

# Taking Stock: Opportunities and Challenges in Indiana's Natural Gas Distribution System

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## **Acknowledgements**

United Steelworkers (USW) District 7

USW Local 12213

USW Local 12775

International Brotherhood of Electrical Workers Local 1393

United Association (Plumbers, Fitters, Welders, and Service Techs Union)

Utility Workers Union of America

Northern Indiana Public Service Company

LaPorte County Career and Technical Education Center

Pipeline Safety Coalition

Pipeline and Hazardous Materials Safety Administration

# 1. INTRODUCTION

Indiana's natural gas distribution pipeline system is a network of more than 40,000 miles of pipe that supplies homes, businesses, and communities with energy. In 2013, many of these pipes were reaching the end of their service life. Approximately 30 percent—or more than 12,000 miles—of the state's existing distribution pipeline was installed in 1969 or earlier, and will be more than 50 years old if still in use in 2020.<sup>1</sup> These percentages appear in line with the age of distribution pipes nationwide.

Residents of Indiana have felt firsthand the impacts of the state's aging natural gas distribution pipelines. For example, in November of 2002, leaks in a natural gas pipe caused explosions that destroyed three homes and injured at least four people in Lafayette. Years later, in May of 2011, a natural gas pipeline

near Rockville exploded and caught fire. While no injuries were reported, 49 homes were evacuated within a one-mile area of the explosion. After the fire, the Pipeline and Hazardous Materials Safety Administration (PHMSA) indicated the possibility of external corrosion in a Corrective Action Order to the pipeline company.

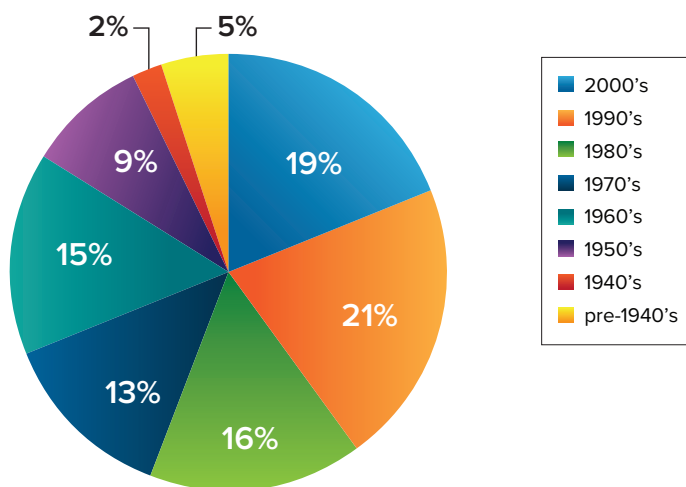
As part of a state-focused education and outreach project conducted throughout 2014 and 2015, the BlueGreen Alliance convened stakeholder meetings and public forums to build on existing knowledge and engage frontline gas sector workers, environmental groups, industry, and additional community stakeholders to identify challenges and opportunities facing the network of natural gas distribution pipelines in the state of Indiana.

Indiana's natural gas providers have made significant advances in upgrading distribution systems in recent years. Modernization efforts were increased due to legislation passed in 2013, which enabled utilities to submit 7-year infrastructure improvement plans to the Indiana Utility Regulatory Commission (IURC). Upon plan approval from the IURC, the utility may request a rate increase every six months to cover the cost of improvements. Indiana refers to this cost recovery mechanism as the Transmission, Distribution, and Storage System Improvement Charge (TDSIC).

These improvements are critical in reducing natural gas leaks, which not only waste energy and are a potential workplace and community hazard, but also result in emission of methane—a potent greenhouse gas estimated to have at least 25 times the climate change impact compared to carbon dioxide on a pound-for-pound basis.<sup>2</sup>

These convenings and education and outreach activities identified best practices highlighting how far along the utilities and workers have come in advancing distribution pipeline repair, replacement, and detection—all of which may provide a model for other utilities around the nation. Discussions with stakeholders and additional research also identified best practices related to workforce recruitment and training, along with challenges and opportunities facing gas workers in maintaining modern, more resilient natural gas networks.

**FIGURE 1. Distribution Pipeline Age**



Source: Pipeline and Hazardous Materials Safety Administration.

