

**NYC** cleanheat



**PSC Gas Technical Conference**

**January 9, 2013**

# PlaNYC: A Greener Greater New York



## Air Quality

**Achieve the cleanest air of any big U.S. city**



## Energy

Reduce consumption and make our energy systems cleaner and more reliable



## Climate Change

Reduce our greenhouse gas emissions 30% by 2030

# The Need to Eliminate Heavy Oil

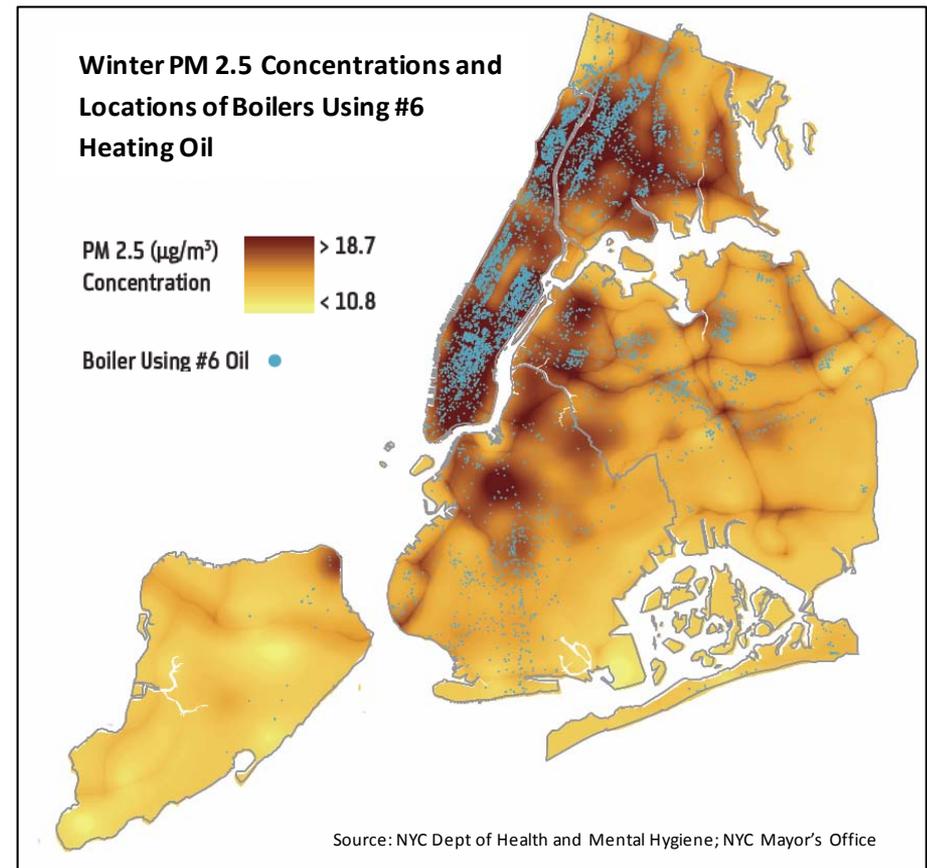
Eliminating No.6 heating oil is one of the highest impact strategies to make NYC's air the cleanest of any major US City

## Annual Health Impacts of PM 2.5

- Over 3,000 deaths
- 8,000 hospital and ER visits for asthma, lung and heart conditions

## No. 6 Oil and PM 2.5

- PM2.5 levels are ~30% higher in neighborhoods with the highest densities of heavy oil use



# Heating Oil Regulations

**City and State Laws eliminating the use of heavy oil and improving fuel standards will save thousands of lives over the next 20 years**

## City Laws

### Heavy oil phase out

- All buildings must switch from No. 6 by 2015
- All buildings must use cleanest fuels when replacing equipment or by 2030 at the latest.

### Clean Fuel Standards

- Created Low Sulfur No. 4 oil (50% cleaner than No. 6)
- All NYC heating oil must include 2% biodiesel (B2)

## State Laws

### Ultra Low Sulfur Mandate

- 99% reduction in sulfur content for No. 2 oil

### Biodiesel Tax Credit



# NYC Clean Heat Program

Mayor Bloomberg and EDF launched NYC Clean Heat to accelerate the uptake of the cleanest fuels and associated health benefits

## Information

- A clearinghouse for building owners, managers, residents, and the general public

## Technical Assistance

- *Conversion Guidance:* ICF International was assists building owners in conversion process.
- *Utility Coordination:* ICF assists buildings in converting to gas and working with utilities

## Financing & Incentives

- \$100 million in financing available from public and private sources
- Special lending programs for low and moderate income buildings

**NYC cleanheat**

**About Clean Heat**

**Resources**

- How to Convert!
- Regulations
- Steps to Conversion
- Clean Fuel Options
  - Natural Gas
  - No. 2 Oil & Biodiesel
  - Steam
- Energy Efficiency
- Permitting Process
- Case Studies
- Commit to Convert

**Contact**

- SPOT the SOOT Interactive Map
- planNYC
- NYC 311 Ask for Clean Heat!

**Permitting Process**

The New York City Department of Buildings (DOB) and Department of Environmental Protection (DEP) have a permitting process that buildings must adhere to when permitting existing heating equipment or installing new equipment. The City has streamlined the permitting process to make it simpler for buildings to convert to the cleanest fuels, while ensuring the safety of its citizens.

Below is an overview of the current permitting process, followed by links to all required applications.

