

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



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Order Instituting Rulemaking to Revisit Net Energy Metering Tariffs Pursuant to Decision D. 16-01-044, and to Address Other Issues Related to Net Energy Metering.

Rulemaking 20-08-020
(Filed August 27, 2020)

**OPENING COMMENTS OF GRID ALTERNATIVES, VOTE SOLAR, AND
SIERRA CLUB ON THE PROPOSED DECISION REVISING NET ENERGY
METERING TARIFF AND SUBTARIFFS**

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SUMMARY OF RECOMMENDED CHANGES TO PROPOSED DECISION

1. Include customers with a household income at or below 80% of Area Median Income in the definition of “low-income customers.”
2. Increase export compensation for low-income customers in line with the Sierra Club’s general market proposal, starting successor tariff customers at a percentage of 2021 electrification-friendly retail rates and using a series of capacity-based stepdowns.
3. Use a more accurate low-income installed solar cost (\$4.28/W-DC) to model payback periods for low-income customers.
4. Provide low-income customers with rate certainty for 20 years or, at the very least, for the length of the projected payback period.
5. Rename the Market Transition Credit for low-income households to the ESJ Adder.
6. Increase the ESJ Adder to the point that low-income customers can realize a 10-year payback period.
7. Provide the ESJ Adder to low-income customers in Title 24-mandated new solar homes.

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In accordance with Rule 14.3 of the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), GRID Alternatives, Vote Solar, and Sierra Club (“Joint Parties”) respectfully submits these comments focused specifically on the low-income elements of the Proposed Decision (“PD”) in the above-captioned proceeding. These PD comments are timely filed pursuant to the December 17, 2021 Administrative Law Judge’s Ruling, which extended the comment deadline and increased the page limits for opening and reply comments.

I. Introduction & Subject Index

To satisfy the requirements of the guiding principles, the PD seeks to promote equity, inclusion, electrification, and paired storage to increase participation in customer-sited clean energy in low-income and disadvantaged communities.¹ The PD creates a subtariff that includes multiple elements specifically reserved for low-income successor tariff customers, such as exemption from the fixed monthly Grid Participation Charge (“GPC”),² providing a higher Market Transition Credit (“MTC”) to low-income customers in Pacific Gas & Electric (“PG&E”) and Southern California Edison (“SCE”) service territory,³ and exempting California Alternate Rates for Energy (“CARE”) customers from a change in legacy period.⁴ Though not

¹ PD at 76-77.

² *Id.* at 137.

³ *Id.* at 122.

⁴ *Id.* at 149.

yet fully defined, the new \$600 million Equity Fund⁵ is enormously important to strategically deploy customer-sited clean energy resources to some of California’s most vulnerable households. These subtariff elements are necessary because low-income customers face multiple barriers to deploying distributed generation and storage, and the Joint Parties support these elements of the PD. While these comments focus on low-income solar customer needs, we are very concerned that the PD as a whole will cause major solar market contractions that will make it difficult for companies to provide customer-sited clean energy to low-income customers.

Significant revisions to the PD are necessary to adequately protect access to customer-sited clean energy among low-income customers.

First, an important subset of low-income households is left out of the PD’s definition of low-income customers—namely households that do not qualify for CARE or Federal Electric Rate Assistance (“FERA”) but make 80% or less of their Area Median Income (“AMI”).

Second, even for those included in the PD’s definition of low-income customers, the PD’s net billing proposal would increase payback periods beyond the current NEM 2.0 program and beyond the periods projected in the PD, therefore making it *more difficult* for low-income customers who do not get Equity Fund assistance to participate than under current NEM 2.0 policy. To address this, we recommend that the Commission also:

1. Increase export compensation for low-income customers;
2. Use a more accurate low-income installed solar costs to model payback periods;
3. Fix export compensation rates for low-income customers to 20 years;
4. Rename the MTC to the ESJ Adder;
5. Increase the ESJ Adder to the point that low-income customers can realize a 10-year payback period; and
6. Provide the ESJ Adder to low-income customers in Title 24-mandated new solar homes.

We propose a detailed list of revisions to the PD in redlined form in Appendix A.

⁵ *Id.* at 138.

II. The \$600 Million Equity Fund Is Urgently Needed

The PD would create an Equity Fund with \$150 million in annual funding for four years “to create improved access to distributed energy resource technology for low-income customers and disadvantaged communities.”⁶ We agree with the PD that “an equity fund focused on promoting storage for low-income customers could assist the Commission in meeting the requirement of Public Utilities Code [PUC] Section 2827.1(b)(1) to ensure the tariff includes specific alternatives designed for growth among residential customers in disadvantaged communities.”⁷ Lastly, we support and appreciate the details of the Equity Fund being addressed in a future workshop and a future ruling⁸ so additional stakeholders will be able to provide essential place-based input.

