

AGA Comments on: Proposal to Change Uncertainty Analysis for EPA Greenhouse Gas Inventory in 2018

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EPA GHGI Webinar

Pamela A. Lacey

Chief Regulatory Counsel

American Gas Association



AGA Comments

1. Context:

- Methane Emissions Declining
- Natural Gas is helping Reduce U.S. GHG Emissions

2. Why it is Important to Reduce Uncertainty – Fact based decisions

3. Get the Timing Right – Better Data Reduces Uncertainty:

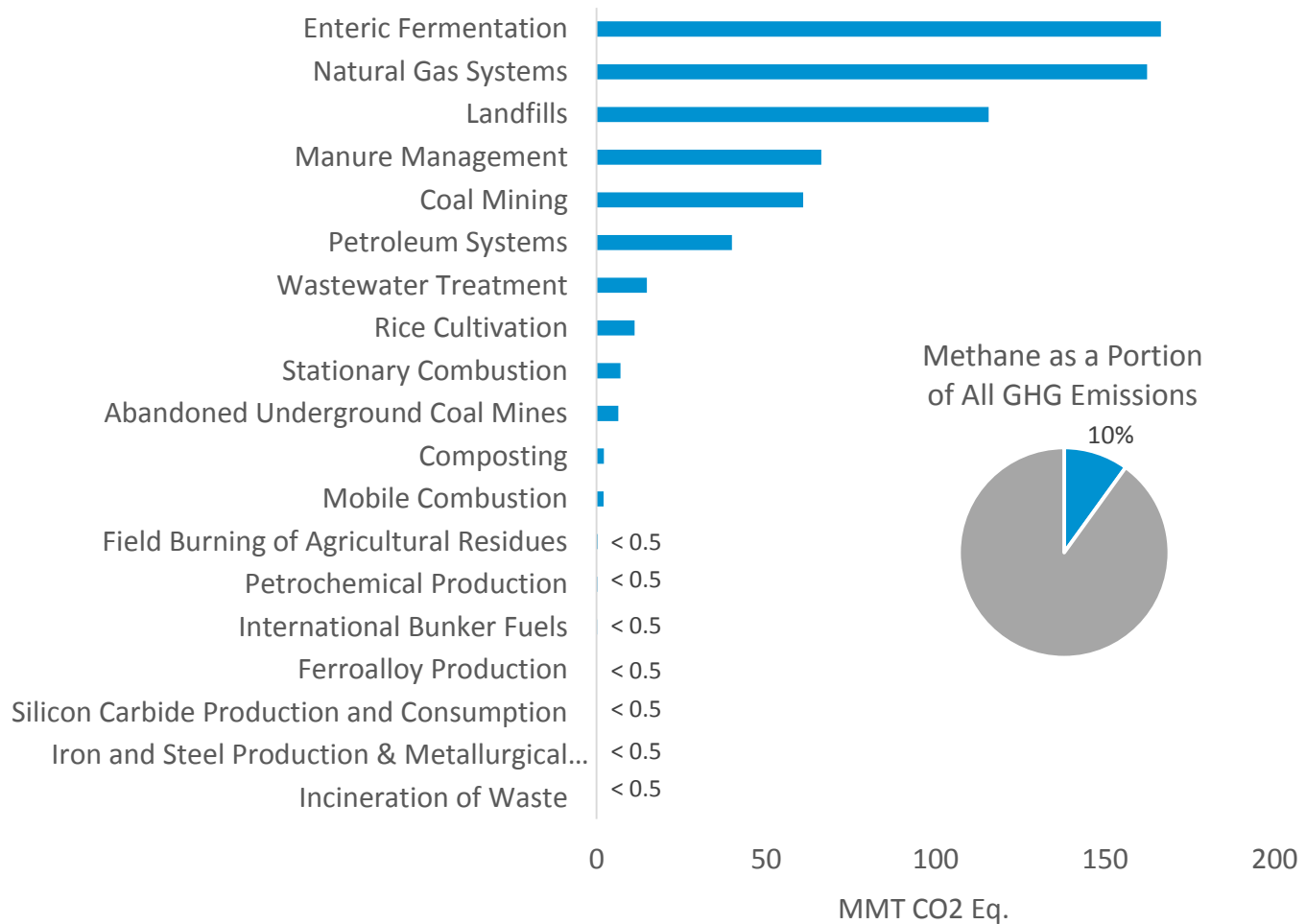
PRCI analysis Subpart W
2019 Inventory



1. Context

- Methane is a relatively small, though near term, contributor to GHGs
- Emissions from natural gas systems are declining
- Natural gas use is helping reduce overall GHG emissions

