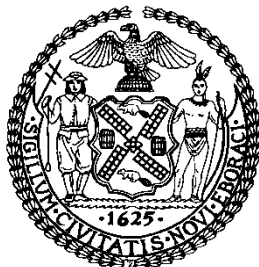


Environmental Protection Committee  
Samara Swanston, Legislative Counsel  
Bill Murray, Senior Policy Analyst  
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**THE NEW YORK CITY COUNCIL**

Report of the Infrastructure Division  
Matthew Gewolb, Legislative Director

**COMMITTEE ON ENVIRONMENTAL PROTECTION**

Hon. Costa Constantinides, Chair

April 24, 2017

**Int. No. 1465:** By Council Members Torres, Constantinides, Salamanca and Richards

**Title:** A Local Law to amend the administrative code of the city of New York, in relation to phasing out the use of fuel oil grade no. 4

**Administrative Code:** Amends subdivision d of section 24-168 of the administrative code

**Proposed Int. No. 1503-A:** By Council Members Constantinides and Gentile

**Title:** A Local Law to amend the administrative code of the city of New York, in relation to exemptions from air conditioning prohibitions

**Administrative Code:** Amends definitions set forth in subdivision a of section 20-910 of the administrative code of the city of New York

## **Introduction**

On April 24, 2017, the Committee on Environmental Protection, chaired by Council Member Costa Constantinides, will hold a hearing on Int. No. 1465, A Local Law to amend the administrative code of the city of New York, in relation to phasing out the use of fuel oil grade no. 4, and Proposed Int. No. 1503-A, A Local Law to amend the administrative code of the city of New York, in relation to exemptions from air conditioning prohibitions.

## **Background**

There are generally two types of fossil fuels used as sources of energy in New York City: natural gas and fuel oil. Most fuel oil used in the City is any of three grades, either Number 6 oil (No. 6 oil), Number 4 oil (No. 4 oil) or Ultra Low Sulfur Diesel Number 2 oil (ULSD No. 2 oil).<sup>1</sup> These fuels are burned to generate heat in buildings and steam and electricity in power plants.

No. 6 oil, which is also called residual oil, is the dirtiest of these fuels. No. 6 is what remains of crude oil after distillate fuel oils and gasoline have been extracted from it through distillation.<sup>2</sup> No. 6 is a high-viscosity oil, usually requiring pre-heating before use and it is used mostly in commercial and industrial equipment.<sup>3</sup> ULSD No. 2 oil, which is also called distillate fuel, is a more refined fuel. No. 2 oil contains sulfur in drastically lower amounts than occur in No. 6 oil, and its physical properties are such that it does not require pre-heating before use. No. 4 oil is a blend of residual and distillate fuels, such as oils No. 6 and No. 2.<sup>4</sup> According to one report, No. 4 oil that is used in the City is typically a mix of No. 6 and No. 2 oil in a 50/50 proportion.<sup>5</sup> Like

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<sup>1</sup> NYC Clean Heat, webpage available at <https://www.nycleanheat.org/content/problem> accessed on 4/13/2017

<sup>2</sup> Rick Wallace, Oregon Department of Environmental Quality, “Definitions of EIW Distillate Categories and Fuels Contained in the Distillate Grouping” available at <http://www.deq.state.or.us/aq/committees/docs/lcfs/definitions.pdf>

<sup>3</sup> Id.

<sup>4</sup> Id.

<sup>5</sup> Environmental Defense Fund and Urban Green Council, “The bottom of the barrel, HOW THE DIRTIEST HEATING OIL POLLUTES OUR AIR AND HARMS OUR HEALTH” December 2009 available at [https://www.edf.org/sites/default/files/10086\\_EDF\\_BottomBarrel\\_Exec\\_Summ.pdf](https://www.edf.org/sites/default/files/10086_EDF_BottomBarrel_Exec_Summ.pdf)

No. 6 and No. 2 oils, No. 4 is defined by the physical and performance specifications that it meets.<sup>6</sup> No. 4 is used in large stationary engines, power plants and large building boilers.<sup>7</sup> No. 4 oil when burned as heating fuel may contain several contaminants including nickel and sulfur.<sup>8</sup>



*Pictured are vials of ULS 2, No. 4, and No 6 heating oil. Each vial was one third full and was shaken before photographing. Note that ULS 2 heating oil is dyed red*

