



## WHAT?

A [microgrid](#) is a locally controlled electrical system, which can function either

- ✓ connected to the larger grid or
- ✓ As an electrical island not connected to the larger grid.

A microgrid can be as simple as a single home operating on its own solar power or a complex series of connections between a power source and various end users. It can run a business, a neighborhood, or a city. The energy can be both generated and stored at a local level. No matter what the type of microgrid, energy storage is important to the success of the system. To store energy for future use and to support the energy needs in case of a grid failure.

## WHY?

[Resiliency and Reliability](#). As evidenced by recent Public Safety Power Shutoffs (PSPSs), in California's changing climate, the larger grid is not as reliable as it once was. This is due to its electrical generation often far away from the end users and its long transmission lines stretching across tinder-dry landscapes. The number and intensity of [wildfires threatens California's power grid](#). Flexible renewable-energy powered local microgrids provide reliable electricity for vulnerable residents and for other essential services even in emergencies. In addition, [Microgrids can help the economy](#): providing local jobs, redevelopment areas, metered electricity to consumers, eliminating costs associated with power outages, generating renewable energy credits, and selling excess power back to the larger grid. Further, local generation encourages more renewable electricity generation and less carbon dioxide emissions.

The microgrid industry has streamlined development and financing, costs have dropped, and controllers and software has grown in sophistication.

## WHO?

In 2018, California passed a bill, [SB 1339](#), that requires the California Public Utilities Commission, in consultation with the California Energy Commission and California Independent System Operator, to undertake a number of activities to further develop policies related to microgrids.

Cities that want to be resilient and secure in their energy supply; and to reduce the risks that climate change poses to life and property-- are establishing their own microgrids and energy storage.

## HOW?

- The Center for Climate and Energy Solutions, provides a comprehensive overview: What Every City Should Know about creating a microgrid [Here](#)
- PGE has this guide for communities to increase energy resiliency [Here](#)
- MCE's Energy Expert Series takes a deeper dive into microgrids [Here](#)





- Local governments are adapting policies and removing hurdles (expediting the permitting process, granting zoning incentives, establishing financial plans etc.), supporting project development (engaging developers on community energy, creating development incentives, establishing district energy zones to allow development and redevelopment), and developing and pursuing their own microgrid projects.

### Funding:

- Both Public and private funding are possible
- [Peninsula Clean Energy](#) (a community choice energy company)
- [The Tesla Penalty Microgrid](#)
- The CPUC has a [Microgrid Incentive Program](#).
- FEMA provides [Incentives for Hazard Mitigation](#)
- DOE is [Helping Communities Find Microgrid Funds](#)

## WHERE?

There are [many cities and towns](#) across the U.S who have developed community microgrids. The Clean Coalition, provides this 2020 sampling of microgrids in California and across the U.S. [Here](#) Check out these [8 examples](#) of US communities using microgrids.

### Interesting Best Practice Examples in California:

- The [Borrego Springs micro-grid](#) is the first utility-scale microgrid installed in the U.S. It is connected to the larger grid by a single transmission line but can disconnect and function independently during emergencies.
- The City of [Fremont](#) has a microgrid for emergencies for three fire stations with their own power supplies.
- The City of San Diego County, with a Grant From CEC approved eight (8) microgrids “As microgrid systems proliferate, the clean energy industry is homing in on a dollar value for resiliency benefits equal to 25% of the system cost, implying that the clean energy proposed for purchase from Shell New Energies is worth 25% more than the city is agreeing to pay,” [city staff said](#). It will save the City 6 million over 25 years. [Read](#).
- The [Santa Rita Union Schools District](#) can provide power indefinitely to seven schools during long power outages, students can keep attending school and the school buildings can serve as emergency shelters.
- The [Stone Edge Farm](#), Glen Ellen, CA, kept running for 10 days during the 2017 fires in Sonoma County.
- The [Redwood Coast Airport Renewable Energy Microgrid](#); Humboldt County was the first with PGE
- [The San Pasqual Band of Mission Indians](#) have a microgrid to boost energy resilience
- Arvin, CA receives \$2.9 Million for Electric Buses and Microgrid [More](#).
- Solar Plus Storage Microgrids to be deployed in 4 Bay area Cities. [May 2023 Article](#).
- [Shadow Mountain, Menifee, CA claims to be California’s first ever Microgrid town! Get more Info here and here](#)
- MCE, City of Pittsburg and the Pittsburg Unified school District teamed up for a successful Local Government Installation [Here](#).





- Blue Lake Rancheria (BLR) a federally recognized tribal government and Native American community; integrates a solar array, battery storage, and control systems to allow the Rancheria campus to operate in tandem with or islanded from the main utility grid. It provides approximately \$150,000 in annual electricity savings. The BLR microgrid was funded by a \$5 million grant from the California Energy Commission through their [EPIC program](#). find out [More](#) and [from CEC too!](#)

#### Other States and Cities:

- [Connecticut](#) was the first state to create a statewide system of microgrids to provide emergency power, following hurricanes like Sandy and Irene.
- [Taos, New Mexico](#). Built two major solar-storage projects for electrical resilience in the case of wildfires.
- [Martha's Vineyard Transit Microgrid](#) in Massachusetts aims to establish an independent energy source using on-site solar power and battery energy storage.
- The 300-person community of [Sungnak, Alaska](#) now relies less on the diesel plant by using a 225kW solar array and a 384 kWh battery system.

#### RESOURCES

- Checkout this article, still timely, of how [Cities keep the Power On When the Electricity Goes out](#). [Read](#)
- [PGE](#) and [MCE](#), both provide support, information, resources, and can share incentive programs
- [EBCE](#) Provides incentives [Here](#).