The Equity Fund will hopefully provide hundreds of thousands of low-income households with additional solar and/or storage incentives which will decrease their payback periods. However, it will not reach a vast majority of the low-income households in the state. The U.S. Office of Energy Efficiency and Renewable Energy’s Low-Income Energy Affordability Data (“LEAD”) Tool estimates there are over 5.4 million households in California that have incomes at or below 80% of the AMI⁹, and over 3.3 million households with incomes at or below 200% of Federal Poverty Level, which corresponds with CARE eligibility.¹⁰

Because the Equity Fund is not large enough to reach millions of low-income California households, solar+storage payback periods need to be reasonable under the new tariff for low-income households who will not be able to access the fund. To achieve this goal, we recommend extensive additional changes to the PD.

III. The PD Errs by Failing to Include Customers with a Household Income at 80% or Below Area Median Income in its Definition of Low-Income Customers.

The PD restricts eligibility for equity elements to low-income customers, which it defines as “residential customers eligible for CARE or FERA, resident-owners of single-family homes in

⁶ *Id.* at 138.

⁷ *Id.* at 138.

⁸ *Id.* at 139.

⁹ Exh. IOU-12 at n.6 (noting approximately 5,494,928 California households have an income at or below 80% AMI).

¹⁰ The US DOE LEAD tool is available at <https://www.energy.gov/eere/slsc/maps/lead-tool>, and was included in the Joint Parties’ March 15 2021 proposal at 3.

disadvantaged communities (as defined in D.18-06-0[27]), or residential customers who live in California Indian Country (as defined in D.20-12-003) and take service on either the standard successor tariff or aggregated net energy metering subtariff (NEMA).”¹¹ The PD errs by failing to include customers with a household income at 80% or below AMI in its definition of low-income customers, because the Commission is clear that the record is sufficient to establish a different eligibility criteria.¹² Furthermore, the Commission has previously included these customers in the definition of low-income, both in its own Environmental and Social Justice (“ESJ”) Action Plan¹³ and in existing CPUC programs (such as the SGIP Equity Fund).¹⁴

The PD proposes multiple formidable *new* barriers to the general rooftop solar adoption market: an \$8/kW monthly Grid Participation Charge; export compensation based on complex, annually updated Avoided Cost Calculator (“ACC”) values; and instantaneous netting. Any of these elements would slash the cost-effectiveness of adopting rooftop solar for any customer, let alone a low-income one. The PD also includes multiple safeguards for low-income solar customers, recognizing that they need assistance to increase their participation in the clean energy transition. These safeguards include exemption from the GPC for ten years from the date of interconnection;¹⁵ the ability to take service under any time-of-use rate;¹⁶ the creation of a ratepayer-funded Equity Fund to create improved access to distributed energy resource technology;¹⁷ a monthly Market Transition Credit between \$0 and \$5.25/kW, depending on their service territory;¹⁸ and allowing existing NEM customers on CARE and FERA rates to retain their 20 year legacy period, although the PD is not consistent about which types of low-income customers get this treatment.¹⁹

¹¹ PD at 76-77.

¹² *Id.* at 77.

¹³ *Environmental and Social Justice Action Plan*, CPUC, at 9-10 (Feb. 2019), available at <https://www.cpuc.ca.gov/news-and-updates/newsroom/environmental-and-social-justice-action-plan>.

¹⁴ *Participating in Self-Generation Incentive Program (SGIP)*, CPUC, available at <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/demand-side-management/self-generation-incentive-program/participating-in-self-generation-incentive-program-sgip> (last visited Jan. 7, 2022). See also Tr. Vol. 12 at 2137:11-16 (Buchholz, Cal Advocates).

¹⁵ PD at 137.

¹⁶ *Id.*

¹⁷ *Id.* at 138.

¹⁸ *Id.* at 122.

¹⁹ *Id.* at 179, although at 149 and 185-186 (Ordering ¶ 12) the PD does not mention FERA.

We agree with the PD that distinct low-income treatment is appropriate to improve equity and inclusion and increase participation by low income households,²⁰ and we advocated for such provisions at hearing and in briefing to address the barriers that low-income customers face in adopting rooftop solar additional to those faced by the general market. However, customers with a household income at or below 80% of AMI are defined as low-income in Self-Generation Incentive Program (“SGIP”) and the Commission’s ESJ Action Plan, however, will not benefit from these exemptions and will face the new barriers without any support from the Commission. It is therefore critical that, for the purposes of this decision, these customers are included in the definition of low-income.

This additional category of customers makes up a large number of vulnerable Californians. The U.S. Office of Energy Efficiency and Renewable Energy’s LEAD Tool, which has been previously entered into the record, calculates that approximately 2.1 million households in California earn incomes at or below 80% AMI, but above the 200% of Federal Poverty Level which corresponds with CARE eligibility.²¹ In effect, the PD creates the greatest solar access barriers for these millions of low-income customers compared with all other customers, because these families already face many barriers to solar yet, will face new barriers in the successor tariff, and do not receive the multiple protections afforded to low-income households as defined in the PD.