Sources of methane emissions 2014



Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2014*
Environmental Protection Agency

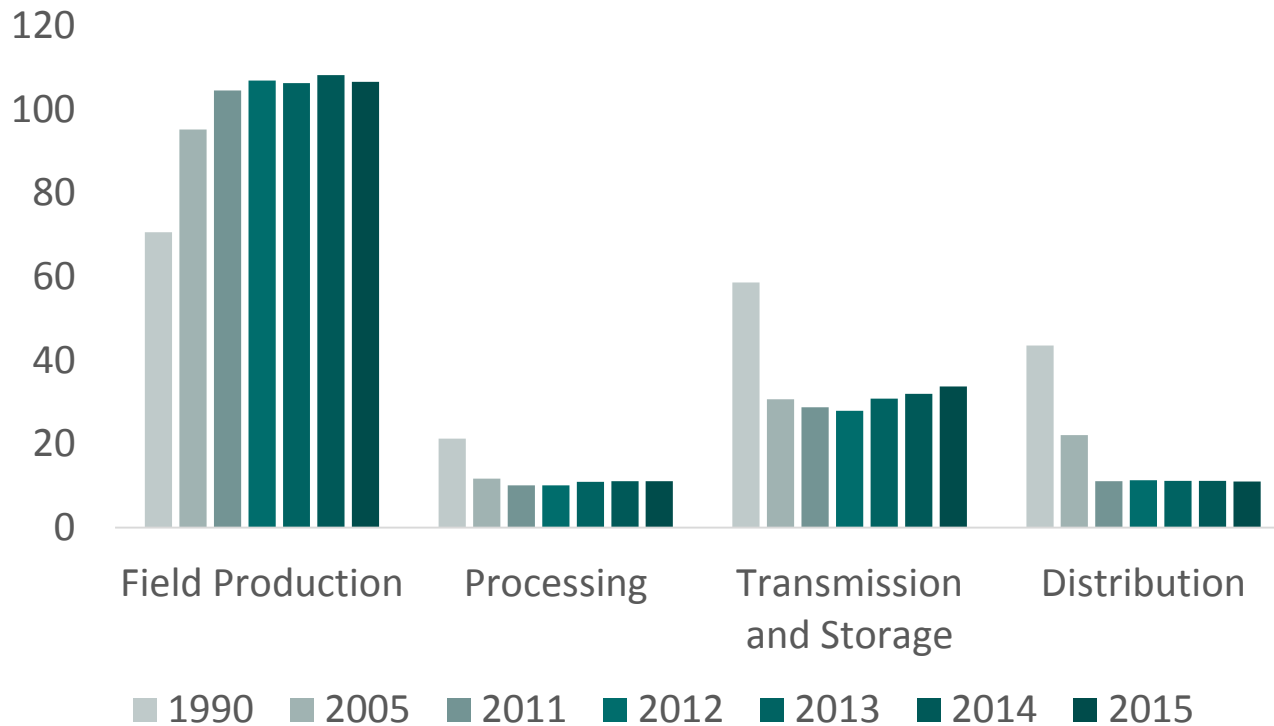
Context: Emissions are Declining

- Annual methane emissions from **natural gas distribution systems *declined 75 percent*** from 1990 to 2015.
- The natural gas emissions rate from distribution (percent of production) is now less than **0.1 percent**.
- Industry wide, natural **gas emissions as a rate of production (the “leakage rate”)** is **1.2 %** well below even the most stringent thresholds for **immediate climate benefits for using natural gas:**
 - Power plants
 - Industrial and commercial equipment
 - Combined heat & power (CHP)
 - Home heating and hot water

The 2017 EPA *Inventory* revealed once again that U.S. natural gas distribution systems have a small emissions footprint shaped by a declining trend.

