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Joint Comments to the California Energy Commission Draft Clean Energy Reliability Investment Plan

Joint Comments of The Climate Center, Center for Biological Diversity, Synergistic Solutions, and 350 Bay Area to the California Energy Commission Draft Clean Energy Reliability Investment Plan (Publication Number: CEC-200-2023-003).

Additional submitted attachment is included below.

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Joint Comments to the California Energy Commission
Draft Clean Energy Reliability Investment Plan
Publication Number: CEC-200-2023-003
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As the California Energy Commission (CEC) contemplates how to effectively invest in clean energy resources to enhance grid reliability pursuant to SB 846 and AB 205, we respectfully submit the following comments in response to the CEC staff issuance of a Draft Clean Energy Reliability Investment Plan (CERIP):

A. Chap. 2 / Planning: community-centric engagement must be a central element.

Relevant CERIP excerpts: "*The state will benefit from updated planning strategies for bringing on new resources faster and at a larger scale while engaging more closely with communities on solutions that meet their needs.*[1] *. . . The state also will benefit from having strategies to engage more closely with community-based organizations to incorporate their needs into the planning process.*[2] *The state's planning could benefit greatly from community-based organization input in order to better inform the planning process for community needs, and they are better able to engage if there is reimbursement for their time to engage with state staff to plan out solutions for an equitable future."*[3]

Given the accelerating and worsening impacts of climate change on our energy grid, true energy resilience can only be conferred when the source of generation or storage capacity is located proximate to the point of end use and can power essential end uses during grid outages. Co-location of distributed energy resources (DERs) adjacent to load sources results in intrinsic energy sharing behind a point of common interconnection irrespective of grid operating conditions, thereby eliminating the prospects for disruption, at least with respect to critical loads that prevent the worst consequences from power outages.

From this perspective, a primary value of DERs is measured through delivering higher resilience and lower cost by virtue of proximity to load, and state policy should focus primarily on how DERs can be best configured to serve these critical load centers within each community. *Proximity to load captures the highest resiliency value at the lowest cost of delivery and should be the guiding star in community energy planning*. Traditional references such as behind or in front of the "meter" need to become more flexible, and a DSO/utility should be open to "moving the meter" as a reference point for optimally locating a grid access point that maximizes DER participation and utilization within a particular area.

As energy resilience requires access to DERs for critical loads, an energy resilient community cannot be created through minor modification of traditional assumptions and past practices based on a centralized model. New metrics and methodologies must be developed "from the ground up" that equitably assess the cost and benefits (including non-energy benefits) of DERs to the community based on its needs and perspective. Integrating these new metrics and methods into a replicable investment model should be a central focus and prime directive of

[1] Erne, David, California Energy Commission. 2023. Draft Clean Energy Reliability Investment Plan ("CERIP"). Publication Number: CEC-200-2023-003, p.1

[2] CERIP, p.2

[3] CERIP, p. 7

CERIP, and such a paradigm shift will require a substantive allocation of resources at the community level in order to both plan and implement local energy systems at scale through aggregation.

In this regard, we offer the following recommendations for successful community engagement of DAC and low-income communities.

Technical assistance is crucial as communities that have been subjected to many years of systemic disinvestment and neglect often lack "the resources or infrastructure required for technical, complex, and time-consuming government grants."[4] Mere solicitations for community feedback on a project that is already fleshed out and solidified will fail to enact the systematic changes that disadvantaged communities need, erode trust, and squander opportunities to effectively use engagement to improve programs.[5] Simultaneously, however, shifting decision-making power towards community members without providing the appropriate resources and support to build technical expertise and capacity can set community leaders up for failure.

To break down barriers to equitable community engagement, the CEC should identify trusted leaders and community-based organizations,[6] properly compensate those leaders for their work, and prioritize those that have demonstrated a previous history of positive community engagement. Effective engagement policies and plans will have developed strategies for working with these community leaders and organizations to conduct outreach and for determining what resources and level of technical assistance are required.

