Bahamas energy storage for resilience

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In July 2015, after Hurricane Matthew struck The Bahamas, Dr. Rhianna Neely decided it was the last time they would ride out a storm like this. Power outages, so frequent during these storms, had left her family, which now included a four-month-old baby, in darkness, with no fans or air conditioning to cool them from the blistering heat. "That was hell on wheels," Neely told RMI.

From that day forward, Neely set up her home for resilience, adding storage backup so that even in the overcast days that followed heavy storms, the energy from her solar panels would still be available. As the director of the government"s department of environmental planning and protection, Neely is now working to strengthen her country"s climate response.

"Climate change in The Bahamas is much more than renewable energy," Neely said. "It"s a matter of survival on an existential as well as practical level. For one, the country itself is getting smaller, as sea level rise inundates beaches and low-lying areas become uninhabitable wetlands. That rise compromises underground aquifers, meaning the country"s planners must again turn to technology and produce water through reverse osmosis."

Although The Bahamas has a negligible carbon footprint of its own, the country is determined to show other larger, more polluting countries what can be done, Neely said. "It"s important for us to show that a country of our size can do something to impact the climate, and other countries that are larger -- and are having more of an impact on the climate system -- should do even more."

By Caribbean standards, The Bahamas is prosperous. On a per capita basis, it outranks not only its neighbors but also its tourism-focused competitors like Greece and Croatia. Vacationers flock to the archipelago for the sunshine and pristine beaches, contributing to roughly half of its annual GDP.

For now, fossil fuels power it all. And for all its relative wealth, The Bahamas is roughly 92 percent dependent on fuel imports from outside the country -- and at the whim of the price fluctuations that come with it.

Further, Neely and her colleagues are working to put the sun to work not just for tourists on their sun loungers, but for Bahamians in their day-to-day lives. Some high-profile solar power projects have already materialized: a 950 kW solar canopy at the national stadium in Nassau and a first-of-its-kind solar panel array capable of withstanding the kinds of hurricanes expected to become more powerful, and more frequent, as the earth"s temperature rises.

Another first of its kind for The Bahamas, is the recently completed solar and battery microgrid on Ragged Island. That system powers the small fishing community on Ragged with over 90 percent renewable energy thanks to a collaboration between RMI, the government, and the national utility, Bahamas Power and Light.

There are also several new solar installations on government roofs over the past year thanks to the support of the InterAmerican Development Bank and RMI. But these projects are just the very start of an ambitious 7-year transition.

The Bahamas has set a target of 30 percent renewable energy production by 2030, a goal that calls for hundreds of new solar and energy efficiency projects. The national utility estimates the country must not only install 260 megawatts of solar energy, but also reduce electricity demand by 1 percent each year for the next ten years.

Making those plans a reality involves a dramatic scaling up of solar capacity from the capital in Nassau out to its more sparsely inhabited "family" islands that account for roughly 30 of the 700 islands that make up the country.

In Abaco, a group of family islands that are a two-hour boat ride from Nassau, RMI is working alongside the government and Compass Solar to provide solar and storage systems to three primary schools across Abaco that were heavily damaged in Hurricane Dorian. These systems allow the schools to better fulfill their dual roles as both institutions of learning and emergency shelters for the surrounding community. Yesterday, the nation held a ribbon-cutting ceremony to celebrate these three systems coming online.

Bahamian Deputy Prime Minister, Hon. I. Chester Cooper, alongside government officials, RMI, and project partners, before cutting the ribbon to celebrate the new systems across Abaco primary schools. Photo credit Compass Solar.