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## Clean Coalition Comments on CEC IEPR Workshop on Climate Adaptation

Comments are attached.

*Additional submitted attachment is included below.*

Clean Coalition
Making Clean Local Energy Accessible Now

November 27, 2019

Commissioners
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

# Comments on CEC IEPR Workshop on Climate Adaptation

The Clean Coalition commends the significant work the California Energy Commission (CEC) has been undertaking in your workshop on climate adaptation. The CEC is doing much to enhance community-driven energy resilience in California, and the Clean Coalition appreciates the focus on supporting microgrids with distributed energy resources (DER) for critical facilities.

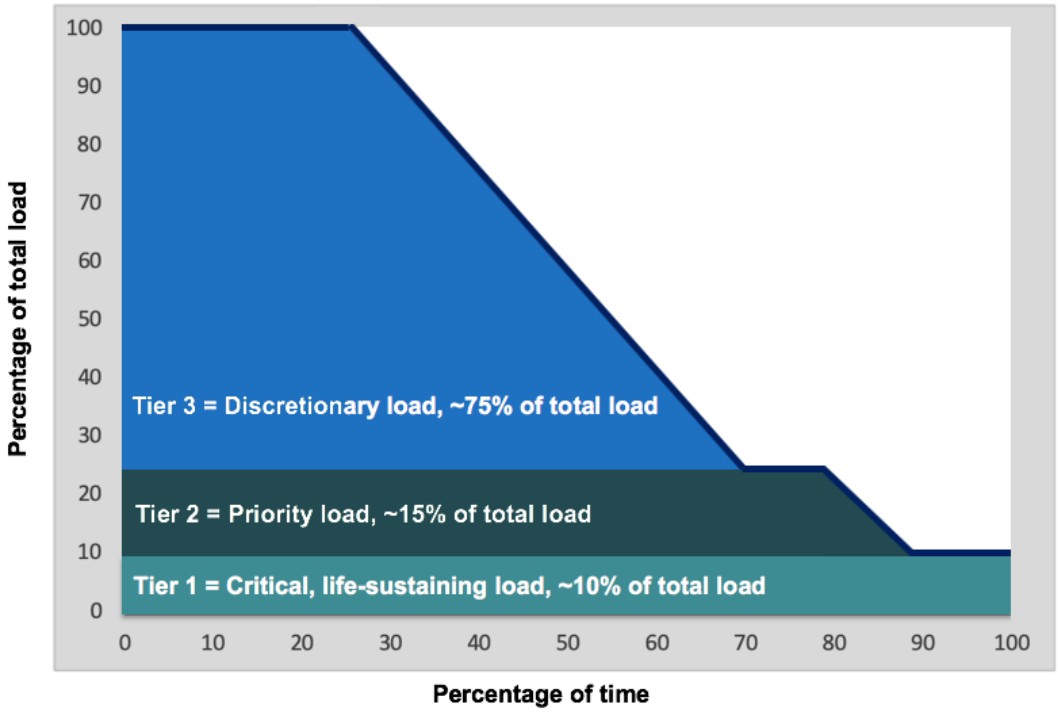
## The importance of Community Microgrids

It is crucial for the IEPR to consider measures needed to proliferate microgrids in California. Community Microgrids[1], in particular, are a highly effective energy resilience solution. Community Microgrids represent a new approach for designing and operating the electric grid, powered by local renewables and supported by other DER like energy storage and demand response. Community Microgrids can serve an entire community's energy needs by ensuring indefinite renewables-driven backup power for critical community facilities such as fire stations, water and communications infrastructure, hospitals, and emergency shelters.

Unlike a traditional microgrid, which serves one facility behind a single point of interconnection, a Community Microgrid can serve as the primary electrical load (and backup) for multiple facilities on the same distribution system. A Community Microgrid is comprised of an entire distribution grid area that is served by a transmission-to-distribution substation, setting the stage for the local electric utility to act as a Distribution System Operator (DSO). A Community Microgrid is the resilient solution that meets the needs of the greatest number of ratepayers in high-risk zones. The ideal Community Microgrid is able to provide indefinite renewables-driven backup power to the region it serves.

