



EXTREME HEAT POLICY AGENDA 2020

WE ACT FOR ENVIRONMENTAL JUSTICE

EMPOWERING COMMUNITIES TO POWER CHANGE



WE ACT was started in 1988 when three fearless community leaders saw that environmental racism was rampant in their West Harlem neighborhood, and they demanded community-driven, political change. Today, the organization is considered an active and respected participant in the national Environmental Justice Movement.

WE ACT's mission is to build healthy communities by ensuring that people of color and/or low income residents participate meaningfully in the creation of sound and fair environmental health and protection policies and practices.

WE ACT FOR ENVIRONMENTAL JUSTICE

1854 Amsterdam Avenue, 2nd Floor, New York, NY 10031 | 212-961-1000

50 F Street, NW, 8th Floor, Washington, DC 20001 | 202-495-3036

Web: weact.org | Facebook: [weactforej](https://www.facebook.com/weactforej) | Twitter: [weact4ej](https://twitter.com/weact4ej) | Instagram: [weact4ej](https://www.instagram.com/weact4ej)



INTRODUCTION

Climate change is causing average global temperatures to increase. Extreme heat events lead to many negative health impacts including dehydration, heat stress, fainting, heat stroke, and mortality. Due to systemic racism and pervasive inequalities, Black/African American and Latinx communities, low-income households, and elderly people are disproportionately affected by these heat-related health outcomes. WE ACT for Environmental Justice's is soon launching the Heat, Health, and Equity Initiative (HHEI), aimed to protect New York City's vulnerable populations from extreme heat. Due to COVID-19 pandemic, HHEI is releasing pre-launch objectives that are vital for supporting populations now, as detailed in this report.

Swift and robust government action is needed to proactively prepare New York City (NYC) for rising temperatures and mitigate the corresponding health risks. A variety of strategies should be implemented to promote a comprehensive portfolio of approaches that emphasizes equity, prioritizes community participation, and heeds COVID-19 safety precautions.

CONTEXT

New York City is particularly susceptible to rising temperatures because its physical design characteristics amplify the urban heat island effect. Climate modeling projects that up to 75 days of the year could reach 90 degrees Fahrenheit in New York City by the 2080s (1). On average, there are over 100 heat-related deaths and approximately 450 hospitalizations or ER visits due to extreme heat exposure per year in NYC (2). A 2016 Columbia University study projected that heat mortality rates in New York City will continue to rise significantly, resulting in up to 3,300 deaths annually by 2080 (3).

New York City's struggle with inequality causes extreme heat events to disproportionately affect certain populations and neighborhoods (Table 1). For example, neighborhoods in East Harlem, Central Harlem, and the South Bronx have a high heat vulnerability index, a measurement of risk to heat-related illness or death (4). These neighborhoods also have large Black/African American and Latinx populations. Additionally, low income and elderly people are more susceptible to adverse health impacts related to extreme heat. Much of this inequity comes from structural and historical racism, forcing low-income and people of color in NYC to:

EXTREME HEAT POLICY AGENDA

- Live in older, poorly maintained apartment buildings
- Live in crowded apartments with intergenerational living
- Live in neighborhoods with less green space
- Live in neighborhoods with more air pollution from buildings and industrial sites
- Stretch their resilience and their means across many hardships, such as food, rent, chronic illness, and immigration status (5).

New York City has developed a variety of programs to reduce negative health impacts during extreme heat events but COVID-19 poses new challenges. Many of the neighborhoods in NYC that are reporting the greatest number of COVID-19 cases are also categorized as areas of high heat vulnerability (4,6). Thus, COVID-19 is compounding existing vulnerabilities and exacerbating inequalities. Approximately 34 percent of reported COVID-19 cases are Black/African American, even though they make up only 25 percent of the population (6). Health experts are concerned that the number of fatalities could increase this summer because people may avoid going to the hospital due to their fear of contracting the virus or overburdening health facilities.

Table 1. Heat-related health complications are exacerbated by other health conditions and socioeconomic indicators of vulnerability, including age, race, income, and employment. These characteristics can overlap to create cumulative impacts that compound health risks.