**Oil to Oil conversion**

If a boiler or burner rapid conversion:

- Buildings must submit changes they must
- The final step of the setting up a Boiler converting from #6 certify by submitte

If a boiler or burner rapid conversion:

- All buildings current through DEP and AI natural gas or an or
- Once installation of complete an Inspe receive a "Certificate"

**Oil to Gas Conversion**

- If a boiler or burner the AR255 with LIT
- If a boiler or burner the APC S-0 with if complete, the appli with DEP in order to

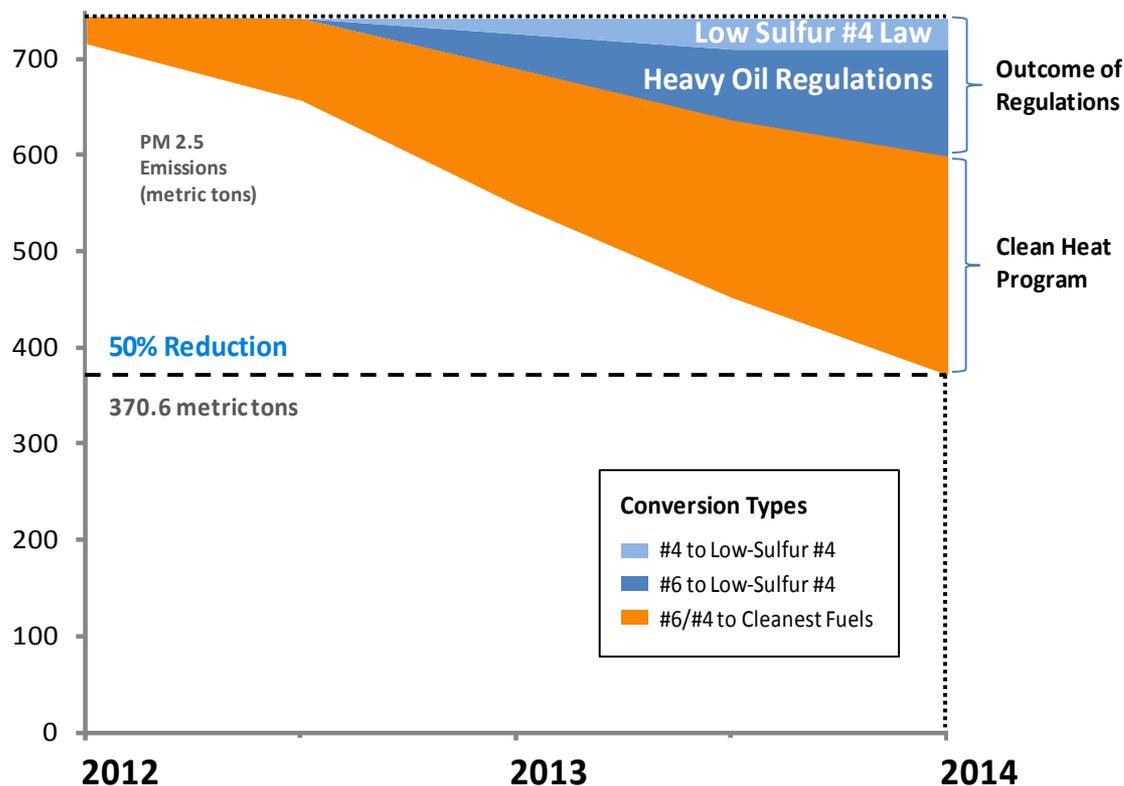
**Legend**

- # 6 Oil
- # 4 Oil
- Conversion to #2 Oil
- Conversion to Natural Gas
- Conversion to Steam

# Clean Heat Goal and Benefits

**GOAL: Reduce PM 2.5 emissions from heavy heating oil use by 50% by the end of 2013**

## PM 2.5 Emissions Targets



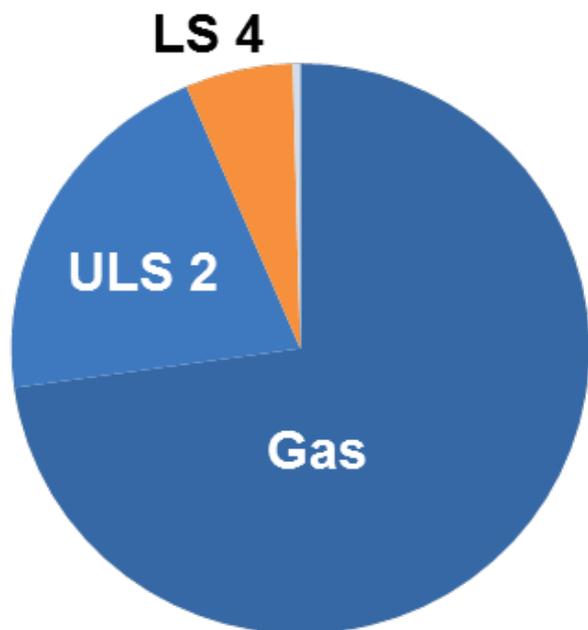
## Benefits of Achieving Goal

| Annual Health Benefits   |                      |
|--------------------------|----------------------|
| Lives Saved              | <b>120</b>           |
| Avoided ER Visits        | <b>200</b>           |
| Avoided Hospitalizations | <b>77</b>            |
| Economic Benefits        |                      |
| # of Jobs Created        | <b>1,744</b>         |
| Construction Spending    | <b>\$304 Million</b> |

