Testimony of James Roberts, P.E.
Deputy Commissioner, New York City Department of Environmental Protection
before the
New York City Council Committee on Economic Development, the Committee on Consumer Affairs and the Committee on Environmental Protection
concerning
Oversight - Assessing the Economic Impact of New York's Failing Infrastructure
Hearing 1: Gas, Steam and Water

Wednesday, June 18, 2014
Council Chambers, City Hall, 10 a.m.

Good afternoon Chairpersons Garodnick, Espinal, Richards and Members. I am James Roberts, Deputy Commissioner of the Bureau of Water and Sewer Operations (BWSO) in the New York City Department of Environmental Protection (DEP). I am joined today by James Garin, Director of Engineering in BWSO, Joseph Murin, Assistant Commissioner for Budget, and other DEP staff. Thank you for the opportunity to testify on the de Blasio Administration's efforts to address improving New York City's underground infrastructure.

One of the most important challenges we face is managing the nearly 15,000 miles of water and sewer infrastructure that is very much the lifeblood of the City. Like many older cities our infrastructure is aging; there is no secret about that. But what sets New York City apart has been our standing commitment to making the necessary investments to continue to improve and rebuild that infrastructure. Keeping this commitment has at times been difficult. We understood the challenge of escalating water and sewer charges during some difficult economic times. But we also understood that investments in critical infrastructure are essential. This year, with the support of Mayor de Blasio, we were able to deliver the lowest water and sewer rate increase in nine years, while increasing our spending on water and sewer projects. And, through the support of the Mayor in returning part of the rental payment, we will be spending an additional $100 million per year on a program designed to accelerate replacement of the some of the oldest assets we have in the ground. I will say more about this program shortly.

In the past decade we have invested almost $3.5 billion dollars in our water and sewer infrastructure, which is in addition to $4.7 billion on City Water Tunnel No. 3 since construction began in the '70s. This past fall we activated stage II of Tunnel No. 3 in lower Manhattan and for the first time in my nearly 30-year career, we have reached the point where we are not completely dependent on City Tunnel No.1, which we put into service nearly a century ago in 1917. During the past decade we also invested $3 billion on our new Croton Drinking Water Filtration Plant, the first of its kind in the City's history, and $1.6 billion on our state-of-the-art Catskill / Delaware Ultraviolet Light Disinfection Facility, ensuring the quality and public health of the 8.5 million city residents (approximately 9 million New Yorkers) who enjoy the best water in the nation. We have invested $5 billion, an extraordinary amount, in our Newtown Creek Wastewater Treatment Plant. Investments like this account for harbor water quality being the best it has been in a century.

While many of these major investments were mandated, thereby putting uncomfortable pressure on our water rates, we were also able to make critical investments in pieces of the system that are not as obvious to everyday New Yorkers. Projects like a new $225 million Staten Island Siphon, to ensure drinking water supply to the borough, and the rehabilitation of the Gilboa Dam at the farthest reach of the watershed are examples of our commitment to keeping the system sound and reliable. We have budgeted $262 million for the reconstruction of dams in our three watersheds and $40 million for pressurization of a two-and-one-half mile segment of the Catskill Aqueduct, which will increase the volume of water available to the city and re-establish DEP's ability to bypass the Kensico Reservoir when necessary to access the highest quality water.

At the same time, our commitment to continued improvement of our in-city infrastructure has never wavered. Since 2002, we have constructed or reconstructed over 500 miles of sewer and 510 miles of water mains. We have constructed 61 out of 127 best-management-practice treatments of the Staten Island Blue Belt program for stormwater management; they will serve as part of the stormwater management system for one-third of the Staten Island. For example, from FY '02 -'13, DEP spent $438 million on sewers and $210 million on water mains in Southeast Queens alone. Going forward, DEP has $582 million in the Four Year Plan (FY14-17) for Queens of which $283.8 million is budgeted for Southeast Queens, including $194.8 million for sewers and $89 million for water mains.

Also in Queens, work on two shaft sites connected with the Brooklyn/Queens section (Stage II) of City Water Tunnel No. 3 is budgeted for $43 million. We project $143 million to evaluate, assess, and restore groundwater wells in Southeast Queens for the purpose of providing additional water during the Rondout bypass construction, and during any drought or other instances in which the City's surface water supplies are not adequate.

In Staten Island, the Executive Budget projects a total of $492 million, of which $321 million is for much needed sewers and $182 million for the Blue Belt program. The Snug Harbor Blue Belt project is budgeted for $23.9 million. Repairs to the Oakwood Beach Wastewater Treatment Plant and to the Hannah Street pumping station are projected to cost $79.6 million.

In the Bronx, the Executive Budget projects $533 million of capital spending from FY15-18. Approximately $143 million is budgeted for the Hunts Point Wastewater Treatment Plant, including $50 million for new centrifuges and $91 million for new digesters. To reduce combined sewer overflows into Pugsley Creek and the Long Island Sound, DEP has budgeted $72 million in FY 2015 for construction of a parallel sewer that will help divert flow away from the Creek. And for sewers we have $84 million and water mains, $93 million.

In Manhattan, the Executive Budget allocates $720 million between FY15 and FY18. The largest single project is the $175 million cogeneration project at the North River Wastewater Treatment Plant. The cogeneration project will replace existing equipment for recycling digester gas with a more efficient system that will allow more of the plant's energy needs to be generated by the plant itself, thereby reducing energy costs and air emissions. Another $270 million is for several projects at the Wards Island Wastewater Treatment Plant: reconstruction of final tanks; reconstruction of the boiler complex; and installation of new dewatering centrifuges. In addition to the funds budgeted for City Water Tunnel No. 3, $116 million will fund the construction of

water mains connecting two of the City Water Tunnel No. 3 shafts with the local water distribution system. Sewers are budgeted for $35 million and water mains, $162 million.

In Brooklyn, the Executive Budget includes $860 million of planned commitments. The 26th Ward Wastewater Treatment Plant and associated sewer work to reduce CSOs into Fresh Creek account for $282 million. An additional $102 million is projected in FY15-18 for Coney Island sewers. Sewers overall in Brooklyn are budgeted for $259 million and water mains are at $118 million.

Over the past six years we have also improved our maintenance and repair programs significantly, driving our water main breaks to record lows and decreasing sewer back-up and flooding issues across the city. There is admittedly much work to be done, but I believe it is important to highlight that, for example, our water main break rate per 100 miles has been between 5-7, while accepted benchmarks across the nation are in the 22-25 range. We have reduced our catch basin repair backlog to less than 500 on a total of almost 150,000 basins and our critical hydrant repair numbers have been reduced from what had been17 days to 3, on a basis of nearly 110,000 hydrants.

So, the news is not all bad. In fact some of it is very promising. At the direction of Mayor de Blasio and Deputy Mayor Shorris, an underground infrastructure working group, comprising key City agencies and private utility partners, was established and tasked with improving emergency response, coordination of underground construction, and accelerating the pace of improvements.

DEP is currently working on a pilot program to partner with the private gas utilities, Con Edison and National Grid, to identify potential areas of mutual need and concern. By sharing data on maintenance history and planned replacements we believe we can seize upon the natural nexus between the age of each system and the neighborhoods they lie in, and accelerate replacement of the older infrastructure in our systems, most of which is cast iron. DEP is currently working with both utilities to map areas of potential opportunity and we hope to begin actual construction on one or more locations by the end of the summer.

We believe that, in addition to the synergy of replacing the older infrastructure, there will be opportunity for efficiencies with street opening and repair as well. The Department of Design and Construction (DDC) already performs coordination on major capital projects it executes for both DEP and the Department of Transportation, but we intend to create a focused population of locations to be administered for the purpose of this accelerated program of $100 million per year of additional spending. Finally, we have asked DDC to look at all our current projects for opportunities to include any older cast-iron facilities that may not have been included in the original project with an eye toward reducing the inventory of cast-iron water mains more rapidly than we have planned.

That completes my prepared statement. Thank you for the opportunity to present testimony. I look forward to answering any questions you may have.

STATEMENT OF ROBERT A DeMARINIS TO THE NEW YORK CITY COUNCIL COMMITTEE ON ECONOMIC DEVELOPMENT COMMITTEE ON CONSUMER AFFAIRS AND THE COMMITTEE ON ENVIRONMENTAL PROTECTION

Council Chambers – City Hall

June 18, 2014

Members of the City Council, distinguished colleagues from the utility industry, local elected representatives and others in attendance, I want to thank you for the opportunity to appear today to discuss the state of New York City's utility infrastructure.

My name is Robert DeMarinis. I am Vice President of Gas Operations for National Grid's New York gas business. I have worked for National Grid and its predecessor companies for 33 years in various positions in power generation, electric and gas operations.

In New York, National Grid owns and operates three gas distribution utilities that provide services to approximately 2.4 million customers in Upstate New York, Long Island and New York City – specifically Brooklyn, Staten Island and parts of Queens. These utilities operate more than 21,000 miles of gas transmission and distribution pipelines throughout the state, including 4,100 miles of main in New York City. We have approximately 2,000 highly skilled, dedicated National Grid employees working in the City, including a compliment of experienced field personnel.

National Grid's number one priority is the safety of the public, our customers and our employees. To that end, we are committed to the safe and reliable operation of our natural gas facilities – and we deliver on that commitment by prudently investing in our gas infrastructure. Over the past few years, National Grid has:

- Invested more than $2.2 billion on gas infrastructure in New York from 2009 to 2013.
- Developed the Brooklyn/Queens Interconnect Project that will provide a new pipeline supply delivery point into New York City to address existing pipeline delivery system constraints. Once completed, this project will enhance the reliability of National Grid's distribution system throughout our service territory and permit National Grid to further diversify its supply sources and secure greater quantities of economical gas supplies. The BQI project is the first new gas supply delivery point in 50 years and will ensure clean, reliable energy in NYC for years to come.
- Converted nearly 15,000 customers per year from oil to natural gas in New York. As part of this effort, we supported the conversion of multifamily buildings from oil to clean, economic natural gas - averaging well over 1,000 such conversions per year in New York City alone.

- Partnered with the New York City Clean Heat Initiative to accelerate the phase-out of heavy oils in 750 buildings in National Grid's territory. Since the Clean Heat Program was launched in late 2011, National Grid has converted approximately 425 4/6 oil buildings to natural gas - with an additional 128 buildings in progress.
- In addition, National Grid's capital investment program has included "storm hardening" projects to strengthen the resilience of the gas system following Superstorm Sandy, including significant system upgrades in the hardest hit areas of the Rockaway Peninsula and Staten Island.

Our gas infrastructure was put to the test this past winter when the gas system was called on to deliver unprecedented volumes of gas to millions of customers during record-breaking cold spells, surpassing previous throughput records in New York City and Long Island without a single interruption to our firm customers.

National Grid's gas business faces the challenge of improving the integrity of a system that is among the oldest in the US, while simultaneously fulfilling the growing demands of new customers. We will meet this challenge through prudent, cost-effective investments in our gas system. Over the next two years, National Grid will invest more than $1 billion in gas infrastructure projects in New York. These investments will be focused on:

- Significant reliability investments in upstream gas infrastructure that will allow for load growth to meet increasing demand, including the Flushing Meadow reinforcement project, Verrazano Narrows transmission upgrade, and Metropolitan Reliability Project that will increase access to gas supplies to meet growing demand in New York.
- The Northern Queens Transmission and Distribution Project – a $111 million project to install over six miles of 20-inch transmission main, 20,000 feet of distribution main and other upgrades – that will increase capacity and reliability in a constrained area of the system; and
- Installing and upgrading mains and other facilities to accommodate the increasing number of prospective customers requesting oil-to-gas conversions, including investments to support the conversion of No. 4 and 6 oil customers.