Community Microgrids can keep critical loads online indefinitely during power outages of any length. Depending on the sizing of the battery storage and the amount of sunshine, they can keep even more of the electric load online for certain periods. The levels of Community Microgrid resilience in the following chart are achieved via a net zero level of solar to a community in California with energy storage capacity equating to two hours of the nameplate solar capacity (i.e., 2 kWh of energy storage for every 1 kW of solar):

1 See https://clean-coalition.org/community-microgrids/, including the video at the top of this page.




The load tiers in the chart are defined as follows:

- Tier 1 loads, usually about 10% of the total electric load, are mission-critical and life-sustaining loads — crucial to keep operational at all times, including during grid outages.
- Tier 2 loads, usually about 15% of the total load, are priority loads that should be maintained as long as doing so does not threaten the ability to maintain Tier 1 loads.
- Tier 3 loads, usually about 75% of the total, are discretionary loads and only maintained when doing so does not threaten the ability to maintain Tier 1 and 2 loads.

Given the risks of wildfires and Public Safety Power Shutoff (PSPS), it is essential to develop Community Microgrids that are connected to local renewable energy on the distribution system, to ensure that critical community facilities can continue to operate during any type of power outage. Fossil-fuel sources like natural gas or diesel generators contribute greenhouse gases and rely on fuel supplies that may not be replenishable following an earthquake or another major disaster — as was demonstrated during Superstorm Sandy on the Atlantic Coast and Hurricane Maria in Puerto Rico — and should not be considered a sustainable or resilient backup system. Therefore, any microgrid must be developed with local renewable energy, energy storage, and other DER.

## How to proliferate Community Microgrids

We have the technology for Community Microgrids. Microgrids that are already deployed in California[2] and elsewhere, such as the Fremont fire station microgrid[3] and the Montgomery County Microgrid[4], have proven their ability to keep the power on during outages.

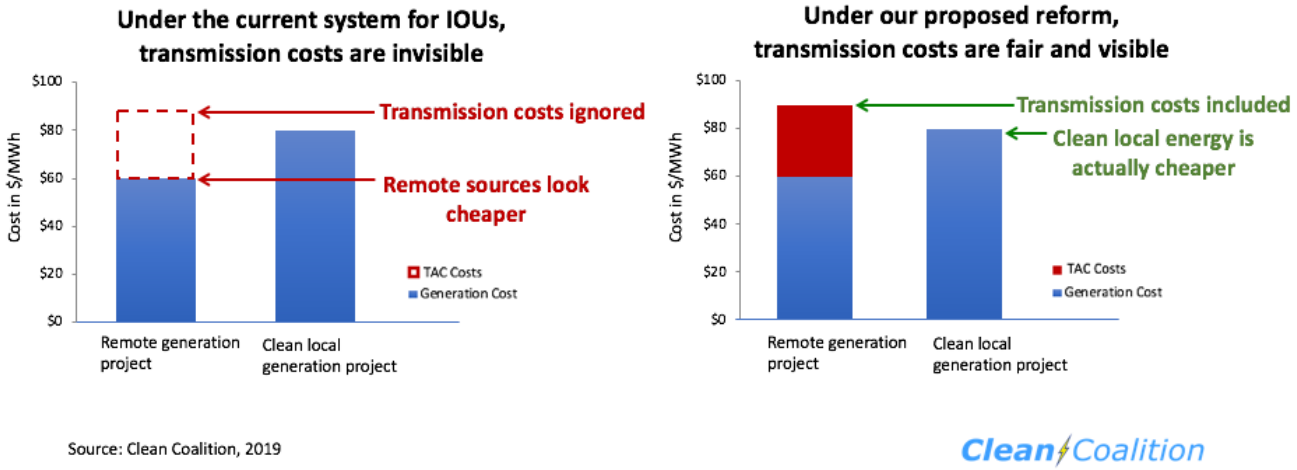
2 Vote Solar, Case Studies: Clean Microgrids Provide Grid Resiliency in California, https://votesolar.org/usa/california/updates/case-studies-clean-microgrids-provide-grid-resiliency-california/.
3 City of Fremont Microgrid Fire Stations Project, http://innovation.energy.ca.gov/SearchResultProject.aspx?p=3008.
4 Greenbiz, Microgrids could help California improve grid resilience in face of wildfire threat, https://www.greenbiz.com/article/microgrids-could-help-california-improve-grid-resilience-face-wildfire-threat.

