Position Paper:
Community-Driven Energy Resilience

California Alliance for Community Energy
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In October and November of 2019, about three million Californians had their power deliberately shut off by the state's three investor-owned utilities: Pacific Gas & Electric (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E).[1] These shutoffs were an attempt to prevent devastating wildfires caused by faulty utility equipment and lax safety measures.

For some customers, the outages lasted for a few days; for others a whole week. People's lives were put in jeopardy, workers and businesses lost incomes, vital medical equipment was shut down, food and prescriptions were spoiled, and communications were disrupted. As usual, those most impacted by the loss of electricity were elderly people, those with disabilities or medical needs, and those with the fewest material resources.

As a result of such utility-caused power shutoffs and recent rolling blackouts, California communities are suddenly confronted with a new challenge: how to deploy the resilient energy systems needed to withstand the impacts of climate change.

Our communities can and must be involved in shaping such systems to achieve an equitable transition to local renewable energy resources and to protect our communities, especially those most at risk, from the impacts of loss of power. We call this effort community-driven energy resilience.

The California Alliance for Community Energy (the "Alliance") urges all electric service providers, including California's Community Choice agencies, to prioritize and dedicate resources to advancing community-driven energy resilience.

This paper explains more fully the meaning of community-driven energy resilience, the energy model needed to support it, the community-based *microgrid*[2] *technology* that can implement it, the institutional barriers holding back its development, the actions needed to overcome these barriers, and the important role that Community Choice energy programs can play in that effort.

While the focus of this paper is on community-driven energy resilience through the development of *community-based microgrids*, we see this as a complement to other energy resilience efforts, such as 1) robust wildfire mitigation and safety programs, 2) strong community engagement regarding utility power shutoffs—who decides, under what conditions, and how to protect our most impacted and vulnerable communities, and 3) deployments of energy efficiency, rooftop solar, battery storage, and other energy resources that are not configured as microgrids.

Community-Driven Energy Resilience

For the last 100 years, most power in the state has come from power plants located far away from most electricity users, often sited in low-income and communities of color. Electricity is transported from distant power plants by high-voltage transmission lines to areas where it is put to use. The high voltage power is transformed at substations to the lower voltage distribution *grid*, which delivers the power to homes and businesses.

When long distance transmission lines are shut down, they leave communities—even those far from any fire risk—in the dark. The 2019 power shutoffs highlighted the failure of California's electricity system to provide safe, reliable electricity to California communities. We need an alternative to utility shutoffs that can provide safe, reliable power to our communities in the face of climate and utility-caused power failures.

[1] https://en.wikipedia.org/wiki/2019_California_power_shutoffs

[2] Terms shown in italics when first used are defined in Addendum A: Glossary, at the end of this paper.

That alternative is community-driven energy resilience.

Community-driven energy resilience has two basic components:

- **Resilient energy systems:** these refer to integrated resources such as *distributed renewable energy generation*, energy *storage,* and related technologies—interconnected as microgrids that can disconnect from the electricity grid and enable clean power delivery to communities when disasters such as wildfires, floods, earthquakes, or utility power shutoffs take parts of the transmission or distribution system out of commission.
- **Community engagement and decision-making:** this refers to policies and practices (and the financial, technical, political, and institutional resources needed to implement them) that place the most impacted communities at the core of resilience decision-making. To enable true community-driven energy resilience, representative voices of the community itself must guide and determine how power from resilient energy systems is made available to the community in an equitable and sustainable manner.

The Foundation: A Decentralized Energy Model

Community-driven energy resilience is made possible through an energy model by which local communities develop and deploy distributed energy resources to meet their communities' energy needs—what is known as the decentralized energy model.

Decentralized energy represents a powerful alternative to the current centralized energy model. Today powerful corporate interests build and profit from large remote power plants that generate electricity flowing in one direction through transmission lines to the distribution grid to end users at homes and businesses. The centralized energy model is a relic of the fossil fuel energy economy, in which electricity is generated by ever-larger power plants generally fueled by coal and natural gas. Much of the growth in renewable energy in California has followed the legacy centralized energy model with large, remote. corporate wind farms and solar plantations connected to costly transmission lines.

However, the development of distributed energy technologies—solar and wind generation, energy storage, energy efficiency, and demand management systems—have revolutionized how we can design, power, and manage our energy systems. Electricity can now be produced close to where it is needed. Local, distributed energy systems, depending on scale, can be designed to operate independently of the electric grid, increasing reliability and local resilience, and minimizing demand for remote energy.