Together with our regulators, elected officials and other stakeholders, National Grid is working to enhance the safety and reliability of New York's gas infrastructure to serve our customers now and in the future.

I'd like to address a few specific initiatives that are critical to our long-term goal of modernizing New York's gas infrastructure:

Accelerate Main Replacement

Gas utilities will need to make increasing levels of investment in their gas systems. For our part, National Grid will be focused on:

- Replacing old and leak-prone mains and services to enhance the safety and integrity of our gas distribution system;
- Installing and upgrading mains and other facilities to accommodate the increasing number of prospective customers requesting oil-to-gas conversions; and
- Investing in upstream gas infrastructure that will allow for significant load growth to meet increasing demand.

Accelerating the rate of main replacements is the best long-term approach to reducing leaks on the gas system and enhancing overall safe operations. Over time, accelerated main replacement will significantly reduce leak rates. However, these infrastructure improvements will come at a significant cost. The challenge for us is balancing the need to invest in our gas system while, at the same time, maintaining stable gas rates for our customers. Therefore, natural gas utilities and regulators should work cooperatively to develop mechanisms to fund accelerated main replacement.

Gas Growth Investments

Expanding gas service in New York can bring significant economic benefits in the form of energy cost savings, job creation and increased local tax revenues, as well as environmental benefits resulting from lower emissions. However, in order to serve new customers and realize the benefits of gas expansion, National Grid must make significant capital investments in the mains, services and system reinforcements that are required to connect these customers. In collaboration with our regulators and other stakeholders, National Grid is constantly considering new and innovative approaches to deploying capital cost-effectively to meet the growing demands of our customers.

Increased Use of Technology

The gas industry is focused on bringing new technology, methods and systems to our day-to-day work that will improve safety, reliability and efficiency. At National Grid, our investments in technology include:

- Developing an Integrated Leak Management System that will help the company monitor and address system leaks;
- Leveraging new pipeline inspection technologies, including self-propelled robotic crawlers, that allow for additional in-line inspections of pipeline segments with tight-radius bends and other features that had previously precluded such inspections;
- Deploying state-of-the-art combustible gas indicators, pipeline lining solutions and main inspection technology; and
- Increasing use of "low dig" technologies, such as horizontal directional drilling and keyhole mini-drill rigs that will allow us to work more efficiently and safely.

Over the next few years, we expect to see the continued development of cost-effective gas safety technologies that will further enhance our performance. National Grid will

look to be a leader in supporting technology that promotes safe and efficient gas operations.

Utility Industry Workforce

As I mentioned earlier, we currently have some of the best utility workers in the business, but National Grid, and the broader utility industry, is facing a challenge in the aging demographic of its workforce. In the coming years, many of our most experienced and skilled utility professionals will be eligible for a well-earned retirement. Therefore, as part of our ongoing investment, we are committed to attracting and retaining the next generation of utility workforce to support our business and help us operate and maintain our gas infrastructure – now and in the future. We are partnering with vocational schools, community colleges and veteran associations to feed a "pipeline" to jobs in the gas industry to all the work that needs to be done to support a safe and reliable gas system. We have enjoyed a strong partnership with the unions representing our workforce and our elected members in this area of natural common interest and we very much look forward to making even more progress on these issues of great concern to our common constituents.

Summary

National Grid welcomes the opportunity to work with the City Council, our regulators, gas utilities and other stakeholders to develop a strategy to enhance the safety and reliability of New York's gas infrastructure - and as one of the largest natural gas utilities in New York and the country, National Grid is committed to taking a leadership position in the industry on this issue. Thank you for this opportunity to address the Committees.

FOR THE RECORD

Statement of Ya-Ting Liu
Director, NYC Sustainability Program
New York League of Conservation Voters
Joint Committee Hearing: Environmental Protection, Economic Development and Consumer Affairs

June 18, 2014

Good morning. My name is Ya-Ting Liu, and I am Director of the New York City Sustainability Program at the New York League of Conservation Voters (NYLCV). NYLCV represents over 25,000 members in New York City and we are committed to advancing a sustainability agenda that will make our people, our neighborhoods, and our economy healthier and more resilient.

NYLCV would like to thank Chair Richards, Garodnick and Espinal and members of the respective committees for holding this important hearing on the city's aging infrastructure, a problem made worse by our changing climate. Extreme weather events are the new normal and the city's infrastructure is crumbling, threatening our economy and quality of life.

We applaud the Center for an Urban Future's (CUF) comprehensive and sobering report on the city's mounting capital needs and shedding light on the huge gaps in funding to get our city to state of good repair. The FY15-18 capital plan totals $34.7 billion for the construction and rehabilitation of the City's infrastructure which will provide funding targeted to building and improving schools, maintaining the drinking water system, improving transportation and providing affordable housing. However, as the Center for an Urban Future report notes this is not enough. In fact, the City's state-of-good-repair funding gap will reach $34.2 billion over the next five years.

Of all the worthy recommendations in C.U.F.'s report, NYLCV asks the council to pay special attention to three of the most critical:

1. **Find the Money** – We cannot rely on federal and state support to meet the funding gaps. We need leadership from our city's elected officials to educate the public on these issues, explore and identify new dedicated revenue sources to pay for these critical projects.

2. **Prioritize & Prepare** – With at least $34.2 billion in unfunded infrastructure needs, we have to be able to prioritize which projects can wait, which can't. Let's also plan for a changing future. Incorporate sustainability and resiliency into the capital program to ensure our infrastructure is environmentally and structurally sound.

3. **Meet Multiple Goals** – When agencies develop their capital plans, they don't necessarily consider the broader economic development goals or sustainability goals of the city. The city should link infrastructure projects with economic and environmental outcomes.

We look forward to working with members of the City Council and Mayor de Blasio to make sure New York City maintains its competitiveness and livability.

REBECCA SMITH

New York City's Natural Gas Infrastructure
NYC Hearing Assessing the Economic Impact of
New York's Failing Infrastructure
June 18, 2014

My name is Rebecca Smith and I live in Manhattan. I am speaking out of my concern for climate change and the contribution our city's leaking gas pipelines may be making toward heating the planet.

Natural gas is over 90% methane. The 2013 IPCC report **(Footnote 1)** has methane as 86 times as potent a greenhouse gas as carbon dioxide. This colorless, odorless gas is lighter than air and has enormous potential for leakage throughout the entire natural gas system – production, transmission, distribution and utilization. Our citywide pipeline infrastructure is the site of distribution and our homes and businesses are the sites of utilization. NOAA reported that methane levels have been climbing since 2009 and cites natural gas as a prime cause **(Footnote 2).**

Aging urban infrastructures are subject to leaks: how much does our gas system leak and what effect does it have on warming the planet?

Unfortunately we do not have the accurate information we need to answer that question. ConEd's numbers for fugitive methane emissions represent an old fashioned "back of the envelope" estimate -- estimates based on estimates **(Footnote 3).** Government needs to require accurate reporting which can be obtained by using the highly sensitive, accurate technology now available.

What if you take ConEd's own numbers for fugitive methane emissions and calculate how much global warming potential they produce? ConEd states that in 2013 their lost-and-unaccounted-for (LAUF) gas was 2.8% **(Footnote 4)** in NYC. Since Con Ed delivered 300 billion cubic feet per year in total, and Manhattan usage represents 30% of total gas usage, 90 billion cubic feet of gas were delivered to Manhattan. Therefore 2013 lost emissions amount to about 2.5 billion cubic feet per year. Using the equivalency calculator on the EPA website **(Footnote 5),** these emissions are equivalent to 1, 425,000 metric tons of carbon dioxide -- or the annual GHG emissions from 300,000 cars.

Distribution is only part of the natural gas life cycle. The DOE National Energy Technology Laboratory has estimated the gas lost in production and transmission (big, cross-country pipelines) at 1.8% **(Footnote 6),** which brings the total emissions for gas transmission and distribution combined -- based on government and industry estimates -- to 4.6%, or about 4 billion cubic feet (or 480,000 cars per year) -- just to service the energy needs for Manhattan. That's a big energy footprint for **MANHATTAN ONLY** coming from natural gas -- the so-called "greener bridge fuel". In fact, it is by even the most conservative estimate 1 and 1/2 times higher than the leak rate **(Footnote 7)** at which use of gas causes more GHG pollution than use of coal.

An independent environmental organization, Damascus Citizens for Sustainability, commissioned Gas Safety Inc. to make a preliminary investigation of methane emissions in the Borough of Manhattan in 2012.

This study -- now awaiting peer review -- indicates that the amount of methane coming out of Manhattan is significantly greater than ConEd estimates. This is information that no one has collected before, using actual, measured data -- that raises issues that badly need addressing. It is essential that the Council carefully consider the ground-breaking information contained in this report before it makes any decisions regarding infrastructure and emissions.

GSI surveyed 160 miles of selected Manhattan streets over 5 days using a leak surveyor installed in an automobile. Highly sensitive, extremely accurate equipment was utilized: a cavity ring-down spectrometer combined with a GPS system and computer control system -- generating over 700,000 data points.

DCS measured methane leaks in NYC using GasSafety,Inc, who also measured methane leaks in several other cities. The team produced several peer reviewed papers. Leaks can be viewed as emissions that, when released to the air, accumulate to produce global climate change impacts; and, if contained, can result in deadly explosions. With more gas, more gas infrastructure, more gas pressure in the infrastructure -- more explosions will occur.

REBECCA SMITH

There are many things causing global warming on this planet. Are we going to allow NYC's infrastructure to be one of them?

Footnotes

1 2013 Intergovernmental Paper on Climate Change
http://www.enn.com/press_releases/4210 , press release, third paragraph

2 National Oceanic & Atmospheric Administration
www.esrl.noaa.g (methane chart showing rising levels)
www.noaa.gov/features/02_monitoring/methane.htmlov/gmd/aggi/
(article citing role of natural gas and methane)

3 2013 Con Edison Annual Report

4 NYS Dept. of Public Service, Staff White Paper on Lost And Unaccounted For (LAUF) Gas, issued January 27, 2012

5 www.epa.gov/cleanenergy/energy-resources/calculator.html

6 Hughes, David H. Lifecycle Greenhouse Gas Emissions: From Shale Gas Compared to Coal. 2011
www.damascuscitizensforsustainability.org/2011/07/lifecycle-greenhouse-gas-emissions-from-shale-gas-compared-to-coal/

7 Howarth, 2014. A bridge to nowhere: Methane emissions and the greenhouse gas footprint of natural gas. *Energy Science & Engineering.*
www.eeb.cornell.edu/howarth/index.php

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June 18, 2014
New York City Council
Committee on Economic Development
Committee on Consumer Affairs
Committee on Environmental Protection
RE: Oversight: Assessing the Economic Impact of New York's Failing Infrastructure Hearing 1: Gas, Steam and Water.

Gas Safety Inc. Background

Gas Safety inc. (GSI) is a Massachusetts based company that specializes in fugitive methane detection. GSI utilizes 30 years of natural gas industry experience to detect and quantify methane emitting from any source. GSI collects, compiles and analyzes data and reports on effects of methane leaks or seepages. GSI works with communities protecting trees from leaking natural gas distribution pipelines and trains arborists to detect natural gas leaks that damage vegetation. GSI collaborates with researchers on studies of natural gas distribution systems. The research team has detected thousands of leaks utilizing new Cavity Ringdown Spectrometer (CRDS) technology that detects methane in parts per billion and plots leaks from corresponding GPS coordinates. GSI uses CRDS technology to detect fugitive methane from mining operations and conducts methane baseline analysis of communities or given locations. GSI has developed a methodology to accurately measure methane flux rates from any given area.