However, ensuring the proliferation of microgrids, including Community Microgrids, requires establishing favorable policies and market mechanisms[5] that will optimize their significant economic, environmental, and resilience benefits. Expanding microgrids also requires incentivizing the investor-owned utilities (IOUs) to support DER and microgrids.

## Reforming Transmission Access Charges (TAC)

Key to expanding microgrids is reforming the way Transmission Access Charges (TAC) are assessed in California.

Unlike remotely generated energy, locally generated energy — such as that generated by a microgrid — does not require construction of an expensive, massive transmission network to move electricity from source to customer. When this major advantage is priced into the total cost of energy, clean local energy is much more competitive — and is even less expensive in many cases:




Source: Clean Coalition, 2019

TAC are currently assessed unfairly by investor-owned utilities (IOUs) in California, but not by most municipal utilities. Currently, in IOU service territories, TAC are charged on all energy generated, whether or not that energy ever uses the transmission system. This creates a massive market distortion that adds 3 cents per kWh to the cost of clean local energy projects — raising the cost of this energy by as much as 50%. That means that fewer DER projects are deployed, disadvantaging the potential of renewables-driven microgrids to drive economic development and resilience for every community in California.

Fixing the TAC distortion could save California $60 billion over 20 years[6] by resulting in more DER being deployed — which, in addition to making communities more resilient, would obviate the need to build more expensive transmission infrastructure.[7]

TAC reform would result in IOUs and other load-serving entities (LSEs) procuring more DER. When the cost of transmission for remotely generated energy and the avoided cost of local energy are priced in, LSEs are incentivized to procure the energy that is truly most cost-effective for customers — creating a market for grid services from microgrids. By aligning pricing with reality, TAC reform will correct the existing market distortion

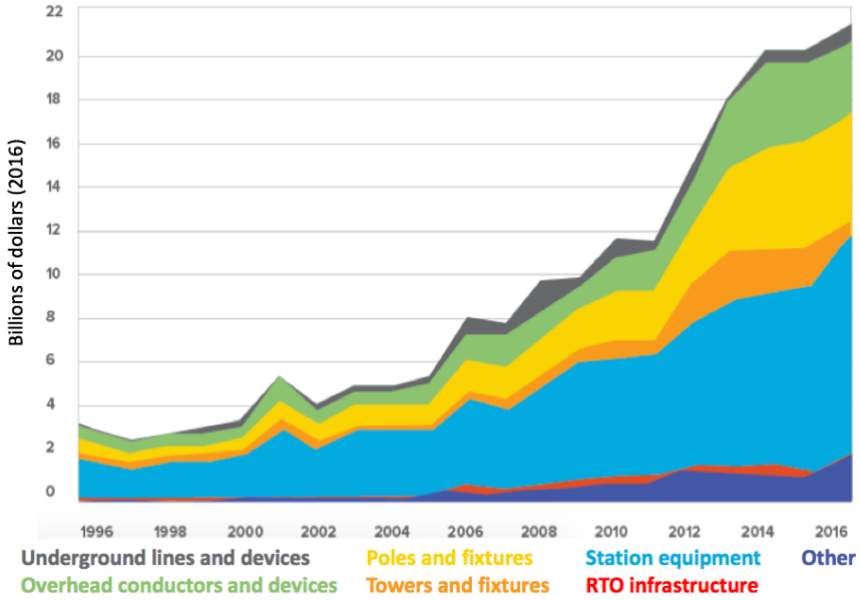
5 See https://clean-coalition.org/policies-market-mechanisms/
6 See https://clean-coalition.org/policy/transmission-access-charges/#60bil
7 In 2017-2018, Californians saved $2.6 billion in avoided transmission costs because of increased energy efficiency and clean local energy: https://www.utilitydive.com/news/efficiency-ders-saving-26b-in-avoided-transmission-costs-caiso-says/519935/.

that has led to explosive growth in transmission spending and depressed the market value of clean local energy, inhibiting microgrids and other DER at the same time.

