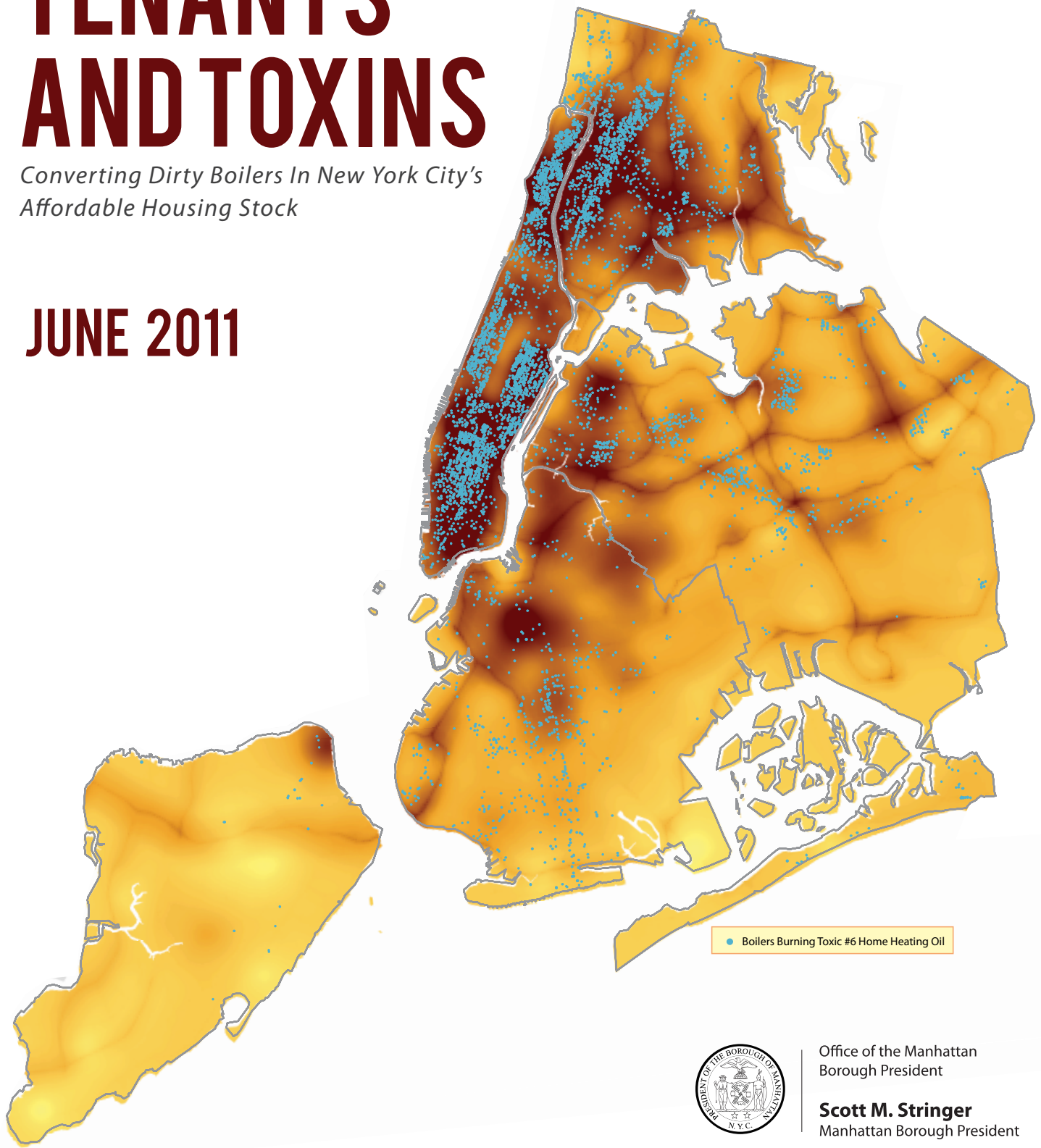


TENANTS AND TOXINS

Converting Dirty Boilers In New York City's Affordable Housing Stock

JUNE 2011



Source: New York City Department of Health/New York City Department of Environmental Protection



Office of the Manhattan
Borough President

Scott M. Stringer
Manhattan Borough President

ABOUT MANHATTAN BOROUGH PRESIDENT SCOTT M. STRINGER

Scott M. Stringer, a native New Yorker, was first sworn in as Manhattan's 26th Borough President in January 2006. During his tenure, Borough President Stringer has led the way in addressing many of Manhattan's most pressing issues, including: increasing community input and response to development and planning projects across the borough; introducing comprehensive reform and empowerment measures to Manhattan's Community Boards; leading the fight to maintain and create new affordable housing units across the borough; empowering parents to better participate in the public school system; investigating and recommending policy action on the city's many transportation issues; and helping working families and small businesses access resources to become and remain self-sufficient. As Borough President, he has also released the following reports:

- * **Red Tape, Green Vegetables:** A Plan to Improve New York City's Regulations for Community-Based Farmers Markets (April 2011)
- * **Columbus Avenue Street Redesign:** Recommendations for Mitigating Unintended Impacts (February 2011)
- * **Your School, Your Voice:** A Virtual Town Hall (January 2011)
- * **Recommendations to the New York City Charter Revision Committee** (May 2010)
- * **Catalogue of Individual Schools Reporting Problems Relating to Physical Facilities in the Borough of Manhattan** (April 2010)
- * **FoodNYC:** A Blueprint for a Sustainable Food System (February 2010)
- * **Falling Apart at the Seams:** A Critical Analysis of New York City's Failure to Enforce its Building Code & A Roadmap to Reform (January 2010)
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- * **Breaking Parole:** An Analysis of The New York State Division of Parole's Caseload Management Guidelines (December 2006)
- * **The State of Repairs:** An Examination of Elevator and Escalator Maintenance and Repairs in New York City's Subway System (August 2006)
- * **Thinking Outside the Box:** An Analysis of Manhattan Gridlock and Spillback Enforcement (July 2006)

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I. EXECUTIVE SUMMARY

Of all the environmental problems facing New York City, few are as pressing – or as detrimental to daily public health – as the burning of #4 and #6 residual heating oil in some 8,900 buildings throughout the city. By one estimate, although these “dirty boilers” represent just 1 percent of the city’s building stock, they account for 86 percent of the city’s heating oil soot pollution. To put this in context, the Environmental Defense Fund estimates that burning #4 and #6 heating oil produces fifty percent more air pollution than all of the cars and trucks in New York City.¹

On April 21, 2011, the New York City Department of Environmental Protection (DEP) unveiled a framework to phase out boilers in New York City buildings that consume #4 and #6 residual oil. Although the plan has drawn praise from some environmental quarters, this report will argue that ***the City’s proposed strategy does not go far enough in providing timely solutions or dig deep enough in analyzing the unique financial challenges that boiler conversions will pose for many buildings – especially those with rent regulated units, a critical source of affordable housing in New York City.***

New data synthesized by the Manhattan Borough President’s Office, based on information published by the Environmental Defense Fund and the New York City Rent Guidelines Board, show that 5,614 of the 8,912 dirty boilers in New York City (63 percent) are located in buildings with one or more units of rent regulated housing. Adding to the challenge, 3,362 of the 5,612 dirty boilers housed in the City’s rent regulated building stock (59.9 percent) burn #6 oil, the dirtiest type of boiler fuel.

Replacing these boilers in a timely fashion will achieve several critical policy goals for tenants and others. First, it will save lives, particularly among those living closest to these boilers – namely, residents in rent regulated buildings. The City has estimated that fine particulate matter air pollution caused by dirty boilers and other sources is responsible for more than 3,000 deaths and approximately 6,000 emergency department visits for asthma in children and adults citywide each year.² Further shoring up the capital infrastructure of rent regulated buildings will help to strengthen and preserve this vital segment of the city’s affordable housing stock, while also drastically reducing air pollution in the city.

Rent regulated housing units face limitations on the legal rent in order to maintain affordability and ensure that tenants receive basic protections. However, one of the trade-offs of rent-regulation is that the net operating incomes in these buildings can make costly capital improvements, such as boiler conversions, all but prohibitive.

It is clear that without a boiler conversion plan that fully recognizes the financial limitations within which rent regulated buildings operate, owners of these buildings may well seek allowable “hardship” waivers to delay phase-outs beyond the current deadlines of 2015 for #6 boilers, and 2030 for #4 boilers. The result: Tenants and their neighbors will face untold years of additional point-source exposure to toxic emissions.