Natural Gas Infrastructure of New York City

New York City is serviced by two natural gas operators, Consolidated Edison Co New York and Keyspan Energy Delivery – Ny City known as ConEd and NGRID. ConEd service territory is mainly Manhattan and Westchester County. The numbers cited below according to annual operator reports filed 6/2/2014, the two companies combined have approximately 6000 miles of gas mains consisting of 3000 miles of cast iron, 1700 miles of plastic and 1300 miles of steel material and service lines consisting of 600,000 plastic, 100,000 steel and 150,000 copper service pipelines.
The leak prone pipelines of concern are the thousands of miles of small diameter cast iron mains, bare steel mains, and steel service lines that are still in use today. Operators have 20-30 year replacement plans.

Safety

Third party damage to pipelines remains high at close to 400 incidents reported last year. Adherence to Dig Safe laws requires constant effort and the threat of a low probability high consequence incident remains high despite all of the effort to educate the public.. Natural force leaks at 257 reported last year should be of equal concern. Many of these incidents are broken or cracked cast iron mains caused from frost conditions or other earth movements that have low probability high consequence incidents. Small diameter cast iron gas mains pose an inherent risk of cracking due to frost conditions and should be replaced as soon as possible and monitored on a daily basis during any frost conditions. Cast iron bell and spigot joints and other mechanical coupling devices are prone to leakage and contribute to a significant number of known existing leakages. Bare steel natural gas mains and services are susceptible to corrosion leakage and produce far more hazardous leaks than third party damage or natural forces but these corrosion leaks tend to have far less volume and less incident threat and many are more technically hazardous in nature. Replacement of bare steel mains and services remains a priority due to the existing threat of a high consequence incident.

Gas leak awareness and repair of gas leaks are critical to insure the public safety. City residents should constantly be reminded to report gas odors whenever present and the signs of a gas leak from the American Gas Association:

Smell: Because an odorant called mercaptan is added to natural gas by the utility to help you detect its presence, the best sign of a natural gas leak is if you smell something similar to rotten eggs.

Sight: Look for dirt blowing into the air, persistent bubbling in standing water, or discolored or dead vegetation around the pipeline area.

Sound: Listen for any unusual hissing or roaring sound.

Consumers

New York City uses close to 500Bcf of natural gas each year with NGRID about 60% (300 Bcf) and ConEd 40% (200Bcf) with Lost and Unaccounted (LAUF) (2013) for gas rates of 3.4 and 2.8% respectively yielding losses of 10.2Bcf and 5.6Bcf effectively $75 million in consumer losses due to leakage from thousands of known non hazardous leaks throughout the city and other maintenance etc. annually for the consumers of New York. Citizens also bear the tree care costs from the thousands of city trees damaged by known gas leaks each year throughout the five boroughs.
Repair of gas leaks will save consumer dollars.

Environment

According to 2013 Annual reports LUAF for ConEd at 2.8% and NGRID 3.4%, 16Bcf of methane is lost each year that should be included in any GHG inventory for New York City.. Many of these leaks may be small emitters and target of high emitters will significantly reduce loss. Gas leaks causing damage to trees and other vegetation require immediate repair to alleviate the adverse effects of the leaking gas on trees and other vegetation. The affects to humans of breathing leaking gas are not known.

Respectfully Submitted

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New York City Council Committees on Economic Development, Environmental Protection and Consumer Affairs, Joint Hearing on Water, Sewer, Gas, and Steam Infratructure

June 18, 2014

Testimony of Jeff Zimmerman, Legal Counsel to

Damascus Citizens for Sustainability, Inc. and NYH2O, Inc.

Good morning, my testimony today will focus on gas infrastructure issues related to radioactivity in the natural gas distributed by Consolidated Edison and National Grid to consumers in the New York metropolitan area. Due to the time limitations to accommodate as many witnesses as possible, I would request that the record of this hearing be held open for a reasonable period of time to allow additional written material to be submitted for consideration by the committees.

What is radon?

Radon is a radioactive element formed by the radioactive decay of radium, uranium and thorium. At ordinary temperatures and pressures, radon is a gas. It is odorless, colorless and tasteless. It does not burn. It is only produced by radioactive decay and can only be destroyed by radioactive decay. It has an atomic number of 86 and an atomic weight of 222 in its most stable isotopic form, making it the heaviest noble gas.

Where does radon come from?

Radon 222 is created when an atom of radium 226 emits an alpha particle. Radium is found in either igneous or sedimentary deposits in the earth's crust. Sedimentary shale deposits found in many locations around the world contain trapped methane-rich natural gas and both radium and radon. It has been observed that the darker, more organic shale gas deposits, such as the Marcellus shale, contain higher concentrations of radium and radon.

Why should we be concerned about it?

When radon decays it emits high energy alpha particles and produces two longer lived isotopes, lead 210 and polonium 210. Unlike the gaseous radon, the lead and polonium isotopes are solids at ordinary temperatures and readily attach to particulate matter, including respirable particulate matter. When these two isotopes decay in the lungs, the emitted high energy alpha and beta particles can damage DNA and RNA, causing cancerous tissue to grow.

The widely accepted consensus of the medical and scientific community is that ionizing radiation follows the linear no-threshold model, meaning that there is no safe level below which there is no risk of contracting cancer from exposure to ionizing radiation.

What are the recommendations of governmental public health or environmental protection organizations?

The Agency for Toxic Substances and Disease Registry (ATSDR) estimates that there are 21,000 deaths per year due to radon exposure, making radon the number one cause of lung cancer among non-smokers. While the U.S. Environmental Protection Agency agrees that there is no safe level for exposure to ionizing radiation, the agency many years ago recommended implementation of aggressive mitigation measures for radon levels of 4 picocuries per liter or more. More recently, the United Nations' World Health Organization reduced its recommended mitigation level to 100 becquerels per liter. This corresponds to 2.7 picocuries per liter.

How much radon have New Yorkers been exposed to in the past?

Most of the radon exposure of individuals living in an urban environment such as New York City will come from gas-fired appliances such as furnaces, water heaters, clothes dryers, space heaters and kitchen stoves. In single family homes each of these appliances will contribute to the radon concentration collecting in the home. In multi-floor apartment buildings, heating equipment will be centralized and shared by each living unit while the hot air and combustion products will be vented to the outside air. Only the combustion sources such as dryers, space heaters and kitchen stoves will emit radon into the living space in these multi-story buildings.

There are just a smattering of radon levels reported in the scientific literature relevant for New York City. A 1980 U.S. Department of Energy report (Gogolak, et al.) gave a radon level of 1.5 picocuries in the gas distributed in New York and an average of 151 picocuries per liter in the devonian shale at the wellhead in the Marcellus shale area. A 1973 U.S. EPA report (Johnson, et al.) cited a level of 5.0 picocuries for Texas-Louisiana Gulf Coast gas. This was then and has continued until very recently to be the major gas supply source for the New York City area. Distance and rate of travel computations result in a projected radon level of about 1.0 to 1.25 picocuries per liter in New York City for gas starting at 5.0 picocuries at the well head in the Gulf Coast. Radon testing done voluntarily by several hundred residents of the five boroughs of New York City over the last three years confirm that almost all of the residents have ambient radon levels in their homes of 1.0 picocuries per liter or less.

Are exposure levels likely to go up in the future and why?

Some very limited additional data has recently become available from the U.S. Geological Survey (Rowan et al. 2012) that shows wellhead radon levels in three Marcellus shale gas wells of 79 picocuries per liter and a mean across six wells (the original three plus three more from

another part of the Marcellus) of 37 picocuries per liter. While these numbers may not seem to be that large, they are many times the World Health Organization's mitigation action level of 2.7 picocuries per liter

Moreover, because there is such a paucity of data currently available, the prudent and precautious approach should be to start gathering data as quickly as possible and, in the meantime institute controls designed to keep the public's exposure levels to no more than they have been historically. Sounding perhaps an early warning, it is my understanding that there has been a slight uptick in the radon levels found in the third year of community sampling.

Can we get radon out of natural gas before New Yorkers are exposed to it?

There are at least two ways to remove the radon from the natural gas stream, but it must be remembered that as the radon decays it produces the longer lived isotopes, lead 210 and polonium 210. One way to reduce the radon level is to store it long enough for the radon to decay, but this results in increased amounts of the lead and polonium isotopes. The second way to reduce the radon concentration in the natural gas is to reduce the temperature of the gases until the radon is converted from a gas to a liquid. This occurs at -61 degrees centigrade, approximately 20 degrees after propane in the natural gas has liquefied at – 40 degrees centigrade. While the radon concentration of the natural gas has gone down, the radon concentration of the liquefied propane has gone up.

What are the implications for the New York gas infrastructure of radon and other radioactive elements in the natural gas distributed by the gas utilities?

In response to actions by the City Council and former mayor Bloomberg, the gas utilities are rapidly expanding their infrastructure to deliver far more natural gas to replace fuel oil as an energy source. Over the last three years from program inception, over 2400 buildings have converted to natural gas. Consequently, not only will millions more individuals be exposed to radioactivity in the natural gas distributed, but levels of radioactivity will also begin rising as a greater percentage of this expanded natural gas supply starts coming from the Marcellus shale area. Transit times will be much shorter, resulting in much higher radon levels in the vastly increased amount of natural gas being consumed. Consequently, unless we adopt a mechanism by which the gas utilities can require that the radon levels in the gas they receive to be no greater than they have been in the past, the risk of radon-induced lung cancer will go up, creating new public health issues. The more information the public, the gas distribution companies and the regulatory agencies have, the more likely it is that potential radon exposures can be reduced to the lowest levels reasonably achievable.

RIVERKEEPER.
NY's clean water advocate

Testimony of Sara Lupson, Special Assistant to the President of Riverkeeper

New York City Council Committee on Economic Development, Committee on Consumer Affairs, and Committee on Environmental Protection

Oversight - Assessing the Economic Impact of New York's Failing Infrastructure Hearing 1: Gas, Steam and Water.

June 18, 2014

Good morning and thank you for the opportunity to submit testimony on behalf of Riverkeeper. Riverkeeper is dedicated to defending the Hudson River and its tributaries and protecting the drinking water supply of nine million New York City and Hudson Valley Residents. I joined Riverkeeper in 2012 after completing a Masters in Engineering and Public Policy from the University of Maryland where I studied water and transportation issues. I also hold a Bachelors of Science in Civil Engineering from Lehigh University, and have been increasingly involved with Riverkeeper's green infrastructure initiatives.

From filling our water bottles to flushing our toilets, we rely every day on a vast network of pipes, regulators, pumping stations, treatment plants and reservoirs. Water infrastructure is truly an unsung hero of the city. I do not think I can illustrate it better than the General Manager of DC Water and Sewer Authority George S. Hawkins who is a vocal spokesman for the importance of funding improvements to water infrastructure. He was once challenged with the question how many jobs does DC Water create? He answered succinctly, "All of them." In truth, if you do not have water, the city shuts down and you cannot have jobs. Former Mayor Michael Bloomberg has repeatedly said that one of the small handful of things that could shut New York City down would be the loss of its access to clean water. There should be no doubt that our ability to supply drinking water and treat wastewater is critical to New York City.

And yet, we find ourselves with aging infrastructure and insufficient funds to make the necessary upgrades. In 2008, the New York State Department of Environmental Conservation (DEC) described the crisis of deferred wastewater maintenance as a "gathering storm." Indeed, more than 27 billion gallons of untreated sewage is estimated to enter the New York Harbor alone, each year. DEC puts the price tag at $36 billion over 20 years to rebuild, replace and upgrade our sewers statewide, 30 percent of which are operating decades past their design life. A

recently released report by the Center For An Urban Future revealed that the average age of NYC water mains is 69 years, with 15% over the age of 100.

