

**Best Practices Recommendations for Equitable Hurricane Preparedness,  
Response, & Recovery in Miami-Dade County**

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By Catalyst Miami and New Florida Majority

We learned many difficult yet valuable lessons following Hurricane Irma. Although Miami-Dade County (County) was spared the catastrophic effects of a Category 5 storm, Irma's impact resulted in a reassessment of our existing preparedness, response, and recovery plans in terms of equity and effective response to natural disasters such as storms, heat waves, and other extreme weather. It is clear that we cannot ignore the disproportionate impacts of climate change and natural disasters on low-income and vulnerable communities already facing significant stressors such as un- and under-employment, low wages, food insecurity, unaffordable housing, and a lack of access to affordable transportation and healthcare. Therefore, any plans for disaster preparedness, response, and/or recovery, must be approached, developed, and implemented with equity at the center.

Based on the observations and information we gathered from community members seeking our help immediately prior to and during the months following Hurricane Irma, we make the following recommendations about steps that can be taken to ensure that the most vulnerable communities in Miami-Dade County are protected, prepared, and able to recover from a natural disaster.

**Supporting and Building Trust in Communities and Fostering Social Cohesion**

In order to create equity-centered resilience and preparedness, response, and recovery, local government must engage community members at the inception of planning and throughout the development and implementation of an inclusive resilience plan. Community leaders can be identified to support these efforts and enhance and build the County's capacity. Four key components that contribute to strengthening community include (a) centering community needs (b) investing in residents (c) transparency (d) reliability and follow through.

Disaster preparedness requires an organized, multi-sector approach. The participation and leadership role of community organizations and local leaders can ensure further reach through broader assessment of community assets and needs as well as advocacy for populations through contributions to policy development.

Community-based organizations can serve as a great resource to connect community members to different government departments. Neighborhood captains may be identified to help play an important role in disseminating information and serving as a liaison between the community and the County.

In order to better support and build trust between local government and the community, we recommend the following:

- Establishing a seat for community organizations at the County's Emergency Operations Center (EOC).
- Establishing a community chair or liaison for County EOC.
- Creating a Community Oversight Board that provides suggestions to County resilience plan year round and assists in coordinating with community organizations. Eligibility requirements to membership on the oversight board should include residence in vulnerable communities.
- Vulnerable neighborhoods should be surveyed to gather information about special needs and structural vulnerabilities of homes and other infrastructure in their area with the help of volunteers, including Community Emergency Response Team (CERT) volunteers.
- Host an annual disaster preparedness stimulation. This exercise can assist in better preparation and all participating partners can identify gaps that need to be addressed.

In order to create the necessary trust and identify interested and capable community leaders, it is important for government to host community meetings and town halls. These spaces must provide community members an opportunity to voice their concerns and share important information regarding their neighborhoods at convenient times and accessible, neighborhood-specific locations. This also creates a great opportunity to engage community members in asset-mapping, where they can collectively identify resources and assets not readily obvious to an outside observer. This activity can produce lists and the beginnings of partnerships with churches and places of worship, local grocery stores, hotel and restaurant owners, and other cross-sector stakeholders who can play valuable roles and contribute many resources before and after disasters or extreme weather events.

In order to better support communities and build stronger relationships with local organizations and businesses, we recommend the following:

- An incentive program for local organizations and businesses who participate in disaster preparedness and recovery. Local organizations and businesses will be given:
  - Priority when electricity, ice, and water is distributed
  - Priority in debris clean-up and facility repair
  - Access to materials that will assist in preparation for a natural disaster i.e plywood, sandbags, generators, water pumps
  - Grant or funding opportunities if a business hires anyone who was displaced or lost employment due to disaster

During times of disaster, community members are often uncertain about whether to leave their homes, or where they can receive services if they decide to stay. During Hurricane Irma, 600,000 residents fled, leading to fuel outages and clogged roadways ([Miami Herald, 2017](#)). Some abandoned their cars due to gas shortages or overheating from the high temperatures ([Miami Herald, 2017](#)). For those who decided to stay, there was confusion around the openings, capacity, and accommodations of shelters. These issues, among others, created chaos and stress. There is a need for improved communications and coordination to make hurricane preparedness less of a stress on our community. In addition, many of the fundamental qualities that improve hurricane preparedness and response are directly related to community-building, wealth, economic

resilience, and infrastructure. It is imperative that we make our communities, particularly those that are the most vulnerable, resilient enough to not only survive, but quickly recover after a natural disaster. If communities are more economically resilient, then they can withstand waiting for government help during emergencies.