No. 6 and No. 4 oil contain sulfur, nickel and other impurities and can be difficult to burn cleanly and completely.<sup>9</sup> Combustion of these fuels emits unburned fuel in the form of soot, which spews out of exhaust stacks and chimneys, or which coats boiler and combustion equipment.<sup>10</sup> Because of their sulfur content, burning No. 6 and No. 4 oils also releases significant quantities of particulate matter into the air. These fine particles become embedded in people's lungs causing respiratory and cardiovascular ailments.<sup>11</sup> In the City, fine particulate matter causes more than 2,000 deaths, 2,000 hospital admissions for lung and heart conditions, and approximately 238,000

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<sup>6</sup> ASTM International, Standard Specification for Fuel Oils available at <https://www.astm.org/Standards/D396.htm>

<sup>7</sup> InspectAPedia, Encyclopedia of Building & Environmental Inspection, Testing, Diagnosis, Repair, page on "Heating Oil & Fuel Oil Properties Guide" available at <https://www.astm.org/Standards/D396.htm>

<sup>8</sup> Id.

<sup>9</sup> NYC Clean Heat, webpage available at <https://www.nycleanheat.org/content/problem> accessed on 4/13/2017

<sup>10</sup> Id.

<sup>11</sup> Id.

and 84,000 emergency room visits for asthma in adults and children, respectively.<sup>12</sup> <sup>13</sup> Emissions of heavy metal nickel are also a significant concern, as it can increase risks of heart disease and other ailments.<sup>14</sup>

Switching from No. 4 oil to No. 2 oil eliminates the emission of harmful nickel.<sup>15</sup> Additionally, ULSD No. 2 oil contains only 15 parts per million (ppm) of sulfur compared to 3,000 ppm in No. 6 and No. 4 oils and, according to the City’s Department of Environmental Protection, once these dirtier fuel grades are completely phased out it will reduce the amount of fine particulate matter emitted from heating buildings by at least 63%.<sup>16</sup>

Fuel Type	Unit	Emissions Per Unit of Energy Input			
		PM2.5	NOx	CO	SO2
#6 Oil	lb/MMBtu	0.0320	0.3667	0.0333	0.3140
Heavy #4 Oil	lb/MMBtu	0.0247	0.2883	0.0342	0.2751
Light #4 Oil (#2 ULSD)	lb/MMBtu	0.0148	0.2458	0.0346	0.1453
#2 Oil	lb/MMBtu	0.0111	0.1429	0.0357	0.2029
#2 LS	lb/MMBtu	0.0111	0.1429	0.0357	0.0507
#2 ULSD	lb/MMBtu	0.0002	0.1429	0.0357	0.0015
Natural Gas	lb/MMBtu	0.0075	0.0980	0.0824	0.0006

The chart above shows the amount of pollutants that each fuel oil grade contains per unit of energy it produces.<sup>17</sup>

<sup>12</sup> New York City Mayor’s Office of Sustainability, webpage on Heating Oil Regulations, available at <http://www.nyc.gov/html/gbee/html/codes/heating.shtml> accessed on 4/14/2017

<sup>13</sup> Data provided to the Committee by the New York City Department of Health

<sup>14</sup> NYC Clean Heat

<sup>15</sup> Environmental Defense Fund and Urban Green Council, “The bottom of the barrel, HOW THE DIRTIEST HEATING OIL POLLUTES OUR AIR AND HARMS OUR HEALTH” December 2009 available at [https://www.edf.org/sites/default/files/10086\\_EDF\\_BottomBarrel\\_Exec\\_Summ.pdf](https://www.edf.org/sites/default/files/10086_EDF_BottomBarrel_Exec_Summ.pdf)

<sup>16</sup> New York City Department of Environmental Protection, webpage on “Heating Oil” accessed 4/17/2017 available at [http://www.nyc.gov/html/dep/html/air/buildings\\_heating\\_oil.shtml](http://www.nyc.gov/html/dep/html/air/buildings_heating_oil.shtml)

<sup>17</sup> Source: New York City Department of Environmental Protection. DEP uses this table to calculate emission factors for different fuel grades. It is based on EPA’s AP-42. The only change was the ULS#2 PM2.5 emissions factors, which DEP calculated based on the linear decline in PM2.5 emissions associated with fuel sulfur content, were based on a report from Brookhaven Laboratory. The No. 4 emissions factors in the table are based on an estimated fuel mix containing No. 6 and No.2 factors. DEP uses these emissions factors for commercial/residential/institutional/industrial boilers.