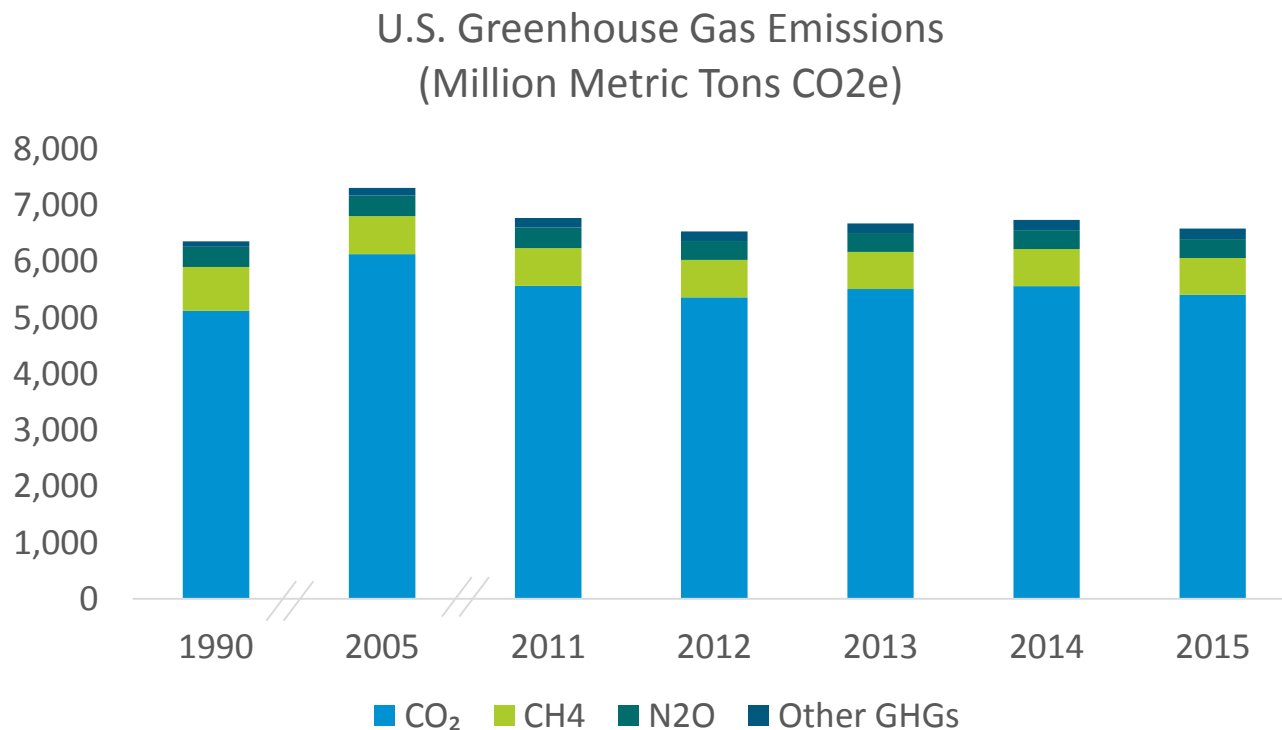
Transmission & distribution emissions - downward trend.

Methane Emissions from Natural Gas Systems
(Million Metric Tons CO₂e)



Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2014*
Environmental Protection Agency

US GHG emissions are down 12% since 2005 -- natural gas is playing a key role in the decline



Source: *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990 – 2014*
Environmental Protection Agency

2. Important to Narrow the Range of Uncertainties

- Increase confidence in the Inventory
- Support data-driven decisions
 - Policy
 - Mitigation

Key Question: How and When – Timing is Critical

- How: Better Data Narrows the Range of Uncertainties
- When: Update Uncertainties when Better Data is Available – for 2019 Inventory
- PRCI Reports Available this fall/winter – Detailed Analysis of Subpart W Reporting Data

Get the Timing Right – Don't Attempt to Update Uncertainties Until 2019 Inventory – When EPA Can Include Robust Subpart W Measurements and PRCI Analysis