Social, resilience hubs should function year round and provide the following services:

- English, GED preparation, and computer literacy courses
- Workforce, capacity-building, and leadership training
- Prenatal/parenting classes
- Financial literacy/coaching and/or tax preparation
- Access to healthcare, public benefits, and other social services
- Leadership and civic engagement opportunities
- Social/networking activities
- Connection to legal supports, including immigration information

We cannot expect families to sustain themselves during a shock like a storm, when they are already challenged by long-term stressors. Therefore, it is important to support key social services, financial coaching, job training, and quality healthcare for our communities throughout Miami-Dade. Greater investment in human services and better policies that work to build the wealth of families across Miami-Dade is necessary for hurricane preparedness, and these hubs are a great starting point.

Establishing resilience hubs and community-building activities can build resilience by connecting people to one another and creating resources and programs that can serve a community during an emergency. Neighbors are often strangers to one another and may not meet until a time of need like a hurricane which is too late for these interactions to take place. Examples of community-building activities include community events, trainings, and forums. Neighborhood-based resilience hubs provide a unique opportunity to offer community-building activities in a central location that builds social cohesion. These activities can foster networking and provide opportunities to identify vulnerable populations that may be forgotten during emergencies.

Important to community-building is the process itself. Supporting and coordinating with resilience hubs should build trust and buy-in from the community through opportunities where community members have the power to influence programs and policies. This starts with facilitating meaningful community dialogue on existing gaps, opportunities and suggestions for improvement, and the unique strengths within each community. City and County officials should choose centralized locations where they can provide services and build education through programs and policies while allowing community feedback to inform future programs and policies.

### **Increasing Civic Engagement and Leadership**

Community leaders can be identified to support the County's capacity when it comes to disaster planning and response. Neighborhood captains may be identified through a series of forums for

their proven track records of leadership and accountability. As previously suggested, captains can play an important role in communications, serving as a liaison between the community and the County. Through training and support, captains can facilitate gatherings throughout the year to help establish connections between local government, grassroots community organizations, and residents. These gatherings can also serve as a mechanism to survey areas to collect special needs information and identify structural vulnerabilities of homes in their area with the help of volunteers. While the County does have the Emergency & Evacuation Assistance Program (EEAP) to support residents with special needs during emergencies, its success depends on individuals knowing this program exists and how to avail themselves of it. Through community events that bring people together, volunteers can identify vulnerable individuals and proactively sign them up for EEAP as well as provide education on disaster preparedness. This can be modeled after Southwest Utah Public Health Department's [Preparedness Buddy](#) program. The County should set aside funding to pay for these services provided by the community to reimburse neighborhood captains and volunteers for their work and time in assisting County residents.

There is a wealth of knowledge, talent, and innovation in areas considered to be under-resourced. Examples have arisen from Catalyst Miami's CLEAR (Community Leadership on the Environment, Advocacy, and Resilience) Miami Program. CLEAR participants and graduates have designed and implemented innovative community projects with the potential to improve resilience and help the community prepare for future disasters. One CLEAR graduate hosted a successful hurricane-preparedness event in Liberty City where she gave away 70 preparedness kits and hosted a panel comprised of speakers from the American Red Cross, Miami-Dade County, Catalyst Miami, and New Florida Majority. Another graduate created "Konscious Kontractors" in the wake of Hurricane Irma to help people board up their homes, trim their trees, and remove debris. The County would benefit from supporting and partnering with these community leaders to amplify and enhance their resilience efforts.

