Creating Meaningful and Verifiable Emissions Reductions

Addressing and Avoiding Risks of Ineffective Certified Gas Programs

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Environmental Defense Fund

The Need to Address Oil and Gas Sector Methane Emissions

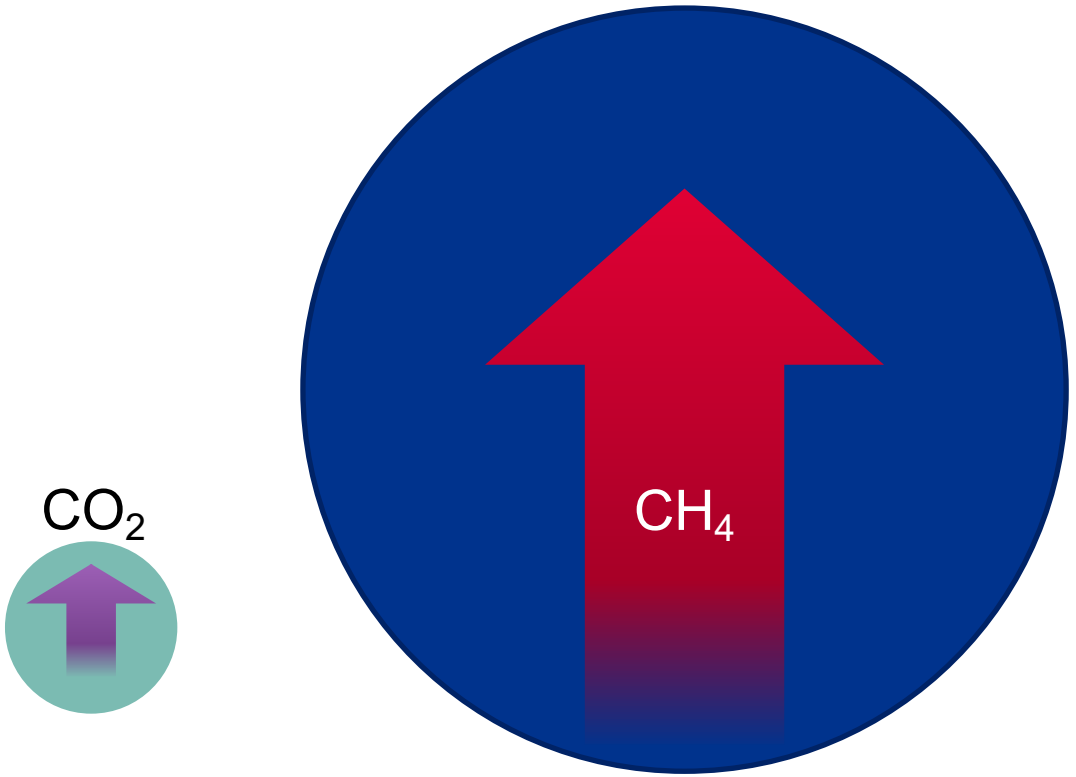
Oil & Gas Sector Methane Emissions Drive Climate Change

- Methane is a potent greenhouse gas with a 20-year global warming potential 84 times carbon dioxide
- The Oil and Gas sector is the second largest source of anthropogenic methane emissions after agriculture
- Substantially reducing methane emissions could slow the current rate of warming by as much as 30%

