Gas distribution growth and pipeline expansion in the Northeast are creating good investment opportunities. The natural gas capacity constraint needs to be resolved to serve new gas-fired generation plants and protect New England’s electric grid reliability.
There is also the organic revenue growth from new connections and distribution expansion to serve new customers wanting to convert from oil heating to take advantage of the low natural gas costs. At the same time as this unprecedented growth, the U.S. is seeing significant regulatory changes to improve safety, including a focus on replacing the leak-prone pipe inventory in the region. Truly a “good news” growth story for the Northeast.

CAPITAL EXPANSION IN NORTHEAST

The Marcellus Shale gas basin in Appalachia has changed the supply dynamic in the Northeast. Marcellus production is now over 16 billion cubic feet per day (Bcf/d) in mid-2015, and low gas prices are projected well into the future. The Northeast region’s natural gas plans include numerous infrastructure projects to meet growing demand within the 2015-18 time frame. The system remains constrained in New England, Southern New York and Long Island. These constraints cost New England electric customers billions of dollars. During the polar vortex of 2013-14, New England spent $6.8 billion compared to $3.6 billion spent on wholesale energy costs during the prior winter.

Gas transmission pipelines have had significant growth in the Northeast, with several projects placed in service in the region. Williams/Transco has placed in service the Rockaway Lateral and the Northeast connector in New York. This provided the first new gas pipeline into the Brooklyn area in more than 50 years. There are 14 other significant projects in varying stages of completion, all of which will add gas capacity into the Northeast. Most will have an impact on reducing high energy costs faced in the Northeast during the winter months, when the system feels the constraints from the lack of adequate pipelines into the region.

Gas distribution is also a growth opportunity for the local distribution companies in the region. In New England, gas as a share of residential heating fuels (2013) was only 37.5 percent, and New York was only at 56 percent. While the number of new connections over the last two years has increased significantly, there is still a large market yet to be served in New England and New York. National Grid alone installed more than 125,000 services over the past four years, along with more than 370 miles of new gas mains. This represents a net margin growth of $170 million for National Grid alone. There are still a million customers in the National Grid service territory without a gas service.

CHANGING REGULATIONS

New regulations for pipeline construction, safety and transportation issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA), an agency of the U.S. Department of Transportation (DOT), were due to become effective Oct. 1, 2015. They are with the Office of Management and Budget (OMB) and are now expected to be final after Jan. 1, 2016. The regulatory changes will affect natural gas utilities, pipeline owners and contractors, pipeline manufacturers, insurers, ethanol providers, and state regulators. PHMSA’s long-expected final rules reflect changes following the significant lessons learned from pipeline incidents in San Bruno, California; Allentown, Pennsylvania; and East Harlem, New York.

Complexity and magnitude of regulatory change is the overarching challenge facing the gas utilities in the U.S. Until you see it all on paper, it is difficult to understand the effects of this historic, dynamic regulatory environment on U.S. gas operations. The message within these historic changes is about people and infrastructure data. More specifically, it is about enabling people with the right tools, training, systems and culture, facilitating an environment of organic sustainability and a fundamental shift in our thinking and subsequent actions that is proportional in scope to the dynamic U.S. pipeline safety regulatory environment. While the cost may inspire sticker shock, gas commodity costs are at near-record lows, so now is the time to build, upgrade and enhance the systems with reduced financial impact on customers’ bills. In addition, utilities need to consider that these proposed and imminent changes are the tip of the iceberg; this does not include the pressure we are all facing from the environmental lobby with emission reductions (likely to become more evident for all, with Environmental Defense Fund expected to intervene in all industry rate cases) and pressures within each state with rules beyond PHMSA threshold, particularly those in states where the significant incidents have occurred.

1 http://www.northeastgas.org/mkt_trends_overview.php
2 Northeast Gas Association 2014 Statistical Guide
PHMSA has significant rules undergoing interagency review at OMB in accordance with Executive Orders 12866 and 13563, which require agencies to regulate in the most cost-effective manner and make sure the benefit of the changes justifies the cost. The several significant provisions of a federal pipeline safety law passed in 2011 have been anything but swift. The complicated regulatory changes require stakeholder input and scrutiny from the OMB, putting PHMSA behind schedule under the 2011 law. When we do see movement on these new regulations, they will have a significant impact on operations for each utility.

SIGNIFICANT RULES STILL PENDING AS OF 10/2015:

- **Safety of Gas Transmission and Gathering Line Rule:** This rule from PHMSA is expected to cover the integrity verification process and will expand the integrity management and pressure testing of facilities. The rule will affect repair criteria for high consequence (based on population and potential impact) and non-high consequence areas. It will also introduce changes to gas gathering lines. Concerns include: re-verification of Maximum Allowable Operating Pressure (MAOP) where a pressure test was performed; universal requirement of spike testing; and the introduction of Medium Consequence Areas (MCAs).

- **Excess Flow Valves (EFV) Beyond Single Family Homes:** This rule from PHMSA is expected to cover requirements of EFV for branched service lines serving more than one single-family residence, multi-family residential dwellings and commercial buildings, and communication to customers informing them of the right to request EFV.

- **Operator Qualifications (OQ), Cost Recovery and Other Pipeline Safety and Accident Notification:** Changes in OQ requirements by PHMSA for new construction and control rooms, along with cost recovery mechanism on safety design reviews.

