

A large, stylized graphic on the left side of the slide. It consists of a series of concentric, wavy lines of dots, transitioning from blue at the top to green at the bottom, representing a LiDAR point cloud or gas mapping data.

# Bridger Photonics

Gas Mapping LiDAR™

A black and white silhouette of an oil pumpjack, a common piece of industrial machinery used for extracting oil from the ground. It is positioned in the middle ground of the slide, set against a dramatic, cloudy sky.

**Next-Gen Methane Emissions  
Detection & Quantification**



## GAS MAPPING LiDAR™

# Emissions Reduction Made Simple.

Gas Mapping LiDAR™ sensitively images, pinpoints, and quantifies your methane emissions from the air





# Differentiators

## Actionability

- Crews know right where to go

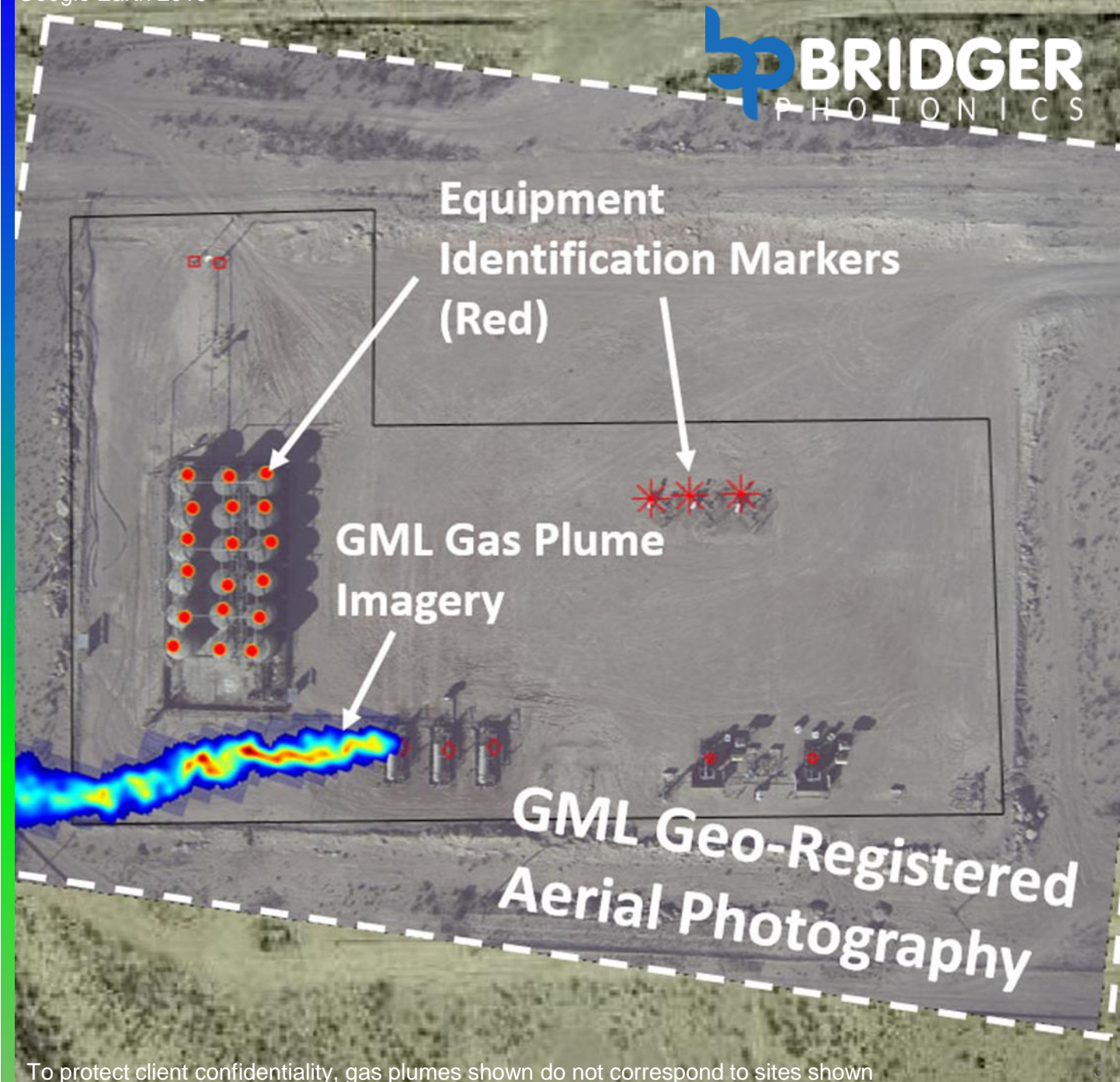
## Sensitivity

- Most sensitive airborne detection technology by large margin\*

## Credibility

- We prove & deliver on our claims

\*Compare Chen, et al (2022. DOI: 10.1021/acs.est.1c06458, figure S6(a)) with Bell, et al. (2022. DOI: 10.1525/elementa.2022.00080, figure 2). See also, Conrad, et al (DOI: 10.1016/j.rse.2023.113499)



# Rapid and Widespread Adoption

- 8 of top 10 Permian gas producers
- Annually >100,000 facility scans and >100,000 pipeline miles
- Every major production basin in North America
- Entire natural gas supply chain





# Massive Positive Impact

In 2022, Bridger detected annualized  
emissions of

**4.9M** metric  
tons

of methane\*

\*First detections only. No double counting.

This is equivalent to

**51%**

of the EPA's estimated total US O&G  
sector methane emissions for 2021

# Critical Insight:

**Why is the Industry \*Voluntarily\* Adopting Us  
Instead of Simply Redoubling Their OGI Efforts?**

There's Only One Plausible Reason

**We Catch More Emissions, are Safer, and are More Cost-  
Effective than OGI on 1:1 replacement basis**

# So:

## If the Rule Economically Disincentivizes Advanced Tech Compared to OGI, the Rule Has Strong Potential to:

- Cause mass regression back to OGI from current voluntary efforts
- Devastate advanced tech small businesses that are thriving in free market
- Inhibit advanced tech from gathering emissions inventory data
- Fail to enable the Rule's emissions reduction objectives or “tech focus”
- Ironically, be worse for the environment than current voluntary efforts