Effective community engagement efforts should, in the earliest stages of the planning process, provide a platform for community members to discuss their experiences, struggles, thoughts, priorities and desires regarding energy reliability and affordability, and access to renewable and distributed energy. These meetings should explicitly make room for and encourage non-energy related concerns in order to gain insight into the community's quality of life and collective vision for the project. They should also be planned at times and places that maximize the number of community members who can conveniently attend, and care should be taken to

[4] The Greenlining Inst., *Fighting Redlining & Climate Change with Transformative Climate Communities* (Nov. 2021), https://greenlining.org/wp-content/uploads/2021/10/Fighting-Climate-Change-and-Redlining-with-Transformative-Climate-Communities-Final-Report.pdf.

[5] Amanda Dewey, Jasmine Mah & Bryan Howard, *Ready to Go: State and Local Efforts Advancing Energy Efficiency*, American Council for an Energy-Efficient Economy, (Nov. 2021), https://connectedcommunities.lbl.gov/sites/default/files/2022-02/ACEEE%20ready_to_go_toolkit_final_11-8-21.pdf.

[6] California Energy Commission, Disadvantaged Communities Advisory Group, Equity Framework, https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/infrastructure/disadvantaged-communities/dacag-equity-framework.pdf?sc_lang=en&hash=130F6FD0AEA89095CD0EAC455D0C60EE.

provide services—like translation and interpreting services, childcare, and possibility for virtual attendance—that make it possible for all community members to meaningfully participate.[7]

The CEC should develop effective strategies for how to inform community members about relevant policies and technologies while avoiding overly technical language and jargon. The CEC should also target investments at a neighborhood scale rather than only in individual households or buildings, helping to meet multiple community needs and develop more mutually reinforcing community resources.

The CEC should prioritize projects that adopt a shared governance structure with residents and community-based organizations. Doing so empowers residents as decision-makers and ensures that their priorities and needs are directly incorporated in final project outcomes, thus facilitating local buy-in and increasing the likelihood of impacting the hardest to reach households.

Finally, the CEC should also prioritize projects that include an anti-displacement strategy to ensure that long-time, low-income residents are able to reap the short- and long-term benefits of the project. Displacement avoidance is especially important given the prevalence of environmental gentrification, as investments in infrastructure can easily push out small businesses and long-time, low-income residents who cannot afford the elevated property taxes, housing prices, and retail prices.[8]

An adequate engagement strategy is critical because Disadvantaged ("DAC") and Low-Income Communities Stand to Benefit the Most from CERIP. Given the inordinate adverse environmental/economic/social impacts faced by DAC and low-income communities, the value of DERs in alleviating these impacts increases proportionally.

DERs, however, are often left out of clean energy priorities based on the assumption that large-utility scale solutions have an inherent cost advantage over local and distributed alternatives due to economies of scale. Resource procurement based on this faulty assumption is skewed to utility-scale and centralized solutions due to outdated cost-effectiveness tests that omit significant (non-energy) benefits and inflate costs of local clean energy solutions.

Incumbent utilities also lobby against DER deployment because DERs threaten incumbent utility business models.[9] Indeed, last year more than 230 organizations petitioned the Federal Trade Commission to investigate electric utility company anti-competitive and harmful practices that

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[7] Initiative for Energy Justice, The Energy Justice Workbook, Section 1 – Defining Energy Justice: Connections to Environmental Justice, Climate Justice, and the Just Transition, https://iejusa.org/section-1-defining-energy-justice/.

[8] Winifred Curran & Trina Hamilton, *Just green enough: contesting environmental gentrification in Greenpoint, Brooklyn*, 17 Local Env't 1027 (Oct. 5, 2012), https://www.tandfonline.com/doi/abs/10.1080/13549839.2012.729569

[9] *See, e.g.*, J. David Lippeatt *et al.*, Environment America, Frontier Group & U.S. PIRG Education Fund, *Blocking Rooftop Solar* (2021), https://uspirg.org/reports/usp/blocking-rooftop-solar; Edison Electric Inst., *Disruptive Challenges* (2013), http://roedel.faculty.asu.edu/PVGdocs/EEI-2013-report.pdf.

thwart clean energy competition. Among many examples, the Petition details bribes to public officials, fake dark money campaigns, and schemes to keep political allies in power — all while subverting democratic processes and denying customers access to renewable energy.[10]

At the same time utilities are fighting DER deployment because it undermines their business model, studies have shown that DERs offer enormous economic, social, and environmental benefits.[11] It is vital that the CEC appropriately consider not only the several important resilience benefits conferred by DERs in extreme events,[12] but also the co-benefits that DERs offer and the harmful local and environmental impacts they avoid.

