**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking Regarding Microgrids Pursuant to Senate Bill 1339 and Resiliency Strategies.	Rulemaking 19-09-009

CLEAN COALITION COMMENTS ON UTILITY-PROPOSED MULTI-PROPERTY MICROGRID TARIFFS

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October 27, 2023

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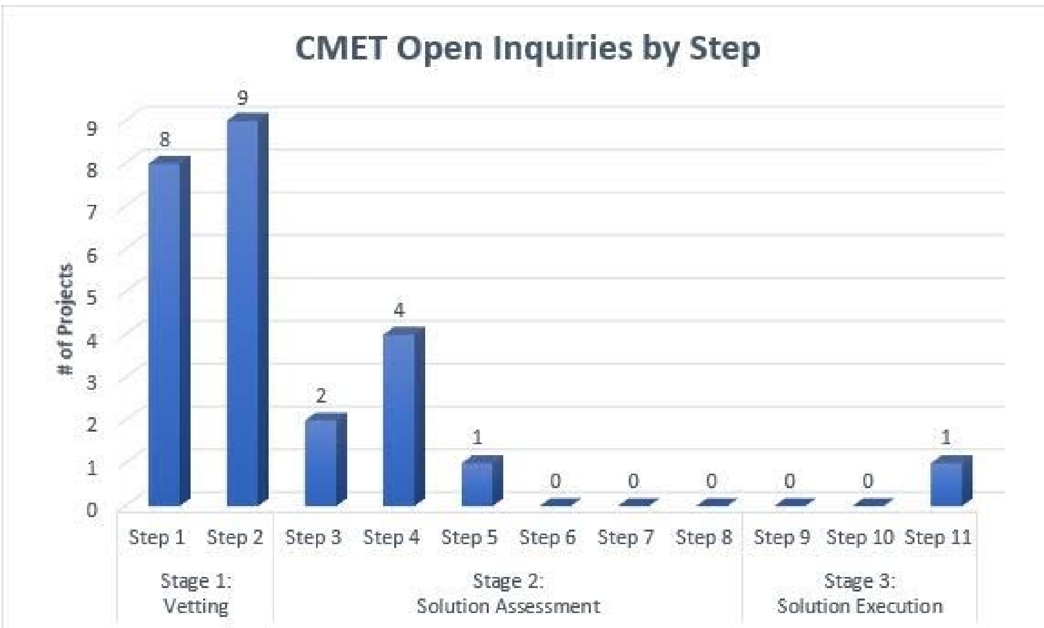
I. INTRODUCTION

Pursuant to Rule 6.2 of the California Public Utilities Commission ("the Commission") Rules of Practice and Procedure, the Clean Coalition respectfully submits these comments in response to the *Assigned Commissioner's Scoping Memo and Ruling*, issued at the Commission on July 18, 2023, and *Administrative Law Judge* ("ALJ") Rizzo's *Email Ruling Modifying Page Limit for Opening Comments to 20 pages*, issued on October 13, 2023. On October 9, 2023, the Joint Investor-Owned Utilities ("Joint IOUs")[1] submitted the Community Microgrid Enablement Tariff ("CMET") into the proceeding record. While the CMET is based on PG&E's original tariff, SCE and SDG&E included a number of changes to the original tariff, including, but not limited to, different program names and procedures. The Clean Coalition appreciates the opportunity to submit these comments analyzing the CMET, determine how effective the CMET will be for the ratepayers based on our experience with microgrid projects, and submit an alternative that builds on some of the foundational aspects of the CMET. We believe that a Community Microgrid tariff should fully enable the unparalleled trifecta of economic, environmental, and resilience benefits. As submitted, the Joint IOU's CMET tariffs are not sufficient to facilitate and streamline the process for the widespread deployment of Community Microgrids. Significant improvements are needed, particularly surrounding the resilience and economic components of the tariff.

However, in our view, prior to engaging on the merits of adopting the CMET as a statewide multi-customer microgrid tariff, the track record of the program (whether Community Microgrids were deployed) and data related to program successes and roadblocks should be made clear. At this stage in the proceeding, the majority of data from the three years of the CMET has come from parties that have engaged directly with PG&E.[2] The initial compliance filing submitted by the Joint IOUs

[1] Pacific Gas & Electric ("PG&E"), Southern California Edison ("SCE"), and San Diego Gas & Electric ("SDG&E").
[2] GPI, Clean Coalition, etc.…

only contained tariff language and a matrix of amendments for each utility's tariff, without any of the crucial analysis to demonstrate how effective the CMET has been or to clearly display for the Commission why the Joint IOU's proposal should be used as the basis for the development of a permanent statewide tariff. For example, the compliance filing does not discuss the 11-step process that PG&E has developed for the CMET or explain whether this process will be used by the other two IOUs. SCE's filing mentions a three-phase process with multiple steps, though it is unclear if it will be presented any differently to applicants than PG&E's 11-step process.[3] Developing a clearly delineated procedure is essential for a successful program and necessary to analyze methods to improve process efficiency.



Graph of PG&E's Open CMET Inquiries (as of Q2 2023)

The graph above shows which step in the CMET process each applicant is working to complete, as of Q2 of this year. The sole project on Step 11, representing a successful deployment, is the Redwood Coast Airport Microgrid ("RCAM"), which was in development for close to four years prior to the creation of the CMET. This data raises serious questions about the "deterministic nature" of the process (e.g., whether an experienced applicant with a detailed/complete microgrid design will result in a deployed project) and makes clear that substantial change is needed. **However**, we have continued to speak with PG&E throughout the year and are working on a CMET-project — called

[3] SCE Compliance filing, at p. B-4 – B-5.

the Berkeley Energy and Resilient Mixed-Use Showcase ("BERMUS")[4] — so we know that there are other CMET projects in the development pipeline that are not accounted for in the graph above. Until the record reflects the most up-to-date numbers and statistics from PG&E's CMET, the Commission and other parties are at a disadvantage, put into a situation that is akin to solving a puzzle in the dark.

