BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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REPLY BRIEF OF THE UTILITY REFORM NETWORK REGARDING A SUCCESSOR TO THE CURRENT NET ENERGY METERING TARIFF

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SUMMARY OF RECOMMENDATIONS

Pursuant to Commission Rule of Practice and Procedure 13.12, The Utility Reform Network (TURN) provides the following summary of recommendations included in this reply brief.

Relevance of the NEM 2.0 Lookback Study

- The results of the NEM 2.0 Lookback Study demonstrate the massive cost shift associated with both the NEM 1.0 and 2.0 tariffs, the failure of NEM customers to adequately contribute to their cost of service, and the oversubsidization of participants. The Commission should reject critiques of the study and find that these results justify major reforms to balance the interests of participants and non-participants.

Methods of Analyzing Successor Tariffs

- Modifications to the Total Resource Cost (TRC) and Ratepayer Impact Measure (RIM) test that unreasonably inflate results, fail distinguish between vintages, and do not separately model different technologies should be given little weight.

- Proposals to modify or adjust the Avoided Cost Calculator (ACC) are outside the scope of this proceeding and should be considered as part of the ACC update process.

- Avoided transmission and distribution values for Distributed Energy Resources (DERs) are captured in the ACC. Proposals to incorporate one-off calculations for these values in this proceeding are unreasonable, lack evidentiary support, and should be considered in other dockets.

- The record of this proceeding provides insufficient support for the adoption of any specific values relating to the societal and resiliency benefits of DERs.

- Any successor tariff design should be capable of accommodating changes to federal tax law that have a material impact on the cost of DER resources to participating customers.

- Reliance on payback periods to assess successor tariffs should use common metrics and consistent approaches, consider the extent to which participants realize annual savings during the payback period, and assess benefits after payback has been achieved.

- The assumed customer solar deployments used for Integrated Resource Planning (IRP) and SB 100 modeling should not be used as binding constraints

on successor tariff design because they represent arbitrary input values and are not the result of a modeling process that considers the cost-effectiveness of these resources in comparison to alternatives.

• TURN's cost-effectiveness modeling is transparent, relies on reasonable inputs, produces valid results, and demonstrates that solar party proposals result in marginal cost-effectiveness improvements compared to the existing NEM 2.0 tariff.

• The statutory requirement for "sustainable growth" does not require the selection of a successor tariff that guarantees a particular level of business or profitability for solar vendors and installers.

• Two separate statutory requirements relating to the alignment of costs and benefits reinforce the importance of minimizing or preventing cost shifting.

• The Commission should not require the basic successor tariff to satisfy cost-effectiveness tests used by the California Energy Commission under the Title 24 building standards. The approval of a community solar option would support the achievement of the New Solar Home Mandate program objectives.

• Successful NEM reforms in other states lauded by the solar industry have resulted in tariffs that provide total compensation for Behind the Meter (BTM) resources far below the values proposed by the solar industry in this case.

Elements and Features of a Successor Tariff

• TURN's proposed method of export compensation provides adequate certainty to participants, will result in better alignment between compensation and hourly avoided cost values, and would not jeopardize the Commission's ability to develop standardized inputs and assumptions for estimating bill savings.

• The ability of customers to select amongst Time of Use (TOU) rate options under TURN's end-state successor tariff is appropriate.

• The approval of a separate monthly charge to recover Nonbypassable, Unavoidable and Shared (NUS) costs associated with self-consumption is an important successor tariff element, does not introduce significant complexity, can recover portions of costs included in retail rates, and does not frustrate the ability of customers or market participants to forecast expected customer charges over time.

• The use of estimated solar production as an input to calculating NUS costs relies on industry standard methods used by most parties in this case. Forecasts

of estimated hourly production, and the fraction of production that will be exported, are critical to the development of savings projections by vendors and installers under any successor tariff.

• The Commission has the authority under state law to design retail rates that collect charges for power produced and consumed behind the customer meter. Additionally, the express requirements of Public Utilities Code §2827.1 direct the Commission to approve a successor tariff design that yields equivalent costs and benefits notwithstanding any other provision of state law.

• States have jurisdiction over the design of net metering and billing tariffs. The requirements of the Public Utility Regulatory Policies Act (PURPA) only apply to net sales and have never been found by the Federal Energy Regulatory Commission (FERC) or any reviewing court to establish constraints on other rate design elements of net metering and billing tariffs.

• The application of a rate component to recover costs avoided through self-consumption of onsite generation does not violate any fundamental rights or jeopardize customer privacy protections.

• TURN's proposed Market Transition Credit (MTC) would provide a transparent up-front subsidy to support sustainable growth, achieve equity goals, prevent excessive long-term compensation, and accommodate outside funding sources. This approach is consistent with decades of California incentive policy and can be implemented without complication. Parties opposing a transparent MTC prefer opaque subsidies funded by all ratepayers that are difficult to identify and are provided indiscriminately to all successor tariff participants.

• TURN's proposal to require paired storage successor tariff customers to be capable of responding to dispatch instructions during emergency conditions would align public and private interests. Establishing this obligation for storage customers that receive subsidies and favorable tariffs is reasonable and would exempt vulnerable customers. To ensure sufficient time to establish core technical requirements, this element of the successor tariff should be delayed until 2025.

• TURN's proposed successor tariff for CARE customers would result in expedited payback periods, robust investment returns, and yield superior long-term cost-effectiveness when compared to comparable proposals submitted by the solar parties.

• The MTC can be added to incentives provided under other programs that support low-income customers and disadvantaged communities to reflect changes in participant economics under the successor tariff relative to NEM 2.0.

• The Commission has the statutory authority to consider changes to tariffs for NEM 1.0 and 2.0 customers in this proceeding. Adopting modifications to these tariffs in this docket would not violate due process.

• The transition glidepath proposed by TURN, and reflected in the Joint Recommendations, would prevent near-term disruptions to the industry, ensure consumers have uninterrupted access to tariffs that provide long-term certainty, and allow sufficient time to implement end-state successor tariffs.

Concerns about other Party proposals

• Export compensation should not be tied to retail rates because this approach is inconsistent with statutory requirements, fails to align compensation with avoided cost values, creates escalating cost shifts over time, and unreasonably rewards participants for retail rate increases.

• The Commission can and should use the ACC, rather than retail rates, to set export compensation levels.

• Solar industry export compensation step-down proposals could create uncertainty, encourage continuous litigation, and cause surges of enrollment prior to changes in compensation levels.

• Proposals by several parties to continue NEM 2.0 treatment for new solar projects in Environmental and Social Justice (ESJ) communities could primarily deliver benefits to high-income individuals and commercial customers without providing any meaningful assistance to low and moderate income residents of these communities.

Community Solar Virtual Net Energy Metering

• TURN supports the adoption of a community solar tariff that compensates exports based on avoided costs, promotes optimal project placement and configuration, allows participation by customers that cannot host onsite generation, and provides bill savings to low-income subscribers.

• A well-designed community solar tariff can provide an alternative method of compliance with the Title 24 building standards for new home construction.

• The Commission should adopt the community solar concept proposed by the Coalition for Community Solar Access (CCSA) subject to modifications regarding export compensation, customer contract provisions, and the Market Transition Credit. These issues should be addressed as part of an implementation phase with the goal of having an operational tariff in place by January 2024.

Successor Tariff Implementation

• TURN's implementation proposal accounts for concerns raised by various parties in testimony and hearings. Under TURN's proposal, successor tariff implementation would occur in three Phases that allow for immediate reforms, permit sufficient time to develop the elements of an "end-state" tariff that can go into effect no later than January 2024 and allow subsequent enhancements to be in place by the end of 2025.

• The Commission should not select a successor tariff based primarily on speed and ease of implementation. The goal of reform that balances the statutory criteria and addresses long-term cost shifting should take priority over short-term expediency.