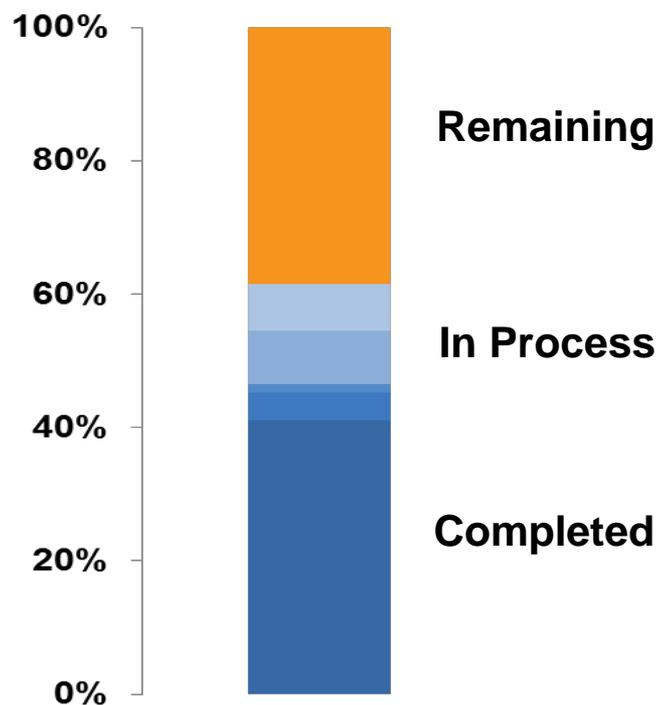
# Outcomes to Date

Over 1,300 conversions were completed since program start, which has eliminated 154 metric tons of PM 2.5, or 40% of program goal

Completed Conversions by Fuel Type



Progress to PM 2.5 Reduction Goal



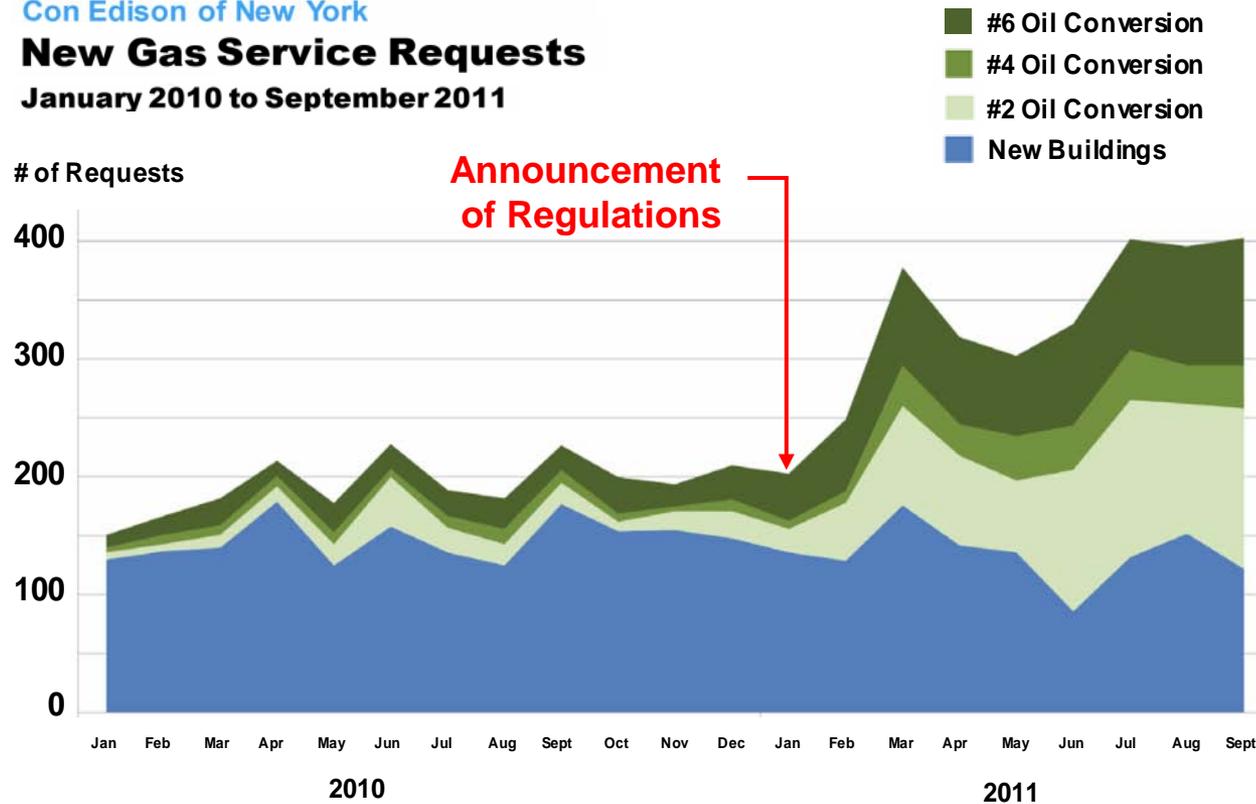
# Demand for Natural Gas

Requests for natural gas service to Con Edison increased five-fold after the City released its regulations phasing out No. 6 oil

