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PG&E Comments on Proposed 2022 Energy Code â€“ Solar PV and Storage Proposals

Additional submitted attachment is included below.

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California Energy Commission
Efficiency Division - Buildings Energy Efficiency Standards Program
Docket No 19-BSTD-03
1516 9th St
Sacramento, CA 95814

RE: PG&E Comments on Proposed 2022 Energy Code – Solar PV and Storage Proposals

Pacific Gas and Electric Company (PG&E) appreciates the opportunity to participate in the discussions of the proposed changes to the 2022 California Energy Code and to provide feedback on the solar photovoltaic (PV) and on-site storage provisions for the Energy Code.

Pacific Gas and Electric (PG&E) appreciates this opportunity to submit comments and applauds the California Energy Commission's (CEC) continued efforts to advance California building codes to promote cost-effective energy efficiency, contribute to California's Greenhouse Gas (GHG) reduction goals and enable pathways for all-electric buildings. PG&E's comments will focus on the CEC's proposal to expand solar PV requirements (and to introduce battery energy storage requirements) to high-rise multifamily (HRMF) and non-residential building types. PG&E believes these technologies can play a vital role in California's energy future, but only if the correct policies are in place to support grid safety and reliability to properly integrate these technologies, while ensuring fair cost sharing across all customers.

PG&E believes that the CEC's proposed requirements to expand solar PV in HRMF and non-residential buildings does not consider the impacts to the non-participating customers and to the grid. A required expansion of rooftop solar under current rates and tariffs risks further exacerbating the existing cross-subsidies among California ratepayers due to the existing Net Energy Metering (NEM) program[1]. In addition, adding more non-dispatchable generation could exacerbate potential grid impacts such as overgeneration[2] and curtailments[3]. Finally, a CPUC analysis has shown that on-site PV will add to the cost of the electric sector to achieve the same

[1] NEM 2.0 lookback study shows the NEM 2.0 program fails the Ratepayer Impact Measure (RIM) test, meaning rates for all customers increase as a result of the program.
[2] See CAISO data on oversupply and curtailments http://www.caiso.com/informed/Pages/ManagingOversupply.aspx
[3] See Department of Market Monitoring 2019 Annual Report, p. 47. http://www.caiso.com/Documents/2019AnnualReportonMarketIssuesandPerformance.pdf

level of renewables on the grid[4] as would otherwise occur by relying on existing or developing new large-scale renewable energy. These outcomes lead to upward rate pressure, which will make it more difficult and costly for the rest of California to electrify and reduce GHG emissions.

PG&E supports the CEC's requirement for HRMF and non-residential buildings that are required to install PV to include battery energy storage. PG&E agrees that on-site battery storage could help mitigate the affordability impacts to the grid and to non-participating customers, particularly if the batteries are operated to limit PV exports and move that energy generation to times of day when it would be more valuable to the grid. However, there are still many policy and technology uncertainties that need to be addressed and cannot be fully captured in the CEC's evaluation of PV + storage cost-effectiveness. These include:

- **Participant-benefit Uncertainty**: Many building types under consideration would be multi-tenant and/or mixed use, likely necessitating a Virtual Net Energy Metering (VNEM) tariff. It is assumed that landlords would enter a financial arrangement to share the benefits of this energy generation with their tenants. However, neither the CEC, CPUC, nor PG&E would have visibility into these financial arrangements, making it impossible to verify participant cost-effectiveness over twenty years.[5]

- **Tariff Risk**: Net metering tariffs, including VNEM, are currently in scope for revisions at the CPUC. A primary consideration for the Commission is meeting a statutory mandate to minimize cross-subsidies on the grid. These impending changes make it very challenging for anyone to predict bill savings from NEM/VNEM tariffs over the course of twenty years.