An investment in our aging water infrastructure is truly an investment in New York City's future. The American Society of Civil Engineers estimates that without new investments, by 2020 unreliable and insufficient water infrastructure will cost the average American household $900 a year in higher water rates and lower wages. American businesses can expect an additional $147 billion in increased costs and the economy will lose 700,000 jobs by 2020. On the other hand, spending on infrastructure is estimated to create 47,500 jobs per billion dollars of federal infrastructure funding spent. As DEC accurately concluded in their 2008 report, "The importance of modern, reliable, and efficient wastewater treatment systems is self-evident. The health of our communities, the protection of our water bodies, and the prospects for future economic growth and development, are linked to our ability to maintain, and as necessary, upgrade these facilities."

Riverkeeper urges New York City to adopt a robust Combined Sewer Overflow (CSO) management plan. Keeping the roughly 27 billion gallons of raw sewage and polluted storm water from entering New York City waterways each year would be a huge benefit to environment and would allow New Yorkers to reconnect with their waterways. We want them to be able to safely utilize the waterways because we know the more New Yorkers enjoy the waterways the more they are willing to fight for them.

We also urge New York City to consider green infrastructure as an important part of this CSO management plan. Green streets, planting trees, and green roofs could all be used to turn stormwater from a waste to a resource while providing other benefits to local communities as well.

We applaud the New York City Department of Environmental Protection's (DEP) initiative to use the Envision Sustainable Infrastructure Rating System as guide when internally vetting projects. Envision provides a holistic framework for evaluating the sustainability of infrastructure projects, seeking to answer not only are we doing the project right, but are we doing the right project? We encourage other New York City agencies to use this framework when evaluating infrastructure projects.

Riverkeeper thanks the New York City Council Committees on Economic Development, Consumer Affairs, and Environmental Protection for the opportunity to participate in today's hearing.

Testimony by Milovan Blair,
Senior Vice President, Central Operations
Con Edison of New York
June 18, 2014

Good morning Madam Speaker, Chairman Garodnick, Chairman Richards, Chairman Espinal and members of the Council. I am Milovan Blair, senior vice president of Central Operations for Con Edison of New York. Thank you for the opportunity to speak to you about our Steam operations, safety, and maintenance.

First, I would like to give you a little history of steam in New York City.

The New York Steam Company began providing service in Lower Manhattan on March 3, 1882.

The New York City steam system is a district heating system. Steam is produced by steam generating stations, and pipelines under the streets of Manhattan deliver steam to heat and cool high rise buildings and businesses.

Hospitals, dry cleaners, and other businesses also use the steam for cleaning, climate control, and sterilization.

Con Edison purchased New York Steam in 1936.Today we operate the largest commercial steam system in the United States, larger than the next nine largest steam systems combined. We have approximately 105 miles of mains and service pipes and 3,000 steam manholes.

Steam is generated at five Con Edison plants, four of which are in Manhattan, another in Queens, and also under contract from a steam plant at the Brooklyn Navy Yard.

We provide steam service to more than 1,700 customers including some of New York's most famous addresses such as the United Nations, the Empire State Building, the Metropolitan Museum of Art, Grand Central Terminal, Rockefeller Center, and the Chrysler Building.

Steam is clean and good for the environment and provides advantages over other energy sources. For example, oil furnaces or gas-fired boilers take up valuable space in buildings that rely on them for heating.

Customers who use steam instead of electricity to power their air conditioning systems help us to conserve

about 375 megawatts off our peak summer electric capacity. The steam system also offsets the need for additional electricity, natural gas, and oil infrastructure.

Approximately two-thirds of steam production comes from cogeneration, a very efficient process where the fuel input is used to produce both electricity and steam. Con Edison's newest steam plant, the East River Repowering Project, achieves 85 percent efficiency on average, while a typical new combined-cycle electric plant is only about 55 percent efficient.

The Con Edison steam supply reduces many pollutants, including about 1.6 million tons of carbon dioxide annually, equivalent to taking 270,000 cars off the road each year.

Roughly 23 billion pounds of steam flow through the system every year. At our summer peak, we send out nearly 5 million pounds of steam per hour, compared to our winter peak of 9.2 million pounds per hour.

We have a comprehensive maintenance plan for our equipment. We inspect our steam traps 6 times per year on a cycle of 10 weeks or less. Manholes associated with steam facilities are inspected annually.

We have installed remote monitoring devices throughout our distribution system. This allows us to monitor the functionality of our traps and to detect the intrusion of water in our structures at over 1300 locations.

We have added natural gas capacity to our 59th Street and 74th Street Generating Stations which will reduce emissions.

New Distributed Control Systems were installed at East River and 59th Street Generating Stations to improve reliability and security.

We launched our East River Aquatic Life Preservation Project, to help protect the river's ecosystem and comply with stricter state rules regulating water withdrawals.

As a result, we have significantly reduced the environmental impact of station operations on the East River.

Since Superstorm Sandy, fortifying our energy systems against extreme weather has been a priority. In 2013, we invested $15.9 million in steam storm hardening work and plan to invest an additional $145 million for 2014-2016. We are constructing more robust walls, doors and barriers. We have installed additional pumps with

redundant feeds and backup generators. We will raise critical equipment to exceed the latest FEMA flood level by three feet.

Providing safe and reliable steam energy is a responsibility we take very seriously.

Testimony by Edward Foppiano,

Senior Vice President, Gas Operations

Con Edison of New York

June 18, 2014

Good morning Madam Speaker, Chairman Garodnick, Chairman Richards, Chairman Espinal, and members of the City Council. I am Edward Foppiano, senior vice president of Gas Operations of Con Edison of New York. Thank you for the opportunity to speak to you today about natural gas safety and maintenance.

All of us at Con Edison are deeply saddened and concerned about the tragedy in East Harlem. We want to

get to the bottom of what happened, and we must do all we can to prevent anything like that from happening again.

We are working with the National Transportation Safety Board (NTSB) and other agencies to determine the root cause of the explosion, as well as all the factors that led up to it. As parties to the ongoing investigation, we cannot comment on any details of the event, or on the NTSB's preliminary findings.

I am here today to give you a sense of the scope of our gas system. Con Edison delivers gas to approximately 1 million customers in Manhattan, parts of Queens, the Bronx and Westchester County. We maintain 88 miles of gas transmission lines, and 4,300 miles of distribution gas

mains. We also maintain almost 368,000 gas service lines that run from the street to a building.

Public safety is the number one driver of our efforts every day. We are determined to deliver energy safely and reliably, and we want to do everything possible to prevent accidents.

At Con Edison we have redoubled our efforts to examine our maintenance and leak detection practices. We are also educating the public through a multi-lingual campaign about the importance of reporting gas leaks.

I cannot emphasize enough the importance of someone calling 911 right away if they smell gas. If a member of the public smells smoke, or sees a car

accident, or even a crime being committed, they don't think twice about calling 911. We need to get New Yorkers to treat an odor of gas the same way. If you smell gas, act fast. Leave the area and call 911 or your gas utility, immediately.

We have enhanced our gas safety awareness campaign through print, radio, and digital outlets. Our homepage features gas safety messages, and we promoted our multi-lingual gas safety videos on social media.

Currently, we meet or exceed federal and state codes for gas leak inspections. But our engineers have been looking at ways to substantially increase the number of gas leak patrols. We use specially outfitted vehicles to

survey 4,300 miles of gas mains at least once a year, and more frequently during severe weather. We also survey our gas service lines at least once every three years.

I am pleased to announce today that about a week ago, we began a pilot project combining our gas leak testing equipment and our contact voltage equipment in the same vehicle.

Currently, a fleet of vehicles scans our electric system 12 times per year, checking for contact, or stray voltage. Stray voltage is the presence of an electric charge sometimes found, for a variety of reasons, where it's not supposed to be, like on a streetlight, or manhole cover. During this pilot, we are checking for gas leaks and contact voltage at the same time. If successful, we will

expand this effort to substantially increase the number of gas leak patrols we perform each year.

We are also examining technology that allows us to simultaneously survey gas mains under the street, and gas service lines under the sidewalk.

Since the East Harlem tragedy, we have been holding meetings with the city's emergency officials to determine how we can improve the response to gas odor calls and other events involving street infrastructure.

We have discussed having the FDNY receive more, if not all, gas odor reports via 911. The Fire Department is best equipped to respond to these calls the fastest and to protect people and property.

Investigating the source of a leak, however, requires the skills of qualified gas utility personnel. Once the source of the gas odor is pinpointed, the leak is made safe.

With respect to the replacement of cast iron and unprotected steel pipes, we have nearly doubled our replacement program in recent years.

We plan to replace an average of 65 miles of priority pipe segments in each of the next three years. We also take advantage of opportunities to replace sections of pipe when the streets are excavated for other reasons.

We invest approximately $500 million each year on our gas infrastructure and steel/cast iron replacement

program. We will spend an average of $215 million annually over the next three years replacing gas mains.

This job is particularly expensive and more time consuming in Manhattan, which has a dense and complicated underground infrastructure with water, telecommunications, gas, steam and electric facilities. A typical gas main replacement job in Westchester might take a few days at a cost of $500 per foot. The same job in Manhattan could take a couple of weeks, at a cost of almost $2,000 per foot. We estimate the overall cost of replacing all cast iron and unprotected steel mains in our system would run about $10 billion.

We respond to about 33,000 reports of gas odors each year. About 24,500 are from inside homes and

businesses, and about 8,500 are from gas odors on the street. Approximately 40 percent of these calls turn out NOT to be natural gas leaks, but we never discourage anyone from making the call, and we will always respond.

In 2013, on average, we responded to these calls within 22 minutes. When conditions warrant, we send additional personnel and coordinate the response with the Fire Department. We currently interact with the Fire Department on about 4,500 of these responses each year. As I mentioned earlier, we will be collaborating with the City on increasing Fire Department responses to gas emergency calls.

Natural gas is the nation's cleanest burning fossil fuel. Building owners are switching from heavy, dirty fuel oils to natural gas, which is helping all of us breathe easier. Gas has many great benefits, but as with all energy sources we use, we must always remain aware of the potential safety risks.

We accept our responsibility to provide energy safely, and we take it very seriously. It is our duty to protect the people living and working in communities we serve. We are your neighbors, and keeping us all safe is at the heart of our mission.

Call Before You Dig

Dig with care because the slightest scratch, scrape, dent, or gouge in an underground gas pipeline can result in a dangerous leak.

To protect these pipelines, you must call the local one-call center at **811** two to 10 days before you dig or excavate on public or private property. After you call, utility companies will mark the approximate location of their lines at no charge to you.

811 Know what's below. Call before you dig.

Line Markers

Since pipelines are underground, pipeline markers are sometimes used to show their approximate location. These markers display the name and phone number of the pipeline operator, which can be used in case of an emergency.

Call 811 Before You Dig

seven days a week, 24 hours a day

This free service will help protect you, your family, and your neighbors.

Private Property: What are Your Responsibilities?

Customer-Owned Service Lines

The property owner is responsible for marking the location, inspecting, and maintaining some underground pipelines, known as customer-owned service lines. For one-to-three-family homes, the property owner is responsible beyond the first inside fitting if the meter is indoors, or the foundation wall if the meter is outdoors. For large residential and commercial buildings, the property owner's responsibility begins at the property line.

