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Hon. James F. Gennaro, Chair

**November 17, 2021**

**Oversight – Building Electrification**

**Int. No. 2091:** By Council Members Kallos and Cornegy

**Title:** A Local Law to amend the administrative code of the city of New York, in relation to studying the feasibility of electrifying existing buildings.

**Administrative Code:** Amends section 3-126

**Int. No. 2196:** By Council Member Louis

**Title:** A Local Law in relation to a study of the health impacts from gas stoves

**Int. No. 2317:** By Council Members Ampry-Samuel, Rivera, the Public Advocate (Mr. Williams), Van Bramer, Reynoso, Lander, Rosenthal, Kallos, Levin, Dromm, D. Diaz, Ayala, Menchaca, Adams, Barron, Chin, Cornegy, Rodriguez, Levine, Riley, Cumbo, Koslowitz, Dinowitz and Louis

**Title:** A Local Law to amend the administrative code of the city of New York, in relation to the use of substances with certain emissions profiles

**Administrative Code:** Adds a new section 24-177.1, and adds a new article 506 to chapter 5 of title 28

1. **Introduction**

On November 17, 2021, the Committee on Environmental Protection, chaired by Council Member James F. Gennaro, will hold an oversight hearing titled “Building Electrification.” The Committees will also hear several legislative items, including Int. No. 2091, in relation to studying the feasibility of electrifying existing buildings; Int. No. 2196, in relation to a study of the health impacts from gas stoves; and Int. No. 2317, in relation to the use of substances with certain emissions profiles. Those invited to testify include representatives from the Department of Buildings (DOB), the Mayor’s Office of Climate & Sustainability (MOC&S), energy sector practitioners, indoor air quality experts, various climate, sustainability and environmental advocates, and other interested parties.

1. **Background**

In 2018, the United Nations Intergovernmental Panel on Climate Change (IPCC) identified an increase of 1.5 degrees Celsius above pre-industrial levels as the point over which irreversible environmental changes and the potential loss of ecosystems become increasingly likely.[[1]](#footnote-1) According to the United States (U.S.) Global Change Research Program’s Fourth National Climate Assessment, failure to significantly mitigate global man made carbon emissions will lead to increasing rates of sea level rise, increased frequency of extreme weather events, and rising temperatures, which are expected to cause ongoing damage to critical infrastructure, property, and economic productivity.[[2]](#footnote-2)

On May 11, 2019, the Mauna Loa Observatory in Hawaii,[[3]](#footnote-3) which has been compiling atmospheric CO2 data since the 1950’s, recorded 415.26 parts per million (ppm) of CO2 in the atmosphere, the first time that the observatory measured a daily baseline above 415 ppm.[[4]](#footnote-4) According to the National Aeronautics and Space Administration (NASA), these are the highest CO2 levels that the planet has seen in the past 800,000 years.[[5]](#footnote-5) A study published in 2017, in the climate change-focused journal The Anthropocene Review, estimates that human-linked factors during the past six decades are causing the climate to change 170 times faster than they would without human intervention.[[6]](#footnote-6)

The effects of climate change are often inequitably distributed, with low-income communities, communities of color, children, and senior citizens more likely to experience the deleterious effects.[[7]](#footnote-7) Low-income communities often lack the financial and community resources to adequately respond to weather-related disasters, while communities of color are disproportionately likely to live in neighborhoods with environmental justice concerns.[[8]](#footnote-8) Additionally, children and seniors are more vulnerable to the effects of extreme weather than healthy adults.[[9]](#footnote-9)

According to the IPCC, climate modeling scenarios in which warming is limited to approximately 1.5 degrees Celsius generally show global carbon emissions reaching net zero by 2050.[[10]](#footnote-10) While New York City (the City) was responsible for approximately 1.7% of global carbon emissions in 2019,[[11]](#footnote-11) its status as a global leader gives it significant ability to drive more widespread acceptance of, and advancements in green technology.

