NYC CLIMATE JUSTICE AGENDA

MIDWAY TO 2030

BUILDING RESILIENCY AND EQUITY FOR A JUST TRANSITION

NEW YORK CITY ENVIRONMENTAL JUSTICE ALLIANCE

APRIL 2018

ON THE GROUND

AND AT THE TABLE

New York City Environmental Justice Alliance

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GOLES (Manhattan);
El Puente (Brooklyn);
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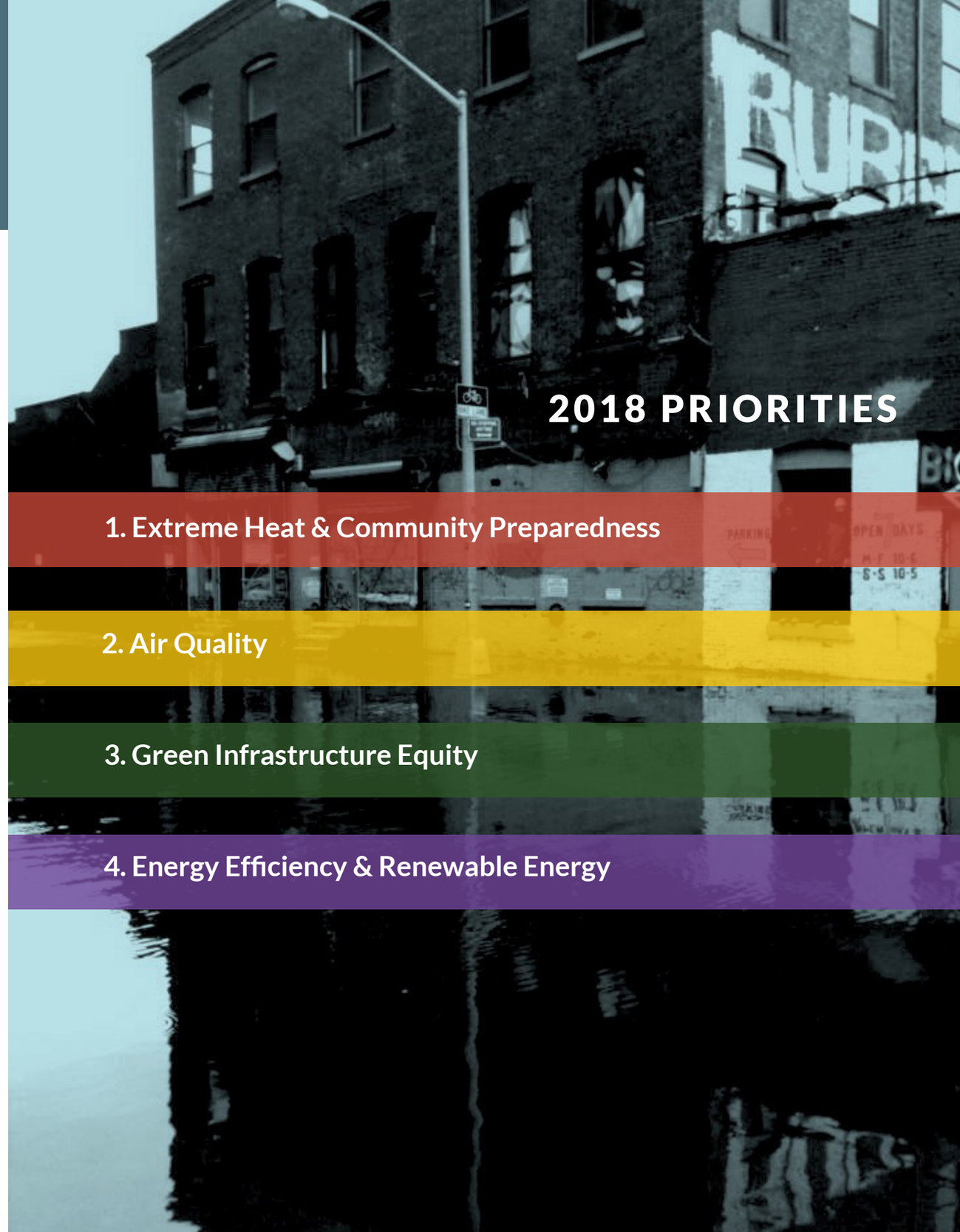
INTRODUCTION

Earth Day 2018 marks roughly 11 years since New York City launched its first comprehensive climate action plan, *PlaNYC: A Greener Greater New York*. And just over 11 years from now, we will reach 2030, the deadline for many of the City's most ambitious climate goals, including reducing greenhouse gas (GHG) emissions by 50 percent, generating 1,000 Megawatts (MW) of solar energy, and achieving the cleanest air quality of any major city in the country.

As the years progress and the threats of climate change loom larger, the need for rapid, bold, and holistic approaches to climate resiliency becomes increasingly essential. The New York City Panel on Climate Change (NPCC) projections for 2050 warn of potential sea level rise from 8 to 30 inches, 100-year flood heights increasing by 12 to 13.8 feet,[1] and the projected annual average number of days over 90°F tripling.[2] Climate change adaptation and mitigation must be integrated in every aspect of city planning and policymaking, just as climate justice must guide both City and State efforts to address this crisis.

In this third edition of the *New York City Climate Justice Agenda*, the New York City Environmental Justice Alliance (NYC-EJA) has reviewed several City and State climate efforts along four priorities: (1) Extreme Heat and Community Preparedness, (2) Air Quality, (3) Green Infrastructure Equity, and (4) Energy Efficiency & Renewable Energy. For each area, we assess major progress and challenges, and propose solutions that have been developed at the grassroots level with input from our member organizations and allies.

The recommendations put forward in this report aim to move New York City toward a Just Transition, a process based in justice and equity that builds economic and political power to shift from an extractive economy to a regenerative economy.[3]



Priority 1

EXTREME HEAT & COMMUNITY PREPAREDNESS

Scientists ranked 2017 as one of the hottest years on record in the United States.[4,5] Extreme heat results in more deaths than any other weather-related event.[6,7] As the climate continues to warm, we will see increased social consequences of more frequent and severe extreme heat events, which disproportionately impact low-income communities, communities of color, socially-isolated populations, and the elderly.[8,9] Community preparedness plays an important role in ensuring that communities are able to adapt to extreme heat events, among other emergency scenarios.

NYCHA Kingsborough Houses. Source: NYCHA

In June 2017, Mayor Bill de Blasio released *Cool Neighborhoods NYC: A Comprehensive Approach to Keep Communities Safe in Extreme Heat,* detailing the City's $106 million plan to address the public health effects of extreme heat events in at-risk neighborhoods. The plan focuses on Urban Heat Island (UHI) mitigation strategies such as planting street trees, implementing cool roofs, and green infrastructure investments to lower outdoor and indoor temperatures. The plan also includes preparedness strategies such as piloting a community-led plan for extreme heat emergencies, exploring multiple avenues to communicate heat-health messaging to vulnerable populations, expanding cooling assistance programs, and improving the City's cooling center program. Lastly, *Cool Neighborhoods NYC* discusses temperature monitoring strategies to better implement climate adaptation planning.[10]

Cool Neighborhoods NYC uses the NYC Heat Vulnerability Index (HVI) to identify the most heat-vulnerable neighborhoods in New York City. Created by researchers at the New York City Department of Health and Mental Hygiene (NYC-DOHMH) and Columbia University, the HVI summarizes factors associated with adverse health effects and identifies neighborhoods with a higher risk for heat-related deaths. The index consists of environmental metrics, poverty rates, and race demographics proven to be strong indicators of heat risk. [11,12] The twelve neighborhoods ranked highest on the HVI are predominantly high poverty areas where residents are majority people of color (*See Heat Vulnerability Index and Demographics Table*).

While we commend the City for creating a more comprehensive plan, there is still room for improvement to ensure that climate vulnerable communities are properly prepared against heat-related illness and death.

Demographics of NYC's Most Heat-Vulnerable Communities

Neighborhoods (Community Districts)	Percentage Population of Color	Median Household Income	Residents with Incomes Below NYC Poverty Threshold
Bedford-Stuyvesant, Stuyvesant Heights, Tompkins Park North (BK-CD3)	79%	$36,859	25%
Bushwick (BK-CD4)	87%	$40,533	25%
Broadway Junction, Brownsville, Ocean Hill (BK-CD16)	98%	$27,512	29%
Crown Heights, Prospect Heights, Weeksville (BK-CD8)	81%	$42,796	23%
East Flatbush, Farragut, Flatbush, Northeast Flatbush (BK-CD17)	98%	$46,725	21%
Bathgate, Belmont, Bronx Park South, East Tremont, West Farms (BX-CD6)	95%	$22,632	31%
Claremont, Crotona Park East, Melrose, Morrisania (BX-CD3)	95%	$22,632	31%
Concourse, Concourse Village, East Concourse, Highbridge, Mount Eden (BX-CD4)	98%	$26,189	33%
Fordham, Morris Heights, Mount Hope, University Heights (BX-CD5)	99%	$24,165	34%
Hunts Point, Longwood (BX-CD2)	98%	$22,001	28%
Melrose, Mott Haven, Port Morris (BX-CD1)	98%	$22,001	28%
Central Harlem (M-CD10)	87%	$38,621	21%

Sources: American Community Survey via Data USA, New York City Department of City Planning Community District Profile

Determine the True NYC Heat Mortality Rate

New York City reports an average of 13 heat-stroke deaths, 115 excess heat-related deaths, 150 heat-related hospitalizations, and 450 heat-related emergency department visits annually.[13] However, heat-stroke deaths only officially include deaths where heat is recognized as a leading cause on the death certificate.[14] This could potentially lead to a significant underestimation, since extreme heat may exacerbate respiratory, cardiovascular illnesses, and other chronic conditions but not be listed as cause of death.

Different studies have estimated the number of annual heat-related deaths in New York City; these estimates range from 198[15] to 638.[16] NYC-EJA, along with the Scientist Action and Advocacy Network, found that these estimates may vary due to differences in statistical models and methods used by these researchers. Different definitions of a "hot day", differences in how long after an extreme heat event to consider deaths related to the event, and different sources of weather and mortality data may influence outcomes. Additionally, projections show that the annual number of heat-related deaths may reach 3,331 by 2080 – however, it is unclear whether this projected dramatic increase relies on the same methodologies used to calculate current heat-related deaths.[17]

A crucial step towards citywide heat-related community preparedness is to determine the actual number of heat-related deaths and how that number varies by neighborhoods. NYC-DOHMH must make daily-level mortality data available to the public so researchers can create and refine models with the most accurate level of data, and better inform policymakers, organizations, and community members on the extent and urgency of heat mortality vulnerabilities for preparedness planning purposes. Additionally, the City should direct resources to review heat mortality data and existing studies to determine best methods.

Increase Reliability of Cooling Centers

Reliable access to air-conditioning is a critical community preparedness strategy to protect against the adverse effects of extreme heat. In a study of four U.S. cities, prevalence of air-conditioning in the home may explain differences in the heat mortality rate between blacks and whites.[18] Cooling centers play an important role in mitigating the effects of extreme heat in communities of color and other vulnerable populations that lack equitable access to home air-conditioning.

During extreme heat events the New York City Office of Emergency Management (NYC-EM) works with agency partners to activate hundreds of cooling centers citywide, typically public and other community spaces that provide free air-conditioning for the public.[19] Although NYC-EM has increased visibility of the City's Cooling Center program through digital outreach and investing in signage, the program requires improved consistency in operations and communicating information to the public.