Background

Methane is a short-lived but potent greenhouse gas

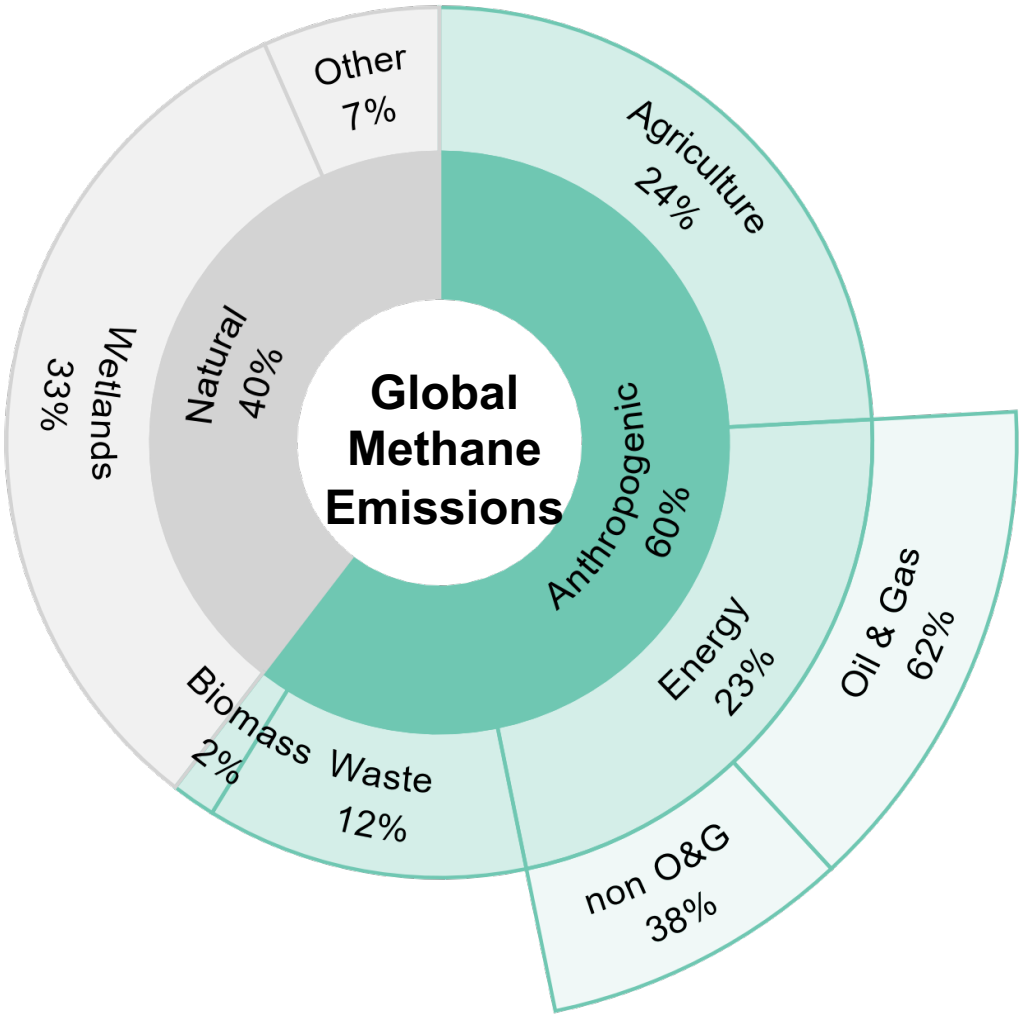
In the **short-term**, methane is **84x** more efficient at trapping heat than carbon dioxide.



Source: Based on IPCC AR5 WGI Chapter 8.