Additionally, based on a statistically significant random sample of the City owned building stock, it is projected that nearly half of City owned buildings do not disclose their boiler status on the Department of Buildings (DOB) website. This must change. Without this data, elected officials and members of the public cannot evaluate the costs of ridding the City of these toxic boilers.

The City’s current strategy relies almost exclusively on offering loans to building owners interested in converting their boilers, under the auspices of the newly proposed New York City Energy Efficiency Corporation

¹ <http://www.edf.org/article.cfm?contentID=10068>

² <http://www.nyc.gov/html/doh/downloads/pdf/eode/eode-air-quality-impact.pdf>

(EEC). The proposed EEC loan program is a laudable step towards converting New York City's dirty boilers. However, the size of the EEC loan fund, reported to be \$37 million,³ may not be enough to facilitate a complete and timely conversion of dirty boilers in buildings with many rent regulated units.

This report makes the following recommendations:

- 1) A portion of the funds generated through New York's participation in the Regional Greenhouse Gas Initiative (RGGI) should be dedicated to support the conversion of dirty boilers in rent regulated housing stock
- 2) The Industrial and Commercial Abatement Program (ICAP) should be amended to include a temporary window of assistance to support the conversion of dirty boilers in rent regulated housing stock
- 3) Existing incentives for dirty boiler conversions and solar thermal water heaters should be bolstered to encourage their installment in rent regulated buildings and reduce the use of fossil fuels in New York City buildings
- 4) Restrictions on J-51 tax abatements should be modified to facilitate the rapid conversion of dirty boilers
- 5) The newly formed New York City Energy Efficiency Corporation (EEC) should prioritize dirty boiler conversions in rent regulated housing stock
- 6) The City should publish a complete list of dirty boilers in publicly owned buildings and develop a plan for converting all of its dirty boilers within the mandated timeframe
- 7) State legislation should be passed to prohibit Major Capital Improvement rent increases in conjunction with any government-backed, conversion-related supports, including but not limited to those outlined here.

The intent of these recommendations is to safeguard the health of tenants and the public at large and offer alternatives to permanent Major Capital Improvement rent increases for rent regulated tenants. Failure to adequately plan for and support boiler conversions in rent regulated and city owned buildings will undermine the City's current phase out deadlines. More importantly, it will allow a primary source of toxic soot pollution to continue to wreak havoc on the city's air quality and overall public health for decades to come.

³ <http://www.nytimes.com/2011/04/22/nyregion/new-york-city-bans-dirtiest-heating-oils-at-buildings.html>

II. INTRODUCTION

On April 21, 2011, the New York City Department of Environmental Protection (DEP) unveiled a framework to phase out boilers in New York City buildings that consume #4 and #6 residual oil. Boilers using #6 residual oil are set to be phased out by 2015, and boilers using #4 residual oil are scheduled to be phased out by 2030. Significantly, however, the law also allows for buildings to seek waivers to avoid these deadlines if conversion can be shown to pose a financial hardship.

The City's plan to eliminate these dirty boilers has been praised for its positive environmental and public health impacts and has been endorsed by local and national environmental groups.⁴ However, until now important segments of the City's building stock – and the unique financial challenges they may face in meeting these new boiler mandates – have largely avoided serious public scrutiny.

Rent regulated housing units face limitations on the legal rent in order to maintain affordability. However, one of the trade-offs of rent-regulation is that the net operating incomes in these buildings can make expensive capital improvements, such as boiler conversions, all but prohibitive. It is clear that without a boiler conversion plan that fully recognizes these financial limitations, owners of rent regulated buildings may seek compliance agreements to delay phase-outs, leaving tenants and their neighbors to face untold years of additional point-source exposure to toxic emissions.

Failure to adequately plan for and support boiler conversions in rent regulated and city owned buildings will not only jeopardize the City's phase out deadlines, it will delay the significant environmental and public health improvements associated with a rapid phase out of #4 and #6 residual oil. This report will present new data on dirty boilers in the New York City rent regulated building stock and provide recommendations to ensure that the City's plan for phasing out #4 and #6 residual oil can be achieved quickly and fairly.

Additionally, based on a statistically significant ran-

dom sample of the City owned building stock, it is projected that nearly half of City owned buildings do not disclose their boiler status on the Department of Buildings website. This dearth of information makes it impossible to confirm the location and number of dirty boilers that the City owns and operates. Without this data, elected officials and members of the public cannot evaluate the true costs that taxpayers will have to bear to ensure that boiler conversions in hundreds of publicly owned buildings proceed according to the City's mandated timeline.

III. THE ENVIRONMENTAL AND PUBLIC HEALTH CONSEQUENCES OF #4 AND #6 RESIDUAL OIL

The negative environmental and public health impacts associated with the use of #4 and #6 residual oil in New York City's building stock have been well documented. The Environmental Defense Fund and the Institute for Policy Integrity at the NYU School of Law have both published extensive studies on the topic.^{5,6}

Residual oil is a byproduct of the petroleum distillation process. Just like the sludge that develops in a poorly maintained automobile engine, residual oil solidifies at temperatures below 100 degrees Fahrenheit. It must be stored in a heated environment to maintain its liquid form, and its temperature must be increased by another 50 to 100 degrees in order to be pumped.⁷ #6 residual oil is the cheapest, dirtiest grade of fuel oil, while #4 residual oil is usually comprised of equal parts #6 residual oil and #2 distillate oil.⁸

It is impossible to understate the devastating public health impacts that burning this residual oil has on the city of New York. A frequently cited statistic notes that boilers burning #4 and #6 residual oil represent just 1 percent of the City's buildings, yet they account for 86 percent of the City's heating oil soot pollution. To put this figure in context, the Environ-

4 <http://www.edf.org/pressrelease.cfm?ContentID=11562>

5 http://www.edf.org/documents/10085_EDF_Heating_Oil_Report.pdf

6 <http://policyintegrity.org/files/publications/ResidualRisks.pdf>

7 http://www.edf.org/documents/10085_EDF_Heating_Oil_Report.pdf

8 Ibid.

mental Defense Fund estimates that this relatively small amount of home heating oil produces fifty percent more air pollution than all of the cars and trucks in New York City.⁹

The City has projected that phasing out #4 and #6 residual oil will result in a 63 percent reduction in fine particulate matter.¹⁰ According to the EPA,¹¹ fine particulate matter is a major cause of haze in the United States and scientific studies have linked this type of air pollution to:

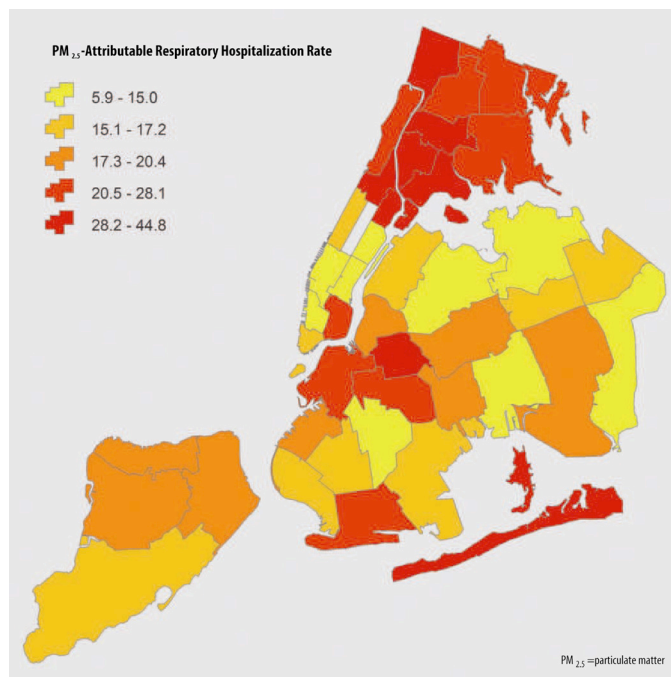
- Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing
- Decreased lung function
- Aggravated asthma
- Development of chronic bronchitis
- Irregular heartbeat
- Nonfatal heart attacks
- Premature death in people with heart or lung disease.