### **Building Capacity & Addressing Chronic Stressors to Withstand Future Shocks**

Emergency management recommends families be prepared to be self-sufficient for up to 72 hours during emergencies while services are restored. This means families must plan ahead, purchasing enough food, water, and other supplies to survive without government assistance. In Miami-Dade County, this is a tall order. A significant portion of our population is one emergency away from falling into poverty. More than 58% of the population either falls below the Federal Poverty Line or above it, but unable to consistently cover the cost of living (United Way, [ALICE Report](#), 2017), and according to Prosperity Now, 59% of the population lives in Liquid Asset Poverty--meaning they are unable to cover three months of basic expenses in the face of an emergency, such as a loss of income. In addition to being financially unstable, these vulnerable households face other chronic issues such as food insecurity, job instability, and lack of access to health care. Approximately 9% of the county is food insecure and 100% of this population is 200% below the Federal Poverty Line (Feeding America, [Map the Meal Gap](#), 2018). 28% of Miami-Dade is uninsured and 45.8% of those uninsured are below poverty level and 47.2% are 100-200% from the poverty level (Miami Dade, [Health Report](#)).

As stated in the section titled [“As Storm Clouds Gathered: The Preparation for and Aftermath of Hurricane Irma,”](#) of [Final Report of the Miami-County Grand Jury](#), “persons who decide to evacuate to an emergency shelter must understand that what is being provided is just that: shelter. Evacuees need to bring their own food, drinks, toiletries, and bedding.” However, many people who seek refuge in shelters do not have the financial capacity to purchase these basic necessities and shelters should be prepared to provide these to those who due to financial hardship, could not adequately prepare.

Healthy people can worry about other longer term issues, i.e. building resilience. Examples of important services that should be provided include vaccinations for children, dental care, regular physicals, mental health services, and nutrition classes. Healthier individuals also means a healthier workforce that can contribute their skills countywide and be active in building resilience within their communities. Mental health services are especially important for disaster response. Natural disasters such as hurricanes and flooding can lead to traumatic experiences. Often times these services are not available and affordable for vulnerable communities. It is therefore vital for such services to be available during and after such events and for various government entities to help coordinate services and collect, organize, and share this information in ways that are accessible to the most vulnerable.

Childcare should also be provided after disasters and other points of service. Parents and caretakers are more likely to return to work if their children are taken care of. This is especially important for those with essential service jobs such as emergency management officials, police, firefighters, health care providers, and anyone who will be needed on the ground during and immediately after a disaster. Childcare services could lift a burden off these essential workers and allow the County to recover more quickly with key personnel being able to participate fully in their roles. Funding can be set aside to provide this service.

Coordination with organizations that provide direct services is important in terms of both understanding and addressing the needs of vulnerable community members and knowing where those in need of services can be directed to take advantage of existing resources. Some agencies and organizations that provide a variety of services and should expand their collaboration and coordination includes:

- [Community Action and Human Services \(CAHSD\)](#): CAHSD streamlines resource delivery to children, seniors, and families in targeted communities through advocacy, education, and service delivery. Examples of services include providing job skills through computer and farmworkers training, elderly & disability services comprised of home care and meals on wheels, and special services such as income tax assistance.
- [United Way](#): This Miami-Dade non-profit provides a numbers of services focused on education, financial stability, and health. The organization provides programs that offer quality early care and education along with out-of-school opportunities. United Way also connects low-income families with safe and affordable financial products and solutions. Their health initiatives help to reduce prescription costs and support partners that increase access to quality health services.

- [Catalyst Miami](#): The organization provides a variety of free services to Miami-Dade County communities including wealth building programs, health care services, and Leadership trainings, and community convening. Catalyst provides free tax assistance, financial coaching, Medicaid and public benefits enrollment assistance, and credit building and savings services.
- Mental health groups
  - [Banyan Health Systems](#): Banyan provides 24 hour crisis services, child & family services, school & community-based services, and has an elder program as well.
  - [Citrus Health Network, Inc.](#): Similarly, this mental health network provides mental and behavioral health services to children and adults, housing assistance, and school-based health services.