Con Edison of New York

## New Gas Service Requests

January 2010 to September 2011

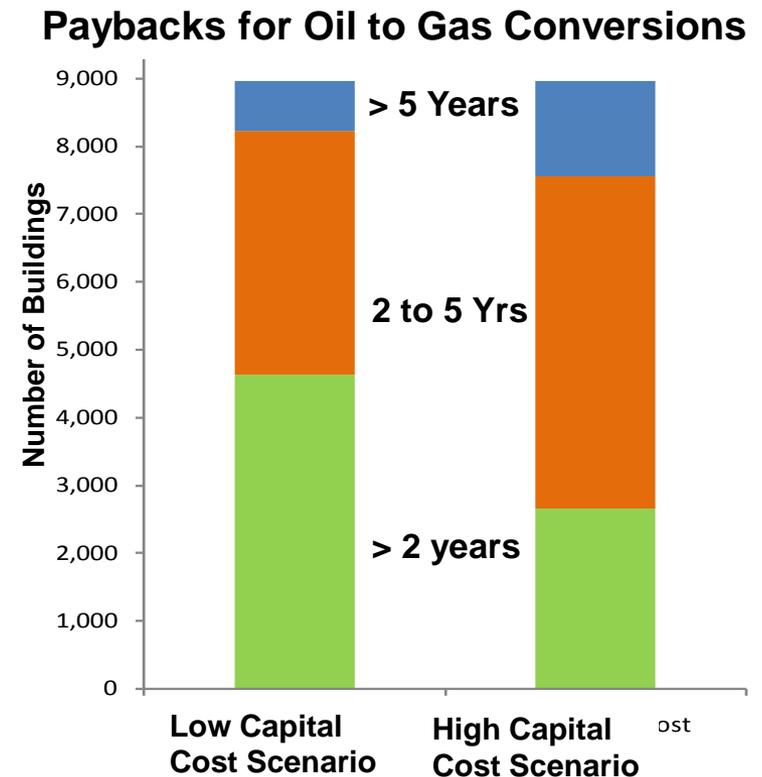


Source: Con Edison, with NYC Mayor's Office annotation in red.

# Economics of Oil to Gas Conversions

Conversions from No. 6 oil to natural gas can achieve a rapid financial payback, especially when paired with energy efficiency

| Typical No. 6 oil to Gas Conversion |                              |
|-------------------------------------|------------------------------|
| Capital Cost                        | \$210,000 to \$395,000       |
| Annual Fuel Costs                   | \$106,000/year savings       |
| 5 Year Savings                      | 150,000 to \$320,000 savings |
| Payback                             | 2.0 years to 3.6 years       |



\* Source: ICF International; Building-side conversion costs only; assumes zero connection costs

# Clean Heat Financing

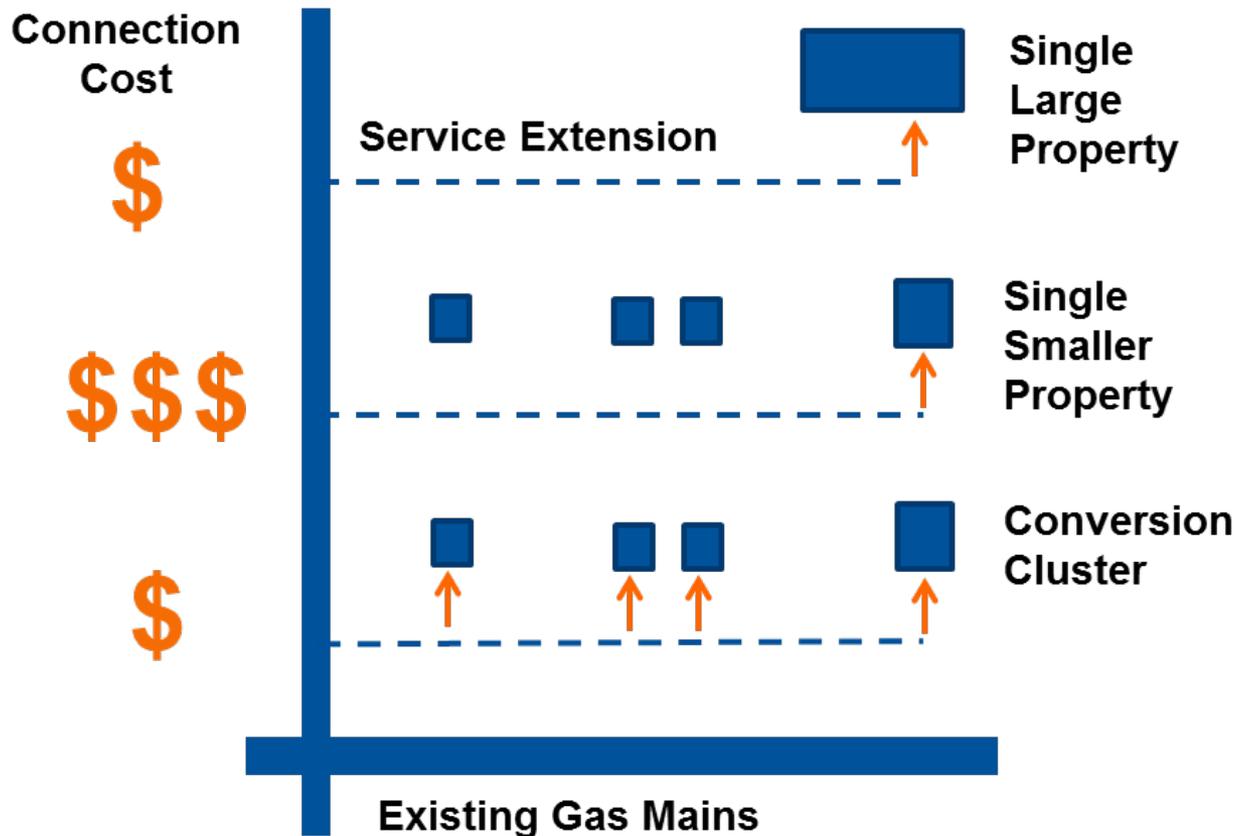
## Last June, Mayor Bloomberg announced \$100 million in financing to help city buildings convert to the Cleanest Fuels