*Building Electrification*

In New York City, Local Law 66 of 2014 requires the City to reduce citywide GHG emissions to 80% lower than its 2005 level by 2050 (80x50).[[12]](#footnote-12) This requirement to reduce GHG emissions falls largely on the City’s over one million buildings, which is by far the largest source of local GHG emissions.[[13]](#footnote-13) New York City’s building stock is responsible for approximately 70% of citywide GHG emissions,[[14]](#footnote-14) while the use of fossil fuels for heating and hot water production in the city’s building stock accounts for approximately 42% of the City’s total GHG emissions.[[15]](#footnote-15) Combustion of natural gas in residential and industrial buildings is responsible for approximately 35% of New York City’s total annual GHG emissions.[[16]](#footnote-16) Methane, the principal component of natural gas, traps heat far more effectively than CO2, with a global warming potential value (gwp) calculated to be 20-30 times higher than CO2 over a hundred year period.[[17]](#footnote-17) Once released, carbon dioxide persists approximately 10 times longer than methane, meaning that over a 10 year period, methane can be up to 100 times more effective at trapping heat, but as it is removed at a faster rate, its potency at the end of a 100 year timeframe is significantly reduced, though still more potent than CO2 (methane 20-30 times CO2).[[18]](#footnote-18) According to life cycle assessments of natural gas combustion compared to coal, a leakage rate of 4% is the point at which any emissions reduction gained from switching to natural gas from coal would be negated.[[19]](#footnote-19) Studies suggest that nearly 8 billion cubic feet (8 million dekatherms, or roughly 164 thousand metric tons[[20]](#footnote-20)) of methane, 8% of Manhattan’s total annual supply, is lost from the island’s natural gas infrastructure every year, due to leaking infrastructure.[[21]](#footnote-21)

 Widespread adoption of heating technologies that utilize renewable energy rather than the combustion of fossil fuels, and energy efficiency upgrades, are required to reduce citywide GHG emissions at a sufficient rate to meet local and state climate goals.[[22]](#footnote-22) Studies have shown that buildings where hot water production is decoupled from space heating boilers had substantially lower rates of fuel consumption than buildings where these two functions were serviced by the same equipment.[[23]](#footnote-23) Additionally, the United States. Environmental Protection Agency (EPA) identifies geothermal heat pumps as the most energy efficient, environmentally clean, and cost effective space-conditioning systems available, with the lowest carbon dioxide emissions,[[24]](#footnote-24) with systems capable of reducing the energy required for indoor thermal regulation by 25 to 50% compared to conventional heating or cooling systems.[[25]](#footnote-25) A Rocky Mountain Institute (RMI) study found that even with the current state of New York’s energy grid, switching to an air source heat pump from combustion based heating technologies would still represent a significant reduction in emissions per unit of heat delivered.[[26]](#footnote-26) The RMI study also found that in new constructions, full electrification is significantly cheaper than the cost of installing both electric and natural gas infrastructure.[[27]](#footnote-27) With estimates that more than 90% of New York City’s current buildings will still be standing in 2050, increasing the energy efficiency of both existing buildings and new constructions is vital to the City’s efforts to reduce carbon emissions.[[28]](#footnote-28)

*New York City’s Clean Energy Prospects*

In 2020, less than 30% of the electricity entering New York City’s grid was generated from renewable sources,[[29]](#footnote-29) while statewide, 60% of energy consumed came from renewable or nuclear sources.[[30]](#footnote-30) New York State’s Climate Leadership and Community Protection Act of 2019 aims to achieve 100% zero emission electricity by 2040, and overall emissions reductions of at least 85% below 1990 levels.[[31]](#footnote-31) Toward this goal, the State has set targets of 9,000 megawatts (MW) of offshore wind by 2035, 3,000 MW of energy storage by 2030, 6,000 MW of solar generation by 2025, and 22 million tons of carbon reductions through energy efficiency and electrification.[[32]](#footnote-32)

There are currently three offshore wind projects under active development in New York State, with a combined total capacity of 1,826 MW.[[33]](#footnote-33) The Empire Wind project has a capacity of 816 MW, and is being developed by Equinor Wind US LLC.[[34]](#footnote-34) The project will connect to the grid at the Gowanus Substation in Brooklyn,[[35]](#footnote-35) and will feed energy directly into New York City’s energy grid.[[36]](#footnote-36) The Sunrise Wind project has a capacity of 880 MW, is being developed by Sunrise Wind LLC, and is expected to begin commercial operation in 2024.[[37]](#footnote-37) The project will connect to the grid at the Holbrook Substation in central Long Island.[[38]](#footnote-38) The Empire and Sunrise projects are expected to power more than 1 million homes statewide, provide a combined economic impact of 3.2 billion dollars statewide, and support the creation of over 1,600 jobs.[[39]](#footnote-39) The South Fork offshore wind farm has a capacity of 130 MW and is located 35 miles east of Montauk,[[40]](#footnote-40) directly north of the Sunrise Wind offshore wind farm.[[41]](#footnote-41) It is expected to provide enough renewable energy for 70,000 homes, and offset 300,000 tons of carbon emissions annually, statewide.[[42]](#footnote-42) In July of 2020, the State of New York announced a solicitation for up to 2,500 additional megawatts of offshore wind projects, potentially bringing the State to nearly halfway of its goal of 9,000 MW by 2035.[[43]](#footnote-43)