HEALTH	<ul style="list-style-type: none"> • People with chronic illnesses, such as cardiovascular and respiratory diseases, are more susceptible to heat stress and health complications on hot days (5).
AGE	<ul style="list-style-type: none"> • Elderly people are more prone to heat illness due to increased isolation and pre-existing health challenges (5). • Children with pre-existing health conditions, such as asthma, are also at risk during heat events. Like the elderly, children may spend more time indoors, heightening exposure (5).
RACE	<ul style="list-style-type: none"> • People of color are more likely to experience energy insecurity. For example, in Washington Heights, energy insecure households are predominately Black/African American and Latinx (5). • 50 percent of heat-related deaths in New York City over ten years were Black/African American people (2).
INCOME	<ul style="list-style-type: none"> • Low-income families are more likely to be burdened by energy insecurity (5). • People experiencing homelessness have increased exposure to hot temperatures, struggle to access healthcare, and are often stigmatized making it difficult to gain admission to cooling centers (7).
EMPLOYMENT	<ul style="list-style-type: none"> • Certain jobs require work to be done in extreme temperature conditions that expose employees to environmental hazards that increase risk (5). This is especially true for essential workers during the COVID-19 pandemic.

OBJECTIVE 1: EXPAND LIHEAD TO INCREASE ACCESS TO AIR CONDITIONERS AND REDUCE THE ECONOMIC BURDEN OF ELECTRICITY USE FOR VULNERABLE POPULATIONS.

Vulnerable people struggle to cope with extreme heat in many ways. A primary strategy to endure heat is the use of home cooling technologies to lower indoor temperatures. This is important because 85 percent of heat stroke deaths in NYC happen due to heat exposure at home (8). Unfortunately, exorbitant utility bills make the cost of owning and operating an air conditioner very challenging. For example, on average, low-income households in New York spend 12.6 percent of their annual income on energy while moderate-income households spend just 6.4 percent of their income on energy (9). Consequently, energy and rent bills combined constitute the highest household expense (10). Energy costs are especially burdensome during the warm season. Utility bills can increase by up to 20 to 30 percent due to air conditioning use in the summer (11). Many low-income households are forced to forego home cooling due to cost. In fact, one study conducted in NYC found that 15 percent of participants reported never or infrequently using their air conditioners. Furthermore, 24 percent of respondents specifically said they chose not to use their air conditioning because of the cost (12).

COVID-19 will exacerbate this situation. Many people will be unable to seek shelter in cool spaces outside of where they live due to quarantine restrictions and will therefore be even more dependent on their home energy system. Moreover, the percentage of households that use an air conditioner this summer may decline as more New Yorkers face unemployment and economic uncertainty due to COVID-19.

Recommendation 1: Allocate more funding to LIHEAP.

The State-run Low Income Home Energy Assistance Program (LIHEAP) allocates the majority of its funding to heating services. Just two percent of its budget is apportioned to cooling needs (13). To adapt to the realities of COVID-19 this summer and climate change, more financial capital is needed to increase the use of cooling technologies in NYC homes. Recently, the Federal Government provided New York State with \$28.8 million in additional LIHEAP funding through the CARES Act (14). This money is available for use now. Thus, quick modifications must be made to the state's Cooling Assistance Component to significantly expand access to affordable cooling this summer.

Recommendation 2: Expand LIHEAP to finance energy efficiency retrofits.

Currently, New York State LIHEAP cooling assistance only provides funding for people to get an air conditioner or fan. A/C use increases home energy bills, often making utility bills unaffordable for many low-income New Yorkers. Long-term fixes that increase energy efficiency in all homes is needed to reduce energy bills and air pollution.

Recommendation 3: Revise the definition of eligible recipients for LIHEAP to extend support to vulnerable populations that do not meet the current prerequisites.

Currently, only a subset of New York's at-risk population is eligible for air conditioners. This eligibility criteria fails to capture other low-income households that are also at risk during extreme heat events. LIHEAP should adjust the definition of people who qualify to receive air conditioners so that it includes more low-income families.

OBJECTIVE 2: ADVOCATE FOR LEGISLATIVE ACTION TO ADDRESS AND MITIGATE EXTREME HEAT IMPACTS.

Several bills have been introduced by NYC Council Members. These should be passed and signed into law by the Mayor.

Recommendation 1: Support Introduction 1563-2019 to codify cooling centers in NYC.

WE ACT worked with New York City Council member and Chair of the Environmental Protection Committee Costa Constantinides to develop Introduction 1563-2019. The proposed legislation would require that the City:

- Codify the city's Cooling Center Program
- Set a minimum number of centers based on where heat vulnerable populations reside
- Institute a process for engaging local communities in determining how best to access cooling infrastructure in their neighborhoods
- Require that NYC Emergency Management (NYCEM) and the Department of Health and Mental Hygiene (DOHMH) conduct a survey of program utilization and report it annually to the Mayor and the Council (15).