REPLY BRIEF OF THE UTILITY REFORM NETWORK REGARDING A SUCCESSOR TO THE CURRENT NET ENERGY METERING TARIFF

I. INTRODUCTION

Pursuant to Rule 13.11 of the Commission Rules of Practice and, The Utility Reform Network (TURN) hereby submits this reply brief on the successor to the current net energy metering tariff. This reply brief responds to the opening briefs of the California Solar and Storage Association (CalSSA), the Solar Energy Industry Association and Vote Solar (SEIA/VS), the Coalition for Community Solar Access (CCSA), the Protect our Communities Foundation (PCF), the Natural Resources Defense Council (NRDC), the Small Business Utility Advocates (SBUA), Grid Alternatives/Vote Solar/Sierra Club (Joint Parties), Sierra Club, and the Agricultural Energy Consumers Association/California Farm Bureau Federation (AECA/Farm Bureau).

The briefs presented by practically all parties align on the principle that the current approach to compensating Net Energy Metering (NEM) customers for Behind The Meter (BTM) resources must be reformed. The acceptance of change by all stakeholders is noteworthy. However, the range of reform proposals demonstrates significant divergence with respect to the ultimate scope of reforms and the relative urgency for making significant changes. Most parties seeking a slow rate of change urge the Commission to place primary importance on ensuring that the prospect of large bill savings and short payback periods will motivate customers to invest in behind the meter resources. This singular focus on establishing an entitlement to outsized participant benefits ignores the costs of these tariffs and the impacts on all other customers.

Advocates of slow reform fail to recognize the consequences of exempting a growing portion of customers from contributing their share of a rapidly rising set of costs included in escalating electricity rates. Failing to recover adequate costs from successor

tariff customers would accelerate rate increases for all customers and impose economic hardships on the most vulnerable and those facing daunting affordability challenges.

Meaningful reform of NEM tariffs will not frustrate California's ability to meet its clean energy and climate goals. To the contrary, the Commission can use reform to ensure that limited ratepayer funds support the most cost-effective strategies for decarbonization. Money not spent providing excessive investment returns for customer solar can be reprioritized to support less costly community solar and storage or to accelerate other resource planning objectives. Given the competing uses of scarce ratepayer funds, the Commission should commit to achieve best possible outcomes for the environment, equity and affordability.

Parties wedded to the status quo argue against various successor tariff reform proposals on the basis that they are too complex, involve extensive changes to the current successor tariff, and would require significant implementation work. These arguments are intended to persuade the Commission that the only available option is minor incremental change to the existing NEM 2.0 tariff. The Commission should decline to accept the proposition that a major restructuring of the tariff is impossible.

Parties have advanced a variety of innovative proposals in this proceeding to guide the evolution of NEM tariffs. Although the Commission may wish to embrace a transition glidepath that involves interim tariffs, the transition period should be devoted to finalizing the details of an end-state tariff that satisfies all the statutory requirements and minimizes the extent of any prospective cost shifting. This approach is embodied in the Joint Recommendations of the Independent Parties and can be adapted as appropriate by the Commission.

II. RELEVANCE OF THE LOOKBACK STUDY TO CONSIDERATION OF THE SUCCESSOR TARIFF

TURN's opening brief recounts the value of the NEM 2.0 Lookback study in reinforcing the need for major and urgent reforms to the successor tariff. The study highlights the massive cost shift associated with both NEM 1.0 and 2.0, the oversubsidization of program participants, and the wholly inadequate contribution of these customers to covering their cost of service.[1] The results of the Lookback study demonstrate that existing tariffs are at odds with Guiding Principles #1 and #2 and require immediate and substantial modifications to protect nonparticipating customers.[2]

SEIA/VS argue the Lookback study supports the proposition that solar adoption motivates customers to increase their overall consumption and should therefore be understood to promote electrification and increased overall usage.[3] This claim is not supported by the actual language in the Lookback Study. While the study does note that customers often coordinate the installation of solar generation with other investments in their home, there is no evidence that customer would refrain from making these other investments without adding solar generation. For example, the Lookback study notes that customers often install solar as part of "making an expansion to the home."[4] It is not reasonable to conclude that an individual's decision to expand the footprint of their home depends upon the ability to add onsite solar generation. It is similarly implausible that a customer's decision to add a heat pump is tied to their purchase of an electric vehicle even though both investments may occur at the same time.

A better way to understand this observation from the Lookback study is that customers already committing to electrification and home upgrades are merely taking advantage

[1] TURN opening brief, pages 14-17.
[2] TURN opening brief, page 15.
[3] SEIA/VS opening brief, page 10.
[4] Net Energy Metering 2.0 Lookback Study, Verdant Associates, January 21, 2021, page 62

of an opportunity to add solar as a strategy to harvest free money due to the extremely lucrative nature of the existing tariffs. It is not surprising that an individual engaging in multiple home upgrades would perform them at the same time given the inconveniences and challenges of tackling each project on a stand-alone basis. The absence of any demonstration that solar adoption is the primary cause of subsequent electrification means that the Commission should be skeptical about any specific linkage.

Sierra Club urges the Commission to rely on the Lookback Study calculations of Marginal Customer Costs (MCCs) for each utility in deciding that the fixed charges in electrification tariffs are sufficient to recovery these costs.[5] The Commission should not make any determinations with respect to a reasonable level of marginal customer costs for each utility in this proceeding. Marginal cost data is not available for the 10 and 20 year terms required for successor tariff analysis. The data in the Lookback study comes from materials (including testimony) prepared by each IOU in its Phase 2 General Rate Case.[6] These values have not been adopted by the Commission in any case and are disputed by parties in ongoing proceedings. TURN is actively litigating the reasonableness of PG&E's MCCs in its current Phase 2 GRC (A.19-11-019) and SCE's MCCs in its current Phase 2 GRC (A.20-10-012). Given ongoing litigation over these values, the Commission should not find, in this proceeding, that MCCs cited in the Lookback study represent validated and approved costs that can be used for ratemaking purposes.

III. METHODS OF ANALYZING PROGRAM ELEMENTS THAT COMPLY WITH THE GUIDING PRINCIPLES

TURN's opening brief reviews methods for analyzing the alignment between successor tariff proposals and the guiding principles. These methods include the suite of cost-effectiveness tests authorized pursuant to D.19-05-019 and D.21-02-007 along with

[5] Sierra Club opening brief, page 5.
[6] Lookback study, pages 51-57, footnotes 66, 69, 73

consideration of participant payback periods and internal rates of return.[7] Other relevant criteria include the use of mechanisms to fund subsidies from sources other than retail electricity rates charged to all customers.[8] Finally, TURN offered a series of non-quantitative perspectives on determining the alignment between successor tariff elements and the guiding principles.[9]

A number of parties opposing major reforms devote substantial attention to modified versions of the cost effectiveness tests, seek to include additional societal and resiliency values, and contest the adequacy of the Avoided Cost Calculator (ACC). These parties also urge the Commission to ensure rapid payback periods for participants in order to meet specific adoption goals and warn about adverse consequences based on reform efforts in other states. Finally, parties argue about the Commission's obligations pursuant to the guiding principles and other related statutory provisions. TURN's reply brief responds to a number of these arguments, provides perspective on the modeled results for various successor tariffs, identifies key considerations that should guide Commission action in this case, and offers a series of counterpoints to claims about the possible impacts of successor tariff reform.