The direct services mentioned can be incorporated on a neighborhood scale as part of a resilience hub system. By providing these services year-round on a microscale, the community will begin to view these hubs as trusted community resources they can go to for a wide range of information. This buy-in can help when needing to communicate with communities before, during and after a disaster.

### **Community-Informed Plans, Policies, and Practices**

It is imperative that government agencies and departments at every level consider their residents' input when enacting, adopting, and implementing hurricane preparedness and response plans, policies, and practices. Ideally, any updates to existing plans and policies would be in direct response to feedback obtained both regularly through surveying communities and post-disaster to address the gaps that were identified and strengthen existing assets and systems.

In order for a community-informed/community-based planning process to be democratic and effective, residents need to understand the role, policies, and resources of the various government departments. This requires ongoing informational campaigns, including workshops, the production and sharing of written and audio/video materials, and readily accessible and regularly updated information about available advisories, recommendations, and services in multiple languages, including Creole.

Engaging residents during the creation of action plans is essential to both their understanding and investment in the strategies and actions that will protect and improve their neighborhoods. Such plans should consider different neighborhood's needs and challenges, create zoning frameworks that benefit residents, and improve infrastructure long-term. Once action plans are released, regular updates about progress should also be shared with communities in order to ensure transparency and equitable implementation.

Vulnerable community members have identified some policies that are essential to supporting families in becoming more resilient and withstanding otherwise crippling disasters. We include the following recommendations:

- Living wage: Currently the minimum wage is \$8.25 throughout Florida. With higher costs of living and the growing income inequality throughout the county, policies should

- be proposed to increase the living wage and provide relief to working families. The extra income could allow families to plan for emergency savings that may be needed for future storms.
- Affordable housing: Miami-Dade is facing an affordable housing shortage as rent prices keep increasing. Similarly, [Denver](#) is also facing an affordable housing crisis and has found success through the (capitalized) Revolving Affordable Housing Loan Fund to increase the capital pool for affordable housing projects. The city has also turned vacant apartments into instant, affordable housing and is building new developments near the city's light-rail line.
- Rental assistance: While more long-term solutions to the affordable housing crisis are identified and implemented, people need rental assistance to avoid displacement or eviction after a storm in case of loss of wages or overburdened budgets through the purchases of materials and supplies. A rent relief fund should be created to assist families who spent their limited income on disaster preparations, replenishing their spoiled food, clean up, and other expenses resulting from disasters.
- A moratorium on rent increases and evictions for tenants and small businesses: Implementing such a moratorium following a disaster would allow people to more adequately respond and rebuild without the additional concern of being displaced.
- Emergency savings accounts and retirement funds: Senators Cory Booker (D-NJ), Tom Cotton (R-AR), Heidi Heitkamp (D-ND), and Todd Young (R-IN) have proposed a set of legislation to address people depleting their retirement funds to pay for unexpected short-term expenses and emergencies. The legislation includes expanding the number of employers using automatic enrollment and creating emergency savings ([BPC Action](#)).
- Immigrant access to health care services: In 2015, Mayor de Blasio announced the "Direct Access" health initiative to provide affordable and coordinated care for immigrants who are excluded from federal and state support. The Mayor convened a task force on immigrant health care access and created a set of [recommendations](#) to expand services. A similar approach would greatly benefit Miami-Dade's undocumented population.
- Suspension of Immigration Enforcement: In order for immigrant families, including undocumented individuals, to seek shelter, remain safe, and report public safety concerns, local authorities have to provide reassurances that they will not enforce federal immigration laws before, during, or following a disaster.

## Models to consider:

- [Ventanilla de Salud](#): This program was developed by the Government of Mexico and the Department of Health and the Ministry of Foreign Affairs. The Ventanillas exist in 50 Mexican consulates in the US and local health organizations. They provide reliable information on different health topics and counseling and referrals to health services that are available and accessible in local communities. The Ventanilla model also provides financial services and financial coaching, which Catalyst Miami operates in collaboration with Miami's Mexican Consulate. This model was first tried in New York City and Los Angeles.