- **Valve Installation and Minimum Rupture Detection Standards:** This proposed rule would require mandatory installation of automatic shutoff valves, remote-controlled valves or equivalent technology and establish meaningful, performance-based metrics for rupture detection for gas and liquid transmission pipelines.

REPLACEMENT PROGRAMS FOR LEAK-PRONE PIPES

PHMSA is urging action on repairing older, more leak-prone systems. In March 2012, PHMSA published an advisory bulletin to owners and operators of natural gas systems that, among other points, urged accelerated cast iron repair, replacement and refurbishment programs. Following this advisory, in June 2013, President Obama announced his climate action plan and stated, “Investments to build and upgrade gas pipelines will not only put more Americans to work, but also reduce emissions and enhance economic productivity.”

In July 2013, the National Association of Regulatory Utility Commissioners (NARUC) adopted Resolution GS-1, “Resolution Encouraging Natural Gas Line Investment and the Expedited Replacement of High-Risk Distribution Mains and Service Lines.” This resolution encourages states to work with local distribution companies on rate mechanisms that will accelerate the modernization of gas networks.

The Northeast region of the U.S. has some of the country’s oldest infrastructure. The aging pipelines most prone to gas leaks are mainly cast iron and unprotected steel. Most utilities are working with local regulators across the U.S. to eliminate or refurbish through lining technologies the aging gas line infrastructure in 20 years or less. National Grid has over 10,000 miles of leak-prone pipe and has recently, through rate agreements and legislation, moved all states to achieve the goal of 20-year replacement or refurbishment.
GAS TRANSMISSION FOR ELECTRIC GENERATION

Interestingly, electric reliability in the Northeast is a function of gas availability. There is not enough natural gas pipeline capacity to meet New England’s current electricity generation and heating needs. High wholesale electricity prices, driven primarily by constraints on the natural gas transmission system on the coldest days of the winter, have cost New England customers billions of dollars in each of the last three winters as compared to the winter of 2011-12. National Grid believes we need two natural gas transmission projects to allow customers increased access to natural gas: Access Northeast⁴, a collaborative solution from Eversource, National Grid and Spectra, and Kinder Morgan’s Northeast Energy Direct project⁵. See Exhibits 1 and 2 for planned pipeline routes.

A series of proposals from state regulators, natural gas transmission companies and others has suggested that electric distribution companies could contract for natural gas pipeline capacity to alleviate constraints that have led to electric system reliability challenges, as well as high and volatile electricity prices. Specifically, electric distribution companies could enter into contracts with interstate pipeline companies for new firm gas transportation capacity, subject to receiving regulatory approvals, necessary cost recovery assurances and acceptable remuneration. Such contracts would facilitate the development of increased capacity and thereby enable the delivery of adequate gas supplies to fuel the gas-fired electric generation units in the region.

National Grid supports this feasible and fair solution because the cost of developing the additional infrastructure would be borne by electric distribution customers who would derive the long-term benefits of the additional capacity, including enhanced electric system reliability and lower energy costs that could save customers billions of dollars. These proposals are still under review, and National Grid will continue to be an enthusiastic leader in advocating for lower energy costs for its customers.

The gas outlook for the Northeast is an excellent investment opportunity in a complex and changing regulatory environment. Capital growth would be achieved through expansion to new customers, asset replacement and new generation. Low gas prices in the neighboring Marcellus Shale basin look to be stable long into the future and will support the investment by helping to minimize rate impact from the increased capital infrastructure expenses. The return on the pipeline investment has attracted a healthy number of companies to invest in our region. The opportunity to build infrastructure replacement plans to improve the gas systems and reduce methane emissions in the Northeast are supported by our communities and regulators. This is a bull market for those willing to make the investment in the Northeast.

⁵ [http://www.kindermorgan.com/business/gas_pipelines/east/neenergydirect/]
BIOGRAPHIES

**MARIE JORDAN** is the Senior Vice President of Gas Construction and Operations for National Grid. Marie has responsibility for the safe maintenance and field operations for the gas network serving more than 4 million customers in the U.S. The capital portfolio for her organization is $1.2 billion, focused on reinforcement, reliability improvement, new connections and asset replacement. This strategy is managed with an eye on environmental stewardship, employee and public safety, and innovation. Marie also serves on the board of directors for the Northeast Gas Association and is a member of the American Gas Association. Prior to her current role, Marie was Senior Vice President of Network Strategy, responsible for the asset strategy, engineering and portfolio management. Marie has been part of the National Grid leadership team since 2010 and began her career at Pacific Gas and Electric Company. Marie is a board member with the Red Cross and has been a member of the Red Cross Tiffany Circle since 2013. Her educational background is in electrical engineering and business accounting.

**MICHAEL E. BEEHLER, PE,** is a Vice President at Burns & McDonnell. After working as a transmission engineer and project manager for two IOUs, Mike led initial development of critical infrastructure protection for Burns & McDonnell. He initiated the application of sustainable principles into transmission and distribution design preceding the development the Envision program and PEER. Mike has written and presented extensively on the subjects of reliability-centered maintenance, program management and the smart grid. Subsequently, Burns & McDonnell has become the industry leader in major program management and developed several world-class grid modernization labs. More recently, Mike has written, presented and consulted on industry megatrends, EPC project delivery and “the value of the grid.” Mike has a Bachelor of Science in civil engineering from the University of Arizona and a Master of Business Administration from the University of Phoenix. He is a registered professional engineer in eight states, a member of IEEE, and a Fellow in the American Society of Civil Engineers.