# 2 DISTRIBUTION PIPELINES IN INDIANA: SUMMARY

There are 34 operators of natural gas distribution pipelines serving the state of Indiana. Cumulatively, the operators manage a total of 40,126 miles of networked pipeline that runs out from a gate station to 1,982,322 services, the device that connects gas lines directly to homes and businesses. The two largest distribution pipeline operators are Northern Indiana Public Service Co (NIPSCO), which operates 16,749 miles of pipeline or 42 percent of the total miles in the state, and Vectren, which operates 15,624 miles of pipeline or 39 percent of total miles.

Both operators have existing initiatives to replace aging and leak-prone pipelines. For example, NIPSCO has a comprehensive 7-year plan to upgrade its infrastructure that includes replacing bare steel pipelines. Vectren has a multi-year plan to “replace nearly 2,000 miles of aging bare steel and cast iron gas main infrastructure throughout its service territories in Indiana and Ohio.”<sup>3</sup> However, it is unclear to the public and gas workers surveyed by the BlueGreen Alliance exactly how much of the system will require upgrades in the years to come, especially in relation to national trends. (See Figure 2)

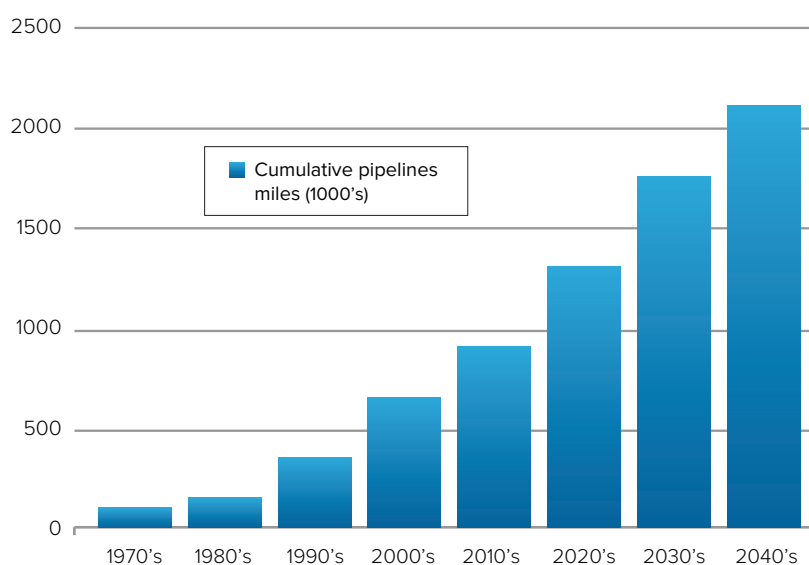
Each operator in Indiana has an operator ID that is used to track their reported data. Operators are responsible for maintenance and reporting on their pipelines and are subject to inspections and audits—as well as penalties if requirements are not met. Operators report to PHMSA at the federal level and to the Indiana Utility Regulatory Commission Pipeline Safety Division at the state level. Each operator is required to report annually on the mileage of their pipelines, materials, leaks, and incidents, among other topics.

As of 2012, Indiana had an estimated 1,183 miles of distribution pipelines made from leak-prone materials: 735.5 miles of bare steel pipeline, 167 miles of coated unprotected steel, and 274.9 miles of cast or wrought iron. Gas workers engaged in this

project noted significant presence of older plastic pipe—which is prone to cracks and leaks—that is not well accounted for in current inventories.

In 2012 there were 3,395 leaks reported in the state of Indiana. Causes of the leaks were reported as shown in Table 1.

**FIGURE 2. Miles of Distribution Pipeline Reaching 50+ Years**



Source: Pipeline and Hazardous Materials Safety Administration.

**Table 1. Causes of Leaks, State of Indiana, 2012**

Cause of Leak	Number of Leaks	% of total
Material or Welds	903	27%
Equipment	777	23%
Natural Forces	616	18%
Other Outside Force Damage	316	9%
Excavation Damage	313	9%
Corrosion	251	7%
Other	151	4%
Incorrect Operations	68	2%
<b>Total</b>	<b>3,395</b>	

Source: Pipeline and Hazardous Materials Safety Administration.



