3.7 Examples of Other Community Energy Resilience Initiatives

American communities are innovating and acting on energy resilience in a myriad of ways. While the six case studies in this analysis epitomize the planning dimension of resilience, many more communities are moving forward with specific projects aimed at making them more resilient to current and future risks in the energy domain. Selected examples are summarized below.

Babcock Ranch, FL: An energy-resilient community survives Hurricane Ian without losing power

This 18,000-acre town near Ft. Myers gained national attention when it survived 140-mph winds and flooding during Hurricane Ian in September 2022. Not only did the town never lose power, it sheltered residents from nearby communities. Developers began planning Babcock in 2006, holding public meetings and consulting outside experts to develop an environmentally sensitive master plan that would ultimately comprise nearly 20,000 homes and six million square feet of commercial space—all powered by solar energy, with about two-thirds of the original property permanently set aside as open space. The development uses nature-based solutions as part of its overall plan, including a water management plan that uses natural flow-ways to drain rain and flood water. All buildings are located above flood levels and use slab on grade rather than basement foundation designs to minimize flooding risks and associated water damage.

Babcock's buildings are built to stringent energy efficiency and other performance standards; they are certified by the Florida Green Building Coalition's Green Home or Commercial standards, similar to the U.S. Green Building Council's LEED Rating, but specifically designed for hot-humid climates. The average energy efficiency rating for Babcock homes is 25% better than the relatively stringent requirements of the Florida Energy Code. Water conservation is also required: all plumbing fixtures must meet EPA's voluntary WaterSense specifications, which are 20% more stringent than national minimum standards. A variety of mainstream national builders have been able to meet these standards without difficulty.

Babcock Ranch is a solar city; Florida Power & Light (FPL) operates two solar farms that can generate 150 MW of electricity at peak output, enough to power 30,000 homes—more than Babcock's planned buildout. Remaining solar generation is fed into the FPL grid. In addition to FPL's ground-mounted solar farms, most of the commercial buildings have extensive solar arrays on their roofs. A key to Babcock's energy resilience is its 10-MW battery system, which along with underground power lines and smart grid technology, helps keep the lights on during power outages. And power infrastructure is integrated with other utility services; wastewater, and reclaimed water pipes were co-located with conduit for electricity and data utilities, reducing risk of damage from storms.

Myrtlebrook: a Lakeland, FL Microgrid community

The City of Lakeland's City Commission voted in November 2023 to move forward with a solar microgrid community, a 77-home subdivision called Myrtlebrook that will be completely off the grid using solar PV and battery storage[4]. It is being developed in partnership with the city's municipal utility Lakeland electric, BlockEnergy, and Highland Homes. Each home will be solar powered with battery storage; they will also be interconnected with a central energy storage and control facility that will interconnect with the utility system, allowing the combined solar and battery capacity of the neighborhood to support the utility system when it has excess energy, and also allowing Myrtlebrook to 'island' and operate independently if the utility grid goes down.

The $4.235 million project will be funded by Lakeland Electric, which will benefit from the excess power generated by the solar PV. The city's agreement calls for BlockEnergy to install and maintain the system for the first three years, after which Lakeland Electric will own and maintain it, with BlockEnergy training

[4] "Lakeland leaders prepare for city's first solar microgrid community", *ABC Action News*, R. Petit (2023).

utility workers during the transition. The project will serve as a pilot project to test the new technology and a new business model for serving load growth in the Lakeland Electric service territory.

Myrtlebrook is planned to break ground in 2024, with housing construction set to begin in 2025 and be completed by 2026. Read more in the city's Equipment Supply and Support Services Agreement here.

New Orleans Community Lighthouse Project

Led by nonprofit Together New Orleans, the Community Lighthouse Project is designed to engage 85 to 100 congregations and community institutions citywide in a network of resiliency hubs, using solar PV power and back-up battery capacity[5]. These hubs are to be used during power outages to provide assistance to their communities. When the grid is in operation, the solar systems reduce utility bills; during outages, the battery backup keeps these facilities powered so they can provide needed services, which can include phone charging, loaned batteries, food service, heated and cooled shelters, and medical equipment and services. The project calls for every city resident to live within one mile of a Lighthouse facility.

As an example, the Household of Faith will have a rooftop solar array of 100kW or more, at an estimated cost of $190,000. Batteries totaling up to 320kWh of storage capacity would add $280,000 to the price tag. Total costs for 85 sites would be over $16 million, with annual utility bill savings of more than $400,000. The project plans to finance these costs on a shared basis: 30% from participating congregations and individual donations, 30% from philanthropic grants and tax credit investments, and 40% from city and state funds, including federal grant funds. The project calls for local workers to be trained and hired at living wages to support the city's workforce development and broader economy.