Background

Oil & Gas is a significant source of global methane

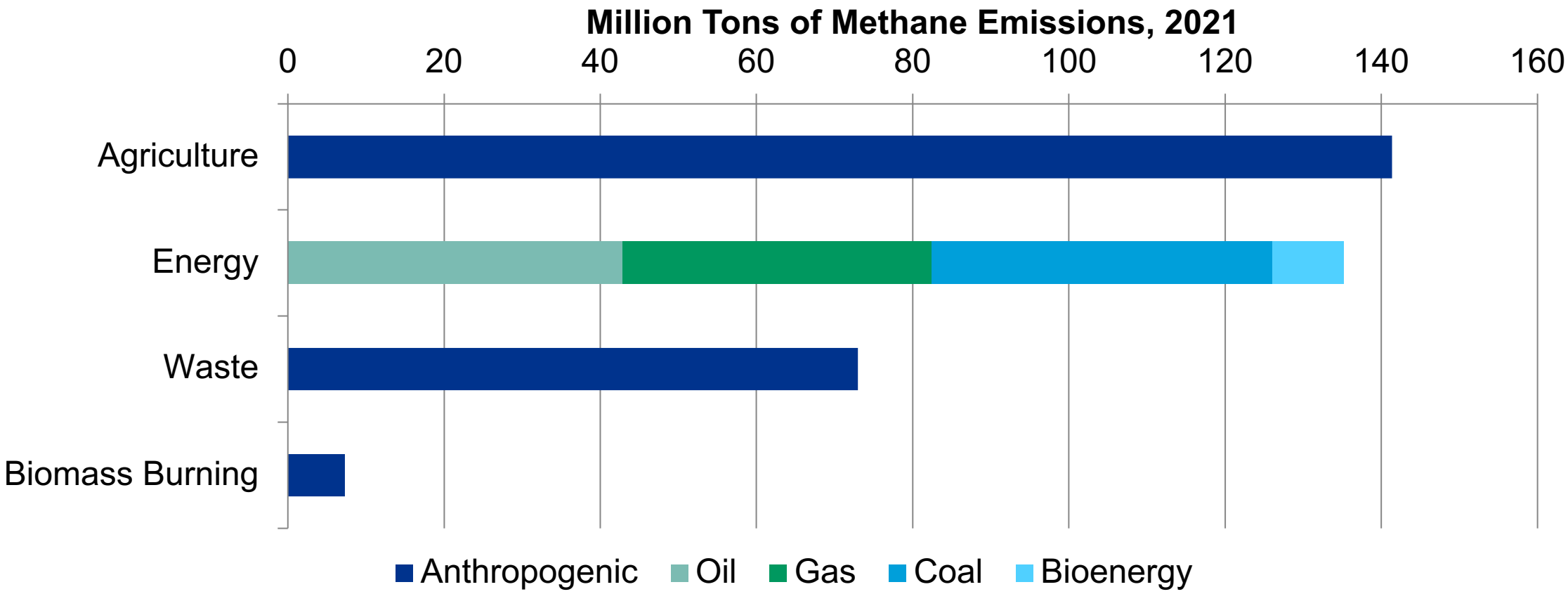


Methane emissions from the oil and gas sector are the result of:

- Purposeful release (venting)
- Accidental leaks (fugitive)
- Incomplete flaring

