

# Can Community Energy Help Achieve Climate Goals and Create a More Equitable Society?



By Gemma La Guardia

## Energy is the new vector for social justice.

The gulf between rich and poor in developed countries is being widened by energy-related issues. Poorer people are harder hit by rising energy prices. They often do not have the funds and tools needed to conduct energy efficiency alterations to living spaces, and often live in areas that are negatively impacted by the generation of energy from fossil fuels. This can entail a range of health issues caused by poor air, water and soil quality.

But new technologies can help to drive the clean energy transition equitably. Take peaker plants that operate on fossil fuels, for example. Peaker plants are used when energy demand is high (at peak demand) and are often only on for a few hours at a time. However, they have a disproportionate effect on the environment, emitting almost double the amount of carbon dioxide and nitrous oxide than baseload power plants. This is due to the amount of energy needed to ramp up short-duration generation, and the lower efficiency of single-cycle generators. Because of their heavy emissions, they also contribute to higher rates of health issues such as cancer and asthma.

However, energy storage technologies, such as lithium-ion batteries, can help to solve that issue. By storing energy from renewables, batteries can be

used to discharge energy at peak times, reducing the need to fire-up natural gas peaker plants. The result is cleaner energy and improved air quality.

Renewables and storage hold huge promise, not only for the environment, but for our health. However, without a framework that involves and benefits the communities in which they are based, they can also ignite the wrath of locals.

In England, a green power line that has been approved is slated to run through the middle of the English countryside, between Norwich and close to London. The power line will provide clean energy to the capital, but ploughs its way through historical towns, forests and fields, scarring the countryside and endangering local wildlife. It's no wonder the locals aren't happy.

So how might we create better access to clean energy for all citizens? It's too easy to say "invest". We need to invest in a manner that adds value to communities.

## Community Energy Projects

Community projects are a good starting point. We can define community energy projects that are typically either partially or fully owned by the community in which they are situated. Although some in the community may not derive pecuniary rewards from

the projects per se, they can still benefit in the form of cost savings, job creation, access to clean energy and improved local environment.

Community energy projects can provide a plethora of different benefits to the community. First and foremost, they can provide monetary benefits: these can come in the form of revenues from power generation or land rental. The Lawrence Weston wind turbine community project in England provides a perfect example. Lawrence Weston, a housing estate in Bristol, has been awarded the funding to build a single, 4 MW wind turbine, which will provide power and sell energy back to the grid. It is estimated that the turbine will yield close to £100,000 a year in revenues that will be invested in the housing estate.

A second benefit is job creation. In Canada, for example, rural indigenous communities have long been reliant on diesel generators to power their homes. In a push to provide clean energy to these communities as well as provide jobs, community projects funded by the Canadian government train young indigenous Canadians in a range of trades within the renewables industry. Indigenous Clean Energy, a Canadian not-for-profit, estimates that indigenous community energy projects have provided 19,135 person years of construction employment, and 2,870 person years of maintenance employment.

Lastly, community energy projects are often paired with educational projects which teach people within those communities about the effects of climate change and the benefits that renewables can bring to them and the wider world. In Canada, once again, the effects of government-funded projects are wide reaching. Funded by the Clean Energy for Rural and Remote Communities programme (CERRC), the Inuvialuit Regional Corporation has set up a project that will “promote energy literacy in communities, renew Inuvialuit dialect and culture, and promote cross-generational learning between Elders and youth on traditional practices, language and sustainability”. These holistic, all-encompassing projects do more than just provide education about climate resilience. They also strengthen the sense of community and help cement the feeling that “we’re all in this together”. Other education projects funded by the CERRC include ones that target underserved demographics, such as women.

### Community energy and the decarbonization journey

Community energy projects are a good way of accelerating wider decarbonization goals. This is not only because it will mean that a greater percentage of a country’s population is reliant on clean power instead of a fossil fuel-based grid.

