The image is a composite. The top portion shows a coastal landscape with a blue sky, white clouds, and a turquoise sea. In the background, a hillside with several houses is visible. A dark blue semi-transparent rectangle is overlaid on this top portion, containing the text. The bottom portion of the image shows a close-up of a red-tiled roof with several black solar panels. Three workers in blue shirts and caps are actively installing or adjusting the panels. The house has a stone wall and a wooden balcony railing. The overall scene is bright and sunny.

# USVI's

## Energy Transformation

Recovering and building a more resilient system after Hurricanes Irma and Maria

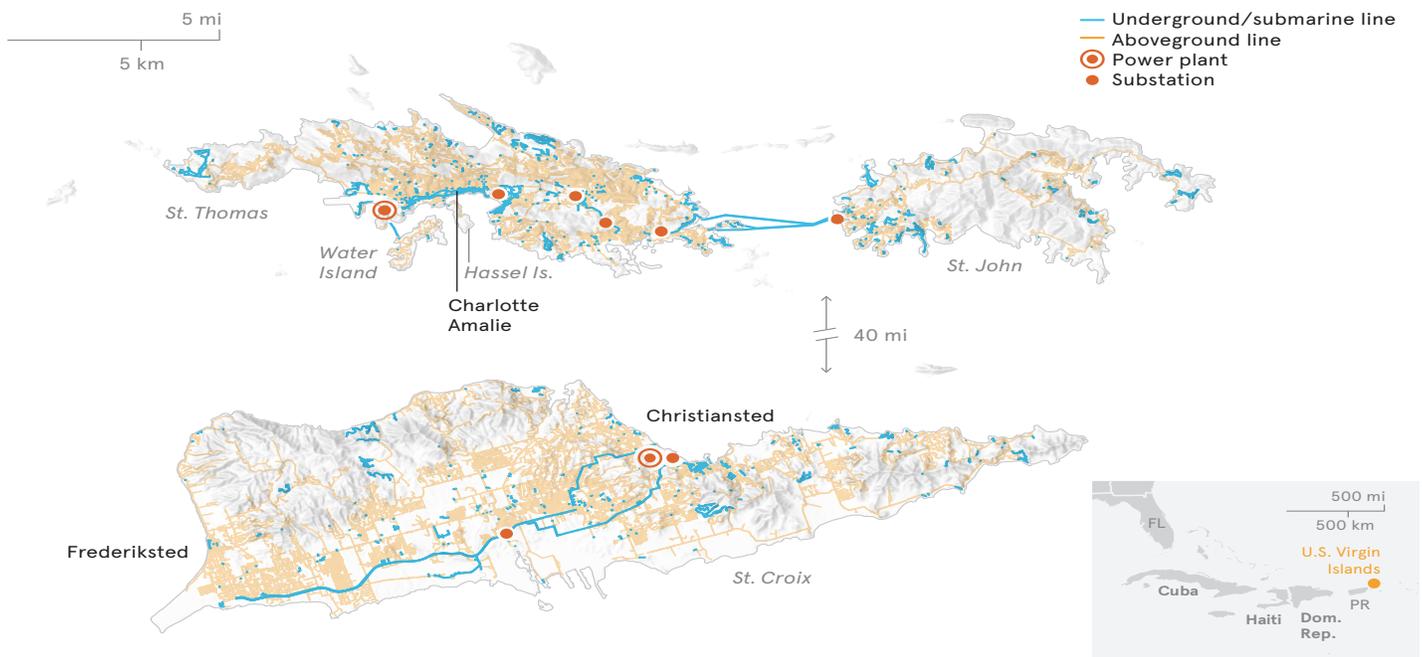
## WHAT HAPPENED

In September 2017, two Category 5 hurricanes ripped through the Caribbean in less than 14 days. Hurricanes Irma and Maria were two of the strongest Caribbean hurricanes on record. These unprecedented storms caused catastrophic damage and thousands of deaths; they destroyed hundreds of thousands of homes and left millions without power.

In the United States territory of the U.S. Virgin Islands, the storms damaged the majority of the USVI's housing (12 percent of it severely), shut down schools for more than a month, destroyed half of the hospital bed capacity, forced more than 800 medical evacuations, closed the airports for three weeks, deposited 850,000 cubic yards of debris on roads, and sunk more than 400 vessels.

The storms decimated the USVI's energy system, destroying 90 percent of aerial cables; 50 percent of the islands' utility poles; several substations; 20 percent of its power-generation capacity; and both utility-scale solar fields. Virtually all 105,000 USVI residents were in the dark for at least four days and tens of thousands were without power for months. The hurricanes impacted a community already in economic crisis, with an unemployment rate more than twice the U.S. average and median income 25 percent below the national average.