- The City is working with the NYC Energy Efficiency Corporation (NYCEEC) to create a loan loss reserve fund to encourage lending to low and moderate income buildings
- Private financial institutions have committed \$90M in private lending for such projects
- NYC Housing Development Corporation will offer \$18M for mixed-income buildings in their portfolio
- Financing mechanisms include:
  - Existing Resources
  - Mortgage lenders
  - Equipment Lenders
  - Energy Service Agreements
- More information available on Financing page of [nyc.gov/cleanheat](http://nyc.gov/cleanheat)



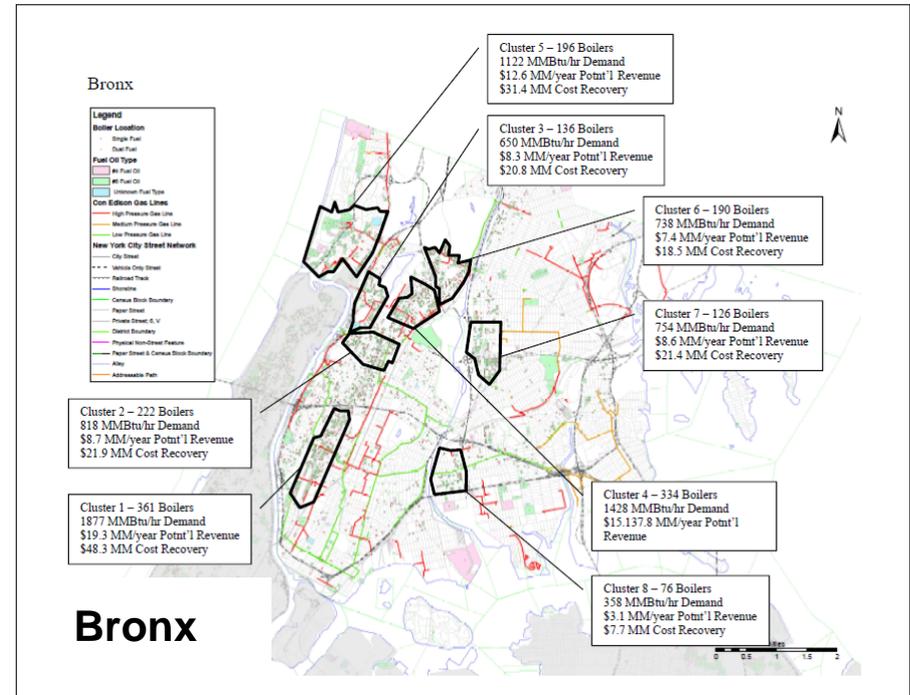
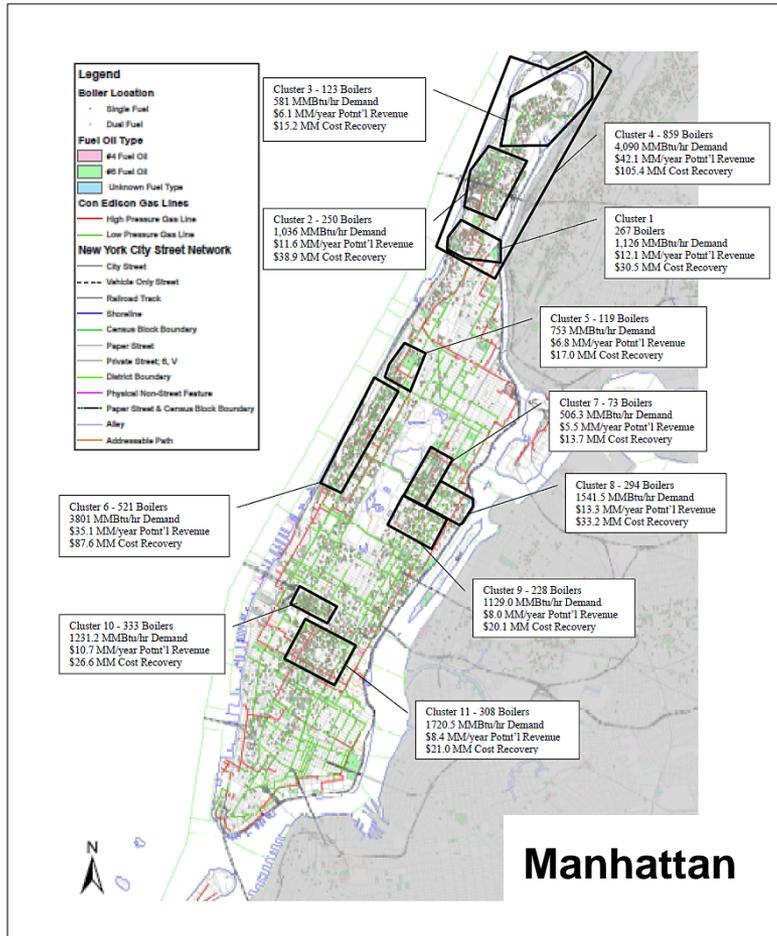
# Gas Distribution Upgrades – Clustering

Major reinforcement is needed to accommodate new demand but individual buildings cannot typically bear the cost