- Subpart W Data -- 6 years of *direct field measurements*
- *Pipeline Research Council International (PRCI) analysis of Subpart W data available fall 2017*
 - *EPA should review this robust data and analysis – robust basis for improving emission factors based on direct measurements*
 - *Best timing: 2019 Inventory*
- *Initial review for 2011 and 2012 data was presented at Natural Gas STAR workshop in November 2015*
 - *Fall 2017 report adds data through 2016, and includes additional PRCI members (>75% of data reported to EPA for T&S segments)*

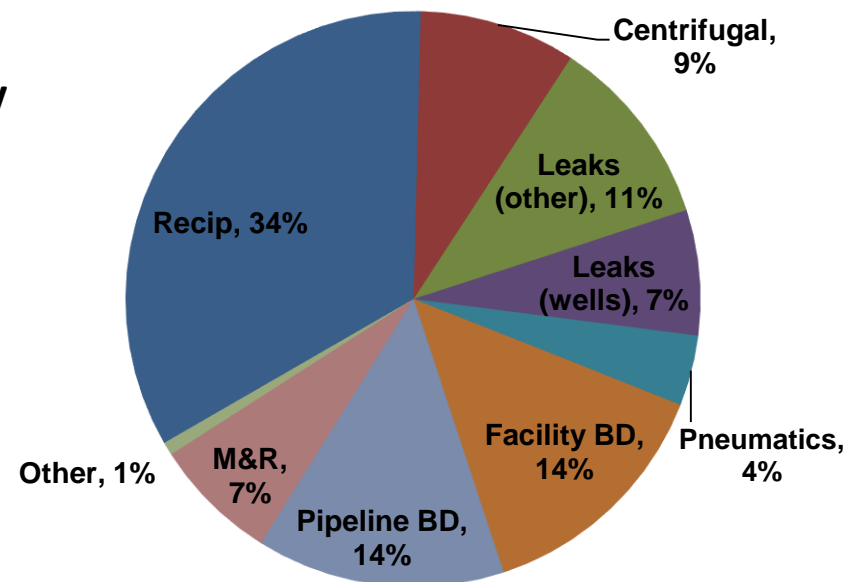
Methane Emissions: T&S Sources

- **Relative emissions for T&S sources (per EPA Annual GHG inventory):**

- **Reciprocating compressors – rod packing and other leaks**
 - ~34% of the T&S inventory
- **Centrifugal compressor seals and other leaks**
 - ~9% of inventory; about ½ from wet seal degassing vents
- **Other equipment leaks ~11% of inventory**
- **Storage well leaks ~7% of inventory**
- **Pneumatic device venting is ~4% of inventory**
- **Station & PL blowdowns are ~28% of inventory**
 - **Operational practices for safety, maintenance, etc.**

