

**Testimony of
Ron Bradley
Vice President of Gas Operations, PECO
On Behalf of the American Gas Association**

**Before the
Subcommittee on Energy and Power
Committee on Energy and Commerce
U.S. House of Representatives**

Legislative Hearing to Examine Pipeline Safety Reauthorization

March 1, 2016

Good morning, Mr. Chairman and members of the Committee. Thank you for this opportunity to provide testimony on the important issue of pipeline safety. I commend you and your colleagues on the work this committee has done over the years to ensure that America has the safest, most reliable pipeline system in the world.

My name is Ron Bradley, and I serve as Vice President of Gas Operations at PECO, which safely provides reliable electric and natural gas service to more than 1.6 million electric customers and more than 508,000 natural gas customers in southeastern Pennsylvania.

PECO is part of the Exelon family of companies. Exelon is the nation's largest competitive energy provider. In addition to Exelon's generation, power and unregulated businesses, our sister utilities include BGE in Baltimore and ComEd in Chicago. Combined we serve 6.6 million electric customers in Illinois, Maryland and Pennsylvania, and more than 1.1 million natural gas customers in Maryland and Pennsylvania.

At PECO, we have six core values: Safety, Integrity, Diversity, Respect, Accountability and Continuous Improvement. Safety is first and foremost among these. My commitment, and the commitment of our leadership at PECO and our parent company, Exelon, is that everyone goes home safe.

This includes not only our employees, but also our customers, our contractors and everyone in the communities we serve. Among utilities, PECO's safety performance is ranked as one of the best in the nation. PECO has been recognized as Pennsylvania's safest utility by the state Department of Labor & Industry and has also received awards from the Energy Association of Pennsylvania, the Southeastern Electric Exchange and the American Gas Association.

I am testifying today on behalf of the American Gas Association (AGA). AGA, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 72 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent - nearly 69 million customers - receive their gas from AGA members. Natural gas pipelines, which transport approximately one-fourth of the energy consumed in the United States, are an essential part of the nation's infrastructure. Indeed, natural gas is delivered to customers through a safe, 2.5 million mile underground pipeline system. This includes 2.2 million miles of local utility distribution pipelines and 300,000 miles of transmission pipelines that stretch across the country, providing service to more than 177 million Americans.¹

Shale production has resulted in abundant supplies of domestic natural gas, and this robust supply situation has translated into affordable and stable natural gas prices for our customers. America needs clean and abundant energy and America's natural gas provides just that. This has made the safe, reliable and cost-effective operation of the natural gas pipeline infrastructure even more critically important. It is our job to ensure the safe and reliable delivery of natural gas, and I assure you we take this responsibility very seriously. Indeed, safety is our number one priority. Through an effective partnership between America's natural gas utilities, state regulators, Congressional and state legislators, governors and other key stakeholders working together to advance important safety policies, we have been able to both enhance system integrity and support increased access to natural gas service for homes and businesses.

DISTRIBUTION PIPELINES

Distribution pipelines are operated by natural gas utilities, sometimes called "local distribution companies" or LDCs. The gas utility's distribution pipes are the last, critical link in the natural gas delivery chain. Gas distribution utilities bring natural gas service to their customers we are seen as the "face of the gas industry."

¹ See Attachment 1: *Natural Gas Pipelines Across the U.S.*"

Our customers see our name on their bills, our trucks in the streets and our company sponsorship of many civic initiatives. We live in the communities we serve and interact daily with our customers and with the state regulators who oversee pipeline safety. We take very seriously the responsibility of continuing to deliver natural gas to our communities safely, reliably, responsibly and affordably.

AGA and its members support the development of reasonable regulations to implement new federal legislation as well as the recommendations of the National Transportation Safety Board, the U.S. Department of Transportation (DOT) Inspector General, Government Accountability Office, National Association of Pipeline Safety Representatives (NAPSR) and the National Association of Regulatory Utility Commissioners (NARUC). Within this testimony are actions that are being, or will be, implemented by AGA or individual operators to help ensure the safe and reliable operation of the nation's 2.5 million miles of natural gas pipelines. In implementing these actions, AGA and its individual operators recognize the significant role that their state regulators or governing bodies will play in supporting and funding these actions to fulfill our commitment to our customers.²

REGULATORY AUTHORITY

As part of an agreement with the federal government, in most states, state pipeline safety authorities have primary responsibility to regulate natural gas distribution utilities as well as intrastate transmission pipeline companies. Under these agreements, state governments adopt as a minimum the federal safety standards promulgated by the U.S. Department of Transportation.

The states may also choose to adopt standards that are more stringent than the federal regulations, and many have done so. LDCs are in close contact with state pipeline safety inspectors on a regular basis and as a result of these interactions, distribution operator facilities are subject to more frequent and closer inspections than required by the federal pipeline safety regulations.³

In addition to state pipeline safety inspectors, state public utility commissions are also a key part the safety matrix. We believe state commissions, and in Pennsylvania's case, our Department of Labor and Industry, play a critically important role in ensuring pipeline safety and thus support NARUC's request that there be adequate funding for state pipeline safety programs.

² See Attachment 2: "Natural Gas Delivery System"

³ See Attachment 3: "Regulators and Stakeholders"

It is essential that the states have sufficient funding so that their inspectors can receive adequate training, participate in pipeline safety initiatives, and support excavation damage prevention efforts.

On behalf of AGA, I would like to raise serious concerns regarding language included in the Discussion Draft for consideration that would establish a private right for any person to bring a civil action in an appropriate district court seeking an injunction against the U.S. Government for failure to perform any non-discretionary duty under this chapter.

Congress passed the Natural Gas Pipeline Safety Act to create an Agency within the Department of Transportation with specific expertise to ensure the safe, reliable and environmentally sound operation of our nation's pipeline transportation system. PHMSA oversees a regulatory program that provides for public input, regulatory procedures, information requirements, and enforcement actions based on its comprehensive knowledge of this industry. This provides a predictable framework for pipeline regulation while ensuring that the public interest is protected.

The pervasive judicial role created under the proposed formula under discussion in Section 15 would undermine this balance and shift oversight of the industry away from regulators with decades of experience and expertise and into courts who lack this knowledge and perspective. I strongly urge you to delete this section and maintain PHMSA's primary role as the regulatory authority of the pipeline industry as Congress intended.