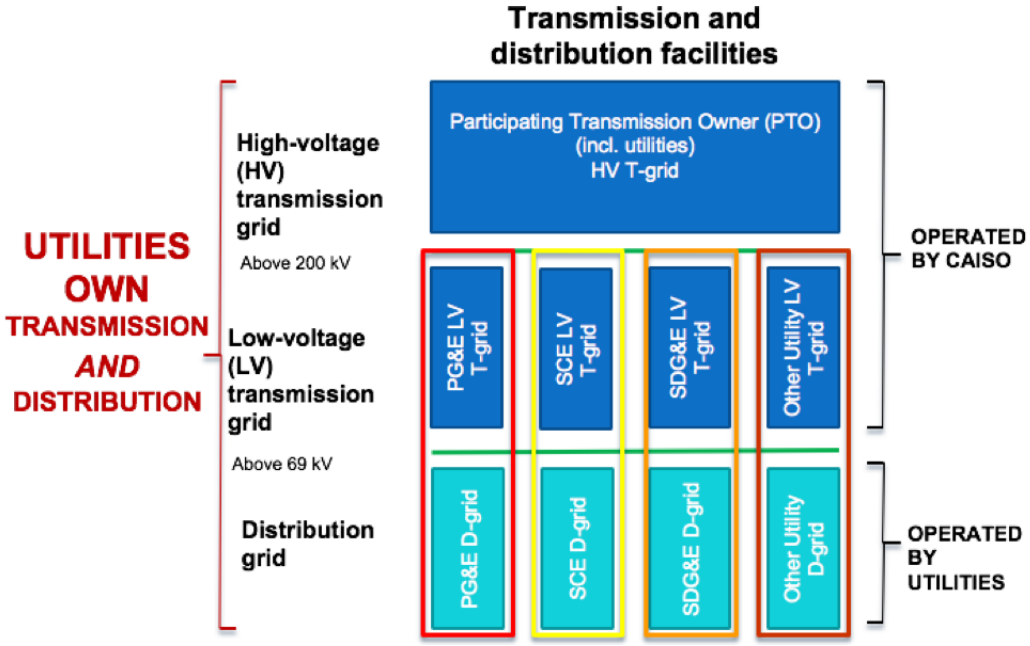
## Divesting the IOUs of their transmission assets

This explosive growth in transmission spending is a result of the current utility structure, whereby IOUs now earn a guaranteed rate of return on infrastructure investments, incentivizing them to build more transmission infrastructure.

**The explosion in transmission spending by major utilities, 1996 - 2016**



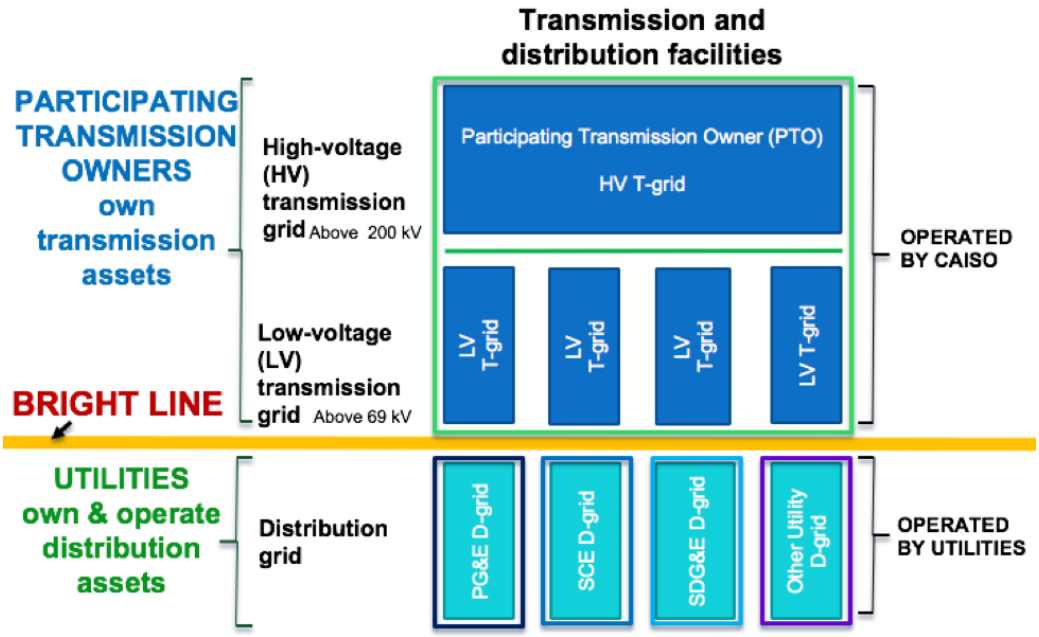

Divesting the IOUs of their transmission assets would eliminate their major conflict of interest between transmission and distribution grid investments, both of which they own under the current system:




*Current power system ownership*

Currently, utilities make a large profit from the transmission system, which disincentivizes them from supporting clean local energy at the distribution grid level — meaning they are disincentivized from supporting microgrids. But that very transmission system also subjects them to liabilities like PG&E is now facing. By divesting its $34.7B of electric transmission and natural gas assets, PG&E could easily cover its wildfire liabilities without passing the financial burden to ratepayers. Other IOUs could do the same.