In a report issued by the New York City Department of Health and Mental Hygiene on April 21, 2011, it is estimated that each year fine particulate matter air pollution in New York City is responsible for “more than 3,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 6,000 emergency department visits for asthma in children and adults.”¹² The report also notes that fine particulate matter “emitted by residual oil burning contains higher concentrations of nickel and other metals, which may make them more harmful.”¹³ Nickel pollution has an especially detrimental impact on human health. Airborne nickel levels in New York City are an estimated nine times higher than other U.S. cities.¹⁴

9 <http://www.edf.org/article.cfm?contentID=10068>
 10 <http://green.blogs.nytimes.com/2011/01/28/new-york-floats-rules-for-cleaner-heating-oil/>
 11 <http://www.epa.gov/pm/health.html>
 12 <http://www.nyc.gov/html/doh/downloads/pdf/eode/eode-air-quality-impact.pdf>
 13 Ibid.
 14 http://www.edf.org/documents/10085_EDF_Heating_Oil_Report.pdf
 15 <http://policyintegrity.org/publications/detail/more-residual-risks/>

Figure 1 below, illustrates the hospitalizations in New York City attributed to fine particulate matter.

Figure 1 – Hospitalizations in New York City attributed to fine particulate matter



Source: “Air Pollution and the Health of New Yorkers: The Impact of Fine Particles and Ozone”. Published by the New York City Department of Health and Mental Hygiene, April 21, 2011.

Other public health benefits associated with dirty boiler conversions are staggering. A May 2010 estimate published by the Institute for Policy Integrity at the NYU School of Law claims that a full conversion from #4 and #6 residual oil to natural gas would save New York City residents over \$22 billion in health benefits, measured by medical resources used and lost wages during illness. The same study predicts that a full conversion to natural gas would save 259 lives annually.¹⁵

The reductions in certain greenhouse gas emissions that could be achieved through dirty boiler conversions are equally dramatic. According to “The Bottom of the Barrel,” a report published by the Environmental Defense Fund:

- A conversion from #6 residual oil to natural gas will achieve a 96 percent reduction in particulate matter emissions, a 99 percent reduction in sulfur dioxide emissions and a 75 percent reduction in nitrogen oxides.
- A conversion from #6 residual oil to #2 distillate oil will achieve a 95 percent reduction in particulate matter emissions, a 68 percent reduction in sulfur dioxide emissions and a 65 percent reduction in nitrogen oxides.

IV. A NOTE ABOUT NATURAL GAS

Some have raised concerns that the City’s plan to convert boilers using #4 and #6 residual oil may result in an increased reliance on natural gas, which in turn could promote hydraulic fracturing for new sources of shale gas.

Natural gas and #2 residual oil are both fossil fuels and, as such, are not optimal solutions. But the technology required to support a conversion from #4 and #6 residual boilers to totally renewable sources of energy is not yet tenable – at least not in 2011. The alternative – waiting for viable green alternatives to materialize – would be a grave injustice to the people most acutely affected by these toxic emissions. As many know, drilling for shale gas has been recognized to create a large greenhouse gas footprint of its own.¹⁶ However, the local air quality and cumulative environmental impacts caused by the use of #4 and #6 residual oil are too compelling to wait any longer.

As a general principle, New York City should always strive to phase fossil fuels out of its urban infrastructure. A recent study published in *Energy Policy* journal offers a promising blueprint for powering the world’s energy needs with wind, water and solar by the year 2030 and replacing all pre-existing energy by 2050.¹⁷

Indeed, recommendation three, detailed at the end of this report, calls on the State to support the installa-

tion of solar thermal hot water heaters wherever feasible. As green technologies continue to mature, policy makers in New York City and elsewhere should increasingly seek to incentivize their rapid utilization. In the meantime, conversion to natural gas must be regarded as the “cleanest” available option, with conversion to #2 distillate oil an acceptable second.

V. COSTS OF COMPLIANCE

Estimated costs of compliance with the City’s new boiler rules have varied, and the precise cost for each building is bound to be different. In one recent example, a Manhattan co-op with 288 units paid \$255,000 to convert two boilers from #6 residual oil to natural gas.¹⁸

The DEP issued an environmental assessment statement on March 28, 2011, which outlines the estimated capital costs of compliance on a per boiler basis. According to two key estimates made in the environmental assessment statement:

- Equipment conversion cost for converting #4 or #6 to #2 is an estimated \$272,670
- Equipment conversion cost for converting #4 or #6 to natural gas is an estimated \$327,170

Using the above DEP estimates as a guide, the total cost of conversion for all boilers in New York City’s rent regulated housing stock falls within the \$1.5 billion to \$1.8 billion range. Using these same estimates, the projected cost of conversion for boilers in City owned buildings falls within a range of \$280 million to \$336 million.

Other organizations, such as the Environmental Defense Fund, have published a much more modest conversion estimate of \$50,000 per boiler. Using this estimate as a guide, the total cost of conversion would be \$278 million for all dirty boilers in New York City’s rent regulated housing stock and a projected \$51.4 million for dirty boilers in City owned buildings.

16 <http://thehill.com/images/stories/blogs/energy/howarth.pdf>

17 <http://www.stanford.edu/group/efmh/jacobson/Articles/I/JDENPolicyPt1.pdf>

18 <http://www.nytimes.com/2010/01/01/science/earth/01pollute.html>

Turning back to the experience of the Manhattan co-op described earlier, which converted from #6 to natural gas at roughly \$127,500 per boiler, the true costs of conversion likely fall somewhere between the DEP estimates and the Environmental Defense Fund estimates.

The conversion of dirty boilers represents a one-time capital expense for building owners. In most cases, the cost savings resulting from a switch from #6 residual fuel oil to historically cheaper natural gas will help building owners recuperate their conversion investments within a few years.¹⁹

A recent surge in fuel oil prices in New York City provides some perspective on current prices. According to the most recent Price Index of Operating Costs (PIOC) report issued by the New York City Rent Guidelines Board on April 14, 2011, prices for #2 oil, #4 oil and #6 oil have risen by 17.3 percent, 23.4 percent and 24.6 percent respectively in the last twelve months. However, according to the same report, natural gas prices in New York City decreased by 5.1 percent.²⁰

Figure 2 below, adopted from a table published by the Environmental Defense Fund, lists projections made by the Energy Information Administration for future heating fuel costs in the years 2010-2020:

Figure 2 – Projected future heating fuel costs per million Btu in the years 2010-2020

Fuel Type	#2 distillate fuel oil	#4 residual fuel oil	#6 residual fuel oil	Natural Gas
Price per million Btu	\$20.49	\$17.82	\$15.14	\$10.73

19 http://www.edf.org/documents/10085_EDF_Heating_Oil_Report.pdf
 20 http://www.housingnyc.com/downloads/pdf_reports/pioc11.pdf
 21 Members of the New York State Legislature have introduced an omnibus rent regulation bill (S2783/A2674A) which would end rent increases attributed to Major Capital Increases once a building owner has recovered the cost of the improvement. This bill should be passed without delay.
 22 <http://www.rsanyc.com/articles/oil-comments-2-28-11.pdf>
 23 http://www.housingnyc.com/downloads/research/pdf_reports/ia11.pdf

VI. THE CHALLENGES OF CONVERTING DIRTY BOILERS IN RENT REGULATED HOUSING STOCK

Rent regulations keep housing in parts of New York City, Manhattan in particular, affordable for low- and middle-income tenants. However, difficulties with routine maintenance and capital upkeep at rent regulated properties in New York City are well known. Vast backlogs of housing code violations and an annual flood of heat and hot water complaints during cold weather months are just two examples of the difficulties that these properties routinely face.

Commercial and market rate rentals, as well as co-op and condo buildings, have the ability to charge the highest rents and maintenance costs that the market will bear, allowing them to spread capital costs evenly over time. The same cannot be said of rent regulated buildings, where a restriction is placed on the maximum legal rent that tenants can be charged in those particular units.

In some cases, owners of rent regulated housing will pass the costs of building improvements such as boiler conversions on to the tenants through Major Capital Improvement (MCI) rent increases. Through MCI rent increases, building owners can receive 1/84 of the cost of the capital improvement as a permanent rent increase on all regulated tenants, even after the owner has recuperated the full amount paid for the capital improvement.²¹

To put this figure in context the Rent Stabilization Association, a trade group that advocates for the interests of rent regulated building owners, has estimated that a MCI rent increase of \$100,000 would result in monthly rent increases of \$119.05 in a ten-unit building, \$59.52 per month in a twenty-unit building and \$29.76 per month in a forty-unit building.²² With 29.4 percent of New Yorkers already dedicating over 50 percent of their income to rental costs,²³ offsetting the costs of dirty boiler conversions with MCI's is the least desirable outcome for rent regulated tenants.