A. Use of RIM, PCT, TRC, PAC tests to assess the cost-effectiveness of a successor tariff

1. Total Resource Cost (TRC) test

a. The SEIA/VS results are flawed and should not be relied upon

SEIA/VS assert that storage and solar+storage facilities "pass the TRC test" with values in excess of 1.0 "over the period 2022 to 2030" using the 2020 ACC values.[10] These values are intentionally inflated and do not reflect a valid evaluation of cost-effectiveness. TURN's opening brief identifies five major flaws in the SEIA/VS analysis

[7] TURN opening brief, pages 25-41, 43-49.
[8] TURN opening brief, pages 49-51.
[9] TURN opening brief, pages 54-73.
[10] SEIA/VS opening brief, page 12.

that make the resulting values of little use for purposes of considering whether future NEM deployments are cost effective:

- The use of 2020 ACC values significantly boosts the forecasted benefits of these resources compared to the 2021 ACC. As explained by TURN witness Chait, "the 2020 avoided cost values were anomalous" relative to both prior and subsequent iterations and are unlikely to be reflected in any future ACC updates.[11]

- SEIA/VS use 25 years of avoided cost values to measure the cost-effectiveness of a tariff with a duration of 20 years. TURN's opening brief highlights the problem with this mismatch.[12]

- SEIA/VS provide results that blend solar and solar+storage technologies which effectively inflates the perceived cost-effectiveness of stand-alone solar.[13]

- The SEIA/VS blended TRC results include a "resiliency" adder for storage that is not reasonable and, at a minimum, should not be used to boost the perceived cost-effectiveness of stand-alone solar.[14]

- The SEIA/VS calculation provides an average over the 2022 to 2030 period which obscures the more granular TRC results for each year and boosts the claimed value of stand-alone solar by 25% relative to the first-year values to be expected in 2023.[15]

Due to these flaws, the Commission should not rely on the SEIA/VS TRC values and instead use the results provided by TURN and E3. These values show that stand-alone

[11] RT Vol. 10, page 1659, Chait.
[12] TURN opening brief, pages 26-27.
[13] TURN opening brief, pages 27-28.
[14] TURN opening brief, pages 28-31.
[15] TURN opening brief, page 28.

solar deployments are not cost effective (with values ranging from 0.36 to 0.56 absent any MTC) and that TRC values for paired storage applications are materially better.[16] Although solar with paired storage is not cost-effective from a system perspective, it does provide better results than stand-alone solar and should therefore receive priority access to any ratepayer-funded subsidies.

b. SBUA's proposal to rely exclusively on TRC benefits fails justify near-term support for solar and storage

SBUA devotes a major portion of its opening brief to discussing the TRC's applicability to this proceeding and begins with the observation that the hearing transcript did not reveal "much opposition or even discussion" with respect to this metric.[17] While the hearing transcript may not reveal significant cross examination on this topic, the relevance of the TRC was discussed in prepared testimony. TURN offered an overview of the TRC methodology, provided TRC results for various successor tariffs, and identified flaws with TRC methods used by several other parties.[18] TURN's analysis found, consistent with the modeling performed by E3, that the TRC results for stand-alone solar are far below 1.0 for both CARE and non-CARE customers, indicating that it "is not cost effective" and that measures to increase deployment are "not cost justified."[19]

SBUA urges the Commission to "approve a NEM successor tariff that is likely to result in the greatest net benefits as measures by the TRC test."[20] This requested approach is

[16] TURN opening brief, pages 20, 95. The values for stand-alone solar are not identical between these two tables because the first table (page 20) averages results for all the customer load profiles for each utility and the second table shows results for SCE that only use the customer load profile modeled by E3. Since the avoided cost benefits included TRC are affected by the customer load profile, the choice of average or individual load profiles can affect the overall scores.
[17] SBUA opening brief, page 4.
[18] Ex. TRN-1, pages 12-13, 34, 66, 72-74; Ex. TRN-3, pages 14-20, 76-91.
[19] Ex TRN-1, page 13.
[20] SBUA opening brief, page 4.

not useful because the design of a successor tariff does not typically alter the TRC results. As explained by TURN witness Chait in two sections of her direct testimony:

> The key elements of tariff design, including any incentives, various approaches to export compensation, netting, self-consumption, and grid charges, are not quantified in the TRC results. As a result, the only methods of materially changing the results of the TRC test are to modify the resource type (i.e., wind, paired storage) and/or generation profile, assume different system costs paid by the participant, and/or assume different utility administration costs.[21]
> ….
> the TRC results do not calculate the total costs and benefits of the tariff to all customers because they ignore the impact of the tariff on participant bill savings and the resulting the rate impacts on non-participants. As a result, the TRC values are relatively constant across a wide range of successor tariff options, making it impossible to use the TRC to assess one tariff that provides lower compensation versus another that provides higher compensation.[22]

SBUA argues that the TRC test is not the same for all successor tariff proposals because the evaluation fails to consider the combined cost-effectiveness of all technologies that would be deployed under the tariff.[23] In support of this claim, SBUA points to the higher value of solar accompanied by paired energy storage.[24] TURN agrees that paired storage installations would be more valuable to the system than stand-alone solar and provided analysis showing that the higher avoided cost benefits from these installations produce better TRC values.[25] Specifically, TURN modeled TRC scores of 0.37 for 2023 installations of stand-alone solar (SCE customer) and 0.59 for a 2023 installation of solar with paired storage.[26] Based on this assessment, TURN believes that if the Commission desires to provide subsidies to non-CARE customers through the successor tariff, it should prioritize paired storage resources rather than standalone solar.[27]

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[21] Ex. TRN-1, page 13.
[22] Ex. TRN-1, page 34 (The only notable impacts on TRC values occur if installed system costs are different under different successor tariff options or if NEM customers are assumed to bear additional up-front system costs tied to a second meter, interconnection or paying for estimated production calculation)
[23] SBUA opening brief, page 5.
[24] SBUA opening brief, page 5.
[25] Ex. TRN-3, page 71.
[26] Ex. TRN-3, page 71, Table 11.
[27] TURN opening brief, page 95.

E3 also performed analysis of TRC results for stand-alone solar and solar installed with paired storage. The results were the same for a group of tariff proposals that included SBUA. These results are summarized below and also appear in SBUA's own testimony:[28]

TRC results from E3 analysis of successor tariff proposals by SBUA, NEM 2.0, Cal Advocates, CalSSA, Joint IOUs, PCF A, SEIA/VS				
	Residential customer (CARE and Non-CARE)			
	Solar	**Solar + storage**	**Solar**	**Solar + storage**
	2023	**2023**	**2030**	**2030**
PG&E	0.36	0.5	0.63	0.83
SCE	0.58	0.83	1.05	1.4
SDG&E	0.39	0.63	0.73	1.09

The TRC scores modeled by E3 for SBUA's successor tariff were at the low end of results for paired storage applications, with tariffs from TURN and NRDC yielding higher results. The difference appears to be tied to a change in storage dispatch related to whether export compensation uses hourly values or is set by TOU period. SBUA proposes to aggregate avoided costs into TOU periods while TURN and NRDC would use hourly ACC prices.[29] As explained by E3,

> For the solar customer, the only distinction in TRC was for community systems. However, for solar+storage, there is an additional distinction among the proposals that factors into the TRC. Two different storage dispatch profiles are used depending whether a proposal's export rate varies hourly or by TOU period. Export rates that vary hourly would encourage storage dispatch that is more aligned with underlying system costs, leading to a higher TRC value for these proposals.[30]

SBUA suggests that the Commission should not rely on TRC scores but instead on the expected net benefits that would result from total quantities of technology

[28] *Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020*, E3 updated analysis for CPUC, June 15, 2021, pages 53-60; Ex. SBU-1, pages 48-49, Tables 8, 9.
[29] Ex. SBU-1, page 36.
[30] *Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020*, E3 updated analysis for CPUC, June 15, 2021, page 21.

deployment.[31] This suggestion ignores the fact that all TRC values for both solar and solar+storage in 2023 are well below 1.0 and would result in net costs, rather than net benefits, on a total cost basis. Stand-alone solar deployments for two of the three IOUs produce net costs (rather than benefits) in 2030. Increasing deployment of resources under a tariff that produces net costs would magnify these negative results and create worse outcomes.[32] Moreover, the best strategy for minimizing negative results would be not to deploy any stand-alone solar and focus exclusively on paired storage systems.