Recommendation 2: Support New York City Council Introduction 1945-2020 to require that NYC DOHMH publish heat vulnerability data annually.

WE ACT is advocating for the passage of Introduction 1945, which would require that NYC DOHMH collect and make heat vulnerability data available on an annual basis. The information reported must capture cumulative impacts (16).

Recommendation 3: Support New York City Council Introduction 1960-2020 requiring the City to submit their summer heat plan by March 1st each year.

WE ACT supports the comprehensive cooling and communications plan that requires the commissioner of DOHMH and the commissioner of NYCEM to submit the City's plan for addressing summer extreme heat by March 1st every year.

Recommendation 4: Introduce bills that survey the level of green roof and solar roof penetration in environmental justice and heat vulnerable communities.

New York City Council should introduce bills that promote research, design, and use of solar roofs. A study conducted by researchers at UC San Diego Jacobs School of Engineering concluded that solar panels could reduce the amount of heat reaching the roof by up to 38 percent (17). Likewise, Stuart Gaffin, a climatologist at Columbia University's Center for Climate Systems Research, demonstrated that green roofs can cool near-surface air temperatures by an average of 16.4 degrees Celsius per unit area. Thus, increasing solar serves as both an adaptation and mitigation strategy (18).

OBJECTIVE 3: COORDINATE EMERGENCY PLANNING STRATEGIES DURING EXTREME HEAT EVENTS TO PREVENT POWER OUTAGES AND PROMOTE SAFETY.

Increased energy demand during extreme heat events can result in power outages. During the summer, indoor temperatures can surpass outdoor temperatures, especially for households without air conditioners and during blackout and brownout periods. This increases the risk of heat illness and poses an additional challenge to individuals that rely on electronic medical devices (7). Low-income neighborhoods are disproportionately impacted by power outages. When Con-Ed shut off service to 33,000 customers in the summer of 2019 to protect the company's equipment, two of the neighborhoods chosen were Canarsie and Flatlands. Both are majority Black/African American (approximately 59 percent) and rank 4 out of 5 on the City's heat vulnerability index (19).

Recommendation 1: Complete the installation of all 74,000 A/C units provided by the GetCool program by July 1st.

New York City's GetCool Air Conditioner Program is providing \$55 million to install 74,000 air conditioners in the homes of low-income seniors this summer, 22,000 of whom are NYCHA residents (20). The City must ensure that they meet their pledged timeline and complete all installations by July 1st. When choosing contractors, priority should be given to Minority and Women-Owned Business Enterprises (MWBES).

RECOMMENDATIONS

Recommendation 2: Preemptively set maximum temperatures for larger buildings to reduce energy loads.

Last summer, Mayor de Blasio signed Emergency Executive Order No. 97 directing owners and operators of large office buildings to set building thermostats to 78 degrees Fahrenheit to conserve energy (21). This energy conservation method should be more widely instituted. The minimum temperature set for buildings should be increased, especially for those that are currently under capacity, to decrease strain on energy infrastructure during extreme heat events.

Recommendation 3: Establish a maximum indoor temperature threshold for facilities that house heat vulnerable populations.

The State should require that facilities that support vulnerable populations, such as domestic violence and homeless shelters, senior citizen housing, and jails, set a maximum indoor temperature threshold. This should be consistent with what is established by Medicaid.

Recommendation 4: Improve the delivery of portable generators.

Emergency energy technology, such as generators, are especially important during power outages for people with chronic illnesses that require electricity for medical purposes. Locating these individuals and coordinating the distribution of generators entails regularly collecting data and communicating with eligible recipients about their needs.

Recommendation 5: Support heat vulnerable communities in participatory visioning processes to develop plans for resilience to extreme heat.

WE ACT prioritizes engagement with community members to ensure that policy recommendations reflect their interests and needs. In 2014, WE ACT launched a six-month long community planning process with the support of the Kresge Foundation. Members and key stakeholders in Northern Manhattan discussed policy or physical changes that they believed would improve their communities' resiliency to climate change. Furthermore, WE ACT's HHEI has been working with NYC residents since last summer to understand the nexus of extreme and health in vulnerable communities. Revealing thoughts shared by City residents include:

"Senior citizens found dead in their homes because of the heat...that's why people are doing anything about it now. They wait until things get extreme before doing anything."