There will be a capital and business plan for each Community Lighthouse location, including site analyses to determine size and cost of solar units and battery storage as well as weatherization upgrades, cost-benefit analyses, financing strategies, lease agreements, and utility interconnection agreements. The project will also develop "human infrastructure," including a disaster response team at each location based on best practices in civic sector disaster response from other cities, state and local emergency management staff, and federal agencies like FEMA. These teams will be trained and equipped to support a range of service needs, based on outreach and engagement conversations that establish a deeper understanding of the neighborhood and its needs. The teams will then work with each pilot location's community members to develop a disaster resilience plan for its Lighthouse. Working with each congregation/organization's leadership and disaster response team, the project will identify its geographic area of responsibility and perform a needs assessment of the area to identify specific services such as shelter, food, and health care.

Ann Arbor Sustainable Energy Utility (SEU)

The City of Ann Arbor, Michigan's community-wide carbon neutrality goal by the year 2030 (known as A2ZERO) has led the city to explore ambitious actions, including a sustainable energy utility (SEU)[6]. The idea for an SEU emerged from a 2021 Ann Arbor Energy Commission meeting 2021 that described the legal barriers, Ann Arbor's electricity supply options, and instigated research that led to the SEU idea. Office of Sustainability and Innovations (OSI) staff reached out to SEUs in Delaware and the District of Columbia. From these conversations, OSI created a conceptual model of a Michigan-specific SEU and engaged experts in law, policy, and technology to further assess the viability of the SEU model. The resulting detailed feasibility study lays the groundwork for a future SEU.

The Ann Arbor SEU is planned to be a community-owned energy utility that provides electricity from local solar and battery storage systems installed on homes and businesses throughout the city. The SEU would provide 100% clean, reliable, locally built, and affordable electricity for the community. An SEU is a new

[5] Community Lighthouse Project, *Together New Orleans*.
[6] Ann Arbor's Sustainable Energy Utility (SEU), *City of Ann Arbor*.

kind of municipal utility emerging with the help of advances in renewable energy technologies and reductions in cost. The SEU provides:

- Improved energy reliability via the installation of solar and energy storage systems on homes and businesses
- Energy efficiency programs that save residents money while improving comfort, safety, and health
- On-bill financing to lower the upfront costs and increase the flexibility of payment
- Support for beneficial electrification and workforce development
- Microgrids serving neighborhoods with building-scale solar and storage, that are also interconnected with the larger utility grid
- Community solar programs that provide the benefits of solar where rooftop solar is not feasible
- Energy justice initiatives to ensure that everyone in the community benefits from clean energy

Since an SEU delivers electricity as part of its structure, rapid solar deployment will be at the heart of initial offerings. In addition to onsite solar and energy storage services, energy efficiency and beneficial electrification support, as well as on-bill financing will be early service offerings.

Minneapolis Resilience Hubs

The Resilient Minneapolis Project (RMP) will create resilience hubs at three Minneapolis locations, with electric utility Xcel Energy in a lead role working with partner organizations representing disadvantaged communities. RMP is designed to improve communities' energy resilience while also advancing State Utility Commission objectives for Integrated Distribution Plans (IDPs), which are to: enhance grid reliability, increase customer engagement and empowerment, and create platforms for new grid-edge technologies and services. The RMP will be implemented at three locations: (1) the North Minneapolis Community Resiliency Hub; (2) Sabathani Community Center; and (3) the Minneapolis American Indian Center.

Xcel is working with community partners to install rooftop solar, battery energy storage systems (BESS), microgrid controls, and distribution system upgrades at each site. These systems will provide power for critical services during grid outages, but will also be used by Xcel system operators on an ongoing basis to mitigate system peaks, manage and shape demand, and integrate solar generation.

Xcel Energy received a $100 million Department of Energy's Grid Resilience and Innovation Partnerships (GRIP) grant to support resiliency and wildfire mitigation initiatives, including the Resilient Minneapolis Project. The utility also agreed to invest $140 million in the partnership. The project is part of a national movement by cities to create resilience hubs in disadvantaged neighborhoods. The city of Minneapolis began discussions with Xcel in 2019 focused on innovative clean energy-related pilots.

The hubs will be built at neighborhood community centers that offer food bank and other social services. Each is undergoing physical repairs such as new roofs and HVAC replacement, with microgrid installation planned for 2024. When severe weather or other challenges interrupt grid service, the microgrids will power the community centers, allowing first responders to offer medical care and residents to seek shelter, charge phones and appliances, and access food supplies.

Hub Site Example

Renewable Energy Partners is developing the North Minneapolis Resiliency Hub, placing part of the microgrid on two schools and a nutrition center, near a training and apprenticeship center. The developer has collaborated with Xcel and the other two nonprofits during the planning process; key details had to be resolved, such as who would own the battery storage systems.

The developer proposed that facility owners should own these systems and use them to reduce energy bills. Xcel's position was that it needed to own the equipment to make project economics work and to ensure that the systems would be fully integrated and reliably maintained to support Xcel system reliability.