The TRC results highlight the importance of separately considering different technology configurations. This approach contrasts with SBUA's recommendation to ignore individual technologies and only consider a single value that incorporates an implied mix of stand-alone solar and paired storage installations.[33] While the TRC shows that no systems are currently cost-effective, the higher cost-effectiveness for solar with paired storage suggests that subsidies would be best channeled to these projects. The TRC results do not justify channeling equivalent subsidies to stand-alone solar projects. The Commission should recognize this reality and act accordingly.

2. *Ratepayer Impact Measure (RIM) test*

a. *SEIA/VS RIM test results suffer most of the same flaws as its TRC calculations*

SEIA/VS provide RIM test results purporting to show the adoption of its successor tariff proposal mostly eliminates any cost shifting to other customers by 2030.[34] These results are misleading, at odds with modeling conducted by TURN and E3, and do not reflect the likely cost shifting that would result from the adoption of the SEIA/VS tariff. The key flaws in the SEIA/VS calculations include most of the problems TURN identified with their TRC methodology. These flaws are as follows:

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[31] SBUA opening brief, page 6.
[32] If deployment of stand-alone solar results in a loss of $0.40-$0.60 for every dollar invested, the impact of investing more dollars would be larger total losses.
[33] SBUA opening brief, pages 7, 11. SBUA also focuses on 2030 TRC values (page 11) to support the adoption of a successor tariff that would be implemented in 2023.
[34] SEIA/VS opening brief, page 19.

- using 25 year avoided cost values to measure the cost-effectiveness of a tariff with a duration of 20 years inflates the estimated benefits.[35]

- using a single value that blends solar and solar+storage technologies and masks the inferior results for stand-alone solar.[36]

- using a uniquely constructed "resiliency" adder for storage that is not reasonable and credits all ratepayers with benefits that are only retained by the participating customer.[37]

In addition, the SEIA/VS presentation of RIM results does not clearly explain the fact that customers in each tariff "step" would lock into 20-year compensation based on a fixed percentage of escalating retail rates. Since SEIA/VS proposes residential targets of 780 MW/year for each "step", this approach would lock in two decades of excessive compensation for over 5,000 MW of residential customer solar deployed prior to 2030.[38] The Commission should recognize that substantial long-term rate impacts associated with a "gradual" improvement in RIM scores for new customers over the course of a decade would harm the affordability of electricity service for all customers.[39]

Both TURN and E3 calculated RIM scores for the SEIA/VS proposal that provide a counterpoint and highlight the very minor changes in cost shifting relative to the existing NEM 2.0 tariff. These results are provided in Section III (D).

[35] TURN opening brief, pages 26-27.
[36] TURN opening brief, pages 27-28.
[37] TURN opening brief, pages 28-31.
[38] Ex. SVS-1, page 12; Ex. SVS-3, page 23.
[39] SEIA/VS opening brief, page 19.

b. CalSSA modified export-only RIM test should not be employed

CalSSA's opening brief defends its use of an export-only RIM test which ignores cost shifting associated with electricity that is generated onsite and consumed behind the customer meter. PCF endorses this view and argues that the Commission should not consider any load reductions attributable to DERs as part of the RIM test. The Commission should decline to fundamentally change the RIM test as requested by these parties.

CalSSA argues that an export-only RIM test is appropriate because the NEM tariff "gives credits for exports to the grid" and customers "do not have an obligation to obtain their electricity through purchases from the utility."[40] This incomplete description of the NEM tariff ignores netting and the ability of a customer to reduce its usage due to self-generation. PCF similarly asserts that the RIM test should not consider reductions in imports from the grid attributable to either customer generation or energy efficiency.[41]

The critiques offered by CalSSA and PCF argue for not evaluating the cost shifting impacts of any measure that reduces customer usage of electricity from the grid including energy efficiency, conservation or demand response measures. Acceptance of this view would effectively obliterate the RIM test and prevent it from being used for most applications relating to DERs, a result which represents a primary goal of both CalSSA and PCF in this proceeding. These parties mount a collateral attack on past Commission determinations including D.21-02-007 (adopting guiding principles) and D.19-05-019 which cites to the "value" of the RIM test and adopts it for use in evaluating DERs.[42] The Commission should decline to radically revise the RIM methodology in this proceeding based on these critiques.

[40] CalSSA opening brief, page 49.
[41] PCF opening brief, pages 29-31.
[42] D.19-05-019, page 19.

CalSSA further suggests that successor customers should be assumed to add new loads as a result of their adoption of behind the meter solar generation.[43] This claim is both speculative and irrelevant. There is no evidence to suggest that the addition of load is expected to be typical, or even common, amongst successor tariff customers or that such addition is contingent upon the deployment of BTM resources. Moreover, this same phenomenon could be presumed for customers that adopt energy efficiency measures. Accepting CalSSA's premise would therefore undermine the application of the RIM test to any distributed energy resource.

CalSSA declined to subject its tariff to a conventional RIM test and deliberately refused to incorporate the 2021 ACC values into its analysis in order to make the misleading claim that "CalSSA's proposal achieves TRC and RIM values near or above 1.0".[44] The Commission should find CalSSA's refusal to provide valid cost-effectiveness results for its own tariff troubling. The Commission provided explicit direction for all parties making proposals to present a full suite of cost test results consistent with the Standard Practice Manual and to incorporate the 2021 ACC values into their showings.[45] The deliberate acts of defiance by CalSSA are intended to make it more difficult for the Commission compare successor tariff proposals and designed to produce misleading cost effectiveness results that artificially inflate the purported value to the grid and all customers.

3. Proposals to modify the 2021 ACC values are outside the scope of this proceeding

SEIA/VS urges the Commission not to rely on the lower TRC values that result from incorporating 2021 ACC values into the analysis. In support of this claim, SEIA/VS

[43] CalSSA opening brief, page 49.
[44] CalSSA opening brief, pages 49-50, 191.
[45] D.21-02-007, Finding of Fact 4 (directing review of TRC, RIM and PAC test results for all tariff proposals); ALJ ruling providing Procedural Guidance on Party Testimony, May 21, 2021 ("The proposed decision in this proceeding will chose a successor to the current net energy metering tariff based on the guiding principles, including a cost-effectiveness analysis using the most-recently adopted Avoided Cost Calculator at the time of issuance of the proposed decision.")

raise a litany of critiques to the 2021 ACC, many of which were already considered and rejected by the Commission in approving Resolution E-5150.[46] The Commission directed parties not to propose changes to the ACC in this case and to use the most recent version of the ACC for purposes of cost-effectiveness analysis.[47]

All parties have an opportunity to suggest modifications to the ACC as part of the ongoing 2022 update. The result of that update would affect long-term export compensation under practically all successor tariff proposals under consideration. The Commission should therefore decline to consider party claims that the cost-effectiveness analysis of their proposal is flawed because of inadequate values included in the 2021 ACC. Such claims are merely back-door efforts to circumvent the Commission's clear guidance to parties on this topic.

4. Potential Transmission and Distribution savings should be considered in other proceedings

Several parties ask the Commission to adopt different avoided cost values or give additional credit to customer solar for purported transmission and distribution savings that exceed the values produced by the ACC. These parties include CalSSA, AECA/Farm Bureau, and PCF. The Commission should decline to adopt one-off values in this case and instead direct parties to proffer relevant evidence in the Avoided Cost Calculator (ACC) update process and other appropriate proceedings to ensure that consistent values are used to evaluate all Distributed Energy Resources (DERs).

