Expanding Community-Scale Renewable Energy

By Michael Closson, October 31, 2022

In 2016, in the early days of Peninsula Clean Energy, the board of directors recognized the importance of including locally-based renewable energy among the organization's sources of electric power generation. They established the quite modest target of 20 megawatts of local renewable power generation by 2025. Since then, PCE has made limited progress in attaining that goal. With three years remaining to meet that target, it is time for PCE to substantially expand its generation (and storage capacity) of local "community-scale" renewable energy.[1]

There are a number of reasons why it is desirable for PCE to expand its local community-scale renewable energy generation and storage. Here are several of them:

- We live in a time of periodic grid shutdowns and rolling blackouts. There are many vulnerable people and critical facilities (e.g., medical centers) in PCE's service area that are very dependent on a consistent supply of electricity. Locally generated electricity can provide safe and reliable short-term backup power and longer-term sustained power to them when the grid fails. This is especially the case if the distributed energy system is designed and operated as a microgrid.
- Local renewable energy generation contributes to decarbonization which we must accelerate to combat the climate crisis.
- Local renewable energy generation will help us keep pace with the growing demand for electricity as more and more buildings are electrified, and EV charging stations are installed.
- Community-scale renewables provide the benefits of local energy generation to residents who, for various reasons, cannot install solar power on their homes.
- A substantial increase in local renewable energy generation will reduce to some degree the need to continue to build and upgrade costly and disruptive large transmission lines.
- Building local energy generation and storage creates good jobs. The money spent stays in our area.

Despite all these good reasons to produce electricity close to where it is needed, expanding the development of local renewable energy generation and storage is not a simple thing to do in California at present. Finding appropriate sites for local renewables can be challenging. Developing local renewables can be costly and financing mechanisms complicated. And there are institutional barriers to Community Choice Agencies doing it, especially opposition from investor-owned utilities (IOUs) and the regulations imposed on CCAs by the California Public Utilities Commission (CPUC).

[1] Community-scale renewable energy can vary in size and location. It is larger than a residential rooftop but smaller than utility scale solar: in the 1 – 5 MW range.

But barriers can be overcome! Other CCAs are making more progress than PCE. The best example is Marin Clean Energy. MCE has a created total of 48 MW of locally generated energy in its service area including:

- Solar One — a 10 MW solar array in Richmond on a 60-acre brownfield site leased to MCE for $1 per year by Chevron. One half of the revenue from this project goes to build other local solar projects.
- Redwood Landfill — a 3.9 MW landfill to gas energy project.
- American Canyon — 3 MW of solar (a Feed-In Tariff project)
- San Rafael Airport — 2 MW of solar (a Feed-In Tariff project)

Also, the Redwood Coast Energy Authority, the CCA in Humboldt County has developed:

- Humboldt County Airport
    - 2 MW solar array
    - 2 MW battery storage
    - 250 kW net metered PV system
    - Microgrid enabling the airport and neighboring Coast Guard station to be islanded as needed.
- Local Biomass — two projects using sawmill waste

The point here is not to invidiously compare PCE to these other CCAs but rather to encourage PCE to do better. Currently PCE is focused on the Local Government Solar and Storage Program that will install solar on several municipal facilities in San Mateo County using a complex financing system. The hope is also to install solar systems on local school buildings, and perhaps community colleges and other government facilities? This is an important but not sufficient effort.

We need to aggressively explore additional sites that can accommodate larger amounts of renewable energy generation and electricity storage. (Ideally these sites would be large enough to supply excess renewable energy that PCE could purchase and sell to our customers.)

- Other communities in California have installed solar arrays at local airports, which lend themselves to this purpose because of quite abundant space next to runways, on buildings and over parking lots. But apparently San Mateo County's two regional airports at Half Moon Bay and San Carlos are deemed not appropriate for this use.
- There are several landfills (e.g., the Pescadero Landfill) and brownfield sites in San Mateo County including the large but contaminated Brisbane Baylands between Highway 101 and Mount San Bruno. It could be a very good site (depending on the degree of cleanup required), possibly for a wind farm as well as a large solar array.
- Portions of several public parks in the county could lend themselves to having solar arrays installed on them. Attempting to do this is likely to be controversial and undoubtedly would require quite a bit of public outreach and education. But it could be explored by working in partnership with the Sierra Club and other local environmental organizations.

- Floating solar panels are being installed on a number of lakes and reservoirs around the world. This approach is worth exploring in San Mateo County although it could be quite expensive. In addition to being large flat sites, the advantages of floating solar panels include reduced water evaporation, improved water quality and reduced algae growth. Why not explore partnering with Clean Power San Francisco to install floating solar panels on part of the surface of the Crystal Springs Reservoir for example?

Then there is the issue of financing local renewable energy generation. Financing such projects is complicated, especially in California, and beyond the expertise of this writer. Suffice it to say, financing of solar projects and microgrids, although complex, happens all the time in California. And the recently passed federal "Inflation Reduction Act" may make is easier to set up and finance local solar and storage projects.

Also, there is the matter of feed-in tariffs. Marin Clean Energy's "Feed-In Tariff (FIT) Plus" program has incentivized the development of several small scale (1 – 5 MW) renewable energy projects. Apparently, our staff has considered this approach but think it is too expensive for PCE. Perhaps it deserves a second look?

This is a complex field, but it is not "rocket science." Other CCAs, especially Marin Clean Energy, are already demonstrating that it is possible to successfully generate a good deal of renewable energy close to home. If we are serious about local energy generation, then we need to devote the resources and expertise needed to make it happen. Plus, we need to develop some larger projects! Concentrating on small solar projects (several hundred kilowatts in size) is not very cost effective and it will take years even to meet PCE's modest 20 MW target. Whatever is decided, we need both a clear MW target and incremental goals toward that target.

So, the matter really comes down to one question: "Is Peninsula Clean Energy really serious about making locally-based electric power generation a significant priority for the organization?" I hope the answer is "Yes" and that we rapidly step up to meet that challenge.