Based on the CMET, the Clean Coalition has identified three broad categories — process/timelines, design, and cost — where improved applicant certainty is needed and should be addressed in a tariff to enable the widespread deployment of Community Microgrids throughout the state.

The first category, clarifying and solidifying the Community Microgrid development process and timelines, will make the process far more navigable for applicants.

- There is a need for greater coordination amongst utility departments. Existing silos add confusion, complexity, and unnecessary delays to an already complicated and bureaucratic process. For a basic Community Microgrids the developer needs to manage a myriad of applications – basic service, Net Energy Metering ("NEM"), Virtual NEM ("VNEM", CMET, Self-Generation Incentive Program ("SGIP"), etc.… – each of which requires a different team or staff at the utility. A request for a design change for one application impacts the process for all the applications.
- There should be a single liaison for a project, wherever possible, to coordinate on the utility's side and limit applicant (and utility confusion).
- Once an applicant fully submits documentation, there should be static timelines for each step of the process in place to ensure that the utility response is timely and unnecessary delays do not occur.
- Interconnection challenges will be one of the central delays for Community Microgrids, especially because FOM interconnection is required. The normal interconnection process for resources is separate from the MIS, meaning that the delay from a single resource could hold up the deployment of the entire Community Microgrid. Streamlined interconnection, particularly for front-of-meter ("FOM") resources and/or completing holistic interconnection studies for all resources within the proposed Community Microgrid will increase the likelihood of a timely microgrid

[4] Also known as Woolsey Gardens

deployment.

The second category has to do with ensuring that there is design certainty so that the applicant knows what is clearly approved and where the utility is willing to develop new solutions or workarounds.

- Resilient Energy Subscription ("RES"): Microgrid Owners/Operators should be allowed to charge fees that recover costs of deploying the microgrid and provisioning resilience to critical loads at critical community facilities. In addition, the Microgrid Owner/Operator should have the ability to turn off the meters of non-participating ratepayers that do not pay for a RES allocation when the Community Microgrid is in an islanded mode.
- Community Microgrids should be able to island in ways that benefit the grid, such as limiting imports from the grid during peak periods (4-9 p.m.).
- Where the grid isolation switch is located: Deploying a grid isolation switch on the low-voltage side of the transformer is usually less complicated and expensive than working on the high-voltage side of the transformer.
- Master Metering: Multi-Unit Housing ("MUH") facilities should be able to master meter for a simplified microgrid deployment rather than going through the complicated process of deploying a Community Microgrid and islanding on the utility's grid.
- Innovative legal agreements to fully enable economics/resilience: The CMET lacks any language related to microgrid economics or islanding for other reasons than utility-determined emergency situations. Legal agreements signed by the Microgrid operator, and the utility can create safe conditions for the Community Microgrid to island during blue sky conditions or participate in existing DER programs based on predictable load/generation profiles.
- DER Deferral should be included in the design process: Currently, there are few opportunities for DER Deferral based on the IOU's Distribution Investment Deferral Framework ("DIDF"). However, value stacking is beneficial for both the Community Microgrid, the ratepayers, and the utility so it should be considered in the design process.
- Sizing limitations: The IOU's tariffs limit the Community Microgrid to 20 MW, which was the Commission-imposed limit (??????) for the CMEP. However, no

reasoning was provided as to why this size limit should be applied to a statewide Community Microgrid tariff, especially when there are Community Choice Aggregators ("CCAs") and localities interested in deploying larger Community Microgrids.

The third category is related to cost certainty.

- An updated unit cost guide for Community Microgrids will be beneficial: It is important for developers to understand the cost of different design options, including where grid isolation switches will be located. In addition, information on supply chain issues is very relevant; for example, designing around the global shortfall of transformers will likely save both time and money.
- The point of budgetary certainty should be as early in the process as is possible: Design changes can be extremely costly, especially after an applicant has signed a Small Generator Interconnection Agreement ("SGIA").

II. DESCRIPTION OF PARTY

The Clean Coalition is a nonprofit organization whose mission is to accelerate the transition to renewable energy and a modern grid through technical, policy, and project development expertise. The Clean Coalition drives policy innovation to remove barriers to procurement and interconnection of distributed energy resources ("DER") — such as local renewables, demand response, and energy storage — and we establish market mechanisms that realize the full potential of integrating these solutions for optimized economic, environmental, and resilience benefits. The Clean Coalition also collaborates with utilities, municipalities, property owners, and other stakeholders to create near-term deployment opportunities that prove the unparalleled benefits of local renewables and other DER.

III. COMMENTS

The Clean Coalition's comments aim to increase certainty in the Community Microgrid development process and value the full range of benefits created—for participating ratepayers, non-participating ratepayers, and society.

1. **Category 1: Increased Timeline and Process Certainty**
   a. **A Community Microgrid tariff should lay our procedures for better coordination amongst utility departments.**

   Developing a Community Microgrid requires pulling together a complex range of generation, storage, load management, and grid architecture solutions involving multiple different utility departments and applications to be submitted by the developer. For BERMUS, a single property multi-meter facility seeking to deploy a Community Microgrid, applications will need to be submitted for new service, NEM, VNEM, and the CMET. More complicated Community Microgrids will require far more applications. The submission of the applications must be timed perfectly or risk project stagnation; while NEM, VNEM, and applications for new service are not extremely complicated, design changes stemming from the CMET process will need to be reflected in every other application, adding cost and time. This is particularly cumbersome for Community Microgrids due to the resource mix that will often include both behind-the-meter ("BTM") and FOM resources. Moreover, it is extremely difficult to get staff from one department together for a meeting, let alone multiple different departments, which puts tremendous pressure on the applicant to juggle all the applications and get everything together in a timely manner. If it takes a month for an applicant to schedule a meeting with the proper utility staff only to learn at the meeting that the utility needs significantly more time to resolve internal questions and will set a follow up meeting when ready, months can pass without any progress being made. In such a situation, the CMET applicant is entirely reliant on the utility to move the process forward, without any ability to bring the different utility departments together and resolve any outstanding questions in a timely manner so that everyone is on the same page.