These obstacles to rapidly converting dirty boilers in New York City’s distressed rent regulated housing stock will be especially difficult. The New York City Rent Guidelines Board (RGB) defines distressed buildings as those that have operating and maintenance costs that exceed their gross income. In a report issued on April 14, 2011, the RGB used data from 2009 to project that some 11.8 percent of New York City’s rent regulated housing stock is in distress. The overwhelming majority of the distressed buildings identified by the RGB were pre-war buildings constructed before 1947, and the largest concentrations of distressed buildings are located in Manhattan and the Bronx – the boroughs with the highest numbers of dirty boilers.²⁴

As a matter of public health, government should pay extra attention to this segment of the rent regulated building stock to ensure that dirty boilers in these buildings are not allowed to linger.

VII. COMPLIANCE AGREEMENTS

The New York City Department of Environmental Protection (DEP) has recognized that the cost of compliance with the newly passed rules may not be possible in some cases and has created an opaquely defined “compliance agreement” that allows waivers for buildings to be granted at the sole discretion of the DEP Commissioner. The compliance agreement spells out the City’s criteria for deferring dirty boiler conversions based on two specific ownership classes. The rules of the compliance agreement are:

“An owner who applies to enter into a compliance agreement must show that conversion and/or replacement of the boilers and/or burners, and/or demonstration of the required equivalency, within the time frames set forth in subdivisions b or d of this section for an owner of fifty or more buildings with boilers and/or burners that use #4 or #6 oil, or subdivision b of this section for an owner of fewer than fifty such buildings, would not be feasible or would constitute an undue hardship.

The Commissioner will consider several factors in considering whether to enter into the compliance agreement,

including financial hardship, whether the owner is an equity owner of the buildings, the presence of underground tanks that must be remediated because of the conversion, prior good faith efforts to comply, the scale and timing of commitments to convert to the cleanest fuels, the levels of PM and NOx emitted by the boilers, whether the boilers are located in neighborhoods with high densities of boilers that use #4 oil or #6 oil, and the public health consequences of delayed compliance with this section.”²⁵

Such vaguely defined criteria for compliance agreements – “*would not be feasible,*” “*undue hardship,*” “*financial hardship,*” “*the scale and timing of commitments to convert to the cleanest fuels*” – combined with the absence of any formal checks and balances for the approval or denial of applications, all but ensures that many of the buildings identified in this report will not convert their dirty boilers according to the City’s mandated timeline.

Additionally, the language describing compliance agreements for “an owner of fifty or more buildings” creates a loophole that can exclude City owned buildings from the mandated conversion timeframe. For legal reasons, most privately owned buildings in New York City register their ownership documents under uniquely named limited liability corporations. Thus, the City itself is among the only entities that could plausibly own fifty or more buildings.

This loosely worded regulatory protocol creates opportunities for owners of rent regulated buildings, and for the City itself, to avoid making required boiler conversions on schedule. The high level of discretion given to current and future DEP Commissioners to grant waivers further underscores the need for an immediate plan to support the rapid conversion of all remaining dirty boilers in New York City’s rent regulated housing stock and its publicly owned building stock. As new data generated by the Manhattan Borough President’s Office illustrates, the need for action is great.

24 http://www.housingnyc.com/downloads/research/pdf_reports/ie11.pdf

25 http://www.edf.org/documents/11725_NYC-clean-heat-rule-F_DEP_04_21_11_A.pdf

VIII. RENT REGULATED BOILER DATA

According to data published by the Environmental Defense Fund, there are a total 8,912 boilers in New York City that burn #4 and #6 residual oil. According to data assembled by the Manhattan Borough President's Office, 5,614 or 63.0 percent of these boilers are housed in buildings with one or more rent regulated tenants. Manhattan has the highest total number of dirty boilers in rent regulated buildings (2,204 boilers), while the Bronx has the highest percentage (80.8 percent). Figure 3 below provides a full breakdown of dirty boilers in buildings with rent regulated tenants.

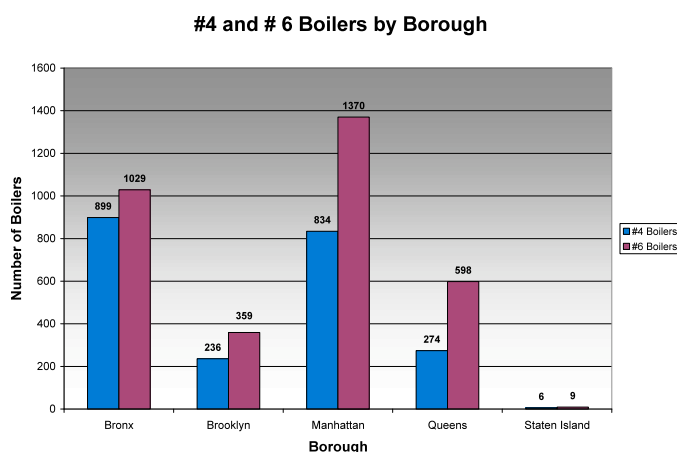
Figure 3 – Breakdown of dirty boilers in buildings with rent regulated tenants

Borough	Dirty Boilers in Rent Regulated Buildings	Dirty Boilers in all Building Types	Percentage of Boilers in Rent Regulated Buildings
Bronx	1,928	2,386	80.8%
Brooklyn	595	875	68.0%
Manhattan	2,204	4,259	51.7%
Queens	872	1,354	64.4%
Staten Island	15	38	39.5%
NYC TOTAL	5,614	8,912	63.0%

Because some larger buildings require more than one boiler, the figures differ slightly when making comparisons by number of buildings. The Borough of Manhattan has 2,076 buildings with rent regulated units that burn #4 and #6 residual oil, the Bronx has 1,865 of these buildings, Queens has 826 of these buildings, Brooklyn has 560 of these buildings and Staten Island has 36.

Among the dirty boilers located in buildings with rent regulated units, the number of boilers burning #6 residual oil exceeds the number of boilers burning #4 residual oil in each borough by a 3 to 2 margin. 3,365 of the City's 5,614 dirty boilers in rent regulated buildings (59.9 percent) burn #6 residual oil. Indeed, in all five boroughs, boilers burning #6 residual oil outnumber boilers burning #4 residual oil. #6 residual oil has more severe environmental and health consequences and is scheduled to be phased out by the City at a quicker rate than #4 residual oil. Figure 4 below compares the number of #6 boilers and #4 boilers by borough.

Figure 4 – Number of boilers using #4 residual oil vs. number of boilers using #6 residual oil



IX. DEMOGRAPHIC DATA

It is widely accepted that pollution from dirty boilers poses the greatest health risks to the very young and to the elderly. Using the latest available U.S. Census data²⁶, demographic information was collected for each New York City zip code to determine whether certain areas may be especially vulnerable to negative impacts of #4 and #6 residual oil in rent regulated building stock.

The following demographic categories were collected for each zip code: number of individuals under the age of 5; percentage of population under the age of 5;

26 Accessed at the U.S. Census Bureau American FactFinder website

number of individuals over the age of 65; percentage of population over the age of 65; median household income; number of individuals living below the poverty line; and percentage of individuals living below the poverty line.

The results show that certain zip codes contain large numbers of dirty boilers and large vulnerable populations. Among the most at risk of the City's 177 zip codes are:

- **10467** in the Bedford Park and Norwood neighborhoods of the Bronx has the highest number of dirty boilers in rent regulated buildings of any zip code in New York City. This zip code also ranks 5th in the City for individuals under the age of 5.
- **10468** in the University Heights, Morris Heights, Fordham, and Mount Hope neighborhoods of the Bronx has the 2nd highest number of dirty boilers in rent regulated buildings of any zip code in the City. This zip code ranks 12th for individuals under the age of 5, and has the 14th largest population living below the poverty line.
- **10025** on the Upper West Side and in Morningside Heights neighborhoods of Manhattan has 218 dirty boilers in rent regulated buildings and the City's 9th largest number of residents over the age of 65.
- **10452** and **10457** in the Highbridge and Tremont neighborhoods of the Bronx have 160 and 127 dirty boilers in rent regulated buildings respectively. Both neighborhoods rank among the top 15 zip codes citywide for percentage under the age of 5 and for number and percentage of individuals living below the poverty line. Both zip codes rank among the City's bottom 15 zip codes in the median household income category.

For a complete breakdown of demographic information by zip code, please see Appendix 1.

X. CITY OWNED BUILDING STOCK

It has been reported by NY1 News that the City owns 455 buildings that burn #4 and #6 residual oil, and that 427 of those buildings are public schools.^{27 28} This leaves an unlikely difference of 28 City owned buildings outside of the Department of Education's (DOE) building portfolio that burn #4 and #6 residual oil.

