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Joint Comments of The Climate Center, Center for Biological Diversity, Synergistic Solutions, Sierra Club California, and 350 Bay Area to the California Energy Commission re Demand Side Grid Support Program and Distributed Electricity Backup Assets Program Workshop.

Additional submitted attachment is included below.

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Joint Comments to the California Energy Commission re Demand Side Grid Support Program and Distributed Electricity Backup Assets Program Workshop

Docket # 22-RENEW-01

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As the California Energy Commission (CEC) contemplates how to effectively design and deploy its Demand Side Grid Support Program and Distributed Electricity Backup Assets Program, we respectfully submit the following comments in response to the request for comments pursuant to the Lead Commissioner workshop held on January 27, 2023.

A. **Community-centric engagement must be a central planning element.**

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 modifications 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, 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.”[1] 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

[1] 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.

opportunities to effectively use engagement to improve programs.[2] 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,[3] 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 levels 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 provide services—like translation and interpreting services, childcare, and the possibility for virtual attendance—that make it possible for all community members to participate meaningfully.[4]

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 into final project outcomes, thus

[2] 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.

[3] 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.

[4] 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/.

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.[5]

An adequate engagement strategy is critical because Disadvantaged ("DAC") and Low-Income Communities Stand to Benefit the Most. Given the inordinate adverse environmental, economic and 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 the costs of local clean energy solutions.

Incumbent utilities also lobby against DER deployment because DERs threaten incumbent utility business models.[6] Indeed, last year more than 230 organizations petitioned the Federal Trade Commission to investigate electric utility companies anti-competitive and harmful practices that 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.[7]

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.[8] It is vital that the CEC appropriately consider not only the several important

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[5] 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

[6] *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.

[7] 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

[8] *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),

resilience benefits conferred by DERs in extreme events,[9] 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.[10] Marginalized communities are most often harmed by polluting facilities, unreliable service, shutoff policies, and climate-harming emissions.[11] Local generation opportunities can mitigate these harms, reducing polluting emissions, lowering costs, and providing resilient back-up power in emergencies.[12] Distributed community solar projects also bring clean energy installation jobs and other local economic opportunities.[13] For all these reasons environmental justice communities have long supported DERs.[14] The CEC should leverage this support to

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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

[9] *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).

[10] 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.

[11] *Id.*

[12] 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 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.

[13] 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

[14] 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,

address the state's reliability challenges, and concurrently meet the CEC's environmental and energy justice goals.[15] Importantly, as detailed further below, the CEC should also prioritize funding for resilient community solar+storage projects in DAC and low-income communities.

B. Vehicle-Grid Integration (VGI) is a cost-effective technology that merits early DSGS/DEBA funding.

As stated in the CEC Draft Clean Energy Reliability Investment Plan (CERIP), "an initiative that strategically deploys capital to empower VGI and V2B could be the most cost-effective investment of this investment portfolio."[16] 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 independently of the transmission/distribution grid. The overwhelming benefits from creating a secondary, mobile bidirectional energy system should permeate all state aspects and aspirations "to invest in programs and projects that would accelerate the deployment of clean energy resources, support demand response, assist ratepayers, and increase energy reliability."[17]

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[18] 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.

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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.

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

[16] CERIP, p. 15

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

[18] 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.

- **Mandate that by a date certain, all ZEVs sold in California have bidirectional capability**, building upon the Governor's Executive Order N-79-20[19], 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[20]. 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 the 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.

- **Develop a new state program to incentivize the 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 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

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

[20] 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

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. VGI and Demand Flexibility should be prioritized as SRR/DSGS/DEBA assets.

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[21]) 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[22], participation in an automated demand response program by a mere ~12% of California's 14 million housing units[23] 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. 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

[21] "Governor Newsom Calls for Bold Actions to Move Faster Toward Climate Goals", July 22, 2022. https://www.gov.ca.gov/2022/07/22/governor-newsom-calls-for-bold-actions-to-move-faster-toward-climate-goals/

[22] American Home Water & Air, "How Much Power does an Air Conditioner Use?" May 21, 2020. https://americanhomewater.com/how-much-power-does-an-air-conditioner-use/

[23] U.S. Census, Quickfacts - California, Housing Units (2021). https://www.census.gov/quickfacts/fact/table/CA/HSG010221

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 near-term funding 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.

E. The CEC Should Coordinate with the CPUC to Maximize the Deployment of Community Solar+Storage Projects as DSGS/DEBA assets 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.[24] In addition, community solar and other distributed energy resources (DERs) can be used to create "islandable" generation that continues operating during grid power outages.[25]

The CEC should coordinate with the CPUC[26] 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.[27] First, it provides a reliability benefit by

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[24] 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.

[25] Id.

[26] 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).

[27] 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

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 and clearing rights of way to build new transmission lines, while also mitigating permitting and interconnection delays. Further, it helps to ensure that local communities benefit from avoided pollution and increased community investment associated with community solar.[28] 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 the 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.[29] A 2020 study found that Native American households have an average energy burden that is 45% higher than white households.[30]

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*,[31] and California has the largest Native American population in the country.[32] It is imperative for the CEC to explore this potential, in close coordination with the CPUC, to address the state's reliability challenges.

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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.

[28] 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.").

[29] 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.

[30] 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.

[31] 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.

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

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.[33]

Finally, the CEC should utilize publicly available tools to target resilient and reliable solutions, such as islandable community solar+storage projects, in areas already subject to PSPS events.[34]

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

[34] 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.