COMMITMENT TO SAFETY

Our commitment to safety extends beyond just government oversight. Safety is our core value – a source of pride and a matter of corporate policy for every company. Each company employs safety professionals; provides on-going employee safety training; conducts rigorous system inspections, testing, and maintenance, repair and replacement programs; distributes public safety information; and complies with a wide range of federal and state safety regulations and requirements. Individual company efforts are supplemented by collaborative activities in the safety and technical committees of regional and national trade organizations. Examples of these groups include AGA, the American Public Gas Association, the Interstate Natural Gas Association of America, the Southern Gas Association, the Northeast Gas Association, the Western Energy Institute, the Midwest Energy Association, and the Northwest Gas Association.

When I last testified on behalf of AGA before this committee on the topic of pipeline safety, natural gas utilities were spending an estimated \$19 billion a year in safety-related activities. Today, that number has grown to \$22 billion—and it will continue to grow as more of the recently approved replacement programs commence. Approximately half of this money is spent in complying with specific federal and state regulations. The other half is spent as part of our companies' voluntary commitment to help ensure that our systems are safe and that the communities we serve are protected. Moreover, we are continually refining our safety practices to help improve overall safety and reliability.

On October 26, 2011, AGA released our “Commitment to Enhancing Safety,” which outlines just a few of the industry’s commitments above and beyond regulations. Our companies feel so strongly about these voluntary actions that the AGA “Commitment to Enhancing Safety” has been updated twice in the past six months to incorporate lessons learned from implementation of pipeline safety regulations and recent industry incidents. This is just one example of how the industry is leading on safety by demonstrating the highest level of commitment to constant improvement and by upholding pipeline safety as our number one priority.⁴

Outside of regulation and legislation, AGA members are striving to improve pipeline safety:

- Through AGA's Safety Culture Statement, each AGA member has committed to promoting positive safety cultures among their employees throughout the natural gas distribution industry. All employees as well as contractors and suppliers providing services to AGA members, are expected to place the highest priority on employee, customer, public and pipeline safety.

- As noted above, AGA's Commitment to Enhancing Safety outlines industry’s continued commitment to improving pipeline safety through voluntary actions above and beyond federal regulations. This includes actions beyond regulations to build pipelines safely, operate pipelines safely, and enhance pipeline safety. A recent addition to the Commitment to Enhancing Safety is promotion of the use of recently released recommended practices for underground storage facilities. AGA and its member companies also state their commitment to proactively collaborate with public officials, emergency responders, excavators,

⁴ See Attachment 4: “AGA’s Commitment to Enhancing Safety”

consumers, safety advocates and members of the public to continue to improve the industry's longstanding record of providing natural gas safely and effectively to 177 million Americans.

- AGA has also developed numerous pipeline safety initiatives focused on raising the bar throughout the natural gas distribution industry. Two such programs are AGA's Peer Review Program and AGA's Gas Utility Operations Best Practices Program. Both allow subject matter experts from AGA member companies to help improve industry practices through reviewing and sharing individual company policies, procedures and practices.

REVIEW OF PIPELINE SAFETY LEGISLATION AND REGULATION

From a regulatory perspective, the past ten years have easily included more significant pipeline safety mandates and rulemakings than any other decade since the creation of the federal pipeline safety code in 1971. I want to assure the committee that the natural gas distribution industry has worked vigorously to implement those provisions that are related to our sector. In some cases, it takes considerable time for complicated rules to be promulgated, vetted, finalized and then fully implemented, but please know that we are constantly working on ways to better manage the system and improve safety and, in most cases, take actions to begin implementing proposed regulations before they become final.

The Pipeline Inspection, Protection, Enforcement and Safety Act of 2006 and the Pipeline Safety, Regulatory Certainty and Job Creation Act of 2011 each outlined significant industry-changing pipeline safety programs. While AGA members have implemented aspects of these programs either through DOT regulation or voluntarily, it is important to note that many of the programs are still in their infancy. Thus, we urge Congress to allow these programs to continue to be developed and mature in order to realize their full impact.

Over the years we have found that it is best to fully implement new safety programs and regulations prior to layering on additional requirements. This allows for the gathering of conclusive data to aid in determining specifically what, if any, adjustments or changes need to be made. In the case of the unanimously passed Pipeline Safety, Regulatory Certainty and Job Creation Act of 2011, several of the bill's required regulations have yet to be promulgated or finalized. Therefore, we would strongly encourage the committee to be judicious in making new changes to the law.

The specifics of the 2011 Act included very substantive changes to the federal pipeline safety law, such as changes to incident notification timelines, testing of certain gas transmission lines, requirements for valves, as well as changes in areas related to gathering lines, leak detection, and integrity management. DOT's Pipeline and Hazardous Materials Safety Administration (PHMSA) is still working to address a number of those significant requirements through rulemakings and other initiatives. These efforts impact such comprehensive issues as expansion of transmission integrity management, additional pressure testing requirements on transmission pipelines, excavation damage prevention, rupture detection and valves, excess flow valves beyond single family homes, and plastic pipe regulations. We are pleased that PHMSA is continuing to work on these outstanding regulations and we look forward to the certainty that final rules will bring. In the interim, PHMSA has issued a number of significant guidance documents, released the results of a congressionally-mandated study on leak detection, conducted research and development focused on improving pipeline safety, provided pipeline safety grants to states and local communities, and created an online database to track progress in replacing cast iron and bare steel pipelines. Each of these actions has been very important and impactful.

Given that so many of the mandates from the 2011 bill remain to be completed, we believe it would be unwise to legislate numerous new requirements on PHMSA at this time. We are concerned that additional mandates could lead to a detour from the significant work that is already underway. Companies work day in and day out to make sure they continue to improve the safety of their systems, and it is critical that progress on pending regulations remains the focus so as to help ensure that these safety improvements are not negated. The work that PHMSA has completed to date, the important initiatives taken by industry on its own, and the significant actions taken by NAPS, NARUC, individual public utility commissions and state legislatures around the country have produced significant improvements in pipeline safety over the last several years. While natural gas distribution companies are eager to move forward with other aspects of the 2011 Act, they and their state commissions are hesitant to do so without the certainty that will come for the issuance of final rules. The predicament that is presented to pipeline operators is the desire to meet the intent of specific legislative language, but the fear that their work will need to be redone once a final rule is issued. Any requirement to undo actions or else add further requirements would result in additional costs. These costs would be paid for by the customers of the natural gas distribution company and could create significant disruption to the public.

AGA members desire a path forward that entails regulatory certainty rather than a path filled with uncertainty, potential duplicative actions, or additional cost burdens on their customers.