Since cooling center facilities are not operated directly by NYC-EM, days and hours of operation vary for each cooling center. Consistent hours among all locations throughout New York City ensures that all neighborhoods have cooling centers operating and available to the community when they need it most. Most cooling center hours are during the day; however, the UHI effect may result in higher than average nighttime temperatures, resulting from dark impervious surfaces absorbing energy during the day and then re-emitting the heat at night.[20] Thus, the City should consider implementing late evening and overnight hours for cooling centers. NYC-EM does not release the official list of cooling centers in advance of a heat emergency. The City should consider making the locations of cooling centers publicly available year-round to better inform community preparedness plans for heat emergencies. Finally, the City must address the shortcomings of not having cooling center facilities under their direct management and increase coordination with relevant agencies.

Transparency in Temperature Monitoring Strategies

Temperature monitoring can help identify neighborhood-level disparities in heat risk throughout New York City, and that information can inform mitigation and adaptation plans. The City's strategies include collecting neighborhood-level temperature, collecting updated LiDAR remote sensing data, and installing a high-density hydro-meteorological weather network.[21]

The City's $300,000 investment to collect neighborhood-level temperature data can inform ongoing heat risk assessments and identify potential interventions to mitigate UHI effect.[22] However, the City should seek community input and be transparent in the data collection process by sharing the timeline, number of monitors, and locations of monitors. If communities are uninformed of the specific plans for temperature monitoring, the City may miss valuable input on how best to collect and utilize data to benefit all New Yorkers.

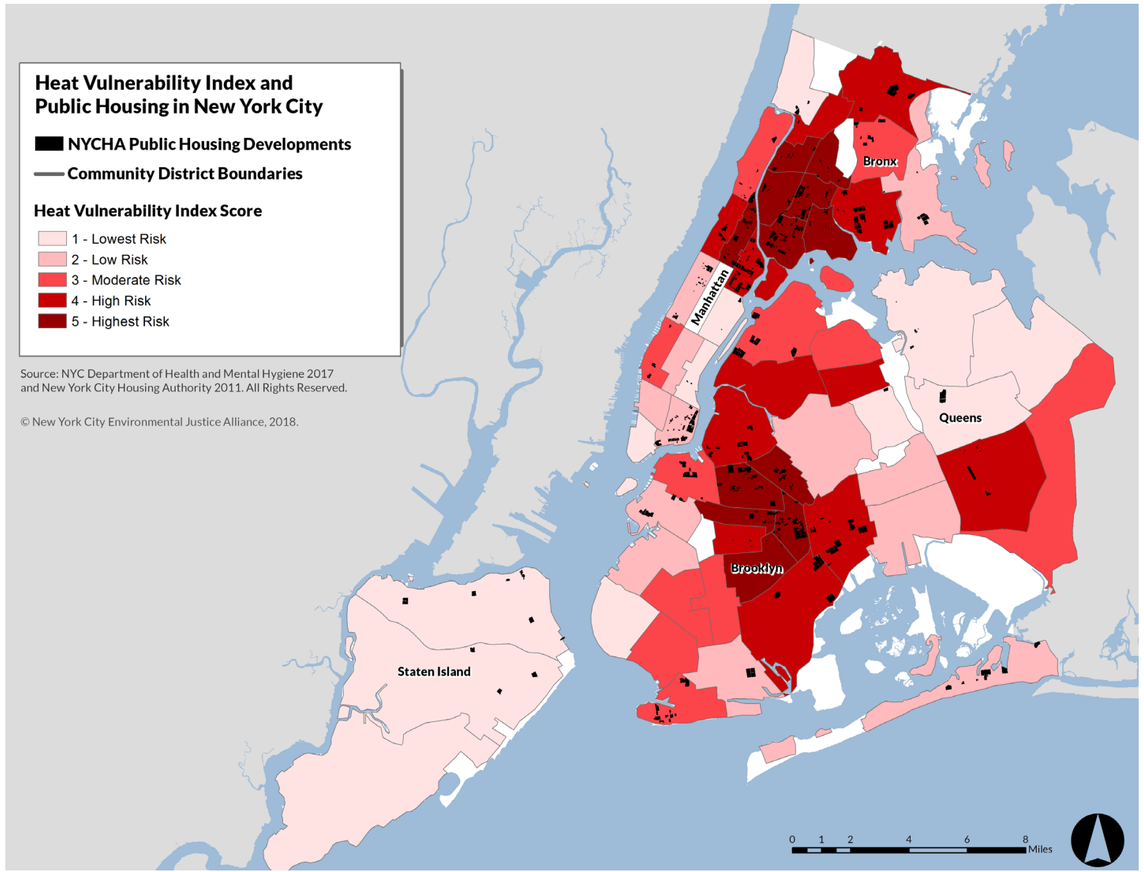
New York City during 2003 blackout. Source: NY Daily News.

Addressing Heat Vulnerability and Preparedness of NYCHA Residents

The New York City Housing Authority (NYCHA) has recently faced scrutiny over severe heat and hot water outages during the winter months, forcing many residents to endure cold indoor temperatures.[24] However, little attention has been paid to the risks of hot summer temperatures to residents' health and well-being.

Based on NYC-EJA's analysis, we found that more than half of NYCHA residents live in the City's most heat-vulnerable neighborhoods (*See Heat Vulnerability Index and Public Housing Map)*. Elderly residents are particularly at risk for the negative health effects of extreme heat, and 61,500 of NYCHA's approximately 400,000 residents are over the age of 65.[25,26] Furthermore, in high-rise buildings, which are characteristic of many NYCHA developments, indoor temperatures can be much higher than outdoor temperatures.[27]

Although air-conditioning can alleviate hot indoor temperatures, NYCHA residents face significant barriers to installing air-conditioning. Installation requires approval from NYCHA, an annual fee per air-conditioning unit, and professional installation, as well as the additional cost to remove bars from windows.[28]



After the grave impacts of Superstorm Sandy on NYCHA housing developments, they created a disaster response protocol. Yet nearly 6 years later, our member organization Good Old Lower East Side (GOLES) is still advocating for NYCHA to share this information with residents. GOLES has encouraged NYCHA to publicize this information to prepare residents well in advance of another disaster. Given the significant heat vulnerability of residents, NYCHA should also work to develop and share preparedness plans for extreme heat events.

Finally, the City should play a bigger role to increase preparedness at NYCHA. The City can strengthen the capacity of NYCHA Tenants Associations to build their own preparedness plans for all extreme weather events and prepare their fellow residents. And, if NYCHA lacks resources to develop preparedness programming, the City can partner with community-based organizations and provide other technical assistance as necessary.

Long-Term Support for Community-Led Preparedness

Cool Neighborhoods NYC also announced the launch of the Be A Buddy program, a community-led preparedness initiative to promote social cohesion and identify vulnerable residents, so that neighbors can reach out to those at risk during an extreme heat event.[23] The two-year pilot is an important step to strengthen community preparedness for at-risk populations in the heat-vulnerable neighborhoods of the South Bronx, Central Brooklyn, and Northern Manhattan.

We are glad to see the City taking steps to implement three comprehensive and neighborhood-specific plans for extreme heat emergencies, as well as the release of NYC-EM's *Community Emergency Planning Toolkit*. But, as we recommended in our *2017 Climate Justice Agenda*, to adequately prepare all heat-vulnerable neighborhoods, the City needs to make a long-term commitment to fund and rapidly implement similar programs across New York City neighborhoods to activate networks during emergencies.

LESReady at the #Sandy5 March. Source: NYC-EJA

Hunts Point Wireless Mesh installation
Source: THE POINT CDC

Lessons from the Grassroots:
Supporting Community Wi-Fi Infrastructure for Extreme Weather Emergencies

Internet access is becoming increasingly integrated into emergency communications. The stress on the power grid during a heat wave increases the risk of blackouts and brownouts, compromising internet communications that communities rely on to connect with emergency services, family, and friends.

Mesh networks allow users to communicate through a system of interconnected routers that do not rely on traditional communications.[29] Projects such as THE POINT CDC's Free Hunts Point Community Wi-Fi provides wireless internet access to the community and functions as a battery-powered back up in the event of an emergency when traditional Wi-Fi communications are down. THE POINT CDC is currently working with 12 local business to broadcast the wireless signal throughout the Hunts Point Peninsula. THE POINT CDC also distributed Portable Network Kits (PNKs) as part of the Hurricane Maria relief effort in Puerto Rico. These PNKs included portable routers, solar panels, and battery backup that allowed communication for residents of impacted communities. Although the NYCEDC is supporting a small pilot of mesh networks through the NYC RISE competition, the City should consider supporting local community mesh networks at a larger scale, to ensure that New Yorkers can keep critical communications channels open when centralized power is down.[30]

Community Gardens as Preparedness Hubs

Community gardens can build resilient communities by mitigating the UHI effect through evapotranspiration and shading, and by providing other ecosystem services such as reducing stormwater runoff and creating urban agricultural land.[31] Community gardens can also foster community building, and serve as potential hubs for community education around heat vulnerability, and cool spaces for communities to congregate during a heat emergency.

For example, NYC-EJA member GOLES through its role in LESReady employs community garden spaces to educate residents on reducing risks of heat stress and holds resiliency workshops that train residents for community preparedness in Lower Manhattan. Additionally, our member organization Nos Quedamos has been leading plans within the Community Garden Coalition in Melrose Commons, a low-income community of color in the South Bronx, to leverage existing gardens into a community-wide system of open spaces for farming, recreation, social gatherings, respite, horticulture, and resiliency.[32] In Brooklyn, our member El Puente has used community gardens for decades as a local hub for events, workshops, youth engagement, and arts and cultural programming. Community gardens foster social cohesion within the community, a critical component of community preparedness and resiliency. The City needs to protect community gardens and reimagine them as important community resources to holistically address heat vulnerability (*See Section on Green Infrastructure)*.

Community Garden meeting near Melrose, Bronx. Source: Nos Quedamos

Priority **2**

AIR QUALITY

As the City works towards its 2011 commitment to achieve the cleanest air quality of any large U.S. city by 2030,[33] the disproportionate impacts of air pollutants in overburdened communities needs closer attention. In particular, diesel-burning vehicles are a major contributor of both greenhouse gases that exacerbate climate change, and pollutants such as fine particulate matter ($PM_{2.5}$) that exacerbate respiratory illness and asthma.[34] The New York City Department of Health and Mental Hygiene (NYC-DOHMH) reports that exposure to $PM_{2.5}$ is responsible for more than 3,000 deaths, 2,000 hospital admissions, and 6,000 emergency room visits annually in New York City.[35]

Private waste hauling truck.
Source: Transform Don't Trash NYC

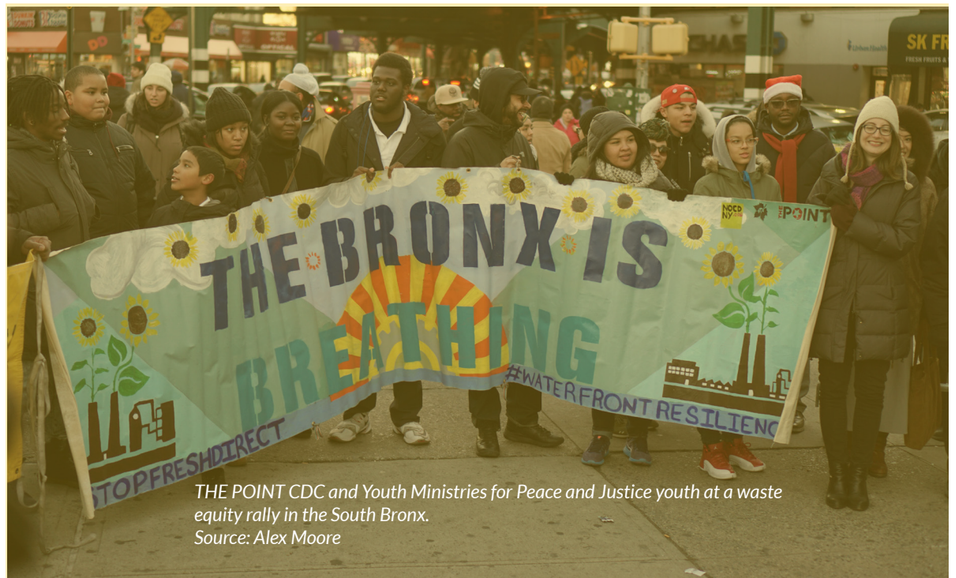
Exposure to PM2.5 is responsible for more than 3,000 deaths, 2,000 hospital admissions, and 6,000 emergency room visits annually in New York City.