# Cluster Analysis

The City worked with ICF International to assess neighborhoods where buildings could be “clustered” to achieve economies of scale



# Gas Distribution Upgrades – Area Growth

Strategic investments in regulator stations and HP mains can reinforce distribution infrastructure on a neighborhood-wide basis



**Area to be served by new regulator station in the Carnegie Hill neighborhood of Manhattan**

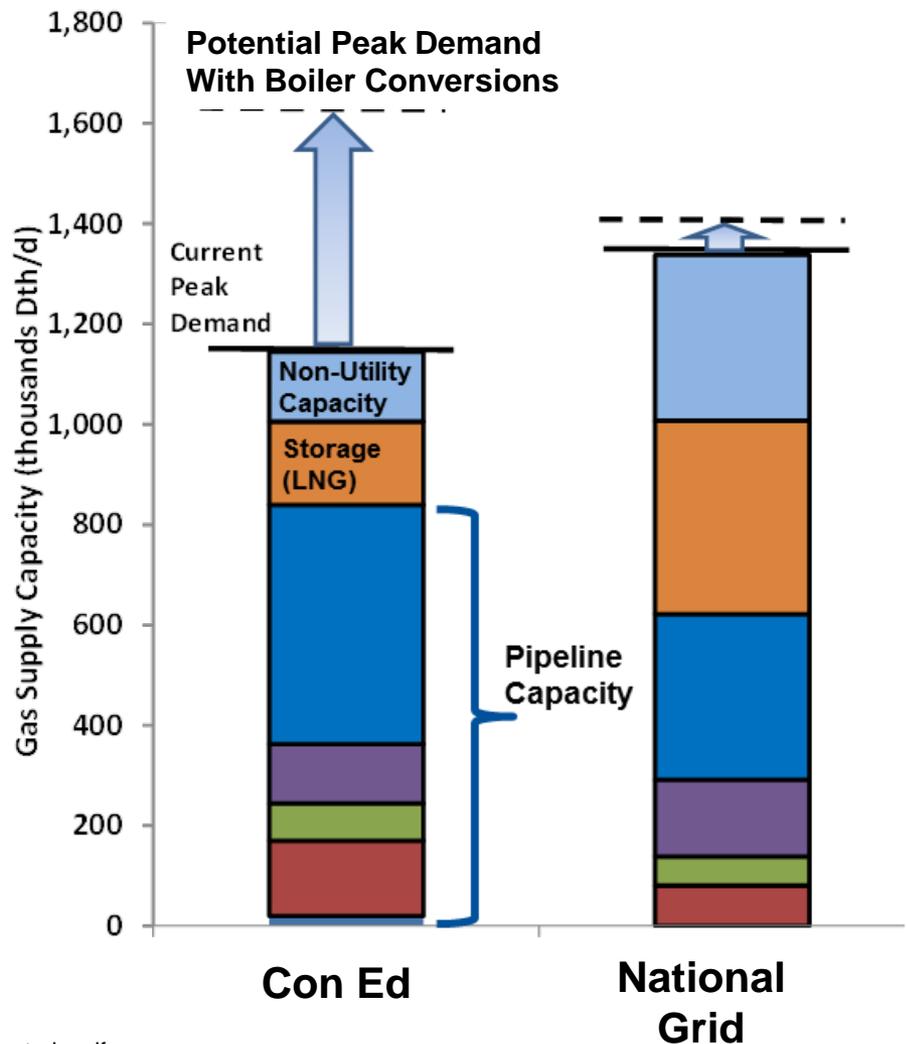
- City is working with Con Ed, National Grid and building owners to facilitate area-wide gas upgrades
- Regulator stations installed in several dense Bronx & Manhattan neighborhoods will allow buildings to connect for no cost
- Additional flexibility is needed for utilities to undertake capital investments at this scale elsewhere

# Natural Gas Supply in NYC

## Additional gas supply is needed to accommodate new demand

- Peak gas demand already exceeds utility pipeline capacity into NYC
- Converting all No. 6 fuel boilers to gas would increase peak demand in Con Ed territory by 58%
- Heavy Fuel oil conversion will require additional pipeline capacity into NYC

| Utility       | Potential Increase in Peak Demand (%) |
|---------------|---------------------------------------|
| Con Edison    | 58%                                   |
| National Grid | 6%                                    |
| Citywide      | +30%                                  |