A decentralized energy model provides the foundation for community-driven energy resilience. It is also the foundation for other important local economic and social benefits and for the democratization of energy decision-making. The long-standing health impacts of fossil fuel power plant pollution,[3] the racialized impacts of climate disasters,[4] and many institutional forms of energy injustice all point to the importance of the decentralized energy model as the structural basis for achieving equitable climate solutions.

[3] For example, see Oak Ridge National Laboratory, "Environmental Quality and the U.S. PowerSector: Air Quality, Water Quality, Land Use and Environmental Justice," Jan 4, 2017 [https://www.energy.gov/sites/prod/files/2017/01/f34/Environment%20Baseline%20Vol.%202--Environmental%20Quality%20and%20the%20U.S.%20Power%20Sector--Air%20Quality%2C%20Water%20Quality%2C%20Land%20Use%2C%20and%20Environmental%20Justice.pdf]

[4] https://www.greenamerica.org/climate-justice-all/people-color-are-front-lines-climate-crisis

Equity Is Imperative

Community-driven energy resilience, as we have defined it, goes beyond resilient energy technology. It also requires robust community engagement in the processes that bring such technologies into our communities. Programs and projects must be developed locally with the direct leadership and participation of community members who are expert in their own needs.

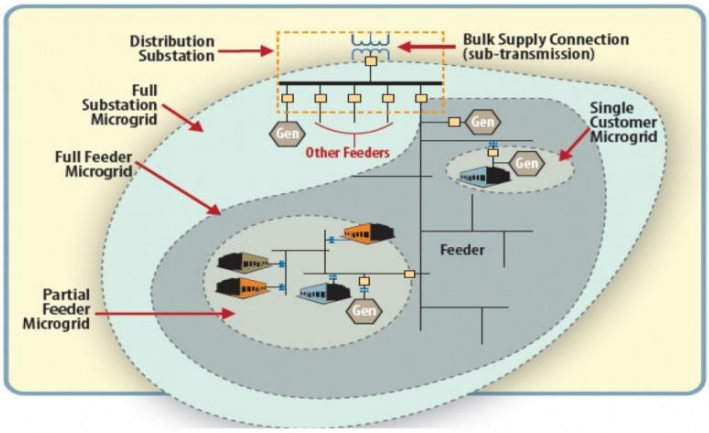
More often than not, however, energy development programs and projects are designed by technologists wedded to institutionalized ways of thinking, including the pervasive racism, sexism, and elitism that leave whole communities without a say about their energy future. Energy decision-making treats energy as a commodity rather than as a resource—a human right. Hence, we see an emphasis on cost considerations that are blind to who benefits from those decisions, who is left out, and who is sacrificed. Who pays the costs and who reaps the benefits?

By saying that "equity is imperative," the Alliance means that energy resilience must serve first those who need it the most, that investments and allocations of resources cannot be blind to historical patterns of discrimination but must actively reverse them. And this means that the people most disadvantaged historically by energy development must be making the decisions about the allocation of resources and investments in the future.

Furthermore, we know that local energy development can bring good jobs and economic development to our communities. For example, business microgrids that can operate during power shutoffs also generally enjoy less expensive and more consistent renewable energy supplies than those served by "normal" utility service. Community control and ownership of such energy resources helps ensure that the benefits of these resources are retained in the communities themselves.

Community-based Microgrids

Microgrids are one of the key resilient energy technologies. A microgrid typically consists of four main components: a source of electricity,[5] such as solar panels; storage devices such as batteries; controls to balance electricity flow between generation, storage, and end users; and an isolation switch to enable the microgrid to be disconnected or "islanded" from the grid.



Microgrids can be designed at many scales. A single rooftop solar system combined with power storage is essentially a mini-microgrid. It provides electricity to devices on the customer side—rather than the grid side—of a utility meter. It is referred to as a customer-side microgrid.

Multiple buildings hosting solar systems, storage, and control systems can also be interconnected on the customer side of a single meter, as in the case of a medical center, campus, or airport.[6] This is shown as a Single Customer Microgrid in the illustration above,[7]

[5] We refer here only to microgrids powered by renewable resources such as solar or wind, not fossil fuels.

[6] For example, both the San Diego International Airport and the campus of UC-San Diego are served by large microgrids, able to support all the internal customer loads during outages in the surrounding SDG&E service territory.