The national leak incident rate average is one leak per 11 miles of distribution main. While Indiana's leak incident rate is lower than the national average—at one leak per every eight miles—the causes of these leaks greatly vary from national trends.<sup>4</sup> For example, leaks due to material/welds, equipment, and corrosion

occurred at more than three times the national rate—34 percent versus 10 percent nationally. This suggests a pressing need for system modernization—repair and replacement of leak-prone pipe—to specifically include older plastic, which gas workers identified as prone to cracks and leaks but whose prevalence is

unknown and not as well inventoried as leak-prone cast iron and bare steel.

*For a more detailed summary of 2012 natural gas distribution pipeline reported data, see Summary of Indiana Natural Gas Distribution Pipeline Systems at end of document.*

# 3 INDIANA NATURAL GAS DISTRIBUTION—CHALLENGES AND OPPORTUNITIES

## WORKFORCE AND LABOR

While state utility companies have regulatory certainty driving investment in their distribution systems for the foreseeable future, challenges remain with regard to workforce recruitment and training. Labor union representatives expressed concern that state Operator Qualification (OQ) standards have become overly focused on specific competences instead of general aptitude, and that training for the OQ test, often times offered through third-party providers such as Midwest Energy Association, reinforces that approach. Gas workers believe this practice fails to take into consideration the realities of working on active systems in the field and fails to prepare workers for the unexpected challenges they will encounter. Training programs have become longer, but suffer from a lack of field application or assessment of practical knowledge and instead rely on computer-based modules.

There are also concerns that lack of recruitment efforts, as well as vocational education focused on other construction and industrial trades in middle and high school, detracts from the pipe sector's ability to attract the interest of and to recruit younger workers. Students appear less informed of the advantages of working in the industry relative to other career paths and therefore do not develop aptitude of industrial systems. With increasing numbers of retirements expected in the pipe sector in the coming years (in Indiana and nationwide), there is a growing

and significant loss of institutional knowledge among pipe trades.

Northern Indiana Public Service Company has taken steps to address the issue of workforce recruitment through a partnership with a school corporation in their service territory. In 2014 the company partnered with the LaPorte County Career and Technical Education Center to launch the NIPSCO Energy Academy. The Energy Academy will prepare interested students for careers in the utility sector. Students who enroll in the program earn college credit from Indiana's IVY Tech Community College and achieve a number of professional certifications. The program is the first of its kind in Indiana

for the utility sector. The Indiana General Assembly has provided continued financial support for the Energy Academy through a grant program that encourages collaboration between local businesses and educational institutions. The Energy Academy is being touted as a model for other vocational programs across the state.

Nationally, utility and pipe trades represent a well-trained, well-compensated, quality workforce with highly sought expertise. Pipe workers on average make over 40 percent more than the typical worker in the economy (a median wage of \$33.42 per hour for distribution pipe workers versus \$22.71 for the average U.S. worker).<sup>5</sup> Also, pipe trades



in natural gas distribution experience much lower unemployment than the typical overall workforce—3 percent (and dropping) versus 5.5 percent for the general economy as of May 2015.<sup>6</sup> However, it is increasingly challenging to find workers. Reflecting broader economic trends, baby boomers are retiring faster than apprentices are being turned out, and one-fifth of pipe trade workers are over the age of 55.<sup>7</sup> The Center for Energy Workforce Development states in their Gaps in the Energy Workforce Pipeline report: “Electric and natural gas companies could face a worker shortage earlier than other segments of the economy..., over 60 percent of the workers in areas such as electric and gas utilities are likely to retire or leave the industry within a decade.”<sup>8</sup>

At the regional level and at individual utilities, this dynamic can be more pronounced. According to the Utility Workers Union of America, in a statement entitled, “Short Staffing, Aging Workforce, Threaten Safety and Reliability of MI Grid,” “preliminary results of the UWUA investigation show, for example, that in 2011 at one major Michigan utility, which has a union workforce in excess of 2,000 people, 87 percent of employees are over 40 years old, an astonishing 67 percent are over 50, 50 percent are age 55 and older, and 13 percent of the workforce is age 60 or older.”<sup>9</sup> Frontline gas workers participating in the Indiana project report trends among their workforce are in line with these assessments.