Despite multiple parties discussing low-income eligibility at hearing²² and in briefing,²³ the PD includes no discussion for or against including customers making 80% of AMI or less in the definition of low-income customers. Instead, the PD summarily states that “establishing a different metric is premature at this time,”²⁴ and that five years after [the new tariff has been

²⁰ PD at 137-138.

²¹ The US DOE LEAD tool is available at <https://www.energy.gov/eere/slsc/maps/lead-tool>, and was included in the Joint Parties’ March 15 2021 proposal, at 3. Using 2018 data, the tool calculates there are 5,454,928 households at or below 80% AMI, and 3,372,180 households at or below 200% FPL. The difference between those two numbers is 2,082,748 households.

²² *See, e.g.*, Tr. Vol. 12 at 2137:11-22 (Buchholz, Cal Advocates) (supporting the 80 percent AMI definition as an eligibility requirement for the SGIP equity fund).

²³ *See, e.g.*, GRID Alternatives, Vote Solar, and Sierra Club Opening Brief at 14; GRID Alternatives, Vote Solar, and Sierra Club Reply Brief at 6-9.

²⁴ PD at 77.

implemented], the Commission will conduct an evaluation of “five years of data from the successor tariff to focus on both affordability and equity matters.”²⁵

The PD proposes that, following the evaluation, the Commission may alter eligibility metrics to include “expanding to a certain affordability ratio, maintaining the CARE, FERA, and disadvantaged communities’ eligibility, or a combination of these metrics (*e.g.*, CARE customers who live in disadvantaged communities), or other metrics.”²⁶ The Commission need not and should not wait for another five years to address income eligibility because the Commission specifically found that the record is not insufficient²⁷ and the Commission is poised to drastically cut the cost-effectiveness of rooftop solar and storage for the general market. Low-income customers that do not fall within the PD’s definition will be at a significant disadvantage in their financial ability to deploy rooftop solar and storage over the course of the next five years, and the Commission does not need to wait for that harm to occur in order to protect these customers.

Basing eligibility on AMI is a better reflection of low-income populations in California because it incorporates regional variation in cost of living, resulting in a more accurate understanding of economic vulnerability in California. The household income-based threshold for CARE or FERA is 200% or 250% of the federal poverty guideline, respectively.²⁸ The United States Department of Health and Human Services sets the federal poverty guideline as a simplified way to estimate the number of individuals and families in poverty and to determine financial eligibility for various federal programs.²⁹ One set of guidelines is developed for all 48 contiguous U.S. states and the District of Columbia,³⁰ accordingly providing no localized measure of poverty for California. In contrast, using a threshold based on AMI better reflects California’s high cost of living relative to other states as well as the varied costs of living within the state.

²⁵ *Id.*

²⁶ *Id.* at 77-78.

²⁷ *Id.* at 77 (“We disagree with Joint Utilities that the record is insufficient to establish a different low-income eligibility definition.”).

²⁸ *CARE/FERA Program: Discounts on energy bills for income qualified households*, CPUC, <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/care-fera-program> (last visited Jan. 5, 2022).

²⁹ Annual Update of the HHS Poverty Guidelines, 86 Fed. Reg. 7732 (Feb. 1, 2021).

³⁰ *Id.*

On this point, the cost of living within California varies so greatly that the CARE/FERA income threshold can actually be higher than 80% AMI in some places. We demonstrated a few examples where this occurs in reply briefs.³¹ To account for the wide variance in household income compared to regional living costs, and to avoid inadvertent exclusion of low-income households, we recommend using the CARE/FERA income threshold or 80% AMI, whichever is higher. This provides a more accurate threshold for identifying low-income populations in California than only using CARE and FERA thresholds. Without incorporating this localized measure of income vulnerability, the low-income threshold in this proceeding would leave out millions of low-income households in California.

Furthermore, using an AMI-based low-income eligibility is feasible because the California Department of Housing and Community Development (“HCD”) maintains low-income designations for each county.³² Under this proposal, utilities could determine eligibility in the exact same way as households demonstrate eligibility under CARE or FERA and verify whether the customer’s household income is lower than either CARE or FERA eligibility requirements or 80% of AMI. If the customer is lower than either, then they would be deemed low-income and eligible for all of the accordant benefits listed in the PD, including protection from legacy period reductions, exemption from the Grid Participation Charges, and the low-income Market Transition Credit (which, as we explain in Section IV.C. below, should be renamed an ESJ Adder, or ESJA). These protections are critical to ensuring equitable access to rooftop solar and storage.

IV. The PD Will Fail to Meet the Commission’s Stated Objective of Increasing Participation for Low-Income Customers Unless both Export Compensation and the ESJ Adder for Low-Income Customers Is Significantly Increased.