[7] U.S. Department of Energy. (2019). Retrieved from https://www.energy.gov/oe/activities/technology-development/grid-modernization-and-smart-grid/role-microgrids-helping.

But microgrids can also consist of multiple metered properties acting together as a single microgrid—interconnected on the grid side of meters—and shown in the illustration as a Partial Feeder Microgrid. Such microgrids can serve a city block, apartment complex, office park, or even a whole neighborhood, and which can be disconnected or islanded from the rest of the grid when grid power has been shut down. [8]

There are currently over 100 microgrids in California that consist of two or more buildings.[9] Our focus in promoting community-driven energy resilience is on policies and practices that promote generally smaller scale microgrids, such as those found in an individual neighborhood—what we call community-based microgrids.

The resilience of any microgrid relies on islanding—its ability to operate even when the distribution grid serving that system is de-energized. Islanding can be implemented at different levels within a larger microgrid, as shown in the previous illustration: from individual buildings, to neighborhoods, to entire city-wide distribution systems. Damage resulting from a tornado, wildfire, flood, or earthquake is often localized; having energy islands of functioning power systems can be lifesavers for survivors of climate and other disasters.

In many parts of California, initiatives are already underway by cities and counties to provide solar plus battery storage systems on critical facilities, such as fire and police stations and medical facilities. Prioritizing such sites for resilient energy systems is critical to providing emergency public health and welfare services. But limiting microgrids to critical facilities alone will not allow communities to withstand the utility and climate-driven disruptions we currently face and those ahead.

In addition to fire stations and other critical facilities, community-based microgrids in frontline neighborhoods can be installed at shelters, food pantries, school campuses, church complexes, community centers, libraries, businesses, and even homes—any facility or group of buildings that can be used in emergency situations to provide critical food, refrigeration, air conditioning, shelter, communications, and other essential services to community members. Hence, these community-based microgrids can serve as emergency community resilience centers easily accessible to neighborhood residents.[10]

The Alliance advocates for prioritizing development of community-based microgrids in our most-impacted neighborhoods. Low income and people of color communities, and disabled and medically vulnerable people, are most at risk during climate emergencies and power shutoffs and have been most affected by the harmful health impacts of the centralized fossil fuel energy system. The power shutoffs in 2019 highlighted these issues, showing dramatically how those with the least economic resources are forced to bear the brunt of the impacts.[11]

Barriers to Resilient Energy Systems/Microgrids

Despite strong public outrage at the 2019 utility shutoffs, intensified concerns about more frequent climate and utility-caused power outages to come, and calls from many sectors for a rapid increase in microgrid deployment—the doors currently remain closed to broad microgrid deployment in California. This is due to roadblocks created by many *municipal utilities* and the state's three investor-owned utilities (IOUs).

[8] For an accessible discussion of microgrids, their components and uses, see https://www.vox.com/energy-and-environment/2017/12/15/16714146/greener-more-reliable-more-resilient-grid-microgrids

[9] https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2019/11/06/some-wonder-if-electric-microgrids-could-light-the-way-in-california

[10] See Addendum B for recommendations made to Governor Newsom along these lines.

[11] https://calmatters.org/projects/california-psps-power-shutoffs-poverty-spoiled-food-hunger/

These monopolies are the owners and operators of the distribution grids to which microgrids are connected.

Historically the IOUs have used, and are continuing to use, their control of the distribution grid and the support of the CPUC to reinforce their centralized energy model. This means obstructing decentralized development of distributed energy resources—like microgrids—and attempting to eliminate[12] local public energy service providers—like Community Choice agencies—as vehicles for community development and control of local energy resources.

Customer-side Microgrids

For example, the IOUs have sought to undermine customer-side (solar plus battery storage) microgrid deployment by making smaller scale community-based solar systems less economically attractive and by making interconnection of such microgrids to the distribution grid unduly difficult.

The IOUs, with the help of the CPUC, have consistently fought customer-side rooftop solar and *Net Energy Metering* (NEM) benefits in California. Their opposition has taken the form of modifying rate-tier structures that would have incentivized solar adoption, imposing grid access service charges on customers, devaluing or ignoring the benefits of customer-side solar in avoiding grid costs, and other measures meant to remove the financial benefits of solar to property owners. This effort to roll back NEM policies has been part of a nationally coordinated utility campaign[13] to devalue rooftop solar and portray it as an elite program that shifts costs onto low-income communities. New efforts appear underway at the CPUC to further undermine NEM by lowering the tariff (price) paid by utilities for excess solar electricity exported to the grid.