## City's Existing Oil Laws and Regulations

In 2010, the Council passed and then-Mayor Michael Bloomberg signed Local Law 43 of 2010, which reduced the allowable amount of sulfur in No. 2 oil to 15 ppm and also required that all heating oil used in the City contain at least 2% biodiesel by volume.<sup>18</sup> In 2011, the DEP issued regulations requiring buildings to convert from No. 6 and No. 4 oils to cleaner fuels, such as ULSD No. 2 oil, natural gas or renewables.<sup>19</sup> The phase out of all No. 6 heating oil was completed in June 2015 while the deadline for phasing out No. 4 heating oil is January 1, 2030. According to the Mayor's Office of Sustainability (MOS), to date, DEP has achieved 99.8% compliance with this regulation.<sup>20</sup> As buildings have switched to a cleaner burning fuel, the City's air quality has improved preventing approximately 210 premature deaths and 540 hospitalizations per year.<sup>21</sup> Neighborhoods with the highest density of boiler conversions saw the largest improvement in air quality, including northern Queens, northern Manhattan and South Bronx.<sup>22</sup> Additionally, in May 2015, the Council passed and the Mayor signed Local Law 38 which requires all permitted entities, including in-City power plants using steam-generating boilers for electricity, to completely phase out the use of No. 6 oil by 2020 and No. 4 by 2030; this will eventually phase out the use of these oils in the City entirely.<sup>23</sup> Finally, Local Law 119 of 2016 requires that all heating oil used in the

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<sup>18</sup> New York City Local Law 43 of 2010, available at <http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=660184&GUID=0F06CC07-D87E-42B1-8FB3-A7FB7E27CCCC&Options=ID%7cText%7c&Search=biodiesel>

<sup>19</sup> New York City Department of Environmental Protection notice of promulgation of "Rules Governing the Emissions from the Use of #4 and #6 Fuel Oil in Heat and Hot Water Boilers and Burners" available at [http://www.nyc.gov/html/dep/pdf/air/heating\\_oil\\_rule.pdf](http://www.nyc.gov/html/dep/pdf/air/heating_oil_rule.pdf)

<sup>20</sup> Testimony of the Mayor's Office of Sustainability before the Council's Committee on Environmental Protection, November 28, 2016, available at <http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=2845241&GUID=AA736062-3C62-4BDE-A009-FB12768CA76E&Options=&Search=>

<sup>21</sup> Id.

<sup>22</sup> Id.

<sup>23</sup> Id.

City contain certain amounts of biodiesel, which will gradually increase through the year 2034, so that eventually all heating oil must contain 20% biodiesel by volume.<sup>24</sup>

## **Buildings**

Buildings, through the use of heating fuel, natural gas, electricity, steam and biofuel, are responsible for over 70% of citywide emissions. Of total emissions from the buildings sector, residential buildings account for 48%, commercial buildings 29%, and industrial and institutional buildings account for the remainder.<sup>25</sup> Of total emissions generated by buildings, about 55% are due to on-site combustion of natural gas and liquefied fuels to produce hot water, heat, and to cook. The remaining 45% of emissions from buildings are due to electricity use.<sup>26</sup>

According to the September 2016 “Inventory of New York City Greenhouse Gas Emissions in 2015,” in calendar year 2015, buildings citywide consumed 1,090,301,149 liters of No. 2 oil 451,802,019 liters of No. 4 oil and 54,862,525 liters of No. 6 oil.<sup>27</sup>

### **Distribution of Buildings Burning No. 4 oil**<sup>28</sup>

Bronx	961
Brooklyn	85
Manhattan	1657
Queens	309
Staten Island	6
<b>Grand Total</b>	<b>3018</b>

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<sup>24</sup> Local Law 19 of 2016 available at <http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=2170484&GUID=FB643430-AA04-4B48-BB0D-114D5B7395E7>

<sup>25</sup> 2014 Inventory of New York City Greenhouse Gas Emissions

<sup>26</sup> New York City Mayor’s Office of Long-Term Planning and Sustainability, “New York City’s Pathways to Deep Carbon Reductions,” page 19, available at [http://s-media.nyc.gov/agencies/planyc2030/pdf/nyc\\_pathways.pdf](http://s-media.nyc.gov/agencies/planyc2030/pdf/nyc_pathways.pdf)

<sup>27</sup> Inventory of New York City Greenhouse Gas Emissions in 2015, available at [http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/GHGInventory\\_Tables\\_Final.pdf](http://www1.nyc.gov/assets/sustainability/downloads/pdf/publications/GHGInventory_Tables_Final.pdf)

<sup>28</sup> Data provided by New York City Department of Environmental Protection