The clustering of facilities such as bus depots, waste transfer stations, food distribution hubs, and highways in low-income communities and communities of color unfairly concentrates diesel-combustion pollution and their health consequences.[36] As a result, negative health outcomes such as asthma rates are significantly higher in environmental justice communities such as the South Bronx, East Harlem, and North Brooklyn.

According to the New York City Community Air Survey (NYCCAS), citywide average $PM_{2.5}$ emissions are declining, due in part to shifts in fuel types for building power generation, space and water heating, and upgrades to on-road vehicles.[37] Yet vehicular traffic and highways continue to cause higher $PM_{2.5}$ concentrations in locations where these sources are most concentrated.

While we commend the City's commitment to remove 500,000 pounds of $PM_{2.5}$ annually from the buildings sector, particulate matter pollution from transportation requires attention. Heavily trafficked communities deserve relief, and require that air quality be prioritized in climate resiliency and sustainability initiatives. Additionally, more data is needed to understand the contributions of specific, on-the-ground pollution sources in environmental justice communities to inform these initiatives.

In this section, we outline critical pathways that would result in improved air quality for environmental justice communities, while also drastically improving the efficiency and sustainability of New York's transit and commercial waste sectors.



THE POINT CDC and Youth Ministries for Peace and Justice youth at a waste equity rally in the South Bronx.
Source: Alex Moore

Priority **2a**

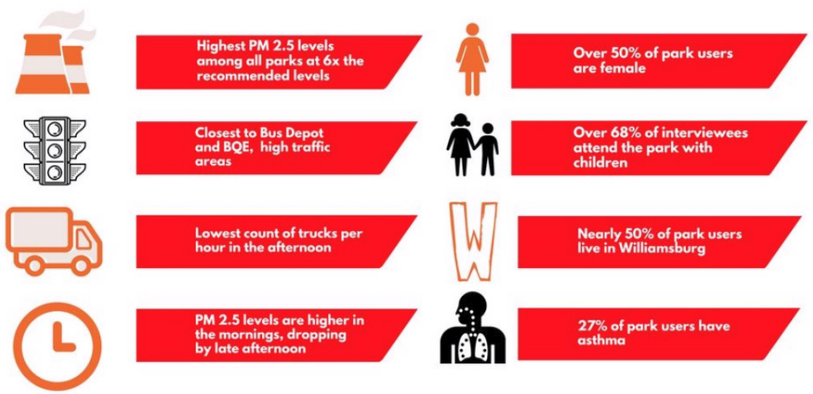
Increase Funding for Air Quality Monitoring and Improvements

Increase Resources For Grassroots Air Quality Monitoring

Localized air quality data is an essential tool used to understand the disproportionate public health burdens imposed on low-income communities of color. Though the environmental injustice associated with air pollution is well documented, more and better data for source pollution and public health outcomes can aid advocates and policymakers in crafting more targeted and effective solutions.

NYC-EJA has previously advocated for the City to deploy more NYCCAS stationary air monitors in environmental justice communities. While this remains a priority, mobile participatory air monitoring efforts, when combined with assessments of pollution sources such as truck and bus tallies, can illuminate discreet exposures to air pollutants. Many of these efforts have been volunteer-based and produced smaller datasets, but can illustrate clear instances of disproportionate air pollution and help inform tailored solutions.

For example, NYC-EJA member El Puente organized an air quality monitoring project called "Urban Lab for Open Spaces", which assessed $PM_{2.5}$ concentrations in parks sited in the shadow of the Brooklyn Queens Expressway. The results showed significantly higher $PM_{2.5}$ concentrations at ground level than were captured by New York State Department of Environmental Conservation (NYS-DEC) air monitors.[38] El Puente's work illustrates the multiple benefits of community air monitoring, including diagnosing local inequities, educating youth and parents on citizen science, and advocating for equitable solutions.



Results of El Puente's "Urban Lab for Open Spaces" air monitoring project for La Guardia Playground. Source: El Puente

Prioritize More State Air Quality Monitors

State-deployed stationary monitors also provide critical data that informs advocacy efforts and research. Yet the number of air monitors across New York State has decreased from 74 to 55 between 2009 and 2015.[39] Even more concerning, between 2009 and 2012, NYS-DEC stack testing that tracks toxic air pollution from major sources dropped by 44 percent.[40] The State must see air quality monitoring and enforcement as essential to both its climate change mitigation goals and its responsibility to environmental justice communities.

Brooklyn Queens Expressway Source: DNA Info

Use The Volkswagon Settlement Funds To Spur The Transition To Electric Vehicles

The City and State should seek creative funding streams to improve air quality across the city. For example, car manufacturer Volkswagen reached a settlement with the United States Federal Courts amid accusations of violating the Clean Air Act in 2016, for selling more than half a million vehicles equipped with "defeat devices" in order to cheat federal emissions tests.[41] NYS-DEC will receive $127 million to be used in projects to offset the additional air pollution caused by Volkswagen's actions. Current project criteria set forth by NYS-DEC include: cost effectiveness in reducing NO_x emissions, location in areas that receive a disproportionate amount of diesel emissions, timeliness, and use of innovative and sustainable technologies. NYS-DEC should consider using these funds to transition polluting vehicles from diesel to electric in the waste and public transit systems.

Priority **2b**

Improve Air Quality from Public Transportation

As the New York State Metropolitan Transit Authority (MTA) works to address urgent issues such as unreliable service and declining ridership, there is a clear opportunity to address the air quality and climate impacts of the bus fleet. Transportation accounts for 30 percent of greenhouse gas (GHG) emissions in New York City.[42] The MTA bus fleet, the largest in the nation, contributes approximately 577,290 metric tons of greenhouse gas (GHG) emissions annually.[43] Of the over 5,700 buses in operation, 40 percent are diesel-fueled, 47 percent are hybrid, and 13 percent use compressed natural gas (CNG).

Diesel-burning buses are major contributors to GHG emissions in the MTA fleet. According to some estimates, CNG buses may emit similar, and even higher levels of CO_2 from tailpipe emissions when compared to diesel buses.[44]

Fossil fuel-dependent buses also emit $PM_{2.5,}$ linked with respiratory distress, asthma, and hospitalization for both children and adults.[45] This pollution most heavily impacts low-income communities and communities of color, who comprise most of MTA bus ridership and tend to live where MTA bus depots are sited. The majority of the MTA bus network's 2.3 million riders have a median household income of $28,455, and 75 percent of bus riders are people of color.[46] [47]

Transportation accounts for 30% of NYC's greenhouse gas emissions.

40% of the MTA fleet still run on diesel, one of the worst fuel sources in terms of climate pollution and public health impacts.

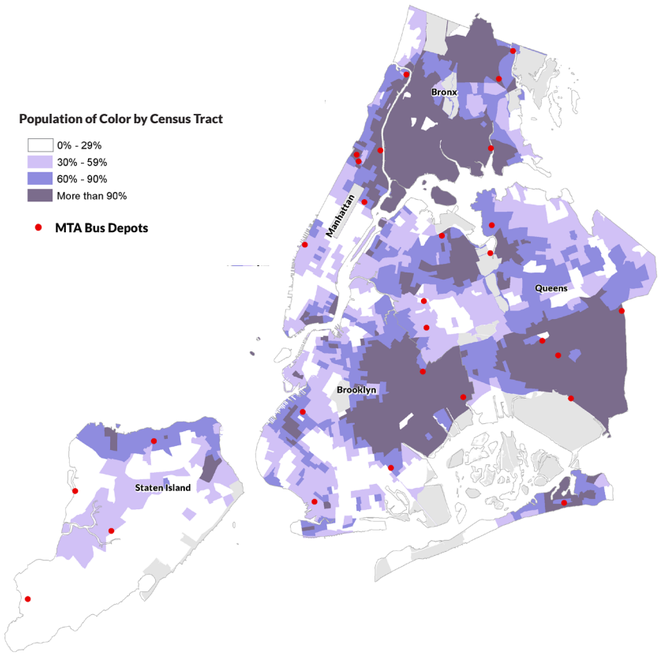
NYC's bus fleet alone contributes 577,000 metric tons of CO2 annually.

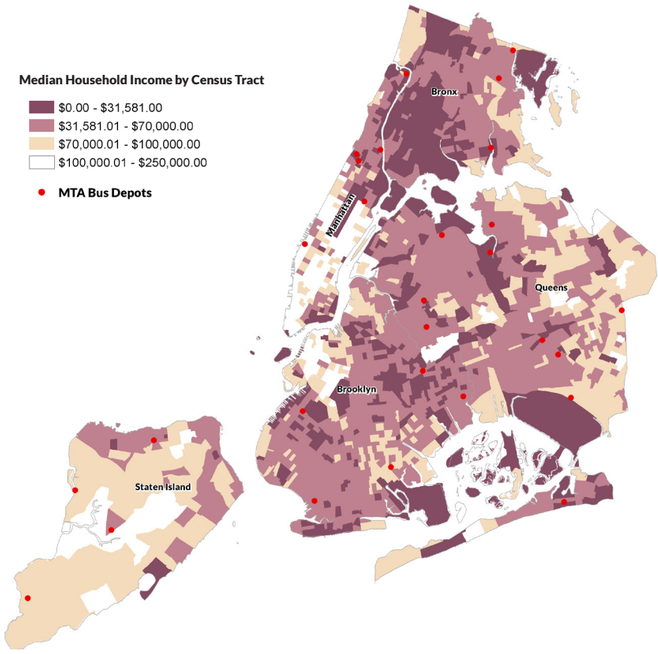
Diesel-burning buses produce harmful particulate emissions linked to asthma and other respiratory diseases.

75% of bus depots in New York City are sited in communities of color

The uneven distribution of bus depots across the city disproportionately impacts environmental justice communities. The MTA operates 28 depots across the five boroughs, 75 percent of which are sited in communities where the majority of residents are people of color. Some depots have the capacity for 300+ buses at a time, where buses can idle while waiting for maintenance.

The consequences are clear in the health indicators of communities where bus depots are sited; in Northern Manhattan, North Brooklyn and the South Bronx, rates of asthma-related hospitalization for children, youth and adults are higher than the other parts of the city.[48] Many of these same communities are already overburdened by other sources of air pollution, including truck traffic, waste transfer facilities, highways, and other noxious industrial operations.[49]



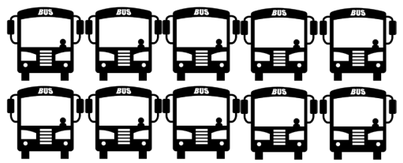


Electric bus operating in NYC as part of MTA's pilot. Source: AM New York

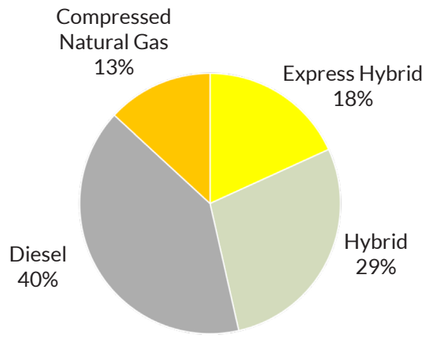
The MTA's Current Electric Bus Pilot Falls Short

NYC-EJA commends the MTA for launching the City's first electric bus pilot in early 2018, leasing 10 zero-emission buses to service the B32 route in Brooklyn and the M42 and 50 routes in midtown Manhattan. However, 10 buses represent less than 1 percent of the entire fleet. Though the MTA has committed to purchasing 60 additional electric buses after a successful 3-year pilot,[50] by continuing to invest in hybrid, CNG and diesel buses for the NYC fleet, the MTA will miss a critical opportunity to accelerate electrification.

