

ELITE EMISSIONS:

**HOW THE HOMES OF THE WEALTHIEST NEW YORKERS
HELP DRIVE CLIMATE CHANGE**

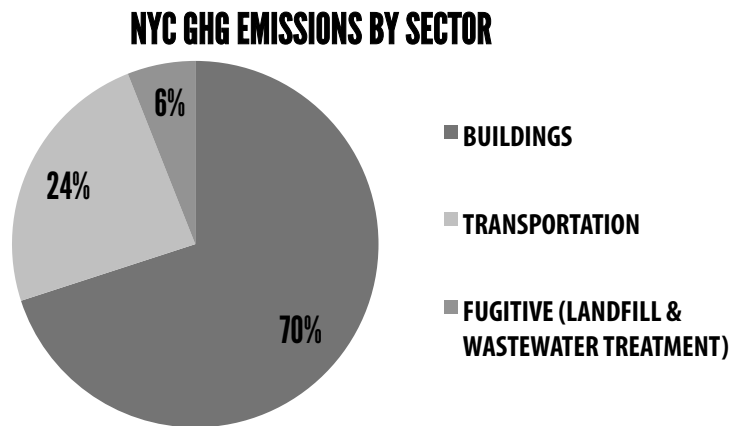
A REPORT BY THE CLIMATE WORKS FOR ALL COALITION



THE THREAT

It is widely acknowledged that New York City must address climate change in order to protect residents and ensure its economic vitality. Among major coastal cities in the United States, New York City is most at risk from economic losses from future flooding, and is ranked third globally.ⁱ To highlight this risk, sea levels are estimated to rise up to 2 feet by 2050.ⁱⁱ This is a significant threat that New York City cannot ignore.

New York City's buildings that make up our iconic skyline are the very source of our climate crisis. The heating, cooling and electricity needs of these buildings generate the majority of greenhouse gas emissions that cause global warming. In fact, 70% of New York City's emissions come from buildings.ⁱⁱⁱ Further zeroing in on the problem, a mere two percent of the city's one million buildings use 45% of all of the city's energy. These are New York City's largest buildings, over 50,000 square feet in size, which primarily consist of a mixture of luxury apartments, commercial buildings, and multi-family housing developments. The significant impact of these large buildings on our carbon footprint must be addressed immediately, and at sufficient scale to meet New York City's goal of reducing greenhouse gas emissions by 80% by 2050 (also known as 80x50), which was enacted into law at the end of 2014.^{iv}



This report is the first in series that will highlight different segments of the large buildings sector and their emissions. This report focuses on New York City's elite emitters. New York City's elite emitters live in the most expensive buildings and are among the worst carbon polluters in our city. It is no surprise that without energy efficiency measures in place, luxury buildings will have enormous impacts on climate, especially given their super-sized amenities. Inefficient buildings with heated indoor pools, private fitness centers, and private performance rooms all require energy resources above and beyond the typical residential building.

Below is a small sampling of the largest building emitters that are linked with the city's most "elite" residents. We looked at residents who are on the Forbes Billionaires list, buildings in Business Insider's 20 Most Expensive Buildings in New York City, and more, and then cross-referenced these addresses with New York City's Energy Benchmarking data. The residents of these energy inefficient buildings include Donald Trump (New York City real estate mogul), David Koch (the 6th richest person in the world and active climate denier), and Alice Walton (the 11th richest person in the world and heir to the Walmart fortune). While reducing carbon emissions from all buildings in New York City will

require different strategies and public investments, this is a segment of real estate that does not suffer from a lack of resources needed to immediately address their impact on climate change.