### U.S. Virgin Islands: Electricity infrastructure



WAPA maintains two electric grids: one serves St. Croix, the second serves St. Thomas and St. John as well as two smaller islands. Each grid is served by one large fossil-fuel power plant and one privately owned utility-scale solar array.

## RECOVERY

Within days of Hurricane Irma, Bloomberg Philanthropies had staff on the ground in the USVI to assist the Territory in recovery efforts. This included flying in critical medical supplies and equipment, arranging medical evacuations, bringing in medical staff from Johns Hopkins, donating emergency supplies and food, collaborating with non-profits to conduct door-to-door checks of vulnerable residents, and leveraging experts who worked on recovery efforts in New York City post-Superstorm Sandy to help the USVI government navigate Federal recovery programs. Bloomberg Philanthropies also secured national media coverage for the USVI - including Meet the Press, the Today Show, and Good Morning America - to raise awareness of the devastation and needs in the USVI. They also created a dedicated website to raise money to support residents and local community groups. This effort raised \$8 million, which was distributed through the Community Foundation of the Virgin Islands to local non-profits, and leveraged an additional \$2 million in funding from a range of public and private partners to support local recovery efforts. All of this work began within 5 days of Hurricane Irma.

To tackle the critical issue of power restoration, USVI Governor Kenneth Mapp set a goal of restoring power

to 90 percent of residents whose homes could safely receive power by Christmas — approximately three months after Maria. The goal was ambitious; it took more than eight months to restore power in the USVI after Hurricane Hugo destroyed the grid in 1989.

With the engagement of Bloomberg Philanthropies and off-island experts and support of the Federal government, more than 1,000 linemen from other jurisdictions were brought in to assist in restoration efforts. These linemen, which came from six states (not including the Western Area Power Administration) and 46 utilities, augmented the USVI Water and Power Authority’s (WAPA) workforce, which included about 51 linemen. Leveraging these external partners, WAPA achieved the Governor’s power restoration goal in three months (see chart: Power restoration in the USVI after the September 2017 hurricanes). By contrast, it took the British Virgin Islands, which was similarly struck by the hurricanes, six months to fully restore power.

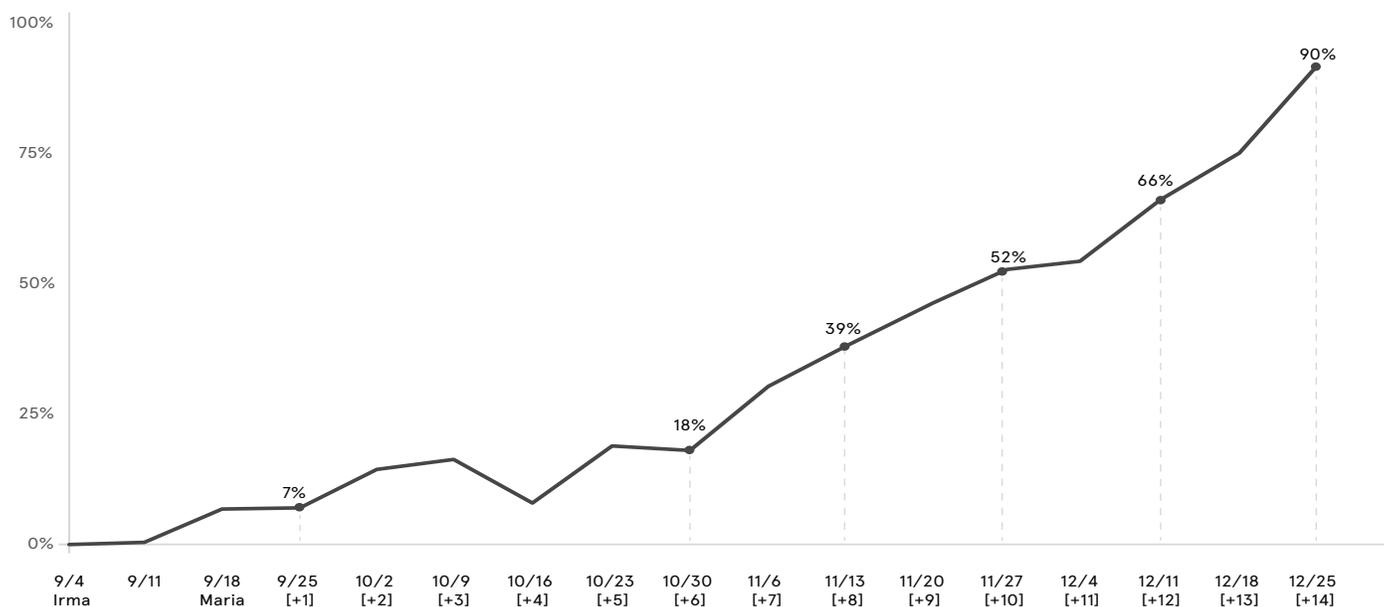
The USVI’s progress was particularly striking given the pre-storm challenges facing the USVI’s energy system: residential energy rates were 32 cents/kWh — among the highest in the Caribbean and three times the U.S. average. These rates are driven in large part by the Territory’s significant reliance on imported fossil fuels. The system also relied on overhead wires and older, centralized power plants, making it vulnerable to storms and subject to frequent outages.

