

# A Microgrid Grows in Brooklyn

Source: [scientificamerican.com](http://scientificamerican.com)

Published: April 22, 2016



*Lawrence Orsini is the founder of LO3 Energy, a company that was started in 2012 and now funds the Brooklyn Microgrid project. Credit: Image courtesy of Sasha Santiago*

By [Morgen E. Peck](#)

One New York City neighborhood's efforts to pool local renewable energy sources reflects a larger push toward decentralized power production and consumption.

Martha Cameron has gone to great lengths to make her home self-sufficient. The 40-year resident of Brooklyn's upscale Park Slope neighborhood installed 18 photovoltaic panels on the roof of her three-story brownstone in 2010, and during the warmer months it generates enough electricity to run the first two floors of the building. Cameron does not have batteries to store the energy, so she relies on the power company to absorb electricity from her solar panels and feed it back to her through the existing grid. In essence she is an energy producer for New York City's utility company, Consolidated Edison, which buys electricity from her at wholesale rates and deducts the payment from her monthly power bill.

Under this arrangement, Cameron can never profit from her contributions. Nor can she manage her own power supply. And when the neighborhood's electricity goes out, the utility company turns off her power, too, lest the energy she generates migrates through the lines and injures the people working on them. If the grid were to fail for a prolonged period, as it did during [Superstorm Sandy](#) in 2012, the first priority would be to restore power to hospitals, shelters and community centers. Until that happens the sun could be high in the sky, yet no electrons would flow from Cameron's roof.

But that could soon change. Cameron and many of her neighbors have signed onto a project called [Brooklyn Microgrid](#), which is installing infrastructure to enable a small network of Park Slope buildings—and another cluster in neighboring Gowanus—to sever themselves from the larger grid. The microgrid would independently distribute locally sourced electricity without mediation from the utility.

### **Channeling Edison**

In the short term Brooklyn Microgrid will operate as a backup option during storms, cyber attacks and other catastrophic disruptions. “The main driver for the project is resiliency in the face of grid events,” says [Lawrence Orsini](#), the founder of LO3 Energy, a company that was started in 2012 and now funds the Brooklyn Microgrid project. “Keeping facilities that are critical for the health and well-being of the community up and running will be the focus at any stage of the development.” But in the long term the infrastructure that LO3 installs—and the corporate entities that it plans on establishing—could set participants on a path to fully owning the electricity their community generates, giving them a say in how to distribute it and possibly encouraging further investment in renewable energy sources.

[Microgrids](#) are hardly a new idea. When Thomas Edison first set the country on a course to light every house with tungsten filaments, he conceptualized a patchwork of [small, independent utility providers](#) tapping generation sources close to home. When alternating current won out as the standard in electrical power transmission, however, it immediately became feasible to transport it over long distances. And so began the centralization of U.S. electricity distribution.

More than a century later a series of environmental, technological and economic pressures are finally nudging us toward decentralized distribution. The price of renewables has dropped dramatically, meaning that it makes economic sense for someone like Cameron to install a photovoltaic array on her roof. In 2015 solar developers added some 7.3 gigawatts of generating capacity to the U.S.—up from less than a single gigawatt in 2010—with about a quarter now coming from rooftop installations, [according to Greentech Media Research](#), a Boston-based renewable energy research firm. Meanwhile the nation’s utility grid continues to age and expose its vulnerabilities, compelling some states to give communities with high rates of locally generated electricity more control over its distribution.

California was one of the early states to push for microgrid adoption, and this year it became the first to require utilities to share distribution-planning resources with groups that could use the information to set up microgrids. California is also among a handful of states to adopt [Community Choice Aggregation](#), a legal option that lets local governments buy electricity generated in the community and sell it back to residents in direct competition with their investor-owned utility company.

Today, microgrids provide only 0.1 percent of all the electricity generation capacity in the U.S., according to the [Institute for Local Self-Reliance](#) (ILSR), a nonprofit organization that advocates for communities on environmental issues. And nearly all of them have been built in only seven states, all of which have passed legislation encouraging the adoption of microgrid technology.

The ILSR forecasts a doubling or tripling in the number of microgrids over the next five to 10 years, however.

## Revvng up

New York State politicians have scrambled to catch up, and in 2014 Gov. Andrew Cuomo announced a new program called [Reforming the Energy Vision](#) initiative. As part of the plan, his administration is allotting \$40 million in grant money to microgrid projects around the state in a series of [competitions](#) called [NY Prize](#). The program is run by the New York State Energy Research and Development Authority (NYSERDA), the purpose of which is to fund microgrids in the state from design to installation. The first round ended last year and has funded feasibility studies for 83 groups. “It’s basically getting public money into one of the more difficult processes of building a microgrid today, which is just getting it off the ground in the first place,” says Matt Grimley, a researcher at the ILSR and the co-author a recent report on microgrids ([pdf](#)).

One of the biggest hurdles, according to both Grimley and Orsini, is the fact that every community has different needs and brings a different mix of assets to the equation. Brooklyn Microgrid, for example, chose a block in Park Slope because it boasts a high density of rooftop solar panels. “Everything has to be driven by the needs of the community,” Grimley says. “And so, what this funding does is basically just bring in all these different community vendors and utilities all at the same table.”

Brooklyn Microgrid is not using NYSERDA award money at the moment but it will compete for the next round of funding. As with the rest of the projects, the goal now is to get as many people onboard as possible. More than 130 buildings—including iconic brownstone houses, public housing towers and schools, along with a grocery store, gas station and fire station—have thus far signed up to be a part of Brooklyn Microgrid, according to Orsini.

One of the biggest questions surrounding the future of microgrids in the U.S. is how best to get financial value out of them on a day-to-day basis when the larger grid is working. “To me the biggest barrier still is justifying the business case,” says Sam Booth, an engineer at the [National Renewable Energy Laboratory](#) who helps groups including Orsini’s deploy microgrids. “You’re going to make all these investments that will make you more resilient in the unlikely event of a storm or a terrorist attack or other things. How do you take the assets that you’re putting into this microgrid and figure out how to make them deliver value in the time when most of the grid is there?”

For the residents in Park Slope, resiliency is actually a secondary concern. [New York State is now experimenting](#) with the Community Choice Aggregation model of distribution, which means Brooklyn Microgrid may soon have the legal option to sever from Con Edison financially as well. Most Brooklyn Microgrid property owners are signing up with the belief that they are laying the groundwork for a future in which communities produce their own electricity, and any profits stay local and get funneled back into a growing infrastructure of renewable energy sources.

In preparation for that future Orsini is now establishing Brooklyn Microgrid as a [benefit corporation](#) (a company that is held to high standards of environmental accountability), which he intends to run as a co-op with other residents as co-owners. The community will own any new renewables added to the grid and residents will have a role in deciding how those assets get used. Which is why people like Bob Sauchelli, who lives across the street from Martha but cannot install solar panels of his own, are onboard with the project as well. By taking a stake in the Brooklyn Microgrid B corp, Sauchelli will have a say in what kinds of energy sources his community invests in, and it will allow him to channel the money he would normally be paying to Con Edison back into his neighborhood to fund energy-saving infrastructure such as smart electricity meters. “It gives me a way to participate,” he says.

To Cameron and her neighbors, seizing financial control over the community’s assets is a step toward moving away from fossil fuels, which in this community is a value in and of itself. She adds, “One of the things we are trying to do is eke out tiny bits of community-controlled energy.”

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