- **Controlling Battery Energy Storage**: The CEC's currently adopted control strategies for battery energy storage address current modes of operation (PV charging and time-of-use operations) and include one prospective use case that allows the battery to respond to the investor-owned utility (IOU) or aggregator's signals for dispatch. PG&E notes that current battery systems are predominantly used to reduce customer bills by discharging at times of customer peak demand, which may not be coincident with the times of day when storage discharging would be most valuable to the grid. Further, if the energy storage system is not paired with PV, this operation will increase aggregate GHG emissions[6]. PG&E sees potential to align the control strategies of these systems to maximize both customer and other ratepayer value, but there are limitations with currently available rate

[4] See CPUC 2017-2018 Integrated Resource Plan Reference System Plan and sensitivity analyses, slides 201-203. https://www.cpuc.ca.gov/uploadedFiles/CPUCWebsite/Content/UtilitiesIndustries/Energy/EnergyPrograms/ElectPowerProcurementGeneration/irp/AttachmentA.CPUC_IRP_Proposed_Ref_System_Plan_2017_09_18.pdf

[5] See PG&E's VNEM tariff: https://www.pge.com/en_US/for-our-business-partners/interconnection-renewables/net-energy-metering/virtual-nem.page?ctx=large-business

[6] See 2018 SGIP Advanced Energy Storage Impact and Evaluation Report, p. 1-7. https://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy/Energy_Programs/Demand_Side_Management/Customer_Gen_and_Storage/SGIP%20Advanced%20Energy%20Storage%20Impact%20Evaluation.pdf

structures and with grid planners' ability to send signals at mass-scale through demand response management systems.

Given these risks and uncertainties, PG&E makes the following recommendations:

1. **Consider Multi-tenant and Mixed-use Buildings On-site Requirements in a Future Code Cycle.** As noted above, these building types would likely need to take service under some version of a VNEM tariff, and the CPUC is currently revisiting its NEM tariffs (OIR R.20-08-020). While this creates tariff uncertainty for single-customer buildings interconnecting with standard NEM rates as well as multi-customer buildings on VNEM, the VNEM tariff has complexities that make it more difficult to assess both participant cost-effectiveness and non-participant and grid impacts.
    a. Exported generation: All generation under VNEM tariffs is exported to the grid; none is used to offset consumption at that property. Therefore, the grid is delivering power that is assumed to have been produced elsewhere. This can require a more robust grid than would otherwise be needed, and participating customers bypass grid charges through retail rate compensation. There also may be increased integration costs for managing these exports. None of these costs are paid by the NEM customer, which means that the cross subsidies between customers from NEM can be greater with VNEM.
    b. Uncertain participant cost-effectiveness: As noted above, policy stakeholders cannot guarantee cost-effectiveness with no visibility into landlord-tenant arrangements. The CEC's cost-effectiveness analysis takes a "whole-building" approach, which does not address potential complexities such as vacancies, creating a mismatch between PV generation and consumption, and credit allocation uncertainties for tenants.
    c. Interconnection queues: To provide better consumer protection, the CPUC is currently considering modifications to the VNEM interconnection process, which could add cost and time for developers.
    d. VNEM offerings in other non-IOU jurisdictions: Publicly owned utilities do not currently offer VNEM tariffs, which would create a patchwork new construction policy in California and put an increased compliance obligation in IOU service territories.

2. **Revise Community Solar Pathway to Enable Developers to Choose this Option.** Due to economies of scale, larger-scale solar is approximately 15-30%[7] of the cost of rooftop PV on a levelized basis. Community solar is preferable to rooftop as the participant compensation can be less than the utility's retail rate — the compensation under current NEM tariffs — while remaining cost-effective for the participant. Projects can also be built in locations where they add the most value to or impose the least cost on the grid.

3. **Show Cost-effectiveness for Grid and Non-participating Customers**. The participant perspective alone cannot capture all dynamics of requiring generation and storage, especially when a multi-tenant building is considered a single "participant." Unlike energy efficiency measures, which likely lower bills for both tenants and landlords, actual

[7] https://www.lazard.com/media/451086/lazards-levelized-cost-of-energy-version-130-vf.pdf

bill savings for tenants must be assumed. The CPUC's Total Resource Cost and Ratepayer Impact Measure tests would show a more complete picture of the costs and benefits of the proposed requirements as well as help align the CEC with the CPUC and other state-level planning stakeholders. The CEC should calculate these metrics alongside the participant cost test to better inform decision-makers on the impacts of proposed regulation.

PG&E appreciates the CEC for its close coordination with stakeholders and analysis of the potential outcomes of proposed PV and storage requirements and looks forward to continued dialogue on this important topic.

Sincerely,

/s/

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