THESE ELITE EMITTERS GET AN “F” ON ENERGY EFFICIENCY

RANK	BUILDING ADDRESS (ALL MANHATTAN)	OWNER	ENERGY USE INTENSITY (EUI) PER SQUARE FOOT*	WHAT'S SO ELITE ABOUT THESE EMITTERS?
1	838 5 th Avenue	Condo Association	270	5 th most expensive building in NYC in 2015. Apartments recently sold at a median price of \$4,839 per square foot. ^v
2	101 Warren Street	Condo Association	243	Currently renting the 10 th most expensive apartment in NYC at \$90,000/month. ^{vi}
3	Trump Park Avenue. 502 Park Avenue	Condo Association	227	Was the former Hotel Delmonico, turned into ultra-luxury condos. ^{vii}
4	Trump Tower. 721 5 th Avenue	Condo Association	216	Home to Donald Trump, real estate mogul who has dubbed climate change a “hoax.” ^{viii}
5	820 5 th Avenue	Coop	204	Sold the most expensive apartment unit in NYC in 2009, at \$40 million. ^{ix}
6	40 Mercer Street	Condo Association	196	Sold the 7 th most expensive unit in NYC in 2014, at \$4,157 per square foot. ^x
7	CitySpire. 150 West 56 Street	Condo Association	195	The 2 nd most expensive unit on the market in 2015 at \$100 million. ^{xi}
8	515 Park Avenue	Condo Association	191	Home to Alice Walton, heir to the Walmart fortune and the 11 th richest person in the world. ^{xii}
9	740 Park Avenue, Manhattan	Condo Association	181	Home to David Koch, 6 th richest man in the world and active climate denier. ^{xiii}
10	635 West 42 Street Manhattan	Condo Association	177	The 3 rd most expensive unit on the market in 2015 at \$85 million. ^{xiv}

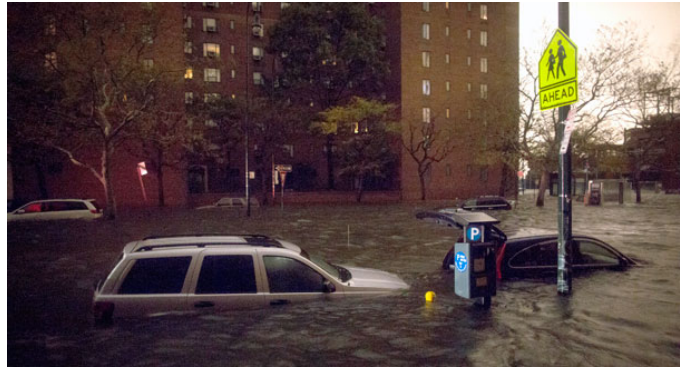
* Weather Normalized Source Energy Use Intensity (EUI). An EUI score over 206 is in the 90th percentile for worst emitters for multi-family residential buildings. A score over 126 is above the median for that building type.^{xv}

A PRICE PAID BY ALL NEW YORKERS

Living in luxury in New York City comes with a high price tag. But the bill isn’t solely paid by elite emitters. Low-income New Yorkers contribute relatively little to the city’s emissions, often living in cramped apartments and only using enough energy to meet basic needs, but pay a disproportionately large cost for climate change. In a city with one of the highest concentrations of income inequality in the U.S., it is inevitable that New York City is also home to

climate inequality, deeply dividing how New Yorkers experience the effects of climate change.^{xvi} While the wealthiest New Yorkers contribute significantly to emissions, they are largely sheltered from its most chaotic and dangerous outcomes.

Hurricane Sandy was a moment of truth for New York City, demonstrating that the climate crisis is also about a crisis of inequality. Fifty-five percent of the storm surge victims in New York after Hurricane Sandy were very low-income renters, whose incomes are \$18,000 a year on average.^{xviii} At the same time, those with excess wealth were able to leave the city, rent hotel rooms and in some cases bring domestic workers with them to care for their children.^{xix} While some neighborhoods in New York City are still being rebuilt three years after Sandy, Wall Street's Stock Exchange was up and running within two days of the storm.^{xx} Finally, public dollars are called upon to pay for much of the damage wrought by climate disaster, which in turn diverts much needed resources from low-income communities.



