November 17, 2015

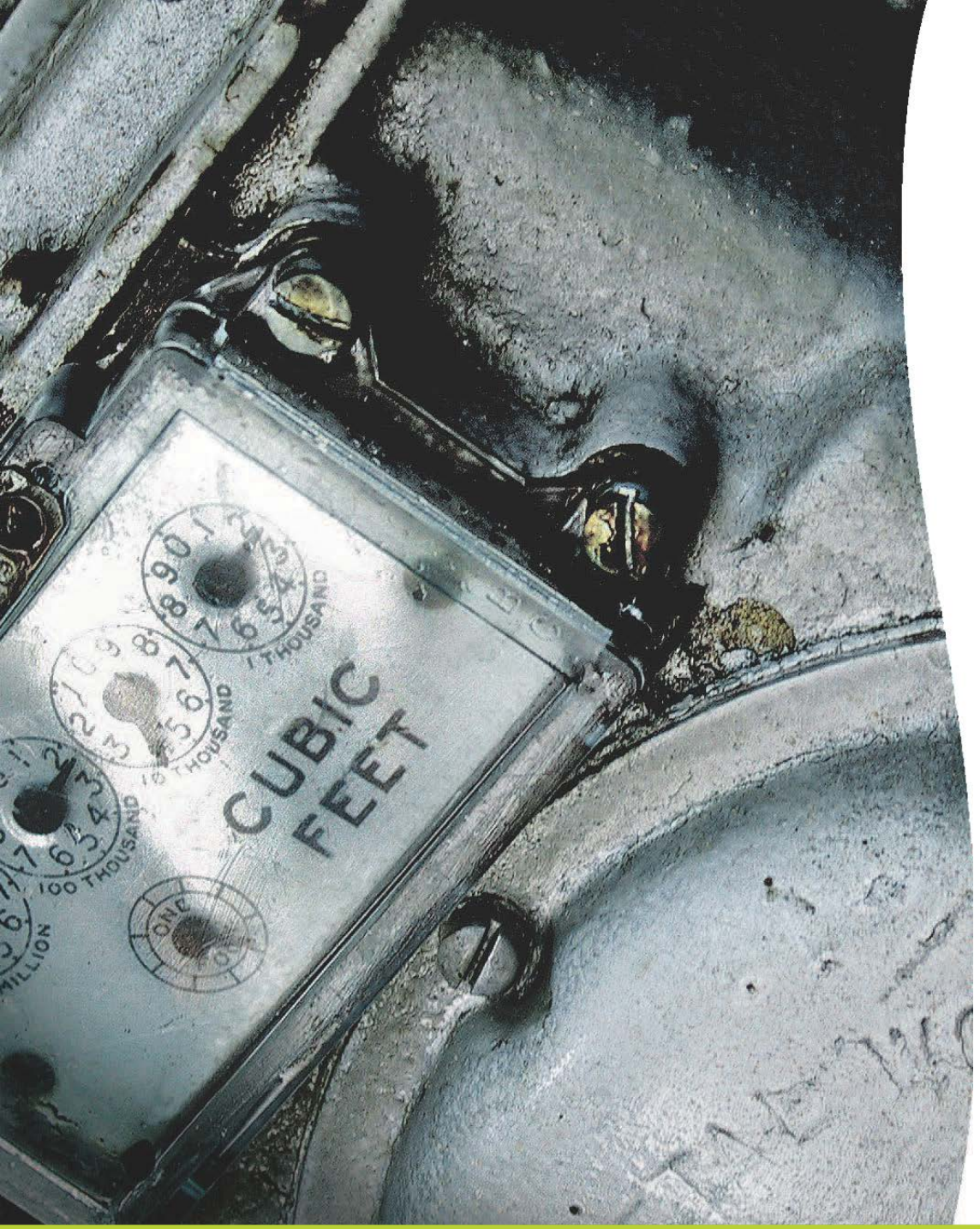
AGA American Gas Association

LAUF & Distribution Pipe Replacement – A National Perspective

The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States.

AGA represents 100% of the investor-owned gas utilities in the country.

There are more than 72 million residential, commercial and industrial natural gas customers in the U.S., of which 94 percent — over 68 million customers — receive their gas from AGA members.