# Key Disincentives in Proposed Rule

## 1. Artificially Makes Bridger Economically Unviable

- Forces us to 6x annually (not 1:1 with OGI) or 3-4 times higher flight costs

## 2. Economically Penalizes Use of Better Tech with More Violations

- Results in discovery of more violations because we're more comprehensive

## 3. Economically Burdens Use of Better Tech with More Work

- Requires full-site OGI scan for each site with a detection



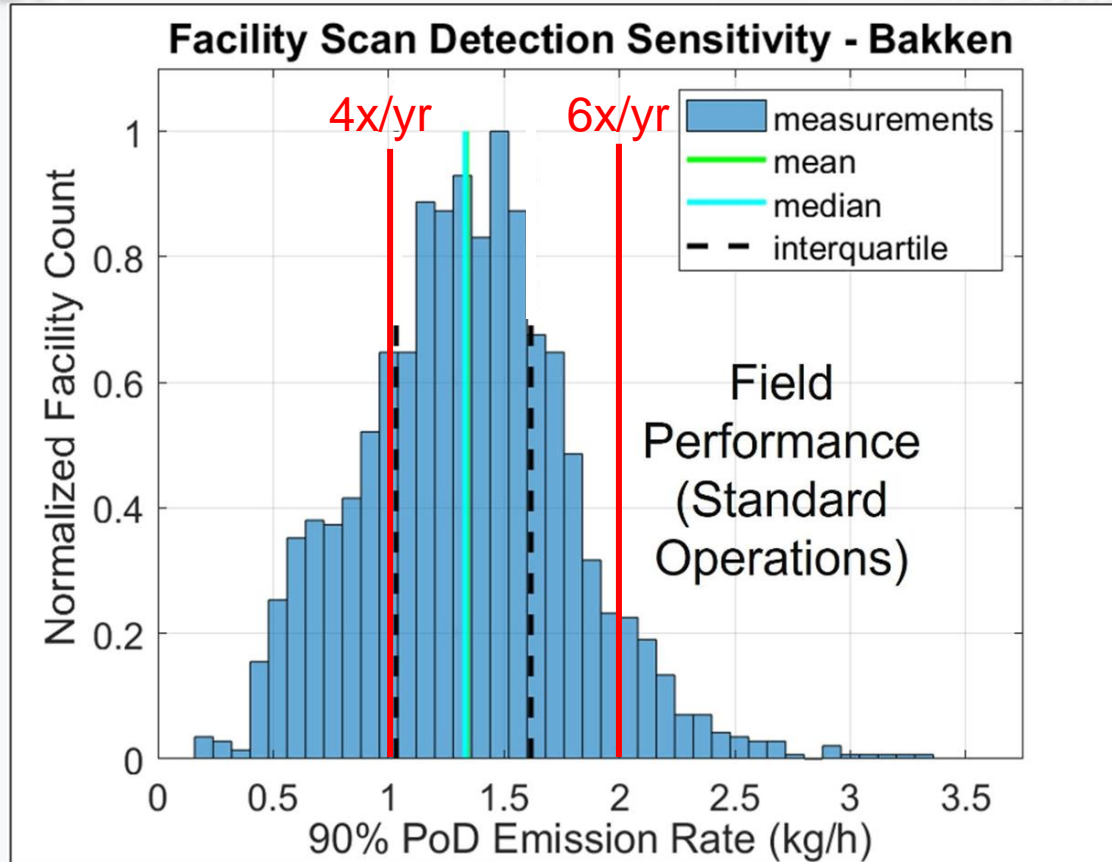
# 1. Forces Economic Unviability

Proposed Alternative Technology Periodic Screening Frequency at Well Sites, Centralized Production Facilities, and Compressor Stations Subject to AVO Inspections with Quarterly OGI or EPA Method 21 Monitoring

Minimum Screening Frequency	Minimum Detection Threshold of Screening Technology*
Quarterly + Annual OGI	$\leq 1$ kg/hr
Bimonthly	$\leq 2$ kg/hr
Bimonthly + Annual OGI	$\leq 10$ kg/hr
Monthly	$\leq 4$ kg/hr
Monthly + Annual OGI	$\leq 30$ kg/hr

\*Based on a probability of detection of 90%

# 1. Forces Economic Unviability



- **Proposed rule would require us to scan 6x/yr (if by median site) or 12x/yr (if by all sites). Either case is economically unviable compared to OGI**
- **Improving our detection sensitivity below 1 kg/hr to enable 4x/yr scans requires 3-4 times higher flight costs (helicopter). This makes us economically unviable compared to OGI**
- **The emissions reduction difference between our current offering and 1 kg/hr is entirely negligible**



# 1. Forces Economic Unviability

Recommendation:

**Allow level playing field vs OGI:  
4x/yr at 4 kg/hr (for every site scanned) OR  
4x/yr at 2 kg/hr (for median site scanned)**

## 2. Penalizes Use of Better Tech

Proposed §60.5430b:

“Deviation [from the standard] means any instance in which an affected source...

- (1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, or work practice standard ....
- (2) ...
- (3) ...”