Another barrier to customer-side microgrids is the difficulty of connecting them to the distribution grid. The outcry against such barriers, especially in light of widespread utility power shutoffs, resulted in passage of SB 1339 in 2018. The law requires the CPUC to create fair tariffs for microgrids and address the interconnection issues. It has resulted in the CPUC's SB 1339 Microgrid proceeding. This proceeding, however, has been largely derailed by IOU proposals, recently approved by the CPUC, to install diesel generators at PG&E grid substations as backups for utility power shutoffs—under the guise of an energy resilience solution. While approving a few IOU measures to facilitate microgrid connections to the distribution grid, the CPUC is facilitating new fossil fuel pollution in our communities.

Grid-side Microgrids

A long-standing battle has taken place in California over energy generating resources that feed their electricity directly into the distribution grid. The IOUs have opposed such locally-sited wholesale generating facilities by offering unattractive tariffs for their energy and by opposing state programs at a scale common elsewhere—like *feed-in tariff programs* (popular in Europe and other parts of the world) and *virtual net-metering* (often called "solar garden") and other shared solar laws (like those in Minnesota, Colorado, Massachusetts, and other states)—that override IOU control to encourage the development of grid-side generating resources.

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[12] The attack on Community Choice energy included AB 2145 in 2014 (a bill to kill Community Choice), and, more recently, the ramping up of Power Charge Indifference Adjustment (PCIA) fees, which threaten the viability of Community Choice programs (see the Alliance's Amicus Brief in support of a legal challenge to the PCIA: http://cacommunityenergy.org/wp-content/uploads/2020/07/CACE-Amicus-Brief-as-filed-07.01.20.pdf)

[13] Utilities wage campaign against rooftop solar [https://www.washingtonpost.com/national/health-science/utilities-sensing-threat-put-squeeze-on-booming-solar-roof-industry/2015/03/07/2d916f88-c1c9-11e4-ad5c-3b8ce89f1b89_story.html]

Grid-side connected microgrids are a form of such grid-side generation resources and have been likewise opposed by the state's IOUs as a threat to their centralized energy model. A major barrier to the development of such microgrids is California Public Utility Code Section 218, which grants to the IOUs the exclusive right to deliver electrical power within a defined geographical region. This rule prohibits the delivery of power between multiple metered properties within a microgrid, even when it is islanded, as only the IOU's are permitted to do that.

Section 218 allows the IOUs to limit and control efforts by Community Choice energy programs and others to provide creative, flexible distributed supply and storage and resiliency solutions that are at the heart of grid-side microgrids.

This limitation, of course, is to the great benefit of the IOUs. Recognizing the liability of remote generating sources combined with a dysfunctional transmission grid, the utilities increasingly see the benefits of locating electricity supply close to energy use—on the distribution grid. Their control of the distribution grid through both Section 218 and their ownership of it, enables the IOUs to essentially monopolize development of grid-connected resources like microgrids. This monopoly means only *they* can profit from the sale of the associated electricity services (electricity, storage, resource adequacy, and so forth).

For example, the CPUC's recent decision in the SB 1339 Microgrid proceeding, mentioned above, gives PG&E the right to install diesel generators at PG&E grid substations as backups for utility power shutoffs (well over 300 MW of fossil fuel generation, which PG&E is calling "microgrids"). It also establishes PG&E as the sole developer of grid-side microgrids in its service territory for the next two years. Many of these diesel generators are located in areas where Community Choice agencies have the sole authority to serve their customers' power needs. Not only will this action by the CPUC significantly increase pollution in these areas, it also violates the intent of the Community Choice law to allow these agencies to choose their own sources of energy and best represent their communities' needs.

Furthermore, because the IOUs get a guaranteed rate of return on infrastructure investments, their profits on this infrastructure can be enormous. By contrast, Community Choice energy programs and other public service entities have no such guarantees from the CPUC.

In short, the current closed distribution grid gives the IOUs control over development of all energy resources on that grid. This stands in direct contrast to the open distribution grid needed to support innovative resilient energy solutions—like microgrids—in the face of utility and climate-caused power shutoffs.