Specifically, DERs provide vitally important benefits to environmental justice communities.[13] Marginalized communities are most often served by monopoly electric utilities with long histories of harming these communities, through their polluting facilities, unreliable service, shutoff policies, and climate-harming emissions.[14] Local generation opportunities can mitigate these harms, reducing polluting emissions, lowering costs, and providing resilient back-up power in emergencies.[15] Distributed community solar projects also bring clean energy

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[10] Jean Su, *et al.*, Petition for FTC Investigation into the Electric Utility Industry's Abusive Practices that Stifle Renewable Energy Competition and Harm Consumer Protection, June 14, 2022, https://www.biologicaldiversity.org/programs/energy-justice/pdfs/FTC-Petition-Re-Utilities-2022-05-16.pdf

[11] *See, e.g.*, Gideon Weissman, *The True Value of Solar*, Environment America (2019), https://environmentamerica.org/wp-content/uploads/2019/07/AME-Rooftop-Solar-Jul19-web-1.pdf; Galen Barbose, *Putting the Potential Rate Impacts of Distributed Solar into Context*, Lawrence Livermore Nat'l. Laboratory (2017), https://emp.lbl.gov/publications/putting-potential-rate-impacts; Mark Muro and Devashree Saha, *Rooftop Solar: Net Metering Is a Net benefit*, Brookings (2016), https://www.brookings.edu/research/rooftop-solar-net-metering-is-a-net-benefit/; Koami Soulemane Hayibo and Joshua M. Pearce, A Review of the Value of Solar Methodology With a Case Study of the U.S. VOS, Renewable and Sustainable Energy Reviews (Mar. 2021), https://www.sciencedirect.com/science/article/abs/pii/S1364032120308832

[12] *See* Southern Alliance for Clean Energy, Sandy is Gone, Wind Power is On, cleanenergy.org, https://cleanenergy.org/blog/sandy-is-gone-wind-power-is-on/ (November 7, 2012) (explaining that nearly all wind farms east of Chicago, including facilities in Cuba, survived Hurricane Sandy and were back in operation days after the storm); *see also* Ryan Kennedy, A 100% Solar Community in Florida Suffered no Power Losses from Hurricane Ian, PV Magazine, https://pv-magazine-usa.com/2022/10/03/a-100-solar-community-in-florida-suffered-no-power-losses-from-hurricane-ian/ (October 3, 2022) (explaining that a 75 MW facility powering a 2,000-home planned community retained power throughout the storm) and David Wagman, Earthquakes Test Newly Deployed Solar-Plus-Storage Arrays, Engineering 360, https://insights.globalspec.com/article/13623/earthquakes-test-newly-deployed-solar-plus-storage-arrays (March 2, 2020) (explaining that 95% of Puerto Rico's solar facilities were up and running days after a magnitude 6.4 earthquake while an oil-fired power plant that provides 40% of the territory's energy would need a year or more to recover).

[13] Jean Su, *Climate, Environmental, and Energy Justice: Integrating Justice into Electricity System Design and Decision-Making, in* Advancing Equity in Utility Regulation, Lawrence Berkeley National Laboratory (2021), https://eta-publications.lbl.gov/sites/default/files/feur_12_-_advancing_equity_in_utility_regulation.pdf.