CalSSA argues that the amount of transmission investment needed to achieve the 100% zero carbon electric sector target have not been adequately studied by the Commission and asserts that the amount of future investment may be affected by the relative mix of

[46] SEIA/VS opening brief, pages 13-16

[47] D.21-02-007, pages 12-13 ("cost-effectiveness evaluations for distributed energy resources shall use the most recent version of the Avoided Cost Calculator….requests for changes to the Avoided Cost Calculator in this proceeding will not be considered."); ALJ Procedural Email Providing Guidance on Party Testimony, May 21, 2021 ("the Avoided Cost Calculator will not be determined in this proceeding, and therefore should not be litigated in testimony or briefs.")

distributed or central-station resources developed in the coming decades.[48] While the relative mix of resources may have an impact on future transmission development, there is no record in this proceeding that supports any particular finding on this point.

As explained in the rebuttal testimony of NRDC witness Chhabra, there is no evidence that the deployment customer solar reduces transmission investments and some evidence that it increases the need for costly distribution upgrades.[49] A recent study found that unplanned and uncoordinated deployments of distributed energy resources (which represent the outcome of relying on NEM tariffs) would require more transmission than coordinated deployments at optimal locations.[50] None of the solar parties identify any element of their successor tariff proposal that would result in coordinated deployments in optimal locations. The Commission should therefore decline to incorporate any alleged cost savings into the analysis of successor tariff options.

Despite arguing that the installation of customer solar could reduce the need for new transmission lines, CalSSA was unable to identify any data or analysis supporting the number, type and cost of transmission lines avoided by customer generation deployed under NEM 1.0 or NEM 2.0.[51] Although CalSSA claims that CAISO found that growth in NEM was the "primary reason" for the cancelation of $2.6 billion in transmission projects, the CAISO disputed this finding in a 2019 filing and noted that some of the cancelations were attributable to reductions in load caused by the 2008 economic recession.[52]

[48] CalSSA opening brief, pages 43-44.
[49] Ex. NRD-2, pages 20-26.
[50] Ex. NRD-2, pages 25-26.
[51] Ex. TRN-6, CalSSA response to TURN Data Request #3, Q3(b).
[52] CalSSA opening brief, page 48; Ex. NRD-2, page 24

In response to a TURN data request, CalSSA agreed that every large-scale new renewable generation facility does not require new transmission investment.[53] Moreover, CalSSA provided no forecast relating to transmission costs that could be avoided through the successor tariff. Instead, CalSSA suggests that the CAISO should conduct such analyses but admits that no such study is currently being requested or is likely to be performed.[54]

AECA/Farm Bureau proposes that the Commission adopt a specific value of $37.54/MWh to reflect the claim that every MW of customer solar reduces incremental transmission costs.[55] Apart from the methodological problems with this adder, which does not reflect an actual reduction in current or future transmission costs, the Commission should decline to adopt any transmission deferral values in this case. AECA/Farm Bureau should instead submit it proposal for consideration in the ACC update process.

PCF argues that the ACC "systematically under-values" reductions to transmission and distribution costs that result from BTM generation.[56] In particular, PCF suggests that limiting the ACC analysis to incremental transmission spending is inappropriate because the Commission should also consider sunk transmission costs.[57] TURN does not agree that the Commission should credit future NEM deployment with value for avoiding sunk costs unless there is a demonstration that these DERs could result in a portion of sunk costs being removed from future revenue requirements. Absent such a demonstration, the natural consequence of PCF's approach is to exempt NEM customers from paying for past investments and shifting fixed cost responsibility to all other customers.

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[53] Ex. TRN-6, CalSSA response to TURN Data Request #3, Q3(a).
[54] Ex. TRN-6, CalSSA response to TURN Data Request #3, Q3(c); RT Vol. 7, pages 1143-1144, Heavener.
[55] AECA/Farm Bureau opening brief, pages 16-17.
[56] PCF opening brief, pages 9, 17-20.
[57] PCF opening brief, page 21.

Values for avoided transmission and distribution are included in the Avoided Cost Calculator (ACC) that the Commission directed parties to use in this proceeding. To the extent the Commission agrees that some avoided transmission and distribution costs are not adequately reflected in the ACC, adjustments should be made in the regular ACC update process to ensure that the same assumptions and values are used for all DERs. Despite critiquing the adequacy of the transmission and distribution deferral values in the ACC, CalSSA witness Heavener agreed that additional values should not be adopted in this proceeding but instead be considered as part of "updates to the Avoided Cost Calculator" and potentially in the Integrated Resource Planning docket.[58] TURN agrees that parties should resubmit their ideas in the these forums.

Under the successor tariff proposals made by TURN and several other parties, export compensation would be tied to recent ACC values. As a result, any updates to the ACC reflecting revised assumptions regarding avoided transmission and distribution costs would directly benefit successor tariff customers. By contrast, the solar parties link export compensation to retail rates and give little weight to ACC values or other Commission processes. The Commission should recognize that linking compensation to the ACC will allow for claimed savings to be fully considered on a regular basis and for any updated values to be credited to successor tariff customers.

5. The Commission should not adopt values for other "benefits" attributable to behind the meter generation that are not reflected in the ACC

SEIA/VS suggest that the Commission should impute a variety of benefits to behind the meter customer generation that are not included in the ACC as part of the total benefits of the successor tariff to all customers.[59] PCF similarly urges the Commission to

[58] RT Vol. 7, page 1142, Heavener
[59] SEIA/VS opening brief, page 95.

consider societal benefits and resiliency benefits.[60] TURN does not support adopting any such values and crediting them to successor tariff customers in this proceeding.

CalSSA points to reduced leakage associated with out-of-state production of natural gas consumed within California.[61] While the benefits of reduced leakage associated with lower in-state natural gas consumption may be worthy of consideration, there is no basis to assign this value uniquely to behind the meter generation for purposes of assessing successor tariff options. Not only can this same benefit be obtained from large-scale renewable resources located within the state, it can also be realized through in front of the meter small-scale renewable generation located at the distribution level and through energy efficiency and conservation.[62]

PCF points to potential resiliency benefits for solar systems paired with energy storage but does not propose any particular values for inclusion in an analysis.[63] The values cited by PCF are either private (realized only by the customer with storage) or highly speculative and limited to very unique circumstances (lower emergency room visits during heat waves).[64] If the Commission does decide that individual customer resiliency has societal value, any calculation of these values should be granular, address probabilities and durations of outages in different portions of an IOU service territory, consider values that may be unique to certain types of customers (senior citizens and those on medical baseline), and be applied across a wide range of proceedings. None of these considerations are in the record of this proceeding.

[60] PCF opening brief, pages 9, 21-22.
[61] SEIA/VS opening brief, pages 30-31.
[62] RT Vol. 7, page 1166, Heavner (An in front of the meter resource at the same location as a behind the meter resource can provide identical grid benefits)
[63] PCF opening brief, pages 21-23.
[64] Many customers with storage may not live in hot, inland areas and could remain energized during outages that occur outside of heat waves. Moreover, only a very small number of customers are at risk of going to the hospital in the event that they lose power during a heat wave.

The Commission should decline to embrace the proposed one-off consideration of societal or reliability benefits in this proceeding only for resources eligible for the successor tariff. If the Commission wishes to assign a specific value to out-of-state methane leakage or any other societal value, it should either incorporate these elements into the ACC so that it applies to all DERs or consider these values as part of a Societal Test. TURN's opening brief explains why the use of a Societal Test, which was not presented by any party, would be the appropriate method for assessing an array of societal benefits that are deemed relevant.[65] Any such analysis should be used to evaluate both behind-the-meter and front-of-meter resources so that outcomes can be compared for various resource options with the goal of adopting a policy that produces least cost results.