Currently, the MTA is piloting 10 electric buses in NYC – **less than 1 percent of the entire fleet**



2018 MTA Fleet Breakdown by Fuel Type



Electrify NYC's Bus Fleet

As the City moves to transition 29,000 municipal vehicles to electric, the MTA has a clear opportunity to align State and City climate goals. Upgrading the MTA's public bus fleet to a modern electric fleet will bring the New York City closer to its 80x50 GHG emission reduction goals, while improving air quality for its most vulnerable residents.[51]

In January, 2017 Governor Cuomo issued Executive Order 166, requring all agencies and authorities to develop and adopt a plan that would demonstrate activities and programs to meet the State's climate goals. The MTA missed the deadline to submit a plan. The MTA can look to the City's efforts to clean up their fleet as an example for setting clear intermediary benchmarks and long term emissions reduction targets.

We recommend that the MTA begin converting its entire New York City fleet to electric buses. This transition would eliminate 84 percent of MTA greenhouse gas emissions, a significant contribution to New York City's reduction goals.[52]

By setting specific reduction and evaluation goals the MTA can yield positive impacts at the local-neighborhood level. Electric buses would reduce environmental harm for the low-income communities of color who most utilize bus service and who live in close proximity to bus depots. The MTA would see a 97.5 percent reduction in particulate emissions to its fleet, decreasing the rate of hospitalization for respiratory distress and asthma attacks.[53]

The benefits of electrification outweigh the upfront cost. An electric bus may cost between $150,000 to $300,000. Though more expensive than a diesel bus, electric buses require less maintenance than diesel-burning buses. Electrification would in fact save the MTA $39,000 annually over the entire life cycle of the bus. In 3 to 7 years, the electric bus would essentially pay for itself in avoided maintenance costs alone.[54] In addition, electrification would result in $100 in health cost savings annually for every New Yorker.[55]

We recommend the MTA expand its pilot and move toward full electrification of the bus fleet, and work with the City to identify opportunities to phase out older buses and upgrade the fleet to the cleanest, most efficient option.

$39K Annual maintenance and fuel cost savings per bus

$100 Annual health cost savings per New Yorker

84% Total greenhouse gas emissions reductions from bus fleet

97% Total particulate matter reductions from bus fleet, resulting in fewer visits to the hospital from respiratory distress and asthma attacks.

L-Train Shut Down:
An Opportunity for Bus Electrification

Nearly six years after Superstorm Sandy, the Canarsie MTA Tunnel, which connects Brooklyn to Manhattan, requires a massive overhaul and the complete closure of a large portion of the L-train line. The shutdown is scheduled to begin in April 2019 and will take 15 months to complete.

Approximately 400,000 commuters rely on the L train, and 225,000 who use the L train to travel between Brooklyn and Manhattan alone stand to be impacted.[56] The MTA estimates the majority of commuters will be diverted to other train lines including the G, M, J, Z, and 7 trains, while anywhere from 5 to 15 percent of commuters will need to transfer to a bus. As part of the shutdown mitigation strategy, the MTA plans to utilize 200 buses to bring commuters across the Williamsburg Bridge. Little information has been shared about the types of buses that will be used.

The shutdown presents a unique opportunity for the MTA to act with the environment and public health in mind by devising a plan that minimizes the negative impact on the neighborhoods that will see increases in heavy vehicular traffic on their roads.

The MTA should consider the role that electric buses could play in their mitigation strategies for the shutdown and consider redirecting the current pilot and next round of electric bus purchases onto their newly proposed shuttle routes, while also investigating ways to implement permanent electric bus routes in environmental justice communities.

Congestion Pricing & Fix NYC

In 2017 Governor Cuomo commissioned the FixNYC panel to research, analyze and recommend a comprehensive plan for congestion pricing in order to reduce traffic congestion in Manhattan. Though congestion pricing was previously attempted during Mayor Bloomberg's administration (with UPROSE's Executive Director serving on the Traffic Mitigation Commission, the precursor to FixNYC), the measure failed to pass through the legislative process. Following that failed attempt, the MoveNY coalition developed a toll reform plan that proposed a congestion pricing zone below 60th street, delimiting the Central Business District (CBD). The MoveNY plan included the addition of tolls on the East River Bridges, while reducing the cost on other borough bridges in the Bronx, Queens, and Staten Island to alleviate financial burden on other borough residents.[57] The FixNYC panel recommendations include many of the provisions initiated in the MoveNY plan. While this iteration of a congestion pricing plan does not include the same toll reform, the FixNYC recommendations represent an acceptable compromise.

The FixNYC plan calls for a phased approach to implementing congestion pricing. The first phase includes identification of and investment in public transportation alternatives to reduce the use of cars, enforcement of traffic laws, improving the parking placard program, assessing the impact of bus congestion in the CBD, reforming taxi and limousine commission regulations and work on the infrastructure installation in order to collect fees. In the second phase it recommends a surcharge be implemented on For-Hire-Vehicles (FHV). Finally in phase three, the plan recommends implementing zone pricing on trucks and private vehicles. The plan, if implemented, is estimated to generate $1.1 billion in annual revenue from auto and truck fees alone.[58] The money would be utilized to improve the public transit system. At press time, we await the Governor's legislative action on the FixNYC recommendations.

Priority **2c**

Improve Air Quality from Solid Waste Sector

Uplift Waste Equity in Exclusive Commercial Waste Zones

New York City's unfair system of waste collection and disposal has remained a key environmental justice priority for decades. The disproportionate siting of waste facilities in a handful of low-income communities of color results in heavy concentrations of traffic and pollution from the mostly diesel fleet of commercial sanitation trucks.[59] The same communities that deal with waste inequity also face other sources of pollution and their negative health consequences – such as asthma, heart disease, and cancer.

Since the passage of the 2006 Solid Waste Management Plan, advocates and agencies alike have struggled to hold the commercial waste industry fully accountable. But several opportunities to drastically reform this industry and New York's waste export system are on the horizon.

The City's commitment to establishing a zoned system for commercial waste collection will significantly increase efficiency of truck routes and help mitigate air pollution caused by diesel combustion. Estimates from the 2016 Private Carting Study from Department of Sanitation of New York (DSNY) and the Business Integrity Commission (BIC) study show that zoning could reduce the number of miles driven on local streets by garbage trucks by 68 percent, from 23 million miles per year to 7 million. This reduction would cut 2,800 trucks from the road, prevent 3.5 million gallons of diesel fuel consumption, cut associated pollutants such as nitrous oxide and particulate matter by 32-64 percent, and cut CO_2 emissions by 42-64 percent annually.[60]

Impacts of Exclusive Commercial Waste Zones for NYC

- Reduce local truck miles by 68%, cutting 2,800 trucks annually.
- Cut public health-threatening pollutants by 32-64% annually
- Prevent 3.5 million gallons of diesel fuel consumption
- Cut carbon emissions by 42-64 % annually

By offering stability to responsible waste companies, a zoned system can incentivize haulers to invest in better recycling technology, organic waste processing, low-emissions vehicles, and worker training and safety. However, the extent of these improvements depends on whether the zones are exclusively serviced by one hauler, or if multiple companies can compete for customers in the same area. The more haulers that service a geographic area, the more truck miles and vehicle emissions will be expended in competition for customers. We encourage the City to consider the long-term avoided social costs of structuring the zones, and commit to the most efficient and equitable system possible.

Strong Disposal Facility Standards for Zones

Increased efficiency in collection alone will not address the longstanding inequities in the waste system. The City has the opportunity to design a comprehensive zoned system that also raises the standards of waste transfer facilities that are clustered in environmental justice communities.

One approach advocated for by the Transform Don't Trash (TDT-NYC) coalition is for an RFP process to encourage haulers' use of the highest performing facilities based on the same environmental, labor and community-impact standards required of the haulers themselves. In particular, the RFP should prioritize proposals that utilize the DSNY-owned Marine Transfer Stations (MTS's), which rely on highly efficient barges to export waste; a single waste barge carries as much waste as 48 long-haul tractor trailer trucks. The MTSs are more equitably distributed across the City than the private land-based transfer stations, and have the potential to significantly improve air quality in both environmental justice communities and citywide. Currently, the North Shore MTS in Queens and the Hamilton Ave MTS in Brooklyn are operating significantly below capacity, and the remaining MTSs planned in the 2006 Solid Waste Management Plan should be operational by the time zoning is implemented. The City should maximize the return on the investment in this marine-based waste export system and encourage use by private waste haulers through the zoned system.

FDNY containing the 5-alarm fire at Royal Waste Services in Southeast Queens in March 2018. Source: DNA Info

Ensure Compliance with Truck Emissions Standards

The City must enforce existing policies to curb emissions from the waste sector. Despite the passage of Local Law 145 in 2015, requiring all operators of heavy duty trade vehicles to meet the 2007 federal emissions standard by 2020, little improvement has been demonstrated by the commercial side of sanitation.

By 2013 estimates, NYC's commercial waste truck fleet consists of approximately 4,300 active vehicles equipped with heavy-duty diesel engines, with trucks ranging in size from 16,000-60,000 pounds gross vehicle weight; the average age of commercial sanitation trucks is 16 years; about a quarter of these trucks are at least 20 years old, and some are over 30 years old.[61] In 2014, only 10 percent of NYC's commercial putrescible garbage trucks met 2007 EPA emission standards – meaning that the vast majority of commercial waste trucks emit significantly greater quantities of harmful particulate matter and nitrogen oxide compared to the standard collection vehicles.[62] The New York City Council should hold an oversight hearing to determine whether commercial carters are making the necessary investments to comply with LL145. DSNY should also begin enforcement by surveying waste companies truck purchases and monitoring compliance with the law.

Lessons from the Grassroots: *Improving Access to Recycling in NYCHA*

Public and affordable housing residents face a variety of housing challenges ranging from disrepair of facilities to chronic exposure to mold and other toxic substances. These challenges acutely affect NYCHA's elderly and disabled residents.

One overlooked area of need is paper shredding, where NYCHA residents with limited mobility are unable to securely destroy sensitive documents that end up accumulating over time. Recognizing this need, on August 2017 the Morningside Heights/West Harlem Sanitation Coalition organized paper shredding services for residents of and near NYCHA's Grant Houses. This effort was met with overwhelming community support, yielding multiple tons of waste in a matter of four hours.

The Sanitation Coalition Board members. Source: Morningside Heights/ West Harlem Sanitation Coalition.

We recommend the City work develop accessible paper shredding services for public and affordable housing developments, while working with residents to address other neglected waste management needs, particularly recycling. Recognizing that one size doesn't fit all, we ask that the City, in partnership with public and affordable housing authorities, work with residents to facilitate locally relevant waste management practices that optimize community benefits, particularly for vulnerable residents and surrounding community members.

Hamilton Avenue Marine Transfer Station in South Brooklyn. Source: DNA Info.

Fulfilling the 2006 Solid Waste Management Plan

The 2006 SWMP was a landmark policy – the first time New York City incorporated principles of waste equity into a citywide solid waste management plan. Twelve years later, the City must fulfill its commitment to environmental justice and reducing air pollution associated with the predominantly truck-based waste export system. As of now, the Hamilton Avenue MTS in Brooklyn and the North Shore MTS in Queens are operational and accepting residential waste handled by DSNY. The East 91st Street MTS on the Upper East Side of Manhattan is expected to come online in early 2019, and the final putrescible MTS in Southwest Brooklyn is expected to begin development in 2019. Yet no permits have been issued for the Gansevoort MTS, which would specifically process Manhattan's recyclable paper, metal, glass, and plastic material, and thus contribute to the City's ambitious goal of sending Zero Waste to landfills by 2030.