Overcoming the Barriers to Microgrid Deployment

Overcoming the barriers to microgrid deployment—and community-based microgrids in particular—will require significant changes in state energy institutions and policy. The power of the IOUs and the support they receive from the CPUC and other agencies to maintain and consolidate their monopoly interests must undergo a dramatic transformation toward energy policy that serves community interests.

The state's 24 Community Choice agencies have a major stake in such a transformation. Their ability to serve their communities with distributed energy solutions that provide safe, sustainable, reliable, and resilient energy is in jeopardy as long as the IOUs and CPUC continue to aggressively challenge Community Choice prerogatives, programs, and solutions. For many of the Community Choice agencies, their ability to serve community needs has already been compromised by recent CPUC decisions: the dramatic increase in *Power Charge Indifference Adjustment* (PCIA) fees, the approval of a public PG&E bailout that puts communities at increased risk of wildfires and power shutoffs, and granting central buyer of resource adequacy status to the IOUs.

Notwithstanding the scope of the transformation needed, a number of actions would help address the barriers to Microgrid deployment described in this paper. The Alliance calls on Community Choice programs to prioritize the following actions:

- **Develop high priority projects and programs for deploying community-based microgrids as neighborhood emergency resource centers:** work in close collaboration with communities most at risk from power shutoffs to determine the location, design, and emergency services provided by these centers.
- **Implement programs that can drive community-based microgrid development to scale:** spur microgrid development through low-cost on-bill financing, feed-in tariffs, incentives for solar plus storage installations that reduce peak load and meet resource adequacy requirements, and other measures to facilitate community-based microgrid deployment, especially in communities most at risk
- **Demand removal of all new IOU fossil-fuel generation:** insist that diesel generation installed by PG&E for emergency energy resilience, per the CPUC decision in its Microgrid proceeding, be removed and replaced with more appropriate renewable and non-polluting microgrid solutions.
- **Oppose rollback of NEM programs:** advocate for economically attractive value-of-solar NEM utility tariffs that recognize the many community benefits of customer-side electricity generation, including avoided grid infrastructure costs, and that incentivize deployment in *disadvantaged communities*.
- **Create strong microgrid tariffs as directed by SB 1339:** ensure a platform for community-based microgrids by developing tariffs that accurately reflect the many benefits locally-sited microgrids can bring to the distribution grid, to electricity customers, to the community overall, and to disadvantaged communities in particular. Unless these tariffs are differentiated for underserved communities, the result will be a continuation of the status quo—a two-tiered resilience framework in which the "haves" get higher power quality, resilience, and the associated benefits, and the "have nots" get subjected to continued power shutoffs.
- **Fight for an open access distribution grid:** remove the restrictions of Section 218 and expand the list of products and services, such as microgrids, that can be provided by Community Choice agencies and other electricity providers. Also advocate for a new Open Access Distribution System Operator entity to operate and manage the distribution grid.
- **Fight to sunset the PCIA:** work in coalition with others to defang and eliminate the ongoing stranded asset fees levied by the CPUC on Community Choice customers. These fees undermine Community Choice programs by threatening their financial viability and limiting their ability to reinvest in community-based microgrid project development programs.
- **Push for revision of transmission access charges:** make transmission charges on electricity bills reflect customers' actual use of the transmission system; make sure the avoided transmission costs of locally generated electricity can be realized as an economic incentive for siting electricity generating facilities close to use.
- **Support efforts to replace California's private monopoly utilities (IOUs) with not-for-profit, publicly accountable utilities:** advocate for a new utility model dedicated to utility justice—to serve the environmental, economic, and racial justice needs of our communities—and to advance a decentralized energy model.

The above actions constitute a policy platform (and associated structural support) that can be taken up by Community Choice programs and their allies working closely in alliance with their local community-based organizations and elected officials. It means engaging at the local and at the state level—the legislature, state regulatory agencies, and Governor's office—to press for the transformative changes needed to overcome the many institutional barriers to microgrid deployment.

Community Choice Can Take the Lead

California's Community Choice agencies, as public energy service providers, are ideally suited to take the lead in developing community-driven energy resilience. As public service agencies, ensuring safe, reliable electricity should be at the top of their priorities.