Even if the Commission seeks to consider Societal Test results, parties have not provided reliable values that can be used for the analysis. Rather than inputting cherry-picked values developed by parties only for the purposes of defending NEM tariffs in this proceeding, the Commission should use a standard approach that incorporates common values applicable to DER evaluation. Absent a coherent and consistent approach, any consideration of bespoke societal values in this proceeding would result in skewed outcomes and fail to assist with an evaluation of alternative approaches to maximize total societal benefits at least cost.

B. New or extended federal tax credits could fundamentally alter the long term participant economics of new distributed energy resource deployment

All parties to this proceeding assume that the existing federal Investment Tax Credit (ITC) for residential solar installations will sunset after 2023, although there is ambiguity as to whether systems leased to customers and installed prior to 2026 could receive the credit.[66] The value of the ITC is substantial (22% for installations in 2023)

[65] TURN opening brief, pages 32-34.
[66] TURN opening brief, page 105. The credit would be claimed by the business retaining ownership of the system with the economic value flowed through to customers via a lower leasing/PPA price.

and has a material impact on the anticipated costs of energy from a behind the meter solar system. Many of the tariff proposals submitted by solar parties assume that higher tariffed compensation is needed to cover the anticipated loss of the ITC benefits post-2023.[67]

TURN's opening brief highlighted the importance of adopting a tariff design that can adapt to any changes in tax policy that materially affect participant economics.[68] Absent such a mechanism, any new or increased tax benefits would exclusively benefit participating customers through shorter payback periods and higher investment returns. If the Commission adopts a tariff design that compensates participants at values well above avoided costs, the availability of new federal tax benefits should be used to adjust tariffed compensation to reduce the cost burdens on non-participating ratepayers.

Since the submission of opening briefs, the US House of Representatives has moved forward with consideration of a series of major tax reforms including a significant package of clean energy incentives to be considered through the budget reconciliation process.[69] The package includes a 30% ITC for residential solar through the end of 2031, applies the 30% credit to residential battery storage (Section 136302), and would authorize an additional 10% ITC for projects located in low-income communities or 20%

[67] SEIA/VS opening brief, page 20 (PCT results are lower in 2024 due to federal ITC dropping to zero); Ex. SVS-1, page 19 (expects cost of energy from solar to rise in 2024), 52 (paybacks will become "significantly longer in 2024 due to the expiration of the federal ITC for residential solar"), 56 (ITC sunset "is another hurdle that the industry must manage in the next several years.", Attachment RTB-2, page 30 ("The period from 2023 to 2030 also includes the decline to zero in 2024 of the federal ITC for residential solar customers, a change which will have significantly increase the cost of these systems."); Ex.CSA-1, page 71 ("longer cost recovery periods in 2024 are the result of losing the federal ITC")

[68] TURN opening brief, pages 105-107.

[69] Pursuant to the provisions of H. Res. 601 and S. Con Res. 14, the US House of Representatives is considering a budget reconciliation package that was released on September 9 and is under consideration by the Ways and Means committee. See https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Memo_FC%20MU_2021.9.9_Final.pdf

if the project is a qualifying low-income residential building project or a low-income economic benefit project (Section 136103).[70]

TURN does not ask the Commission to rely upon this information or to embrace a specific prediction with respect to future tax policy. The Commission should instead be mindful that major changes in tax policy under consideration could upend core assumptions relating to participant economics. If the ITC is extended, increased, applied to energy storage, and boosted for projects in low-income communities, the reduction to customer costs could prove substantial. The Commission can adjust for these factors as part of a Market Transition Credit (MTC) or use other measures to reduce compensation. This capability must be embedded into any successor tariff design.

C. Other methods of evaluation that should be considered by the Commission

1. Payback periods

Several parties address methods for calculating and evaluating payback periods in opening briefs. Many of these parties conflate various payback metrics and fail to analyze successor tariff proposals using consistent approaches. In particular, TURN responds to arguments raised by CalSSA, PCF and SEIA/VS.

CalSSA argues that the Commission should adopt a target 7-year payback period under the successor tariff but fails to explain which payback metric should be used.[71] This failure extends to all of CalSSA's reference points from external sources regarding payback periods.[72] As noted in TURN's testimony and brief, the Commission must rely

[70] See Subtitle D, Part 1, Sections 136302 and 136103 (https://energycommerce.house.gov/sites/democrats.energycommerce.house.gov/files/documents/Subtitle%20D_Energy.pdf)
[71] CalSSA opening brief, page 20.
[72] CalSSA opening brief, pages 22, 27. For example, TURN's rebuttal testimony (Ex.TRN-3, page 24) explains that Figure 14 (which appears on page 27 of CalSSA's brief) inappropriately compares payback periods for various utilities using different metrics including a mix of

on consistent payback metrics rather than a hodgepodge of simple and discounted payback metrics that are not directly comparable.[73] In support of a 7-year payback, CalSSA asserts that E3 endorsed a "target cost recovery period of 7.5 years."[74] This characterization is misleading because E3 did not propose or endorse a 7.5 year payback. E3 described the 7.5-year figure as an "example 7.5-year payback" and provides MTC results for payback periods of 5, 7.5, 10, and 12.5 years.[75] These figures rely on the E3 payback metric, which includes present valued O&M costs, and should not be directly compared to party proposals that rely on discounted payback metrics.

PCF suggests that appropriate payback calculations that incorporate interest payments would add 60% to the results produced by E3.[76] This simplistic formula is not supported by TURN's analysis. TURN's opening brief provides a quantitative comparison of the various payback metrics that shows a full discounted payback (which includes interest payments) of 10 years is equivalent to E3 paybacks in the range of 7.7 to 8.1 years.[77] This example highlights the importance of using common approaches to calculating payback periods.

TURN's modeling of existing NEM 2.0 tariffs found fully discounted payback periods of 6 years for non-CARE customers of PG&E and SDG&E and 8 years for SCE non-CARE customers.[78] In light of the huge cost shift that has been demonstrated for the existing tariff, moving to the 7-year payback proposed by CalSSA (if they are endorsing a discounted metric) would result in virtually no reduction in the cost shift and fail to demonstrate any alignment between the costs and benefits of the tariff.

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simple, discounted and E3 methods. CalSSA made no attempt to correct for these different metrics, rendering the comparison highly unreliable.

[73] TURN opening brief, page 38.

[74] CalSSA opening brief, page 20.

[75] Ex. TRN-3, page 25, *citing* Alternative Ratemaking Mechanisms for Distributed Energy Resources in California, E3, January 28, 2021, pages 27, 29.

[76] PCF opening brief, page 50.

[77] TURN opening brief, page 38.

[78] Ex. TRN-1, page 76.

In support of a 7-year payback, CalSSA asserts that customers are "at a financial loss" until they achieve full cost recovery of their initial system investment and that even a 7-year period could prove to be a "poor investment considering risk/reward and other opportunities."[79] CalSSA provides no evidence or analysis to support these claims. In contrast, TURN's opening brief cites analysis showing that, under its tariff, customers with full discounted paybacks of as long as 13 to 17 years can realize net bill savings in every year prior to achieving full payback.[80] The fact that customers can benefit during every year of ownership even when full "payback" does not occur for more than a decade should prove a compelling proposition.

TURN provided analysis of investment returns under various successor tariff proposals and compared them to forecasted returns for common investments made by residential customers in equity and debt markets.[81] This analysis found that proposals made by the solar parties and Sierra Club produced 10-year returns more than double the forecasted returns for US Equity investments.[82] Given these facts, it is not clear what "other opportunities" CalSSA imagines to be more compelling to residential customers in the current investment climate and why the Commission should guarantee outsized returns financed by the rates charged to all customers.