→ **Advanced technology detection of emissions can indicate deviation from the standard**



## 2. Penalizes Use of Better Tech



- **Advanced tech excels at finding all emissions types**
- **Will detect more violations than OGI**
- **Rule inhibits growth of small business created to more comprehensively detect emissions**

## 2. Penalizes Use of Better Tech

Recommendation:

**Provide operators a compliance pathway for emissions detected by advanced technology**



### 3. Burdens Use of Better Tech

Proposed §60.5398b(4)(ii):

“If the results of the periodic screening in paragraph (b)(4)(i) of this section indicate a confirmed detection of emissions from an affected facility...you **must conduct a [ground-based] monitoring survey** of the entire fugitive emissions components affected facility...[and] inspect all covers and closed vent system(s) with optical gas imaging or Method 21...”

→ **Every site with emissions detected by periodic screening requires a full-site ground-based follow-up survey (typically OGI)**

### 3. Burdens Use of Better Tech



- **We are sensitive, so we detect emissions at a large fraction of sites**
- **Rule currently burdens these detections with an additional full-site OGI survey**
- **Will economically penalize the use of better performing technology (innovative small businesses) that find more emissions at more sites**



### 3. Burdens Use of Better Tech

Recommendation:

**Allow operators to use all credible information, instead of automatic “blanket” OGI scans, to implement mitigation of detected emissions**

# Summary of Recommendations

**Allow level playing field vs OGI:  
4x/yr at 4 kg/hr (for every site scanned) OR  
4x/yr at 2 kg/hr (for median site scanned)**

**Provide operators a compliance pathway for emissions  
detected by advanced technology**

**Allow operators to use all credible information, instead of  
automatic “blanket” OGI scans, to implement  
mitigation of detected emissions**

# Thank You!

For any questions or feedback,  
please contact:

## Info or Sales

**T:** 406-522-3766

**Info:** [info@bridgerphotonics.com](mailto:info@bridgerphotonics.com)

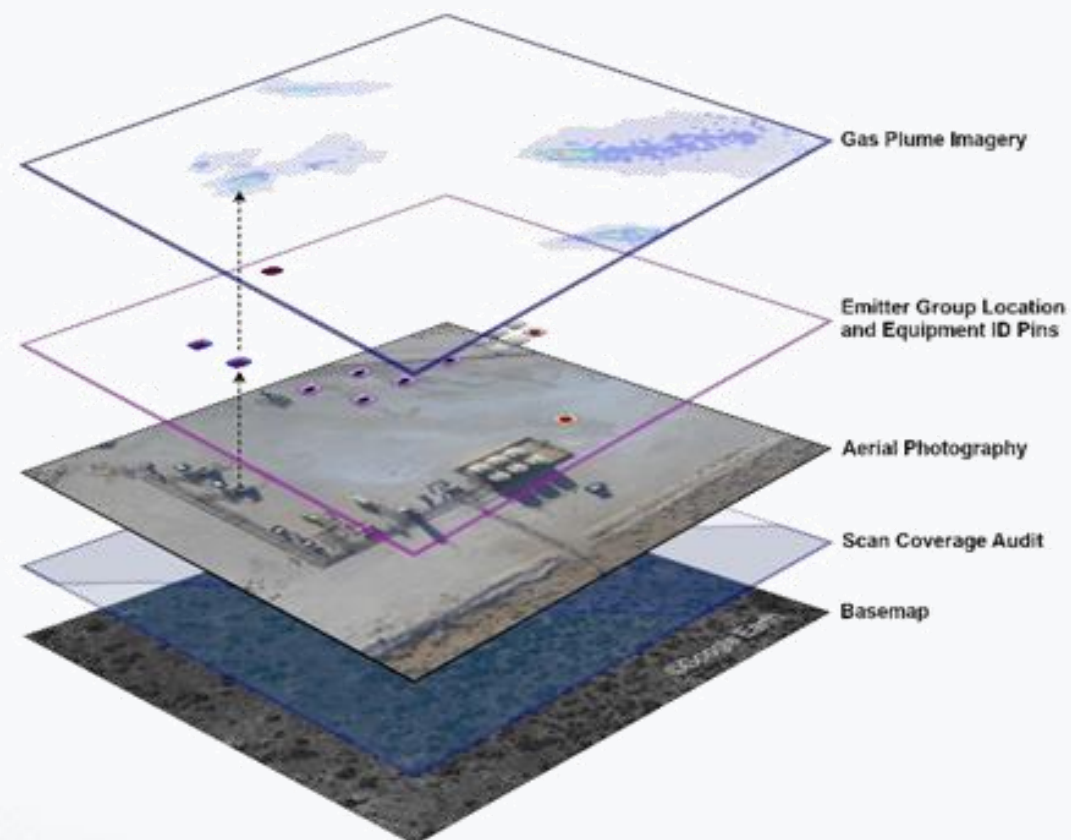
**Sales:** [sales@bridgerphotonics.com](mailto:sales@bridgerphotonics.com)