CAST IRON

Natural gas utilities continue to be ever vigilant and committed to systematically upgrading infrastructure based on enhanced risk-based integrity management programs. A lot of discussion during the development of the 2011 bill focused on cast iron and unprotected bare steel, and the need to increase efforts to replace those materials in a more accelerated fashion. As a result, there is a continually growing effort underway to accelerate the replacement of pipelines that may no longer be fit for service. This work is being facilitated by specific state regulatory and state legislative policies that establish innovative rate mechanisms which allow for accelerated replacement and modernization of natural gas pipelines. For example, through Pennsylvania's Distribution System Improvement Charge or "DSIC", PECO is now spending \$61 million dollars annually on cast iron and bare steel main and service line replacement. As a result of more of these specific replacement programs being approved, and existing programs being expanded around the country, the quantity of cast iron main continues to steadily decline. I am delighted to be able to report that as of today, overall cast iron makes up less than two percent of the total distribution mileage -- and that number is continuing to go down.⁵

Today, PHMSA reports that there are 29,358 miles of cast iron pipelines in use. The approximate cost of removing these pipelines is over \$80 billion. The specific costs associated with replacement vary depending on the size of the pipeline, if the pipeline is in a rural or very urban setting, if the pipeline is under pavement or under grass, the depth of the pipeline, and the difficulty of continuing to provide natural gas to the customers served by that pipeline. To be certain, all utilities have an infrastructure replacement program and seek to remove pipelines no longer fit for service as rapidly as they are able and allowed through their regulatory construct. However, since the industry and regulators across the country have stepped forward to respond to the Call to Action set forth by former Secretary of Transportation Ray LaHood back in 2011, we have gone from 18 states that had a specific rate mechanism facilitating accelerated replacement of pipelines that are primary candidates for system enhancement, to now 39 states and the District of Columbia having such mechanisms.

⁵ See Attachment 5: "Total Cast Iron Main"

In 2013, nine states moved to adopt such programs and three more and the District of Columbia moved to do so in 2014. In 2015, WV also passed legislation to allow for faster pipeline replacement, while IL, MA, MI, MS, NJ, NY and PA each moved to strengthen and expand upon existing replacement programs and efforts.⁶ Of the states without a specific accelerated replacement rate mechanism, AK, ID, ND, VT and WI have all finished replacing their cast iron and bare steel. Additionally, WY has finished replacing its cast iron and bare steel mains and has a limited quantity of bare steel services remaining.⁷ The cumulative result of all of these important actions is that the industry is replacing cast iron pipe, as well as bare steel, as quickly as possible in a safe and cost-effective manner.

NARUC has always considered pipeline safety a leading priority and in 2013 demonstrated real leadership by prioritizing the issue of accelerating pipeline replacement by passing a resolution calling on commissions to: "explore, examine and consider adopting alternative rate mechanisms as necessary to accelerate modernization, replacement and expansion of the nation's gas pipeline systems." We commend NARUC for its leadership on this critically important issue.⁸

EXCAVATION DAMAGE

Excavation damage continues to represent the single greatest threat to distribution system safety, reliability and integrity. A number of initiatives have helped to prevent excavation damages and resulting incidents. These include a three digit number, "811," for excavators to call before they dig, a nationwide education program promoting 811, "best practices" to reduce excavation damage and regional "Common Ground Alliances" that are focused on preventing excavation damage. Additionally, AGA and other partners established April as National Safe Digging Month, encouraging individuals to dial 811 before embarking on any digging or excavation project. Since the Call 811 campaign was launched, there has been approximately a 40 percent reduction in excavation-related incidents. A significant cause for this reduction is the work done by the pipeline industry, regulators, other underground facilities and excavators in promoting the use of 811.

Regulators, natural gas operators, and other stakeholders are continually working to improve excavation damage prevention programs. This concerted effort, combined with the effort that states are undertaking to create robust, and effective, state damage prevention programs based on the elements contained in the 2006 PIPES Act, is having a positive impact.

⁶ See Attachment 6: "*States with Accelerated Infrastructure Replacement Programs*"

⁷ See Attachment 7: "*States with Limited Cast Iron or Bare Steel Inventory*"

⁸ See Attachment 8: "*NARUC Resolution*"

But as always, more can be done – and the industry will continue to remain vigilant in collaborating with other stakeholders and the public to help ensure the safety of our pipeline systems. To support the industry’s efforts, it is important that states have sufficient funding for their excavation damage prevention efforts, including state one call systems, public excavation damage prevention education, and effective excavation damage prevention enforcement.

DISTRIBUTION INTEGRITY MANAGEMENT

The 2006 PIPES Act required DOT to establish a regulation prescribing standards for integrity management programs for distribution pipeline operators. The DOT published the final rule establishing natural gas distribution integrity management program (DIMP) requirements on December 4, 2009. The effective date of the rule was February 12, 2010. Operators were given until August 2, 2011 to write and implement their program.

The DIMP final rule is a comprehensive regulation that provides an added layer of protection to the already-strong pipeline safety programs implemented by local distribution companies. It represents the most significant rulemaking affecting natural gas distribution operators since the inception of the federal pipeline safety code in 1971. It impacted more than 1,300 operators, 2.1 million miles of pipe, and 70 million customers. The final rule effectively took into consideration the wide differences that exist between natural gas distribution operators. It also allows operators to develop a DIMP plan that is appropriate for the operating characteristics of their distribution delivery system and the customers that they serve.

PUBLIC EDUCATION/AWARENESS

AGA appreciates DOT’s work with the public, emergency responders, and industry to improve the public’s awareness of pipelines and natural gas safety. The public awareness initiative has been successful and has effectively improved the public and emergency responders’ awareness of pipeline infrastructure and appropriate actions to be taken in the event of a pipeline emergency. We are eager to work with DOT to identify performance metrics that are critical in assessing program effectiveness. Industry is working to help ensure that 911 operators are identified as an important stakeholder audience and receive all needed pipeline awareness information. AGA and the industry look forward to continuing to work with all regulatory agencies to help improve the methods utilized to educate the public regarding pipeline awareness.

VERIFICATION OF MAXIMUM ALLOWABLE OPERATING PRESSURES

There is significant uncertainty in the pipeline industry surrounding the method by which PHMSA will implement provisions in the 2011 Act pertaining to Maximum Allowable Operating Pressure (MAOP). PHMSA has developed the Integrity Verification Process (IVP), but has yet to incorporate this concept into a proposed rulemaking. While waiting for action by PHMSA, AGA members have completed a verification of records as mandated in the legislation, for class 3 and class 4 locations and class 1 and class 2 high consequence areas. However because proposed regulations pertaining to MAOP verification and the drafted IVP have not yet been published, and because what has been proposed by PHMSA varies significantly from the directive provided by Congress, operators are uncertain if their actions and use of state-of-the-art technologies, such as in-line inspection tools, to address missing or incomplete records will be nullified by future DOT regulations.

