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

Source: NYC Dept of Health and Mental Hygiene; NYC Mayor’s Office
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
GOAL: Reduce PM 2.5 emissions from heavy heating oil use by 50% by the end of 2013

**Clean Heat Goal and Benefits**

**PM 2.5 Emissions Targets**

- **Low Sulfur #4 Law**
- **Heavy Oil Regulations**
- **Clean Heat Program**

**Benefits of Achieving Goal**

<table>
<thead>
<tr>
<th>Annual Health Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lives Saved</td>
</tr>
<tr>
<td>Avoided ER Visits</td>
</tr>
<tr>
<td>Avoided Hospitalizations</td>
</tr>
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<table>
<thead>
<tr>
<th>Economic Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td># of Jobs Created</td>
</tr>
<tr>
<td>Construction Spending</td>
</tr>
</tbody>
</table>

**Conversion Types**
- #4 to Low-Sulfur #4
- #6 to Low-Sulfur #4
- #6/#4 to Cleanest Fuels
Over 1,300 conversions were completed since program start, which has eliminated 154 metric tons of PM 2.5, or 40% of program 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

# of Requests

Announcement of Regulations

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Costs/Per Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital Cost</td>
<td>$210,000 to $395,000</td>
</tr>
<tr>
<td>Annual Fuel Costs</td>
<td>$106,000/year savings</td>
</tr>
<tr>
<td>5 Year Savings</td>
<td>150,000 to $320,000 savings</td>
</tr>
<tr>
<td>Payback</td>
<td>2.0 years to 3.6 years</td>
</tr>
</tbody>
</table>

**Paybacks for Oil to Gas Conversions**

- Low Capital Cost Scenario: > 2 years
- High Capital Cost Scenario: 2 to 5 Yrs
- > 5 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
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

➢ 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

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

<table>
<thead>
<tr>
<th>Utility</th>
<th>Potential Increase in Peak Demand (%)</th>
</tr>
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<tbody>
<tr>
<td>Con Edison</td>
<td>58%</td>
</tr>
<tr>
<td>National Grid</td>
<td>6%</td>
</tr>
<tr>
<td>Citywide</td>
<td>+30%</td>
</tr>
</tbody>
</table>

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

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.

Source: ICF GMM® April 2012.
The City is supportive of the Spectra and Williams-Transco Rockaway Lateral Pipeline projects. Completion expected by 2014.
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.