# Additional Backup Slides

# Data Layers



Gas plumes do not correspond to the site shown. © Bridger Photonics, Inc.

# Serving the Entire Natural Gas Value Chain

## Production



## Transmission



## Distribution





# Geography

## Current

- United States
- Canada

## Future

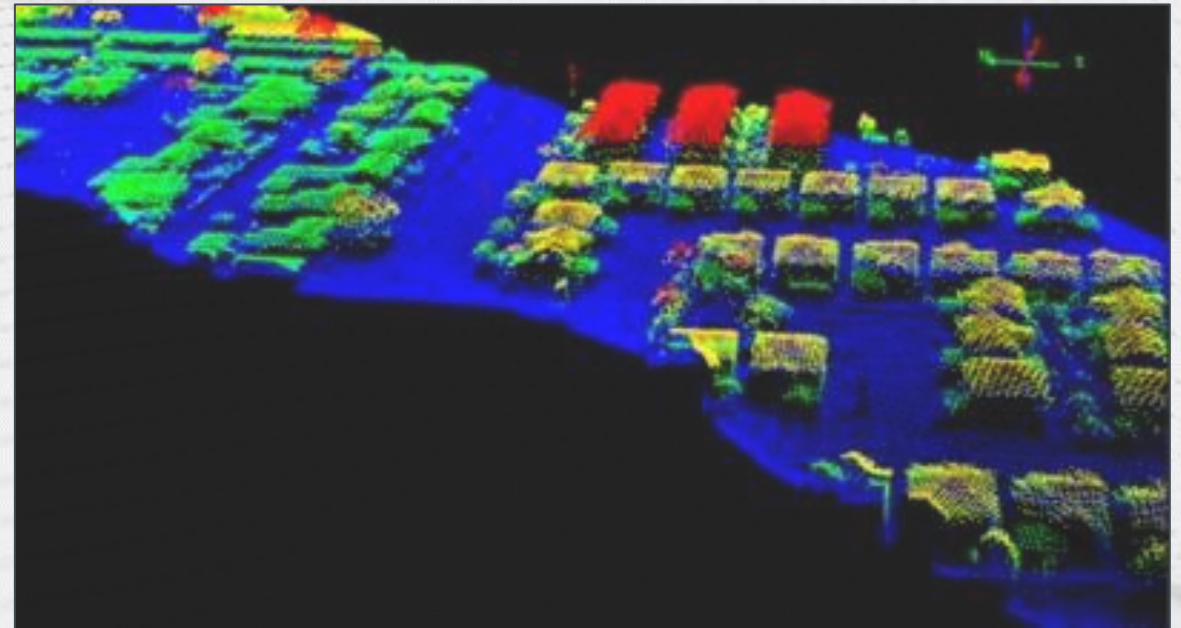
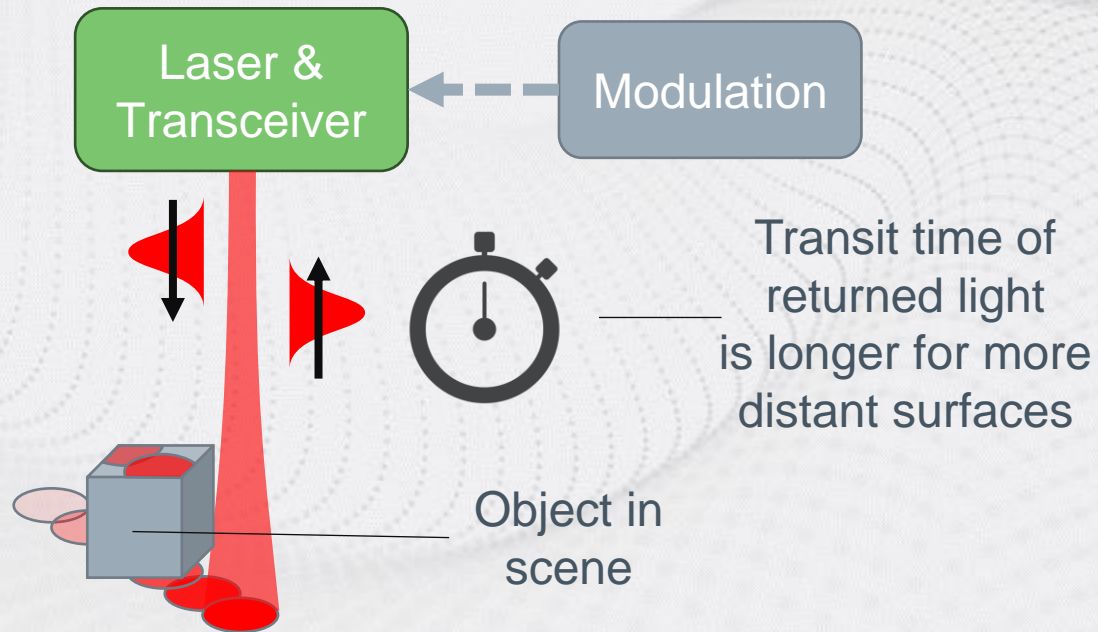
- Global