CalSSA argues that TURN's successor tariff proposal is unreasonable because, for non-CARE residential customers with stand-alone solar, it yields discounted paybacks in excess of 20 years.[83] SEIA/VS make a similar claim but appear to cite simple payback

[79] CalSSA opening brief, page 20.
[80] TURN opening brief, page 38. Net bill savings account for annual costs incurred to repay the up-front investment in customer generation.
[81] TURN opening brief, pages 40-41.
[82] TURN opening brief, page 42.
[83] CalSSA opening brief, page 27.

periods.[84] As explained in TURN's testimony and briefs, the Commission can adopt TURN's successor tariff along with a Market Transition Credit and adjust the NUS charge to achieve any desired payback period for any particular customer.[85] TURN's tariff can solve for a target payback without also providing long-term compensation that exceeds avoided costs after payback has been achieved.

SEIA/VS presents an analysis from its rebuttal testimony that compares "simple payback years" from various jurisdictions with proposals submitted in this proceeding in an effort to provide an apples-to-apples comparison.[86] SEIA/VS revised an analysis performed by the IOUs by substituting various input values only for the California proposals and unilaterally modifying outcomes for other states.[87] The resulting comparison is misleading because the results are presented using different payback methods and may include divergences in methodology and input values. For example, SEIA/VS cite "simple" payback periods for utilities in different states even though the results for California are based on E3's payback method which is different (and yields longer durations) because it includes the present value of operating and maintenance expenses.[88] TURN's opening brief shows that the E3 payback periods can be more than 50% longer than a typical "simple" payback period.[89] Further, SEIA/VS substituted different cost data only for California tariffs which biases the comparison with other states.[90] Finally, SEIA/VS ignore the fact that TURN's proposal can be adapted to yield any target discounted payback period for successor tariff customers through a Market Transition Credit (MTC).

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[84] SEIA/VS opening brief, page 33. SEIA/VS references portions of testimony from SBUA that are not relevant. The SEIA/VS rebuttal testimony does not calculate payback periods for TURN's tariff proposal.
[85] TURN opening brief, pages 88-91.
[86] SEIA/VS opening brief, pages 35-36.
[87] Ex. SVS-1, page 54
[88] Ex. TRN-1, page 18; TURN opening brief, page 38.
[89] TURN opening brief, page 38 (E3 payback period for SCE CARE customer under TURN successor tariff is 8.1 years while the standard method of calculating a simple payback yields 5.3 years.)
[90] Ex. TRN-3, page 24.

2. *Adoption targets*

A number of parties argue that the Commission should design a successor tariff, and transition pathway, to ensure that the levels and timing of customer solar assumed in the recent IRP modeling and SB 100 report are achieved. For example, Sierra Club proposes that a 10 GW capacity target by 2030 is appropriate in light of the latest IRP Reference System Planning assumptions.[91] TURN strongly disagrees that these planning assumptions represent targets that should operate as binding constraints on successor tariff design.

The Integrated Resource Planning Process does not currently consider or quantify the costs of customer resources in its planning assumptions and does not produce forecasts of optimal DER deployment based on any modeling process.[92] The customer solar deployment assumptions are hard-wired inputs based solely on a forecast developed by the California Energy Commission that does not use any form of common resource valuation and is not a product of any cost-effectiveness analysis.[93] While the SB 100 RESOLVE modeling does consider resource cost, the customer solar targets were hard-wired into the Core scenario and the model did not select any customer solar in its optimization beyond the hard-wired values.[94] CalWEA presents compelling testimony demonstrating that reducing the assumed growth rate of customer solar by 50% in the SB 100 RESOLVE model resulted in replacement with other clean resources and produced present value savings of nearly $1.26 billion per year.[95]

Sierra Club attempts to dismiss the CalWEA findings by suggesting that reducing customer solar will result in more reliance on gas-fired generation to meet resource adequacy needs.[96] This observation is misleading. As explained in the SB 100 study, the

[91] Sierra Club opening brief, page 24.
[92] TURN opening brief, pages 59-60.
[93] RT Vol. 8, page 1320, Beach.
[94] Ex. CWA-1, pages 5-6.
[95] Ex. CWA-1, page 7.
[96] Sierra Club opening brief, page 26.

Effective Load Carrying Capability of solar declines to only 2 percent, which makes it virtually useless for purposes of retiring gas-fired generation.[97] The only reason that RESOLVE finds that customer solar reduces gas generation is because the model is forced to add more energy storage to address the grid challenges created by the customer solar. [98] It is the addition of energy storage, not the adoption of customer solar, that drives the rate at which gas fired capacity is retired. Instead of relying on customer stand-alone solar, which is substantially more expensive than alternatives (especially when retail tariff compensation is considered), the Commission could find that another portfolio of clean resources would achieve the SB 100 benefits and retire more existing gas generation at far lower cost.

TURN is not asking the Commission to make any determinations regarding the optimal resource portfolio in this proceeding. Those determinations should be made elsewhere. In this proceeding, the Commission should recognize that there are no adopted customer solar deployment targets produced by RESOLVE modeling and the Commission has not evaluated alternative strategies for achieving the state's clean energy and climate objectives that include lower levels of customer DERs. It is not reasonable to conclude that the successor tariff must ensure the hard-wired customer solar inputs to the RESOLVE model (provided by the Energy Commission) are realized at any cost.

D. TURN's modeling of successor tariff cost-effectiveness

1. Assumed future cost of solar

CalSSA disputes several assumptions used in the modeling of new solar installation costs for purposes of analyzing successor tariff options. First, CalSSA opposes the use of

[97] Ex. CSA-1, Attachment 9, SB 100 report, page 79 ("Comparing across scenarios, despite the significant increase in variable renewable energy nameplate capacity, the ELCC contributions increase relatively little, with a marginal ELCC for solar at 2 percent and a marginal ELCC for wind at 19 percent.")

[98] Ex. CSA-1, Attachment 9, SB 100 report, page 79 ("In scenarios where the optimization results in more battery storage, there are increases in economic gas retirements")

the NREL Annual Technology Baseline for purposes of forecasting future solar costs and argues that the Commission should instead assume higher prices that are tied to historically observed costs in California.[99] TURN relied on the NREL forecast which was also used by E3 in its analysis. While CalSSA proposes to rely on historical data, TURN believes that future installed cost estimates are needed to quantify the cost-effectiveness of future successor tariffs. The NREL data provides the best snapshot of future costs available to the Commission in this proceeding.

Second, CalSSA argues that since the NREL costs modeled by TURN do not include "financing costs…the cost recovery periods calculated by the IOUs, E3 Cal Advocates and TURN will be shorter than those for systems that used financing."[100] This observation is both incorrect and misleading. Since the costs of financing a system are incurred during the operations period, they are not properly included in upfront capital costs. TURN's modeling did include finance costs in both upfront purchase and lease scenarios. Because the impact of finance costs cannot be captured in a simple payback cost recovery period calculation (which only looks at first year values), TURN provided results using a full discounted payback period which captures financing costs. The financing assumptions used by TURN to perform these calculations are included in its testimony and in the complete model that was entered into the record.[101]

Third, CalSSA notes that main electrical panel upgrades and permitting / interconnection delays are not included in the modeled costs.[102] TURN did not include these costs because they are not incurred for most installations and should therefore not be assumed in base case quantifications. CalSSA's own self-selected survey of its own members, which should not be considered statistically significant, found that 28% of

[99] CalSSA opening brief, pages 29-33.
[100] CalSSA opening brief, page 30.
[101] Ex. TRN-1, pages 61-62; Ex. TRN-5.
[102] CalSSA opening brief, page 30.

new installations involve main panel upgrades.[103] However, CalSSA did not ask the survey respondents whether the reported panel upgrades were necessary to accommodate solar, performed in conjunction with other electrical work at the residence, or done to accommodate new non-solar electrical loads.[104] This information is important to assess whether many reported panel upgrades are voluntary, related to the installation of an electric vehicle or building electrification technology, or an essential element of any solar installation for some customers.