[14] *Id.*

[15] Sherry Stout *et al.*, Nat'l Renewable Energy Laboratory, *Distributed Energy Planning for Climate Resilience* (2018), https://www.nrel.gov/docs/fy18osti/71310.pdf; *How Distributed Energy Resources Can Improve*

installation jobs and other local economic opportunities.[16] For all these reasons environmental justice communities have long supported DERs.[17] The CEC should leverage this support to address the state's reliability challenges, and concurrently meet the CEC's environmental and energy justice goals.[18] Importantly, as detailed further below, the CEC should also prioritize funding for resilient community solar+storage projects in DAC and low-income communities.

B. Chap. 2 / Resource Scale: Vehicle-Grid Integration (VGI) is a cost-effective technology that merits early funding as an Enabling Investment.

Relevant CERIP excerpts: "*Potential Demand-side initiatives include ones that expand demand flexibility and distribution level interconnections of clean energy resources, and may include the following: . . . VGI and V2B: Investing in advanced controls for infrastructure that allow electrified loads such as buildings and vehicles to support the grid.* ***An initiative that strategically deploys capital to empower VGI and V2B could be the most cost-effective investment of this investment portfolio."***[19]

The cost-effectiveness of strategic VGI deployment cannot be overstated, as such infrastructure allows California to utilize a large volume of dispatchable energy for multiple purposes, operating externally and independent of the transmission/distribution grid. The overwhelming benefits from creating a secondary, mobile bidirectional energy system should permeate all aspects and aspirations of CERIP to "to invest in programs and projects that would accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability."[20]

Resilience in Public Buildings: Three Case Studies and a Step-by-Step Guide, Department of Energy (2019), https://www.energy.gov/sites/prod/files/2019/09/f66/distributed-energy-resilience-public-buildings.pdf.

[16] Bailey Damiani, *Small-Scale Solar Installations Create 10-Times More Jobs per Megawatt than Utility-Scale Solar*, Freeing Energy (Sept. 8, 2021); The Solar Foundation, *National Solar Jobs Census*, https://www.thesolarfoundation.org/national/; U.S. Bureau of Labor Statistics, *Occupational Outlook Handbook: Solar Photovoltaic Installers,* https://www.bls.gov/ooh/construction-and-extraction/solar-photovoltaic-installers.htm#tab-6

[17] Roger Lin, et al., *Opposing the Misrepresentation of Equity in California's Net Energy Metering Debate: Reject the Solar Tax and Maintain the Solar Credit*, Sept. 14, 2022, https://www.biologicaldiversity.org/programs/energy-justice/pdfs/9-14-22_Letter-from-more-than-125-organizations-to-Gov-Newsom-re-NEM-proceeding.pdf; Marcus Franklin, *et al.*, *Just Energy Policies: Model Energy Policies Guide*, NAACP Environmental and Climate Justice Program (2017), https://assets.ctfassets.net/ntcn17ss1ow9/Y9E9r0QvdYjKxLxWJGWND/5588aaddf6037fa3bae31ae9705c46ff/Just-Energy-Policies_Model-Energy-Policies-Guide_NAACP.pdf; Hilary Lewis, *450 Environmental, Energy Justice Groups Urge Federal Commission to Reject Threat to Solar Net Metering*, Votesolar, June 15, 2020, https://votesolar.org/450-environmental-energy-justice-groups-urge-federal-commission-to-reject-threat-to-solar-net-metering/; Lewis Jennings, *How power companies make it hard to save with solar*, The Palm Beach Report, Dec. 23, 2021.

[18] *See* Draft 2022 Integrated Energy Policy Report Update, Appendix A, Draft Justice Access Equity Diversity Inclusion (JAEDI) Framework.

[19] CERIP, p. 15

[20] CERIP, p. 1

The massive opportunity from developing VGI infrastructure is undeniable: California currently hosts over one (1) million EVs, and if successful in putting eight (8) million EVs on the road by 2030 (as expected based on current market trends), the total aggregate power capacity (assuming a power export capacity of 10kW per passenger vehicle) would be approximately 80 GW. Applying a conservative ten percent (10%) assumed utilization factor that could be relied upon during evening peak periods yields eight (8) GW of dispatchable, flexible demand-side capacity. An MIT study[21] explains how this can work.