# Topographic LiDAR Basics

## Measure *Timing* of Returned Laser Light

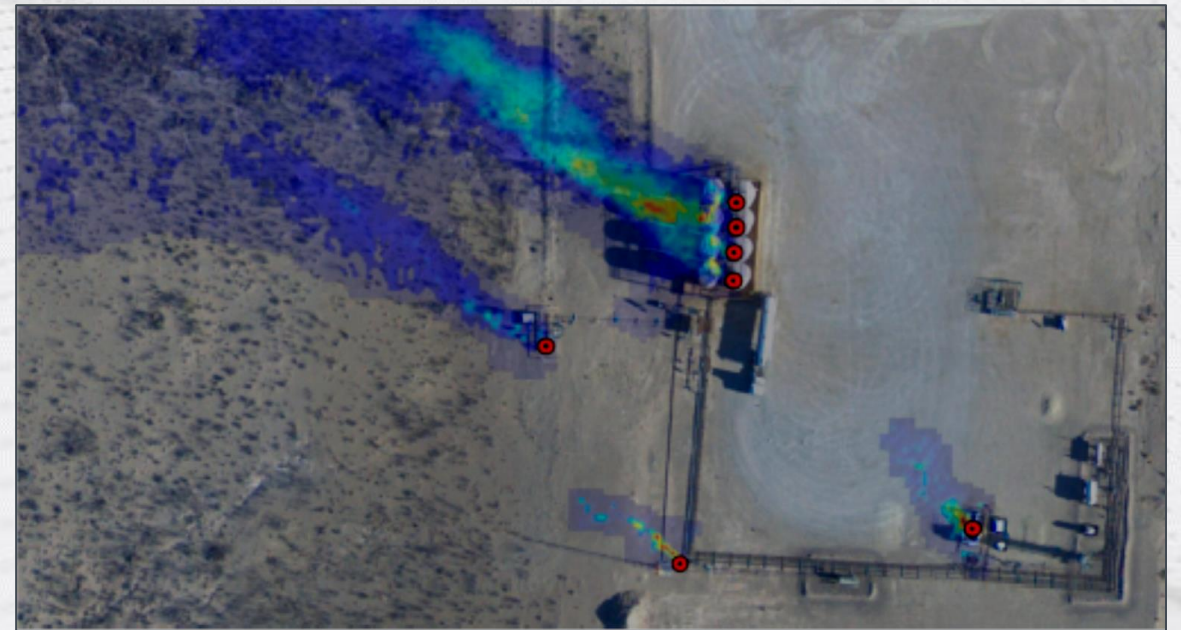
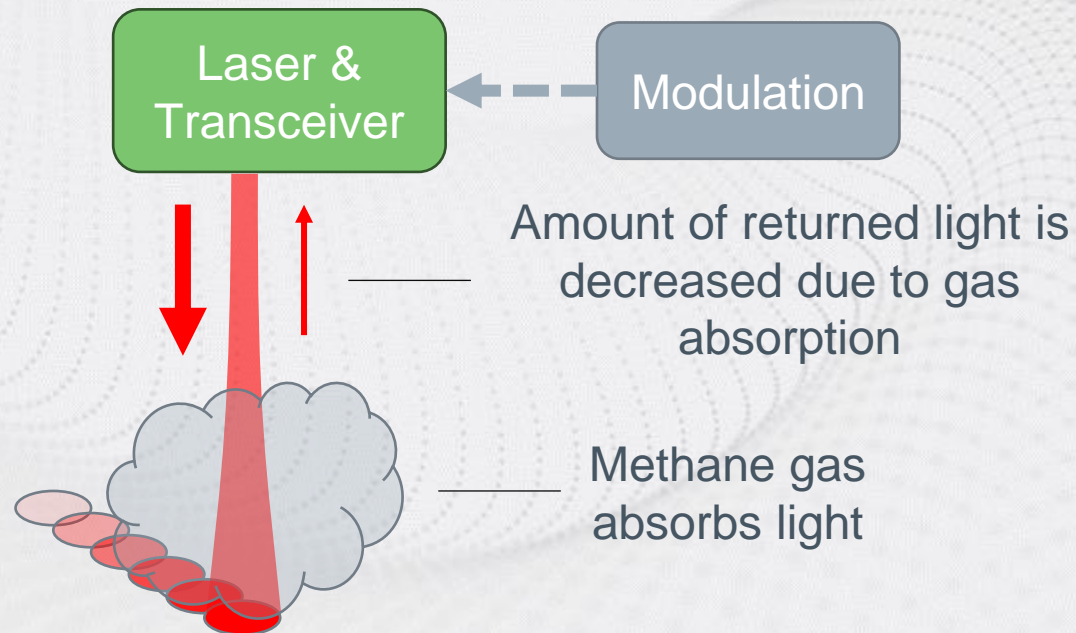
- Direct Detect LiDAR (typically pulsed lasers)
- Coherent LiDAR (typically continuous-wave lasers)



# Atmospheric LiDAR Basics

## Measure *Amount* of Returned Laser Light

- Differential Absorption LiDAR (pulsed lasers)
- Wavelength Modulation Spectroscopy (continuous-wave lasers)





# The Technology

- Proprietary hardware
- Proprietary analytics
- 30 patents issued or pending

Topographic &  
Atmospheric Lidar

State-Of-The-Art  
Semicon & Fiber  
Optic Components

Highly  
Manufacturable and  
Deployable Design

Advanced On-Board  
Analytics

On-board  
GPS, IMU, And  
Ranging

Wide  
Field Of View (FOV)  
Scanner

Gas Mapping LIDAR

# Operator-Scale Measured Inventories

## Accurate Accounting

- Based on Carleton University work
- Does not need ground measurements or emission factors
- Use known probability of detection to confidently estimate missed emissions (shown in gray)