Working Together

Con Edison monitors and inspects its gas system to ensure public safety. Please take an active role in helping us keep our 4,300 miles of underground pipelines safe. Some of these pipelines operate at very high pressures and you should be alert to suspicious individuals or activities around our pipelines. If you see something suspicious, call the police.

Our Commitment to Safety

To ensure the highest level of safety, service reliability, and security, Con Edison:

- Works with emergency responders and state and local agencies to prevent and prepare for emergencies through training and periodic drills.
- Works closely with communities.
- Uses the latest security and safety technologies and methods.
- Meets or exceeds all federal, state, and local safety regulations for transporting natural gas.
- Constantly examines its system and seeks to improve it through integrity-management programs. A summary of these programs can be found at **conEd.com/gassafety**.

Maps of the transmission pipelines can be obtained from the National Pipeline Mapping System, **npms.phmsa.dot.gov**.

Want to Know More?

Visit **conEd.com/customercentral/safetytip.asp**.

The following organizations also offer safety ideas:

- National Call Before You Dig Organization, **call811.com**.
- American Gas Association, **aga.org**.
- Consumer Products Safety Commission, **cpsc.gov**.
- Northeast Gas Association, **northeastgas.org**.

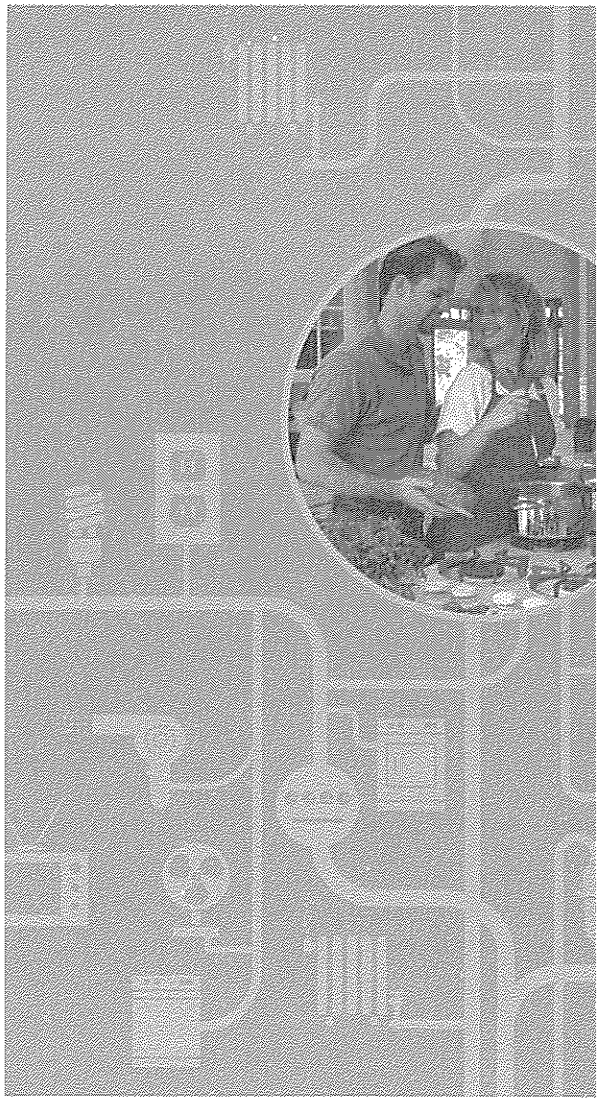
10% post-consumer waste

March 2014

conEd

conEd.

NATURAL GAS SAFETY



WHAT YOU NEED TO K

Signs of a Gas Leak

- **Smell** — A distinctive, strong odor similar to rotten eggs.
- **See** — A white cloud, mist, fog, bubbles in standing water, blowing dust, or vegetation that appears to be dead or dying for no reason.
- **Hear** — A roaring, hissing, or whistling sound.

If You Suspect a Gas Leak

DO:

- Leave your home immediately and take others with you. If outside, get well away from where you suspect the gas is leaking.
- If the smell isn't very strong, open windows before you leave.
- Call 1-800-75-CONED (1-800-752-6633), or 911 once you're safely away from the smell.
- National Grid customers should call 1-718-643-4050.
- Call us even if the odor is faint.
- Don't assume someone else has already made the call.
- You can report leaks anonymously.

DON'T:

Do anything to create a spark that could cause an explosion, such as:

- Light a match
- Turn appliances or lights on or off (including flashlights)
- Use a telephone or cell phone
- Ring a doorbell
- Start a car

We are committed to keeping our customers safe and we respond rapidly to any calls about gas leaks. We work with emergency responders to protect you. But it is important for you and your family to know what to do when you smell, hear, or see gas leaking.

Gas Safety in the Home

Follow these gas safety rules at home:

- Never use a gas range or oven to heat your home.
- Gas-fired appliances such as stoves or gas dryers that are attached to a flexible connector should only be moved or replaced by professionals. Old flexible connectors should be replaced and not reused because they may become brittle over time and develop small cracks, which can leak gas.
- Don't step, sit, lean, or place any objects on flexible connectors attached to appliances.
- To prevent combustible gases from entering a building through sewer lines, make sure that indoor sewer-line caps are intact and securely attached.
- Keep cleaning products, gasoline, paints, and other combustible materials away from gas appliances.
- Don't let children play near gas appliances.
- Keep the path and area around the gas meter clear so it can be reached in case of an emergency.
- Have your heating and venting system serviced regularly, and don't let snow, ice, leaves, or other debris block their vents and exhaust ducts.
- Don't enclose your gas meter. Remove snow and ice from around your gas meter and associated piping by using a brush instead of a shovel.

Protect Yourself Against Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, poisonous gas that can cause serious illness or de inhaled in large concentrations for even a short of time. Every home has fuel-burning appliance can produce CO if they are not working proper Symptoms of CO poisoning include headaches, tightness of chest, dizziness, nausea, and fatigue.

- If you suspect CO poisoning, immediately ev the premises and call 911.
- Install CO detectors in your home. If you use battery-operated or plug-in detector with bat backup, check the batteries every month and the batteries once a year.
- If the CO alarm sounds, but no one is showir symptoms of CO poisoning, open windows, turn off all potential CO sources, and leave. I qualified technician investigate the source of and inspect your appliances, detector, and chi to make sure they are operating correctly.
- All heating systems, vents, chimneys, and flu should be inspected and cleaned annually by a qualified technician.
- Be sure appliances, including portable generat are properly adjusted and working to manufa specifications and local building codes.
- Keep your furnace or boiler's air intake suppl of obstructions. If your equipment is in a sepa room, leave the door open or make sure it is l or has adequately sized ventilating grills.
- Do not use kerosene or propane auxiliary hea indoors or in any enclosed space.
- Never use a gas range or oven to heat your h
- Only use barbecue grills and portable generat outdoors, and never in an enclosed porch or g
- Never leave your car, lawn mower, snow blov portable generator running in an enclosed spa a garage or shed, even if the door is open.

June 18, 2014

Testimony of James T. Slevin, President, Local 1-2, NY, Utility Workers Union of America, AFL-CIO

New York City Council Committees on Economic Development, Consumer Affairs and Environmental Protection

Chairmen Garodnick, Richards and Espinal, Thank you for the invitation to testify at this important hearing.

I am James Slevin, President of Local 1-2 of the Utility Workers Union of America. I represent the men and women who operate and maintain New York City's gas and steam systems for Con Edison.

I thank the Committees for the opportunity to bring to light many of the inadequacies of Con Ed's woeful practices in the delivery, maintenance and safety of its Gas and Steam Operations which my Members observe every day in the field.

That we meet here in the wake of the tragic East Harlem gas explosion that claimed eight lives, speaks loudly of the failures in oversight that created the conditions leading to this horrific event.

I tell you today that Con Edison's current practices regarding its gas delivery infrastructure are part and parcel of the East Harlem catastrophe.

It is surprising – and only a function of extremely good luck - that more such events have not yet happened. Unless you get Con Edison to alter its culture and practices, it is only a matter of time before they do. The reason that we do not have more East Harlem tragedies is testament only to the professionalism of my Members going back decades of 20, 30, 40, 50 or 60 years when they did the job, they did it right, and they did it with the safety of the public paramount in their work.

This professionalism was part of the culture of Con Edison in those years. Today that culture is much changed - and I will provide specific examples - and Con Ed is content to coast on the work of the past. Con Ed's stellar reputation for delivery of energy services only exists today because of what was done in the past when its corporate ethos was to build to last and to have enough of its own workers to make sure the system was maintained and upgraded on a regular basis.

One of these days, if Con Ed does not do more to secure our gas infrastructure, we will view failures like the one in East Harlem as merely the cost of doing business.

Con Edison, as you know, was found criminally liable for the 1989 Gramercy steam explosion that took three lives. More recently there was the 2007 steam explosion on E. 40th St. and Lexington Ave., which resulted in serious injuries.

These are just examples that our steam infrastructure is as vulnerable as our gas mains to degradation and failure because of lack of regular maintenance.

The East Harlem explosion echoes the tragic April 2009 Floral Park, Queens explosion that killed 40-year-old nurse Ghanwatti Boodram. That explosion too was a cascade of poor reaction time by Con Ed and its emergency procedures.

What is troubling is that it seems that a quasi-municipal utility like Con Ed faces less scrutiny than let's say a private crane operator when there is a loss of life.

There emerges a pattern that Con Ed pays out a settlement to victims and then returns to business as usual.

Today's Con Ed culture is sticking a Band-Aid on it and hoping that it holds. All of this is done in the pursuit of profit and shareholder value. If it sounds cynical, it is. Today, Con Edison's corporate culture revolves very much around its performance on Wall Street. And, as a Dividend Darling - Con Edison has paid dividends for more than 120 years - Con Edison's sole measuring stick is market value - the public be damned.

Let's talk about conditions as my Members found them in East Harlem in March of this year. They found a block which over the years had seen many different types of repairs to the gas lines. They knew that the fixes stretched back several decades because the repair records contain notations of what occurred. And it was done in a piecemeal manner.

Thirty years ago and earlier when Con Edison had to make repairs to a gas line on a city block, it would replace the main from corner to corner. This was not the case in East Harlem, nor is it the case today of any gas main repair.

Instead, in the pursuit of cost savings, Con Ed relies on patches. One problem with patches - let us say tying in plastic pipe to a cast iron pipe - is that they are prone to failure at a far greater rate than if a whole block is replaced. Some of the reasons are obvious. Given the massive tangle below ground of electric, gas, telephone, cable, water and sewer lines, any excavation is bound to cause some problems. A 100 year-old cast iron main - stable for a century - is undermined by the excavation tying it into plastic. The metal at this age fails when disturbed, while plastic is less prone to this kind of failure.

Another thing we learned at East Harlem is that the plastic pipes that Con Edison uses in its gas mains have never been stored properly by the utility. Apparently the type of PVC pipe now used by Con Edison should never be stored outside, never placed directly on the ground, and never be exposed to direct sunlight. These practices degrade the plastic and make it unfit for use. In fact, one of my Local's Business Agents saw Public Service Commission personnel reject plastic pipe for this very reason when it was brought up to East Harlem by Con Edison for repairs following the explosion. Yet in yard after yard in New York City and Westchester County, Con Ed just

drops these pipes on the ground for future use, where they lay, exposed to the sun and other elements.

Another area where Con Edison skimps, allegedly in order to save money, to the detriment of its customers is its extensive use of outside contractors. You might say that is all well and good in a private enterprise until you learn that Con Edison has one standard for its own employees and a lax, one might even say negligent, standard for the gas main contractors it uses.