### Fuel Oil Burned by Buildings in NYC in Calendar Year 2015

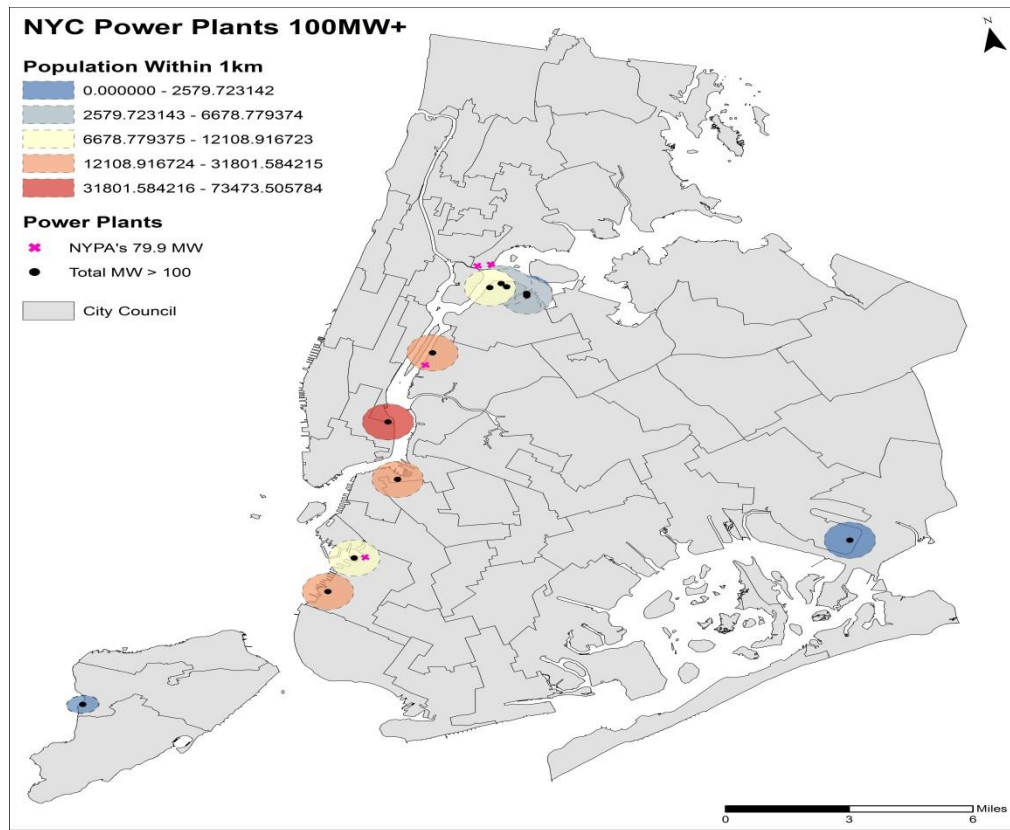
<u>Building type</u>	<u>Fuel</u>	<u>Consumed (liters)</u>		
Residential	#2 fuel oil	642,371,709		
Residential	#4 fuel oil	371,262,975		
Residential	#6 fuel oil	48,457,191		
Commercial	#2 fuel oil	364,010,009		
Commercial	#4 fuel oil	66,262,542		
Commercial	#6 fuel oil	5,946,181		
Industrial	#2 fuel oil	83,919,431		
Industrial	#4 fuel oil	14,276,502		
Industrial	#6 fuel oil	459,153		
	<u>Fuel</u>	<u>Consumed (liters)</u>	<u>Change from 2014 levels</u>	<u>Change from 2005 levels</u>
<u>Totals</u>	#2 fuel oil	1,090,301,149	8%	16%
	#4 fuel oil	451,802,019	22%	26%
	#6 fuel oil	54,862,525	-79%	-93%

### **In-City Power Plants**

The majority of in-City power plants are currently using natural gas as their primary fuel source.<sup>29</sup> However, according to data obtained from the New York State Department of

<sup>29</sup> United States Energy Information Administration, State Profile and Energy Estimates, data for New York power plants, available at <http://www.eia.gov/state/?sid=NY>

Environmental Conservation in “Emission Statements” from each respective in-City power plant, several plants are also using a variety of fuel oil grades, including the dirtiest No. 6 oil.<sup>30</sup>



This map shows all in-City power plants that are 100 megawatts in size or larger, and the population concentration around them. Source: The map is based on USEIA data and data from the American Community Survey (2014).