To quickly deploy this capacity, California should:

- **Mandate that state-funded ZEV and electric vehicle supply equipment (EVSE) purchases and customer incentive programs include bidirectional features**, so they can serve a dual purpose as grid reliability assets. This mandate would ensure that taxpayer funds produce the greatest public value per dollar.

- **Mandate that by a date certain, all ZEVs sold in California have bidirectional capability**, building upon the Governor's Executive Order N-79-20[22], calling for all passenger vehicle sales in California to be ZEV by 2035 and medium- and heavy-duty vehicles in the State be zero-emission by 2045. Currently, only about 4% of EV's on the road in California are bidirectional per CEC data[23]. The recently passed Inflation Reduction Act (IRA) also offers new federal incentives for EVs, which will further increase the rapid deployment of EVs, making it all the more urgent that these vehicles be bidirectional.

- **Utilize DEBA funds to accelerate utilization of existing EVs as VPPs.** This effort could include incentivizing EV and EVSE manufacturers to develop hardware and software platforms for adding bidirectionality to existing EVs and aggregating EV storage capacity as virtual power plants. For example, Teslas are currently the most popular EV in California and yet they are not currently bidirectional. With the correct market incentives, the 3 GW capacity of California's existing Tesla fleet could become a grid asset capable of supplying energy during shortfalls such as what occurred on September 6th[24] of this year.

- **Develop a new state program to incentivize installation of bidirectional charging equipment at existing public facilities that already have on-site solar PV capacity.** For example, roughly 2,800 schools already have solar PV installed on-site which could

[21] James Owens, Ian Millera and Emre Gençer, "Can vehicle-to-grid facilitate the transition to low carbon energy systems?" October 14, 2022, https://doi.org/10.1039/D2YA00204C.

[22] https://www.gov.ca.gov/wp-content/uploads/2020/09/9.23.20-EO-N-79-20-Climate.pdf

[23] CEC "Light-Duty Vehicle Population in California," https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/light-duty-vehicle

[24] Office of Gov. Gavin Newsom, "As Record Heat Wave Intensifies, Governor Newsom Extends Emergency Response to Increase Energy Supplies and Reduce Demand," September 6, 2022, https://www.gov.ca.gov/2022/09/06/as-record-heat-wave-intensifies-governor-newsom-extends-emergency-response-to-increase-energy-supplies-and-reduce-demand/.

complement the rapid proliferation of electric school buses that can charge during midday and provide grid support during evening peak hours as grid reliability assets.

- **Conduct a comprehensive assessment identifying likely charge/discharge scenarios that leverage vehicle-grid integration (VGI) benefits at both public and private locations utilizing California's rapidly expanding installed base of rooftop solar.** For example, using the school example described above, a pilot program could be developed in which teachers and other school personnel, who typically work the entire day at schools, are incentivized to purchase bidirectional EV and residential charging stations to load shift daytime workplace solar generation for at-home discharge to serve peak evening loads.

- **Partner with California's fleet operators to provide incentives for fleet electrification paired with bidirectional utilization.** A logical place to start would be with publicly owned vehicle fleets in California, which include hundreds of thousands of vehicles. During outage conditions, the combined capacity of these vehicles could keep critical public facilities operational.

- **Provide incentives for consumers to utilize privately-owned EVs as grid reliability assets.** EVs cannot be fully optimized for grid use and resiliency without market structures that compensate EV owners for the use of their batteries and EV charging systems. Under the right market conditions, bidirectional EVs could deliver valuable grid services over a broad range of scales: individual homes, commercial/industrial buildings, or wholesale markets under FERC Order 2222, which allows DER assets to compete in wholesale markets on a more level playing field. This regulation, which is being designed and implemented for independent system operators such as CAISO, would allow mixed aggregations of DER assets, including bidirectional EVs, to provide grid services to wholesale transmission markets, setting the stage for bidirectional EVs to serve as a significant source of widely dispersed dispatchable energy. The enablement of such a massive energy reservoir could save consumers by avoiding the redundant development of additional stationary capacity needed to cover shortfalls during peak conditions. It is important to note that incentives for bidirectional EV's and bidirectional charging and V2G infrastructure not only benefit the owners of the assets, they also benefit all ratepayers. By leveling supply and demand of the grid through VGI, the peaks and valleys of the duck curve are also leveled, thereby lowering the cost of energy for everyone by reducing the need for fossil fuel peaker power plants.