Con Ed uses contractors exclusively to emplace new gas mains or replace mains in large-scale projects. The problem here is training. A Con Ed-employed gas worker must undergo up to two-and-a-half years of training before working directly on the gas system. A contractor? Only one person on the contractor crew replacing the main has to have had training by Con Edison. Our Mechanics cannot be Crew Leader until after they've completed their "Mech A" training approximately 2 1/2 years in the Gas Dept. Where as a contractor can do the same after ONLY 18 days TOTAL of training. Then he's in charge of crews with little or NO training. And that training, unlike the training it requires for its own employees, is only 18 days' worth. That's right, one person, 18 days of training and they are then allowed to work on your gas main. Con Ed has no knowledge of the training, if any, of the rest of the contractor crew. This lack of training causes these contractors to make mistakes, which Con Ed's own crews then have to go out and fix or, far worse, can result in disasters.

These are the practices Con Edison uses today and I submit that this relaxation of standards does nothing to protect the public.

These contractor conditions arose because Con Edison has been ruthless in paring its workforce to the bone.

As was found in the investigation into Con Edison's operation of its electric system following Superstorm Sandy, the lack of trained, qualified in-house personnel hampered restoration efforts and, even up to today, wreckage from Sandy is still worked on by Con Edison. Every day my Members, whether in gas or electric operations, discover shoddy work previously performed by outside contractors that must be re-done.

Certainly, in its zeal to cut costs, Con Edison must recognize that this double work is not really cost effective.

We know that investors like to see a lean workforce and a corporate philosophy of having staff and inventory only when needed. Now this might be a good way to run a company like Walmart or Amazon, but it doesn't seem like a safe or professional way to manage a publicly regulated utility.

Yet, this is exactly how Con Edison operates. It ran out of poles following Sandy and it was trying to install sub-standard pipe following the East Harlem blast.

And its lean workforce adds to these less than ideal conditions. Con Ed's Gas Distribution Service - first responders to every gas leak - which is staffed by Local 1-2 has been gutted over time. A decade ago there were 43 Local 1-2 Members in the Rye gas unit, today that number stands at 8. Yet there are 6 supervisors there. To date, Con Edison has received 3,900 more gas leak reports this year than last year. So while Con Ed has cut back on its gas responders, it relies instead on forcing its existing GDS personnel to work 12 to 16 hour days. A work schedule like this cannot be sustained over time and still remain safe for the public or the employee.

I believe this attrition of personnel is a direct threat to public safety. For example, let's look at the way in which Con Ed checks for gas leaks. Ten years ago a two man crew with leak detection equipment would drive at slow speed block by block checking for leaks. If they found evidence of a leak, one person would get out to survey the block by foot checking for the leak. If a leak was found, the detection crew would stay with the leak until a repair crew arrived.

Today, with a one man crew checking for leaks, there are no more foot surveys and many minor gas leaks go undetected. As we know, gas, like water, seeks the path of least resistance and being lighter than air can accumulate in unusual places, as long as it has an upward trajectory.

Now I would like to draw your attention to the way in which Con Edison deals with below-ground gas leaks today as opposed to years ago.

In the past, if there was a below-ground leak, a crew would arrive and repair it right away. Today, as we meet, there are no fewer than 100 leaks around Con Ed's service territory – perhaps more.

Will these leaks be fixed? Yes they will be fixed. They will be fixed sometime within the next month or so. Meanwhile, Con Ed just vents the gas leak into the atmosphere and puts a cover over it.

So much for rapid repair. While in and of itself, venting a gas leak is not dangerous, allowing it to go unattended for weeks, is. Yes, if gas is detected Con Ed is supposed to check for elevated levels twice each day, to prevent an East Harlem-type event. But I ask you, is this really a best practice for public safety?

In short, Con Edison's entire gas and steam delivery infrastructure is antiquated and in danger of failure. Con Edison has decided in the course of business that regular maintenance is not necessary and that it can get by with piecemeal repairs.

This philosophy of not-so-benign neglect, rather than vigilant maintenance, is what Con Edison can get away with before the public unless you and the State require it now to do its duty to operate and maintain this **public** utility for the benefit of the public. There is a 16-year-old boy still in the hospital, undergoing operation after operation, to try to recover from the neglect which caused the explosion in East Harlem. He has no home to go home to and only half his

family left. For him, for the memories of those he and others lost in East Harlem, for the memories of those lost in the explosions in Queens within the past few years, please make sure that Con Ed returns to the culture which puts the public and its safety first and executive bonuses last.

The manner in which Con Edison, a private, shareholder-owned, publicly regulated utility, is allowed to conduct its operations is antithetical to the realities of the 21st Century. In this century, unlike the 19th Century when Con Edison came into existence, heat and light are a human right. Yet, Con Ed still acts in a 19th century mindset that heat and light are commodities to be sold at market. And it is regulated as if heat and light are still not the right of all citizens.

It might be said that Con Edison has been betraying its public trust for years in its chase for riches.

Thank you

CITY COUNCIL JOINT HEARING

6 18 14;I

Mav Moorhead

NYH2O

Exposure to Radon 222 has a proven cancer causing result as stated by the EPA. Radon is the leading cause of lung cancer within the United States for non-smokers, smoking being the leading cause of lung cancer among smokers. Given that onerous fact, the logical step on a health and environmental level would be to avoid the possibility and probability of allowing radon exposure into our air, i.e. kitchens, boiler rooms, restaurants, schools, hospitals and certainly our infrastructure throughout New York City carrying fracked gas from the Marcellus Shale, only about 100 miles away. This translates to a 12-15 hour transmission time from the source. Given the Marcellus Shale is a very organic shale, it has excessively high levels of radiation that can be transported in water (radium 226 and 228)as well as molecularly transported and bonded with gas (radon 222) to the end user. This end user is your kitchen stove, appliances, your boiler and any institution that is serviced by gas. Gas burns but the molecularly bonded Radon 222 is an element and does not burn. The issue here is that Radon 222 has a half life of 3.8 days, meaning that it does not even go through its first decay within the 10 to 15 hours it takes to arrive to NYC. Therefore we are breathing in a most potent level of radon every time we turn on our stoves as a result of the installation in November 2013 of the Spectra Pipeline coming into lower Manhattan at Gansevoort Street. Previously we were getting our gas supply resource from the Gulf from a shale that is not as organic and therefore radioactive. It took several days for the gas to transport to NYC and levels of Radon were at a minimum. But with the influx of Marcellus Shale gas coming to NYC there is the express concern that Radon is now entering homes, businesses, restaurants, schools and hospitals putting the 5 boroughs at risk of inhaling Radon. Cumulatively this consistent and daily inhaling of Radon causes explicit potential and probable critical health results for workers certainly, and anyone that comes in contact with the inhalation of this radioactive element over time.

The ignored Radon issue has not even been reviewed either by FERC, Con Edison and certainly not publically by the gas industry. FERC has allowed the Spectra Pipeline to be approved even though there was no Environmental Impact Statement on the 1500 feet that connects the pipeline to the Con Edison hookup suggesting a clear case of segmentation. Con Edison has absolved themselves of the responsibility of the Radon issue by stating that they

are nor "aware" of such hazards such as Radon in the transported gas. The Public Safety Commission absolves themselves of any responsibility related to the Spectra Pipeline as long as Con Edison follows their few rules of perfunctory construction of the Spectra Pipeline undermining any safety concerns for which their creation was originally intended.

The issues are as follows:

1) Gas distribution daily monitoring and operational reports must be filed with the DEP and Public Service Commission to include independently measured levels of Radon 222 in the gas and Radium 226 and 228 in water arriving to NYC end users. This would include Con Edison distribution lines into New York City to determine the level of Radon and gas transported thru pipelines.

2) The NYS EIS Appendix 13 findings report radiation, Radium 226 & 228, from flow back (produced brine water). There is no Radon 222 reported in the DEC EIS because this testing was focused on water, not on gas transport which is how Radon 222 is transported. Radon 222 exists in the gas flow and resultant transport to end users and thus inhaled. This critical computation of Radon 222 has not been determined anywhere along the gas transportation pipelines, ALL thousands of wellheads, casings, compressors, millions of miles of gathering lines and distribution lines and clearly must be measured to determine safety of Shale Gas received by end users.

3) Breathing Radon 222 becomes a stark reality to the level of radiated toxicity presented to the end user. Although radium 226 and 228 were revealed ever briefly in the EIS Appendix 13 no attempt was ever made to disclose the levels of Radon 222 when appraising the wells tested by the DEC itself in the EIS. For example, the Maxwell Caton in Steuben County exhibited a Gross Alpha of 17,940 piC/L and Radium 226 of 2,472piC/L; the Webster T-1 well in Skyler County has a Gross

Alpha of 123,000 piC/L and Radium 226 16,030 piC/L; the Calabro Well has a Gross Alpha of 18,330 and Radium 226 of 13, 510 piC/L. Using the mathematical conversion to calculate Radium 226 to Radon222 would have been the tool to determine this incomplete disclosure in the EIS by the DEC. Without making this determination the report is inconclusive and misleading, denying the EIS essential valuable requisites to make full determinations on the safety of the Marcellus Shale gas as would be represented in the unacceptable high levels of Radon 222 transported through the pipelines if the conversion were revealed. Harmful levels of Radon 222 assure proven irrevocable health toxicity that could result in over 30,000 needless lung cancer cases in NYC alone. There is no current regulation whatsoever for protection from the decay of Radon 222 before entering transport pipelines destined to NYC's use of Marcellus Shale Gas.

4) All independent testing results, not self policed industry tested results, for Radon 222 must be readily available to the public in a transparent format. Independent testing will be paid by industry and provided to public at no cost.

5) All eleven Con Ed gateway pipelines coming into New York City must have stringent mandatory daily independent monitoring, paid by industry, for levels of Radon 222 and report daily to the DEC and DEP. Levels that exceed safe existing levels determined by the EPA would demand immediate decisive attention. Hazardous gas would cease to be permitted to continue thru the line. The recommended EPA exposure of Radon 222 is 0 piC/L. A reading of up to 4 piC/L approaches hazardous levels. Certainly keeping the level close to zero is preferable.

6) Con Edison's installation of auto shut off valves should be mandatory to proceed to shut down the distribution line(s) if levels approaching-4-

hazardous levels of Radon 222 were determined to enter NYC distribution lines. A backup automatic shutoff system would be provided in the event of electrical failure or Stuxnet malware or similar malware intrusion.

7) There will be a regularly scheduled daily oversight regarding vigilant inspection of pipe leakage for methane at Con Edison gateway connections as well as the Spectra and Transco Pipelines and any other pipeline connection coming into New York City. At the present time there is no mandatory oversight whatsoever that tracks methane and radiation of any kind and this oversight dismisses the certain reality of a very real level of radiation that the highly organic Marcellus Shale is defined by. Daily hourly oversight is essential in controlling the continuous high pressure high volume of gas from a multiple of wells transported to end users in the Northeast, without which inescapable toxic Radon 222 mixed amongst many sources in the Marcellus Shale, will travel unchecked into countless kitchens, boilers, appliances in homes, hospitals, schools, hotels and restaurants throughout New York.

In conclusion, the City of New York must set a standard for a maximum allowable level of Radon transported from the newest resource, the Marcellus Shale, to be delivered to homes and businesses. There must be a consistent independent monitoring system, paid by industry, that oversees daily reports to the DEP and Con Edison. Accountability is essential and crucial oversight is the formula to that goal. All efforts to remediate within a set short period of time after the incident is discovered and/or a full shut down of the delivered toxic level of Radon infused gas altogether to protect a vulnerable public are key to this proven critical hazard that confronts New York City at this time.