Flooding caused by Hurricane Sandy had devastating consequences for New York City, particularly for its low-income residents.^{xxvii}

When so much is at stake, and so many people at risk, it is imperative that, at the very least, our city mandate energy efficiency retrofits on all large buildings, rather than leave important public policy goals to the voluntary, good-will of the private sector. Could we imagine today's buildings without fire codes that require fire exits? Could we imagine today's buildings without accessibility mandated by the Americans with Disabilities Act? This is about the health and welfare of our residents, and a mandatory retrofit program for all large buildings is critical to the city's plan towards modernizing our buildings and meeting the challenge of the climate crisis.

POLITICAL RESPONSES OF THE PAST

The sustainability problem emanating from buildings, particularly our largest buildings, is not a mystery to our policymakers. Efforts have been made to address these emissions, at least since the Greener, Greater Buildings plan almost ten years ago, but these programs have mostly failed to result in large scale change because they only require limited building upgrades.^{xxi} The NYC Carbon Challenge has reached about 700 large residential buildings in the city, as well as the majority of universities and hospitals, which have voluntarily committed to 30% or more in energy use reduction within ten years.^{xxii} The Mayor's Retrofit Accelerator, which provides technical assistance and access to financing for energy efficiency retrofits, estimates it will reach 1,000 properties per year by 2025, for a total of 7,500.^{xxiii} These programs, assuming full uptake, are projected to retrofit around 30% of our large building properties.

To be clear, the current initiatives of the Mayor are laudable and deserve continued support and expansion. However, the Retrofit Accelerator and the NYC Carbon Challenge are purely voluntary programs. Even assuming these programs achieve their goals of retrofitting those buildings that are ready and willing, it is the remaining 70% of NYC's largest properties, those that have refused to voluntarily retrofit, that create the most pressing challenge for our city.

Contrast the results of these voluntary programs to the effectiveness of clearly mandated programs to address climate change. For example, the Clean Heat program mandated that those buildings burning the dirtiest fuels convert to cleaner heating fuels, and as a result, the program has yielded a 99.8% compliance rate within four years.^{xxiv} This was a critical program that has helped New York City achieve cleaner air and emissions reductions. Without strong and clear legal requirements, the market will only respond in a scattered and piecemeal fashion.

New York City's political leaders must drive a solution to the climate crisis that begins with requiring energy efficiency retrofits across all large buildings. This solution cannot wait until 2025 when we are able to assess whether or not these voluntary programs have achieved their goals.

REALIZING A CLIMATE THAT WORKS FOR ALL

High-performing buildings that use energy intelligently and responsibly are achievable today. Proven models, effective technologies, and a diversity of strategies exist now. For example, several multi-family residential buildings in New York City are being built and retrofitted to "passive house" standards.^{xxvi} Passive homes require no active heating or cooling systems and use about one-quarter of the energy of a typical home. The problem is that many more buildings are being built and renovated with no concern for carbon emissions. The private real estate market will not adequately address the climate crisis, and the city must step in to take the lead.



A rendering of Cornell University's Tech Campus on Roosevelt Island in NYC, which will be the world's first Passive House high-rise. It will open in 2017.^{xxiv}

First, the city should achieve Passive House and Zero Net Energy, or equivalent standards, by 2030 through a graduated phase in of energy efficient building codes and energy use reduction targets.^{xxvii}

- **The Passive House standard** is a building performance standard that results in a 90% reduction in heating and cooling energy usage and up to a 75% reduction in primary energy usage from existing building stock.
- **A Zero Net Energy standard** requires buildings to provide enough on-site, and/or off-site, renewable energy equal to the total amount of energy used by the building annually.
- **When a new building is being built, it would need to comply with the new code.** When an existing building files a permit for an alteration, it would need to meet all updated code requirements for the project that it plans to undertake.