"You will get down to your undies instead of paying for Con-Ed."

Feedback from the public regarding extreme heat highlights the strategic importance of a multidimensional approach that addresses the full spectrum of community members' concerns. The City should provide a platform for community members, especially vulnerable populations that are most impacted by extreme heat, to actively participate in developing plans to mitigate and respond to rising temperatures.

Recommendation 6: Develop a heat action plan to protect vulnerable populations during extreme heat events that is updated yearly.

A committee of government staff, medical professionals, EJ advocates, and community members should collaborate to design and compose a heat action plan that discusses:

- The health impacts of extreme heat
- The symptoms and medical recommendations to assist those affected by heat
- The policies and programs that protect vulnerable populations
- The city's strategy to reduce and respond to heat impacts

This should prioritize feedback and participation from vulnerable communities. It should be made publicly available online and shared with care coordinators.

OBJECTIVE 4: ENCOURAGE THE USE OF AND IMPROVE THE AMENITIES OFFERED BY COOLING CENTERS.

Last summer WE ACT conducted an audit of Northern Manhattan's cooling centers to evaluate their effectiveness and recommend improvements. The main finding revealed that:

- Cooling center utilization is low. People typically only seek out cooling centers when they are planning to visit the site for other purposes.
- Schools that were opened as cooling centers had an especially low turnout.
- Around 12 percent of listed cooling centers were not open and functioning (22).
- Just 27 percent of cooling centers had appropriate signage to direct people to the center's location (22).
- Only 68 percent of centers offered books, games, newspapers and/or magazines to provide visitors with entertainment during their stay (22).

Recommendation 1: Install and upgrade cooling systems throughout the city.

While COVID-19 presents many challenges, it also creates an opportunity. Since many of the former cooling center sites will not be open, action should be taken to install and upgrade cooling systems now in preparation for future summers. This could provide employment opportunities to local community members and should be performed while adhering to the appropriate social distancing requirements.

Recommendation 2: Improve cooling center services to create a safer and more enjoyable environment.

Cooling centers should provide extended hours. Mandatory training should be provided so that all cooling center personnel can identify heat stress and COVID-19 symptoms. Additionally, all cooling centers should offer free water and be located near establishments that sell food. To increase interest, cooling centers should include entertainment options, such as internet, books, and recreational activities. Safe transportation should be available so that cooling center visitors can arrive without exposing themselves to COVID-19 or the heat.

Recommendation 3: Develop and strengthen neighborhood-specific communication plans that promote the use of cooling centers.

Advertisement for cooling centers has not proved successful in the past. More outreach is needed to promote cooling centers with information about heat risks and safety. All promotion material should be produced in multiple languages. Despite trends towards a digital format, many WE ACT members lack access to a computer, phone, and the internet. Thus, outreach efforts should include physical signage in NYCHA buildings and on transportation services. People are more likely to trust information that comes from a familiar source. All community engagement should therefore be coordinated with local organizations.

OBJECTIVE 5: DESIGN AND IMPLEMENT NEW CITY AND STATE PROTOCOLS TO PROTECT VULNERABLE POPULATIONS FROM HEAT-RELATED HEALTH ILLNESSES.

City and State agencies should collaborate to modify existing and implement new protocols that:

- Improve city infrastructure to reduce heat retention
- Strengthen strategies to respond to extreme heat events
- Provide resources and training about heat and health knowledge to government staff and care personnel
- Increase the collection, analysis, and reporting of heat-related health data

This must be a cooperative task that avoids siloed efforts.

Recommendation 1: Require that NYCHA develop an emergency plan for extreme heat.

NYCHA has developed a Heat Action Plan to address heating shortfalls and outages. The plan includes NYCHA's proposed strategies to fulfill heat-related requirements under a 2019 agreement between NYCHA, the U.S. Department of Housing and Urban Development, and New York City (23). However, this plan focuses on cold-weather heating strategies and does not include warm-weather cooling strategies. Furthermore, Superstorm Sandy impacted 10 percent of NYCHA's developments, leaving 80,000 of its tenants without heat or power and exposing poor infrastructure and disorganization (24). This highlights the need to act proactively and prepare for extreme weather events. Thus, NYCHA should create an emergency plan that outlines its response strategy to extreme heat.

Recommendation 2: Require that NYCHA implement the findings from its study *Sheltering Seniors from Extreme Heat* to reduce heat retention in its developments.