What is needed is greater coordination within the utility that reduces the existing silos enough for different departments to come together early in the Community Microgrid design process, ideally once the applicant has presented all relevant forms/design information. To streamline the process on the utility's side, each project should have a single liaison who is responsible for keeping a dialogue going with the applicant, ensuring that meetings are scheduled in a timely manner, and managing the different utility experts needed to make sure that the design is technically feasible. Time is valuable for both the applicant and the utility, so a liaison capable of moving the process forward and looping in only essential personnel will benefit all parties involved. These changes should be incorporated into the language of a final Community Microgrid tariff.

b. Static timelines for each step of the process should be included to avoid delays

A successful Community Microgrid tariff should have clearly defined timelines for each steps of the process, as is done for the NEM application process. Up-front time estimates for each step depending on project size/complexity would be ideal, especially with PG&E's CMET experience.[5] As valuable, if not more so, would be the creation of time limits within which the IOU's must move an applicant to the next step after receiving all required documentation. Such time limits will guarantee that there are no unnecessary delays from the utility side of the development process and that the success of an applicant lies entirely in the quality of materials provided to the utility. Including this additional layer of certainty will make developers more willing to take the risks associated with investing funding in a process that takes years to complete.

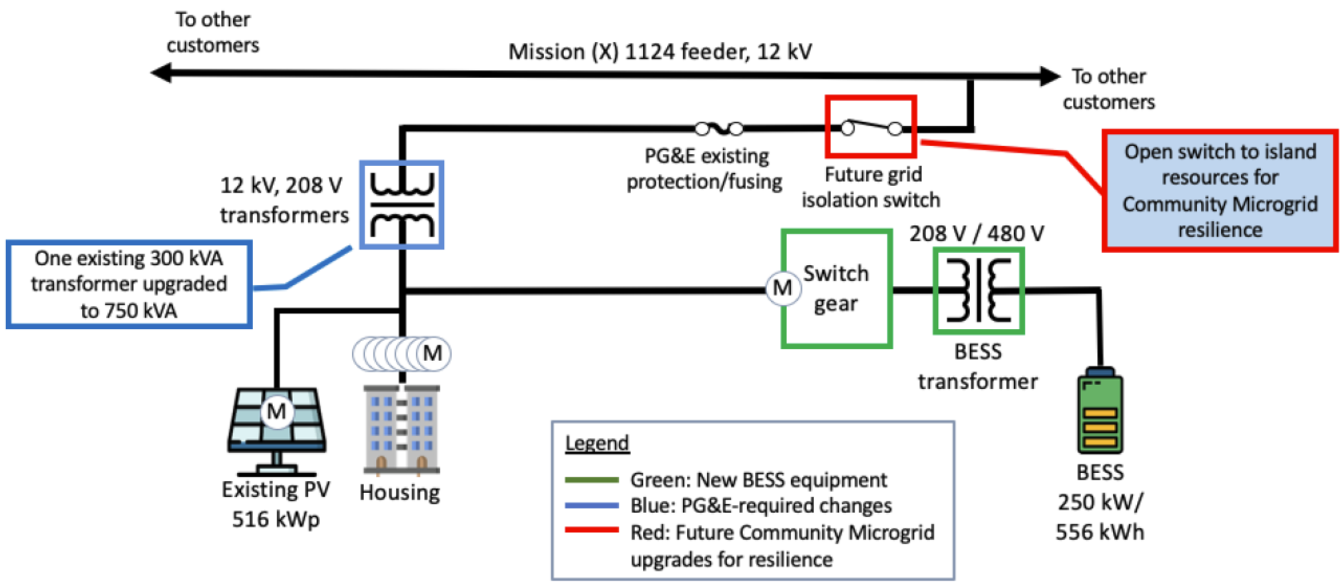
c. FOM interconnection will be an impediment to Community Microgrid deployments if the Wholesale Distribution Access Tariff ("WDAT") interconnection process is not streamlined.

Whereas significant streamlining of the BTM interconnection process has occurred in the Rule 21 interconnection proceeding at the Commission, the lessons learned have not yet been applied to WDAT interconnection, which will encumber the deployment of Community Microgrids. The table below shows the differences in cost and the duration of the interconnection process for 1 megawatt (MW) projects applying for a BTM interconnection versus a Wholesale Distribution Access Tariff ("WDAT") Fast Track interconnection.

Factor	BTM 1 MW rooftop project	FOM 1 MW rooftop Fast Track project
Typical cost	$37,500	$312,450
Typical timeframe	302.5 business days	723 business days