INCIDENT NOTIFICATION

AGA members are committed to finding new and innovative ways to inform and engage stakeholders, including emergency responders, public officials, excavators, consumers and safety advocates and members of the public living in the vicinity of pipelines. AGA and INGAA sponsored a workshop that was presented by the National Association of State Fire Marshals. The workshop had approximately 60 emergency responders, PHMSA staff and 40 operator personnel in attendance. There are also a number of efforts at the state and local level to engage emergency responders, government officials and the public in pipeline safety efforts.

DATA COLLECTION AND INFORMATION SHARING

Collecting quality data, data analysis, and data integration are all integral to making informed decisions on areas for potential pipeline safety improvement. AGA and PHMSA co-chair a data quality and analysis team made up of representatives from government, industry and the public, similar to the PHMSA technical advisory committees. The team analyzes data collected by PHMSA and determines opportunities to improve pipeline safety based on the analysis of that data. The team is also identifying gaps in data that are collected by PHMSA and others, opportunities to improve the quality of the collected data, and is working on consistent messages based on the data.

AGA has 16 technical committees and an Operations Managing Committee focusing on a wide range of operations and safety issues.

The technical committees develop and share information, including those issues raised by PHMSA, the National Transportation Safety Board, and other pipeline safety stakeholders. In addition, AGA has a Gas Utilities Operations Best Practices Program focused on identifying superior performing companies and innovative work practices that can be shared with others to improve operations and safety. AGA's newest information sharing initiative, launched in 2015, is the Peer Review Program. This program promotes open dialogue among program participants and aids natural gas distribution operators in continuing to elevate safety within the industry. AGA is also the Secretariat for the National Fuel Gas codes, the Gas Piping Technology Committee, and manages the Plastic Pipeline Database which includes more than 45,000 records of plastic material and component failures that have been voluntarily submitted by the industry.

RESEARCH AND DEVELOPMENT

More industry research is necessary to improve in-line inspection tool quality and capabilities, operator use of tool data, direct assessment tools, non-destructive testing and leak detection, and inspection tool platforms. Many pipeline companies have direct memberships in research consortiums and contribute towards research, development and deployment. These research consortiums include the Pipeline Research Council International (PRCI), NYSEARCH, Operations Technology Development (OTD), Utilization Technology Development (UTD) and Sustaining Membership Program (SMP). In the last five years, hazardous liquid and gas pipeline operators have contributed more than \$115 million to research and development. However, R&D cannot be successful without cooperative planning between industry and government. As noted above, AGA is committed to improving the transparent collaborative relationship with PHMSA that has historically enhanced pipeline safety R&D.

SUMMARY

The natural gas utility industry has a strong safety record. Recognizing the critical role that natural gas can and should play in meeting our nation's energy needs, we are committed to working with all stakeholders to consistently make improvements to the safety and reliability of our systems. To that end, we applaud this committee's focus on the common goal: to enhance the safe delivery of this vital energy resource.

Recent pipeline safety reauthorizations contained significant changes to pipeline safety programs. Many of these changes are not yet in federal regulation and others are in their infancy. PHMSA is working on a number of significant rules that will substantially change the federal gas pipeline safety regulations and the industry looks forward to the certainty that those final rules will bring.

Natural gas distribution companies are eager to take action on the aspects of the 2011 Act that have yet to be finalized, but their actions may be nullified if DOT's final regulations do not follow the specifics in the legislation. If there are differences, operations would then need to take additional actions or repeat their work, adding unnecessary cost to customers and a disruption to the public. AGA members desire a path forward with certainty rather than with uncertainty, duplicative actions, or additional cost burdens on their customers.

We would urge that we stay the course in developing comprehensive, risk based rules to comply with the legislation and provide the regulatory certainty that is essential to ensuring a safe and reliable natural gas distribution system. Many of these rules have been implemented recently and need time to work before assessing whether additional changes need to be made in order to enhance safety.

Natural gas is a key to our energy future and America's natural gas utilities are upgrading our delivery systems to meet this growing demand. We see a future where natural gas is the foundation fuel that heats our homes, runs our vehicles, and supports other forms of renewable energy and there is a tremendous opportunity for consumers and our nation as a whole through greater use of natural gas. We are building and continually improving our infrastructure to deliver on this promise.

Attachment 1: Natural Gas Pipelines across the U.S.

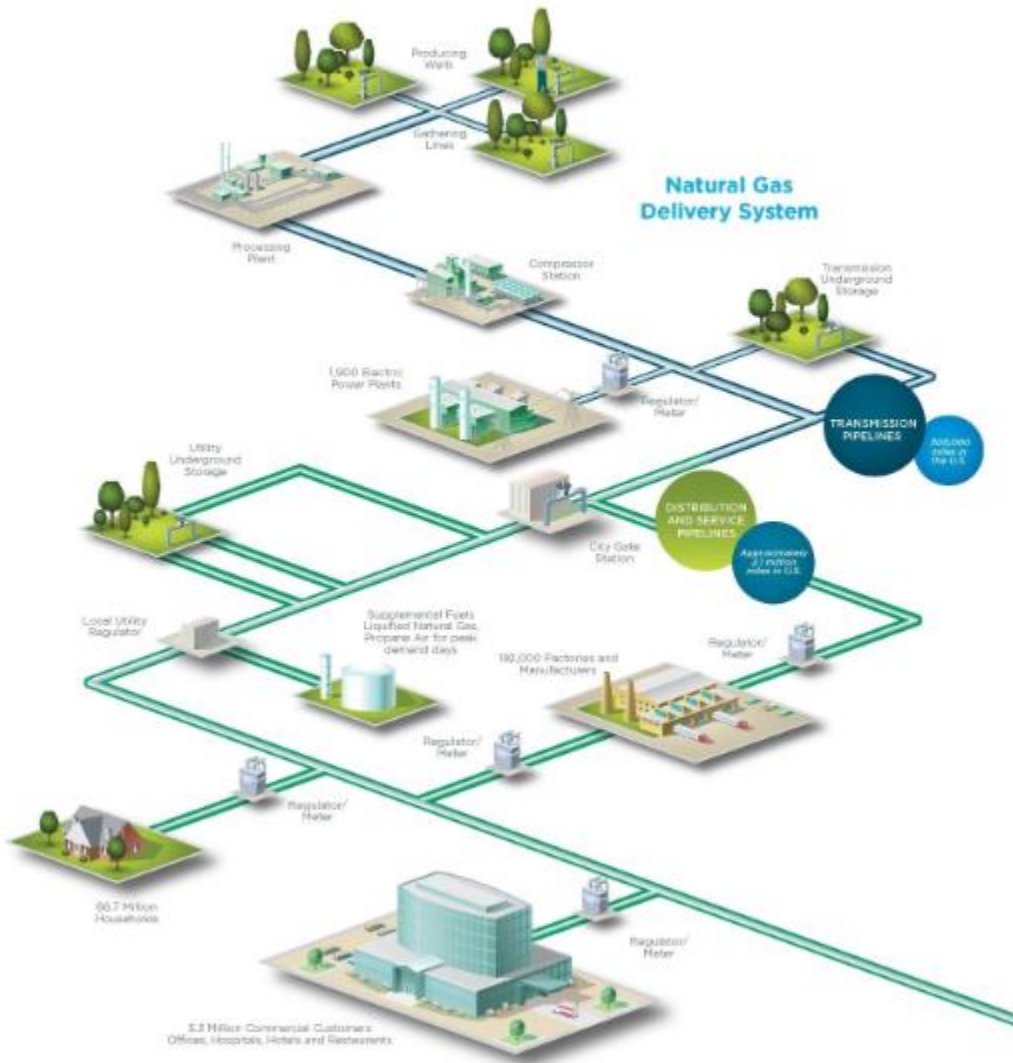
Safely transported **Across the Country**