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- [Health Impact Assessment \(HIA\)](#): HIA is used to judge the potential effects of a policy, program, or project on a population's health through the use of different procedures, methods, and tools. The Centers for Disease Control and Prevention, states such as California and Maryland, and foundations are using HIA to improve the health of communities.

## **Improving Information/Inclusive Communication Practices**

Communication between the government and the public is key to minimizing chaos before, during, and after a disaster. Last year during Hurricane Irma, some residents in Overtown experienced a lot of confusion on where to seek refuge from the storm. Unfortunately, news stations had gotten hold of shelters slated to be opened and published the list before the Office of Emergency Management was ready to safely open these shelters. Some community members tried to seek refuge in these shelters and were surprised to see they were not yet functional. This is one example of how communication between different stakeholders can deteriorate and lead to misinformation which can be disruptive and dangerous for our communities. Important information around sheltering, government resources, and evacuation procedures should be given as early as possible to give people enough time to prepare and make difficult decisions on whether to stay in their homes or evacuate.

A significant portion of our population speaks Spanish and Haitian Creole among other indigenous languages. News on different media platforms should be translated and be up to date and include access to people with disabilities and elderly populations. 311 should be tested before major events to ensure someone who speaks multiple languages is readily available to handle someone's call. Non-traditional news sources such as radio can also help to spread information to target demographics such as Latinos and Haitians who tend to listen to the radio for updates. Local government should identify trusted sources of information for communities with whom to build relationships. Nonprofits and community groups that are on the ground providing direct services can be especially useful throughout the year. They can help sign people up for existing communication from the County such as the emergency alert texting system. Organizations can also feed communication updates to their base during times of emergency.

Preparedness materials such as the annual hurricane preparedness guide can be made more accessible for low-literacy populations that do not speak English, Creole, or Spanish. In South Dade specifically, there are pockets of the population that speak indigenous languages. Undocumented immigrants experienced anxiety and fear last year of being detained when seeking shelter. Trusted news sources and community leaders can help to calm these fears and provide information on where undocumented people can go to receive help without fear of being detained.

Examples of effective communication during disasters:

- [Seattle, Washington](#): The local health department in Seattle worked with an action team to identify credible sources of information for vulnerable populations. They partnered with "ethnic media" to build relationships and bought advertising to reach very specific populations.



- [Minnesota ECHO](#) (Emergency, Community, Health, and Outreach): The ECHO program aims to serve Minnesota's refugee and immigrant populations. Through a partnership with PBS they provide special programming around emergency preparedness that is catered to their specific populations in a variety of languages including Spanish, Hmong, Somali, Viet, Lao & Khmer. Their television programming is available online and through different [social media platforms](#).

In order for communities to truly benefit from all the planning and services available through both government and community-based organizations, members need to be properly informed of threats, advisable action, and available services. A prerequisite for this information to be trustworthy and heeded, is effective and transparent information-sharing year-round. One way local government can ensure the information being disseminated is reaching a wide audience is to immediately share it with community-based organizations, which can then reach out to their bases. Sharing information with such groups in real time, amplifies the message and lends credibility among community members who distrust the public sector.

It is also of crucial importance to translate information into the languages most spoken by residents. In Miami, this means Spanish and Creole. Creole-speakers are often excluded from planning processes or civic participation when documents and announcements are not translated into their native language. It is also important to maximize outreach by availing the communication strategy of small, local radio stations and newspapers people trust as well as often-frequented neighborhood groceries stores and small business.

### **Safety and Accessibility of Shelters, Public Transportation, and Other Structures**

Shelters and service points should be located in areas with a higher elevation and not within floodplains. In the event of flooding, shelters or buildings where crucial services are provided should be prepared to prevent water from entering the building or tampering with power sources. Neighborhoods that experience flooding should have water pumps installed, with a backup energy source. The physical structure of each building should also be ready for impact winds and storm surges that meet The Florida Building Code for hurricanes and other tropical storms.