There are also plans to build a new transmission line in order to improve New York City’s access to clean energy resources.[[44]](#footnote-44) Known as Clean Path NY (Clean Path), the project is a joint venture between the New York Power Authority and Forward Power (energyRe, LLC and Inventergy, LLC).[[45]](#footnote-45) The transmission line is expected to inject 3,800 megawatts of renewable energy generated across the Upstate region into the New York City grid.[[46]](#footnote-46) The Clean Path project is expected to reduce fossil fuel generation by 22% per year statewide.[[47]](#footnote-47) The proposed 1,300 megawatt high voltage dc transmission line will be 175 miles long, underground, and adjacent to existing infrastructure or along existing public rights of way. It will connect New York City to 2,050 megawatts of new instate wind generation, and 1,826 megawatts of new instate solar generation, with assets located across the state to minimize impact of local inclement weather on generation capacity.[[48]](#footnote-48) The Clean Path project also includes a pumped hydro storage element utilizing the Blenheim Gilboa Hydroelectric power station, which will pump water to an upper reservoir with excess energy during periods when production outpaces demand, and function in a grid smoothing capacity during dips in energy production.[[49]](#footnote-49)

Additionally, the Champlain Hudson Power Express transmission line will link existing hydropower resources located on the New York Canada border with a substation to be built in Astoria, Queens.[[50]](#footnote-50) The project is expected to be completed by 2025, and will provide 1,250 megawatts of firm, non-intermittent power supply.[[51]](#footnote-51) It is expected to provide an estimated 17.3 billion dollars in cost savings to New York State ratepayers due to lower wholesale energy rates, over the next 30 years.[[52]](#footnote-52)

**III. Legislation**

**Int. No. 2091 ,** a local to amend the administrative code of the city of New York, in relation to studying the feasibility of electrifying existing buildings, would amend previously enacted local laws to add a study of building electrification in New York City. The legislation would require that the building electrification study consider regulatory barriers to building electrification; lack of both customer awareness and workforce familiarity with electrification, costs for property owners, time frames for electrification consistent with state and local greenhouse gas reduction goals, and an assessment of the renewable energy sources that would be needed to meet any increase in demand caused by the electrification of existing buildings. The study would also consider equity and access to inclusive financing for property owners as well as tenant protection from property rental increases. This local law would take effect immediately.

**Int. No. 2196,** a local law to to amend the administrative code of the city of New York, in relation to studying the feasibility of electrifying existing buildings,would require an agency or office designated by the Mayor to conduct a study of the health impacts of gas stoves and to make a recommendation as to whether it would be appropriate to create a phase-out policy of gas stoves. This local law would take effect immediately.

**Int. No. 2317**, a local law to amend the administrative code of the city of New York, in relation to the use of substances with certain emissions profiles,would prohibit the combustion of a substance that emits 50 kilograms or more of carbon dioxide per million British thermal units of energy in any newly constructed building or any building that has undergone a major renovation. The bill provides an exception for: emergency standby power; a hardship preventing compliance with the bill; where the combustion of the substance is required by certain enumerated industries; and where the combustion of the substance is used on an intermittent basis in connection with a device that is not connected to the building’s gas supply line. This local law would take effect two years after it becomes law, except that this local law shall not apply to construction work related applications for construction document approval filed prior to such effective date.

**IV. Conclusion**

During today’s hearing, the Committee hopes to hear testimony from representatives of the relevant City agencies and offices about their current work on building electrification, including new and existing buildings. The Committee would like to hear from energy industry representatives, as well as health experts on the impacts of gas stoves on indoor air quality and human health. The Committee is also seeking comments from the Mayoral Administration, stakeholders and the public on the legislation being heard today, Int. No. 2091, Int. No. 2196, and Int. No. 2317.

Int. No. 2091

By Council Members Kallos and Cornegy

..Title

A Local Law to amend the administrative code of the city of New York, in relation to studying the feasibility of electrifying existing buildings.