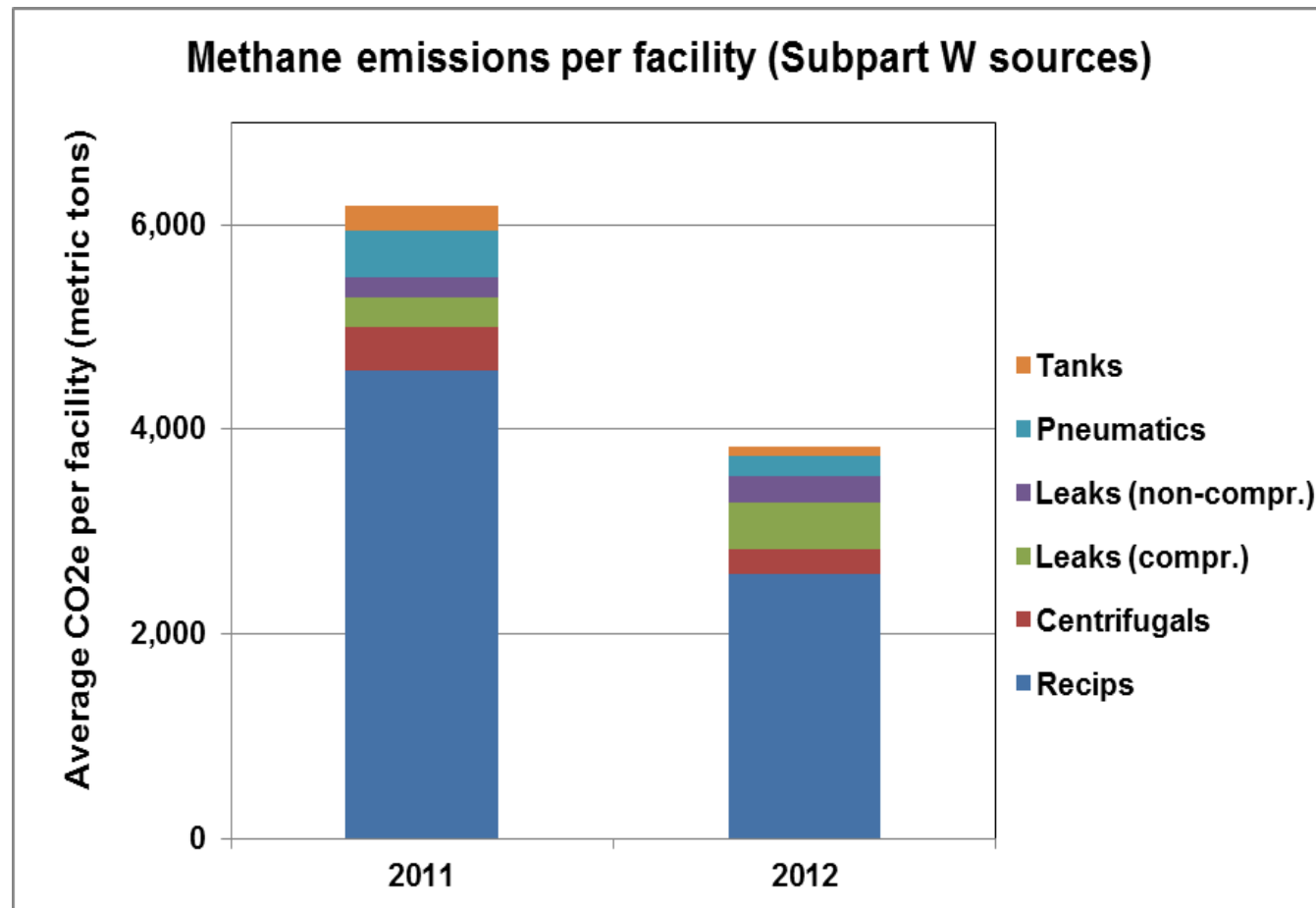
- **Uncertainty in these estimates – e.g., leak prevalence and emission rates**

- » **To improve understanding, EPA included measurement in Subpart W**
- » **Data is available for review & analysis**



T&S Emissions Details: Subpart W Results for Leaks and Pneumatic Controller Venting

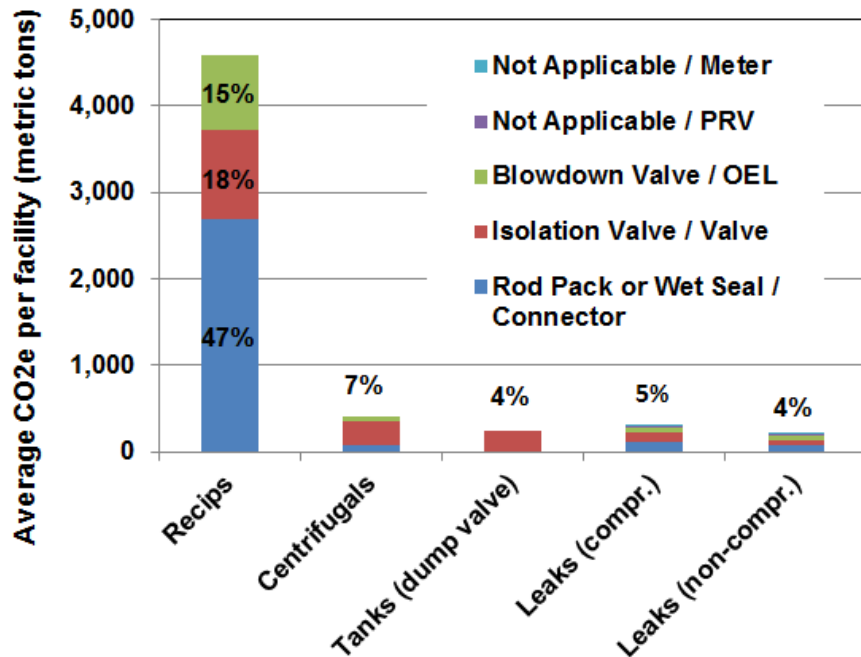
- From PRCI GHGRP data compilation
 - Other than pneumatics, these are leak sources
 - Blowdown reporting also included for transmission compressor stations
 - Pipeline blowdown reporting added for 2016 reporting year (1st year of data is available)