Even for customers within the PD’s definition of low-income, the PD will not increase participation because it will substantially extend payback periods for the same category of customers compared to NEM 2.0. The PD states an objective to achieve equity by increasing participation,³³ yet decreases the compensation rate for the same customers so far that payback

³¹ GRID Alternatives, Vote Solar, and Sierra Club Reply Brief at 8.

³² *Id.* at 5 (internal citations omitted).

³³ PD at 76 (“The successor tariff will address the equity issue by working to ensure increased participation by disadvantaged communities.”).

periods increase.³⁴ In other words, this PD *increases* barriers for low income customers.³⁵ To actually increase low-income customer participation compared with the current NEM 2.0 policy and ensure reasonable payback periods for low-income solar customers, export compensation and the ESJ Adder must be increased for these customers.

A. Dropping Export Compensation Immediately to ACC Value Will Not Allow the Solar Industry the Necessary Glidepath to Transition to Providing Solar+Storage for Low-Income Customers and Non-Residential Projects Serving ESJ Communities.

The PD bases export compensation on avoided cost values derived from the ACC,³⁶ set at monthly averages for each hour for weekday and weekend values³⁷ and climate zone.³⁸ The PD would set values for the first five years following a customer's interconnection based on a five-year schedule of values for each hour from the ACC.³⁹ Low-income solar customers are not exempted from this rate, nor are non-residential solar customers.⁴⁰ The PD's export values will make solar-only systems serving low-income customers and ESJ communities immediately uneconomic. The solar industry cannot realistically pivot to 100% solar-paired storage systems in 2022, as many solar providers will need to learn how to incorporate this technology into their available offerings, develop marketing information, and overcome global supply chain constraints and steep competition for obtaining necessary equipment.⁴¹ An export compensation glidepath is needed to support the California rooftop solar industry as it transitions to providing solar+storage as its primary product, both for low-income and other customers. Without a glidepath, there is a risk that many solar contractors will go out of business and not be able to bridge the transition to offering solar+storage to low-income customers.

³⁴ *Id.* at 110-13.

³⁵ The Equity Fund might address some portion of the barriers faced by low-income customers to adopting rooftop solar and storage, but until the implementation details are determined, it is unclear whether and how much the Equity Fund will address these barriers.

³⁶ PD at 114.

³⁷ *Id.* at 113.

³⁸ *Id.* at 115-16.

³⁹ *Id.* at 114.

⁴⁰ *Id.* at 136 (“To meet the stated policies and objectives for low-income customers, including increasing participation in the successor tariff, we approve the same structure adopted above for low-income customers, including the same export compensation rates as other customers.”).

⁴¹ See CALSSA Opening Brief at 110-111 (citing Exh. CSA-02 at Attachments 4 and 5, describing barriers to industry readiness for pivoting to solar+storage technology).

The Joint Parties recognize the Commission’s concern regarding the potential impact on nonparticipants of keeping the successor tariff’s export value close to NEM 2.0 levels for low-income customers. Thus, rather than continue to argue for the Policy A that we supported in testimony, we point to the middle ground approach advanced by the Sierra Club that can provide the means necessary for the Commission to balance all statutory requirements. Specifically, under the framework proposed by Sierra Club for residential customers, the export compensation for all successor tariff customers would be set equal to a percentage of each utility’s 2021 electrification-friendly retail rate, with capacity-based, gradual step downs to avoided cost after 10 GW of new rooftop solar capacity.⁴² Providing such an export compensation stepdown for low-income customers as well as for non-residential projects that serve ESJ communities is necessary for transitioning the market, potentially with adjusted percentage stepdowns, so that it can continue to serve low-income customers and ESJ communities. Tying the stepdowns to installed capacity is important to ensure the compensation level stays consistent even if deployment slows.

This system would provide more predictable, gradual decreases to export compensation for low-income customers and projects serving ESJ communities, and would provide some time for the solar industry to adapt to the solar+storage future. This would provide a more manageable pathway for low-income customers, ESJ communities, and the developers that serve them to adjust. A more gradual series of export compensation stepdowns alone will not be sufficient to increase rooftop solar access for low-income customers, however; more is needed, as we discuss below.

B. The PD Errs by Using Excessively Low Solar Installed Costs for Low-Income Customers, Artificially Shortening all of the Projected Payback Periods for Low-Income Customers.

The PD errs in the calculations used to estimate payback periods for low-income customers, both with respect to the export compensation and the ESJ Adder. The PD sets the installed solar cost at \$2.34/W-DC⁴³ for 2022 (which the E3 model adjusts to \$2.44/watt for 2023), which is far lower than actual installed costs for low-income customers. The July 2020

⁴² Exh. SCL-01 at 26, 31-32. Sierra Club proposed a ten percent step down for each tranche of additional GW of new rooftop solar capacity, but the percentage steps could be altered.

