

The background of the slide is a composite image. On the left, there is a large, abstract, wavy shape composed of many small dots, transitioning from blue at the top to green at the bottom. On the right, there is a black and white photograph of an oil pumpjack (jackal) silhouetted against a dramatic, cloudy sky with a bright light source breaking through the clouds.

# Bridger Photonics

**Subpart W OMB OIRA E.O. 12866 Meeting  
April 8<sup>th</sup>, 2024**

**GAS MAPPING LiDAR™**

# Emissions Reduction Made Simple.

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





# Bridger Photonics - Advanced Methane Detection

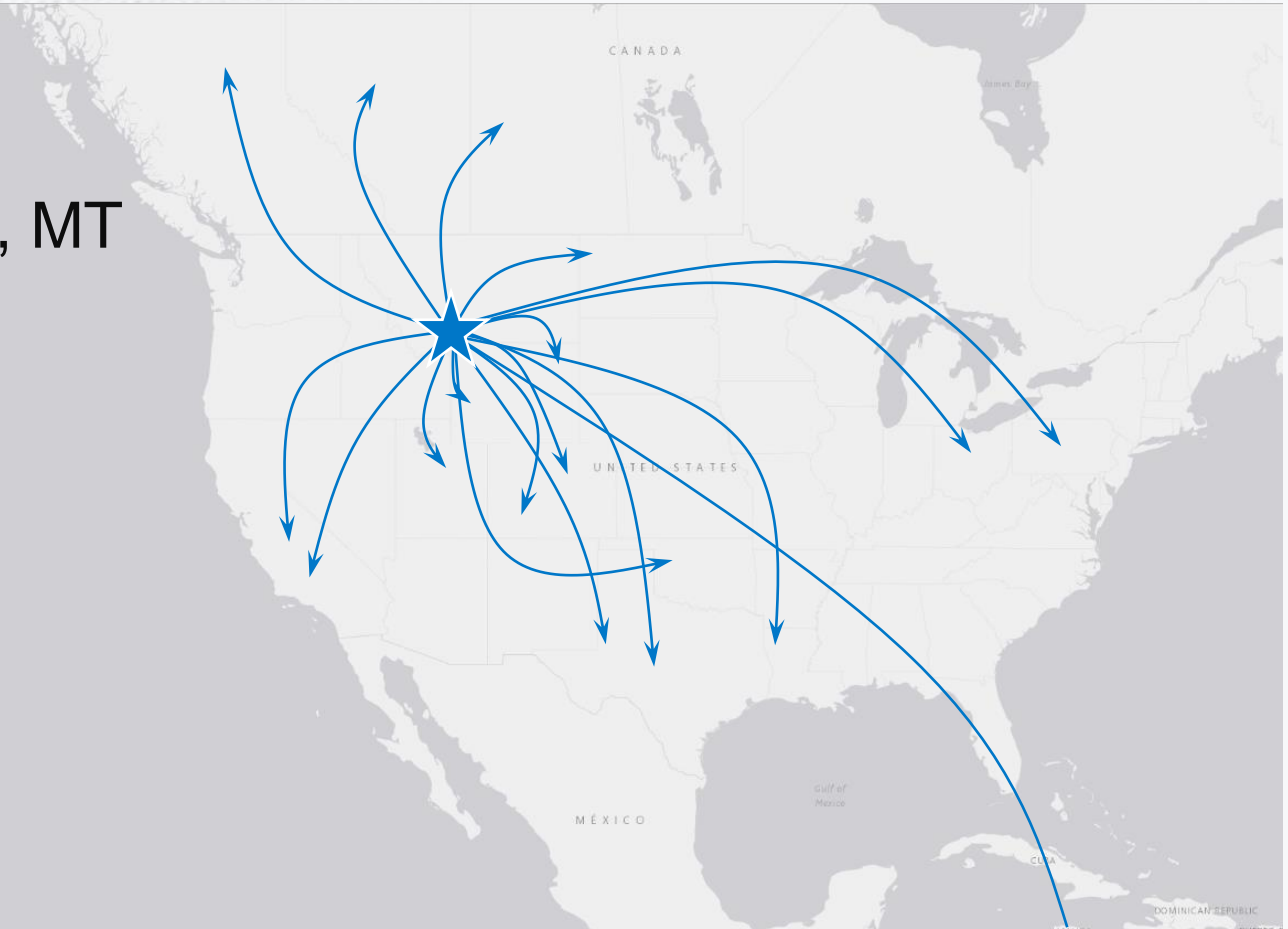


- **US Business**

- Owned and operated – Bozeman, MT
- Sensors manufactured on-site
- International reach

- **Federal Investment**

- US DOE ARPA-E graduate
- US EDC Headwaters Tech Hub
  - Founding member



# What's at Stake

## Bridger's Yearly Operations

- >100,000 site scans
- >100,000 pipeline miles
- 8 of top 10 Permian Basin gas producers

Bridger and the other thriving advanced methane detection companies can accelerate emissions reductions if efforts are not hindered by regulatory disincentives.