Source: IEA Methane Tracker Report, 2023

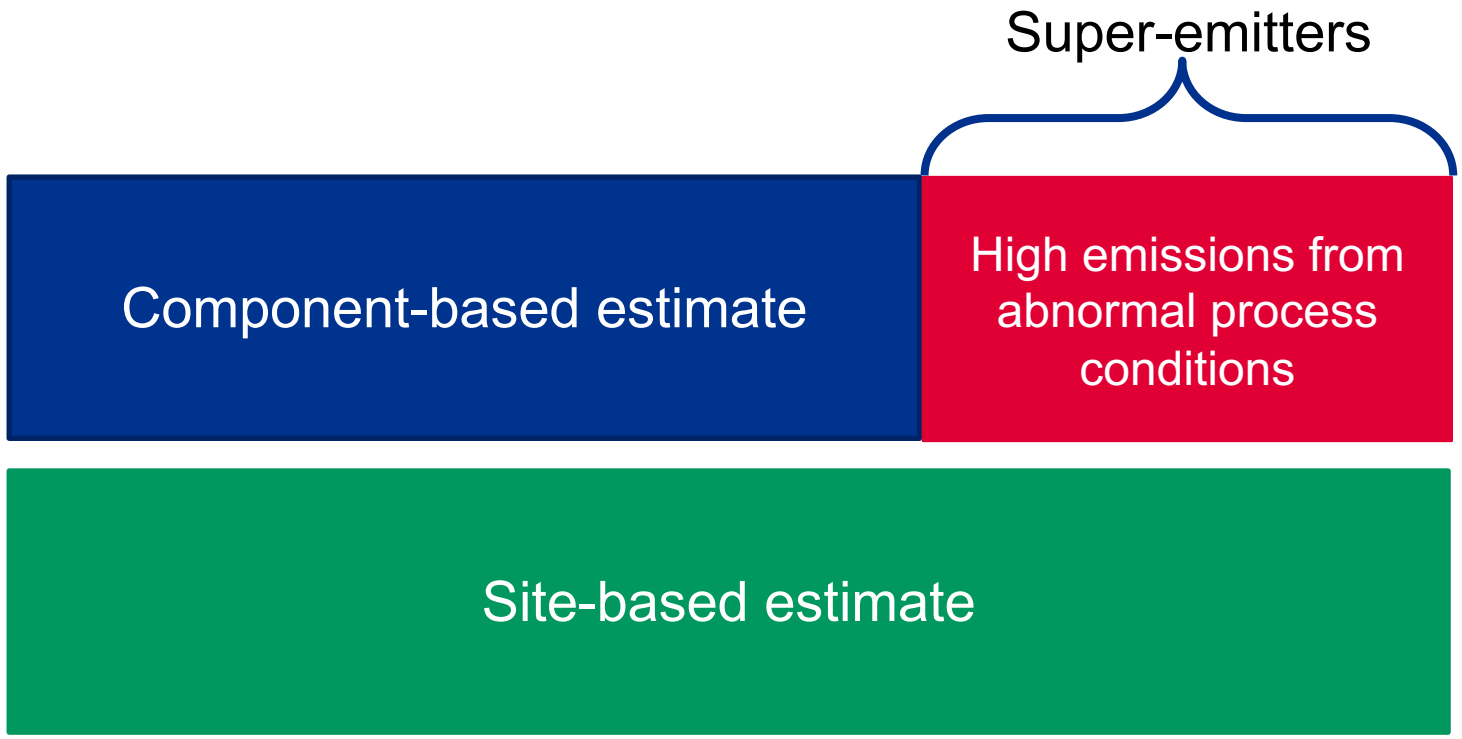
Methane Emissions by Sector



Oil and Gas Methane Emissions Are Undercounted But Addressable

- Methane emissions numbers are generally drawn from the EPA inventory, which primarily uses limited sampling and spreadsheet exercises to estimate emissions
- A 2018 synthesis of studies involving direct measurements found that overall oil and gas methane emissions are 60% higher than EPA estimates
- Individual studies and measurements have found varied, and often much higher, numbers for individual facilities
  - Many have shown emissions rates from wells five to ten times higher than the EPA inventory reflects
  - A new study found that Permian Basin gathering line emissions are at least 213,000 metric tons per year, 14 times greater than the EPA inventory estimates
- Both operator experience and research have shown that a large share of methane emissions can be cost-effectively eliminated

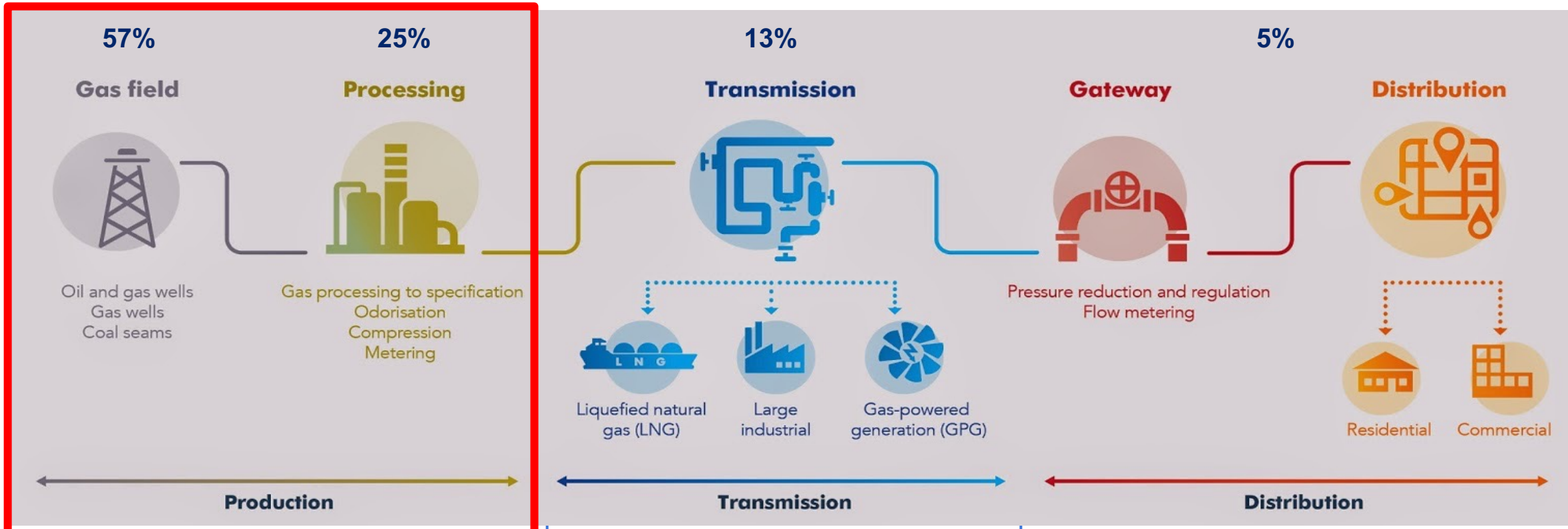
Traditional accounting methods underestimate emissions