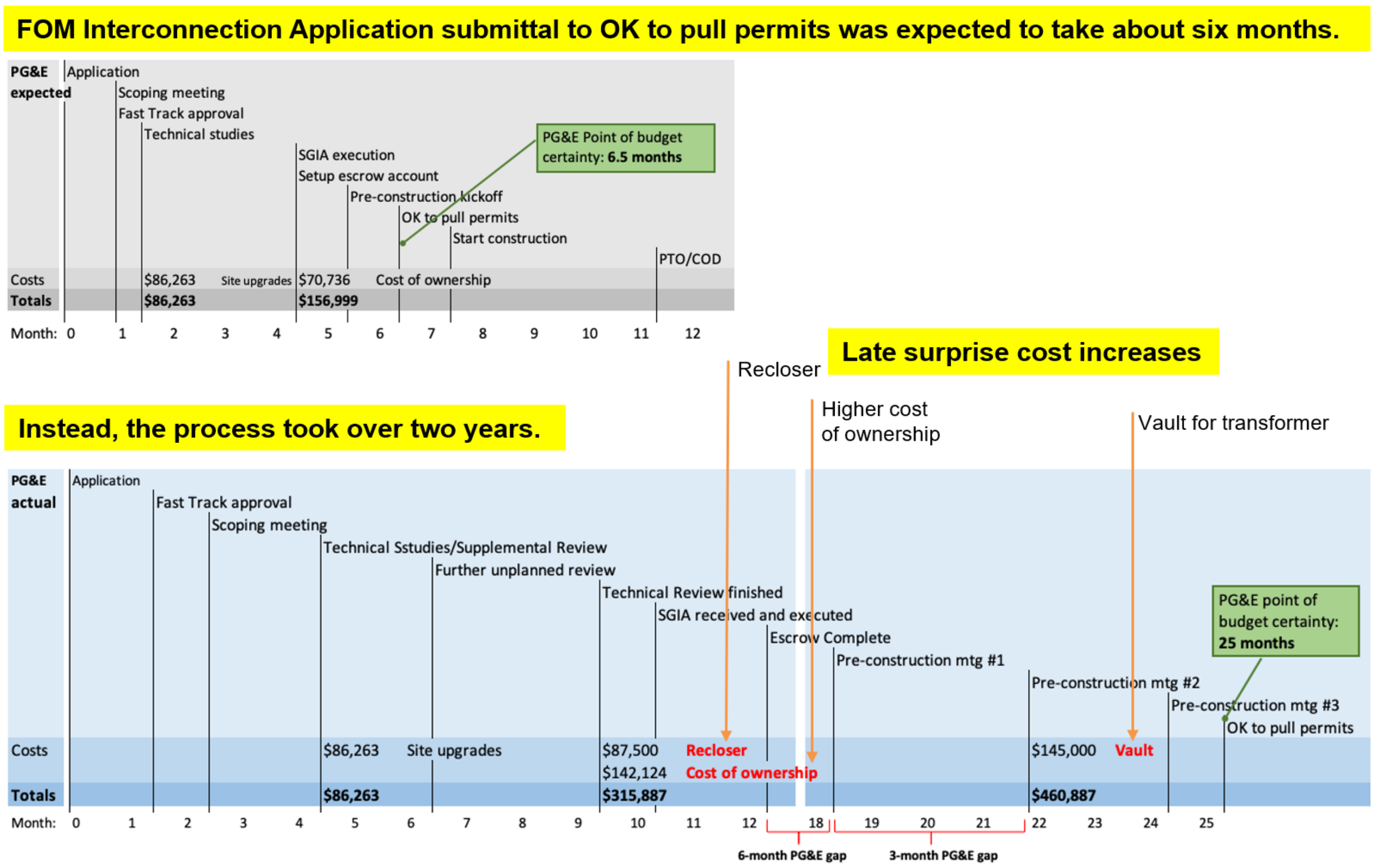
The interconnection process for a typical FOM project costs more than eight times as much as the typical BTM project and will likely take more than twice as long as a BTM project. The cost and time increase if the developer is seeking deliverability for Resource Adequacy ("RA"), which can take a year or more. The Clean Coalition has firsthand experience navigating the WDAT interconnection process in PG&E's service territory as part of a CEC-grant funded FOM battery energy storage project called the Valencia Gardens Energy Storage ("VGES") project. The project, (see the block diagram below), was intended to increase the hosting capacity on the feeder by 25% and potentially provide resilience down the line to the low-income senior housing at the Valencia Gardens Apartment in San Francisco where it was to be sited.

[5] Based on PG&E's compiled data, it is possible to average the time for completing each step relatively accurately (and with increasing accuracy as more projects utilize the Community Microgrid tariff).



Future resilience opportunity to upgrade VGES into a Community Microgrid

The WDAT Fast Track process, which was expected to take approximately six months, ended up taking over two years due in large part to utility delays and the project costs for interconnection-related upgrades ballooning from $156,999 to $460,887. Without sufficient information to make a fully informed decision, developers often choose to let projects languish in the interconnection queue rather than withdrawing an application, since withdrawing forfeits queue position and could lead to a much higher cost allocation for network upgrades by the time the application is re-submitted, which results in mounting costs for both the applicant and the utility. In the case of VGES, we expected to be able to pull permits at 6 months after submitting the interconnection application, with a point of budgetary certainty at 6.5 months. The actual process took over two years, with a point of budgetary certainty at 25 months. Late surprise requirements and cost increases added to this extended timeline; for example, PG&E added a cost of ownership ("COO") — the cost for the utility to maintain and/or replace equipment as needed. The COO was not mentioned initially, and when it was brought up, the cost was underestimated. The graphic below shows an in-depth comparison of the expected timeline for a Fast Track interconnection versus the actual interconnection process that occurred. Note that the Small Generator Interconnection Agreement ("SGIA") was signed at 10.5 months, yet new requirements for upgrades were added as far as 12 months after the SGIA was executed.



VGES - Expected Fast Track FOM Interconnection timeline vs. actual

Key to the widespread deployment of Community Microgrids is improving the FOM interconnection process, both in terms of streamlining costs and timing. The California Energy Commission ("CEC") is taking a deep dive into the interconnection process in the 2023 Integrated Energy Policy Report ("IEPR") after identifying it as a barrier in the procurement process; it would be very impactful if the Commission were to also note the issues with FOM interconnection as part of this proceeding. Moreover, PG&E is currently working on amendments to the WDAT interconnection process, which makes this a great time to ensure that lessons learned in the microgrids proceeding will be applied properly. Because many of the assets that make up a Community Microgrid will be sited FOM, swift WDAT interconnection will be essential to ensure timely deployments. Alternatively, the Commission should allow a joint interconnection process for the resources in a Community Microgrid, to streamline the process and improve coordination between utility departments.

2. **Category 2: Increased Design Certainty**
   a. **The Commission should adopt the Clean Coalition's Resilient Energy Subscription ("RES") proposal for financing Community Microgrids.**

There are three important components missing from that CMET necessary for a successful Community Microgrid tariff: economic considerations, the value of resilience ("VOR") and overarching benefits of community resilience planning. As proposed by the IOUs, the CMET remains agnostic on project economics and the benefits of resilience, both of which are central value streams to the development of microgrids. As a result, the Clean Coalition submits the Resilient Energy Subscription ("RES")[6] in these comments and will provide more detail in a filing on November 9, 2023.