In addition to supporting power restoration, the Governor and Bloomberg Philanthropies saw the opportunity to leverage the rebuilding process to transform the USVI’s energy system to make it cleaner, cheaper, and more reliable. Bloomberg Associates, a pro bono consulting service that assisted in recovery efforts, has worked closely with the Governor’s Office and WAPA to incorporate renewable energy projects into rebuilding efforts, which will lower energy costs for customers and increase reliability. This includes updating the USVI’s energy regulations to enable distributed generation, such as rooftop solar, on private buildings to sell power back to the grid; and working with the Clinton Global Initiative to facilitate the donation of \$500,000 in solar panels from the Expedia Foundation to be installed on three community non-profits on the USVI.

Bloomberg Philanthropies also supported recovery efforts related to law enforcement, healthcare, and housing. In the immediate aftermath of the storm, Bloomberg flew in a strike team of doctors, nurses, and other healthcare providers from the Johns Hopkins Health System to serve residents on the island of St John. With the main clinic destroyed, the team from Hopkins helped to establish a secondary clinic in Cruz Bay that became the hub for all healthcare on the island. Bloomberg Philanthropies purchased and delivered a portable X-Ray machine for this clinic, the only on the island. As response turned to

### Power restoration in the USVI after the September 2017 hurricanes

% of eligible customers restored, by week



Bloomberg Associates based on data from WAPA, 2017

Blended data for St. Thomas, St. John, and St. Croix. Data for St. Thomas and St. John starts after Hurricane Irma. Data for St. Croix starts after Hurricane Maria.

recovery, Bloomberg Philanthropies partnered with the Johns Hopkins Health System to commission a study of healthcare on St John. Based on this study, the Government of the Virgin Islands is instituting policy changes related to community based healthcare, facility siting, and Emergency Medical Services.

Additionally, Bloomberg Philanthropies and Tom Secunda, a Bloomberg LP co-founder and long-time St. John resident, funded the establishment Virgin Islands Public Safety Support Foundation, which will identify innovative ways to support Police, Fire, and Emergency Medical Services. This foundation has already helped the Virgin Islands Police Department (VIPD) revolutionize its training and tactics through a partnership with the International Association of Chiefs of Police (IACP). This effort has brought police officers from all over the US to provide training and mentorship to the VIPD. In the coming year, the Public Safety Foundation will engage with the Virgin Islands Fire and EMS services to provide training and material support.

Lastly, on the Island of St John, Bloomberg and Secunda have partnered with the community and Love City Strong on a Resilient Housing Initiative. This initiative focuses on construction projects designed to return St. John's vulnerable residents to stable living situations. It will also ensure that components of these homes are rebuilt in a manner that is more disaster resistant than their pre-storm living conditions.

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## LESSONS FOR OTHER COMMUNITIES

The USVI's recovery has been faster and more comprehensive than recovery on many other Caribbean islands. As hurricanes are likely to increase in intensity due to climate change, the entire region is grappling with how to recover and rebuild from the fall of 2017 in a way that enables a faster recovery from future storms. In the USVI, Bloomberg Philanthropies was uniquely positioned to act as a catalyst to accelerate the initial response and to support a longer-term vision for rebuilding. The experience in the USVI suggest four ways government, the private sector, and philanthropies can work together to respond more effectively to natural disasters.

**First, enable immediate action supported by experts who are empowered to engage on behalf of the local**

government. Within 48 hours of Irma clearing the region, Bloomberg Philanthropies was on the ground in the USVI working with the Governor to engage national experts on energy, debris removal, telecommunications, housing, health care, public safety, and Federal disaster recovery programs. The Governor empowered the Bloomberg Philanthropies team to engage directly with the local agencies coordinating the response (including the VI Territorial Emergency Management Agency, the Department of Public Works, the Waste Authority, the Water and Power Authority, the Public Housing Authority, and others) and with the Federal Emergency Management Agency (FEMA), the U.S. Army Corps of Engineers, and other Federal entities. This engagement added significant capacity to the immediate recovery effort and helped the USVI set priorities and leverage best practices from other disaster recoveries, including New York City's response to Superstorm Sandy. For example, with the guidance of off-island experts, the power utility developed a recovery plan that buried critical parts of its transmission and distribution system underground and replaced 2,800 wooden utility poles with stronger composite poles. These actions will reduce the likelihood of damage and expedite recovery from future storms.