C. <u>Chap. 3 / Extreme Events: VGI and Demand Flexibility should be prioritized as SRR/DSGS/DEBA assets</u>.

<u>Relevant CERIP excerpts</u>: *Resounding feedback in the CEC's public workshops is for much greater deployment of demand side resources. The state needs additional strategies to expand deployment of these resources, especially in equity communities that lag other communities in*

the deployment of these resources.[25] The state has developed the Strategic Reliability Reserve (SRR) to provide resources during an extreme event. The SRR is anticipated to provide up to 5,000 MW when the three programs are fully operational. One program in the SRR – the Demand Side Grid Support (DSGS) – was able to sign up more than 500 MW in the first summer (2022). The CEC's Distributed Electricity Backup Assets (DEBA) program was still under development and unable to provide resources in 2022. At these levels, the SRR would not provide the level of backup resources that the state could require in coincident events. Therefore, the plan should consider additional backup generation for extreme events.[26]

Demand-side flexibility offers the most cost-effective means of preserving grid integrity during extreme events. Instead of adding temporary generators and extending the life of existing power plants, doesn't it make more sense to require that new housing construction (3 million new housing units targeted by 2030, 7 million by 2035[27]) contain DER technologies that provide nearly 100% energy resilience and obviate the need for back-up generation assets that are only used sporadically?

For example, assuming an average residential HVAC load of 3-3.5KW[28], participation in an automated demand response program by a mere ~12% of California's 14 million housing units[29] would result in a 5GW statewide load reduction currently contemplated under the SRR. Wouldn't money be better spent on providing smart thermostats so households can participate in and be compensated for the massive demand flexibility potential that currently exists in California?

By expanding demand response and VGI opportunities, California's energy infrastructure can continuously operate under both black and blue-sky conditions by repurposing existing assets to meet critical needs.

D. <u>Chap. 4 / Investment Strategy: Approach</u>.

<u>Relevant CERIP excerpts</u>: "*Key legislative actions in 2022 initiated multiple new clean energy programs, which are in the early stages of implementation. Therefore, the first year of CERIP funding is focused on enabling investments critical to supporting broader future investment and taking actions in 2023 to augment resources for the potential of extreme events in the summer of 2024 and beyond."[30]*

[25] CERIP, p. 8

[26] CERIP, p. 9

[27] Governor Newsom Calls for Bold Actions to Move Faster Toward Climate Goals, July 22, 2022.

[28] American Home Water & Air, "How Much Power does an Air Conditioner Use?" May 21, 2020

[29] U.S. Census, Quickfacts - California, Housing Units (2021)

[30] CERIP, p. 13

1. The CEC Should Develop a Conceptual Framework for Scaling VGI/V2B

While community engagement as an enabling investment is critical to effective planning, funds should also be allocated towards developing a conceptual framework for scaling VGI/V2B, as this effort will require extensive coordination between multiple sectors (energy, transportation and housing) and stakeholders (EV/EVSE suppliers, real estate developers, transit authorities, DAC and low-income community representatives etc.). This framework should prioritize the identification of reliability options (such as electric public transit, school buses, etc.) in DAC and low-income communities.

The broad implications of VGI and bidirectional energy flows require the kind of near-term funding currently allocated under CERIP to "enabling investments," and we propose that a similar investment be made in the first year to convene the broad spectrum of stakeholders needed to deploy bidirectional VGI infrastructure effectively and efficiently. For example, an essential Year 1 milestone would be for public and private stakeholders to reach a consensus on developing bidirectional standards for light/medium/heavy-duty vehicles, EV charging stations and buildings (via updated electrical codes) to ensure that deployment efforts will encounter the least amount of resistance and surplus retrofit cost. Creating such a uniform approach at the program's outset will help avoid future conflict and redundancy in later years.