Over half of the public housing residents reside in the city's most heat-vulnerable neighborhoods (25). NYCHA residents are especially vulnerable to extreme heat. There are more than 62,000 NYCHA tenants over the age of 65. This is the fastest growing age group among NYCHA's population and the most susceptible to health complications resulting from heat exposure (26). Accordingly, NYC should focus on providing additional support to NYCHA residents and federal housing residents. NYCHA should have free professional installations and waive any additional fees that offset the cost of additional power they consume.

NYCHA contracted experts to conduct a series of studies to identify strategies that would protect tenants during extreme health events. The group's findings highlighted several opportunities for improvement:

- Upgrading building envelopes to meet or exceed current code insulation
- Installing high performance windows and air sealing to reduce the outdoor/indoor temperature differential to 3 degrees Fahrenheit (it is currently around 6 degrees Fahrenheit)
- Adding indoor or outdoor shading to maintain indoor temperatures below peak outdoor temperature
- Installing generator backed-up for air conditioning systems with 100 percent capability (27).

NYCHA should create an action plan to implement these changes. Additional retrofits should also be considered. For example, all NYCHA elevators must be safely operable, which will require thorough auditing and regular maintenance and monitoring. Funding should be made available by the City and State to support these retrofits.

Recommendation 3: Require that home health aides participate in trainings to learn how to identify health-related heat impacts.

In 2017, the City announced that it would partner with three home care agencies to train home health aides to recognize and address early signs of heat related illness. The State should require that all home health aides participate in this training. Those that are already certified when the new requirement is imposed should receive compensation from the State for any additional training.

Recommendation 4: Increase the collection of heat-related health data, analyze cumulative impacts, and share the findings with the EJ Advisory Board.

The City should collect, analyze, and interpret heat-related health data annually. This should be complemented with data on the social determinants of health and NYC's heat vulnerability index to capture the effects of cumulative impacts and identify vulnerable populations. The findings should be shared with the EJ Advisory Board so that they can recommend meaningful policies and programs. It should also be made publicly available so that community organizations and residents can use it for their outreach and advocacy efforts.

OBJECTIVE 6: IMPLEMENT AND EXPAND CHANNELS OF COMMUNICATION WITH VULNERABLE POPULATIONS TO INCREASE AWARENESS OF EXTREME HEAT IMPACTS.

In order to protect vulnerable populations from extreme heat, the City must improve and expand communication initiatives to raise awareness about extreme heat.

Recommendation 1: Expand and permanently fund the Be a Buddy Program.

Mayor Bill de Blasio launched the Be A Buddy Program in 2017 to match community-based organizations with at-risk NYC residents (28). Check-ins from local volunteers help to ensure that the wellbeing of vulnerable populations, especially isolated elderly people, is not compromised during extreme heat events. Be A Buddy Program was initially a two-year pilot initiative to develop and test strategies. Financial support is needed to expand the program and increase the pool of resources.

Recommendation 2: Strengthen partnerships with faith communities.

Working with trusted organizations is an important strategy to increase communication channels with vulnerable populations. Thus, collaboration with faith communities should be encouraged as a way to share information about extreme heat with those that regularly attend churches, mosques, temples, and other houses of worship.

Recommendation 3: Develop a relationship between the NYCEM and local television and radio stations.

A survey conducted in NYC reported that 82 percent of the city's most vulnerable population receives heat-health information from TV (7). This could be an important tool during this summer since most people will remain indoors due to COVID-19. In 2018, the City hosted a workshop with meteorologists and health reporters to improve communication about extreme heat and associated health risks. The city should continue to provide such workshops to strengthen partnerships with reporters, thereby increasing the general public's awareness.

Recommendation 4: Require the announcement of extreme heat emergencies through the emergency broadcast system.

The Federal Communications Commission requires that broadcasters and cable operators provide information during immediate weather emergencies, such as hurricanes, floods, and heavy snows. This requirement should be updated to include extreme heat events. Currently, the Federal Communications Commission must broadcast the information so that is accessible in English, to persons who are deaf or hard of hearing, and to persons who are blind or have visual disabilities (29). However, additional language requirements should be offered to increase inclusivity.

OBJECTIVE 7: IMPLEMENT GREEN DESIGN TECHNIQUES AND INCREASE RENEWABLE ENERGY PRODUCTION TO PROMOTE NATURAL COOLING AND REDUCE NYC'S CARBON FOOTPRINT.

A/C units powered by fossil fuels emit greenhouse gases and exacerbate climate change impacts in the long-term. Green technologies and design, such as renewable energy and vegetation, can offer natural cooling mechanisms. This will require extensive research efforts and significant investment.