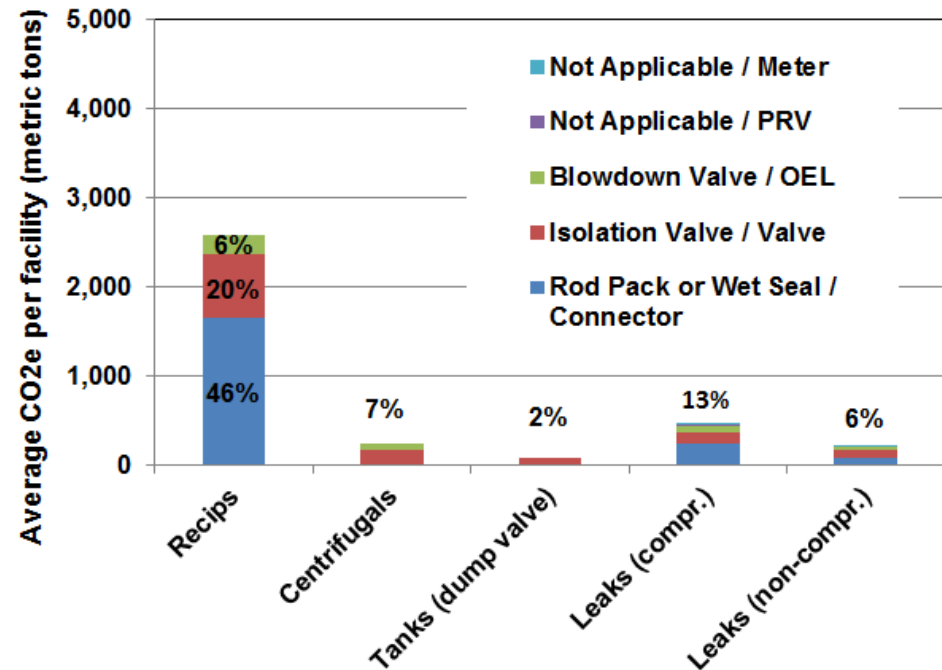
2011 and 2012 GHGRP Leak Emissions by Category and Source

- Emissions by category (e.g., recip) and source (e.g., isolation valve)
- “Other leaks” categories consider whether the component is in compressor service and include 5 component types (connector, valve, OEL, PRV, meter)
- Data from 2013 – 2016 will be included in Fall 2017 report
 - >10,000 measurements, vetted to address faulty data (e.g., use of acoustic device)