Mav Moorhead

NY H2O

917.923.2118

sane energy project

CLARE DONOHUE
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June 18, 2014

City Council Hearing
Oversight: Assessing the Economic Impact of New York's Failing Infrastructure Hearing I: Gas, Steam and Water

Committee on Economic Development
Jointly with the Committee on Consumer Affairs and Committee on Environmental Protection
Council Chambers, City Hall, New York, NY

Comments on Gas Infrastructure

1) Gas Pipelines in NYC are primarily used to service kitchen gas and boilers. They are a hazard and better options exist:

A) Existing and proposed pipelines are a hazard to city residents. Hazards cost the city money, plain and simple.

- While explosions have been infrequent in NYC, the Harlem explosion, and San Bruno, CA explosion demonstrate the risks when infrastructure is placed in a densely populated area.
- The gas itself is a risk because it is likely to contain increasing proportions of Marcellus shale gas, with the inherent public health risks of lung cancer from radon exposure.
- The fracking used to extract the gas is also a risk to city residents, due to:
  - obvious risks to our direct water supply and obvious risks to the hydrological cycle from extreme usage.
  - air emissions, which travel in a radius of up to 200 miles from well pads and support infrastructure.
  - climate effects and sea level rise caused by the life cycle releases of methane, a GHG 105 times more powerful than coal. Gas is a suicidal choice for an island city.
  - risks to the City's foodshed from infrastructure being sited in our upstate and local agricultural areas.
- The infrastructure being planned to support fracking and the transport of gas to markets is unwanted, dangerous, excessive beyond reason, and will greatly contribute to climate change, sea level rise, all the pollutions noted above. At this time, we have identified at least 30 separate proposed infrastructure projects slated for NYS (pipelines, compressor stations, processing facilities, storage caverns, and more). This infrastructure will serve to industrialize pristine farmland, woodland and wetlands.

B) Better options exist for residential cooking and heating. The alternatives are also better options for air quality and less expensive to install.

Boiler conversions are frequently used as the excuse for additional and replacement pipelines and for the "shortage" of gas supply. It's an invented shortage. In 2010, the NY State Department of Energy released a chart showing predicted demand for gas in NYC as flat through 2020. In 2011, the heating law changed to discontinue use of heavy fuel oils. But *there was no mandate* for gas conversions.

Then-Mayor Bloomberg and the utilities incentivized gas conversions and created a panicked rush for gas, when better, safer, cheaper options without the need for pipeline construction would have led to lower asthmas rates:

- A program of Biodiesel (or #2 oil, or blended oils) is a better, safer, cleaner option for boilers than gas. Biodiesel is non-explosive, non-toxic, produces nearly zero emissions and particulate matter. It is delivered in trucks that run on Biodiesel, by local (Bronx and NJ) suppliers who create local jobs. Converting to BioD costs a fraction (about $10,000) of the price to convert to gas (hundreds of thousands of dollars).
  Combining biodiesel with solar thermal to heat hot water, plus efficiency measures that could save 30-80% of any fuel used, is a much more preferable option than throwing good money after bad building additional or replacement gas infrastructure.
- The cheapest fuel is fuel never used, yet incentives encourage the build out of additional shale gas infrastructure. One maddening example: NYSERDA only subsidizes the replacement of radiator valves with temperature-controlled valves when a building commits to firm gas. The money being considered for replacing old gas lines would be better spent *giving away* replacement valves to every building in the city.
- In an electric city run by renewable sources, induction cooking is a super-efficient cooking option.
- There is the possibility of biogas to replace kitchen gas, solving problems of waste disposal and fracking at once. (In the 40 years pipeline replacement would take, this change could happen!)

2) Negative economic impacts to rent-regulated tenants, ratepayers, taxpayers created by the build out of gas infrastructure:

A) Negative financial impacts to rent-regulated tenants

- When a landlord converts a boiler to gas it is considered a Major Capitol Improvement (MCI) which they then pass on to rent-regulated tenants. These conversions cost hundreds of thousands of dollars. In a building where there are rent stabilized *and* market rate apartments, ONLY the stabilized tenants will be charged. These costs lead to tenant displacement, particularly in low-income neighborhoods. Tenants do not share in the supposed fuel costs savings.

B) Negative financial and safety impacts to ratepayers:

- Ratepayers will cover the costs not only of the construction of new pipelines (in this case projected at $10 billion), but the cleanup and restoration costs when accidents happen.

  Take the 2010 San Bruno explosion as a case study:

  A confidential 2012 report commissioned by state utility regulators found PG&E's parent corporation could absorb $2.55 billion in penalties tied to the explosion, yet remain financially viable. PG&E's proposed "safety improvement plan" carried a $2.2 billion price tag, and they requested nearly $770 million in rate increases through 2014 to cover the plan's initial costs. Judges ruled that customers should shell out $277 million for the safety plan instead, a lesser but still substantial cost.

  The company estimated that roughly 400 plaintiffs from the blast, including two teenagers with third-degree burns that would leave permanent scarring, would end up costing $455 million. The total cost related to San Bruno will likely top $1 billion, including money the company has spent on repairs stemming from the blast, paid to victims and PG&E's estimate of a $200 million fine from regulators.

  Meanwhile, PG&E ran a $10 million advertising campaign featuring CEO Tony Earley, pleading that the company had "lost its way" before the disaster, and saying they will improve safety.

  However, since the explosion, PG&E has flexed its political clout in the Legislature to defeat or water down several safety bills.

C) Negative financial and safety impacts to taxpayers:

- Taxpayers will cover the costs of subsidies and tax loopholes that fossil fuel companies enjoy, such as MLPs. Please see attached article.

- Taxpayers will suffer when an accident happens due to loss of income, accessibility, real property, and previously invested public monies. Take the Spectra pipeline for example:
  Should it explode in the west village, it has the potential to create a twin towers-like dead zone for weeks or months afterwards, damaging what is an economically vibrant retail, gallery, restaurant, hotel and tourist district. It could destroy the new Whitney museum (which is built on top of it) and all its irreplaceable art; not to mention those visiting at the time, or on the adjacent High Line park. Should the pipe explode closer to the Hudson River, it could potentially take out the parkland that is due to be built (at great cost) on top of the Sanitation Pier, or the new multimillion dollar marine fire station there. If it explodes in the West Side Highway, it would have obvious impact on the drivers in the immediate vicinity, and ongoing economic impacts from ongoing road closures. It's also very likely it would take out the newly constructed (at great cost using taxpayer dollars) water mains that were installed running along the highway.

  These sorts of scenarios are repeated with the Rockaway pipeline and various other projects.

3) Renewable infrastructure is superior to gas infrastructure because it is safer, cheaper, more sustainable. THE FUEL COST NOTHING and DOESN'T RUN OUT—Long term there is no substitute.

A) Please examine the plan attached for the Mark Jacobson "Solutions Project" plan for NYS, which shows how much more efficient renewable energy is (more than 36% more efficient) therefore creating a better option for economic growth than fossil fuels, and also the costs savings and jobs creation provided by a switch to renewable energy.

B) Sun, Wind and Water provide unending fuel sources. In contrast, shale gas is predicted to run out by 2020. See attachments.

For the cost, and in the time frame that is being considered to replace old, dangerous gas pipelines with new dangerous gas pipelines, we could be running fully on renewables by 2050. That is what Sane Energy Project would support. Please see attached draft resolution to replace all fossil fuel infrastructure with renewable infrastructure at the end of its usable life.

Fracking

Fracking is a NYC problem, too.
New York City energy policies have a direct effect on fracking, a devastating method of gas extraction, developed by Halliburton. It involves drilling deep into the earth and using explosives, millions of gallons of water, silica, and toxic chemicals to break apart a hard shale layer, creating fissures that release the gas.

Fracking pollutes.
Fracking has been linked to aquifer contamination, air pollution, earthquakes, and health impacts to humans and animals, as well as risks to our food shed. These toxic air emissions can travel in a radius of up to 200 miles and underground plumes have spread as far as 28 miles.

There's no "good" gas anymore.
In the old days, "conventional" gas was obtained as a by-product of oil extraction or by simple vertical wells. That type of gas is running out, and at this point, nearly all gas is obtained by fracking.

Shale gas is a bubble.
With prices so low, highly leveraged drillers are hard-pressed to make a profit from gas. Instead, they are bundling and reselling leases in the same way the mortgage crisis originated, leading energy experts to label it a "Ponzi Scheme" and "a gold rush."

It's not worth it.
For all the expense, environmental and community degradation involved, the gas supply will be short-lived. Revised estimates lower recoverable reserves by 80%. Some analysts predict the available supply is as little as seven to eleven years worth.

"Fossil fuel is so 20th Century."

"New York can and should lead on renewables. That's real vision. Fracking is a waiting disaster."

NYC Assemblywoman Deborah Glick (above) said it best. We are already *past* peak oil; we are *beyond* coal; the age of gas is *OVER*. It's just plain self-destructive to continue thinking we can get away with any further damage to our climate. We're already past 400ppm, when 350 is where we need to be. We're headed for a train wreck if we don't put the brakes on, *fast*.

Wind, Water and Solar, NOW.

Renewable energy is no pipe dream. It can happen by 2030.
According to the peer-reviewed 2010 Stanford University study, by using technologies already available, the world can run on renewable power by 2030. Let's NOT shackle ourselves to polluting methane. Let's choose sustainable energy and conservation, instead of dangerous pipelines and an industrialized upstate.

How you can help? Get involved:
SaneEnergyProject.org
Sign up for our action alerts and newsletter.
Email us at: contact@saneenergyproject.org

Connect the Dots:

- **Fracking**
- **Pipelines**
- **Boilers**
- **Radon**

What's New York's energy future?

Pipelines

Pipelines encourage fracking.
Current NYC policies seek to convert our buses, boilers and power plants to methane, and to supply all this extra gas via massive and dangerous pipelines. These will carry fracked and radioactive Marcellus shale gas, encouraging further production in gas fields upwind and upstream from the metro area, with ruinous impact on air and water quality in both rural and urban locales.

Pipelines are unsafe.
Pipeline accidents occur, on average, once a week, and kill or injure someone about every third week. The former chairman of the NTSB says, "All of these underground pipelines are potential bombs."

They will encircle New York.
The Spectra Pipeline is planned to run into the West Village, the Rockaway Lateral is planned to run under Jamaica Bay and South Brooklyn, and the Constitution pipeline will bisect upstate. These are only the first of many proposed pipelines that will surround and crisscross New York State.

Regulations are inadequate.
- Only 7% of pipelines are subject to mandatory inspection. Where mandatory, it is required only once every 7 years.
- PHMSA has only 88 auditors to oversee nearly 2.5 million miles of pipeline.
- When a pipeline corrodes, rather than replacing the damaged section, the pressure is simply lowered, or "de-rated."
- Inspectors labeled the 2010 San Bruno explosion "a failure of the entire system" of maintenance, inspection and response.

Boilers

Gas is NOT clean.
New heating oil rules incentivize converting residential boilers to gas, touting it as "clean burning." Respected studies refute this claim, noting that methane is a greenhouse gas 21 times more powerful than CO2, and, when the entire lifecycle of extraction is accounted for, has a GHG footprint equal to or greater than even coal or oil.

Gas is NOT cheap.
The current low price of gas is unlikely to last and fails to reflect the true cost of extraction and transport. Drillers are heavily subsidized by taxpayers and externalize long-term environmental and health costs onto the public.

Gas is NOT a good bet.
Gas currently sells overseas for 8 times the domestic price. Pipeline networks will soon connect with planned export facilities and enable drillers to seek the highest global bidder, creating financial hardship for facilities that have converted to gas.