Community Choice energy programs have already taken the lead in the state's move toward providing more renewable energy. The California Public Utilities Commission (CPUC) projects that Community Choice programs will be responsible for at least 90% of new renewable energy supply over the next decade.[14] The average percentage of electricity that is generated from renewable resources of the energy provided by the state's 19 Community Choice programs in 2019 was about 50%, compared to the 37% currently mandated in California's *renewable portfolio standard* ("RPS").[15]

This leadership helps position Community Choice programs to promote community-driven energy resilience. Their public governance model relies on local elected officials, who should be advocating for the many direct benefits that the development of local energy resources can bring. As with all local clean energy development, adding solar, storage, and control capabilities in microgrid configurations can create new local jobs, support local businesses, and attract new investment. Community-based microgrid projects can be targeted to address historic inequities in frontline communities. Properly designed, these projects can stimulate the economy and enhance public health and welfare. They can also dramatically reduce emergency service costs of power shutoffs to municipalities.

A number of Community Choice programs have moved toward resilient energy technology. Peninsula Clean Energy has adopted its own resiliency strategy.[16] Four Community Choice agencies in the San Francisco Bay Area have joined forces to install 30 megawatts of solar with storage on 6,000 residences and businesses.[17] This collaborative procurement project will provide more resilient energy services to those customers. As an added bonus, the agencies will be able to access the energy storage during *peak demand* times, reducing energy costs overall and helping meet state *resource adequacy* requirements.

This approach exemplifies the 'win-win-win' potential of community-based microgrid projects, creating a productive partnership between the Community Choice agency, its customers, and the greater community.

The challenge of IOU control of microgrid development can be best met by Community Choice programs acting on two fronts:

- **Locally,** by taking the lead in engaging their communities in the design, location, and services offered by neighborhood-based, microgrid-powered, emergency community resilience centers, and working to develop prototype projects and programs to develop these centers to scale.
- **Statewide,** by taking an active role in opposing the barriers to microgrid deployment described in this paper and advocating for policies and institutional changes that would promote community-based microgrids and empower Community Choice programs to take stronger action in support of community energy needs. This statewide effort would require working with other organizations across the state whose interests lie in strengthening local energy decision-making, empowering local communities to create equitable and sustainable community-centered energy systems, and ridding our communities of the scourge of negligent, self-serving, corrupt, criminal, and even murderous monopoly utilities and the regulatory agencies that serve them.

[14] California Community Choice Association 2019 Q2 Update https://cal-cca.org/q2-2019-update/ (accessed June 27, 2020).

[15] Robert Freehling, Analysis of claims of the nineteen operating Community Choice agencies in 2019 compared to the California Energy Commission's demand forecast for the year, private communication.

[16] For example, see Peninsula Clean Energy's Resiliency Strategy, January 2020

[17] https://www.peninsulacleanenergy.com/resilience

Can Community Choice Rise to the Occasion?

To take leadership in promoting community-driven energy resilience, Community Choice programs will need to address a number of internal challenges:

- *Broadening Agency Goals* -- At launch, most Community Choice agencies begin cautiously, procuring lowest cost renewable energy from remote sources, especially under the existential threat of increasing PCIA fees. Even mature Community Choice agencies often focus on providing less expensive power, rather than on prioritizing local development and deployment of distributed energy resources, which have more value to the community. A commitment to deploying community-based microgrids implies a commitment to broader goals and to acting on those goals: safety, sustainability, reliability, and community resilience in the face of climate and utility-caused loss of power.
- *Seeing the Community as Partner* -- One of the greatest challenges to building community-driven energy resilience in the context of Community Choice programs is that many agencies see their communities as "customers" rather than as "partners." This means seeing electricity as a commodity bought by customers rather than as a resource for meeting community needs. To understand and address community needs regarding local development of renewable energy resources and to better align their policies and programs toward community needs, Community Choice agencies will need to stress the building of meaningful *partnerships*, especially with communities of color.
- *Moving Beyond Simple Carbon Reduction* -- The focus of many Community Choice agency staffs, governing boards, and even many local activists is on prioritizing carbon reduction over all other climate-related goals. This skews procurement decisions toward remote "carbon-free" energy or paper substitutes and away from developing local renewables, equity, and community energy resilience.

  Building resilient energy systems with community-based microgrids results *not only in decarbonization*, but brings many other community benefits as well, including access to power during grid outages.

Working for Community-driven Energy Resilience

The one silver lining of the 2019 utility power shutoffs was the spotlight they put on the risks of the aging, centralized energy system in California. The outrage, grief, and financial losses of so many people caused directly by those planned outages has galvanized public opinion around the need for a stronger, more localized energy infrastructure, one that brings with it more local energy resilience. More people, more communities, and more decision makers now understand that community resilience is core to community needs—see Addendum B for recent examples of strong organizational support for advancing microgrid deployment.