The RES is a straightforward market mechanism that allows any facility within the footprint of a Community Microgrid to pay a simple ($/kWh) fee on top of its normal electricity tariff for guaranteed daily delivery of locally generated renewable energy during grid outages, ensuring unparalleled energy resilience.[7] The RES helps finance Community Microgrids while properly valuing their significant resilience benefits, addressing these three challenges:

- **Establishing** initial Community Microgrids to provide resilience to Critical Community Facilities (CCFs).
- **Enhancing** Community Microgrids to offer resilience opportunities within the initial Community Microgrid footprint.
- **Expanding** Community Microgrids to larger footprints that can guarantee resilience to a wider list of facilities and include additional communities.

RES offers a methodology to address all these issues, allowing a utility to plan strategically for resilience by aggregating RES allocations as they are contracted by facilities across the Community Microgrid footprint.

Each facility within the footprint of a Community Microgrid can decide what percentage of its total electric load to include in its RES and then perform appropriate BTM load management to stay within its guaranteed daily RES load budget during grid outages. The RES ensures a contracted level of resilience during grid outages of any duration.[8] The cost of such indefinite renewables-driven backup power will generally be reserved for the most critical loads, but ultimately, each individual facility will decide which loads are critical and procure resilience for those loads via a transparent fee that covers the cost-of-service ("COS") of provisioning such energy resilience from a Community Microgrid. There are only two fundamental features of the RES:

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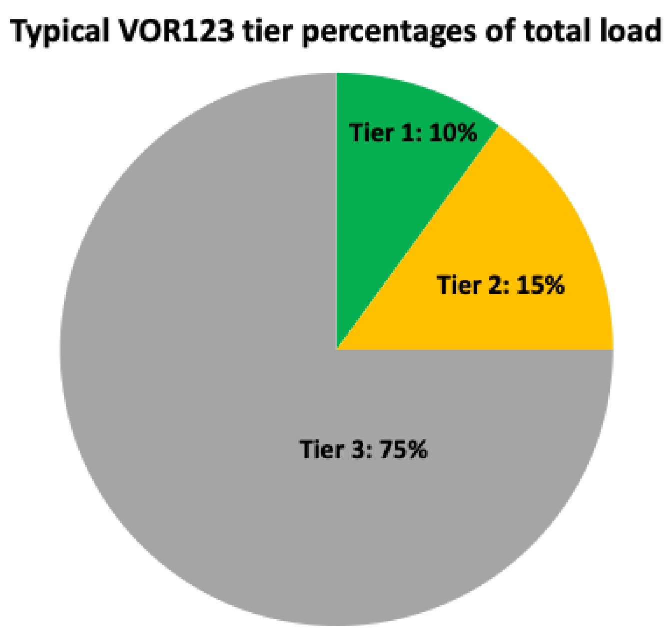
[6] https://clean-coalition.org/news/webinar-resilient-energy-subscription-res-a-streamlined-market-based-approach-to-financing-community-microgrids-wednesday-31-august-2022/

[7] The RES is billed on a monthly basis.

[8] RES contracted energy will be delivered each day of a multi-day outage.

1. Facilities located within the footprint of a Community Microgrid have the opportunity to procure resilience, through a monthly $/kWh RES fee that is separate from any existing rate tariffs. A facility will pay the RES fee to reserve a guaranteed allotment of daily delivered energy when the traditional transmission and distribution grids are unavailable for any reason, including natural disasters, terrorism, and repairs.
2. Through RES fees, the Community Microgrid owner-operators will recover the COS that is required to meet the contracted RES obligations. COS is determined by the capital expenditures ("capex") associated with Community Microgrid assets, operational expenditures ("opex") associated with operations and maintenance ("O&M"), and an appropriate rate of return.[9]

While COS is appropriate for pricing the RES fee, prospective Community Microgrid customers (i.e., RES buyers) might want an easy way to assess the value-of-resilience (VOR). As such, the Clean Coalition has developed a straightforward methodology for calculating the VOR, and it applies to individual facilities and larger grid areas alike. The VOR methodology is known as VOR123[10] because it tiers electric loads into three tiers, regardless of facility type or location:

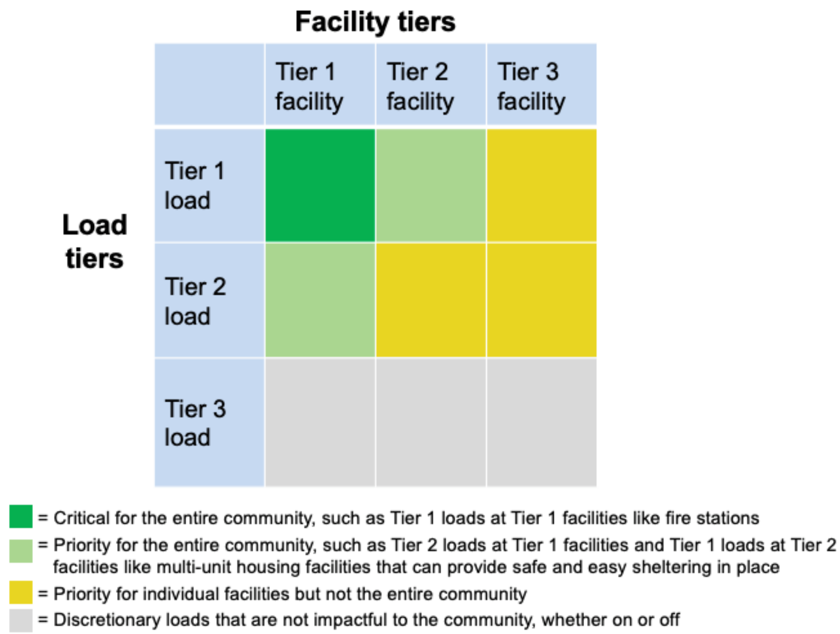


Tier 1, usually about 10% of the total load, are mission-critical, life-sustaining loads that warrant 100% resilience. **Tier 2, or priority loads, usually about 15% of the total load**, should be maintained as long as doing so does not threaten the ability to maintain Tier 1 loads. Lastly, **Tier 3**

[9] The rate of return should be at least 8%, as is standard for utility distribution infrastructure projects.
[10] https://clean-coalition.org/disaster-resilience/

are discretionary loads that make up the remaining loads, usually about 75% of the total load. Tier 3 loads should only be maintained when doing so does not threaten Tier 1 and Tier 2 resilience.