## Additional Pipe/Energy Workforce Resources

- U.S. Department of Labor: *Identifying and Addressing Workforce Challenges in America's Energy Industry*. Available at: [http://www.doleta.gov/brg/pdf/Energy%20Report\\_final.pdf](http://www.doleta.gov/brg/pdf/Energy%20Report_final.pdf).
- Interstate Natural Gas Association of America: *Securing Our Future: Developing the Next Workforce – An Analysis of Risk and Recommended Strategies For the Natural Gas Pipeline Industry*. Available at: <http://www.ingaa.org/File.aspx?id=5335>.
- Congressional Research Service: *Keeping America's Pipelines Safe and Secure: Key Issues for Congress*. Available at: <http://fas.org/sfp/crs/homesec/R41536.pdf>.
- The United Association Journeymen and Apprentices of the Plumbing and Pipe Fitting Industry of the United States,

Canada and Australia (UA) also maintains a robust program to help military veterans transition into pipe trades careers upon separation. More information at: <http://www.uavip.org/>.

## INFRASTRUCTURE MODERNIZATION RATE MECHANISMS AND CONSUMER PROTECTION

Infrastructure modernization projects carry significant direct and indirect costs that must be taken into consideration, and programs must be carefully monitored to ensure the goals of the project are being met and that ratepayers are receiving value for their increased payments. The People's Gas main line replacement program in Chicago, Illinois, is a stark example of what can happen when there is a lack of proper oversight on infrastructure programs, including delays, budget overruns, and mismanagement of the repair program may lead to increased costs for consumers.<sup>10</sup>

Indiana's utility companies have so far avoided a similar situation, largely due to increasing amounts of oversight included in the law enabling utility companies to submit 7-year infrastructure improvement plans. After initial approval of the plan, utilities may request incremental rate recovery every six months for up to 80 percent of the costs incurred, with the remaining twenty percent of the cost recovery deferred until the next base rate case. NIPSCO intends to invest \$713 million through 2020 modernizing its natural gas system. Vectren Energy Delivery has filed two separate infrastructure improvement plans for its North and South divisions in Indiana. Improvement plans in the North division are expected to total \$647.1 million, and plans in the South division are expected to be \$216.8 million.

Indiana's legislation authorizing 7-year improvement plans with associated cost recovery rate schedules is comparable to efforts underway in the states outlined below.

**New Jersey:** 2014 approval of a \$1.22 billion filing to upgrade gas and electric grid resiliency in the wake of Hurricane Sandy, including a \$350 million investment to replace 250 miles of cast-iron distribution

main. The overall cost of the EnergyStrong program is estimated at 2 percent of revenues, which may be more than offset by decreases in other utilities charges.<sup>11</sup>

**Maryland:** 2013 approval of a rate filing (STRIDE Act<sup>12</sup>) aimed at upgrading nearly 21 percent of the state's natural gas distribution infrastructure, to include:

- More than 13,000 miles of cast-iron and uncoated steel pipe replacement
- Upgrade of more than 103,000 bare steel and copper services

Ratepayer increases are capped at a maximum of \$2 per month and are expected to be reached by the fourth year of the program.

**California:** 2014 passage of state legislation (SB.1371<sup>13</sup>) to determine best practices for leak identification, repair, and avoidance, and employ ratemaking mechanisms to implement them was achieved. The goal of the law is to increase public safety and reducing the harmful climate change effects of natural gas leaks. In addition, fixing pipes employs California workers and utilizes local materials and services, thus providing an additional economic rationale for the bill.

## PLASTIC PIPES

While PHMSA and utilities maintain inventories of the types, age, and location of pipes distributing gas to our cities and communities, workers identified significant gaps in knowledge, particularly with regard to older plastic pipe. In their experience, “first generation” plastic pipe—generally identified as pipes installed in the 1960's through the early 1980's—can become brittle over time, leading to cracking, reduced pressure capacity, and more leaks. While newer plastic pipe (primarily polyethylene) does not seem to pose an issue, workers described difficulties in obtaining information from the utilities and/or PHMSA identifying what types of older plastics are present in their systems.