Grid-connected community projects can provide grid flexibility, selling energy back to the grid that can be used for load-shifting and peak-shaving. This brings us back to our initial example of the peaker plants and energy storage. In 2020, utility Southern California Edison opted to not build a new peaker plant after community pressure, but to invest in a 100MW energy storage farm. Though not a “community project” per se, it has a direct influence on the people living in the surrounding area, as well as providing grid flexibility.

Furthermore, community projects can help improve grid resilience. This has been demonstrated with microgrids in the United States, that are able to provide power to communities and keep basic services running in case of natural disasters. For example, San Diego Gas and Electric installed a purpose-built microgrid in 2013 to create resilience against wildfires and storms. Almost 10 years down the line, microgrids have become the de facto option to help mitigate the increasingly savage effects of climate change in California and the rest of the United States.

Last but not least, community energy can increase access to renewable energy across the board. This is at its most obvious in developing countries, where segments of the population have little or no access to electricity. In Nigeria, Husk Power is installing 500 mini-grids in order to provide power to rural communities. This allows these communities to minimize the use of fossil fuels, and kickstart the renewable transition. In other communities, such as indigenous and rural Canadian communities, these projects help reduce dependence on loud and polluting diesel generators. Chief Dana Tizya-Tramm of the Vuntut Gwitchin First Nation said of the switch to renewable microgrids in the village of Old Crow: “We can now enjoy silence and hear our animals and the crows caw from across our village for the first time in 50 years”.

### How do they work?

All community projects share at least two of three defining characteristics, according to the International Renewable Energy Agency in its 2020 Community Ownership Brief:

1. The profits are redistributed to the community,
2. There is a level of democratic governance
3. There is a set ownership structure.

This mix of characteristics is found in five principal business models for community energy projects.

#### COOPERATIVES

- Cooperatives are jointly owned projects between all members of the community, based on the idea of “one member, one vote”.

#### PARTNERSHIPS

- Partnerships are based off a variety of partners owning shares. The key objective here is to generate wealth for the shareholders.

#### NON-PROFIT ORGANISATIONS

- Non-profit organisations are financed by members, but do not expect to take home any profit. Any profits are re-invested into the community.

#### COMMUNITY TRUSTS

- Community trusts reinvest the profits from community projects into the community. Non-trust members can also benefit from the projects

#### HOUSING ASSOCIATIONS

- Housing associations are a type of non-profit organisation, typically offering housing to low-income people and families.

However, community projects cannot flourish in every environment. It may require a significant helping hand from state or local governments.

Community projects need a proper enabling policy framework. This can range from feed-in-tariffs to specific grants or funds. The European Union, for example, has highlighted community energy projects as key in achieving decarbonization goals, and has passed a raft of bills to ensure that they can be deployed easily, through its Clean Energy Package and Renewable Energy Directive II (RED II), which are to be translated into national legislation. For example, Portugal has recognized renewable energy communities as legal entities, stating that they help Portugal achieve its renewable energy targets, as well as benefiting communities, and help alleviate poverty. The legislation also mentions tax breaks for renewable energy communities.

But policy framework is not enough. Eased regulatory and permitting frameworks are also needed in order to set up and run the projects, allowing them to sell energy back to the grid. They also need access to financing tools to help them get set up. The Canadian government, for example, runs a number of different programs, including the aforementioned CERRC, that are aimed at setting up and funding community energy projects.

### Ending reflections

Community projects have the potential to both achieve climate goals, and alleviate poverty. They are becoming increasingly popular mechanisms through which governments can drive change and increase access to renewables. However, obstacles remain. Often unfriendly regulatory and policy environments mean that community energy projects have a tough time getting up and running. A lack of financing also stunts deployment. A recent example of this is the UK’s new Energy Security package which has come under fire from activists for not setting aside any funds for community energy projects. We have the opportunity to both wean ourselves off fossil fuels, and provide a more equitable future for everyone. This is possible, but we must ensure we make the right political choices.

### About the author



#### Gemma La Guardia

Gemma La Guardia is a Consultant and Research Associate at Guidehouse Insights within the Energy, Sustainability and Infrastructure team, specialising in microgrids, energy equity, and hydrogen.