The Mayor's Office, in partnership with DSNY, must execute a memorandum of understanding (MOU) with the Governor's Office and other State legislative leaders for the use of Gansevoort MTS for waste export, and publicly release its implementation plan for opening this critical facility.

One waste barge from a Marine Transfer Station can displace 48 long haul diesel waste export trucks

Priority 4

GREEN INFRASTRUCTURE EQUITY

Green Infrastructure (GI) is an essential component of integrated climate adaptation and mitigation planning for New York City. With rising flood risks, increasing temperatures, and air pollution, the City must prioritize an aggressive expansion of GI particularly in environmental justice communities facing disproportionate environmental burdens and climate vulnerabilities.[60] Our broader vision of GI requires a commitment to equity and justice, and a recognition of the value of all nature-based interventions, including: street trees, bioswales, rain gardens, greenways, urban forests, parks, wetlands, ecologically-grounded coastal protection, and community gardens.

Bioswale for stormwater retention in Queens. Source: NYC-DEP

GI provides multiple benefits, such as improving the water quality of waterways, mitigating urban heat island effect, improving air quality, enhancing coastal resiliency, reducing energy demand, fostering community cohesion, and creating local workforce development opportunities.[64] City investments can be strategically implemented to maximize benefits for New Yorkers, including the New York City Department of Environmental Protection's (NYC-DEP) Green Infrastructure Program, the New York City Department of Parks and Recreation's (Parks) urban forestry, parks, and community garden initiatives, and the Mayor's Office of Recovery and Resiliency's (ORR) coastal protection projects. Furthermore, the Governor's Office and the New York State Department of Environmental Conservation (NYS-DEC) must advance strong regulations and funding streams to ensure long-term commitment to GI. Both the City and State have a responsibility to respond to the public health disparities faced by low-income neighborhoods and communities of color (*See sections on Extreme Heat and Air Quality*).

Comprehensively and Equitably Address Stormwater

Along the coastlines of New York City, hundreds of Combined Sewer Overflow (CSO) outfalls spew raw sewage and stormwater runoff into the surrounding bodies of water during rain events. Additionally, in other areas street runoff in the Municipal Separate Storm Sewer System (MS4) never reach a wastewater treatment plant. Many industrial zones in New York City called the Significant Maritime and Industrial Areas (SMIAs) are sited in MS4 and Direct Drainage designated areas, increasing the risk of pollutants reaching our waterways. During extreme weather events, like heavy rain, cloudbursts, flooding, or storm surge, these areas experience an increase in the risk of toxic exposure to residents and workers.[65]

Research shows that in New York City and other major cities, those living within a half mile of CSO outfalls are disproportionately low-income and people of color.[66] Furthermore, of the 495 CSO outfalls the largest ones, called Tier 1, represent the largest proportion of the 20 billion gallons of raw sewage flowing into our waterways.[67] The Tier 1 outfalls are located in various environmental justice communities including the South Bronx and North Brooklyn, with the Bronx River at a raw sewage volume of 455 million gallons per year (MGY) and Newtown Creek at 1,266 MGY. [68] [69] NYC-DEP's Long-Term Control Plans (LTCPs), including the Green Infrastructure Program, are making strides towards modernizing wastewater infrastructure, building nature-based solutions, and mitigating CSOs, but there is major work to be done to address this large-scale problem.[70]

Since 2011, NYC-DEP has constructed over 4,300 GI assets across the five boroughs, including mostly bioswales on City sidewalks.[71] NYC-DEP has also built cross agency collaborations to facilitate the design and construction of over 200 larger GI assets on parks, playgrounds, public schools, and public housing. In particular, NYC-DEP's expansion of GI in

What is a Bioswale?

A Bioswale or Rain Garden is more advanced than the average New York City street tree. Bioswales are sloped planted flower beds on the sidewalks with native trees or shrubs designed to control stormwater runoff. It includes sidewalk cutouts that allow rainwater and street runoff to flow into the Bioswale rather than down the catch basins and into our waterways.

neighborhoods that are disproportionately vulnerable to extreme heat – including Bedford Stuyvesant, Brownsville, and Bushwick in Brooklyn, and Soundview in the South Bronx – is an important climate resiliency strategy. We are encouraged to see NYC-DEP continue to canvass Central Brooklyn and other communities for subsequent rounds of GI investments. [72]

However, other neighborhoods have been left behind and were not designated as Priority CSO Tributary Areas by NYC-DEP. We demand that NYC-DEP work to expand their current targeted neighborhoods to include environmental justice communities in need of GI including other South Bronx areas, Southside Williamsburg, Sunset Park, Lower East Side, and Southeast Queens, which face higher storm surge risks. These communities must be prioritized for GI on streets and public land in the Citywide & East River/Open Water CSO LTCP.

Finally, we urge NYC-DEP to increase citywide engagement with community-based organizations as they plan for future investments, and neighborhood level engagement in finalizing design of new and GI assets. NYC-DEP should also provide public information on the modernization and coastal protection of the wastewater treatment plants.

As the State-level regulator of NYC-DEP, NYS-DEC must continue to mandate that the City employ and prioritize GI strategies over grey infrastructure to comply with the federal Clean Water Act.

Bioswale in the Bronx.
Source: NYC-DEP

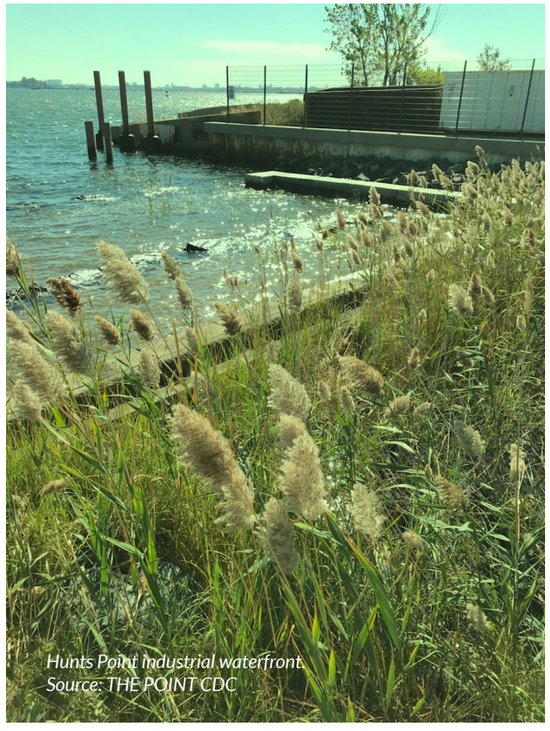
Support Resilient Industrial Waterfronts

NYC-DEP recently expanded the GI grant program to include the City's SMIAs in MS4 areas. This revamped opportunity will help increase the climate resiliency of the City's industrial businesses and working waterfronts, as well as communities facing frequent flooding in Southeast Queens.[73]

As part of NYC-EJA's Waterfront Justice Project, we have continually advocated for coastal adaptation, resiliency, community engagement, and other strategies to prevent toxic exposure in industrial waterfront neighborhoods before, during, and after extreme weather events and storm surges. NYC-EJA and our member UPROSE have been conducting community-led research to develop and share industrial best practices to inform pollution prevention initiatives.

The New York City Department of City Planning (NYC-DCP) should ensure the Resilient Industry and Open Industrial Uses Study (OIUS) addresses community priorities, and support a coordinated approach to build sustainable and resilient waterfronts. NYC-EJA submitted public comments to NYC-DCP recommending local industrial businesses receive strong technical and financial support to implement climate adaptation and pollution prevention strategies.[74] Furthermore, the current draft OIUS only captures open storage of hazardous substances in the Federal Emergency Management Agency Flood Insurance Rate Map 100-year floodplain. Instead, we recommend agencies utilize the 500-year floodplain.[75]

NYC-DEP's forthcoming Stormwater Management Program (SWMP) will lay out a plan for dealing with MS4 Permits that covers both private and city-owned property in the MS4 and Direct Drainage areas. The SWMP should strive to comprehensively assess concerns of toxic exposure and industrial waterfront resiliency.[76] A recent news story also highlighted various illegal connections to pipes that send sewage or industrial chemicals from homes and business to outfalls spilling directly into waterways.[77] We recommend the ongoing SWMP, MS4 Permits, and OIUS produce a strong, coordinated, and comprehensive environmental regulatory framework to support resilient industrial waterfront.



Hunts Point industrial waterfront.
Source: THE POINT CDC

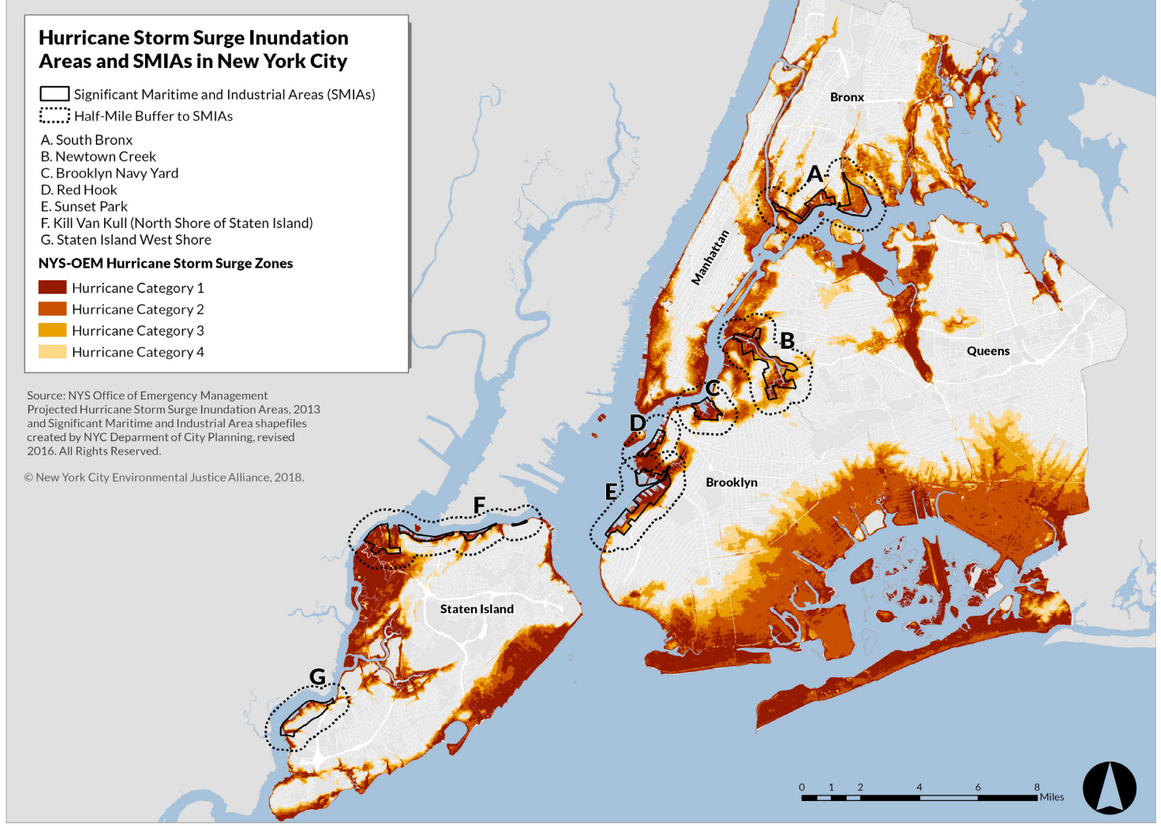
Invest in Equitable and Ecologically-Grounded Coastal Resiliency

Over five years after Superstorm Sandy, the city's coastal areas have slowly recovered but have not yet fully seen the adaptation benefits of resiliency investments. Last year, the City requested the U.S. Department of Housing and Community Development extend the deadline to complete coastal resiliency projects from 2019 to 2022. Although we acknowledge the challenges of large-scale projects, the City must strive to complete these critical projects in a timely manner given the growing risks of climate change and sea level rise.[78]

The New York City Economic Development Corporation (NYCEDC) and ORR are currently in a multi-year process of planning and construction for Hunts Point Resiliency (HPR), East Side Coastal Resiliency (ESCR), Lower Manhattan Coastal Resiliency (LMCR), and other projects and feasibility studies.[79] Two NYC-EJA member organizations, THE POINT CDC and GOLES, served as official stakeholders in the process, yet community priorities have been ignored in the final plans.