Along with cast iron and unprotected/bare steel, these older plastic pipes are noted as a repair and replacement priority for the gas industry. In a report outlining issues facing gas utilities, the American Gas Foundation noted:

“Facilities most likely to require replacement on a priority basis are pipe and other facilities constructed using

unprotected steel and cast iron pipe, certain early vintage plastic pipe, pipe fittings and other infrastructure that is leak-prone. A portion of the current inventory of plastic pipeline is also considered a candidate for replacement as it is comprised of materials that proved to be subject to cracking or other premature failure. Although the proportion of plastic pipe included in the replacement category is not separately reported in U.S. pipeline data, it is believed to be a small proportion of the total. Nevertheless, plastic pipe requiring replacement is a significant issue for some [utilities].”<sup>14</sup>

The American Gas Association further reports:

“The U.S. Department of Transportation (DOT) is seeking to respond to a recommendation by the National Transportation Safety Board (NTSB) that raised concerns about the susceptibility of older generation plastic pipe to brittle cracking. Some of the plastic pipe manufactured almost 40 years ago was susceptible to cracking, mostly in combination with other stress factors

such as improper installation or environmental causes. Most of the pipe that was subject to failure in this manner has been replaced or dealt with appropriately.

“AGA strives to ensure plastic pipe is used safely and effectively by natural gas utilities, in part by working with DOT, standards organizations and other stakeholders to make sure regulations and reference materials keep pace with technology and industry trends.

“AGA, American Public Gas Association, Plastics Pipe Institute, National Association of Regulatory Utility Commissioners, National Association of Pipeline Safety Representatives, NTSB and DOT participate on a committee that collects and assesses in-service plastic piping material failures with the objective of identifying possible trends in the performance of these materials. Collected data include both actual failures and negative reports (forms that indicate that no failure occurred during the month). AGA has collected this data on behalf of the committee since January 2001, and the



data is examined each time the committee meets in an effort to identify trends in the performance of plastic piping materials. The committee has developed a DOT response to address the NTSB's concerns, identifying the older materials susceptible to such failure and a DOT notification to industry. To date, approximately 162 companies representing 51 percent of

## **“A SAFER GAS SYSTEM WASTES LESS GAS AND CREATES LESS POLLUTION...”**

The annual Inter-Union Gas Conference, held September 21–24, 2015 in Las Vegas, convened more than 400 frontline gas workers and unions leaders from across the country to share knowledge and expertise with the goal of enhancing skills and developing best practices to repair and modernize the nation's pipeline infrastructure.

Hosted by the United Association (Plumbers, Fitters, Welders and Service Techs Union), participating unions representing both downstream and upstream gas workers included the United Steelworkers, Utility Workers Union of America, International Brotherhood of Electrical Workers, International Chemical Workers Union, United Food & Commercial Workers, and UNIFOR Union (Canada).

The Rebuilding our Cities Aging Pipelines (RECAP) project team engaged both the general delegation and distribution system-specific forums at the conference regarding best practices, challenges, and opportunities identified via the team's education and outreach efforts with community groups, industry, and frontline gas workers, as well as successful state and utility efforts to modernize gas systems and reduce emissions in IN, IL, MN, CA, and PA and the potential to scale these successes to additional states.

The unifying theme across this engagement: “A safer gas system wastes less gas and creates less pollution, and efforts to reduce leaks and waste result in a safer system.”

Interaction at the conference further informed findings, engaged feedback from frontline gas workers in Indiana and beyond, and strove to identify solutions. One area of heavy emphasis, identified also in this report, was the wide disparity and growing problem of aging plastic pipe, and the lack of data and mapping for this significant portion of the distribution network.

Another area of wide disparity was regarding third party disruptions. Indiana has policies in place that sanction and can impose civil penalties for third parties that do not call 811 and damage gas lines (Ind. Code Ch. 8-1-26). This is not the case in many other states. Many third-party excavators are noted to skip properly identifying underground lines since some consider it cheaper and easier to damage the line and let the utility bear the cost of repair, versus the delay and cost of properly surveying excavation sites.

Another growing area of concern also is the presence of naturally occurring radioactive materials, which appear to be more prevalent in newer, unconventional natural gas sources, and a potential hazard for both gas workers and communities.



the miles of installed plastic main and 56 percent of the installed plastic services in the United States have joined the data collection program, and AGA continues to urge companies with plastic main or services to join the voluntary data collection effort.