Gas is NOT the solution.
Better and cheaper alternatives to heavy heating oil exist: Switching to number 2 oil, biodiesel, or bioD blends can cost less than $10,000; while gas conversions can run into the hundreds of thousands. Simple, job-creating changes such as insulation and retrofits foster efficiency that reduce fuel use and emissions. Solar thermal can heat hot water, taking the burden off boilers—especially during summer months.

Radon

All gas contains Radon.
Radon is released deep underground at the drill site and travels with the gas to our kitchen stoves and laundry equipment. Like asbestos, even minute quantities of inhaled radon are dangerous; in fact, it is the leading cause of lung cancer in non-smokers.

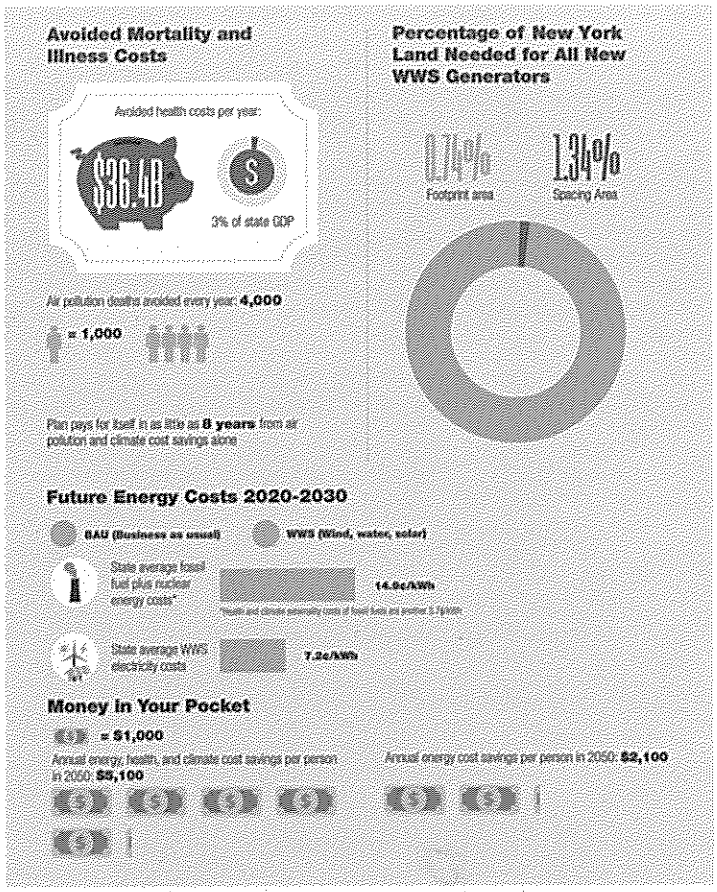
Marcellus gas has more radon.
Shale in the nearby Marcellus is up to 70 times more radioactive than current supplies from faraway Texas and Canada. The radon levels in Marcellus gas are higher to begin with, and there's less time for radioactive decay in transit.

NYC kitchens increase the risk.
Given the typically small and often poorly ventilated NYC kitchen, higher radon levels could result in additional cancers, by some estimates up to 30,000 more deaths. Few city stoves have hoods that vent to the outside. Additionally, poorer residents may tend to have older appliances, with pilot lights—increasing the cumulative effect. During winter, windows tend to be closed and more cooking gets done, increasing exposure. Restaurant workers may be particularly at risk.

The risk is worse for children.
Radon, which decays into polonium, radioactive lead, and finally, lead, is a heavy gas, meaning it "sinks" to the floor or lowest available level, increasing exposure for children and pets.

Radon creates "hot" pipes.
As radon decays in transit, it "plates out" along the walls of pipelines, creating radioactive pipes and disposal problems.

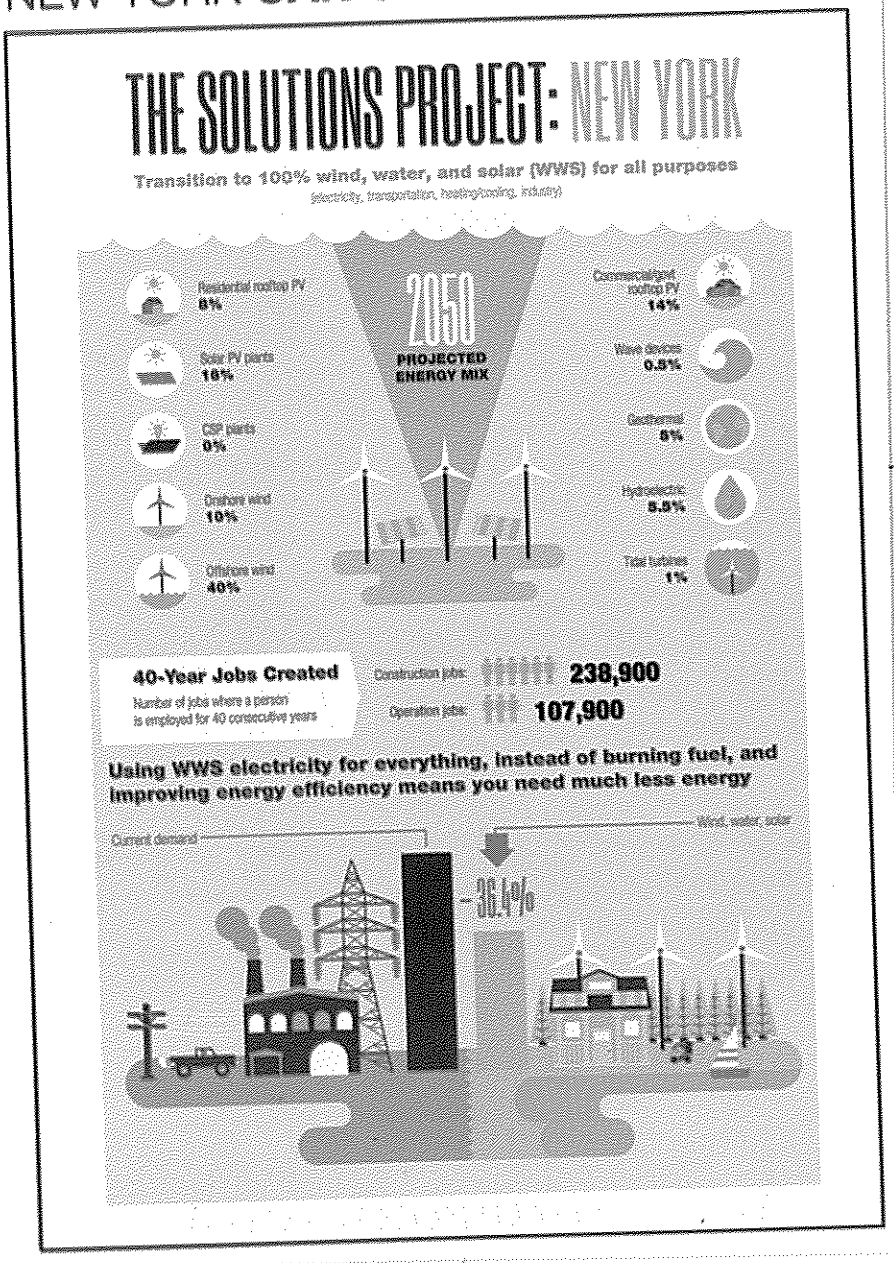
RENEWABLE ENERGY COSTS **LESS**



The Solutions Project is based on studies by Professor Mark Jacobson, of Stanford University, that show how every state in America can become 100% renewable.
Sane Energy Project advocates for a fully renewable New York by 2050. For more information:

www.thesolutionsproject.org www.saneenergyproject.org

NEW YORK **CAN** GO 100% RENEWABLE



THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. X Res. No. _____

☐ in favor ☐ in opposition

Date: 06/18/2014

(PLEASE PRINT)

Name: Tianna Ren

Address: 229 W 28th St, NY, NY 10001

I represent: The Epoch Times

Address:

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 06/18/14

(PLEASE PRINT)

Name: Johnnie Stevens

Address: 341 W 118th Place

I represent: New Yorkers Solidr. 4 East Harlem

Address:

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Eileen Gonzalez

Address: 1734 Madison Ave # 5A

I represent: East Harlem Solidarity

Address: I'm a resident & Taft Hous

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/14

(PLEASE PRINT)

Name: James Garin / Joseph Murin

Address: _____

I represent: DEP, Bureau of Water & Sewer Operations

Address: _____

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THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: JESSICA ROFF

Address: 595 President St Bklyn

I represent: self + Occupy the Pipelines

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Adam Forman

Address: 560 Prospect Pl Brooklyn 11238

I represent: Center for an Urban Future

Address: 120 Wall St NYC 10005

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THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: June 18, 2014

(PLEASE PRINT)

Name: REBECCA SMITH

Address: 138 Watts Street New York N.Y. 10013

I represent: Damascus Citizens for Sustainability

Address: Narrowsburg NY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Ruth Hurwitz

Address: 20 Maple St. Fl 2 New York NY 10013

I represent: Damascus Citizens for Sustainability

Address: Narrowsburg, NY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/14

(PLEASE PRINT)

Name: CLARE DONOVAN

Address: 2 SANE ENERGY PROJECT

I represent: NI NY

Address: 529 COLUMBUS AVE #512

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. 1

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: BOB ACKLEY

Address: 16 SPOOK LANE SOUTHOLD NY

I represent: GA: SAFETY INC

Address: 16 SPOOK LANE SOUTHOLD NY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: JAMES ROBERTS DEP COMM

Address: NYCDEP / BWSO

I represent: _____

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: MAV MOORHEAD

Address: POB 195

I represent: NYHTO

Address: 361 Bdwy

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: BUCK MOORHEAD

Address: 245 WEST 29TH ST.

I represent: NYH2O

Address: GAS INFRASTRUCTURE

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6.18.14

(PLEASE PRINT)

Name: Denise Katzman

Address: 271 Madison Ave NY, NY 10017

I represent: Enviroltancement

Address: Same as Above

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: JUNE 18, 2014

(PLEASE PRINT)

Name: KEN GALE

Address: 220 E. 85TH ST #5R NYC 10028

I represent: ECO-LOGIC, WBAI-FM

Address: POB 1028 NYC 10028

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/14

(PLEASE PRINT)

Name: LARRY LITTMAN

Address: 341 W 24 ST

I represent: _____

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: John J. Zimmerman

Address: 13508 Maidstone Lane Potomac, MD

I represent: Damascus Citizens for Sustainability

Address: Narrowsburg, NY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Bruce FARINA

Address: 5 W 37

I represent: Local 1-2 UWUA

Address: UTILITY WORKERS

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/2014

(PLEASE PRINT)

Name: BRIAN D'MARINA

Address: _____

I represent: NATIONAL GRID

Address: _____

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: Sara Lupson

Address: ~~[illegible]~~ NY

I represent: Riverkeeper

Address: 20 Secor Road, Ossining, NY

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/14

(PLEASE PRINT)

Name: Ya-Ting Liu

Address: 30 Broad St. 30th NY NY 10004

I represent: New York League of Conservation Voters

Address: _____

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: 6/18/14

(PLEASE PRINT)

Name: Edward Toppano

Address: 4 IRVING Pl NYC 10003

I represent: Con Edison of NY

Address: SAME

Please complete this card and return to the Sergeant-at-Arms

THE COUNCIL
THE CITY OF NEW YORK

Appearance Card

I intend to appear and speak on Int. No. _____ Res. No. _____

☐ in favor ☐ in opposition

Date: _____

(PLEASE PRINT)

Name: [redacted] Milovan Blair

Address: 4 IRVING Pl NYC 10003

I represent: CON EDISON of NYC

Address: SAME

Please complete this card and return to the Sergeant-at-Arms