Community-driven energy resilience means having power during utility shutoffs, planned or otherwise; based on local control of energy resources, community-based resilience centers, an empowered and engaged community, and equity—where those most vulnerable are protected first.

The Alliance welcomes your feedback on the arguments and positions put forward in this paper. We hope to work with all parties and organizations which share our general perspectives.

Addendum A: Glossary

Community-based Microgrid	Generally smaller scale microgrids, such as those found in an individual neighborhood (see Microgrid)
Disadvantaged Community (DAC)	Areas throughout California which most suffer from a combination of economic, health, and environmental burdens. CalEnviroScreen, an analytical tool created by the California Environmental Protection Agency, is used to determine which communities are the most burdened or "disadvantaged."
Distributed Generation	Small to medium scale generation of renewable electricity close to users (for example rooftop solar), so transmission lines are not needed for delivery.
Feed-in-tariff (FiT)	Program that incentivizes new renewable energy generation through standardized purchase contracts that guarantee a set payment for all generated electricity for a set duration of time, usually 20 years (see https://energypedia.info/wiki/Feed-in_Tariffs_(FIT)#:~:text=Feed%2Din%20tariffs%20(FIT)%20are%20fixed%20electricity%20prices%20that,injected%20into%20the%20electricity%20grid)
Grid	Infrastructure that delivers electricity to users. The transmission grid typically delivers electricity through high-voltage transmission lines and towers from remote, large-scale generators to substations, which are close to areas with many users. Distribution grids deliver electricity at lower voltage from substations to end users or connect individual users to each other
Microgrid, Microgrid Technology	Generally, a small power grid with self-contained electricity generation, distribution, storage, and energy management; can operate independently as a self-contained energy island or be connected to the electric grid (see Grid)
Municipal Utility	Public utility providing electricity and electricity distribution services to all residents and businesses of a municipality (for example, Alameda Municipal Power or Sacramento Municipal Utility District). California's roughly 40 municipal utilities provide about 25% of California's electricity.
Net Energy Metering (NEM), often called Net Metering	Program that charges customers with customer-side solar facilities for net energy they use from the grid and credits them for any net energy they export into the grid (see https://www.cpuc.ca.gov/NEM/)
Peak Demand/Peak Load	Maximum electric power demand occurring at a particular time within the day or year, often during summer afternoons when air conditioning is running

Power Charge Indifference Adjustment (PCIA)	Monthly fees levied by the CPUC and collected on an ongoing basis by an investor-owned utility from customers in its service territory who leave the utility for Community Choice programs. Dramatic increases in these fees have undermined the financial viability of Community Choice agencies and their ability to serve community needs (see https://www.cpuc.ca.gov/PCIA/#:~:text=The%20Power%20Charge%20Indifference%20Adjustment,behalf%20of%20now%2Ddeparted%20customers)
Renewable Portfolio Standard (RPS)	State regulation requiring investor-owned utilities, Community Choice programs, and other electricity providers to include increasing percentages of renewable energy in their energy mixes over time. In California, electricity providers must achieve a 33% RPS by 2020 and 50% by 2030. The California renewable portfolio standard also specifies the types and quantity of renewable energy certificates that can be used to meet renewable requirements
Resource Adequacy	Electricity system reliability requirements set by the CPUC which require electricity providers to over-procure electricity in order to meet unexpected energy demand (see https://www.cpuc.ca.gov/RA/#:~:text=The%20Resource%20Adequacy%20program%20has,needed%20for%20future%20grid%20reliability)
Storage	Technologies such as rechargeable batteries and thermal (heat) energy storage that store surplus electricity and heat for later use
Virtual Net Metering	Program aimed at encouraging shared solar facilities by enabling investors or subscribers of a solar facility (for example, apartment-dwellers) to benefit from their share of the electricity generated as if that share were generated on the customer-side of their meters

Addendum B: Organizational Sign-on Letters Calling for Microgrid Progress

The following recent letters to the Governor's office, the CPUC, and other decision-makers highlight the strong support from many sectors for advancing the deployment of microgrids to enhance community energy resilience.

Recommendations for a Just COVID-19 Response & Recovery to Support Resilient Communities[18]

Excerpts from June 10, 2020 letter to Governor Gavin Newsom, members of the Governor's Task Force on Business and Jobs Recovery, and members of the Legislature:

Community Resilience Centers.