⁴³ PD at 70. The use of an artificially low solar cost estimate also has major implications for general market participants, but these comments focus on the impacts on low-income customers.

Disadvantaged Communities - Single Family Affordable Solar Housing (“DAC-SASH”) Semi Annual Progress Report showed that the average installed costs from CARE/FERA-eligible single-family homes in disadvantaged communities via the DAC-SASH program from 2019-2021 is \$5.14/W-AC, which converts to \$4.28/W-DC.⁴⁴ Using DAC-SASH installed costs of \$4.28/W-DC is reflective of the actual, recent cost to serve CARE/FERA single-family customers living in DACs. Generally, CARE/FERA customers living in disadvantaged communities are a hard-to-reach market and the cost to serve these customers is higher due to the barriers that need to be overcome to responsibly serve this market.

It is appropriate to consider financing costs for low-income customers because a large majority of customer-sited solar projects have been built via the Multifamily Affordable Solar Housing (“MASH”), Single Family Affordable Solar Housing (“SASH 2.0”) and DAC- SASH programs.⁴⁵ As of January 5, 2022, California Distributed Generation Statistics show that for MASH 1.0, 69% of the installed capacity is third-party owned (“TPO”), while for MASH 2.0, 52% of capacity is TPO.⁴⁶ As of the same date, for SASH 2.0, 84% of capacity is TPO, while for DAC-SASH, 94% is TPO, and for SOMAH, 80% is TPO.⁴⁷ Low-income households often do not have the available capital to purchase their systems outright or to reduce their system cost through the Investment Tax Credit (“ITC”) so financing and TPO provides a pathway for these customers to access rooftop solar and storage. Thus, the DAC-SASH installed costs of \$4.28/W-DC include financing costs for low-income customers.

C. The Five Year Fixed Export Compensation Rate Is Insufficient to Generate Certainty to Finance Low-Income Solar-Only Projects.

In addition to being very low, the PD’s export compensation values are fixed for far too short a period to support increased participation of low-income solar-only customers. For all future solar customers, the PD would fix export compensation values for the first five years of a

⁴⁴ Exh. PAO-01 at 3-61:18-19 (citing July 2020 DAC-SASH Semi-Annual Progress report and stating the average DAC-SASH low-income customer installation costs \$5.14/W). Costs in \$/W-AC can be converted to \$/W-DC by dividing by 1.2; in this case, \$5.14/W-AC is equivalent to \$4.28/W-DC.

⁴⁵ See GRID Alternatives, Vote Solar, and Sierra Club Opening Brief at 7.

⁴⁶ *Statistics and Charts: Low Income Solar PV*, California Distributed Generation Statistics, available at <https://www.californiadgstats.ca.gov/charts/li> (last visited Jan. 5, 2022).

⁴⁷ *Statistics and Charts: Low Income Solar PV*, California Distributed Generation Statistics, available at <https://www.californiadgstats.ca.gov/charts/li> (last visited Jan. 5, 2022). See also *Statistics and Charts: SOMAH*, California Distributed Generation Statistics, available at <https://www.californiadgstats.ca.gov/charts/somah> (last visited Jan. 5, 2022).

system based on the five-year schedule of values for each hour from the ACC, with the aim of enabling solar providers to predict customer savings.⁴⁸

Low-income solar customers, in particular, need stable rates to obtain financing, as these customers carry additional financing risk.⁴⁹ Financing entities need to ensure that the customer's solar system will generate sufficient value to pay the system off. If the period for fixed compensation runs out before the system is paid off, then the financing entity cannot estimate when the system's value will exceed the costs. For this reason, the PD should be amended to fix export compensation for low-income customers and those serving ESJ communities throughout the projected payback period. We recommend that the export compensation should be fixed for 20 years for low-income customers.⁵⁰

It is also important to note that locking in export rates that are too low will not help low-income families obtain financing. Rate stability is needed in order to be able to model potential cost savings. Having a rate that is steadily low might increase certainty, but it provides no help to actually showing cost savings.

While the PD seems to envision more low-income solar customers purchasing their system outright, third-party financing is a proven way to increase distributed generation technology among low-income customers, and the Commission should consider how the PD would impact the ability of low-income customers to benefit from these agreements. As stated in briefing, Lawrence Berkeley National Laboratory ("LBNL") specifically includes third-party financing agreements as a program element that supports low-income rooftop solar adoption.⁵¹

The Joint Parties recommended that low-income customers under our proposed Policy A be provided rate certainty for 20 years,⁵² and that term would be appropriate for low-income customers under the successor tariff as well. At the very least, the Commission should provide rate certainty to low-income customers for the length of the projected payback period.

⁴⁸ PD at 114.