The city should also require the worst energy performing buildings, based on data provided under the benchmarking law, to undergo energy efficiency retrofits based on findings from their energy audits. Energy audits for large buildings are already required under local law.^{xxviii}

Finally, with a mandatory program in place, energy efficiency work in our large buildings will generate thousands of good jobs for New Yorkers. Creating jobs for low-income, climate-vulnerable communities addresses both economic inequality and climate change at the same time. In addition, where funds are provided to facilitate retrofits, such as through the New York City Energy Efficiency Corporation (NYCEEC), local hiring programs should be set up for residents, and workers should be adequately trained through certified apprenticeship programs.

CONCLUSION

New York City's buildings account for 70% of New York City's carbon footprint. It is clear that reducing emissions from our building sector is a critical component to addressing the global climate crisis that is causing sea levels to rise and creating more extreme weather.

Ironically, many of our city's inefficient buildings are also luxury developments that can most easily afford to make energy efficiency improvements. Inaction on climate jeopardizes everyone's future, and highlights the need for clear and enforceable policies that require high performing buildings. Mandating our largest buildings to comply with measures such as passive house and zero net energy building standards, phased in over time, will ensure New York can meet its 80x50 emissions reduction goal, and that our city's elite emitters don't continue to get a free pass on climate change.

ENDNOTES

- ⁱ *Future Flood Losses in Major Coastal Cities*, World Bank and Organization for Economic Cooperation and Development (OECD), August 2013. Based on the overall cost of business interruption. <http://www.oecd.org/dataoecd/16/50/52312312.pdf>.
ⁱⁱ *Cost of Business Interruption: A Statement for the United States Risky Business Project*, June 2014, http://riskybusiness.org/uploads/files/RiskyBusiness_PrintedReport_FINAL_WEB_OPTIMIZED.pdf.
- ⁱⁱⁱ New York City produces 48 million metric tons of CO2 equivalent, greater than the emissions of 97 countries. It's buildings emit 38 million metric tons of CO2 equivalent. *Inventory of New York City Greenhouse Gas Emissions*, City of New York, Nov 2014, at http://www.nyc.gov/html/planyc/downloads/pdf/NYC_GHG_Inventory_2014.pdf.
- ^{iv} New York City Local Law 378 of 2014. A local law to reduce greenhouse gases by eighty percent by two thousand fifty.
- ^v *Guess the Priciest NYC Buildings by Median Square Foot*, Street Easy. August 31, 2015, at <http://streeteasy.com/blog/most-expensive-buildings-by-median-square-foot/>.
- ^{vi} *Behold, the 10 Most Expensive Apartments for Rent in NYC*, Curbed. June 1, 2015, at http://ny.curbed.com/archives/2015/06/01/behold_the_10_most_expensive_apartments_for_rent_in_nyc.php.
- ^{vii} Trump Park Avenue. Trump International Realty, at <http://www.trumpinternationalrealty.com/property-gallery/trump-park-avenue/>.
- ^{viii} *Climate Change: Where the 2016 presidential candidates stand on our global future*. Yahoo Politics, Michael Walsh, August 17, 2015, at <https://www.yahoo.com/politics/climate-change-where-the-2016-presidential-126684106071.html>
- ^{ix} *New York's Most Expensive Apartments – Past, Present, and Future*. Revaluate. February 27, 2015, at <https://revaluate.com/blog/new-yorks-most-expensive-apartments-past-present-and-future/>.
- ^x *The 20 Most Expensive Buildings In New York City*. Business Insider. July 29, 2014, at <http://www.businessinsider.com/the-20-most-expensive-buildings-in-new-york-city-2014-7>.