1. How to measure emissions – Hint: Not with LAUF.

2. Pipeline safety -- driving infrastructure replacement and lower emissions

3. Key requirement: Utility rate cost recovery to accelerate pipe replacement

- What is Lost and Unaccounted For (LAUF) Gas?
- LAUF is mainly a metering and accounting adjustment.
- LAUF includes small amounts for gas theft and emissions, but *there is no correlation between LAUF and emissions.*
- EPA has long recognized the limitations of LAUF and rejected idea of using LAUF to measure or estimate methane emissions.

LAUF is Not a Good Measure of Emissions

A Better Way to Measure Emissions

Go to representative facilities...

And measure flow rates.

How to measure emissions from buried pipe…

Lamb, Washington State University Multi-City Distribution Study (March 31, 2015):

1. Map surface area of a leak using a portable sniffer

2. Use a flexible surface enclosure to capture the leak

3. Measure emissions using a calibrated high-flow sampler

DOT Pipeline Safety Action Plan

- Raises the bar on pipeline safety
- Accelerates rehabilitation, repair and replacement programs for high risk pipelines
- *Focuses on cast iron, bare steel, older plastic*
- *AGA Supports the Action Plan and "Smart Modernization" of infrastructure that is no longer fit for service*

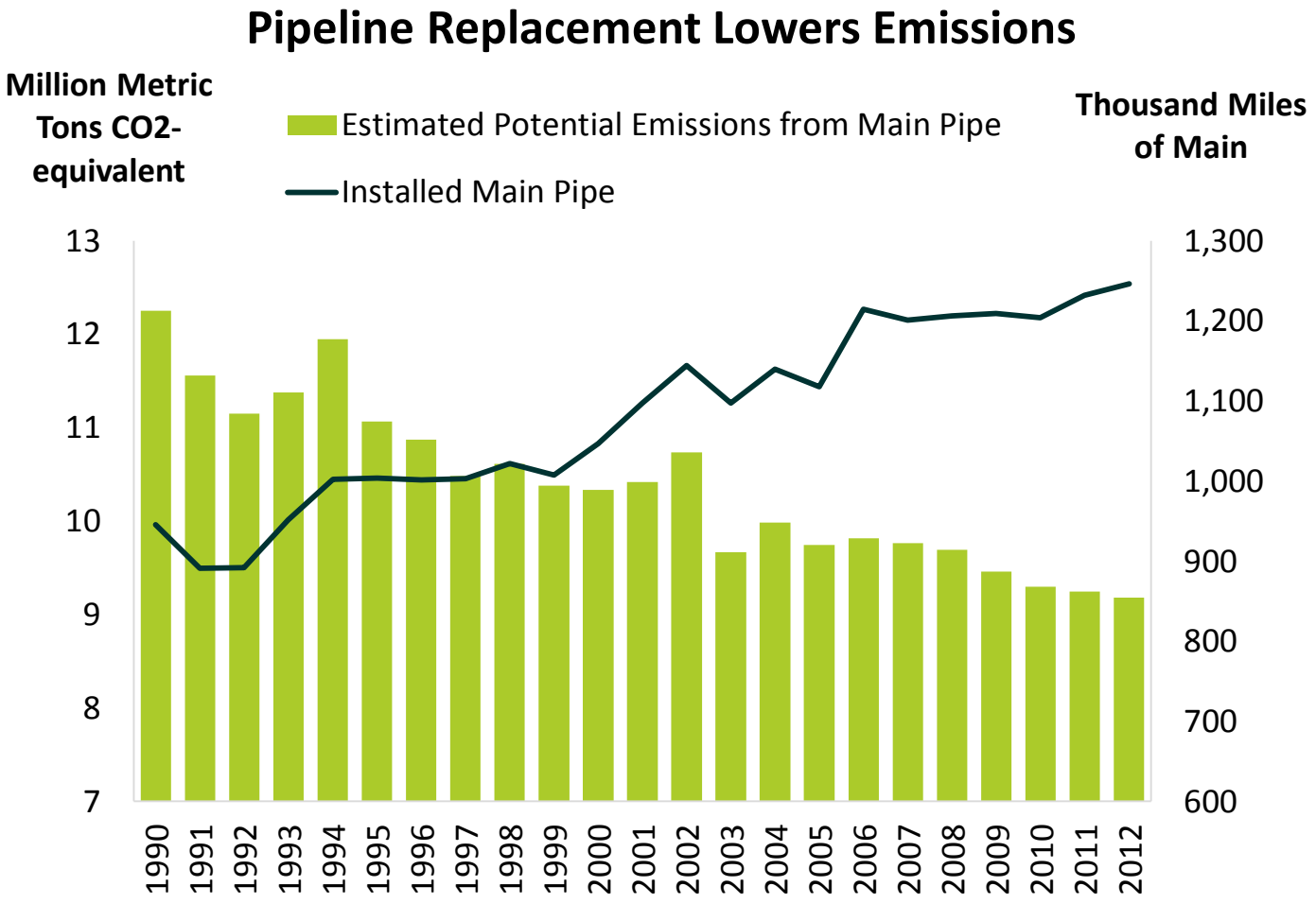
Natural Gas Distribution:

Focus on Safety

Side Benefit →**Emissions Shrinking**

- Emissions from distribution **shrank 17 percent** since 1990 …
- even though we added over **300,000 (30 percent more)** miles of distribution mains …
- to serve **17 million (30 percent)** more customers
- Why? Because we **replaced thousands of miles** of existing cast iron and bare steel pipe with **modern PE plastic pipe**
- Result: EPA estimates distribution systems emitted **0.24%** of produced natural gas in 2013

Emissions Have Declined Even as Pipeline Miles Have Grown



Source: AGA Analysis based on Department of Transportation data and EPA *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2012*

State Utility Commissions Balance Costs to Ratepayers

- **How fast can infrastructure be replaced?**
- May depend on
  - miles of pipe, and
  - how many customers would share cost
- **State Utility Commissions must:**
  1. **Consider cost impacts to consumers**, and
  2. **Allow utilities to recover costs**, and
  3. **Allow a just and reasonable return on equity (ROE) to attract capital**.

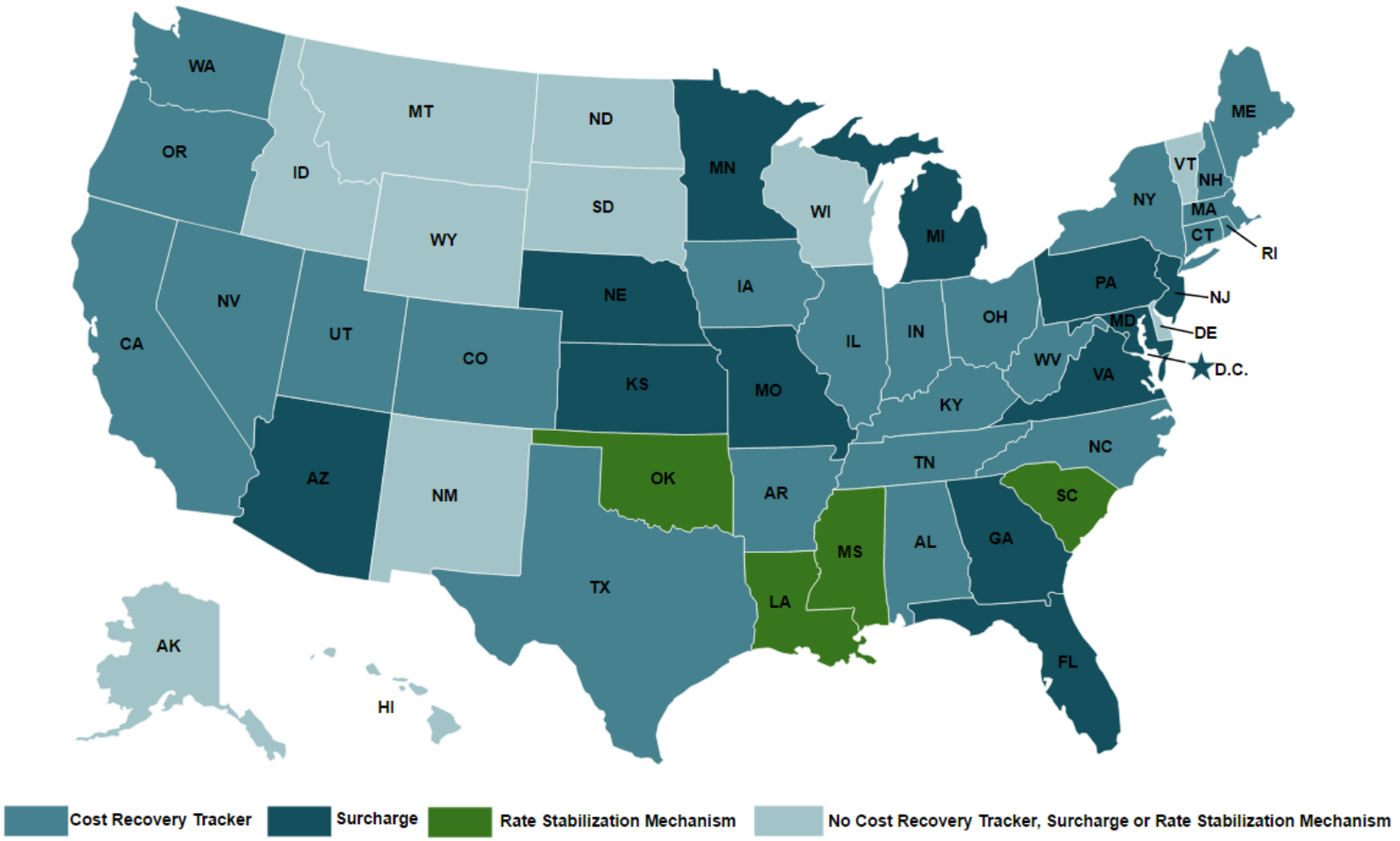
Regulatory Lag

- **The utility's cost of service is based on *historical* amounts from a "test year."**
- **Leads to "regulatory lag"**
- **Like being told by your boss –**

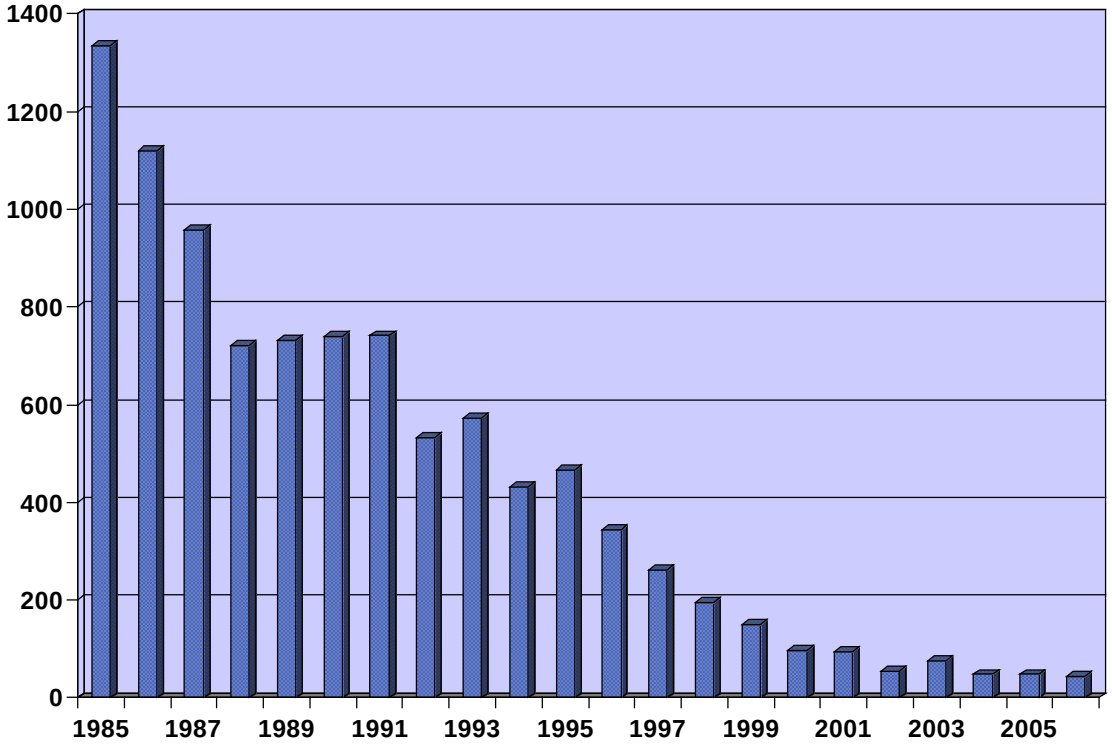
  'Go travel on business for 5 to 10 years, save your receipts, and at the end, I'll let you know whether I'll reimburse you for any of it…'

➢ **Need more timely and reliable cost recovery for major infrastructure replacement projects – e.g. trackers and surcharges**

States with Accelerated Infrastructure Cost Recovery



Low Grade Leak Declines – NW Natural Cast Iron Main Replacement – with Cost Recovery



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