⁴⁹ GRID Alternatives, Vote Solar, and Sierra Club Opening Brief at 22. *See also*, Exh. GRD-02 at 14:3-5, 14:8-10 (explaining that predictable rates and bill savings are required for low-income customers to adopt solar).

⁵⁰ Exh. GRD-01 at 8:17-18.

⁵¹ Exh. GRD-03 at 87. *See also* GRID Alternatives, Vote Solar, and Sierra Club Opening Brief at 6-7.

⁵² Exh. GRD-03 at 87.

D. The Low-Income Market Transition Credit Should be Renamed the ESJ Adder to Reflect Its Purpose.

We consider “Market Transition Credit” to be a misleading name for an adder that is designed to achieve acceptable paybacks for future ESJ solar customers; an export value stepdown is needed to allow the market to transition from solar to solar plus storage, while an ESJ Adder is needed to reduce low-income solar+storage paybacks over the long term. For this reason, we reframe the low-income Market Transition Credit as an ESJ Adder in these comments.

E. Payback Periods for Low-Income Solar Paired Storage Customers Will be Far too Long to Result in Meaningful Uptake Unless the Commission Significantly Increases the ESJ Adder (Low-Income Market Transition Credit).

As noted above, because the PD uses installed solar costs that are almost \$2/watt lower than actual installed low-income solar costs in California, the PD fails to calculate accurate payback periods for all customers, including low-income solar+storage customers. As such, the PD would result in unacceptably long payback periods for low-income customers.⁵³ Therefore, the Joint Parties strongly recommend that the Commission update its payback period modeling for low-income customers to better reflect actual costs.

We have conducted analysis to show that entering the accurate low-income installed solar costs of \$4.28/W-DC⁵⁴ into the E3 model used in the PD results in payback periods for low-income solar+storage customers that would actually be much longer than 10 years. Table 1 below shows that for systems sized to 100% of customer load, actual paybacks under the PD’s proposed changes for low-income solar+storage customers would be 14.6 years for PG&E and SCE and 13.4 years for SDG&E (see yellow highlighted fields).

⁵³ While the Equity Fund may address these issues in full or in part, the implementation details for the Equity Fund are not yet determined. Even under the best case scenario for the Equity Fund, it will not reach all low-income customers, and it is possible not every low-income customer will be able to access it.

⁵⁴ Exh. PAO-01 at 3-61:18-19 (citing July 2020 DAC-SASH Semi-Annual Progress report). Costs in \$/w-AC can be converted to \$/W-DC by dividing by 1.2; in this case, \$5.14/W-AC is equivalent to \$4.28/W-DC.

Table 1: Impact of Higher System Costs on CARE Solar+Storage Customer Paybacks

	PG&E	SCE	SDG&E
ESJ Adder (\$/Watt-AC per Month)	\$4.36	\$5.25	\$0.00
Counterfactual Bill (\$/year)	\$1,536	\$1,392	\$1,905
NEM Bill (\$/year)	\$46	\$17	\$400
Bill Savings (\$/year)	\$1,490	\$1,375	\$1,505
Annual Generation (kWh/year)	7,046	6,810	7,316
Bill Savings (\$/kWh)	\$0.211	\$0.202	\$0.206
Cost and Payback @ \$2.44 per Watt-DC Capital Cost in 2023:			
System Cost	\$14,899	\$13,747	\$13,809
Simple Payback Period (years)	10.0	10.0	9.2
Cost and Payback @ \$4.28 per Watt-DC Capital Cost in 2023:			
System Cost	\$21,694	\$20,047	\$20,109
Simple Payback Period (years)	14.6	14.6	13.4
Delta vs. Payback @ \$2.34 (years)	+4.6	+4.6	+4.2

Notes for Table 1:

- [1] Assumes annual solar generation equals 100% of customer load (7,500 kWh per year). Annual generation from solar and storage is less than 7,500 kWh due to storage losses.
- [2] System cost includes NPV of O&M costs, and interconnection costs, capital cost, and ITC.
- [3] Paybacks reflect the calculations in “Net Billing Tariff PD Model 12-17.2021.xlsb.”
- [4] The Net Billing Tariff PD Model applies a nominal \$2.44 solar capital cost in 2023, consistent with the \$2.34 per watt NREL 2022 cost estimate (in 2018\$) that the PD finds to be reasonable.

In Table 2 below, we calculate that adders for low-income solar+storage customers will need to be much higher than the ESJ Adders (*i.e.*, MTCs) proposed for them in the PD to achieve a ten-year payback period. Given the PD's focus on a ten-year payback period, we calculate the ESJ Adders needed for ten years, although a shorter payback period is appropriate for low-income customers, given the barriers they face to adoption. Table 2 shows that for a ten-year payback, the ESJ Adder needed is \$19.34/kW/month for PG&E, \$ 20.23/kW/month for SCE, and \$ 12.02/kW/month for SDG&E. High ESJ Adders for low-income customers result because their discounted rates produce lower behind the meter savings, while the cost to serve them is higher than for the general market. If the Commission does not use accurate solar costs for low-income customers and does not increase ESJ Adders for those customers to achieve a reasonable payback period using those correct costs, it will fail to increase customer-sited clean energy deployment in low-income and disadvantaged communities.