Natural gas pipelines, which transport approximately one-fourth of the energy consumed in the U.S., are an essential part of the nation's infrastructure. Transportation by pipeline is the safest form of energy delivery in the country.



Attachment 2: Natural Gas Delivery System

Natural Gas
**Getting It to Homes and Businesses and
to Work for America**



Attachment 3: Regulators and Stakeholders

Many Regulators and Stakeholders



The National Transportation Safety Board



Attachment 4: AGA's Commitment to Enhancing Safety



AGA's Commitment to Enhancing Safety: Revised February 2016

AGA and its members are dedicated to the continued enhancement of pipeline safety. As such, we are committed to proactively collaborating with federal and state regulators, public officials, emergency responders, excavators, consumers, safety advocates and the public to continue improving the industry's longstanding record of providing natural gas service safely, reliably and efficiently to 177 million Americans. AGA and its members support the development of reasonable regulations to meet federal objectives and National Transportation Safety Board recommendations.

Below are voluntary actions that are being taken by AGA or individual operators to help ensure safe and reliable operation of the nation's 2.5 million miles of natural gas pipeline which span all 50 states with diverse geographic and operating conditions. AGA and its individual operators recognize the significant role that their state regulators or governing bodies play in supporting and funding these actions.

It is the consensus of AGA members that the actions listed below enhance safety, gas utility operations, and reduce greenhouse gas emissions when implemented as an integral part of each operator's specific safety programs. However, both the need to implement and the timing of implementation of these actions will vary with each operator. Each operator will need to evaluate the actions in light of system and geographic variables, the operator's independent integrity assessment, risk analysis and mitigation strategy and what has been deemed reasonable and prudent by their state regulators. Therefore, not all of these recommendations will be applicable to all operators.

Building Pipelines for Safety

Construction

- Expand requirements of the Operator Qualification rule to include new pipeline construction.
- Review established pipeline construction oversight procedures to ensure adequacy and compliance with those procedures.
- Implement industry leading practices when installing new pipelines to help prevent damage to other facilities.

Emergency Shutoff Valves

- Support a risk based approach to the installation of automatic and/or remote control isolation valves where technically and operationally feasible on newly constructed or entirely replaced transmission lines.
- Work with regulatory agencies and policy makers to develop guidelines for consideration of automatic and/or remote control isolation valves on transmission lines that are in service.
- Expand the use of excess flow valves (EFVs) to new and fully replaced branch services, small multi-family facilities, and small commercial facilities where technically and operationally feasible.

Operating Pipelines Safely

Integrity Management

- Advance integrity management programs and principles to mitigate system specific risks. This includes operational activities, repair, replacement or rehabilitation of pipelines and associated facilities where it will most improve safety and reliability.
- Collaborate with stakeholders to develop and promote effective cost-recovery mechanisms to support pipeline assessment, repair, rehabilitation, and replacement programs.
- Develop industry guidelines for data management to advance data quality and knowledge related to pipeline integrity.
- Support development of processes and guidelines that enable the tracking and traceability of new pipeline components.

Excavation Damage Prevention

- Support strong enforcement of the 811 – Call Before You Dig program, and advocate for the reduction of excavator exemptions within state damage prevention laws.

- Improve engagement between the operator and excavators on the need to call before digging to reduce excavation damage.

Physical and Cybersecurity/System Controls

- Take actions that help strengthen the physical and cybersecurity of the gas utility industry.
- Enhance system monitoring and control of gas systems.

Enhancing Pipeline Safety

Safety Knowledge Sharing

- Expand the voluntary national Peer Review Program to allow companies to observe their peers, identify what is working well, identify opportunities to improve, and share leading practices.
- Evaluate the work of other industries to improve safety. Identify and implement models that will assist in enhancing safety and encourage knowledge exchange among operators, contractors, government and the public.

Workforce Development

- Collaborate with industry, government, educational institutions and labor groups to develop solutions to address the need for a qualified, diverse workforce.

Public Awareness and Emergency Response

- Evaluate methods to effectively communicate with public officials, excavators, consumers, safety advocates and the public about the presence of pipelines. Implement tested and proven communication methods to enhance those communications.
- Partner with emergency responders to share information and improve emergency response coordination.

Pipeline Planning Engagement

- Work with a coalition of Pipelines and Informed Planning Alliance (PIPA) Guidance stakeholders to increase awareness of risk based land use options and adopt existing PIPA recommended best practices.

Advancing Technology Development

- Increase investment, continue participation, and support research, development and deployment of technologies to improve safety.

AGA's Commitment to Enhancing Safety: Industry Actions That Exceed 49 CFR Part 192

Building Pipelines for Safety

Construction

- Maintain a clearinghouse on effective cost-recovery mechanisms that states have used to fund infrastructure repair, replacement and rehabilitation projects.