THE POINT CDC has expressed concerns that the flood risk reduction options presented by the City in the HPR public meetings lacked GI and other ecologically-sensitive infrastructure. The still unfunded coastal resiliency proposal has also missed an opportunity to lay the groundwork for building the South Bronx Greenway.[80] The Greenway vision includes community benefits such as improved waterfront access, recreational facilities, and pedestrian and bike paths between a series of new waterfront parks connecting the residential part of the peninsula with the industrial waterfront. THE POINT CDC also recommends the project result in local workforce development opportunities for Bronx residents in the new green economy. The original Lifelines Rebuild By Design proposal laid out a vision of Hunts Point as a hub for piloting new coastal resiliency materials, designs, construction and maintenance techniques.[81] Research shows that nature-based interventions in coastal areas that incorporate wetlands and other GI provide more economic, environmental, and resiliency value to communities.[82] We recommend NYCEDC consider all of these co-benefits in implementing the HPR project, and fundraise for the full implementation of the Rebuild By Design proposal.

Furthermore, GOLES and their neighborhood-wide community preparedness coalition LESReady expressed concerns that the useful life of the ESCR investments are expected to be only 50 years, and reiterated the importance of using the best available climate science. GOLES expressed concerns about accessibility to waterfront parks, as well as the potential to increase displacement in the community.[83]



GOLES is advocating for more educational and recreational opportunities to strengthen social cohesion in flood-prone areas as part of the LMCR. For these projects, the City should explores strategies to address increased real estate speculation and development pressures, which are expected to rise with each project. Additionally, the City should work in tandem with NYCHA to integrate stormwater retention and coastal protection into their properties. These two Rebuild by Design projects were intended to spur innovation and collaboration, and yet many of the outcomes have been business as usual.

Additionally, investments in coastal protections and resiliency investments have not been equitably distributed to the most climate vulnerable communities. We strongly recommend the advancement and funding of more coastal protection projects, while upholding the principles of equity and accountability.[84] For instance, last year, the City released a storm surge barrier study for Newtown Creek, which is a Superfund site, an SMIA, and home to the largest CSOs.[85] However, no funding has been secured to date. Overall, we recommend that all coastal protection and resiliency investments adhere to more aggressive timelines, abide by community priorities, and incorporate ecologically-grounded interventions.

Increase Street Trees and Parks for Heat Vulnerable Neighborhoods

As previously highlighted in this report, extreme heat is a severe climate impact projected to impact thousands of New Yorkers annually. Therefore, a comprehensive approach to the growing threat of extreme heat should also take into consideration the multiple co-benefits associated with green spaces. For example, street trees, parks, and urban forests provide canopy cover, evapotranspiration, and stormwater retention that offer critical public health benefits.[86] In June 2017, the City announced an $82 million investment in street trees as part of their *Cool Neighborhoods NYC* report launch.[87] The Parks Department must coordinate with NYC-DEP and community-based organizations to identify the key siting of new streets trees, as well as maintenance investments to ensure street trees can mature and dead street trees are replaced.

The City must also commit to renewing the successful MillionTrees program funding to ensure the long-term maintenance and health of the city's urban forests.[88]

Monitoring the distribution, planting, maintenance, and health of street trees and developing a baseline of data is an important part of a comprehensive citywide GI strategy. We commend the Parks Department for the census of trees called *TreesCount! 2015-2016* and creating a publicly accessible map and report.[89] However, not all trees have been counted in this census. Our member GOLES recommended that NYCHA work with the Parks Department to conduct a comprehensive tree census on the agency properties across the five boroughs, to ensure we protect these important green spaces.

Furthermore, the State can support urban forestry in New York City by advancing a second round of the New York State Energy Research and Development (NYSERDA) Request for Proposals (RFP) for street tree planting in the Bronx this year.[90] Moreover,

Youth Ministries for Peace and Justice youth program. Source: YMPJ

GREEN INFRASTRUCTURE EQUITY

Governor Cuomo's *Vital Brooklyn* initiative should aim to expand and preserve open space and parks in Central Brooklyn. The State should engage with local community-based organizations, including NYC-EJA member Brooklyn Movement Center to incorporate community priorities and maximize opportunities for new open space and resiliency investments.[91]

Lastly, new parks are also key community assets. For example, the new Concrete Plant Park situated between the Bronx River and the Sheridan Expressway – once an industrial area – is now a valuable green space for the South Bronx. This new green, open, waterfront space was created in part by the years-long advocacy of NYC-EJA member organization Youth Ministries for Peace and Justice. Additionally, our member organization El Puente alongside a community coalition has recently been advocating to create a new park called BQ Green in Southside Williamsburg by decking over the Brooklyn Queens Expressway to counteract the negative health impacts environmental risks posed by the heavy traffic. We recommend the Parks Department work to create and enhance parks in the communities that need them most, while also partnering with local community organizations.

Butterfly at community garden. Source: NYC EJA

Protect Community Gardens and Support Community Land Trusts

As housing demand increases and gentrification persists, many community gardens are being sold to developers. Community gardens represent a creative history of land use and are valuable GI assets in environmental justice communities. In 1999, NYC-EJA in partnership with the New York City Community Gardens Coalitions (NYCCGC) and many others sued Mayor Giuliani in response to a plan to sell off over 600 community gardens on city-owned land. Although, the federal court failed to stop the City, the legal challenge helped elevate growing concerns of razed community gardens.[92] This advocacy led to negotiations with the New York State Attorney General, which resulted in the protection of hundreds of community gardens across the five boroughs. However, several other community gardens were eventually offered up for private development. [93] [94]

Community gardens are a much needed piece of GI to mitigate climate change and provide benefits for vulnerable communities. Gardens foster community resiliency and serve as hubs of community preparedness, urban agriculture, composting and carbon sequestration, civic engagement and activism, youth programs, arts, and wellness. While the City has provided support for community gardens and urban agriculture, we are troubled by news that several community

gardens continue to be offered up for the development of housing – including at least 10 gardens currently threatened. The City must commit to protecting all remaining community gardens and providing assistance to maximize the multi-functional nature of these important green spaces. Gardens should also be recognized as key resources to help improve stormwater management, and NYC-DEP must maximize this opportunity to build new GI partnerships. Our ally NYCCGC has been working on the Community Gardens Rising initiative funded by the Governor's Office of Storm Recovery, to elevate the role of gardens in resiliency planning.[95]

Additionally, we support our allies in recommending increased City and State support for Community Land Trusts (CLTs) through funding and special zoning designations. NYCCGC and NYC-EJA member Nos Quedamos are working to elevate CLTs, which represent the democratization of urban planning and the instituionalization of community ownership and control of productive natural resources. CLTs can help protect both affordable housing and community gardens, while empowering local residents and increasing climate resiliency. Through a New York City Housing Preservation and Development (NYC-HPD) grant, the New York Community Land Initiative and the New Economy Project are leading a CLT learning exchange to support local sustainability and resiliency in perpetuity.

Implement a Fair GI Private Property Incentive Program

The forthcoming launch of NYC-DEP's Private Property Incentive Program promises to provide a new long-term funding stream for homeowners and small businesses to enhance the stormwater capture capacity of their property, including backyards, rooftops, driveways, parking lots, and more. [96]

NYC-EJA submitted recommendations to NYC-DEP's Request for Information (RFI) highlighting environmental justice priorities and the need for low-income communities to capture the economic benefits generated by the program. We also recommended that community-based organization be partners not just sub-grantees of the new program, as community expertise is critical to expanding GI and maximizing the co-benefits of the program.[97] A 2017 report by Natural Resource Defense Council, also highlighted the potential program models, financing mechanism and workforce development opportunities, while supporting NYC-EJA's equity priorities for this new program.[98] Finally, this new program should address concerns around environmental gentrification — or "greentrification." Without intentional outreach, planning, and incentives, these new GI investments may boost property values for higher income New Yorkers that can more readily participate in this program, while excluding low-income people.

Catalyze Jobs in Green Infrastructure

GI not only enhances community resiliency but also provides new economic opportunities. The creation of new job opportunities for construction, operations, and maintenance is promising, and we are eager to see additional job growth commitment to GI as it continue to expand. Going forward, NYC-DEP should also work to increase GI maintenance in underserved neighborhoods that to date have seen new bioswales and rain gardens collect debris and trash. Overall, GI investments should include high-road labor standards such as using union labor, enacting local hiring requirements, and creating job training programs with ladders of opportunity.

Interagency Coordination for Green Infrastructure

By prioritizing GI, the Mayor's Office, the Governor's Office and other government agencies can substantially enhance community resiliency and provide new economic opportunities. We recommend the creation of a formalized cross agency collaboration to facilitate and catalyze an aggressive expansion of a broad vision of GI through a green infrastructure taskforce.

Construction of bioswales in Queens. Source: NYC-DEP

Prioritizing Environmental Justice Areas

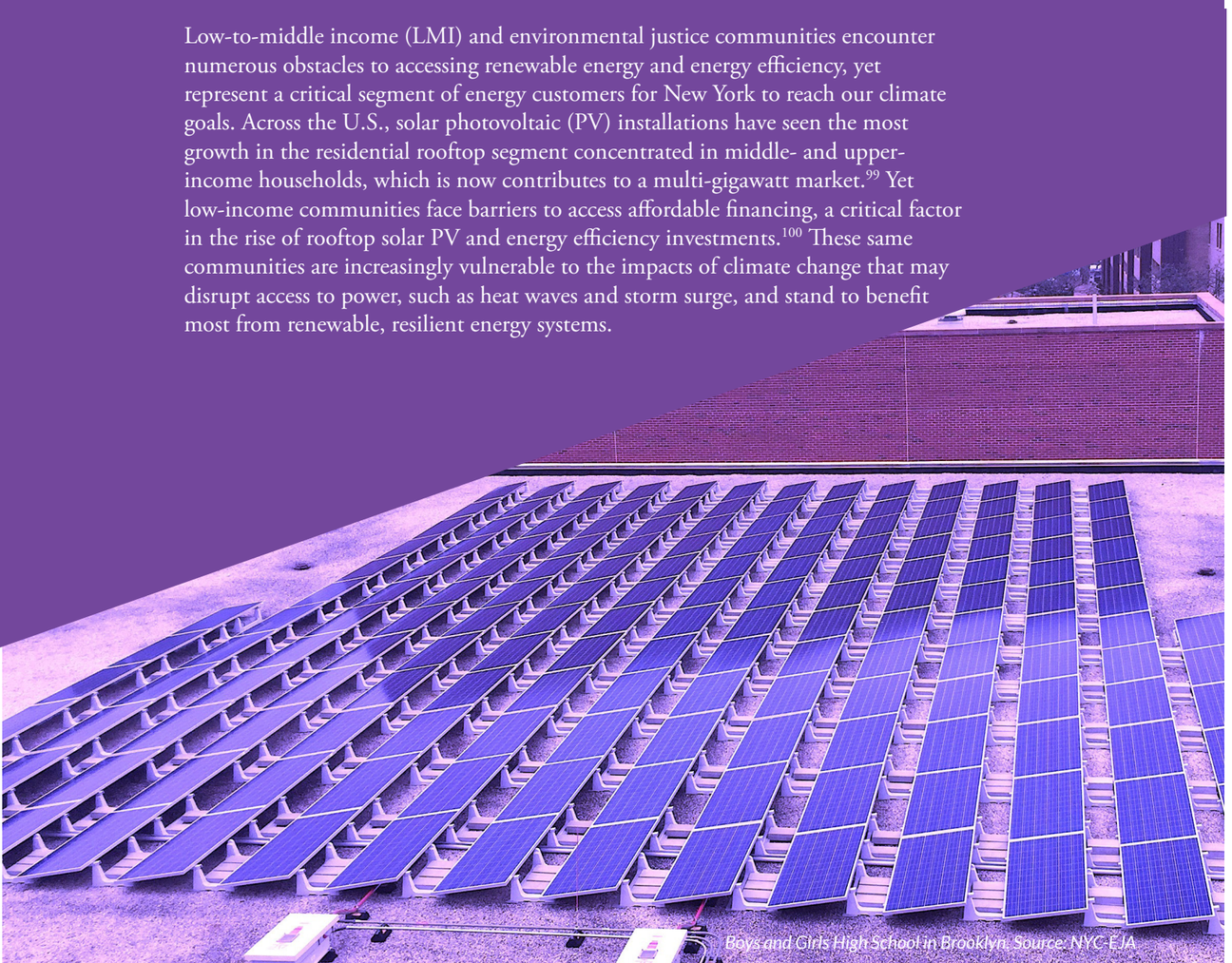
The City should proactively increase all types GI projects in environmental justice communities, including the various agency initiatives described above. NYC-EJA member organizations come from communities that face high heat vulnerability, potential waterfront toxic exposures, air pollution from dirty industries clustered in their neighborhoods, and lack green space. Our Alliance is a key advocate of GI and will continue to push for a broad vision of multi-functional green infrastructure in the communities that need it most.