The same VOR123 principle can be applied to a larger grid area — with Tier 1 facilities being the most critical to a community.



Though a given community might have unique preferences, in most cases, the load tier percentages for a Community Microgrid will mirror the typical load tier percentages for individual facilities: 10% for Tier 1 load, 15% for Tier 2 load, and 75% for Tier 3 load. As shown in the chart above, the top emphasis will be to provision 100% resilience for Tier 1 loads at Tier 1 facilities (the darker green square in the chart) — followed by Tier 1 loads at Tier 2 facilities and Tier 2 loads at Tier 1 facilities (the lighter green squares).

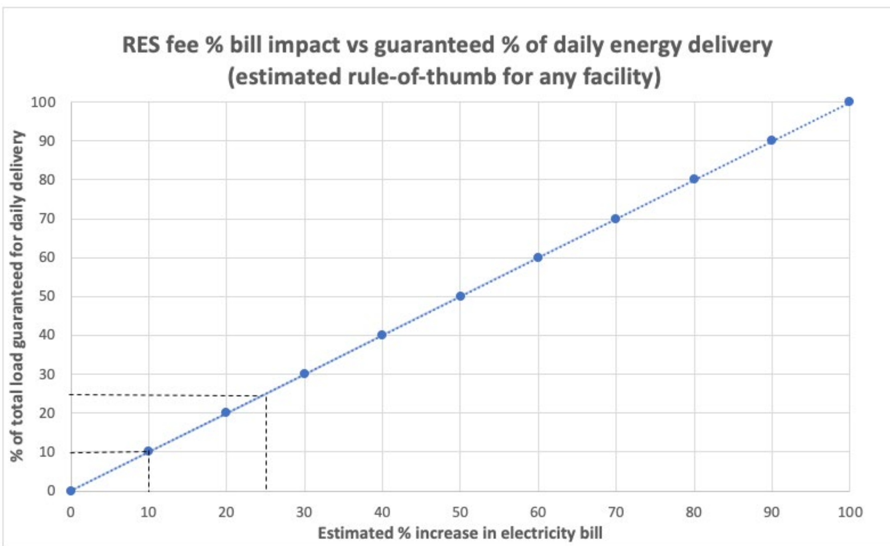
Tier 1 facilities include Critical Community Facilities ("CCFs") such as fire stations and emergency shelters. Depending on community priorities, other Tier 1 facilities could include grocery stores, banks, data centers, pharmacies, gas stations, EV charging stations, and apartment complexes that can provide efficient sheltering-in-place[11] during grid outages to help avoid overwhelming emergency sheltering facilities that should be reserved for people that cannot be easily sheltered in place. Due to the critical role that Tier 1 facilities play in keeping communities safe and functioning, the COS for serving all Tier 1 loads at Tier 1 facilities should be socialized, similar to how costs associated with the transmission and distribution (T&D) grids are socialized via rate-basing.[12]

[11] https://clean-coalition.org/community-microgrids/valencia-gardens-energy-storage-project/

[12] In addition to unparalleled resilience value for CCFs, Community Microgrids provide substantial economic benefits

Given the societal value of Tier 1 facilities, it is more than reasonable to rate-base the associated COS for Community Microgrids to a level that they can deliver RES allocations covering Tier 1 loads at Tier 1 facilities — and arguably Tier 2 loads at Tier 1 facilities, too. Ditto for Tier 1 loads at Tier 2 facilities.

Importantly, once an initial Community Microgrid is established for serving the CCFs, the incremental COS for expanding the Community Microgrid via the market-based RES will be relatively low. In general, the Clean Coalition expects that each 1% of load that a facility secures via a RES will result in a 1% electricity bill increase, as shown in this chart:



For facilities trying to determine the most cost-appropriate RES allocation, use of VOR123, relying on empirical data from past grid outages, or some other method to determine its load tiering, VOR, and appetite for RES fees will all work. Facilities with existing solar can reduce RES allocations, because a RES contract will ensure that the facility maintains electricity service during grid outages — from the Community Microgrid. Importantly, the solar will stay active, and the self-generation will cover at least a portion of their resilience requirements. Hence, such Community Microgrid subscribers will enjoy uninterrupted self-generated solar while also receiving RES-contracted energy from the Community Microgrid, unless energy availability is low from the Community Microgrid **and** the RES-contracted energy allocation has been exceeded on a given day.

The Clean Coalition analyzed factors from a real-world design for a Community Microgrid in Southern California to get the following data:

daily by generating energy and obviating massive transmission investments.

Factor	**Amount**	**Units**
RES fee	0.20	$/kWh
Tariff for energy sold to utility	0.10	$/kWh
Daily site load guaranteed by RES	2,300	kWh
PV+BESS financial incentives	1,800,000	$
PV size	1,500	kW
PV capex	3,000,000	$
BESS size	2,000	kWh
BESS capex	1,400,000	$
Microgrid hardware + MC2*	500,000	$
PV annual opex	7,000	$/year
BESS annual opex	5,000	$/year
Microgrid MC2 annual opex	15,000	$/year

Based on these expenses and income over 30 years (see table below), the Clean Coalition has calculated that the Community Microgrid owner will see an internal rate of return of at least **9%.**

Microgrid financial outflows:

	Year:	Capex	Opex
PV		$3,000,000	$7,000
BESS		$1,400,000	$5,000
Microgrid hardware + MC2		$500,000	$15,000
PV+BESS incentives		-$1,800,000	
Total annual expense:	1	$3,100,000	$27,000
	2	$-	$27,000
	3	$-	$27,000
	4	$-	$27,000

Microgrid financial Inflows:

	RES fees
RES fee ($/kWh)	$0.20
Guaranteed daily load (kWh)	2,300
Total annual income:	$165,000
	$165,000
	$165,000
	$165,000

	Sales to utility
Tariff to utility	$0.10
Annual PV sold (kWh)	2,400,000
	$236,000
	$236,000
	$236,000
	$236,000

The RES provides a revolutionary and straightforward approach for financing Community Microgrids and delivering unparalleled resilience to communities. Irrespective of the final tariff that the Commission adopts, there should be an option for the Community Microgrid Owner/Operator to levy a RES fee for participating customers – ensuring no cost shift to nonparticipating customers, adding a societal planning perspective that benefits all local customers through resilient CCFs, and making deployments in low-income community more feasible due to reduced up-front capital requirements.

b. A Community Microgrid tariff should allow the microgrid operator to island during times that benefit the ratepayers (e.g., GridOptimal performance).