“More than seven years worth of collected data reinforce what is historically known about certain older plastic piping materials and components. Thus far, this collection of data has not shown additional trends. In an effort to assist gas utilities, the Gas Piping Technology Committee (GPTC) prepared guidance

material that an operator can use when these older plastic pipe materials are known to be present in their piping system. This guidance material was published in 2005.

“In addition, the AGA Plastic Materials Committee has updated the AGA Plastic Pipe Manual (2007). This manual contains information on plastic pipeline materials, including factors affecting plastic piping performance, engineering consideration for plastic pipe utilization, installation guidance and other valuable information. Finally, the committee is compiling a series of documents that

capture plastic material information to be of use for gas companies in Distribution Integrity Management Programs.”<sup>15</sup>

While these industry efforts appear to recognize the challenges posed by aging plastic pipe, documents its prevalence, and outlines recommendations for response, these materials do not appear readily available to the public nor to frontline Indiana gas workers that could benefit from this information as it pertains to the leak detection and repair (LDAR), training, safety, or workforce development.

## 4. LABOR AGREEMENTS

One approach to help ensure Indiana stays on track with its distribution pipe modernization efforts is Project Labor Agreements (PLAs) and similar policies to ensure locally hired, highly trained workers represented by unions undertake critical pipe replacement and repair work.

Numerous studies suggest PLAs help to ensure projects come in on time and on budget. PLAs provide access to capable union workers who maintain high quality and safety standards from the outset.

Dr. Dale Belman of Michigan State University’s School of Industrial and Labor Relations and Matthew Bodah of the University of Rhode Island’s Schmidt Labor Research Center wrote an EPI Briefing Paper in 2010 entitled, in “Building Better - A Look at Best Practices for the Design of Project Labor Agreements.” The report aims to “move the PLA discussion beyond a debate about whether PLAs are good or bad and toward a more constructive discussion regarding how to create PLAs that help deliver better projects for owners, contractors, workers, and communities.”<sup>16</sup>

The Michigan State Utility Workers Council-AFL-CIO signed an Enhanced Infrastructure Replacement Project Workforce Agreement with Consumers Energy in 2012, a utility significantly accelerating leak-prone pipe repair and replacement relative to the national rate of upgrade.<sup>17</sup>

According to the City Manager of Berkeley, California, who recommended an agreement with the Building Trades Council in 2011, “[T]o help increase training and employment opportunities for the City’s students in the construction trades through apprenticeship and pre-apprentice programs as the students graduate from the City’s schools, to promote efficiency of construction

operations performed for and within the City of Berkeley and to provide for peaceful settlement of labor disputes and grievances without strikes or lockouts, thus promoting the public interest in assuring the timely and economical completion of the projects.”<sup>18</sup>

Stakeholders also identified concern regarding the substandard quality of work conducted by nonunion workers, who often are not based in the community nor responsible for long-term maintenance of pipeline systems. As a more general strategy, a community benefits agreement (CBA) could address that concern by awarding priority to skilled union workers for pipeline repair or replacement activities.





# 5. SUMMARY OF FINDINGS

Indiana gas utilities appear to be gaining ground advancing the modernization of the state's natural gas distribution system. Compared to national rates, Indiana has a relatively low prevalence of leak-prone cast iron and bare steel gas pipe, along with lower leak rates per mile. However, there are opportunities for improvement identified by this education and outreach project:

- 1) While the over all leak rate among Indiana gas distribution mains are lower than seen nationally, leaks resulting from material/welds, equipment, and corrosion occurred at more than three times the national rate (34 percent in Indiana versus 10 percent nationally).
- This suggests continuing need for system modernization/repair and replacement of leak-prone pipe, to include older plastic.
- Modernization faces challenges via current rate mechanisms that fund infrastructure improvements, which provide incentive for capital investment versus repair and maintenance activities. Successful policies in other markets are beginning to recognize and overcome these challenges, and have demonstrated limited financial impact to ratepayers.
- Continued education of the general public, businesses, and other stakeholders, such as the ones engaged in this project, including frontline gas workers and community and environmental groups, will help enable utilities and the IRUC to develop and implement modernization programs.

