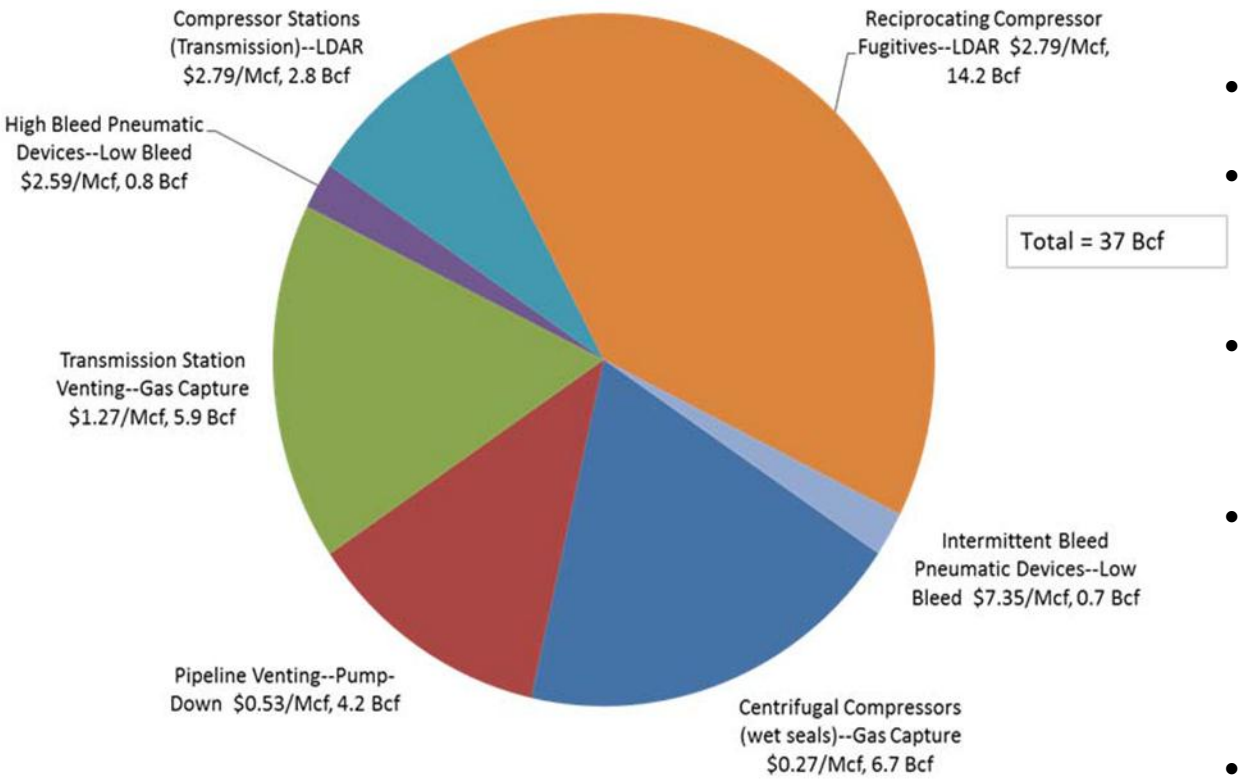
CO_2

CH_4

Methane is Money

$1,800,000,000

Current technologies – economic and effective



Emissions Reductions for the Gas Transmission Segment

- Economic cost benefit analysis
- Industry input included
- ***Main finding:*** Cut emissions 40% at $0.01/McF reduced
- OGI provides reliable and proven means of detecting leaks
- EPA White Paper – IR cameras and mobile monitoring can effectively detect major leaks at reduced cost
- CO, OH, WY allow OGI cameras to comply with LDAR requirements

An Improved Approach to Leak Detection

Advances in IR camera technology and operation protocols have improved detection ability

Innovations:

Continuous detection

Diffuse scale remote sensing – fixed and mobile

Advanced data analytics – location and quantification

Methane Detectors Challenge – Innovation²

Define user needs, pilot technology

BG GROUP

HESS

swn Southwestern Energy®

Apache

Shell

Anadarko Petroleum Corporation

noble energy

Convene and catalyze

EDF ENVIRONMENTAL DEFENSE FUND™

Finding the ways that work

Innovate!

- Colorado start-up
- Fortune 500 company
- Chinese laser company
- Two US academics

Advise

SwRI

NETL NATIONAL ENERGY TECHNOLOGY LABORATORY

HARVARD UNIVERSITY

CLEANAIR TASK FORCE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

…and more…

Bringing tech innovators to the source

Infrared Laser-Based Gas-Sensing System

Integrated continuous sampling system for low parts-per-million (PPM) methane and hydrocarbon detection

Barriers to Innovation and LDAR

- Market design
  - LUAF
  - disaggregation
- Regulatory
  - Emission control standards needed