The team also helped the USVI navigate the Federal government's disaster funding and contracting processes, ensuring that recovery operations began quickly, were fully reimbursable, and provided an extra layer of accountability and integrity throughout the process. By accepting help within two days of the first hurricane, the USVI was able to quickly engage resources from the rest of the United States, including



Mike Bloomberg, the 108th Mayor of New York City, traveled to the U.S. Virgin Islands shortly after Hurricane Irma to support the recovery efforts.

more than 1,000 linemen from the mainland U.S, which was critical to a fast recovery. In contrast, the Puerto Rico Electric Power Authority (PREPA) waited six weeks to request help from mainland utilities.

Second, **set aggressive, transparent goals and establish clear accountability.** By publicly committing to the ambitious goal of restoring power by Christmas, the Governor put his team on notice to move fast. He held daily press conferences to keep the public informed; engaged the WAPA board of directors to leverage their deep USVI network; and established a cadence of meetings and reporting to drive accountability. Bloomberg Philanthropies' experts worked with the Governor and his team to track progress daily and escalate any issues or potential delays for resolution—to be addressed within hours, not days or weeks.

Third, **focus on both the immediate and long-term recovery.** In the days after major disasters, most leaders feel pressure to focus exclusively on the immediate challenges. Early in the response, however, the USVI was clear that it would not let the immediate restoration needs prevent the Territory from taking advantage of a once-in-a-generation opportunity to not simply replace 20th century technology and infrastructure; but use Federal assistance to leapfrog to a 21st century energy system. Working with Bloomberg Philanthropies, he created the Hurricane Recovery and Resilience Task Force only weeks after the storms.

The 21-member Task Force — modeled after Mayor Michael Bloomberg's recovery initiative in New York City following Superstorm Sandy — was charged with developing recommendations to improve responses to future storms and enhance the resilience of the USVI's energy, water, telecommunications, transportation, waste, housing, health, education, vulnerable populations, philanthropy, and local government. The Task Force, which included several off-island experts, issued a report six months after it was convened. Bloomberg Associates led the energy portion of the Task Force, which developed 17 initiatives to increase the resilience of the energy system and drive down energy costs. Bloomberg Associates engaged more than 100 stakeholders to develop a plan to:

- Transform the USVI's generation portfolio by installing 50 MW of renewable energy by 2025 and upgrading old, inefficient power plants.
- Modernize the grid to enable the uptake of additional renewable power and build several microgrids that can operate independently in the event of power outages.

- Fortify infrastructure against climate risks so that future storms cause less damage and restoration efforts can be completed even faster.
- Strengthen energy planning and governance structures to address systemic challenges facing the utility and the overall energy sector on the USVI.

The active leadership and engagement of public, private, and non-governmental communities ensured buy-in from all stakeholders to execute the plan. As a result, more than 25 percent of the energy initiatives in the Task Force's final report are already being executed, including the development of the USVI's first hybrid microgrids on St. John (which will generate 2-4 MW of electricity from solar panels, battery storage, and back-up diesel generators).

Fourth, **create strong collaboration with and between philanthropies, the private sector, and Federal agencies.** Coordinating the vast array of Federal, local, and philanthropic efforts is critical to the success of the recovery efforts, but also challenging for the government to execute given the tremendous demands post-disaster. The Governor established an environment where local agencies, Federal departments, philanthropies, private sector leaders, and technical experts could work together on a clear set of shared goals for recovery.

Bloomberg Philanthropies played a key role in coordinating critical stakeholders in support of the government. In particular, they worked the Governor's office to engage critical Federal agencies — including FEMA, the Department of Energy, the Department of the Interior, the Army Corps of Engineers, and the Department of Housing and Urban Development. Additionally, Bloomberg Philanthropies helped engage and coordinate a number of other philanthropic partners, including Kenny Chesney's Love for Love City Foundation, the Clinton Global Initiative, and Expedia.

In Puerto Rico, several foundations funded the development of the ReImagina Puerto Rico plan to guide recovery efforts. This plan, however, was developed outside of the government, which has limited its impact on recovery and rebuilding efforts in Puerto Rico.

The USVI's recovery would not have been possible without significant Federal funding and assistance, which is not available to other countries in the Caribbean. One year later, all of the Caribbean nations impacted by Irma and Maria are still working to rebuild. But, as the USVI shows, a successful recovery effort requires more than just money — it is also about leveraging expertise, setting a bold vision, focusing on both immediate and long-term recovery, and working with partners to ensure that funding is spent quickly and wisely.