Using a list of city owned properties as a guide²⁹, a statistically significant, random sample was drawn by the Manhattan Borough President's Office to measure whether the Department of Buildings' online record system, the Building Information Systems (BIS) website, disclosed the boiler fuel used in City-owned buildings. The findings from the random sample indicate that 48.5 percent of the buildings owned by City agencies other than the DOE do not disclose the fuel type used by their boilers.

Based on this figure, it is projected that 884 City-owned buildings do not disclose their boiler status on the Building Information Systems website.

It is imperative that the City publish a complete list of publicly owned buildings burning #4 and #6 residual oil so that citizens can better understand where these buildings are located and how much public funding will have to be committed in future capital budgets to ensure that all dirty boilers in City-owned buildings are converted on schedule.

Figure 5 lists the agency affiliations for buildings that were identified in the random sample. Because a complete list of Department of Education buildings with dirty boilers has already been published, those buildings are excluded from the percentage listed above and from this list.

27 http://www.ny1.com/content/top_stories/134749/new-heating-oil-rules-would-affect-thousands-of-nyc-buildings

28 http://www.ny1.com/content/top_stories/135414/ny1-exclusive--hundreds-of-city-schools-use-dirty--dangerous-heating-oil

29 For a full description of the methodology please see page 19

Figure 5 – Agency affiliations for buildings identified in a random sample of 573 City Owned buildings

Agency Name	# of Buildings
New York City Fire Department (FDNY)	70
Public Libraries*	66
Other Agencies**	41
New York Police Department (NYPD)	27
Department of Homeless Services (DHS)	26
Department of Housing Preservation and Development (HPD)	23
Department of Citywide Administrative Services (DCAS)	13
Health Facilities (HHC/DOHMH)	11

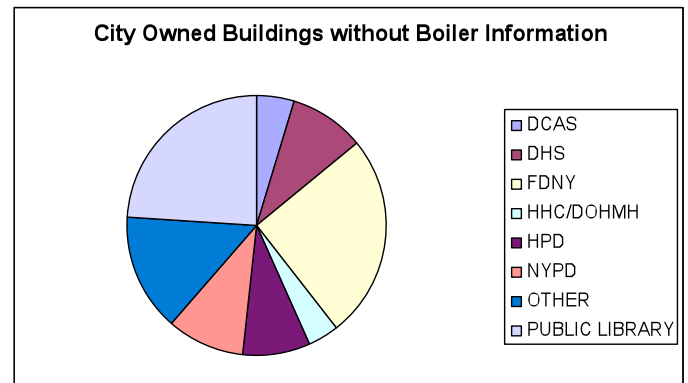
* This figure includes buildings in the Brooklyn, New York and Queens public library systems

** Other agencies and entities include: The Administration for Children’s Services; Department for the Aging; Department of Correction; Department of Cultural Affairs; City University of New York; Department of Transportation; Department of Small Business Services; Economic Development Corporation; Human Resources Administration; Department of Parks and Recreation; Department of Sanitation; “Joint Jurisdiction Among City Agencies”; and “Mixed City and non-City Ownership”.

Figure 6 illustrates the agencies that own buildings with unlisted boiler information on the BIS website. Because a complete list of Department of Education buildings with dirty boilers has already been published, those buildings are excluded from this graph.

30 <http://www.rggi.org/home>

Figure 6 – City Owned Buildings without Boiler Information



XI. RECOMMENDATIONS

The recommendations below are meant to provide support to rent regulated buildings with dirty boilers so that these boilers can be converted as soon as possible. The following proposals should be implemented to spur rapid compliance with the City’s planned phase out of #6 residual oil by 2015 and #4 residual oil by 2030 with the highest priority placed on converting boilers that burn #6 residual oil.

Recommendations have been organized into areas of New York State jurisdiction and New York City jurisdiction.

A. New York State Government Recommendations

1. The New York State Public Service Commission (PSC) and the New York State Energy Research and Development Authority (NYSERDA) should dedicate a portion of the funds generated through New York’s participation in the Regional Greenhouse Gas Initiative (RGGI) for a grant program to support the conversion of dirty boilers in rent regulated buildings.

The Regional Green House Gas Initiative (RGGI) is a cap and trade program with ten participating states

including New York.³⁰ RGGI member states cap the emissions on their power plants and then auction or sell emissions allowances on markets such as the Chicago Climate Exchange and the European Climate Exchange.

NYSERDA reports that RGGI funds will invest in the technologies that are needed to achieve the aggressive carbon reduction framework necessary to achieve a stable climate...and includes activities to help attain New York's "80 by 50 goal" (a goal to achieve an 80 percent reduction in greenhouse gasses by 2050).³¹

Since the mitigation of greenhouse gases is a cornerstone of New York State's RGGI operating plan, allocating a substantial proportion of the proceeds from the auction or sale of emissions allowances would clearly be in line with the stated goals of the RGGI program.

According to NYSERDA's most recent quarterly report, New York State has realized \$266,298,887 in new proceeds from emissions auctions since December 2008. New York's average quarterly proceeds from the sale and auction of emissions permits are \$33,169,826.³² NYSERDA's draft proposal RGGI operating plan for 2011 indicates that the State anticipates over \$178 million in future funds for this program between now and Fiscal Year 2014.³³

RGGI's steady and large revenue streams, combined with the profound greenhouse gas reductions that could be achieved by converting dirty boilers, make RGGI an excellent source of funding for dirty boiler conversions in rent regulated buildings.

When the New York RGGI Advisory Group presents its final proposal for the 2011 RGGI operating plan to the NYSERDA Board of Directors on June 20, 2011, it is imperative that grants for dirty boiler conversions in rent regulated buildings be included as a top priority.

2. Adjust the Scope of the Industrial and Commercial Abatement Program (ICAP) to include temporary assistance for rent regulated buildings with dirty boilers.

The most recent iteration of the Industrial and Commercial Abatement Program (ICAP) expired on March 1, 2011. On May 10, 2011, Governor Cuomo introduced legislation to renew ICAP in order to eliminate an anticipated rate hike on New York City electric bills.³⁴ That bill was quickly passed on May 18, 2011, in order to block the federal government from permitting the rate hike. However, there was very little discussion or debate about other aspects of ICAP. That debate should be restarted and further amendments that would allow ICAP to temporarily support dirty boiler conversions in buildings with rent regulated units should be offered.

ICAP is an as-of-right tax abatement intended to offset the costs of capital improvements and new construction. The wasteful use of property tax abatements under ICAP and its predecessor the Industrial and Commercial Incentive Program (ICIP) have been well documented.³⁵ According to projections published by the New York City Economic Development Corporation (EDC), only 23 percent of ICIP expenditures from 1989 to 2004 were dedicated to construction projects that went forward because of the ICIP subsidy. Furthermore, the same analysis concluded that if tax abatements for retail uses had been removed from the program, it would have saved City taxpayers \$198 million from 2008-2013 and \$2.175 billion from 2008-2028.

ICAP, when applied effectively, can be a powerful tool to support capital improvements in New York City buildings and to create good jobs. Yet there is overwhelming evidence that ICAP has not reached its highest potential, with public dollars squandered on capital improvements at fast food restaurants, gas stations, chain retailers and even gentlemen's clubs.³⁶

A promising and effective new use of ICAP would provide a three year window of opportunity to allow rent regulated building owners to access property tax abatements to offset the costs of boiler conversions.

31 http://www.nyserdera.org/RGGI/RGGI_Report_June.pdf

32 <http://www.nyserdera.org/RGGI/rggi-quarterly-report-3rd-quarter-2010-dlw.pdf>

33 <http://www.nyserdera.org/RGGI/Files/Draft%20RGGI%20Op%20Plan%20Summary%20Doc%20May%2016th.pdf>

34 <http://www.governor.ny.gov/press/051011massiverateincrease>

35 http://www.mbpo.org/uploads/policy_reports/Senseless%20Subsidies.pdf

36 http://www.nydailynews.com/ny_local/2010/11/13/2010-11-13_red_hot_over_tax_break_pol_end_strip_club_giveaways_exposed_by_news.html

These property tax abatements would be structured to cover no more than the capital costs of converting dirty boilers to #2 distillate oil or natural gas, and the temporary, one-time-only nature of the benefit would provide an incentive for rapid boiler conversions in these properties.

Creating new incentives for dirty boiler conversions in rent regulated buildings would satisfy the goals of the Industrial and Commercial Abatement Program: it would stimulate capital investment in New York City real estate; it would create and retain good jobs; it would disperse demand from the highest-value areas to secondary and tertiary areas; and it would subsidize capital improvements in lower value properties.³⁷

Adjusting the eligibility of ICAP to include these buildings will create hundreds of new green-collar jobs during the short-term window of eligibility and will have tangible and long lasting environmental and public health benefits for all New Yorkers.