Emergency funding for neighborhood-based essential service providers offering crisis response is needed to address increased costs and support the uninterrupted delivery of essential social and health resources and outreach services in response to the current pandemic. Grants and subsidies should be offered to community institutions providing emergency response services at eligible existing community facilities such as senior and youth centers, park and recreation sites, libraries, health clinics, schools, food banks, emergency shelters, healthcare centers, and places of worship. In order to protect communities from the additive and immediate threats anticipated from future wildfires, power outages, and evacuations, these community facilities should also be offered funding to secure additional emergency resources and staffing to provide delivery of clean backup power, drinking water, air filters, cooling, food storage, and economic and emergency assistance. This assistance could include financial support for emergency supplies (e.g., water, food, travel support, shelter). Establishment of resilient hubs should ensure access by developing community-based emergency evacuation plans and routes especially for the elderly, disabled, linguistically isolated, and rural communities.

Distributed Clean Energy Systems.

Distributed clean energy systems (e.g., rooftop solar, storage, demand response, microgrids) are a powerful tool for reducing harm from power outages while at the same time improving air quality and offering economic savings. In the face of growing wildfire threats, this infrastructure is drastically needed for medically dependent residents, working-class communities, and community facilities. We urge the State to further invest in clean, zero-emission, and community-led microgrids that integrate energy efficiency, renewable distributed generation, energy storage, and other technologies in low-income housing and community facilities to protect communities from wildfires and associated power outages.

Community Energy Resilience for COVID-19 Equitable Recovery and Wildfire Preparedness[19]

Excerpt from June 11, 2020 letter to Governor's Task Force on Business and Jobs Recovery:

Microgrids fortify resilience in local communities by creating critical, energy-secure facilities during Public Safety Power Shutoff events and other disasters. Developing microgrids and the associated infrastructure will stimulate economic growth by creating new, local jobs, helping restore the more than 100,000 clean energy jobs lost in California since the beginning of COVID-19. Even more, microgrids will deploy clean energy services that provide direct energy and financial savings for these facilities.

Lastly, microgrids will help reduce the need for new expensive, climate-vulnerable transmission lines that pose a significant wildfire risk. To support the growth of microgrids and ensure their availability during times of greatest need, California should guarantee there is non-discriminatory access to the grid, such as by exempting community microgrids that serve critical facilities from departing load charges. Additionally, California should assure financing for a School Resilience Initiative that supports the installation of resilient clean energy resources, such as photovoltaic solar systems paired with energy storage, at K-12 public schools in areas at risk of power outages due to wildfires or public safety power shutoffs.

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[18] APEN, Greenlining, et al, with 100+ signatory organizations. [https://greenlining.org/wp-content/uploads/2020/06/Recommendations-for-Governor-Newsoms-Task-Force-on-Business-and-Jobs-Recovery-June-10-2020.pdf]

[19] The Climate Center, et al, with 18 signatory organizations [https://cleanpowerexchange.org/wp-content/uploads/2020/06/200612-Community-Energy-Resilience-Coalition-Press-Release.pdf]

Rulemaking 19-09-009 Regarding Microgrids Pursuant to Senate Bill 1339 and Resiliency Strategies: Track 2 - Standards, Protocols, Methods, Rates and Tariffs to Reduce Microgrid Barriers[20]

Excerpt from June 19, 2020 letter to CPUC Commissioner Shiroma:

Customers are investing in their own onsite infrastructure because they require service without significant interruption and can no longer rely on the grid. A behind-the-meter tariff designed to allow a customer to meet these needs is required. The primary reason and need for a singular customer hosted, behind-the-meter microgrid tariff is to provide clarity and certainty as to the time, costs and requirements of installation. Although these interests are partially addressed in separate tariffs for individual technologies, the legislature wisely directed the Commission to develop tariffs for microgrids that could combine the benefits of otherwise distinct technologies…

Ensuring customers do not pay utility fees for technologies deployed to operate when the grid cannot is a fundamental policy that is required. The long standing concern that self-generation customers pay utility fees for "standby" has been turned on its head. Utilities can no longer guarantee services; customers with onsite generation should no longer pay fees for a service the utility no longer provides.

[20] Microgrid Resources Coalition, et al, with 17 signatory organizations [http://cacommunityenergy.org/wp-content/uploads/2020/07/CPUC-Track-2-coalition-letter-6.19.20.pdf]