

# COMMUNITY RENEWABLE ENERGY: STRENGTH IN NUMBERS

Jules Smith

It seems that everywhere you look these days you see rooftop solar arrays ... on houses, on factories, on schools. Many of these are grid-connected systems, sharing their power with their neighbors through the local utility grid in return for a feed-in-tariff. It's a sweet deal ... if your circumstances permit it. If they don't, you may want to consider a community renewable energy project.

Community projects put renewable energy within everyone's reach, even if your own property is unsuitable. For example, you may want to equip your home with a solar array, but your roof may have poor exposure to the sun, shaded by trees or other buildings. There may be obstructions from equipment. Or the roof may not be yours to do with as you please, perhaps because you're renting, because your condo agreement doesn't allow it, or because you're in an apartment building and you share the roof with other tenants.

With a community renewable energy project, instead of building your own small system, you share a much larger system with a group of other investors, both individuals and organizations. Instead of the system being constructed on your own property, it's built at a central location, often in or near your neighborhood. Instead of the energy generated by the system powering your own premises directly, the energy is fed into the utility grid.

You benefit from the energy produced in one of two ways. The administrators of the system monitor how much energy is produced by your portion of the project and either credit your



*Customers signing their panels in Clean Energy Collective's Boulder Cowdery Meadows Solar Array, Boulder, Colorado.*

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electricity bill accordingly through a system called virtual net metering, or pay you your portion of the income through a power purchase agreement with the utility company.

## ADVANTAGES

What are the advantages of a community project over a do-it-yourself system?

Tim Braun, with the [Clean Energy Collective](#) in Colorado, explains, “From a consumer’s perspective, the primary advantages are efficiency, scale, and financial value. Purchasing panels in a community array is completed with a phone call and a signature. There’s no research, contractor selection, site visit, permitting, installation process, or maintenance.”

In building a rooftop solar array, the emphasis is often on the panels since those are the most visible component. But in practice, the panels are only part of the system; you need some way of controlling and directing the electricity produced. That’s the job of the inverter and other circuitry, which adds significantly to the cost of a system.

Tim notes how a community project addresses these costs: “A community solar purchase is scalable to one panel, which greatly reduces the cost barrier to entry. With rooftop solar or other systems, you would install the largest system possible to leverage the installation costs (i.e. the inverter is expensive so you wouldn’t install just a few panels).”

Before you build a solar power project, you need to make sure your location is suitable. After it’s built and in operation, you need to maintain it. Again, community projects take care of this for you.

“Community solar facilities are optimally sited and professionally maintained,” Tim explains, “so they produce more power for longer. This improved productivity and lifespan provides a greater ROI than most individual systems.”

There are advantages for utilities as well.

In order to provide consistent power to their customers, utilities need to predict both supply and demand. Demand generally follows patterns based on location, time of day, day of the week, and season of the year.

Supply is harder to predict. Traditional generation systems like nuclear plants, natural gas plants, and large-scale hydro dams deliver steady power. However, renewable energy sources like wind and solar are more difficult to predict, varying by the moment as wind speeds rise and fall and as clouds drift by. The smaller the system, the more unpredictable it’s

energy output becomes. Thus, small-scale renewable energy projects like residential rooftop systems are difficult to integrate into the grid.

Community projects are larger, provide more consistent power, and are therefore more attractive to utility providers. Tim Braun explains, “For utilities, community solar provides reliable, consistent power generation ideally sited on the grid for best use, constructed with no capital costs by the utility.”



*Clean Energy Collective's 400 kW Denver/Lowry Hangar 2 Solar Array, Denver, Colorado.  
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## OPTIONS

For the average homeowner, particularly in an urban or suburban environment, the most common entry into renewable energy is rooftop solar. But community projects expand that to include wind and biofuel as well.

WindShare, a co-op project managed by [TREC Renewable Energy Co-operative](#) in Toronto, Canada, holds the distinction of being the first urban-sited grid-scale turbine in North America. Constructed in 2002, the 90 meter tall, 600 kW turbine has the capacity to power up to 250 homes.

Biofuel cooperatives are most often found in rural areas, serving the needs of farmers and their neighbors. IGPC Ethanol, owned by Integrated Grain Processors Co-operative, for example, is located in the town of Aylmer, Ontario, in the heart of corn country. The plant maintains a staff of nearly 50 full-time employees and produces 150 million liters of ethanol annually, along with distillers grains for animal feed.

## CHALLENGES

Community energy projects face significant obstacles.

As is true of any large undertaking, you need skillful and committed management, particularly when it comes to navigating the inevitable maze of government legislation and bureaucracy. Renewable energy projects tend to be capital-intensive, and it can be difficult finding a body of investors willing to buy into a long-term project. Once you do, those investors typically all become members of the cooperative. Given the membership-based, democratic structure of such a body, you may have to deal with conflicting agendas, abilities, and personalities.

There's even the possibility that your intended project may be too large.

James Law, Services Manager with TREC, explains that at 20 megawatts, "TREC's LakeWind project was going for a much bigger piece of the capacity pie, so big that they weren't even allowed to participate in FIT 2 (the second incarnation of the Ontario Power Authority's Feed-In-Tariff program) because it was capped."

The LakeWind project also faced another obstacle: the utility grid in the area didn't have the capacity to handle the additional power the project would have generated. "The grid in the area we want to build is constrained. The Bruce line is still orange," Law says.

## OPPORTUNITIES

Despite the challenges, community projects open up opportunities for those who would like to enjoy the benefits of renewable energy but, for whatever reason, are unable to build their own systems. If this describes you, contact organizations like the Clean Energy Collective and TREC, or look for an existing co-op in your own area.

Or, if you're really adventuresome, start your own co-op and experience the strength in numbers of community renewable energy.

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Jules Smith is the Principal of LightningStrike Studios (<https://www.lightningstrikestudios.com/>), a professional communications firm providing marketing content, corporate communications, and web site design. He writes across a wide range of topics, specializing in renewable energy and information technology.