The New York State Reliability Council requires that in-City power plants maintain either a minimum level of oil as part of their generator fuel mixture, or have the ability to automatically swap to a liquid fuel source to guard against the sudden interruption of gas fuel supply to the generator.<sup>31</sup> This “minimum oil burn” requirement is activated and varies based upon the load on the City’s electrical system.<sup>32</sup>

<sup>30</sup> New York City Mayor’s Office of Sustainability, “Heating Oil Regulations” available at <http://www.nyc.gov/html/gbee/html/codes/heating.shtml>

<sup>31</sup> New York State Reliability Council, “Reliability Rules & Compliance Manual” November 2016, available at <http://www.nysrc.org/pdf/Reliability%20Rules%20Manuals/RRC%20Manual%20V39%2012-6-16.pdf>

<sup>32</sup> Id.



## **Local Law 92 of 2015 in Relation to Air Conditioners**

In October 2015, the City enacted Local Law 92 in relation to the use of air conditioning systems. The law expands to small stores (retail or wholesale establishments under four thousand square feet) the prohibition against propping open outside doors and windows while an air conditioner or central cooling system is operating.<sup>33</sup> The City's hospitality industry argues that the law should not apply to restaurants with open storefronts (and they argue it was never intended to apply to such restaurants). The industry notes that openable windows and doors, including so-called "French doors," are often built at substantial cost to restaurants and are a significant selling point in that they provide diners with a semi-al fresco dining experience that attracts customers.<sup>34</sup> The industry further argues that, unlike the case of a store that props open its exterior windows and doors while running the air conditioning in order to blow cool air out and attract customers in, the windows and doors at these restaurants is integral to the dining experience.<sup>35</sup>

### **Summary of Int. No. 1465**

Section one of the bill moves the date on which the use of No. 4 oil will be prohibited to October 1, 2025. Section two of the bill provides that this law will take effect immediately upon enactment.

### **Summary of Proposed Int. No. 1503-A**

This bill effectively creates an exemption to the requirement that stores keep exterior windows and doors closed while the air conditioning is operating. The exemption is for windows

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<sup>33</sup> New York City Local Law 92 of 2015, <http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=2386571&GUID=A472AEFB-0A82-4C2B-8D04-A117F6A71B9B&Options=ID|Text|&Search=850>

<sup>34</sup> NYC Hospitality Alliance, April 6, 2017, "Air Conditioning & Open Storefronts" available at <https://www.thenycalliance.org/government-affairs/air-conditioning--open-storefronts>

<sup>35</sup> Id.

and doors that connect indoor seating areas where food or beverages are served to the outside. The bill would take effect immediately upon enactment.

### **Conclusion**

At this hearing the Committee hopes to receive testimony from the Mayor's Administration, environmental groups, real estate industry, fuel oil industry, power plant operators and others regarding the merits of Int. 1465. The Committee also helps to receive testimony regarding the merits of Int. 1503-A from the City's hospitality and restaurant industry, as well as the Mayor's Administration, environmental groups and others.

Int. No. 1465

By Council Members Torres, Constantinides, Salamanca and Richards

A Local Law to amend the administrative code of the city of New York, in relation to phasing out the use of fuel oil grade no. 4

Be it enacted by the Council as follows:

Section 1. Subdivision d of section 24-168 of the administrative code of the city of New York, as amended by local law number 38 for the year 2015, is amended to read as follows:

(d) No person shall cause or permit a boiler to burn fuel oil grade no. 4 on or after [January 1, 2030] October 1, 2025.

§ 2. This local law takes effect immediately.

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Proposed Int. No. 1503-A

By Council Members Constantinides and Gentile

A Local Law to amend the administrative code of the city of New York, in relation to exemptions from air conditioning prohibitions

Be it enacted by the Council as follows:

Section 1. The definitions of the terms “door” and “window” as set forth in subdivision a of section 20-910 of the administrative code of the city of New York, as amended by local law number 92 for the year 2015, are amended to read as follows:

Door. The term "door" means any door used to close off any exterior entrance to a commercial building or structure and that when open allows for the co-mingling of indoor and outdoor air, but shall not include doors that (i) adjoin indoor seating areas where food or beverages are served and link such areas to [outdoor space, or outdoor seating areas,] the outside or (ii) allow for direct [table] service of food or beverages to outdoor [seating areas] space during times when servers are actively engaged in serving such [areas] space.

Window. The term "window" means any window used to close off any exterior opening to a commercial building or structure and that when open allows for the co-mingling of indoor and outdoor air, but shall not include windows that (i) adjoin indoor seating areas where food or beverages are served and link such areas to the outside or (ii) allow for direct service of food or beverages to outdoor space during times when servers are actively engaged in serving [customers present in] such space.

§ 2. This local law takes effect immediately.

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