2) Accelerating the repair and replacement of aging pipe will create employment opportunities for gas workers through the duration of current modernization programs. However, this outreach project identified concerns that “front loading” these investments may preclude economic opportunity over the long run. These concerns may be misplaced, as the rate of system reinvestment may actually increase for the foreseeable future due to segments steadily reaching the end of their service life.

- Better understanding of future modernization needs could help the stakeholders outlined above proactively support and implement modernization programs.
- There are opportunities to highlight additional benefits accruing from modernization, such as reduced community hazard, climate change benefits, and economic development.
- While utilities are being proactive in attracting and training the next generation of gas workers, workforce recruitment and development efforts could benefit from a broader public narrative highlighting continuing system investment, the need for qualified workers, and that unionized gas sector careers can offer strong wages and benefits.

3) Operator Qualifications that include strong standards for worker qualification and proficiency will help ensure the integrity and quality of pipe modernization efforts. However, frontline gas workers noted that current testing methods are neither as comprehensive nor as effective as they have been historically, since newer third-party

approaches currently fail to test field conditions and practical knowledge, and instead rely on computer-based testing. An independent state-convened task force engaging utilities, state safety and workforce officials, unionized gas workers, and the Midwest Energy Alliance could work together to constructively address these concerns.

4) Gas workers identified a knowledge gap regarding the location and prevalence of older plastic distribution pipe, which has been established as a leak-prone segment of the natural gas distribution system.

Potential solutions include:

- Regulatory agencies (i.e. PHMSA, IRUC) establish a comprehensive tracking/mapping inventory for older generation plastic pipe known to be more prone to leak, for example pipe installed between the 1960's and early 1980's.
- Indiana utilities and industry groups act more proactively to ensure the data collected and best practices developed are more accessible to the public and frontline gas workers.

5) Project labor and community benefit agreements have successfully ensured quality, timely, and cost-effective implementation of gas distribution upgrades in markets throughout the country. These agreements ensure local workers are employed, that investments stay in the community, and that work involving critical natural gas distribution systems is conducted with high standards for safety and quality. These may provide a model for communities and utilities in gas infrastructure projects moving forward.

## ENDNOTES

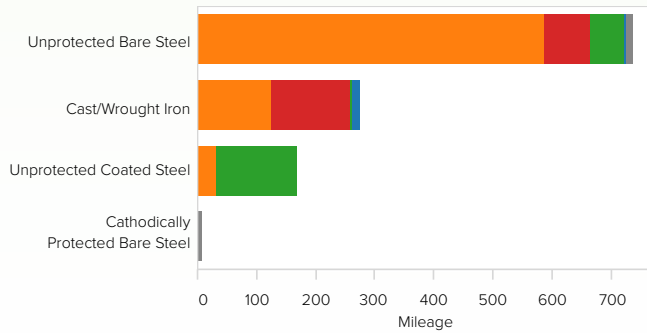
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- 1 Calculated using PHMSA data from 2013. Available online: <http://phmsa.dot.gov/pipeline/library/data-stats/distribution-transmission-and-gathering-Ing-and-liquid-annual-data>.
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- 18 University of California, Berkeley. Available online: [http://www.ci.berkeley.ca.us/uploadedFiles/Clerk/Level\\_3\\_-\\_City\\_Council/2011/01Jan/2011-01-18\\_Item\\_19\\_Contract\\_Community\\_Workforce\\_Agreement.pdf](http://www.ci.berkeley.ca.us/uploadedFiles/Clerk/Level_3_-_City_Council/2011/01Jan/2011-01-18_Item_19_Contract_Community_Workforce_Agreement.pdf).