Recommendation 1: Plant vegetation and expand green spaces in neighborhoods with high heat vulnerability to reduce the urban heat island effect.

Shade from tree covering can help to naturally cool surrounding areas without the use of energy technologies that produce greenhouse gases, such as air conditioners. Many heat vulnerable neighborhoods have less canopy, and this inequitable distribution must be corrected.

Recommendation 2: Install shade covering over all pedestrian streets this summer.

This summer, the City is implementing 75 miles of pedestrian streets to facilitate social distancing during the COVID-19 pandemic. Street pavement absorbs heat, exposing pedestrians to heat risk. These streets must be covered with shade in order to reduce pedestrian exposure to heat. Priority to shading pedestrian streets must be given to heat vulnerable neighborhoods.

RECOMMENDATIONS

Recommendation 3: Advocate for equitable distribution of green roofs.

Currently, most green roofs in New York City lie in midtown and downtown Manhattan (30). The City must pursue installing green roofs in heat vulnerable neighborhoods.

Recommendation 4: Increase research and investment in renewable energy sources.

Heat waves increase electricity use which contributes to greenhouse gas contamination and perpetuates climate change. Thus, while air conditioners are an important adaptation tool during extreme heat events, their use results in fossil fuels being burned. Ultimately, there needs to be greater investment in renewable energy, such as solar and wind. Con-Ed should support a just transition to renewable energy. Green jobs should be maximized to support local communities.

CONCLUSION

New York City must pursue both short-term and long-term objectives to mitigate the negative impacts that extreme heat can have on the health of vulnerable populations. This will require collaboration and cooperation between government agencies, local organizations, community members, and private companies such as Con-Ed. Given the current restrictions posed by the COVID-19 crisis, the City's summer 2020 cooling strategies must incorporate the appropriate safety measures to protect New Yorkers, especially those that are susceptible to both heat illness and the virus. Plans should focus on expanding LIHEAP funds for cooling services, advocating for legislative action and policy reforms, strengthening emergency plans, improving the use and services of cooling centers, supporting changes to City and State protocols, increasing communication with community members, and implementing green technologies and design.

Additionally, NYC should analyze and evaluate other cities' heat initiatives and cooling programs to develop creative and effective policies. For instance, Paris created an application, EXTREMA Paris, that identifies nearby locations for users to cool off and allows them to create profiles for family members and friends to check on their heat risk (31). While there exists a digital divide in NYC, many residents have smart phones and could benefit from an application that provides information and data on cooling infrastructure and heat vulnerability. Barcelona provides another illustrative example. The city focused on the construction of green infrastructure to reduce the urban heat island effect. The city's plan aims to provide 400 acres of additional green space by 2030 (32). All programs, projects, and policies that New York City implements must champion social equity and prioritize supporting low-income households and people of color.



APPENDIX

List of objectives and corresponding recommendations.

1. **Expand LIHEAP to increase access to air conditioners and reduce the economic burden of electricity use for vulnerable populations.**
 - a. Allocate more funding to LIHEAP.
 - b. Expand LIHEAP program to finance energy efficiency retrofits.
 - c. Revise the definition of eligible recipients for LIHEAP to promote equity and extend support to vulnerable populations that do not meet the current prerequisites.
2. **Advocate for legislative action to address and mitigate extreme heat impacts.**
 - a. Support Introduction 1563-2019 to codify cooling centers in NYC.
 - b. Support New York City Council Introduction 1945-2020 to require that NYC DOHMH publish heat vulnerability data annually.
 - c. Support New York City Council Introduction 1960-2020 requiring the City to submit their summer heat plan by March 1st each year.
 - d. Introduce bills that survey the level of green roof and solar roof penetration in environmental justice and heat vulnerable communities.
3. **Coordinate emergency planning strategies during extreme heat events to prevent power outages and promote safety.**
 - a. Complete the installation of all 74,000 A/C units provided by the GetCool program by July 1st.
 - b. Preemptively set maximum temperatures for larger buildings to reduce energy loads.
 - c. Establish a maximum indoor temperature threshold for facilities that house heat vulnerable populations.
 - d. Improve the delivery of portable generators.
 - e. Support heat vulnerable communities in participatory visioning processes to develop plans for resilience to extreme heat.
 - f. Develop a heat action plan to protect vulnerable populations during extreme heat events that is updated yearly.
4. **Encourage the use of and improve the amenities offered by cooling centers.**
 - a. Install and upgrade cooling systems throughout the City.
 - b. Improve cooling center services to create a safer and more enjoyable environment.
 - c. Develop and strengthen neighborhood-specific communication plans that promote the use of cooling centers.
5. **Design and implement new City and State protocols to protect vulnerable populations from heat-related health illnesses.**
 - a. Require that NYCHA develop an emergency plan for extreme heat.
 - b. Require that NYCHA implement the findings from its study *Sheltering Seniors from Extreme Heat* to reduce heat retention in its buildings.
 - c. Require that home health aides participate in trainings to learn how to identify health-related heat impacts.
 - d. Increase the collection of heat-related health data, analyze cumulative impacts, and share the findings with the EJ Advisory Board.