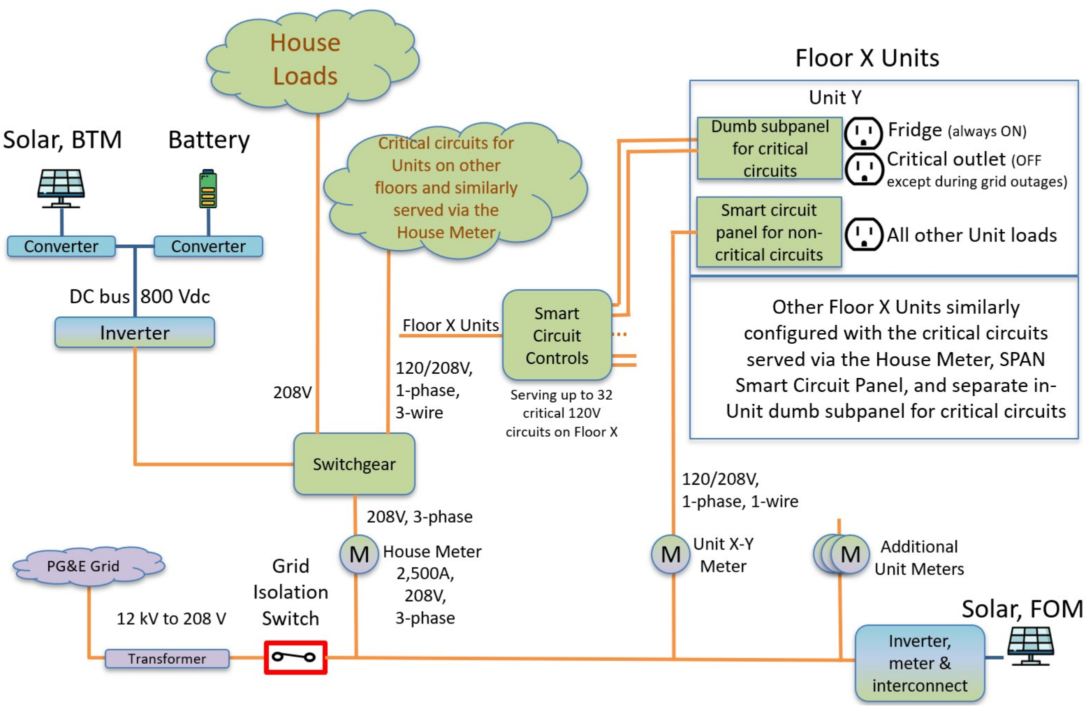
The CMET is excessively limiting in terms of when a Community Microgrid can island, only allowing isolation during broader grid outages (or emergency events named by the IOUs). One of the results of this strict condition is that the Community Microgrid Operator is unable to cycle the microgrid in a way that benefits the ratepayers. The Clean Coalition advocates for increased flexibility for islanding, so that a Community Microgrid operator could reduce demand during peak hours or provide demand response/exports when needed. The CMET project that the Clean Coalition is working on, called BERMUS, is a CEC-grant funded project with three unique requirements. The project must be Net Zero Energy, provide indefinite renewables-driven resilience to the most critical loads, and avoid imports from the grid every day during the period of 4-9 p.m. — which we refer to as GridOptimal performance. Under existing conditions (and the CMET submitted to the Commission), it is extremely difficult to achieve GridOptimal performance because islanding under blue sky conditions is not permitted. The closest equivalent is zero net imports during the peak, which does not reduce strain on the grid in the same way that isolating the Community Microgrid and managing energy using generation within the microgrid does. Moreover, because the daily peak (4-9 p.m.) is consistent throughout the year, the process is predictable for the utility and easily managed. Therefore, we urge the Commission to consider how Community Microgrids islanding can benefit the ratepayers and not limit islanding solely to situations where there is a broader grid outage.

c. Location of Grid Isolation Switch

The location of the grid isolation switch(es) will have an impact on the cost and complexity of the Community Microgrid as well as the development timeline. A Community Microgrid deployed on the low voltage side of the transformer will be much less complicated than a Community Microgrid with grid isolation switches on the high voltage side of the transformer and should likely be deployed much faster. As a result, it is important to delineate where the microgrid will be isolated early on in the design process. Furthermore, Community Microgrids isolating on the low voltage side of the transformer rely on less utility distribution infrastructure, making the development of legal agreements simpler than for more complicated Community Microgrids.