Priority 3

ENERGY EFFICIENY & RENEWABLE ENERGY

New York City requires a rapid and large-scale transition to a renewable energy economy. NYC-EJA's vision for the Just Transition includes empowering community-based organizations from low-income communities of color to develop and lead their own local energy plans. Through our work with the Brooklyn Alliance for Sustainable Energy and REVitalize partnership, we advocate for communities to directly and democratically own clean energy assets, and for all energy planning to identify opportunities for resilient, renewable, affordable, and environmentally-just forms of energy generation, transmission, distribution, and consumption.

Low-to-middle income (LMI) and environmental justice communities encounter numerous obstacles to accessing renewable energy and energy efficiency, yet represent a critical segment of energy customers for New York to reach our climate goals. Across the U.S., solar photovoltaic (PV) installations have seen the most growth in the residential rooftop segment concentrated in middle- and upper-income households, which is now contributes to a multi-gigawatt market.[99] Yet low-income communities face barriers to access affordable financing, a critical factor in the rise of rooftop solar PV and energy efficiency investments.[100] These same communities are increasingly vulnerable to the impacts of climate change that may disrupt access to power, such as heat waves and storm surge, and stand to benefit most from renewable, resilient energy systems.



Boys and Girls High School in Brooklyn. Source: NYC-EJA

Historically disinvested communities are critical to reach City and State solar goals

New York City has set ambitious targets for renewable energy generation and has made strides to incentivize energy efficiency for buildings.

In the recent *1.5ºC: Aligning NYC with the Paris Climate Agreement* Report, the City committed to integrating renewable energy into NYC's energy supply, including upstate renewable power generation, and intends to work with utilities to create a more flexible, distributed grid in support of renewable energy generation.[101]

In 2016, Mayor de Blasio increased the City's solar energy generation goal to 1,000 MW of citywide solar capacity by 2030, which would meet the needs of 250,000 households, coupled with an energy storage target of 100 megawatt hours (MWh) by 2020 to support resiliency during power outages.[102] Numerous programs have sprouted up, some working to accelerate solar development such as NYCEDC's Brooklyn Army Terminal Community Shared Solar Array solicitation, Solarize NYC, and Shared Solar NYC, while others focus on energy efficiency, including Community Retrofit NYC, Community Retrofit Accelerator, Green Housing Preservation Program, and NYC Carbon Challenge.

In response to NYC-EJA and allies' advocacy, the New York City Department of Citywide Administrative Services (NYC-DCAS) launched an Environmental Justice Working Group, which will work to increase equity and resiliency in NYC-DCAS's strategy for installing solar on public buildings. Based on the working group's recommendations, the next round of solar installations on public buildings will be targeted in environmental justice communities.[103] Moreover, energy resiliency strategies such as solar-plus-storage is another critical community preparedness strategy elevated by the working group. [104] In response, the City has committed to a Resilient Solar Track which would install solar plus storage on critical facilities in storm surge zones.[105]

While these commitments are commendable, with only 25 MW of solar installed or in progress on public buildings, we have a long road ahead.[106] The City cannot reach 80x50 without addressing long-standing inequities in the building stock that are limiting rapid uptake of rooftop solar and energy efficiency – including the over 1,200 public buildings that require roof repairs or replacements to support rooftop solar.[107]

State policies must overcome barriers to entry for environmental justice communities

State-level policies also impact NYC's ability to shift to a renewable and resilient energy mix. Governor Cuomo's 2018 State of the State included a suite of ambitious proposals to increase renewable energy generation, including: procuring 800 MW of offshore wind generation by 2020, on the way to the 2.4 gigawatt (GW) goal; investing $200 million to reach the energy storage target of 1500 MW by 2025; creating a Zero-Cost Solar for All Program to reach 10,000 low-income New Yorkers; and establishing energy efficiency targets by Earth Day.[108]

However, the State's flagship Reforming the Energy Vision (REV) initiative, which had aimed to radically redefine the State's energy landscape, has unfortunately yielded minimal results with regards to clean energy benefits for environmentally overburdened communities. Since 2014, multi-stakeholder proceedings have identified prevailing barriers to clean energy uptake, and generated recommendations on how to establish and expand clean energy opportunities equitably. Yet these proceedings have resulted in little action to address barriers, actualize recommendations, and hold public agencies and the energy sector accountable to New York's ratepayers.

The City and State must develop targeted interventions that provide incentives and address barriers to clean energy uptake. At the same time, the City should continue advocating for renewable energy and energy efficiency efforts that reach New York's most vulnerable residents. In this section, we offer a suite of recommendations for increasing access to renewable energy and energy efficiency for LMI and environmental justice communities, a critical market segment to reach in order to achieve City and State emissions reductions and renewable generation targets.

NYC-EJA Executive Director speaking at #Sandy5 Rally. Source: NYC-EJA

Priority **3a**

Clear Pathways For Equitable, Large-Scale Deployment Of Resilient Renewables

Support Grassroots Organizations Pursuing Community Distributed Generation

As Community Distributed Generation (CDG) becomes more widely available, many grassroots organizations in environmental justice communities lack resources to engage in project participation and development. Potential grassroots project partners would benefit from a clearinghouse that tracks all available incentives and programs; shares best practices on aspects of project development such as site acquisition, interconnection, financing; and supports community-based organizations (CBOs) in their efforts to engage in the CDG process generally. We recommend the City improve the NY Solar Map platform to encapsulate not just incentives and programs directed to individual homeowners, but also resources that could assist community and grassroots organizations in CDG development.

NYC-EJA and Climate Works for All coalition. Source: NYC-EJA

Expand Solar Deployment on Public Roofs – Specifically for Low-Income Subscribers

The City and State should work with local grassroots organizations to establish clean energy projects that optimize the economic and environmental co-benefits of clean energy development. For example, NYC-EJA and THE POINT CDC, as stakeholders in the Hunts Point Resiliency process, have long advocated for Hunts Point Food Distribution Center rooftops to be utilized for community co-owned solar-plus-storage, addressing local climate resiliency needs and optimizing economic co-benefits without adding to existing environmental burdens.

We recommend the City and State identify larger solar-ready public properties such as bus depots, parking lots, and wastewater treatment plants suitable for Community Shared Solar (CSS), complementing the City's public solar program limited to consumption behind the meter. Many of the City's environmental justice communities such as SMIAs, are disproportionately sited for large-scale manufacturing, industries, and polluting infrastructure. Assessing the solar-readiness of these sites would support existing community efforts, such as those of our members UPROSE and THE POINT CDC, as well as the broader REVitalize partnership, to accelerate installations of community co-owned renewable and resilient energy systems in vulnerable areas. This will also provide local economic opportunities for residents often facing displacement pressures from gentrification.

Different City and State properties should pilot different strategies for low-income solar access and optimizing environmental justice impacts. Some sites should host community solar projects that mandate at least 70 percent of low-to-moderate income subscribers with the aim of lowering utility bills. Other sites should offer no-cost leases for community-based organizations to explore new business models for clean energy projects that maximize low-income community ownership and participation. All sites should have local hiring requirements for solicitations, with strong preference given to proposals that commit to utilizing union labor and local hiring.

Facilitate Rapid Solar Deployment on Public and Private Buildings

Both City and State agencies should also consider a mandate or adjustments to the building code requiring all new building construction to accommodate on-site solar installations, providing greater ease of solar installations at little to no additional cost for building construction.[111] Where feasible, the City and State should also consider similar mandates for storage-readiness for various building types. State agencies should undertake a similar process as the City to incorporate transparent building assessments for solar readiness into their capital plans, and make information available to non-profits upon request for potential CSS projects.

Integrating Environmental Justice in City & State Energy Decision-Making

The City and State have both begun integrating environmental justice principles in high-level decisions around energy policy.

At the State level, with consultation from NYC-EJA and our members, the Governor has launched an Environmental Justice/ Just Transition Working Group that includes community leaders, health and labor advocates from across New York State. NYC-EJA, along with our members El Puente, THE POINT CDC, and UPROSE, were appointed to this newly formed group by Governor Cuomo, which met for the first time in September 2017. Members of the Working Group make recommendations to State agencies for the development of a statewide environmental justice policies and agency-specific environmental justice plans. Additionally, the Working Group will target efforts to connect New Yorkers that live in environmental justice communities or work in polluting industries with job opportunities that facilitate a Just Transition.

In 2017, the City Council passed Local Law 64 (2017), which requires a citywide study of environmental justice communities, and Local Law 60 (2017), which requires City agencies to develop plans to address environmental injustices in consultation with these communities.[109] [110] An outcome of these laws is a forthcoming Environmental Justice Working Group that will help inform City plans.

Incentives for Clean Energy Development in Environmental Justice Communities

The City administers a State tax abatement for properties in New York City that host rooftop solar PV systems. This tax abatement reduces property taxes for properties that host solar facilities. The solar tax abatement, which will expire in 2019, is currently capped at $250,000 apportioned over a four-year period, and is equal to whichever amounts to the least among the following: 5 percent of installation costs, the total annual property tax, or $62,500.[112] However, this $250,000 cap may not provide enough financial incentive for larger CSS projects.

In the near term, the State must prioritize extending this tax abatement to ensure cost parity for solar project development in New York City. The abatement should also drastically increase or entirely eliminate the cap on the solar property tax abatement, which would reduce costs and incentivize larger-scale solar projects in New York City's low-income communities of color.

In the long term, we recommend the State tax be expanded to capture diverse property types, building rate classes, and potential project sizes commonly found in low-income communities that do not currently benefit from the abatement in its current form.

Several property types in New York City, including many affordable housing developments, currently do not qualify for the solar tax abatement.[113] In such cases, the City and State should work together to develop incentives proportional to the tax abatement that would encourage ineligible property owners to cost-effectively host solar facilities. These incentives should include stringent protections against rent increases for rent-regulated tenants justified through major capital improvements (MCI's).