3. Bolster state incentives for dirty boiler conversions and for solar thermal water heaters in buildings with dirty boilers and rent regulated tenants. New York State energy agencies have begun to create new incentives for the conversion of dirty boilers; however, much more should be done to demonstrate that this issue is a top priority for the State.

On April 11, the New York State Energy Research and Development Authority (NYSERDA) announced \$6.5 million in new incentives for multifamily buildings with five or more units to convert boilers using #6 residual oil.³⁸ The program is expected to eliminate some 200,000 tons of carbon emissions from New York City's air. Earlier on April 5, 2011, NYSERDA also launched a solar thermal incentive plan for specialized boilers that generate hot water from solar power. The plan supports commercial and non-profit users with a subsidy of up to \$25,000 and supports single- and multi-family buildings with a subsidy of up to \$4,000. Funding for this program is being allocated from the New York State Renewable Portfolio Standard (RPS).³⁹

The New York State Renewable Portfolio Standard is supported by small surcharges attached to the utility bills of state ratepayers. New York City ratepayers have contributed roughly forty percent of the \$909 million that has been dedicated to the Renewable Portfolio Standard, yet only \$8 million – less than one percent – has been used to support clean energy projects in New York City.

The egregious geographic inequity in the administration of the New York State Renewable Portfolio Standard, combined with the environmental and human-health consequences of a slow conversion from #4 and #6 residual oil to cleaner sources, should prompt the State to take immediate corrective action. Solar thermal heaters will not replace the need for boiler conversions in most city buildings, given the energy required to heat large buildings, but they can dramatically reduce a building's reliance on fossil fuels.

NYSERDA should revise the conditions of its solar thermal incentive plan to support costs associated with the conversion of boilers burning #4 and #6 residual oil to solar thermal water heaters in buildings with rent regulated tenants. This revision will require moving the funding source for this program away from the Renewable Portfolio Standard, which has a strict mandate to fund renewable sources of electricity.

Shifting these funds from the RPS program so that they can be spent on boiler conversions will help incentivize a reduction in the use of fossil fuels in New York City's building stock. This move will significantly reduce long-term fuel costs in participating buildings, and it will represent an important step towards addressing the gross imbalance that New York City is subjected to under the Renewable Portfolio Standard.

37 http://www.mbpo.org/uploads/policy_reports/Senseless%20Subsidies.pdf

38 http://www.nyserda.org/Press_Releases/2011/PressReleas20110411.asp

39 http://www.nyserda.org/Press_Releases/2011/PressReleas20110405.asp

4. The New York State Legislature should pass a bill requiring the New York State Division of Housing and Community Renewal (HCR) to deny all applications for Major Capital Improvement rent increases related to dirty boiler conversions if those conversions have received financial support from the government. These supports could include, but should not be limited to, tax abatements, grants or loans.

As a critical caveat to each of the recommendations made in this report – under no circumstance should owners of rent regulated buildings be permitted to take advantage of the benefits outlined in this report to replace dirty boilers and also be allowed to count the conversion as a Major Capital Improvement rent increase with the HCR. The intent of this recommendation is to safeguard the health of tenants and the public at large and offer alternatives to permanent Major Capital Improvement rent increases for rent regulated tenants. This measure will protect rent regulated tenants from future rent increases.

B. New York City Government Recommendations

5. Modify restrictions on J-51 tax abatements for the conversion of boilers burning #4 and #6 residual oil.

The J-51 tax abatement was enacted in 1955 to encourage the installation of heat and hot water systems in New York City buildings. Over fifty-five years later, the original intent of this tax abatement has taken on renewed relevance. The New York City Department of Housing Preservation and Development (HPD) publishes the rules governing the J-51 tax abatement.⁴⁰ In order to encourage dirty boiler conversions in the City's multifamily housing stock, HPD should make the following modifications to J-51 tax abatement regulations:

- Properties with outstanding property taxes, water or sewer charges or other municipal charges in arrears are ineligible for J-51 tax abatements.⁴¹ Since it is clear that building owners in arrears to the City will have a more difficult time financing the capital

costs of boiler conversions, this restriction should be lifted for the conversion of boilers burning #4 and #6 residual oil only, given the clear public health benefits of conversion.

- Buildings with building code and housing maintenance code violation reports are ineligible for J-51 tax abatements.⁴² This restriction will substantially reduce the number of buildings that can rapidly convert dirty boilers with the assistance of a J-51 tax abatement and should be lifted for the conversion of boilers burning #4 and #6 residual oil only.⁴³
- Privately financed projects south of 110th Street in Manhattan receive limited J-51 benefits compared with other parts of the City.⁴⁴ Allowing core Manhattan buildings to access the full J-51 tax abatement will help spur dirty boiler conversions in some of the City's largest residential buildings, helping to eliminate the largest emitters of greenhouse gases. This restriction should be lifted for the conversion of boilers burning #4 and #6 residual oil only.

6. The New York City Energy Efficiency Corporation should prioritize boiler conversions in rent regulated housing stock.

On April 21, 2011, Mayor Bloomberg announced the creation of the New York City Energy Efficiency Corporation (EEC). The EEC will be capitalized with \$37 million in federal stimulus funds and will grant and back loans to building owners for energy efficiency upgrades. According to David Bragdon, director of the Mayor's Office of Long-Term Planning and Sustainability, the EEC will devise different programs for different niches of the market.⁴⁵ Details of these programs have not yet been released publicly.

40 Chapter 5 of Title 28 of the Rules of the City of New York

41 <http://www.nyc.gov/html/dof/html/pdf/04pdf/j51.pdf>

42 <http://www.nyc.gov/html/hpd/html/developers/j51.shtml>

43 A report released by the Office of the Manhattan Borough President in 2010 found that 62.7 percent of Manhattan buildings had open DOB violations, and 32.2 percent of Manhattan buildings had open ECB violations.

44 <http://www.nyc.gov/html/hpd/html/developers/j51.shtml>

45 <http://online.wsj.com/article/SB1000142405274870465870457627554227111570.html>

The data presented in this report demonstrates that New York City's rent-regulated housing is a niche that deserves the immediate and serious attention of the EEC. The EEC should make it a priority to develop a revolving loan fund for the rent-regulated housing stock located in the neighborhoods with the largest concentrations of dirty boilers using #6 residual oil, and with large, vulnerable populations under the age of five and/or over the age of sixty-five.

For reasons outlined above, rent regulated buildings in the following zip codes should be considered urgent conversion areas: 10467, 10468, 10025, 10452, 10457, 10453, 10458, and 10463.

7. The City must publish all boiler information for publicly owned buildings and develop a plan for converting all dirty boilers in its building stock by or before 2015 and 2030.

It is unacceptable for the City to keep the public in the dark about dirty boilers located in City owned buildings. Although a list of dirty boilers in public schools has been released in response to a Freedom of Information Act request made by NY1 News, a complete and official list covering the entire City owned building stock has not yet been published.

The City should immediately publish this list and develop a plan to be inserted into the City's Capital budget with cost estimates and timelines for converting all dirty boilers in its building stock by or before 2015 and 2030.

XII. CONCLUSION

As the 2015 and 2030 deadlines for replacing dirty boilers approach, it is imperative that the City recognize the unique financial challenges facing many of the buildings that continue to burn #4 and #6 residual heating oil. Without strategies that recognize these challenges – particularly as relates to rent regulated buildings -- the conversion timelines mandated by the City will be placed in jeopardy, and

most importantly affordable housing tenants, school children and others living near these buildings will be left vulnerable to the well documented health and environmental consequences of these dirty boilers. New York State and City governments must seize this opportunity to clean the City's air, improve its public health outcomes, shore up its affordable housing stock and create good, green jobs.

XIII. METHODOLOGY AND LIMITATIONS

Rent Regulated Boiler Data Methodology

A list of addresses generated by the Environmental Defense Fund to map buildings burning #4 and #6 residual oil⁴⁶ was matched with rent stabilized building lists published by the New York City Rent Guidelines Board.⁴⁷ Addresses that match both lists have been identified in this report. Any errors in the lists generated by the Environmental Defense Fund or the New York City Rent Guidelines Board will be reflected in this report as well.