## Contradictions to the Principles of Regulations in Subpart W Revisions

- Does not suitably address need for reporters to demonstrate methane emissions with empirical data<sup>1</sup>
- Neglects scientific information<sup>1</sup>
- Neglects providing suitable alternative avenues to demonstrate emissions
- Disincentivizes leak detection and emissions accounting innovation
- Is administratively onerous, causing undue costs
- Inadvertently hinders reporters' emissions reduction programs, thereby causing economic disruption

1. The scientific information considered in this slide deck is consistent with the Science Advisory Board evaluation of the proposed rule, which will be included as part of document uploads for this meeting.

# Top Concerns

1

The proposed other large release event reporting threatens voluntary emission reduction programs

2

It's not clear if advanced technology will be broadly allowed for developing leaker emission factors

3

The proposal is does now allow proven, state-of-the-art approaches for Subpart W reporters to demonstrate methane emissions

# Concern - Other Large Release Event Reporting

## 250 mt CO<sub>2</sub>e Threshold Pitfalls

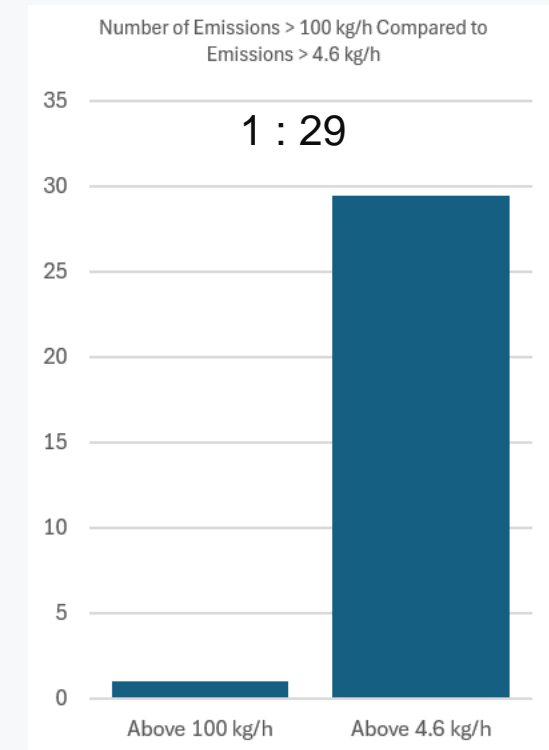
- Finding and having to investigate/report lower emission-rate events is driving operators away from sensitive emissions monitoring.
- Removing this disincentive will enable us to keep innovating the best informatics for emissions reductions.
- It is not been demonstrated that individually considering small emission rate events for other large release event reporting will lead to accuracy.

## Reporting Burden for the 250 mt CO<sub>2</sub>e Reporting Threshold

- 250 mt CO<sub>2</sub>e threshold means copious low emission rate events are subject to investigating whether the other large release event reporting applies.
- There is a lack of procedural guidance in the proposed rule
  - Onerous to determine if detected emissions are already accounted for in Subpart W
  - Inconsistent approach between reporters to be expected

## Financial Ramifications of Deploying Comprehensive Emissions Monitoring Technology

- Voluntarily deploying sensitive monitoring technology would lead to detecting more emissions potentially subject to other large release event reporting.
- Greater reporting increases the WEC when applicable



- 4.6 kg/h methane emission over 90 days = 250 mt CO<sub>2</sub>e
- This size of emission detected during quarterly scans would require consideration for other large release event reporting



# Solution - Other Large Release Event Reporting

Remove the 250 mt CO<sub>2</sub>e threshold for other large release events (retain the 100 kg/h threshold)

# Concern - Leaker Emission Factors

## The Subpart W proposal may inhibit using advanced technology to develop leaker emission factors

### Potential for Mismatched EPA rules

- Leaker emission factors were proposed to be developed using the 40 CFR 60.5398b(b) pathway for advanced technology fugitive emissions detection.<sup>1</sup>
- Changes since the Subpart W proposal:
  - By the May 7<sup>th</sup> effective date, within CAA §111(b) rules, approved advanced technologies can be used for fugitive emissions leak detection at all facilities new/modified/reconstructed after September 18, 2015.<sup>2</sup>
- If advanced technologies cannot be used to develop leaker emissions factors, operators will strongly favor OGI for all sites so that they can develop the factors without a duplicative workload.
- Advanced technology should be allowed for developing leaker emission factors at any well site, compressor station, or centralized production facility subject to Subpart W reporting by following 40 CFR 60.5398b(b) procedures to detect emissions and identify sources.