- ^{xi} *The 25 Most Expensive New York City Homes on the Market*. Curbed. September 24, 2015, at http://ny.curbed.com/archives/2015/09/24/the_25_most_expensive_new_york_city_homes_on_the_market.php.
- ^{xii} Forbes Billionaires: Full List of the 500 Richest People in the World 2015, at <http://www.forbes.com/sites/chasewithorn/2015/03/02/forbes-billionaires-full-list-of-the-500-richest-people-in-the-world-2015/>.
- ^{xiii} See endnote xii, above. *Secret funding helped build vast network of climate denial thinktanks*. The Guardian, Suzanne Goldenberg, February 14, 2013, at <http://www.theguardian.com/environment/2013/feb/14/funding-climate-change-denial-thinktanks-network>.
- ^{xiv} See endnote ix, above.
- ^{xv} Data comes from New York City Local Law 84, known as the Energy Benchmarking law. Building owners must submit their annual energy use data to the city. The city then compiles this information and calculates a building's weather normalized energy use intensity, a per-square-foot measurement that is comparable across buildings. See NYC LL84: Benchmarking, at <http://www.nyc.gov/html/gbee/html/plan/ll84.shtml>. See also Urban Green Council's user-friendly data interface, at <http://metered.nyc/>.
- ^{xvi} *Some Cities Are Still More Unequal Than Others: An Update*. Berube and Holmes, Brookings. March 17, 2015, at <http://www.brookings.edu/research/reports/2015/03/city-inequality-berube-holmes>.
- ^{xvii} Hurricane Sandy update: East Coast and campaigns assess damage, at http://www.politico.com/news/stories/1012/83043_Page2.html#ixzz3r1V4WvD
- ^{xviii} Furman Center, NYU, March 2013. *Sandy's Effects on Housing in New York City* <http://furmancenter.org/files/publications/SandysEffectsOnHousingInNYC.pdf>.
- ^{xix} *The Hideous Inequality Exposed by Hurricane Sandy*. Rohde, The Atlantic. October 31, 2015 at <http://www.theatlantic.com/business/archive/2012/10/the-hideous-inequality-exposed-by-hurricane-sandy/264337/>.
- ^{xx} *After Hurricane Sandy, Stock Exchange Prepares to Open*. Craig and Protes, The New York Times. October 30, 2012, at <http://dealbook.nytimes.com/2012/10/30/after-hurricane-sandy-stock-exchanges-prepare-to-open/>.
- ^{xxi} Greener Greater Buildings requires retro-commissioning (tuning) building equipment in all large buildings, and for commercial buildings, they must upgrade lighting and sub-meter tenant energy use. See Greener Greater Buildings Plan, at <http://www.nyc.gov/html/gbee/html/plan/plan.shtml>.
- ^{xxii} The New York City Carbon Challenge consists of multi-family, office, and institutional components. NYC Mayor's Office of Sustainability, at <http://www.nyc.gov/html/gbee/html/challenge/nyc-carbon-challenge.shtml>.
- ^{xxiii} New York City Retrofit Accelerator, at <https://retrofitaccelerator.cityofnewyork.us/>.
- ^{xxiv} New York City Clean Heat, at <https://www.nycleanheat.org/content/what-nyc-clean-heat>.
- ^{xxv} *Cornell Tech Announces Construction of First Passive House High-Rise in the World*, Cornell Tech News and Views, at <http://tech.cornell.edu/news/cornell-tech-announces-construction-of-first-passive-house-residential-high>.
- ^{xxvi} *The Passive House in New York*. Gregor, the New York Times. March 27, 2015, at <http://www.nytimes.com/2015/03/29/realestate/the-passive-house-in-new-york-city.html>.
- ^{xxvii} The three year code revision cycle is in line with the International Code Council's (ICC) International Building Code cycle. See *Code Revision*, NYC Department of Buildings, at http://www.nyc.gov/html/dob/html/codes_and_reference_materials/code_revisions.shtml.
- ^{xxviii} LL87: Energy Audits & Retro-commissioning. NYC Mayor's Office of Sustainability, at <http://www.nyc.gov/html/gbee/html/plan/ll87.shtml>.