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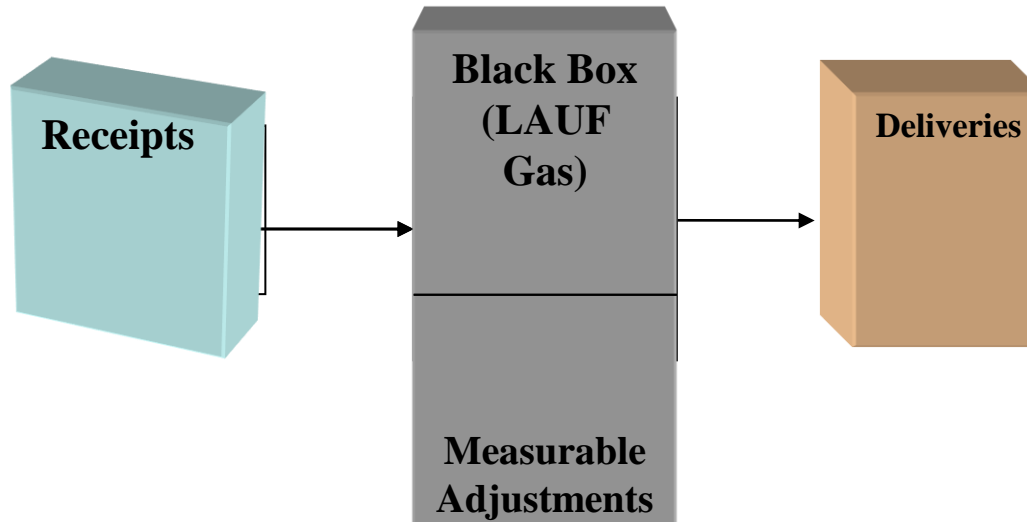
Lost and Unaccounted-for Gas:  
Practices of State Utility Commissions

Ken Costello

Principal Researcher, Energy and Environment  
National Regulatory Research Institute



# Gas Flows from Receipts to Deliveries



**Receipts – (LAUF Gas + Adjustments) = Deliveries,  
or**

**LAUF Gas = (Receipts – Deliveries) – Adjustments**

**LAUF% = LAUF Gas/Receipts**



## Sources of LAUF Gas and Mitigative Actions

Source	Problem	Mitigative Action
Pipe leaks	<ul style="list-style-type: none"> <li>High levels or dramatic change in LAUF gas might indicate a safety threat</li> </ul>	<ul style="list-style-type: none"> <li>Continuous monitoring of leaks</li> <li>Detailed leak surveys</li> <li>Repair or replace at-risk pipes in a timely fashion</li> </ul>
Measurement error <ul style="list-style-type: none"> <li>Temperature and pressure difference</li> <li>Heat value conversion</li> <li>Meter inaccuracies</li> </ul>	<ul style="list-style-type: none"> <li>Inaccurate gas volumes at customer meters</li> </ul>	<ul style="list-style-type: none"> <li>Testing and calibration of meter accuracy</li> <li>Replacement or maintenance of malfunctioning meters</li> <li>Installation of automated meter-reading devices to compensate for temperature and pressure differences</li> </ul>
Accounting error	<ul style="list-style-type: none"> <li>Inaccurate calculations and misinterpretation of meter data</li> <li>Improper accounting for gas receipts and deliveries</li> </ul>	<ul style="list-style-type: none"> <li>Periodic internal audits</li> <li>Proper staff training</li> <li>Well defined standard practices</li> </ul>
Third party damage	<ul style="list-style-type: none"> <li>All customers paying for gas losses and repairs</li> <li>Safety threat leading to incidents</li> </ul>	<ul style="list-style-type: none"> <li>Proactive program that informs the public of the dangers of digging and calling 811 before digging</li> <li>Strict penalties (usually imposed by a state agency) for the guilty party</li> <li>Charges to the guilty party for gas losses and repairs</li> </ul>
Cycle billing	<ul style="list-style-type: none"> <li>Timing mismatch between gas receipts and deliveries</li> </ul>	<ul style="list-style-type: none"> <li>More frequent meter reads (e.g., monthly)</li> <li>Less accounting lag</li> </ul>
Stolen gas	<ul style="list-style-type: none"> <li>All customers subsidizing delinquent customers</li> <li>Safety threat for local community</li> </ul>	<ul style="list-style-type: none"> <li>Inspection of meters for signs of tampering</li> <li>Follow-up investigation</li> <li>Strict penalties for delinquent customers</li> </ul>
“Blowdown”	<ul style="list-style-type: none"> <li>Released gas into the atmosphere during maintenance, inspections or emergency procedures</li> </ul>	<ul style="list-style-type: none"> <li>Inject “blowdown” gas into low-pressure mains by adding piping from compressors to the mains</li> </ul>