..Body

Be it enacted by the Council as follows:

Section 1. Subdivision e of section 3-126 of the administrative code of the city of New York is amended to read as follows:

e. Where the administering agency has established a long-term energy plan in accordance with this section and in conjunction with the long-term sustainability plan required by subdivision e of section 20 of the [New York city] charter, the advisory subcommittee shall provide advice and recommendations with respect to:

1. Plans for providing information to city residents and other members of the public regarding energy efficiency initiatives and the purchase of renewable energy;

2. Plans for the dissemination of information to city residents and other members of the public about the benefits of and progress attained through such long-term energy plan; [and]

3. Plans for providing information to property owners, engineers, electricians, architects and other members of the public on the methods and potential benefits of the electrification of existing buildings; and

4. For any subsequent long-term energy plan, a review of the city's objectives and recommendations established in the previous long-term energy plan.

§ 2. Subdivision g of section 3-126 of the administrative code of the city of New York is amended to read as follows:

g. The long-term energy plan developed in accordance with subdivision d of this section shall include the following:

1. An assessment of the feasibility of replacing in-city gas-fired power plants associated with the bulk power system with battery storage powered by renewable energy sources in a manner that is consistent with the New York state public service commission energy storage deployment policy developed pursuant to section 74 of the public service law;

2. An assessment of when such replacement, if feasible, can take place; [and]

3. A review of potential technologies for battery storage of energy[.];

4. A review of the regulatory barriers to the electrification of existing buildings and the impacts of energy subsidies, including consideration of the impacts of utility franchise agreements, gas subsidies such as for gas line extensions, appliance emission standards, and energy rates;

5. An assessment of the potential costs for property owners of the electrification of existing buildings, including consideration of buildings of various types and sizes;

6. An assessment of possible time frames for the electrification of existing buildings of various types and sizes, including consideration of both the energy demands required and state and local greenhouse gas reduction goals;

7. An assessment of the potential equity impacts of the electrification of existing buildings, including considerations of property owner access to financing, and potential financial impacts on tenants; and

8. An assessment of the renewable energy sources that would be needed to meet any increase in demand caused by the electrification of existing buildings.

§ 3. This local law shall take effect immediately.

SS LS #13829

9/15/20

Int. No. 2196

By Council Member Louis

..Title

A Local Law in relation to a study of the health impacts from gas stoves

..Body

Be it enacted by the Council as follows:

Section 1. An agency or office designated by the mayor shall conduct a study to determine whether there are health impacts associated with the residential and the commercial uses of gas stoves. Such agency shall submit to the mayor and the speaker of the council the results of such study within one year of the effective date of the enactment of this legislation along with a recommendation of whether it would be appropriate to create a phase-out policy of gas stoves.

§ 2. This local law takes effect immediately.

SS

LS #11678

12/15/20

Int. No. 2317

By Council Members Ampry-Samuel, Rivera, the Public Advocate (Mr. Williams), Van Bramer, Reynoso, Lander, Rosenthal, Kallos, Levin, Dromm, D. Diaz, Ayala, Menchaca, Adams, Barron, Chin, Cornegy, Rodriguez, Levine, Riley, Cumbo, Koslowitz, Dinowitz and Louis

..Title

A Local Law to amend the administrative code of the city of New York, in relation to the use of substances with certain emissions profiles

..Body

Be it enacted by the Council as follows:

Section 1. Subchapter 8 of chapter 1 of title 24 of the administrative code of the city of New York is amended by adding a new section 24-177.1 to read as follows:

§ 24-177.1 Prohibited emissions a. Where required by article 506 of title 28, no person shall permit the combustion of any substance that emits 50 kilograms or more of carbon dioxide per million British thermal units of energy within a building within the city as determined by the United States energy information administration.

b. Notwithstanding the prohibition in subdivision a, combustion of a substance that emits 50 kilograms of carbon dioxide per million British thermal units of energy or more shall be permitted for use within a building:

1. Where required for emergency standby power;

2. Where the owner of such building can demonstrate to the commissioner of buildings that complying with subdivision a would create an undue hardship;

3. Where the combustion of such substance is required for manufacturing, or for the operation of a laboratory, a laundromat, a hospital or a commercial kitchen; or

4. Where the combustion of such substance occurs in connection with a device that contains no connection to a building’s gas supply line and is used on an intermittent basis.

c. The department, in conjunction with the department of buildings, shall enforce this section of the code.

§ 2. Chapter 5 of title 28 of the administrative code of the city of New York is amended by adding a new article 506 to read as follows:

ARTICLE 506

EMISSION PROFILE

**§ 28-506.1 General.** Buildings covered by this code must comply with section 24-177.1.

§ 3. This local law takes effect two years after it becomes law, except that this local law shall not apply to construction work related applications for construction document approval filed prior to such effective date.

GZ

LS #11740

5.24.21

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