The City and State should facilitate opportunities for tenants to benefit from living in buildings that host solar, including tenants of properties that purchase energy from New York Power Authority (NYPA) and/or do not currently qualify for the solar tax abatement in its current form. These benefits could include opportunities for tenants to own shares of on-site solar assets, and maintaining housing affordability by allocating project revenues to other tenant cost liabilities such as water bills, household repairs, or rents.

Develop Clear Standards For Battery Storage Technology To Deploy Solar+Storage

The City is not on track to meet its energy storage target of 100 MWh by 2020, largely due to the lack of both established fire safety standards and a structured process of approving projects with battery storage technologies.[114] So far, the City University of New York (CUNY), in partnership with the Fire Department of New York City (FDNY), has drafted permitting process guidelines for just one type of storage technology – Valve-Regulated Lead Acid (VRLA) batteries.[115] For other battery technologies, information is provided to resilient solar developers on a need-to-know basis, limiting rapid uptake of solar-plus-storage. FDNY must expedite development of clear and consistent guidelines for determining feasibility of all types of solar storage technologies and for their safety assessments.

Additionally, the City should prioritize storage projects that can offset the need for existing and future dirty "peaker" power plants. As NYC-EJA's *2017 NYC Climate Justice Agenda* articulated, battery storage technologies, when strategically sited and deployed, can provide a clean and renewable source of energy during peak periods without burdening surrounding communities with air pollution.[116]

Unfortunately, the multi-year Hunts Point Resiliency process was a missed opportunity to invest in renewable and resilient energy storage. NYC-EJA, THE POINT CDC, and South Bronx community leaders were disappointed that the final proposal included a simple cycle combustion turbine, diesel generators, and natural gas fired generators coupled with battery storage, rather than solar-plus-storage. The continued reliance on fossil fuels for resiliency goals is a false solution that does not reflect the principles purportedly espoused by the City.

Aerial view of the Hunts Point Food Distribution Center. Source: HDR

Include Environmental and Economic Justice in the Value of Distributed Energy Resources

As part of the REV process, the New York State Public Service Commission (NYS-PSC) replaced net-metering with a mechanism called Value of Distributed Energy Resources (VDER) to compensate Distributed Energy Resources (DERs) largely based on the benefits they provide to the grid according to time and location.[117] In 2016, NYC-EJA and New York Lawyers for the Public Interest (NYLPI) submitted public comments to NYS-PSC recommending DERs also be compensated for non-utility benefits, particularly benefits that incentivize energy projects with environmental justice impacts.[118] However, the State's current VDER proceedings have become needlessly complex and overly partial to utility interests.[119] By failing to meaningfully integrate non-utility benefits into how DERs are valued, the State will de-incentivize clean energy projects, slow the renewable energy transition, and leave vulnerable New Yorkers behind.

We commend the City and our allies in the VDER proceedings for consistently demanding that VDER incorporate environmental and economic justice impacts, including the call for an Environmental Justice adder.[120] [121] [122] This would incentivize DER projects that serve low-income communities and communities of color disproportionately impacted by the fossil fuel-based energy system.

The State should prioritize the design of VDER regulations that value and incentivize DERs based on their economic and environmental justice impacts. Going forward, VDER proceedings should comprehensively integrate equity concerns voiced by environmental justice and economic justice stakeholders. Furthermore, the State must meaningfully address the recommendations on equity formally submitted in March, 2018 to NYS-PSC by the the Aligned Parties of the VDER LMI Working Group and the City of New York.[123] [124]

Holding Polluters Accountable:
NYC's Divestment & Lawsuit of Top Oil Companies

In January 2018, Mayor Bill De Blasio, City Comptroller Scott Stringer, and Public Advocate Tish James announced plans for New York City to divest $5 billion of its pension funds from fossil fuels over the next 5 years and sue the world's largest oil companies.

In addition to divestment, the City of New York is suing BP, Chevron, Conoco-Phillips, ExxonMobil and Royal Dutch Shell, under the claim that these oil companies have known about the damaging consequences of climate change for years yet chose to obscure it. The lawsuit seeks damages to pay for climate-related destruction that has already occurred and future resiliency measures to protect New York City. We commend the Mayor for this bold gesture, and encourage that resiliency investments be prioritized for environmental justice communities at most risk to the current and future impacts of climate change.

Report on Progress for Large-Scale Offshore Wind Procurement to Increase Resiliency

Offshore wind remains a major untapped asset required to accelerate a Just Transition for New York City. At the State level, Governor Cuomo has committed to offshore wind procurements in 2018 and 2019 of at least 800 MW. In addition, solicitations for 2.5 million megawatt hours (MWh) of large-scale renewable energy by NYPA and the New York State Energy Research and Development Authority (NYSERDA) are currently underway.[125] [126] Coupled with the necessity for new energy sources resulting from the impending closure of the Indian Point nuclear facility, the City and State are well positioned to take bold action to serve local energy and resiliency needs while reinvigorating New York City's industrial waterfront communities with a robust, local offshore wind industry.[127]

NYSERDA has identified the South Brooklyn Marine Terminal (SBMT), one of the City's few remaining industrial waterfront spaces, as suitable to support a variety of offshore wind supply chain needs such as manufacturing, fabrication, staging, and installation.[128] NYC-EJA member UPROSE has long envisioned the South Brooklyn Marine Terminal as a hub for the manufacturing and supply of the region's climate resiliency needs - including offshore wind - while providing local, well-paying, blue-collar jobs.

The City, working with NYPA, NYSERDA, and State agencies, should utilize the State's energy solicitations to establish strategic Power Purchase Agreements (PPAs) with offshore wind providers committed to siting their supply chains in New York City's industrial waterfronts with robust local workforce and economic development targets. While offshore wind energy may cost more upfront, this forward-thinking investment can create a long-term and sustainable local industry with potential to serve the region, while generating revenues that surpass the upfront energy expenses.

Upfront investments in offshore wind can also help drive down the costs of wind energy. For example, in the United Kingdom, initial government support for their offshore wind industry helped incentivize rapid uptake of wind power, providing a clean source of power while allowing wind generation to quickly become competitive with fossil fuels and nuclear power in the energy market.[129] Given the impending closure of New York's Indian Point nuclear facility, the City should learn from the United Kingdom by replacing polluting energy sources through strategic investments in renewable and resilient energy industries.

Offshore wind turbines at Barrow Offshore Wind Farm in ireland. Source: Andy Dingley

Priority

3b

Equitable and Just Expansion of Energy Efficiency Investments

The confluence of extreme heat and lack of access to energy efficient buildings is a quiet threat facing low-income people, people of color, and the elderly. In New York City, 36 percent of low-to-moderate income households are energy burdened, paying a much higher proportion of their income on energy costs.[130] During heat waves, citywide use of air-conditioning strains the grid, increasing the likelihood of blackouts and brownouts. For heat-vulnerable residents living in energy inefficient homes, lack of power during a heat wave increases risks of dangerous heat exposure.

Energy efficiency retrofits can help alleviate the many burdens associated with living in poverty, such as relieving the energy burden and environmental health hazards.[131] They can also help mitigate climate risks in the long-term, by making buildings and residents better able to withstand extremes in temperature.

Create Protections from Rent Increases Associated with Energy Efficiency Investments

Although improved energy efficiency can potentially reduce the energy burden and increase affordability for low-income tenants, the investment in building retrofits may be used as a justification to drive up rental costs for rent-regulated tenants. Low-income New Yorkers should be able to access the benefits of clean and renewable energy without the threat of gentrification and displacement. Property owners of rent-stabilized units can use major renovations and investments, i.e. major capital improvements (MCIs), to justify increasing rents and displacing long-time tenants.

Property owners should be prevented from using energy efficiency investments, which are critical to City and State climate goals and ultimately saves the property owner in energy costs, as a justification to raise rents. The State should adopt model rules for protecting tenants from rent increases and evictions, preventing the deregulation of apartments, and restricting property resale as they relate to investments in residential and commercial energy efficiency.

NY Renews: *Cut Pollution, Fund Solutions for New York State*

NY Renews is a coalition of 125 labor, community, environmental, and environmental justice organizations, united to pass ambitious climate legislation that moves New York State to a renewable energy economy that creates new jobs, protects workers, and ensures true environmental justice. Our proposed Climate and Community Protection Act (CCPA) makes our state climate pollution reduction and clean energy commitments legally binding across all sectors including energy, buildings, and transportation, setting a path to 100% renewable energy by 2050. The CCPA also creates a process to ensure that at least 40% of state energy funds are allocated towards vulnerable, impacted, historically disadvantaged, and frontline communities.

Additionally, our proposed Climate and Community Investment Act puts a price on greenhouse gas emissions and co-pollutants, requiring that the fossil fuel industry pay for their damage to our health and our climate. Research shows that a modest polluter fee – for example, one that begins at $35 per ton of emissions and increases gradually – would generate about $7 billion in revenue every year over the first ten years. This money would be invested in transitioning to renewable energy, growing New York's local economies, and uplifting communities throughout the state, from Brooklyn to Buffalo. New York has a chance to be the first in the country to pass an equitable polluter fee.

New York State ice sculpture from NY Renews action in Albany. Source: NY Renews

State Resources and Mandates to Develop Inclusive Financing Pilot

Low-income customers, renters, and energy customers with poor credit are unable to participate in most debt-based energy efficiency and clean energy financing programs. The City and State should work with utilities to create programs that benefit New Yorkers who have thus far been excluded from the clean energy economy. Such programs should target low-income communities, communities of color, and renters who have historically faced both the disproportionate health impacts of fossil fuel-based infrastructure, and stand to benefit most from strategic investment in energy efficiency and clean energy.

We recommend that NYSERDA direct funds to innovative financing for clean energy and carbon abatement, working with grassroots advocates such as the Brooklyn Alliance for Sustainable Energy, as well as utility companies, to develop a business model that would be fully inclusive of LMI customers in environmental justice communities. This commitment could help stimulate entrepreneurship, employment, and growth in the local clean energy market.

Inclusive Financing In Action: *Pay As You Save (PAYS)*

Pay-As-You-Save (PAYS) is a model of inclusive financing that can help low-income and climate vulnerable communities access energy efficiency upgrades that help reduce energy burdens and mitigate the impacts of extreme weather events. PAYS integrates third-party capital to facilitate energy upgrades, galvanizing local clean energy economies and workforce development opportunities. PAYS has proven effective to combat the energy burden for vulnerable communities because the upgrades are financed directly through the meter, and do not rely on credit scores for eligibility.

PAYS has been implemented by several utilities across the country, and the feedback from low-and-moderate-income (LMI) areas has been largely positive, with reports of reliable cost recovery for upgrades, local clean energy market expansion, positive cash flow to customers in the form of upfront bill savings, and reduced shut-offs from bill non-payments. In a recent report, the National Association for the Advancement of Colored People (NAACP) advocates for inclusive financing as a mechanism to alleviate energy burden for low-income communities of color.[132] And in early 2017, the New York State Clean Energy Advisory Council's LMI Working Group submitted a final report that recommended introducing an inclusive finance model in a way that overcomes credit barriers faced by lower income and low FICO consumers.[133]

NYC-EJA members meeting 2018. Source: NYC-EJA

CONCLUSION

As New York City approaches the 2030 milestone, it becomes increasingly imperative for City and State government to act swiftly for climate justice. The *New York City Climate Justice Agenda* recommendations seek to develop a local vision for a Just Transition across four key areas of intervention – mitigating extreme heat and fostering community preparedness, improving air quality through innovations in public transportation and waste management, expanding green infrastructure and nature-based solutions, and catalyzing equitable access to renewable energy and energy efficiency.

It is integral that across these four areas, the City and State engage with community leadership to build power for policy changes needed to dismantle environmentally and economically extractive processes. Together, these strategic interventions can move us toward a Just Transition away from fossil fuels, by building transformative infrastructure and programs for communities disproportionately impacted by polluting infrastructure, creating new economic opportunities for New Yorkers, and bringing environmental justice and climate justice leaders to the table.

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