Table 2: CARE Customer ESJ Adder Required for 10-year Paybacks at \$4.28/Watt

	PG&E S+S	SCE S+S	SDG&E S+S
ESJ Adder (\$/Watt-AC per Month)	\$19.34	\$20.23	\$12.02
Counterfactual Bill (\$/year)	\$1,536	\$1,392	\$1,905
NEM Bill (\$/year)	(\$633)	(\$613)	(\$106)
Bill Savings (\$/year)	\$2,169	\$2,005	\$2,011
Annual Generation (kWh/year)	7,046	6,810	7,316
Bill Savings (\$/kWh)	\$0.308	\$0.294	\$0.275
System Cost	\$21,694	\$20,047	\$20,109
Simple Payback Period (years)	10.0	10.0	10.0

Notes for Table 2:

[1] Assumes annual solar generation equals 100% of customer load (7,500 kWh per year). Annual generation from solar and storage is less than 7,500 kWh due to storage losses.

[2] System cost includes NPV of O&M costs, and interconnection costs, capital cost, and ITC.

[3] Paybacks reflect the calculations in “Net Billing Tariff PD Model 12-17.2021.xlsh.”

The PD sets ESJ Adder (or MTC) levels higher for low-income customers in PG&E and SCE service territory than for general market residential customers, but requires all Adders to decrease by 25% each year until they are no longer available in the fifth year.⁵⁵ Low-income customers need an ESJ Adder to make up for declines in export value, their lower savings behind the meter, and the higher costs to serve them. Therefore, the Joint Parties recommend that the

⁵⁵ PD at 119, 122.

Commission keep the ESJ Adder vintage level steady year over year for low-income customers at least through the PD's 5-year evaluation period before implementing any stepdowns.

The PD says "The Market Transition Credit will remain constant for a customer for 10 years from the customer's interconnection date."⁵⁶ Because low-income customers need predictability in their bill savings throughout the term of their payback period, it is appropriate for the Commission to sustain the monthly ESJ Adder credits for low-income successor tariff customers for the full payback period.

V. If an ESJ Adder Is Included in the Decision, Low-Income Customers in Title 24-Mandated New Solar Homes Should Receive the Higher Low-Income ESJ Adder.

While the PD offers an ESJ Adder for low-income customers in PG&E and SCE territories,⁵⁷ it also states that "[c]ustomers who are required to install solar pursuant to the new construction requirements of the California Energy Commission 2019 update to the Title 24 Building Energy Efficiency Standards are not eligible for the Market Transition Credit."⁵⁸ The PD includes no exemption for low-income customers.

Low-income customers in new solar housing should still receive an ESJ Adder to address the barriers these customers generally face to deploying rooftop solar. Low-income customers in older homes would be eligible to receive the ESJ Adder, and the ESJ Adder provides a critical boost to the cost-benefit analysis that a customer must consider. We therefore recommend that the Commission permit low-income customers in housing subject to Title 24 be permitted to receive the low-income ESJ Adder.

VI. Conclusion

Despite its protections for low-income customers, the PD requires significant revision to increase participation by low-income customers in solar and paired storage deployment. For the reasons stated above, we jointly recommend that the PD be revised as we describe to deliver more equitable access and participation in customer-sited distributed generation and storage.

Dated: January 7, 2022

Respectfully submitted,

/s/ Katherine Ramsey

⁵⁶ *Id.* at 181 (Ordering ¶ 3(b)).

⁵⁷ *Id.* at 122.

⁵⁸ *Id.* at 117.

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APPENDIX A

Appendix A: Recommended Modifications to Proposed Decision

Pursuant to Commission Rule of Practice and Procedure 14.3(b), GRID-VS-SC request the following changes to the text of the Proposed Decision. The requested revisions to existing text are shown in strikethrough (for deletions) and in red font (for additions).