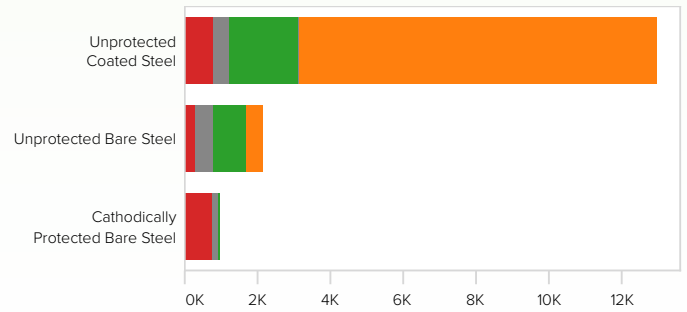
## Summary of Indiana Natural Gas Distribution Pipeline Systems: Leaks and Leak-Prone Material

■ NORTHERN INDIANA PUBLIC SERVICE CO 
 ■ INDIANA GAS CO IN 
 ■ CITIZENS GAS & COKE UTILITY  
■ SOUTHERN INDIANA GAS & ELECTRIC CO 
 ■ Other Operators

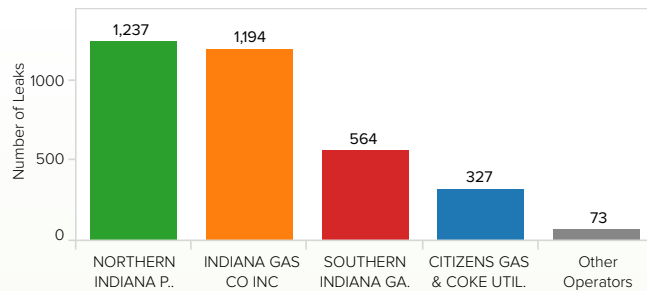
**1,183 Miles of Pipeline made from Leak-Prone Materials**



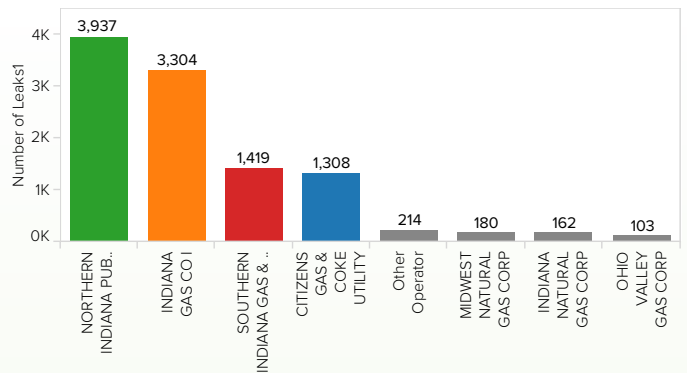
**16,049 Services made from Leak-Prone Materials**



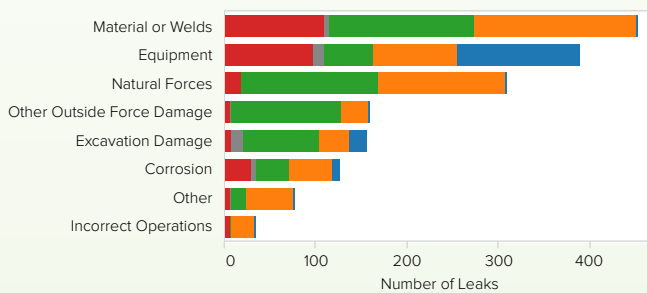
**3,395 Total Leaks Reported for 2012: Main**



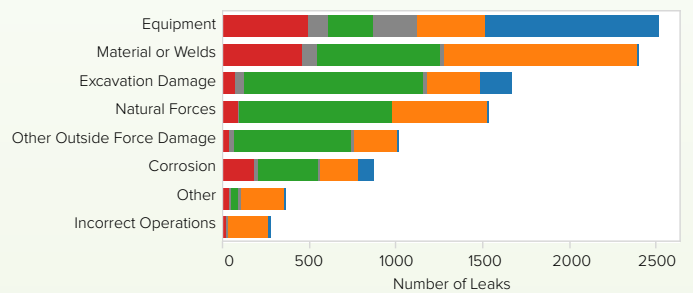
**10,627 Total Leaks reported for 2012: Services**



**Causes of Leaks: Main**



**Causes of Leaks: Services**



Source: PHMSA 2013 Distribution Annual Data



The BlueGreen Alliance **unites America's largest labor unions and its most influential environmental organizations** to identify ways today's environmental challenges can create and maintain quality jobs and build a stronger, fairer economy.

#### BLUEGREEN ALLIANCE PARTNER ORGANIZATIONS