Background

Emissions are concentrated in the production sector

2015 US Natural Gas Supply Chain Emissions Breakdown and Sources



- Well completions/blowdowns/workovers
- Compressor rods
- Equipment leaks
- Pneumatic devices
- Super-emitters

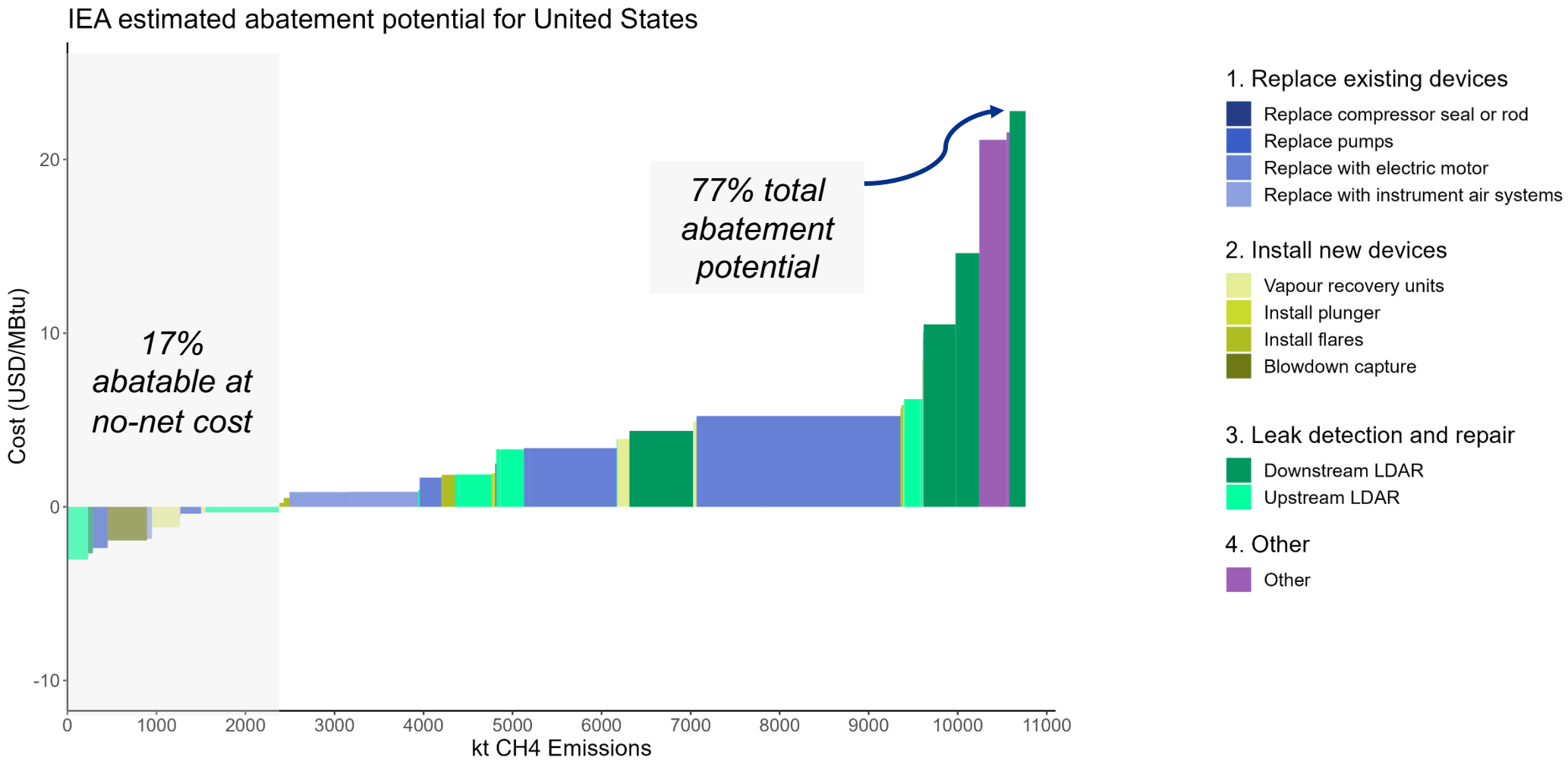
- Venting gas for maintenance or repair
- Compressor seals
- Leaks from pipelines or compressor stations