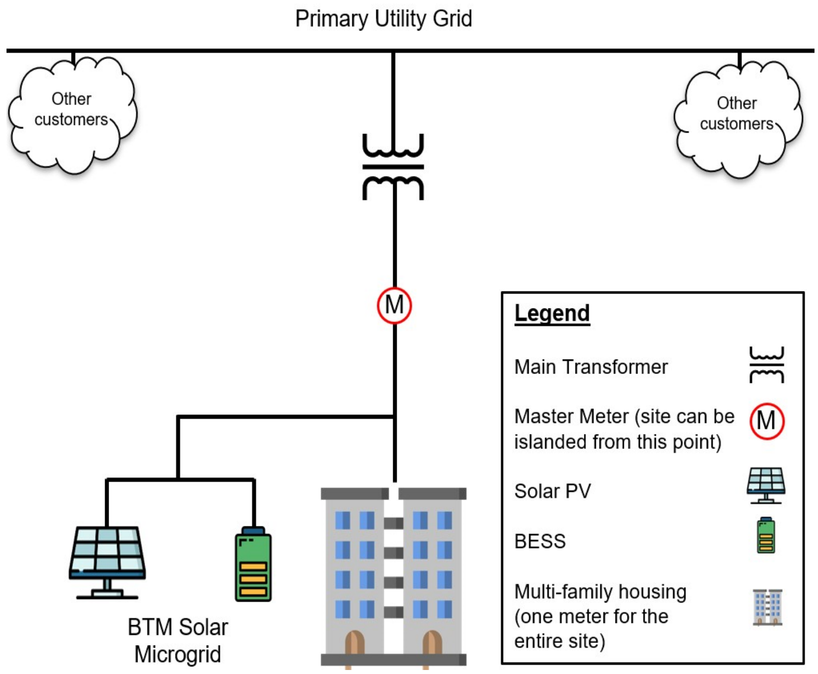
d. Master Metering is the most effective way to deploy microgrids at multi-unit housing ("MUH") facilities.

Because of an obscure 1981 law requiring every residential unit to be separately metered for electrical service, the only way to provision resilience at MUH facilities is through the deployment of a Community Microgrid with a grid isolation switch on the low voltage side of the transformer. While technically feasible, this results in an extremely complicated and chaotic design.



BERMUS Block Diagram

As can be seen from the image above, there is very complex wiring and load management for House meters (non-residential loads) and unit meters (residential loads). The critical loads (e.g., fridge, Wifi, HVAC, etc....) are wired to the house meters, which will be sustained by a Solar Microgrid during outages. During an outage, all unit meters will turn off. To offset loads during blue sky conditions both a NEM array **and** a VNEM array are required. As a result, the facility is unable to fully optimize at the site level in the way that we want, both from a technical and economic perspective. For MUH, which is extremely common throughout the state, this type of complex and unique solution is less than ideal. What is necessary for the widespread deployment of microgrids at MUH is a streamlined solution that is easy to deploy and cost-effective: master metering.



MUH facility with a Master Meter design

With a master meter, a single Solar Microgrid can serve the entire site, shaping loads and generation in a way that optimizes economic and resilience benefits. Moreover, the utility's distribution grid is no longer required since the isolation point is at the master meter, ensuring that other ratepayers are not negatively impacted in any way. The Clean Coalition urges the Commission to investigate master metering for MUH facilities, which represents the most efficient way to deploy resilience solutions for California's renters.

e. Innovative legal agreements between the utility and the Microgrid Operator will improve the functionality of Community Microgrids.

As explained in subpoint "b." above, with the discussion of allowing Community Microgrids to island for GridOptimal Performance [that also benefits the ratepayers], innovative legal agreements can enable additional functionality of Community Microgrids without impacting customer safety or the utility's ability to manage the grid. <u>One of the clearest reasons that the CMET has not been more successful is because Community Microgrids are categorized solely as resilience solutions and only authorized to island in a select few situations.</u> Permitting Community Microgrids to provide a full range of services will help close the financing gap and demonstrate that there are multiple value adders beyond resilience. Unintended consequences and liability can be effectively managed if the Community Microgrid is operating based on a known schedule and will be penalized/liable if any deviation occurs. Other legal agreements that should be ironed out in a Community Microgrid tariff include: cycling for economic purposes, deploying the Community Microgrid to increase hosting capacity or enable operational flexibility so as to not hit the threshold for a grid upgrade, allowing the Community Microgrid to serve as a black start asset for the broader grid, permitting the Community Microgrid to provide distribution-level grid services, DER deferral, etc.…

f. DER Deferral should be included in the design process.

SCE recently revealed that two deferral projects will have a combined savings of $7.56 million.[13] The Newbury Project ("ACORN 1") will defer a new 16 kV circuit at the substation, saving $3.72 million, and the Eisenhower Project ("WILDCAT 1") will defer a transformer upgrade, saving $3.84 million. In addition to the very apparent ratepayer savings, the projects demonstrate that DER are capable of deferring multiple types of grid needs and should not be construed as a tool for a singular purpose. DER deferral should be included in the Community Microgrid design process whenever possible to enable value stacking and benefit the broader ratepayers via the Community Microgrid deployment.

g. Size limitations should be removed or increased.

The current CMET tariffs limit Community Microgrid sizing to 20 MW or less, which was reasonable for a pilot program. However, in the development of a statewide Community Microgrid tariff, the Clean Coalition believes that the Commission should consider increasing the size limitation.

3. Category 3: Increased Cost Certainty

a. Updated Unit Cost Guide

It is essential for applicants to have a way to estimate costs accurately enough to plan for the financial considerations of deploying a Community Microgrid. As a result, we urge the Commission to require the creation of a unit cost guide with any technology that might be used in a Community Microgrid, particularly the costs for different types of sectionalization devices. For example, there should be a price differentiation for a solution that can be used on the high voltage side of the transformer versus the low voltage side, if there is indeed a difference in price. Ideally, the Community Microgrid unit cost guide should include installation costs as well as the capital cost, to give the most accurate picture of what costs the applicant will have to shoulder. Finally, an important

[13] CONFIDENTIAL DER PAYMENTS REPORT OF SCE (U 338-E), at p. A-1 – A3.

consideration in the design process is the availability of equipment. For example, there is currently a global shortage of transformers that could result in significant cost increases and project delays.[14] If a developer knows that it will be difficult to get a certain voltage transformer early in the process, there may be a ways to design around the issue. Therefore, we advocate for the creation of a Microgrids Unit Cost Guide (or an addition to the existing guides).

IV. CONCLUSION

The Clean Coalition appreciates the opportunity to submit these comments in response to the Joint IOU's submission of the CMET. We urge the Commission to adopt our proposed changes, including the ability to charge RES fees to recover costs.

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Dated: October 27, 2023

[14] https://news.bloomberglaw.com/environment-and-energy/grid-transformer-supply-crunch-threatens-us-clean-energy-plans