APPENDIX

List of objectives and corresponding recommendations.

6. **Implement and expand channels of communication with vulnerable populations to increase awareness of extreme heat impacts.**
 - a. Expand and permanently fund the Be a Buddy Program.
 - b. Strengthen partnerships with faith communities.
 - c. Develop a relationship between NYCEM and local television and radio stations.
 - d. Require the announcement of extreme heat emergencies through the emergency broadcast system.
7. **Implement green design techniques and increase renewable energy production to promote natural cooling and reduce NYC's carbon footprint.**
 - a. Plant vegetation and expand green spaces in neighborhoods with high heat vulnerability to reduce the urban heat island effect.
 - b. Install shade covering over all pedestrian streets this summer.
 - c. Advocate for equitable distribution of green roofs.
 - d. Increase research and investment in renewable energy sources.

REFERENCES

1. Bellafante, Ginia. "New York's Forecast: Rising Seas, Continual Heat Waves, and a Little Hope." *The New York Times*, February 20, 2015. <https://www.nytimes.com/2015/02/22/nyregion/global-warming-could-make-the-super-rich-jealous-of-rowhouse-residents.html>.
2. Calma, Justine. "The Heat In New York Is Literally Killing People. Here's What the City Has to Do Now." *Mother Jones*, July 14, 2018. <https://www.motherjones.com/environment/2018/07/the-heat-in-new-york-is-literally-killing-people-heres-what-the-city-has-to-do-now/>.
3. Worland, Justin. "Climate Change: Extreme Heat in New York Could Kill 3,300." *Time*, June 24, 2016. <https://time.com/4382496/climate-change-heat-deaths/>.
4. Heat Vulnerability Index." *Environment & Health Data Portal*. Accessed May 28, 2020. <http://a816-dohbsp.nyc.gov/IndicatorPublic/VisualizationData.aspx?id=2411,719b87,107,Map,Score,2018>.
5. Jessel, Sonal, Samantha Sawyer, and Diana Hernández. "Energy, Poverty, and Health in Climate Change: A Comprehensive Review of an Emerging Literature." *Frontiers in Public Health* 7:357 (December 12, 2019). <https://doi.org/10.3389/fpubh.2019.00357>.
6. COVID-19 Data by ZIP Code of Residence." Accessed May 28, 2020. <https://www1.nyc.gov/site/doh/covid/covid-19-data.page>.
7. Abbinett, Jessica, Paul J Schramm, Stasia Widerynski, Shubhayu Saha, Suzanne Beavers, Margaret Eaglin, Uei Lei, et al. "Heat Response Plans: Summary of Evidence and Strategies for Collaboration and Implementation." *Climate and Health Technical Report Series*. Climate and Health Program, Centers for Disease Control and Prevention.
8. "Heat Illness and Deaths - New York City, 2000–2011." *Morbidity and Mortality Weekly Report*. Centers for Disease Control and Prevention, August 9, 2013. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6231a1.htm>.
9. "NYSERDA Low-To Moderate-Income Market Characterization Study: Special Topic Report – Household Energy Burden." *Applied Public Policy Research Institute for Study and Evaluation*, February 2017.
10. Hernández, Diana, Yang Jiang, Daniel Carrión, Douglas Phillips, and Yumiko Aratani. "Housing Hardship and Energy Insecurity among Native-Born and Immigrant Low-Income Families with Children in the United States." *Journal of Children and Poverty* 22, no. 2 (March 7, 2016): 77–92. <https://doi.org/10.1080/10796126.2016.1148672>.