City Owned Building Data Methodology

The New York City Department of Citywide Administrative Services (DCAS) Integrated Property Information Systems⁴⁸ data set was distilled to include only City owned buildings that would be likely to house boilers. First, all City owned buildings were organized by their assigned Real Property Assessment Database description. Buildings with descrip-

46 http://www.edf.org/documents/10658_nyc_heatingoil_data.csv

47 <http://www.housingnyc.com/html/resources/zip.html#tables>

48 <http://www.nyc.gov/html/datamine/html/data/terms.html?dataSetjs=raw.js&theIndex=6>

tions that likely did not include boilers were eliminated.⁴⁹ As a second filter, all remaining buildings were organized by the primary use listed by DCAS. Remaining buildings with primary uses that likely did not include boilers were also eliminated.⁵⁰

The remaining list included 1,238 City owned properties that likely include boilers. A statistically significant random sample of 573 buildings⁵¹ from this list was then referenced using the New York City Building Information Systems website to determine whether boiler information was properly recorded by the Department of Buildings.

Because a complete list of dirty boilers in Department of Education (DOE) buildings has already been published by NY1 News, 121 public schools identified in the random sample were not included in the 48.5 percent figure cited above. Had DOE buildings been included, the sample of City owned buildings without boiler fuel types listed on the BIS website would have been 69.6 percent or 399 buildings.

Limitations

Because the data used in this study relies on information generated by the Environmental Defense Fund, NYC Datamine and the Department of Buildings, any inaccuracies in the information provided by these agencies and organizations will be reflected in the results generated by the Manhattan Borough President's Office.

The collection and synthesis of data from two incongruent file formats – dirty boiler information in .csv format and rent regulated building data in .pdf format – leaves the figures reported in this report vulnerable to human error. The rent regulated boiler

data listed in this report was vetted using a statistically significant random sample with a margin of error of +/- 3% for the Boroughs of Manhattan, Brooklyn, Queens and the Bronx. Simple correlations were used to measure reliability, with positive correlations of .9798, .9954, .9849 and .9850 reported for each respective borough. These figures provide well founded confidence in the reliability of the data presented in this report, however, they also point to the existence of very small amounts of human error in the data collection.

Additionally, 2005-2009 data was not available on the U.S. Census website for any of the New York City zip-codes when searches were conducted in April 2011. As a result, census data from the year 2000 is used in this report and may not represent the most current portrayal of New York City demographics.

49 Eliminated building description categories included: AIRPORT,AIR FIELDS, TERMINALS; AMUSEMENT PLACE,BATH&BOAT HOUSE; BEACHES; BRIDGES, TUNNELS, HIGHWAYS; CEMETERIES; DEPT OF GAS, WATER, & ELEC; DEPT OF MARINE & AVIATION; DEPT OF PUBLIC WORKS; EASEMENTS; ELECTRIC UTILITIES; EXEMPT/CITY OF NEW YORK; EXEMPT/FEDERALLY OWNED; FACTORY (ALL CATEGORIES); GARAGE (ALL CATEGORIES); GAS STA W/ENC LUBE PLANT/WKSHOP; GAS STA WO/ENC LUBE PLANT/WKSHOP; GOLF COURSES; GOV'T INSTAL/MILITARY AND NAVAL; GOV'T INSTALATION/DEPT OF SANIT; HEAVY MANUFACTURING(FIREPROOF); LAND UNDER WATER; LICENSED PARKING LOT; MARINAS/YACHT CLUBS; MISC INCL RIDING ACADM & STABLES; MISCELLANEOUS; OTHER; OUTDOOR POOLS; PAL; PARKS; PIERS, DOCKS, BULKHEADS; PLAY-GROUNDS; PUBLIC PARKING AREAS; RAILROADS, PRIVATE OWNERSHIP; RECREATION FACILITIES(OUTDOOR); RECREATION FACILITIES/MISC; REVOCABLE CONSENTS; STADIUM,RACE TRACK,BASEBALL FLDS; TELEPHONE UTILITIES; TENNIS COURTS; TRANSPORTATION FACILITIES (ALL CATEGORIES); UTILITY BUREAU PROPS/MISC; VACANT LAND (ALL CATEGORIES); WAREHOUSES (ALL CATEGORIES)

50 Eliminated primary use categories included: COMBINED MAINT/STRG; COMMUNITY GARDEN; COMMUNITY PARK; CUSTODIAL; FERRY TERMINAL; HIGHWAY STRIP/ETC; INDOOR STORAGE; NATURAL AREA/ETC; NO USE; OPEN SPACE; OUTDOOR PARKING; OUTDOOR STORAGE-BULK; PARK; PIER - MARITIME USE; PLAYGROUND/SPORTS AREA; PLAYING FIELD; PUBLIC PLACE/PLAZA; PUMPING STATION; RAIL LINE; ROAD/HIGHWAY; S/T & L/T AGREEMENTS; SOLID WASTE TSFR STN; STORMWATER PUMPING; TESTING FACILITY; TRANSIT WAY; WASTEWATER PUMPING; WATER POLL CNTRL PLT

51 margin of error = +/- 3%, p=.05

APPENDIX 1 - DEMOGRAPHIC DATA ON DIRTY BOILERS IN RENT REGULATED BUILDINGS, BY ZIP CODE

ZIP	Borough	Boilers in Rent Regulated Buildings	Population Under age 5	Percentage of Population Under age 5	Population Over age 65	Percentage of Population Over age 65	Median Household Income	Individuals Below the Poverty Level	Percentage of Individuals Below the Poverty Level
10451	Bronx	38	3,235	7.9	4,069	9.9	20,307	15,444	38.5
10452	Bronx	160	7,509	10.4	3,516	4.9	20,606	29,377	41
10453	Bronx	158	7,648	10	3,735	4.9	21,109	30,464	40
10454	Bronx	4	3,220	9.2	2,699	7.7	14,271	16,658	48
10455	Bronx	20	3,353	8.9	2,809	7.5	19,389	14,986	41
10456	Bronx	79	7,275	9.5	5,493	7.2	16,664	33,765	45
10457	Bronx	127	7,093	10.3	4,414	6.4	19,233	28,751	43
10458	Bronx	208	7,358	9.5	5,055	6.5	22,072	29,342	39
10459	Bronx	18	3,636	9.3	3,017	7.7	17,498	17,253	45
10460	Bronx	53	5,071	9.4	3,752	7	19,517	20,999	40
10461	Bronx	70	2,834	5.7	8,634	17.3	40,024	5,820	12
10462	Bronx	91	5,354	7.4	7,928	11	33,735	13,902	19
10463	Bronx	184	4,109	6.3	11,883	18.1	40,497	11,042	18
10464	Bronx	1	243	5.2	800	17.3	57,458	181	4
10465	Bronx	5	2,439	5.7	7,136	16.8	45,650	4,682	11
10466	Bronx	55	5,287	7.7	7,056	10.3	37,141	14,109	21
10467	Bronx	252	7,889	8.4	9,813	10.4	29,044	24,552	27
10468	Bronx	221	7,334	9.4	6,135	7.8	26,852	27,306	36
10469	Bronx	9	4,086	6.5	10,123	16	42,102	8,393	14
10470	Bronx	26	1,037	6.6	2,265	14.4	38,464	2,290	15
10471	Bronx	47	1,049	4.5	5,204	22.2	56,488	1,571	8
10472	Bronx	80	5,893	9.1	5,165	8	23,565	22,330	35
10473	Bronx	11	4,123	7.3	5,764	10.3	27,733	15,677	28
10474	Bronx	11	1,209	10.6	626	5.5	16,339	5,319	58
11201	Brooklyn	15	2,220	4.6	5,458	11.4	56,293	8,952	20
11203	Brooklyn	18	5,656	6.7	8,519	10.1	37,341	14,634	18
11204	Brooklyn	17	5,235	7	11,339	15.1	31,798	15,889	21
11205	Brooklyn	4	2,614	7.3	2,780	7.8	28,070	11,967	36
11206	Brooklyn	3	6,002	8.7	6,084	8.8	18,661	27,603	41
11207	Brooklyn	1	7,727	8.9	6,274	7.2	24,163	30,643	36
11208	Brooklyn	2	7,632	8.8	5,632	6.5	27,078	27,315	32
11209	Brooklyn	44	3,944	5.6	11,293	16.2	44,518	8,943	13
11210	Brooklyn	34	5,003	8	5,751	9.2	42,967	8,577	14
11211	Brooklyn	6	8,595	10.1	7,463	8.8	23,567	35,020	41
11212	Brooklyn	10	7,526	8.8	6,565	7.7	20,839	32,016	38
11213	Brooklyn	22	5,275	8.1	6,293	9.6	26,366	18,353	29
11214	Brooklyn	30	4,617	5.5	15,183	18.2	40,279	16,453	20
11215	Brooklyn	13	3,774	6	5,252	8.3	53,313	7,706	12
11216	Brooklyn	1	4,223	7.6	5,498	9.9	25,135	16,250	29
11217	Brooklyn	1	1,985	5.6	2,831	8	49,567	5,907	17
11218	Brooklyn	32	5,912	7.9	8,376	11.2	36,432	17,690	24
11219	Brooklyn	29	9,135	10.6	11,742	13.7	26,648	27,846	33
11220	Brooklyn	7	7,408	8	8,431	9.1	30,152	5,518	26
11222	Brooklyn	2	1,967	5	4,434	11.3	33,578	6,956	17.7
11223	Brooklyn	29	5,041	6.5	12,647	16.3	32,104	17,729	23
11225	Brooklyn	40	4,692	7.4	6,121	9.6	33,775	14,985	24
11226	Brooklyn	89	8,679	8.2	7,351	6.9	29,498	26,950	26
11228	Brooklyn	1	2,404	5.8	7,524	18.3	44,932	4,722	12
11229	Brooklyn	33	4,429	5.5	14,054	17.4	37,812	12,642	16
11230	Brooklyn	52	6,885	7.7	13,983	15.7	32,327	18,648	21
11232	Brooklyn	3	2,180	7.9	1,913	6.9	28,395	7,334	28
11234	Brooklyn	5	5,417	6.2	11,669	13.4	51,446	8,206	9
11235	Brooklyn	38	3,581	4.6	16,917	21.8	31,013	15,281	20
11236	Brooklyn	1	6,996	7.3	9,138	9.5	42,370	15,003	16
11238	Brooklyn	13	2,882	5.9	4,914	10	39,917	9,173	19
10001	Manhattan	15	457	2.6	2,451	14.2	40,932	3,433	22
10002	Manhattan	8	4,149	4.9	13,174	15.5	24,022	24,651	29
10003	Manhattan	69	1,250	1.2	4,804	9	60,891	5,916	12
10005	Manhattan	2	16	1.8	9	1	79,517	85	9
10006	Manhattan	3	53	3.7	25	1.7	81,334	222	15
10009	Manhattan	15	2,553	4.4	7,348	12.5	40,176	12,937	22
10010	Manhattan	31	734	2.8	3,786	14.3	62,467	243	5
10011	Manhattan	79	1,272	2.1	5,443	11.1	100,183	4,476	10
10012	Manhattan	15	728	2.8	2,691	10.4	58,313	3,375	14
10013	Manhattan	6	1,075	4.3	3,447	13.8	38,304	4,801	21
10014	Manhattan	53	828	2.5	3,329	10.2	66,601	1,998	6
10016	Manhattan	77	1,459	2.8	5,460	10.7	66,342	5,242	11