2. The CEC Should Coordinate with the CPUC to Maximize Deployment of Community Solar+Storage Projects in DAC and low-income communities.

We support the CEC's proposal to expand community scale assets in order to expand and diversify demand side resource options. These community-scale assets should include microgrids and community solar plus storage. At the same time, the CEC should coordinate with other CEC programs and CPUC programs to maximize demand side and conservation resource options, in particular energy efficiency.

Communities of color disproportionately bear the brunt of service disruptions that often result from infrastructural issues combined with extreme weather or natural disasters (themselves often linked to climate change). Distributed renewable energy resources like community solar, especially when paired with storage or as part of a solar microgrid, can reduce the length of outages from extreme weather events, or avoid them altogether, thereby reducing the harmful impacts that come with them.[31] In addition, community solar and other distributed energy resources (DERs) can be used to create "islandable" generation that continues operating during grid power outages.[32]

[31] Gridworks & GridLAB, The Role of Distributed Energy Resources in Today's Grid Transition 7-9 (Aug. 2018), http://gridlab.org/wp-content/uploads/2019/04/GridLab_RoleOfDER_online-1.pdf.

[32] Id.

The CEC should coordinate with the CPUC[33] to prioritize and incentivize the development of solar projects located in or near the communities they will serve, rather than larger-scale projects miles away. Doing so has several advantages.[34] First, it provides a reliability benefit by minimizing "line loss," or the amount of electricity that is lost during transmission and distribution across the grid. It also minimizes or avoids the environmental impacts of disturbing new terrain in order to build new solar generation far away from population centers, and of clearing rights of way to build new transmission lines in order to bring that electricity to the places where it will be used. This mitigates the permitting and interconnection delays detailed in the CERIP. Local distributed community solar plus storage resources also avoid transmission capacity and associated interconnection delay issues. Further, it helps to ensure that local communities benefit from avoided pollution and increased community investment associated with community solar.[35] Over the long term, aggregation at scale should deliver lower energy prices and high energy security in low-income households. Similarly, DER development at local schools as a preferred community energy resilience project would offer the ability to create age-appropriate curricula for development of a skilled local workforce benefiting the community.

In this regard, the CEC (and CPUC) should also prioritize the deployment of community solar+storage on Tribal lands. Because most Tribal lands and communities in California are remote and have low levels of industrial and vehicle pollution, they may not be identified by CalEnviroScreen as DACs even though they may suffer from disproportionately high levels of poverty, energy burden, and poor electric service reliability. For example, in 2000 the Energy Information Administration found that 14.2% of households on Tribal lands are without electricity altogether, as compared to the national average of only 1.4% at the time.[36] A 2020 study found that Native American households have an average energy burden that is 45% higher than white households.[37]

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[33] In particular, the IOU Applications for Review of the Disadvantaged Communities – Green Tariff, Community Solar Green Tariff and Green Tariff Shared Renewables Programs, CPUC A.22-05-022 (and related matters).

[34] See generally, SB 350 Low-Income Barriers Study, Part A, at 6 ("[C]ommunity solar installations should be deployed in the low-income and disadvantaged communities they serve, with priority given to locations that maximize benefits to the distribution system."), 32 ("Community solar targeting low-income customers could be sited in local disadvantaged communities, presenting opportunities to address environmental justice issues.") available at: https://assets.ctfassets.net/ntcn17ss1ow9/3SqKkJoNIvts2nYVPAOmGH/fe590149c3e39e51593231dc60eeeeff/TN214830_20161215T184655_SB_350_LowIncome_Barriers_Study_Part_A__Commission_Final_Report.pdf.

[35] Id. at 32-33 ("A community solar project, if designed properly, can yield several benefits [including]: Lower costs for individuals due to economies of scale compared to onsite solar; Overall energy savings; Local jobs; Access to renewable generation for renters, and for homeowners with poor roof conditions.").

[36] Energy Information Administration, Energy Consumption and Renewable Energy Development Potential on Indian Lands (April 2000), 3, available at: https://www.eia.gov/renewable/archive/neaf0001.pdf.

