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Industry Perspectives

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Workgroup #5: Methane Mitigation – Construction & Operations

- In support of Executive Order 14008, *Tackling the Climate Crisis at Home and Abroad*, PHMSA is seeking solutions to reduce methane releases from PHMSA regulated infrastructure. The research topics recommended by this workgroup would also support congressional mandates on preventing and mitigating methane leaks on PHMSA regulated facilities. This workgroup would review best practices to reduce methane emissions. Areas that will be evaluated are:
  - Reduction in methane releases during construction and maintenance activities, such as when a pipeline is purged prior to putting it into operation and after a line is taken out of service for repair.
  - Design, installation, and operation of separators, compressors, controllers, regulators, overpressure protections, launchers/receivers, station emergency shutdowns, liquid storage tanks, valve actuators, and other equipment that use gas as a power driver.
  - Minimization of pipeline segment blowdown pressures and segment lengths for pipe replacement or relocation.
  - Installation of additional mainline valves.
  - Operational practices to minimize gas loss during operational testing.
  - Integrity management of natural gas and hazardous liquids pipeline to include carbon dioxide lines.
- PHMSA envisions that the workgroup will develop 4-5 research topics that focus on advancing knowledge and technology to reduce methane emissions from PHMSA jurisdictional pipeline systems

Workgroup #5:
Methane Mitigation – Construction & Operations

Industry Perspectives

Pilot Programs

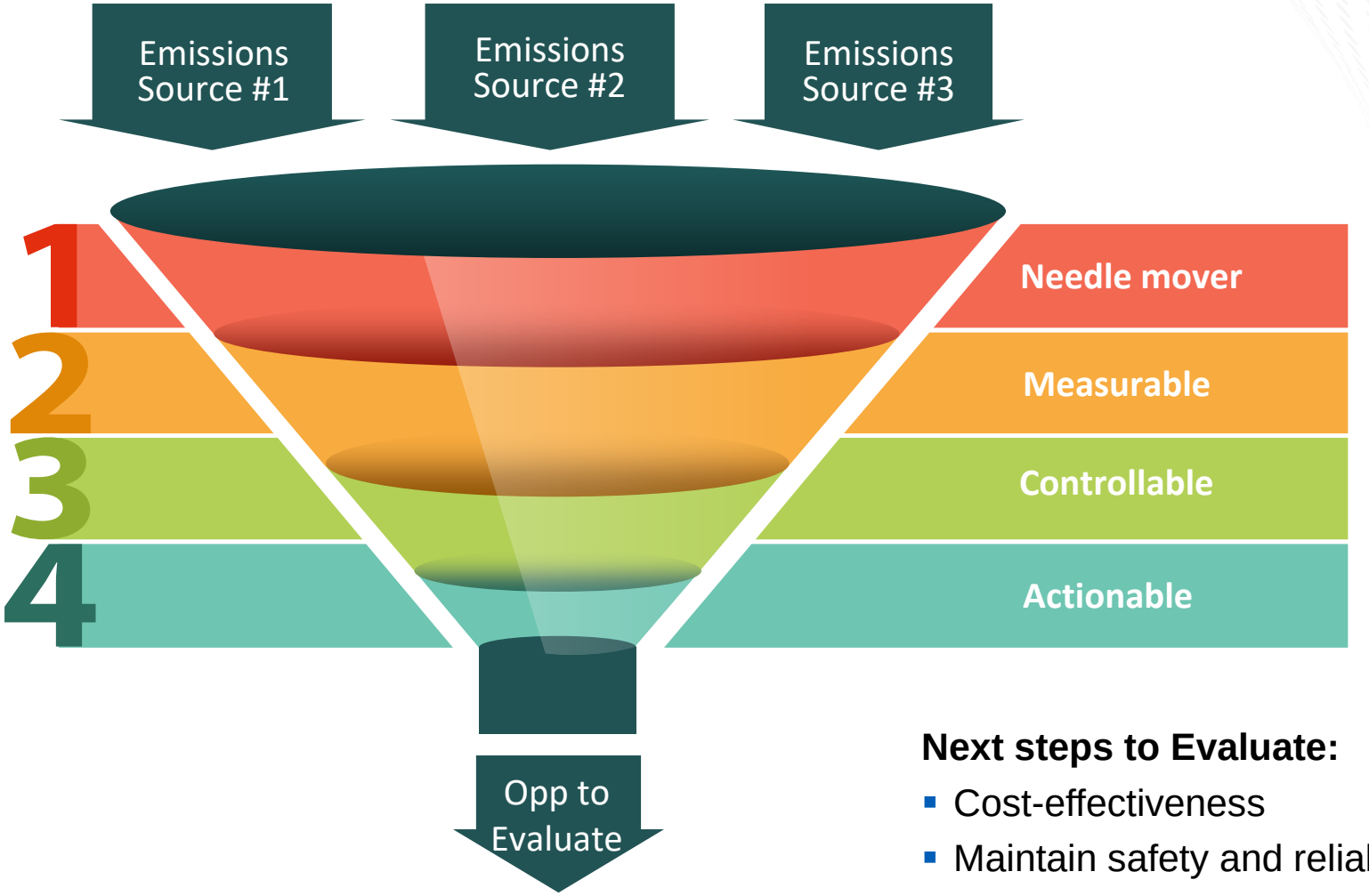
Challenges

Lessons Learned

New Research

Industry Perspectives

Pilot Projects – Evaluating Opportunities



Next steps to Evaluate:

- Cost-effectiveness
- Maintain safety and reliability

Pilot Programs, Challenges, and Lessons Learned

Transmission Pipeline Blowdown Emissions Reductions

- Methane Reduction Effort
  - Reduce *large* pipeline blowdown emissions resulting from integrity work and construction
  - Utilize diverse strategies: compressor drawdown, recompression, control devices, or other innovative methods

- Challenges
  - Pipeline anomalies identified may required quick response to lower pipeline pressures and evaluate
  - Evaluate the impact: customers / communities, emissions, cost, etc.
  - Pipeline system design and maintaining energy reliability
  - Customer relationships can help or hinder

- Lessons Learned
  - Thoughtfully planning work and intentional collaboration with customers
  - Asset design should allow for nimble operations
  - Do not specify required reduction method – allow for collaboration and creativity with operations/project teams

Pilot Programs, Challenges, and Lessons Learned

Leak Detection and Repair (LDAR)

- Methane Reduction Effort
  - Evaluating opportunities to implemented voluntary LDAR programs
  - Investigating advanced technologies for leak detection, quantification, and notification
  - Execute repair work timely and appropriately to reduce total emissions

- Challenges
  - Regulatory requirements inhibiting adoption of advanced technologies
  - Repair requirements do not allow operators enough flexibility for repair timelines – possibly creating more emissions to comply
  - More focus on small emitters rather than large emitters

- Lessons Learned
  - Streamlining regulatory approval will encourage deployment of advanced technologies and enhance emission estimates and reductions opportunities
  - Strategic supply chain and critical spare practices are essential

Research Opportunities

Strategically Aligning Research Priorities with Operator Knowledge

- Identify and invest in common goals
  - Reliable, affordable, and abundant energy
  - Sustainable environmental practices
  - Safe operation of pipeline assets
  - Flourishing of the communities we live and serve

- Set research priorities in support of these goals

- Leverage the expertise of industry and work collaboratively

- Research Opportunities
  - Quantification, monitoring, reporting, and verification (QMRV) technologies
  - Impact of emerging fuels (i.e., hydrogen, RNG) of emissions and asset integrity
  - Compressor and driver efficiency enhancements
  - Alternatives to natural gas-driven pneumatic control devices