EXTREME HEAT POLICY AGENDA

11. Spivack, Caroline. "Here's How NYC Plans to Keep New Yorkers Cool This Summer." Curbed NY, May 15, 2020. <https://ny.curbed.com/2020/5/15/21259952/new-york-city-summer-beaches-parks-air-coronavirus>.
12. Madrigano, Jaime, Kathryn Lane, Nada Petrovic, Munerah Ahmed, Micheline Blum, and Thomas Matte. "Awareness, Risk Perception, and Protective Behaviors for Extreme Heat and Climate Change in New York City." *International Journal of Environmental Research and Public Health* 15, no. 7 (July 7, 2018): 1433. <https://doi.org/10.3390/ijerph15071433>.
13. "Detailed Model Plan (LIHEAP)." NYS Office of Temporary and Disability Assistance, 2019.
14. "LIHEAP DCL 2020-10 CARES Act Supplemental Funding Release FFY20." Administration for Children & Families, May 8, 2020. <https://www.acf.hhs.gov/ocs/resource/liheap-dcl-2020-10-cares-act-supplemental-funding-release-ffy20>.
15. Cooling Centers, Int 1563-2019, New York City.
16. Annual Reporting of Heat Vulnerability and Heat-related Deaths, Int 1945-2020, New York City.
17. "Solar Panels Keep Buildings Cool." UC San Diego Jacobs School of Engineering. July 18, 2011. http://jacobsschool.ucsd.edu/news/news_releases/release.sfe?id=1094.
18. Moisse, Katie. "Over the Top: Data Show "Green" Roofs Could Cool Urban Heat Islands and Boost Water Conservation." *Scientific American*. February 02, 2010. <https://www.scientificamerican.com/article/green-roof-climate-change-mitigation/>.
19. Calma, Justine. "During Deadly Heat Wave, New York Utility Cut Power to High-Risk Neighborhoods." *Grist*, July 23, 2019. <https://grist.org/article/during-deadly-heat-wave-new-york-utility-cut-power-to-high-risk-neighborhoods/>.
20. "Mayor De Blasio Announces COVID-19 Heat Wave Plan to Protect Vulnerable New Yorkers." The official website of the City of New York, May 15, 2020. <https://www1.nyc.gov/office-of-the-mayor/news/350-20/mayor-de-blasio-covid-19-heat-wave-plan-protect-vulnerable-new-yorkers>.
21. Mayor Bill de Blasio. Twitter, July 18, 2019. <https://twitter.com/nycmayor/status/1152020779778764800?lang=en>.
22. "A Call for NYC Cooling Center Improvements: Results from WE ACT for Environmental Justice's Cooling Center Audit Project." WE ACT For Environmental Justice. February 22, 2020.
23. "Heat Action Plan." NYCHA. December 4, 2019.
24. "NYCHA Breaks Ground on Landmark \$550 Million Sandy Recovery Project at Red Hook Houses 20170905 - NYCHA." NYCHA. September 5, 2017.
25. Calma, Justine. "New York's Hottest Neighborhoods Are Taking on Climate Change's Deadliest Threat." *Grist*, July 11, 2018. <https://grist.org/article/heat-check/>.
26. "Heat Action Plan." NYCHA. December 4, 2019.
27. "NYCHA Breaks Ground on Landmark \$550 Million Sandy Recovery Project at Red Hook Houses 2017C - NYCHA." NYCHA. September 5, 2017.
28. "Mayor Announces Program to Help Curb Effects of Extreme Summer Heat." The Official Website of the of New York. June 14, 2017. <https://www1.nyc.gov/office-of-the-mayor/news/411-17/mayor-program-help-curb-effects-extreme-summer-heat>.
29. "Accessibility to Emergency Information on Television." Federal Communications Commission. March 29, 2020. <https://www.fcc.gov/consumers/guides/accessibility-emergency-information-television>.
30. Frazer, Kate. "Green Roofs in New York City." The Nature Conservancy. Accessed June 23, 2020. <https://www.nature.org/en-us/about-us/where-we-work/united-states/new-york/stories-in-new-york/green-roofs-new-york-city/>.
31. "Paris Launches Map App to Help People Keep Cool during Summer Heat." *The Local fr*, June 29, 2018. <https://www.thelocal.fr/20180629/paris-launches-app-to-help-people-keep-cool-during-summer-heat>.
32. O'Sullivan, Feargus. "Finding Space for Trees in a Built-Out City." *CityLab*, May 17, 2017. <https://www.citylab.com/solutions/2017/05/barcelona-green-urban-forest-climate-plan/526998>