[37] Lily Y. Garza, Corie Anderson, Amanda Caloras & Maddie Wazowicz, First to Reside, Last to Benefit: A Study of Midwestern Tribal Efficiency, Midwest Energy Efficiency Alliance, 2 (Sept. 2022), available at: https://www.mwalliance.org/sites/default/files/meea-research/first_to_reside_last_to_benefit-_a_study_of_midwestern_tribal_efficiency_0.pdf.

The National Renewable Energy Laboratory has estimated that Tribal lands in the contiguous U.S. are home to 17,600 billion kilowatt hours per year of solar energy *potential*,[38] and California has the largest Native American population in the country.[39] It is imperative for the CEC to explore this potential, in close coordination with the CPUC, to address the state's reliability challenges.

At the same time, the CEC can immediately design community outreach and technical assistance efforts to maximize state and federal assistance. Effective community engagement is critical, but shifting decision-making power towards community members without providing the appropriate resources and support to build technical expertise and capacity can set communities up for failure. To cite one example, monetizing available tax incentives to develop a community solar project can be complex and difficult, and a 2019 report from the National Renewable Energy Laboratory found that lack of available resources and expertise to navigate these structures was cited as a common barrier to these projects being developed.[40]

Finally, the CEC should utilize publicly available tools to target resilient and reliability solutions, such as islandable community solar+storage projects, in areas already subject to PSPS events.[41]

3. The CEC Should Overcome Supply Chain Issues by Leveraging President Biden's Determination to Invoke the Defense Production Act to Accelerate Domestic Manufacturing of Clean Energy.

Community solar+storage options are not subject to supply chain issues affecting larger scale projects.[42] To the extent that rollout of other reliability projects that benefit DACs and low-income communities are affected by supply chain issues, the CEC can immediately begin to coordinate with the U.S. Department of Energy ("DOE") in maximizing federal funds for domestic manufacturing.

Last year, President Biden issued presidential determinations providing the DOE with the authority to utilize the Defense Production Act to accelerate domestic production of clean energy technologies, including solar, transformers and electric grid components, heat pumps

[38] Douglas C. MacCourt, Renewable Energy Development in Indian Country: A Handbook for Tribes (June 2010), 2, available at: https://www.nrel.gov/docs/fy10osti/48078.pdf.

[39] See Jud. Council of Cal., Cal. Tribal Communities, https://www.courts.ca.gov/3066.htm.

[40] Jeffrey Cook et al., Up to the Challenge: Communities Deploy Solar in Underserved Markets, Nat'l Renewable Energy Lab'y, 13 (May 2019).

[41] For instance, PSE Healthy Energy is currently developing a mapping tool that can identify the average length and average number of PSPS outages by census tract.

[42] Comments by Coalition for Community Solar Access, Asian Pacific Environmental Network, California Environmental Justice Alliance, Natural Resources Defense Council and Vote Solar (February 2, 2023) available at https://efiling.energy.ca.gov/GetDocument.aspx?tn=248647&DocumentContentId=83144.

and insulation.[43] DOE will unlock significant funding to specifically overcome supply chain issues,[44] and with implementation of Justice40 Guidance,[45] in particular for environmental justice communities.

The CERIP identifies supply chain issues for imports, whether due to COVID-19, or the Auxin Solar Petition, or delivery of storage and associated domestic port delays.[46] These issues do not apply to domestic manufacturing that the DPA is in the process of boosting. Moreover, the DPA was authorized to directly challenge the rising prices anticipated by Russia's invasion of the Ukraine. In addition to leveraging the Inflation Reduction Act, the CEC should immediately begin to coordinate with DOE to maximize local production in and for DAC and other low-income communities to overcome any price increases.

[43] Department of Energy, President Biden Invokes Defense Production Act to Accelerate Domestic Manufacturing of Clean Energy (June 6, 2022) available at https://www.energy.gov/articles/president-biden-invokes-defense-production-act-accelerate-domestic-manufacturing-clean.

[44] Id.

[45] Executive Order 14008, § 223

[46] CERIP at 36.