Emergency Shutoff Valves

- Install EFVs on new and fully replaced branch services, small multi-family facilities, and small commercial facilities where technically and operationally feasible.

Operating Pipelines Safely

Integrity Management

- Advocate programs to accelerate the risk-based repair, rehabilitation and replacement of pipelines.
- Support development of processes and guidelines that enable tracking and traceability of pipeline components.
- Continue the Plastic Pipe Database Committee's work to collect and analyze plastic material failures.
- Incorporate systems and/or processes to reduce human error.
- Promote the use of API RP 1171, *Functional Integrity of Natural Gas Storage in Depleted Hydrocarbon Reservoirs and Aquifer Reservoirs*, and API RP 1170, *Design and Operation of Solution-mined Salt Caverns Used for Natural Gas Storage*. This includes teleconferences, workshops and roundtables to share lessons learned from companies voluntarily adopting the recommended practices,

Excavation Damage Prevention

- Use a risk-based approach to improve excavation monitoring.
- Support the Common Ground Alliance, the use of 811 and other damage prevention initiatives through outreach, education, intervention and enforcement.
- Influence and/or support state legislation to strengthen damage prevention programs.
- Encourage participation in One-Call by all underground operators and excavators.

Physical and Cybersecurity/System Controls

- Participate in a Downstream Natural Gas Information Sharing & Analysis Center (DNG ISAC).
- Conduct cybersecurity vulnerability assessments.
- Collaborate with government to develop and implement guidance, such as *DOE ONG-C2M2*, *DOE Energy Sector & TSA Transportation Sector Framework Implementation Guidance* and *NIST Energy Sector Cybersecurity Framework Implementation Guidance*
- Create industry guidance and hold events to strengthen the physical and cybersecurity of the natural gas infrastructure, including the *Natural Gas Utility Threat Analysis Elements & Mitigations Guidance*,

Cybersecurity Procurement Language Guidance, an AGA Energy Delivery Cybersecurity Executive Summit, cyber threat analysis workshops, insider threat workshops, workshops on the Oil and Natural Gas Cybersecurity Capability Maturity Model (ONG C2M2), and an annual AGA/EEI Security Conference.

Enhancing Pipeline Safety

Pipeline Safety Management Systems

- Promote the use of API RP 1173, Pipeline Safety Management System (PSMS) Recommended Practice, including piloting of the PSMS, teleconferences and workshops to share lessons learned, and tools that can help the industry implement the PSMS.
- Promote the AGA Safety Culture Statement and a positive safety culture throughout the natural gas industry.

Safety Knowledge Sharing

- Continue AGA Board Safety Committee initiatives, such as sharing lessons learned through the Safety Information Resource Center, safety alerts through the AGA Safety Alert System, safety communications with customers, supporting AGA's Safety Culture Statement, and holding an annual Executive Leadership Safety Summit.
- Recognize statistical top safety performers, promote safety performance and encourage knowledge sharing through AGA Safety Awards.
- Continue the work of the AGA Best Practices Programs to identify superior performing companies and innovative work practices that can be shared with others to improve operations and safety.
- Conduct workshops, teleconferences, discussion groups, and other events to share information including pipeline safety reauthorization, DIMP/TIMP, fitness for service, records, in-line inspection, emergency response, and other key safety initiatives

Workforce Development

- Support of the efforts of the Center for Energy Workforce Development, Energetic Women, natural gas boot camps, regional gas associations, and educational institutes on solutions to address the need for a qualified, diverse workforce.

Public Awareness and Emergency Response

- Explore ways to educate, engage and provide appropriate information to stakeholders to increase pipeline public awareness and the need to call if you smell gas.
- Support public awareness programs targeted at damage prevention and pipeline safety awareness
- Use industry training facilities and evaluate opportunities to expand outreach/education programs to external stakeholders.
- Reach out to emergency responder community in order to enhance emergency response capabilities.
- Collaborate with stakeholders near existing transmission lines to increase awareness/adoption of appropriate PIPA recommended best practices.
- Conduct organizational response drills to improve emergency preparedness.
- Participate in state, regional and national multi-agency emergency response training exercises.
- Support industry participation in a mutual assistance program.
- Search for new and innovative ways to inform, engage and provide appropriate information to stakeholders, including emergency responders, public officials, excavators, consumers, safety advocates, and the public living near pipelines.
- Educate the Pipeline Safety Trust and other public stakeholders on distribution and intrastate transmission pipelines, AGA and industry initiatives to improve pipeline safety, and receive input.
- Develop publications dedicated to improving safety and operations.

Pipeline Planning Engagement

- Build an active coalition of AGA member representatives to work with PHMSA and other stakeholders to implement PIPA recommended practices pertaining to encroachment around existing transmission pipelines.

Advancing Technology Development

- Support R&D investment, pilot testing and technology implementation.
- Work with PHMSA and other stakeholders on opportunities to increase R&D funding and deployment of technologies.
- Advocate to state commissions the inclusion of research funding in rate cases.

AGA's Commitment to Enhancing Safety: Actions Completed

Building Pipelines for Safety

Construction

- ✓ Review and revise established construction procedures to provide for appropriate (risk-based) oversight of contractor installed pipeline facilities.
- ✓ Extend Operator Qualification to include tasks related to new main & service construction.
- ✓ Implement applicable portions of AGA's technical guidance document, "Oversight of new construction tasks to ensure quality."

Emergency Shutoff Valves

- ✓ Expand EFV installation beyond single family residential homes to small commercial and multi-family residential services.

- ✓ Begin risk-based evaluation on the use of automatic shutoff valves, remotely controlled valves or equivalent technology in HCAs.

Operating Pipelines Safely

Integrity Management

- ✓ Confirm the established Maximum Allowable Operating Pressure (MAOP) of transmission pipelines.
- ✓ Under DIMP, evaluate risk associated with trenchless pipeline techniques and implement initiatives to mitigate risks.
- ✓ Under DIMP, identify distribution assets where increased leak surveys may be appropriate.
- ✓ With PHMSA, create a Data Quality & Analysis Team to analyze data PHMSA collects, determine what the data is telling us, issue reports, identify missing information and how best to collect that data, and key metrics that indicate safety concerns.
- ✓ Implement appropriate meter set protection practices identified through AGA Gas Utility Best Practices Program.

Excavation Damage Prevention

- ✓ Implement applicable portions of AGA's technical guidance, "Ways to improve engagement between operators & excavators."