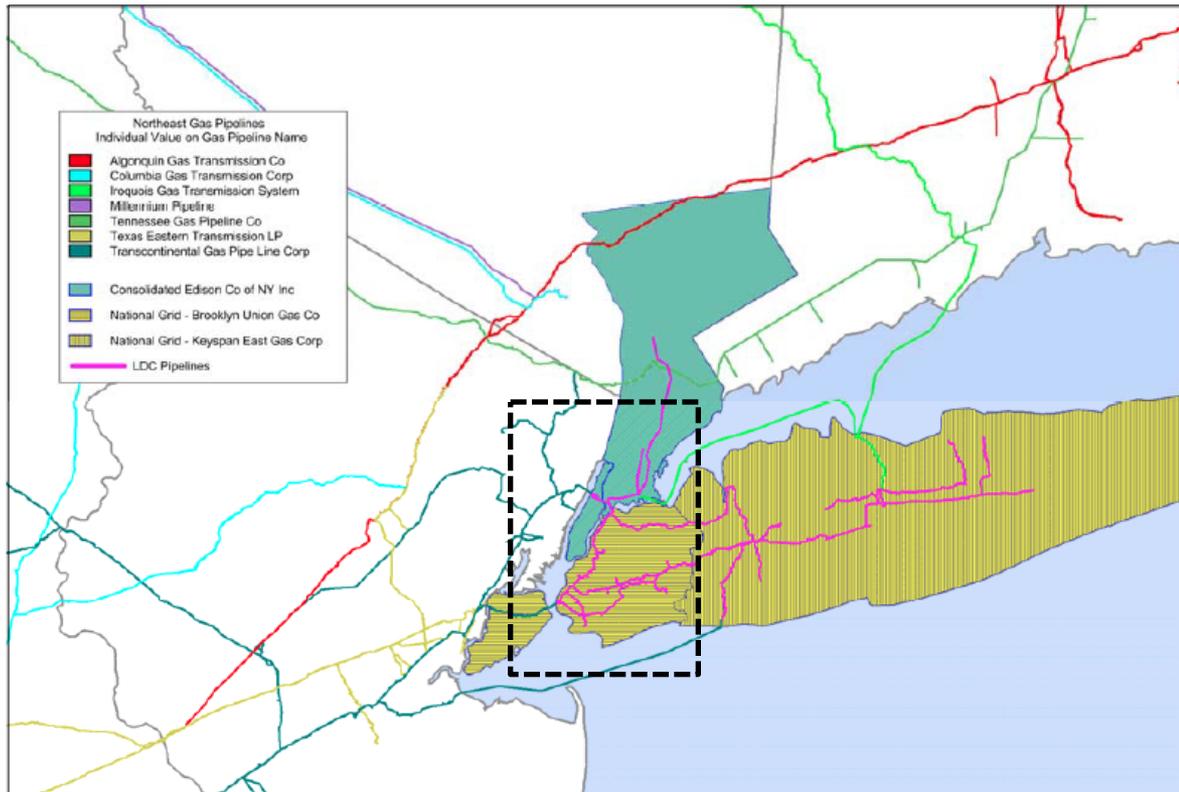


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# Existing Natural Gas Transmission

New York City has not received a new major direct interstate gas transmission line in over 40 years

## Schematic of Pipelines In and Around New York City

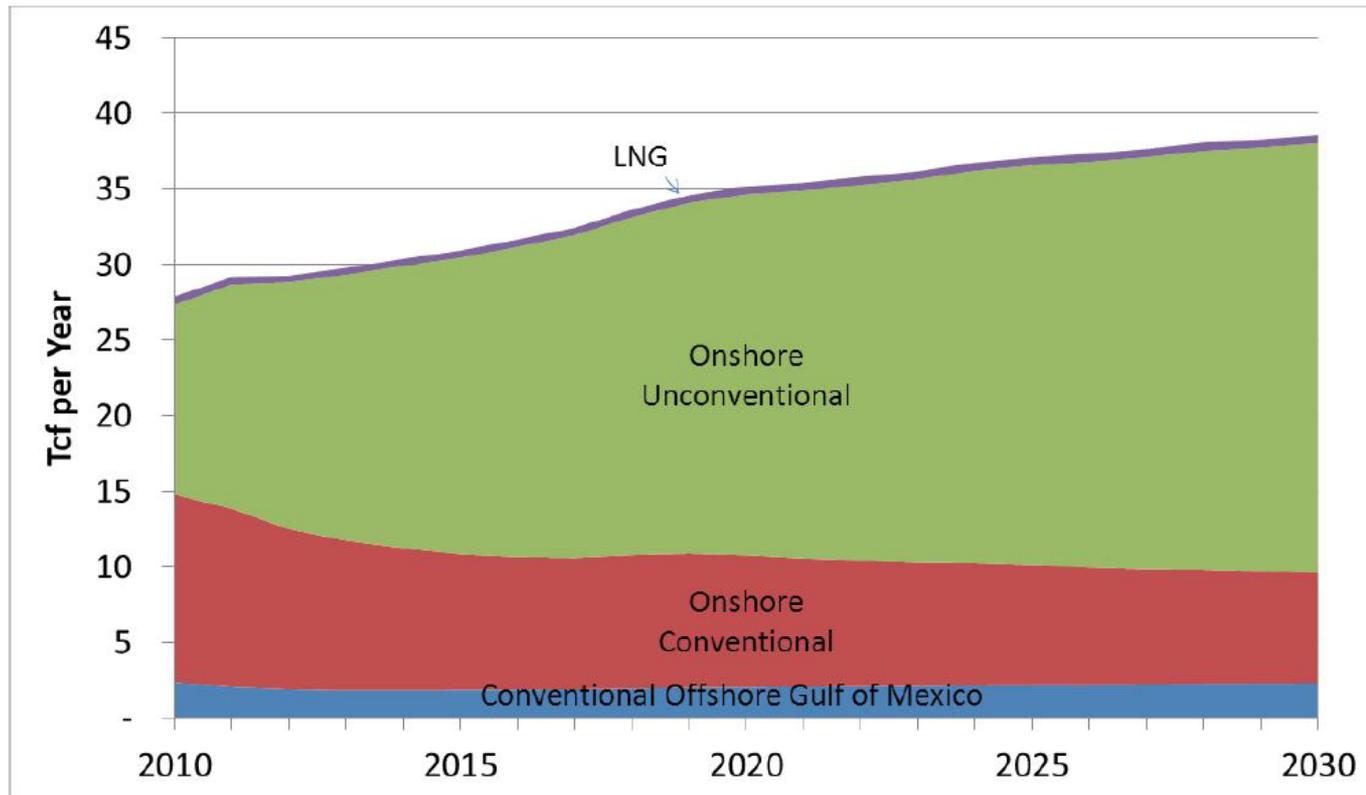


**Source:** ICF and Ventyx. This schematic approximates the service territories of the LDCs. ConEd, for example, serves some wards in Queens and NGrid-LI serves the Rockaways and Queens.