10017	Manhattan	34	418	2.6	1,913	11.8	69,273	1,128	8
10018	Manhattan	1	122	2.9	259	6.1	48,705	912	21
10019	Manhattan	58	1,020	2.8	4,750	13.2	55,869	4,626	13
10021	Manhattan	69	4,504	4.4	16,551	16.2	75,472	5,409	5
10022	Manhattan	53	927	3	6,357	20.7	80,406	1,495	5
10023	Manhattan	103	2,474	4	9,196	14.8	72,424	4,505	8
10024	Manhattan	154	3,070	5	7,810	12.7	78,066	4,936	8
10025	Manhattan	218	4,435	4.6	11,898	12.3	49,733	14,219	15
10026	Manhattan	17	2,336	7.7	2,824	9.3	22,491	10,380	35
10027	Manhattan	49	3,341	5.9	5,630	10	23,150	17,597	36
10028	Manhattan	69	2,076	4.6	5,913	13.1	77,565	2,277	5
10029	Manhattan	16	5,388	7.1	8,751	11.6	22,232	26,283	36
10030	Manhattan	16	2,049	7.9	2,603	10.1	17,970	10,355	40
10031	Manhattan	106	4,098	6.8	5,676	9.4	27,008	20,270	34
10032	Manhattan	182	4,297	6.7	6,228	9.8	26,237	20,033	33
10033	Manhattan	218	3,723	6.4	5,813	10	31,348	15,821	28
10034	Manhattan	181	3,068	7.3	3,622	8.7	29,479	12,071	29
10035	Manhattan	2	2,271	6.9	3,424	10.5	14,896	13,532	44
10036	Manhattan	16	533	2.8	1,909	10.2	41,002	3,423	19
10037	Manhattan	10	939	5.5	3,276	19.3	26,561	4,164	25
10038	Manhattan	1	519	3.3	2,878	18.5	31,316	3,620	26
10039	Manhattan	13	1,649	7.6	2,731	12.6	17,370	8,614	40
10040	Manhattan	153	3,419	7.3	5,263	11.3	27,905	13,391	29
10128	Manhattan	86	2,798	4.7	6,413	10.7	70,031	5,189	9
10162	Manhattan	1	132	7.6	255	14.8	108416	75	4.2
11101	Queens	17	1736	6.8	2141	8.4	28872	7142	28.7
11102	Queens	15	2386	6.6	3576	9.9	35078	7629	21.2
11103	Queens	17	2484	5.6	4678	10.6	38482	7453	17.1
11104	Queens	77	1656	5.6	3543	12	37962	5020	17.1
11105	Queens	17	2198	5.2	5825	13.8	38674	6785	16.2
11106	Queens	38	2593	6	5450	12.6	34651	9483	22
11354	Queens	39	2999	5.5	9306	17.1	37155	8603	16.4
11355	Queens	93	4894	5.9	10,346	12.4	36973	14532	17.6
11357	Queens	13	2020	5.1	8325	21.1	54910	2549	6.5
11358	Queens	9	2176	5.6	5384	13.9	51242	3638	9.6
11360	Queens	5	870	4.5	4663	24.1	58803	1093	5.7
11361	Queens	13	1568	5.4	4388	15	55250	2168	7.5
11362	Queens	1	789	4.5	3616	30.7	61053	1388	8
11363	Queens	5	314	4.5	1067	15.4	67550	211	3.1
11364	Queens	11	1692	4.9	6255	18.1	54031	2117	6.1
11365	Queens	1	2653	6.4	6702	16.1	50744	3780	9
11366	Queens	1	676	5.1	2198	16.4	62325	798	6
11367	Queens	35	2717	7.1	5543	14.5	45285	4793	12.6
11368	Queens	14	7916	8	7123	7.2	34746	21692	22.2
11369	Queens	2	2543	7	4067	11.3	39936	6207	17.4
11370	Queens	1	2053	4.8	3650	8.5	44,429	3891	13.1
11372	Queens	81	4496	6.3	8014	11.2	39084	13293	18.8
11373	Queens	28	6880	6.5	9725	9.2	38151	18585	17.6
11374	Queens	64	2116	4.8	7974	18	40998	5750	13.1
11375	Queens	88	3262	4.6	13,698	19.5	51350	6927	9.9
11377	Queens	35	5339	6	9669	10.9	37360	15006	17.1
11378	Queens	2	2056	6	5393	15.8	43107	3270	9.7
11379	Queens	4	1442	5	5667	19.6	49083	2453	8.6
11385	Queens	1	7073	7.3	10,810	11.1	36434	16651	17.1
11412	Queens	1	2326	6.2	5453	14.6	48,536	4341	11.7
11415	Queens	31	1312	6.3	2551	12.2	45344	2704	13.2
11416	Queens	1	1845	7.8	2265	9.6	39692	4158	17.5
11418	Queens	9	2735	7.5	3152	8.6	40924	5970	16.4
11423	Queens	8	2126	6.8	3563	11.4	46047	3877	12.7
11426	Queens	1	1112	5.9	2742	14.6	58065	1172	6.6
11427	Queens	7	1429	6.2	3150	13.7	51336	1580	6.8
11428	Queens	6	1424	6.8	1735	8.3	55,219	1675	8
11429	Queens	1	1838	6.6	2790	10.1	54467	2250	8.4
11432	Queens	32	3855	6.8	6374	11.2	42414	8114	15
11434	Queens	1	4166	7	7227	12.2	43133	8046	13.9
11435	Queens	22	4022	7.5	5154	9.6	40157	9679	18.2
11691	Queens	19	4803	8.5	7624	13.6	27820	14032	26.4
11694	Queens	6	1164	6	3755	19.5	48604	2300	12.5
10301	SI	11	2511	6.5	4758	12.3	45620	5565	15.2
10304	SI	1	2948	7.6	4494	11.5	41041	7962	21
10306	SI	3	3451	6.2	8392	15.1	55413	4156	7.5



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