Physical and Cybersecurity/System Controls

- ✓ Create a DNG ISAC.
- ✓ Create a Cybersecurity Task Force to develop products and programs that strengthen cybersecurity.
- ✓ Conduct an all hazard threat analysis and physical security benchmarking survey.
- ✓ Work with TSA to develop and implement Pipeline Security Guidelines.
- ✓ Create a Cybersecurity Assessment Program, including workshops that will allow industry to address their cybersecurity risks.
- ✓ Hold workshops and events: Workplace Violence Prevention & Insider Threats, SCADA, Control Room Management.

Enhancing Pipeline Safety

Safety Knowledge Sharing

- ✓ Create a voluntary AGA Peer Review Program that allows subject matter experts from gas utilities to review peer companies, identify areas that are working well and areas for potential improvement.
- ✓ Work with INGAA, API, AOPL, Canadian Gas Association and Canadian Energy Pipeline Association on a comprehensive safety management study that explores initiatives currently utilized by other sectors and the pipeline industry.
- ✓ Create a Safety Information Resources Center for the sharing of safety information.
- ✓ Hold regional operations executives' roundtables annually to discuss safety initiatives.
- ✓ Annually host roundtables focused on operator experience and lessons learned during the AGA Operations Conference.
- ✓ Develop guidance: To determine a distribution or transmission pipeline's fitness for service and MAOP, and the critical records needed for that determination; For oversight of new construction tasks to ensure quality; For trenchless pipeline installations; That presents benefits and disadvantages of the installation of ASV/RCV block valves on new, fully replaced and existing transmission pipelines; On intergenerational transfer of knowledge for Field Supervisors; Emergency response; Natural gas infrastructure physical security.

Workforce Development

- ✓ Annual AGA Executive Leadership Development Program.
- ✓ Annual Center for Energy Workforce Development (CEWD) Summits.
- ✓ Create an AGA Diversity & Inclusion Task Force.
- ✓ Participate in government/industry initiatives to foster workforce development, such as the Utility Workforce Advisory Council composed of the Departments of Energy, Defense, Labor, Veterans Affairs; AGA, Edison Electric Institute, Nuclear Energy Institute, National Rural Electric Cooperative Association, American Public Power Association, International Brotherhood of Electrical Workers, Utility Workers Union of America, and CEWD.

Public Awareness and Emergency Response

- ✓ Incorporate an Incident Command System (ICS) type of structure into emergency response protocols.
- ✓ Integrate applicable provisions of AGA's emergency response white paper and checklist into emergency response procedures.
- ✓ Create a Safety Alert Notification System that will allow AGA or its members to quickly notify other AGA members of safety issues that require immediate attention.
- ✓ Develop an Emergency Planning Resource Center and a Mutual Assistance Database.
- ✓ Implement AGA discussion groups to address safety issues including technical training and knowledge transfer, material supply chain issues, DIMP implementation, TIMP risk models, Pipeline Safety Management Systems, pipeline safety/compliance/oversight, GPS/GIS and work management systems, contractor/quality management, management of company standards, odorization, compressor operations, public awareness, and damage prevention.

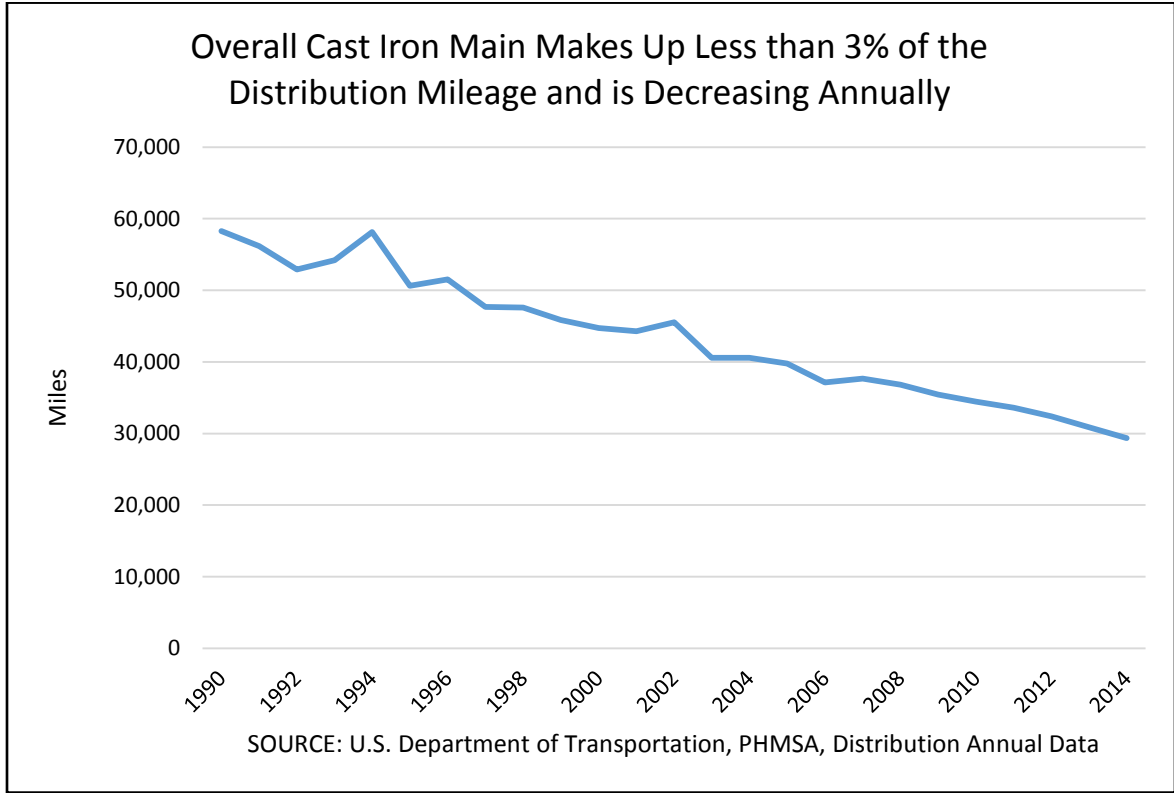
Pipeline Planning Engagement

- ✓ Develop a task group comprised of AGA staff and members to work closely with Pipelines and Informed Planning Alliance (PIPA) to ensure AGA member concerns are addressed in joint PIPA initiatives.