The [Final Report of the Miami-Dade Grand Jury](#) commended Miami-Dade County for training approximately 2,000 County employees opening and running certain operations inside evacuation shelters. This should include specific training on how to work with people with disabilities, special needs, and mental illness, as well as cultural sensitivity. Shelter staff, volunteers, direct service providers, and medical and emergency personnel should be trained on providing the safety of people of all abilities and backgrounds. This often includes trainings on cultural competency, the spectrum of behaviors of people with intellectual and developmental disabilities, working with blind, d/Deaf, or hard of hearing population, and how to interact with service dogs. Such trainings helps to ensure the safety of both staff and community members. It is also important to note the physical safety of people within the LGBTQ+ community, in particular transgender people and their access to bathrooms.

Often the needs of people with disabilities are not included in the planning and design of community-based centers, and if so, only the basic needs required by the Americans with

Disabilities Act are met. However, the ADA can be limiting for many people with disabilities, often placing the burden to request accommodations onto people who require access. Shelters, resilience hubs, and any locations providing information or services before, during, or after a disaster should aim towards a model of accessibility and universal design for all people regardless of age, ability, body, identity, or background. Current efforts that require the disabled community to sign-up for assistance during a disaster are not resilient, equitable, or reliable. Instead they force people with disabilities out of their communities. Barring people with disabilities from their communities denies them their connections to their local social networks and social capital.

Shelters and service points should aim to create spaces that are accessible for all people of all abilities. Recommendations include:

- Buildings meet ADA requirements with physical spaces for people who use wheelchairs, motorized chairs, and other mobility devices.
- Reliable electricity for the refrigeration of medicine and power for devices, such as CPAP machines or motorized chairs.
- Dedicated charging stations for accessible devices.
- Accessible and spacious restrooms and changing areas for adults with disabilities.
- Providing people with disabilities the choice to be accompanied by personal assistants or nurses.
- Staff, volunteers, medical and emergency personnel trained on accessibility.
- Allowing handlers to bring their assistance dogs, this includes guide (blind or visually impaired), hearing (d/Deaf or hard of hearing), or service dogs (for people with disabilities other than hearing or vision).
- American Sign Language Interpreters provided without request. ASL interpreters fluent in Spanish and/or Haitian-Creole are a plus.
- Written materials in large-print, braille, or PDF format for people with visual impairments.

Along with people with disabilities, shelters, service points, and resilience hubs should be welcoming spaces for undocumented immigrants, members of the LGBTQ+ community, the elderly, families with young children and infants, and pet-owners. During Hurricane Irma, last-minute pet-friendly shelters were created due to shelters reaching capacity. Pet-friendly shelters were scarce and located far away for many people throughout Miami-Dade County. Also necessary are dedicated spaces for pet-owners that include personnel from Miami-Dade Animal Services.

It is imperative that all shelters and other points of service consider the needs of vulnerable populations such as people with disabilities, undocumented immigrants, the elderly, children and infants, and those with chronic health conditions. Shelters and other service locations should aim for universal design, ADA compliant, and provide accessible transportation services to those with disabilities. Legal services and translation should be readily available in locations with predominantly immigrant communities that may speak Spanish, Haitian/Creole, and other native languages including American Sign Language. The needs of families with young children and

infants include spaces for children to play and respect for nursing mothers and their babies. Alternative food options for people with religious or other reasonable dietary needs should be available. People should also feel shelters are a welcoming space for prayer and other religious expressions, and generally to anyone regardless of legal status, gender, sexuality, class, race, and ability. Legal counsel and social workers should be present at all shelter location(s).

Shelters, service points, and hubs should be easily accessible by walking, biking, and driving. Improvements should be made to public transportation to ensure quick and affordable access. Accessible and reliable service and routes need to include comfortable stops/waiting areas that provide shelter from the sun and rain, as well as ventilation, and are easy to get to from various neighborhoods. Providing reliable transit relieves roads from traffic and congestion for emergency and county vehicles. Transportation to hospitals should also be available for people with severe medical needs that require dedicated medical staff and specific medical devices.