- Leaks from steel mains & service lines
- Leaks at metering & regulating stations
- Pipeline blowdowns

Sources Based on Marks 2018 Figure 1; Infographic from AEMO NGFR; Munnings & Krupnick, 2018 for subsector sources; Alvarez et al. 2018, Weller et. al 2020 for estimates.

Background

It may be possible to abate methane cheaply



Source: IEA 2023 Methane Tracker, United States O&G abatement cost curve

International Commitment to Addressing Methane

- Global Methane Pledge
  - In 2021, over 100 countries pledged to reduce the global methane footprint 30% below 2020 levels by 2030
- International organizations are key to addressing global methane emissions
  - International Methane Emissions Observatory (IMEO)
  - Oil and Gas Methane Partnership 2.0 (OGMP)

EDF Priorities

- Actual emissions reductions
- Accurate monitoring
- Continual improvement
- No gaps in coverage
- Verifiable and transparent programs
- Ratepayer and customer protection

Challenges for Voluntary Certification Programs

- Lack of standards for measurement and reporting and inaccuracy of current inventories
- Limits of depending on voluntary participation
  - Won’t address significant emission sources like marginal wells and orphan wells
- Cherry-picking and cream-skimming
- Moving forward in advance of clear standards

Core Design Principles for Credible Programs

Core Design Principles

- Rigorous Baseline:
  - All certified entities must meet best-practice work practice standards

Work Practice Standards Requirements
Regular instrument-based monitoring for leaks and abnormal emissions, including at smaller sites, and timely repair of leaks
Transition to zero-emitting pneumatic devices
Prohibition of routine venting and flaring
Control/capture requirements for tank emissions
Reduced emission well completions
Liquids unloading best practices
Emission standards for reciprocating and centrifugal compressors

Core Design Principles

- Accuracy:
  - High-integrity monitoring and reporting consistent with Oil and Gas Methane Partnership (OGMP) 2.0 Level 5

Core Design Principles

- Independent Verification and Tracking:
  - Independent third party(ies) should oversee certifiers and provide verification
  - Certification should be tracked in a public registry

Core Design Principles

- Emission Reductions:
  - Start with a methane intensity of 0.20% or less and decline over time

Core Design Principles

- Transparency and Comprehensiveness
  - Clearly specify what assets are certified and disclose portion of overall assets certified and company-wide methane intensity

The Role of Government

Baseline Practices and Definitions

- In addition to addressing assets that will not be captured in voluntary programs, regulations regarding oil and gas methane emissions can establish baseline practices and definitions
  - Environmental Protection Agency
  - Pipeline and Hazardous Materials Safety Administration
  - State Environmental Regulators

Accuracy and Transparency in Advertising and Reporting

- Appropriate regulators can ensure that statements by producers, purchasers, and certifiers are accurate and not misleading
  - Federal Trade Commission
  - Securities and Exchange Commission
  - State Attorneys General

Market and Ratepayer Protection

- Where certified gas is transacted through regulated markets or costs will be passed through to ratepayers, regulators have a responsibility to protect the public interest
  - Federal Energy Regulatory Commission
  - State Utility Regulators
  - Commodity Futures Trading Commission

Market and Technology Enabling

- Agencies should continue to support development and deployment of monitoring and leak-reducing technology and practices
  - Department of Energy
  - National Labs
  - Inflation Reduction Act Funding
- International organizations like OGMP and IMEO are key to developing effective and widely accepted programs and standards
- Agencies could support development of independent third parties for verification and registration

Thank you!

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Appendix

Monitoring on multiple scales

Monitoring technologies and
data are developing fast