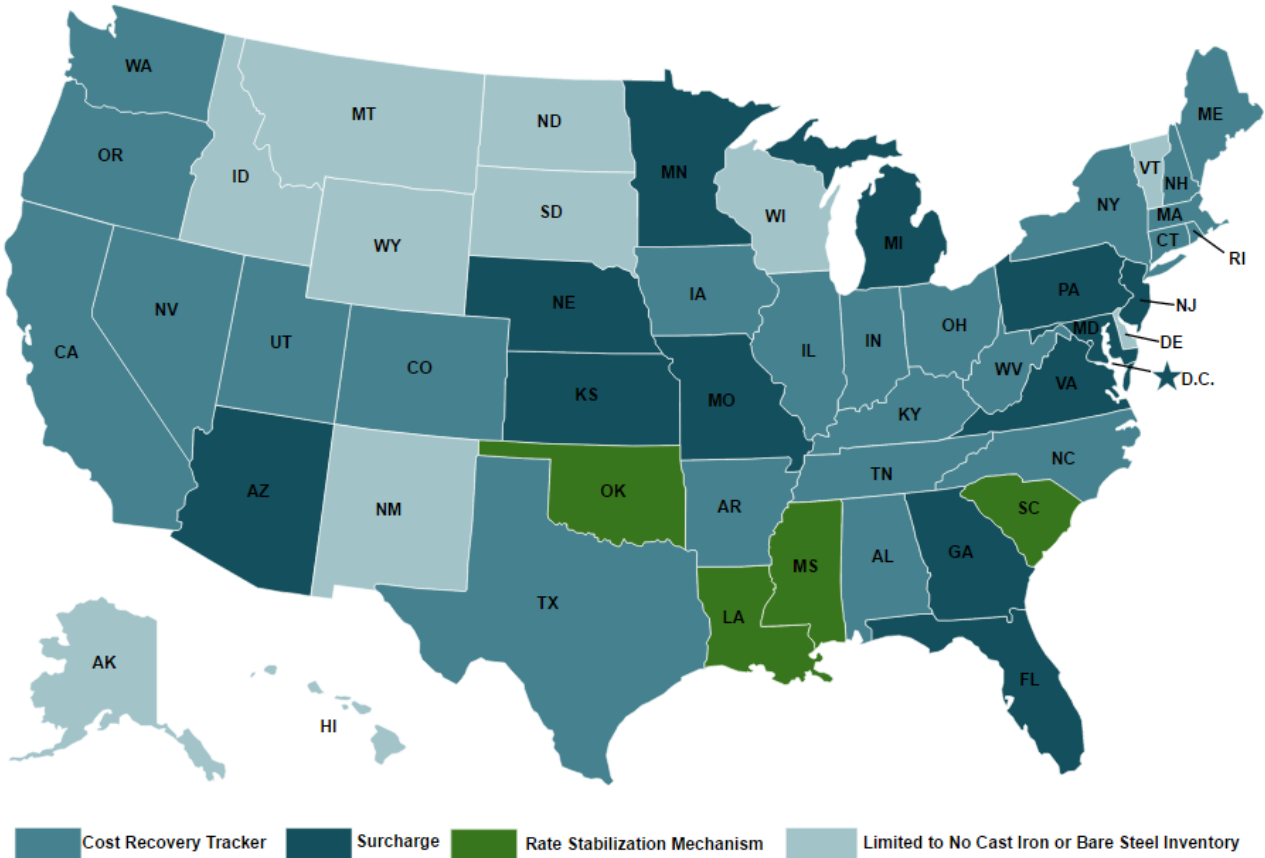
Advancing Technology Development

- ✓ Work with INGAA, research consortiums and other pipeline trade associations to provide the NTSB with a compilation of the progress that has been made in advancing in-line inspection technology.

Attachment 5: Overall Cast Iron Main



Attachment 6: States with Accelerated Infrastructure Replacement Programs



*As of February 2016

- *The overall trend is positive*
- *States address this issue differently*
- *The basis for these decisions is always just and reasonable rates for consumers*

Attachment 7: States with Limited to No Cast Iron or Bare Steel Inventory

<u>State</u>	<u>Main -Steel Unprotected Bare (Miles)</u>	<u>Main - Cast/Wrought Iron (Miles)</u>	<u>Estimated Miles of Services - Steel Unprotected Bare</u>	<u>Estimated Miles of Services - Cast/Wrought Iron</u>
<u>AK</u>	<u>0</u>	<u>0</u>	<u>0.00</u>	<u>0.00</u>
<u>DE</u>	<u>11.122</u>	<u>82.173</u>	<u>9.97</u>	<u>0.00</u>
<u>HI</u>	<u>105</u>	<u>0</u>	<u>86.06</u>	<u>0.00</u>
<u>ID</u>	<u>0</u>	<u>0</u>	<u>0.00</u>	<u>0.00</u>
<u>MT</u>	<u>5.43</u>	<u>0</u>	<u>6.98</u>	<u>0.00</u>
<u>ND</u>	<u>0</u>	<u>0</u>	<u>0.00</u>	<u>0.00</u>
<u>NM</u>	<u>6</u>	<u>0</u>	<u>0.0</u>	<u>0.0</u>
<u>SD</u>	<u>0.068</u>	<u>2.65</u>	<u>3.20</u>	<u>0.00</u>
<u>VT</u>	<u>0</u>	<u>0</u>	<u>0.00</u>	<u>0.00</u>
<u>WI</u>	<u>0</u>	<u>0</u>	<u>0.00</u>	<u>0.00</u>
<u>WY</u>	<u>0</u>	<u>0</u>	<u>22.67</u>	<u>0.00</u>
<u>Totals</u>	<u>127.62</u>	<u>84.823</u>	<u>128.88</u>	<u>0</u>

Source: U.S. Department of Transportation Data

- *Alaska, Idaho, North Dakota, Vermont and Wisconsin have finished replacing their cast iron and bare steel pipe*
- *Wyoming has finished replacing its cast iron and bare steel main, and has a limited quantity of bare steel services remaining*
- *Other states on the list are on the verge of completing their cast iron and bare steel replacement*

Attachment 8: NARUC Resolution

2013 NARUC Resolution

RESOLVED, That the Board of Directors of the National Association of Regulatory Utility Commissioners... *encourages regulators and industry to consider sensible programs aimed at replacing the most vulnerable pipelines as quickly as possible along with the adoption of rate recovery mechanisms that reflect the financial realities of the particular utility in question*; and be it further;



RESOLVED, That State commissions should explore, examine, and *consider adopting alternative rate recovery mechanisms as necessary to accelerate the modernization, replacement and expansion of the nation's natural gas pipeline systems*.