# Natural Gas Supply Fundamentals

Gas development and pipeline expansion has expanded available supply and reduced prices in the Northeast Region

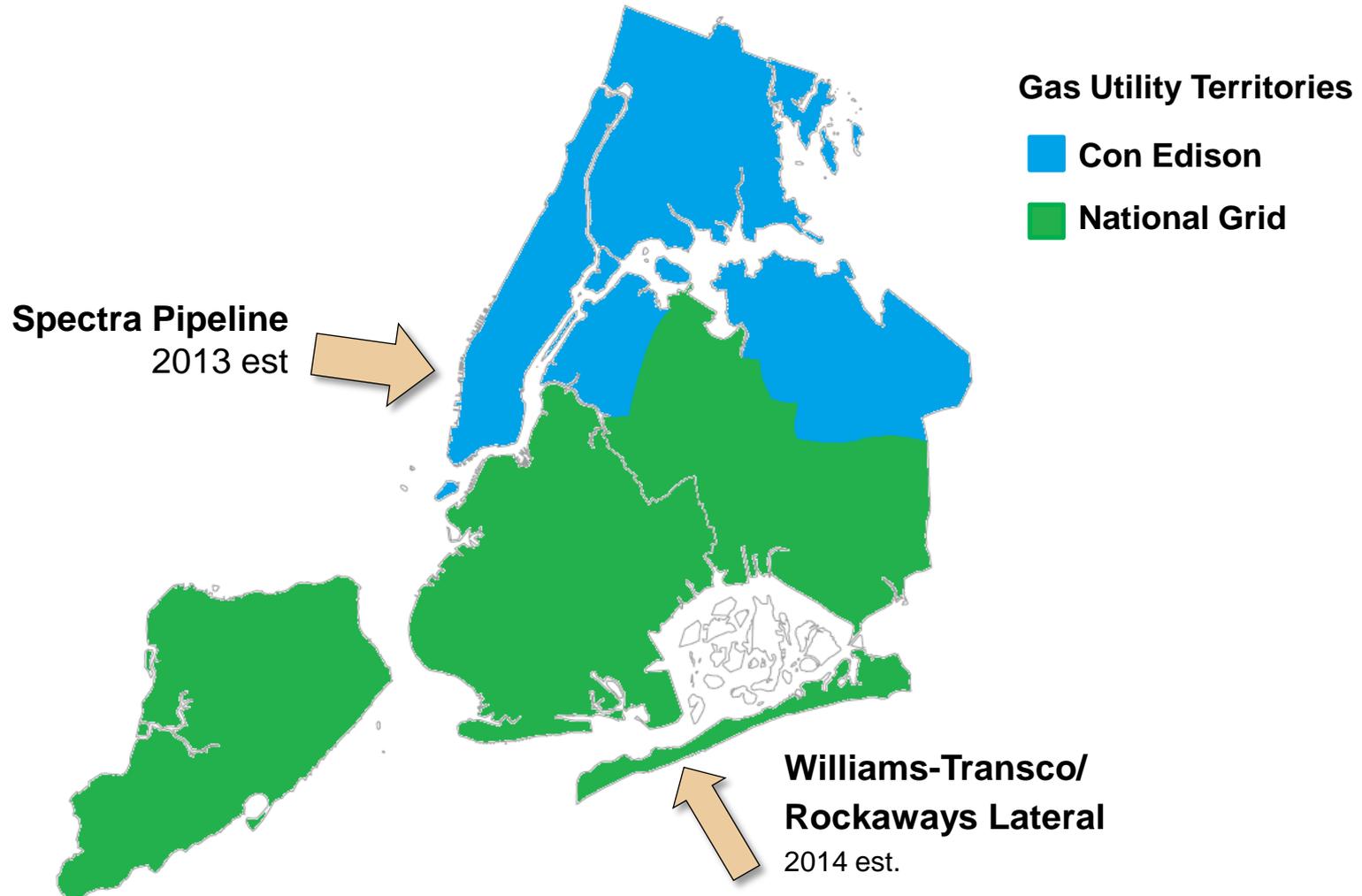
Projected U.S. and Canadian Gas Supplies



Source: ICF GMM® April 2012.

# New Transmission Projects

The City is supportive of the Spectra and Williams-Transco Rockaway Lateral Pipeline projects. Completion expected by 2014



# Conclusion

- ❖ **Public Health:** Eliminating heavy oil and achieving the NYC Clean Heat goal of reducing PM 2.5 Pollution by 50% by 2014 will save 120 lives and prevent hundreds of hospital visits each year
- ❖ **Conversion Economics:** Significant demand exists for converting to natural gas and buildings can achieve a rapid payback. The City has motivated private lenders and facilitated financing for low and moderate income buildings
- ❖ **Supply:** Gas conversions will significantly increase peak gas demand but new pipeline capacity into the city will meet demand.
- ❖ **System Reinforcements:** Major reinforcement is needed to accommodate new demand but individual buildings cannot typically bear the cost.
- ❖ **Positive Economics for Reinforcement:** Utility flexibility is needed.