In the days prior to Irma, we witnessed major and dangerous traffic congestion on all northbound highways. With over 600,000 people being evacuated in Miami-Dade County as well as many others not feeling they had a safe structure or the ability to properly prepare for the storm, the number of cars escaping Miami grew by the minute. This exacerbated fuel shortages and led to additional safety concerns such as broken cars and gas outages. Having buses in key neighborhoods to transport people heading to popular evacuation destinations such as Central Florida where they have family and support systems would have alleviated much of the congestion and other problems.

In order to better support and build resilient communities, we recommend the following:

- Routine evacuation drills and/or scenarios
- Coordination with local transportation authority
- Frequent bus service in preparation of a storm
- Incentivize transportation authority employees
  - Family members of transportation employees given priority in a sheltered facility
  - Additional paid vacation and sick days

### **Bringing Power to Vulnerable Populations**

Last year, most of the county lost power for a week due to Hurricane Irma which made landfall as a Category 1 hurricane ([Miami Herald](#)). The lack of electricity proved to be extremely dangerous for our most vulnerable populations. A nursing home in Hollywood made [headlines](#) due to 12 nursing home residents dying tragically due to dehydration and extreme heat from the power outage caused by Irma. The tragedy can be rectified by working with FPL to prioritize power restoration to areas serving vulnerable populations, electricity-dependent populations, shelters, etc. When people lose power they lose the ability to use their electric medical equipment and to keep important medication such as insulin protected from the heat.

Solar energy and battery storage provide a unique opportunity for our region to become more resilient in the face of hurricanes. Securing solar and battery storage on buildings serving as shelters or relief centers would be key to the continuation of services, avoiding deaths due to

extreme heat, and providing relief even as the rest of the electrical grid is down. Even during cloudy weather, solar panels can still charge and can withstand hurricane wind. After Coral Springs lost power to their traffic lights, they installed temporary solar-powered lights to fix this safety issue ([Sun Sentinel](#)). Similar approaches should be taken to ensure safety of individuals and communities. The current alternative, gas generators, face a number of issues such as emitting harmful emissions and requiring the purchase of fuel which is problematic during hurricane events when fuel outages are common. Instances of people dying from emissions occurred throughout the state as well ([Sun Sentinel](#)). Solar power is safe and potentially life-saving.

Solar powered shelters can also serve as community solar zones to low-income housing surrounding the shelter and provide other co-benefits such as saving on energy bills. People who are considered lower-income are typically more likely to be [energy poor](#) meaning they spend a majority of their income on electric bills. Saving money on energy bills can allow families to better weather a shock such as a hurricane and focus on other pressing needs. Sometimes families make difficult decisions such as foregoing buying medicine to keep the AC on for their family. Solar energy provides an answer to this problem.

#### Policies and Programs to Consider:

- [Multiple Affordable Solar Housing \(MASH\)](#): MASH has seen great success in Lancaster, CA. 230 existing independent senior and disabled adult affordable housing units had a 194-kilowatt solar generating system installed. The energy savings from the project has allowed the developer to invest in amenities on-site or within walking distance including a gym and art classes.
- [Minnesota Community Solar Gardens](#): As part of their community resilience initiative, Minnesota provides centrally-located solar photovoltaic (PV) systems that produce electricity for participating subscribers. People who do not have the ability to install solar themselves can still benefit through this initiative.
- [Hartley Nature Center \(HNC\)](#): HNC, a community center in Duluth, MN, on-boarded a resilient power system in response to natural disasters that left their community powerless. This includes a sustainable district energy system, community solar projects, and a solar+storage system to provide clean, reliable backup power at HNC, which is located on a city owned property. The system allows HNC to serve as a community charging resource during times of disaster, keeping citizens connected with the people they need to contact. In addition to sheltering nearby residents, the nature center will have the ability to serve as a base of operations for the city's emergency response efforts.
- [Florida Avenue Baptist Church](#): This historic African American church became the first church to install solar panels in Washington, DC. Besides diminishing their carbon footprint, the church is educating their members about clean energy and sustainability practices. The initiative also helped to bridge the gap between African Americans and access to clean energy.
- [Microgrids](#): Earlier this year, a Florida Keys state representative introduced legislation to create a \$10 million solar plus storage micro-grid program to increase resiliency for critical facilities. The bill calls for a pilot program in vulnerable areas to house solar plus