Findings of Fact

20. Lower income **Non-participant** customers are burdened with the additional expense **assigned** of a portion of the ~~82 to 91 percent~~ of the cost of service bypassed by NEM 2.0 customers whose bill payments only cover nine to 18 percent of their cost of service.
21. ~~The Lookback Study indicates that the NEM 2.0 tariff disproportionately harms low-income customers not participating in the tariff.~~
22. The Lookback Study indicates that the NEM 2.0 tariff disproportionately benefits non-CARE residential NEM 2.0 tariff customers while all other customers, ~~including those with lower incomes~~, bear the addition of 82 to 91 percent of the cost of service bypassed by these tariff customers.
43. Parties agree to differing degrees that the Commission should consider the length of time for a customer's payback period when determining the reasonableness of the successor tariff. **Because low-income customers face additional barriers to deployment, a shorter payback period is appropriate for these customers.**
46. Payback periods are **one important** ~~not the predominant~~ factor for customers when considering solar adoption.
48. Ten years to payback in combination with the monthly bill savings presents a balanced approach to promoting the adoption of paired solar, **though a shorter payback period is appropriate for low income customers, given that they face additional barriers to adoption.**
50. The number of years to payback should reflect all **actual** costs of solar and paired storage adoption, including maintenance costs.
51. ~~Only CALSSA disputes the NREL estimate of \$2.34 per watt as the cost of solar.~~
NEW: The best estimate of the cost of actual low income installed solar available in this proceeding is the DAC-SASH July 2020 Semi-Annual Progress Report \$4.28/W-DC.
57. The **export compensation** glide paths proposed by ~~CALSSA and SEIA/Vote Solar~~ are ~~inadequate~~. **Sierra Club is adequate to provide a gradual transition to avoided costs, reduce non-participant impacts, and provide the market for distributed solar and storage technology time to adjust; it is also appropriate for low-income customers.**

82. Export compensation based on Avoided Cost Calculator values sends more accurate price signals and promotes paired storage, **but a series of stepdowns based on newly installed capacity will provide a gradual glidepath to allow the distributed storage industry to adjust.**
85. Using the Avoided Cost Calculator **will require a series of step downs based on newly installed capacity to provide a gradual glidepath to allow the distributed solar and paired storage industry to adjust** ~~approach should lead to positive outcomes for customers and nonparticipating ratepayers.~~
102. Requiring successor tariff customers to take service on highly differentiated time-of-use rates will meet several guiding principles in this proceeding, **but it is appropriate to exempt low-income customers from this requirement.**
119. ~~The Market Transition Credit~~ **ESJ Adder** ~~provides the best~~ **a reasonable** approach for a **glide path to support adoption among low-income customers** in the successor tariff.
135. The certainty of a ~~five-~~**twenty-**year ~~locke~~**d-in** **export compensation** rate helps to ensure that customer-sited renewable distributed generation continues to grow sustainably **among low-income customers**, enhances customer protection measures, and provides transparency to customers.
139. Limiting the ~~Market Transition Credit~~ **ESJ Adder** ~~to a small subset of~~ **low-income** customers would ~~not ensure~~ **provide critical support to increase equitable access to** customer-sited renewable **distributed** ~~distribution~~ generation ~~continues to grow~~ **sustainably.**
140. The Commission does not intend the growth of the market to be focused solely on low-income customers, **but targeted support through the ESJ Adder is appropriate for these customers.**
- NEW: The ESJ Adder is meant to increase adoption of customer-sited renewable distributed generation among low-income customers.**
- NEW: A dollar per kilowatt credit (of the generator's installed capacity) for the ESJ Adder is a user-friendly calculation.**
- NEW: Allowing for a discrete line on the customer's bill for the ESJ Adder will provide customer transparency.**
- NEW: In combination with other elements of the subtariff, ratepayer funding of a consistent ESJ Adder supports the statutory requirement to expand access to disadvantaged communities.**
158. The Equity Fund ~~addresses~~ **supports** the statutory requirement of expanding access to disadvantaged communities.

NEW: The ESJ Adder assists the Commission in addressing the equity issue while also addressing the statutory requirement that customer-sited renewable distributed generation continues to grow sustainably.

166. Adopting the same ~~net billing tariff~~ **gradual stepdown** structure **in export compensation** for all income households meets the equity requirement in guiding principle b.
169. The combination of a ~~Market Transition Credit~~ **an ESJ Adder** and an equity fund **for low-income customers** could assist the Commission in meeting the requirement to ensure specific alternatives designed for growth among residential customers in disadvantaged communities.
196. The Lookback Study found that NEM 2.0 is not cost-effective for residential customers, **and** has negatively impacted non-participant ratepayers, ~~and has disproportionately harmed low income customers.~~

Conclusions of Law

6. ~~The Commission should affirm the NEM 2.0 tariff disproportionately harms low income customers.~~

NEW: The Commission should use the DAC-SASH Progress Report average installed costs of \$4.28/watt-DC for low-income customers.

23. The Commission should base export compensation on values derived from **a percentage of 2021 time-of-use rates with a series of capacity-based step downs to provide a glide path and gradual transition to** ~~the Avoided Cost Calculator.~~
28. The Commission should adopt a successor tariff that includes a ~~Market Transition Credit as a glide path~~ **an ESJ Adder for low-income customers.**
33. The Commission should adopt a ratepayer-funded, **fixed** ~~stepped down to zero, Market Transition Credit~~ **ESJ Adder** that is available to **all low-income** successor tariff customers who enroll in the tariff ~~over the next five years~~ **until the equity elements are reviewed in five years.**