# Regulatory Concerns

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- **The incentive problem**
  - One concern is weak incentives for utilities to manage LAUF gas
  - Typically a marginal area of review by commissions
- **Higher purchased gas costs for customers**
  - Commissions typically consider LAUF-gas costs as part of a utility's cost of service
  - Commissions have a duty to evaluate the prudence of utility actions or non-actions in determining whether customers should pay for those costs
- **Safety concerns from excessive pipe leaks**
  - Gas leaks typically do not pose a safety threat
  - Commissions have particular concerns over upward trends in LAUF gas, since they might "red flag" a pipeline safety threat
  - Other factors may account for this trend, but it is hard for a utility to know if the problem is gas leakage, an increase in measurement error or something else



# Major Challenges for Commissions

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- **Definition**

- No single definition of LAUF gas across utilities, even those located in the same state

- **Measurement**

- Little empirical evidence on the effects of individual factors on LAUF gas

- **Multiple Causes**

- Several causes accounting for LAUF gas

- **Annual Variability**

- High year-to-year variability for some utilities



# Major Challenges for Commissions *continued*

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- **Unique Determinants**
  - Large differences in LAUF gas, as a percentage of sendout, across utilities
- **Degree of Control**
  - Some factors of LAUF gas within the control of a utility, others are not
- **Recognition of Patterns**
  - Difficulty in forecasting LAUF gas for an individual utility, as year-to-year levels can fluctuate widely



# Current Regulatory Practices

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- NRRI sent out 14 survey questions to state utility commissions in mid-January 2013 inquiring into their policies and practices on LAUF gas
- We received 41 responses
- The questions covered:
  - The incentive they give utilities to manage their LAUF gas
  - The importance they place on LAUF gas
  - Their perceptions on the effectiveness of utilities in managing LAUF gas, and
  - How they evaluate LAUF-gas levels and what criteria they apply



# Current Regulatory Practices *continued*

- ***Highlights of responses***

- Commissions normally review LAUF gas as part of an audit of a utility's gas purchasing practices, either in a rate case review or PGA reconciliation
- Several commissions expressed concerns when LAUF gas dramatically increases from one year to another
- The strongest incentive for utilities to manage LAUF in most instances appears to lie with the increased likelihood of a pipeline incident if they ineffectively repair or eliminate leaks
- Almost all state commissions allow the recovery of LAUF-gas costs in a PGA mechanism
- Many gas utilities have recently embarked on accelerated pipeline replacement programs that should lower the amount of LAUF gas in the future
- While the vast majority of survey respondents expect utilities to reasonably manage their LAUF gas, few have an opinion as to whether utilities could do a better job
- Utilities generally do not break down LAUF gas by source, at least in quantitative form
- Several commissions monitor LAUF gas in a rate case, or a PGA filing





# Regulatory Options to Manage LAUF Gas

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- **Regulatory tools**

- ✓ *Monitoring*

- Utility reports to the commission, who reviews the information and takes appropriate action

- ✓ *Target setting*

- Commission sets a standard that triggers (a) further investigation, (b) a utility explanation or (c) a direct penalty

- ✓ *Incentive mechanism*

- Commission rewards or penalizes a utility based on actual performance relative to a prespecified benchmark



# Considerations for Commissions

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- For benchmarking, tracking an individual utility's LAUF percentage over time may offer the best metric
- Commissions might consider taking a proactive stance in assessing the performance of utilities in managing LAUF gas, especially in making sure that utilities are exploiting all prudent actions to manage LAUF gas
- Commissions should consider requiring utilities to compile better information on the individual sources of LAUF gas
- Utilities can influence LAUF-gas levels in different ways (a major point in the paper)
- An effective commission tool is to monitor and assess utilities' LAUF-gas levels



## Future Projects

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- Gas/Electricity Interdependency
- Gas Infrastructure Needs
- Updated Natural Gas Vehicle Study
- Specific Ratemaking Issues
- Bolstering Demand for Natural Gas
- High Pipeline ROEs