storage technologies at shelters, health-care facilities, airports, and police and fire stations.

## **Energy and Emissions Reduction**

Due to Hurricane Irma, 92% of Florida Power & Light's customers lost power in Miami-Dade County with some waiting 10 days to have power restored during tropical heat ([Miami Herald](#)). The numbers are worrisome given that Hurricane Irma landed as a Category 1 with tropical winds. While progress has been made to improve the resilience of the energy grid, Irma showed that our electricity infrastructure is highly vulnerable to future storms. In order to successfully build resiliency, Florida Power & Light must be included throughout the process and be at the table. FPL has an exciting opportunity to expand their current energy portfolio to include wind and solar which are rapidly expanding and becoming cost-competitive with non-renewable energy sources. Currently only 1.2% of FPL's portfolio includes clean energy showing that there is a lot of room for growth. Beyond placing solar on roofs, FPL can invest in LED solar powered street lights, solar powered traffic lights, building solar charging stations, etc. These projects would provide new job opportunities and money savings that can be directed to other energy efficiency related projects.

Solar power is especially attractive as a solution to the County's electricity problems. Unlike oil, coal, or gas, solar power can be infinite when paired with proper battery storage and power homes and critical infrastructure during a storm. Currently, restrictions on community solar make it difficult to implement such projects, but negotiations with FPL and the Florida Public Service Commission can remove these restrictions. By using the government buildings where residents are served as models for community solar, FPL can diversify its portfolio and provide a much needed service to communities and serve as a model for the rest of the country. The current renegotiation of the franchise agreement for 2020 between FPL and the County provides a timely opportunity to include ambitious renewable energy goals and target future resiliency hubs for solar projects. As part of the sunshine state, Miami-Dade can lead the way in solar energy.

Generally, hurricanes are expected to intensify in strength due to climate change ([Union of Concerned Scientists](#)). This hurricane season is already expected to be worse than last year's ([NOAA](#)). Greenhouse gas emissions must be reduced to mitigate climate change and address the growing threat of hurricanes. This is especially important for our vulnerable populations throughout the county. Our vulnerable populations are on the frontlines of climate change and unjustly carry the burden of polluters. Oftentimes, those who contribute the least to climate change and have a smaller carbon footprint are most negatively impacted and left vulnerable to the effects of climate change. As stated earlier, more than half of Miami-Dade's population is unable to meet the daily costs of life. If a hurricane worse than Irma barrels through, many may be pushed further into poverty due to lack of resources to bounce back from a disaster. Greenhouse gas emission reduction can also lead to better health outcomes for those with chronic health conditions such as respiratory illnesses and health conditions. Reducing emissions can improve the long-term effects of climate change on our most vulnerable. Miami-Dade must protect our communities and environment by reducing emissions globally and nationwide.

## **Conclusion**

Hurricane Irma provided us with many valuable lessons and a tremendous opportunity to improve the way we plan for and respond to natural disaster in Miami-Dade County. These opportunities require long-term investment in many systemic changes and collaborative efforts. Community leaders and organizations can play a defining role in assisting local government in many of its key functions in ensuring the safety of vulnerable communities during a disaster and an equitable recovery process. We recognize and appreciate the steps the City of Miami Beach, City of Miami, and Miami-Dade County have actively taken towards including the voices and considering the resources of community-based organizations in their planning processes following Hurricane Irma. It is our sincere hope that the observations and recommendations outlined here create part of the foundation for much more collaborative, inclusive, and community-informed systems.