### How Advanced Tech Can be Used

- Site screening with advanced tech coupled to OGI/EPA Method 21 onsite follow-up investigation identifies specific emitting components.
- Advanced technology provides advantages by *directly measuring leaks*. Comparatively, Other methods (e.g., high flow sampling) may be impractical for certain sources.

1. 88 FR 50348

2. For well sites, compressor stations, and centralized production facilities



### Screen sites - **advanced tech**

- detect and quantify fugitives



### Identify specific component - **OGI**

- At the subset of sites with confirmed detections



### Develop leaker emission factors

- Pull in quantification data from advanced tech

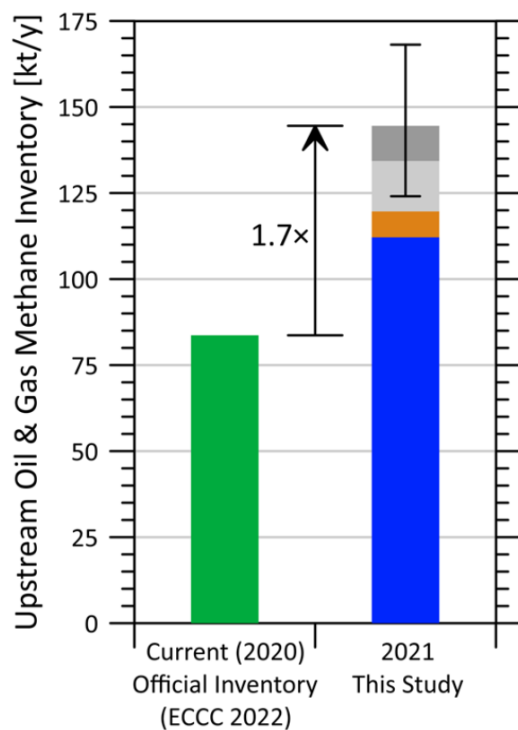


# Solution - Leaker Emission Factors

Allow advanced technology to be broadly used to develop  
leaker emission factors

# Concern – Inadequate Technology Readiness Determination

**The Subpart W proposal neglects scientific information on the best methods to demonstrate methane emissions**



Comparing emissions primarily from engineering calculations versus comprehensive direct measurement.

Conrad, B. M.; Tyner, D. R.; Li, H. Z.; Xie, D.; Johnson, M. R. *Commun Earth Environ* **2023**, 4 (1), 416.

## State-of-the-Art Methane Reporting Methods Examples

- Already Demonstrated in Canada<sup>1</sup>
- Being demonstrated in Colorado
- Being demonstrated in DOE IM4 Projects.

## Subpart W Methane Emissions Reporting Method is Misaligned with Related Emissions Reporting Programs

- The Veritas Protocol
- DOE MMRV
- OGMP 2.0
- Colorado's GHG Intensity Verification Rule
- Canada's National Inventory Efforts

1. Johnson, M. R.; Conrad, B. M.; Tyner, D. R. *Commun Earth Environ* **2023**, 4 (1), 139; Conrad, B. M.; Tyner, D. R.; Li, H. Z.; Xie, D.; Johnson, M. R. *A. Commun Earth Environ* **2023**, 4 (1), 416.; Conrad, B. M.; Tyner, D. R.; Johnson, M. R. *Environ Sci Technol.* **2023**, acs.est.3c07722. Johnson, M. R.; Tyner, D. R.; Conrad, B. M. *Environ. Sci. Technol.* **2023**, 57 (6), 2484–2494.

# Solution - Inadequate Technology Readiness Determination

Implement an approval pathway for state-of-the-art methods to demonstrate methane emissions



# Recommendations

1\*

Remove the 250 mt CO<sub>2</sub>e threshold for other large release events (retain the 100 kg/h threshold)

\*This recommendation directly aligns with the Science Advisory Board recommendations for the EPA

2

Allow advanced technology to be broadly used to develop leaker emission factors

3

Implement an approval pathway for state-of-the-art methods to demonstrate methane emissions

**If the final Subpart W rule penalizes collection of comprehensive emissions data or fails to leverage technology innovation for detecting and benchmarking emissions, the true potential for emissions reductions will not be achieved and existing voluntary industry programs are threatened.**