2011 CO₂e LEAK emissions per facility by emissions source (with % of total)

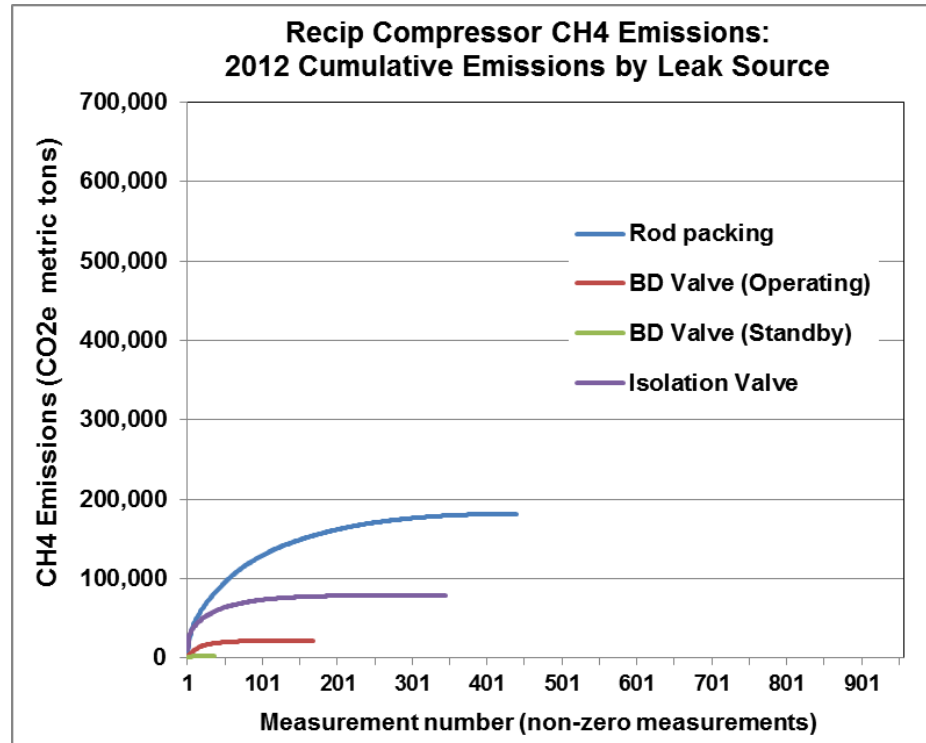
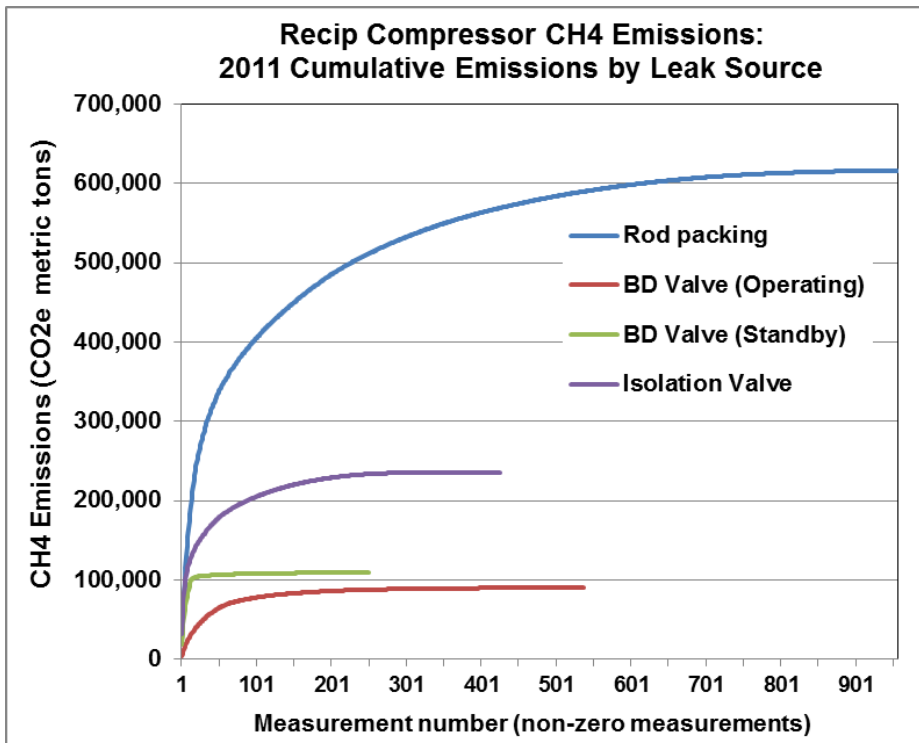


2012 CO₂e LEAK emissions per facility by emissions source (with % of total)



Size and Frequency of Larger Leaks: Reciprocating Compressors

- Leakage from rod packing, unit isolation valves, blowdown valves
 - Number of measurements (x-axis) and cumulative emissions (y-axis), with measured data ranked from high to low and cumulative sum plotted
 - Example chart analysis - In 2011 for isolation valves, ~440 measurements, with ~20% of leaks (~90) accounting for ~85% of emissions
 - Frequency and size of large leaks decreased in 2nd year; data and trends for 4 more years will be presented in PRCI report



Conclusion:

- AGA supports reducing uncertainties in the EPA GHG Inventory.
- The best way to achieve that goal is to update the uncertainty analysis when robust new data can be included.
- For natural gas transmission and storage, that means waiting for the 2019 Inventory so EPA can include 6 years of extensive measurements reported under Subpart W, and PRCI's fall 2017 analysis of that data.





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