Freed from their transmission assets, the IOUs could become DSOs. This would force them to focus on achieving maximum value from DER and the distribution grid, supporting the expansion of microgrids. The utilities' transmission assets could be taken over by private companies, or ownership could be assumed by the state.




*Separation of transmission and distribution asset ownership*

## Streamlining interconnection

Also crucial to expanding microgrids in California is ensuring that interconnection of front-of-meter (FOM) energy resources is as streamlined and cost-effective as for behind-the-meter (BTM) resources. The Clean Coalition designed a pilot[8] — in partnership with PG&E and funded by the CEC — to streamline interconnection for wholesale distributed generation (WDG)[9], usually commercial-scale solar, which is currently irrationally costly and time-consuming. The goal of the pilot is to ensure that interconnection of WDG resources is as streamlined as for Net Energy Metering (NEM) resources.

## Establishing effective procurement methods

To maximize market efficiency, the DER for microgrids should be solicited through a standard-offer, first-come, first-served tariff approach that allows the most cost-effective market solution for procuring dispatchable local renewables: a market-responsive Feed-In Tariff (FIT) with a Dispatchability Adder. This state-of-the-art FIT, based on the Clean Coalition's recent FIT design for the City of San Diego[10], should include:

8 Clean Coalition's WDG Interconnection Pilot, https://clean-coalition.org/policy/wdg-interconnection/wdg-interconnection-pilot/
9 https://clean-coalition.org/wholesale-distributed-generation/
10 San Diego FIT, https://clean-coalition.org/san-diego/feed-in-tariff/

- Market Responsive Pricing (MRP)[11], which allows subsequent contract prices (after the initial FIT rate is offered) to adjust based on market responses to pricing of current contracts, ensuring that energy is procured at the lowest price. The availability of predictable and bankable long-term standard-offer contracts provides crucial revenue certainty to reduce risk and associated costs, ensuring development success while also protecting ratepayers.
- A Dispatchability Adder[12], a fixed ¢/kilowatt-hour (kWh) energy capacity bonus on top of the FIT rate that encourages the addition of energy storage to make renewable energy fully dispatchable. The Dispatchability Adder can be adjusted — either up or down — with its own dedicated MRP, with the bonus for subsequent contracts adjusting based on current market demand.

### Valuing resilience

The communities with the greatest need for the resilience provided by Community Microgrids are those in high-fire-risk areas and those served by transmission lines that are routed through high-fire-risk areas. The avoided cost of not losing power in the event of a disaster or PSPS makes a microgrid extremely valuable to businesses and critical facilities in a community. However, there is currently no standard method to ascribe a monetary value to the protection offered by a microgrid. A framework is needed that properly values the resilience a microgrid brings to a community.

The Clean Coalition's methodology to establish a standardized Value of Resilience for Tier 1, 2, and 3 loads (as described in the chart above), VOR123,[13] provides a mechanism to properly value the market externality of resilience, helping ensure full and fair valuation for WDG.

## Conclusion

The Clean Coalition appreciates the opportunity to submit these comments on the CEC IEPR Workshop on Climate Adaptation. This workshop is an important step toward resilience and unleashing the potential of the WDG market through Community Microgrids. The Clean Coalition urges the CEC to take this opportunity to promote the policies and programs that will enable the expansion of microgrids that we need to bring energy resilience to California communities:

- Transmission Access Charges (TAC) reform
- Utility transmission divestment
- Streamlined WDG interconnection
- Procurement of DER with FITs that incorporate Market Responsive Pricing and Dispatchability Adders
- A standardized a Value of Resilience

11 Market Responsive Pricing, https://clean-coalition.org/feed-in-tariffs/market-responsive-pricing/
12 Dispatchability Adders, https://clean-coalition.org/feed-in-tariffs/dispatchability-adders/
13 See https://clean-coalition.org/disaster-resilience/