Finally, CalSSA notes that TURN's model does not differentiate capital costs for larger and smaller residential solar systems.[105] While this observation is correct, TURN notes that E3 took the same approach and CalSSA also relies on data from NREL that provides a single estimated cost (in $/kW) for all residential systems between 2.5 kW and 10 kW in size.[106] It is not clear that any party in this proceeding, including the solar parties, performed the differentiation that CalSSA criticizes TURN for not incorporating into its model. TURN did differentiate solar costs by installation year, eligibility to receive the federal Investment Tax Credit, financing cost and income tax rate.

The cost and financing assumptions incorporated into TURN's model are transparent, were proactively shared with parties when TURN served its direct testimony, and represent conservative base case conventions for use in modeling successor tariff alternatives. The Commission should find that these inputs are reasonable for this intended purpose.

[103] Ex. TRN-6, CalSSA response to TURN Data Request 3, Q8. CalSSA sent email requests to 205 contractors and got 62 responses.
[104] Ex. TRN-6, CalSSA response to TURN Data Request 3, Q8(c).
[105] CalSSA opening brief, page 118.
[106] Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020, E3 updated analysis for CPUC, June 15, 2021, page 14; CalSSA opening brief, page 31.

2. *Modeling of Market Transition Credit*

CalSSA urges the Commission not to rely on the Market Transition Credit values produced by TURN's model based on several specific critiques. These critiques are both misleading and based on a misunderstanding of TURN's analysis. The Commission should recognize that CalSSA's concerns are meritless and do not undermine the validity of TURN's model.

CalSSA first asserts that TURN's model is a "black box."[107] This critique is puzzling given that TURN initially made its model available to all parties as part of its filed proposal and circulated an updated version at the time it served its direct testimony.[108] The model is fully transparent, runs on Microsoft Excel, and has no confidential material. TURN devoted an entire section of its direct testimony to describing the model assumptions and logic, explaining the inputs used, comparing to E3's modeling and explaining the scenarios it ran.[109] Any party with a working version of Microsoft Excel is capable of running the model, reviewing the calculations, modifying the inputs, and producing their own results. TURN offered to assist other parties with the model but CalSSA did not avail itself of this offer. Based on these facts, it is not possible to claim that the model is either a "black box" or that a competent expert is unable to review the methods of calculation used to produce results.

CalSSA further suggests that the modeling produces illogical results because there are a select number of scenarios that show a customer receiving negative savings over the life of the system even after receiving a Market Transition Credit designed to provide payback after 10 years.[110] CalSSA's description omits the extensive response provided

[107] CalSSA opening brief, pages 117-118.
[108] TURN provided a link to a fully usable version of its model to the entire service list of this proceeding on March 15 (when its proposal was served) and again on June 18 (when direct testimony was served).
[109] Ex. TRN-1, pages 20-31, 60-65.
[110] CalSSA opening brief, page 118.

by TURN witness Chait during hearings that explains why the individual customer scenario highlighted by CalSSA is not representative of a real-world situation.[111]

In the particular scenario highlighted by CalSSA, two types of smaller, all-electric SDG&E CARE customers receiving an up-front incentive experience negative bill savings over 20 years because they are assumed to switch from a rate structure with baseline to a rate structure with no baseline quantity following successor tariff adoption but are not assumed to undertake any electrification measures that increase their usage and change their load profile.[112] These customers experience net costs because the switch to a no-baseline rate proves very adverse relative to the tariff with an all-electric baseline quantity that was used to bill the customer prior to solar adoption. This particular sequence of events would not occur in the real world.[113] Instead, these customers would continue to take service under a baseline rate (as allowed under TURN's successor tariff), receive an MTC incentive, realize a 10-year discounted payback period and receive net benefits over the 20-year analysis period including Internal Rates of Return (IRR) between 18.8% and 23.6% -- results that are shown in a different section of TURN's modeling results not referenced by CalSSA.[114]

In attachments to direct testimony, TURN provides comprehensive results for 81 different customer types (across the three IOUs) under four separate scenarios.[115] These scenarios include (1) Successor tariff with baseline with MTC, (2) Successor tariff with baseline no MTC, (3) Successor tariff no baseline with MTC, and (4) Successor tariff no baseline no MTC. In addition, TURN considered each of these scenarios under the alternative assumptions that the customer acquires solar generation through either a

[111] RT Vol. 9, pages 1541-1543, Chait.
[112] RT Vol. 9, page 1542, Chait.
[113] Because these particular outcomes are highly unlikely to occur, they were not presented in the summary results in included in TURN's direct testimony (Ex. TRN-1, pages 67-68)
[114] Ex. TRN-2, Appendix B, UpfWBWI tab, page 8 of 11, Upfront Purchase Sucessor Tariff With Baseline and Incentive, customer profiles for SDG&E/CARE/Coastal/All Electric/Small/EV and SDG&E/CARE/Inland/All Electric/Small/No EV.
[115] Ex. TRN-2, Appendix B.

lease or an up-front purchase. This results in a total of 648 customer/scenario/solar acquisition combinations.

The interaction between baseline quantities, all-electric rates, and electric vehicle (EV) adoption means that not all customer combinations produce beneficial bill savings results. It is important to note that the up-front MTC payment is not included in bill savings. There are 25 combinations modeled by TURN that produce negative results out of 324 combinations that include an up-front incentive. However, it is extremely unlikely that any of these 25 customers would experience negative bill savings after receiving an up-front incentive because, in each case, the customer would have the option of selecting a more favorable tariff option that aligns with their usage pattern and results in net benefits over the 20-year period.

TURN's modeling assumes that, prior to acquiring solar generation, customers with an EV are assumed to take service on a rate structure with no baseline credit and customers without an EV are assumed to take service on a rate structure with a baseline credit.[116] The model results show that certain customers with an electric vehicle experience negative bill savings when they are assumed to take service on a rate structure with a baseline following successor tariff adoption. This result is unlikely to occur because the baseline rate structure is not designed to support electric vehicle charging, does not provide strong off-peak charging price signals and charges more for consumption above the baseline. Certain small CARE customers with no electric vehicle experience negative bill reductions when they are assumed to take service on a rate structure with no baseline following successor tariff adoption. In each of the referenced situations, TURN would allow the customer to elect the more beneficial tariff option after acquiring solar generation and receiving an MTC.[117] TURN's modeling simply highlights the fact that not all tariff options provide equivalent customer benefits.

[116] RT Vol. 9, page 1541, Chait.
[117] TURN opening brief, pages 77-78.

Finally, CalSSA criticizes the fact that the definitions of "small" and "large" customers in TURN's model are different for each utility.[118] These definitions were selected by each utility in response to TURN data requests seeking customer load profiles for each combination of small/large usage, dual fuel/all electric, with/without electric vehicle, inland/coastal.[119] Because each utility determined how load shapes were categorized, the breakdown between large and small customers was not defined by TURN.[120] CalSSA fails to suggest how these differences in size breakdowns between utilities biases or undermines TURN's analysis. There is no basis to reach such a conclusion.

None of the critiques raised by CalSSA demonstrate any infirmity in TURN's model, identify a computational error, or otherwise undermine the validity of TURN's calculations of MTC values, customer savings, and other model outputs. The Commission should therefore dismiss these criticisms and find that TURN's modeling provides a compelling basis for moving ahead with its successor tariff design including the development of an up-front MTC to support solar and storage adoption by eligible customers.

3. Modeling of CalSSA successor tariff

CalSSA asserts that TURN failed to accurately model its export compensation proposal by failing to subtract nonbypassable charges from a discounted retail rate.[121] While TURN did correctly model CalSSA's CARE tariff proposal (by deducting the NEM 2.0 nonbypassable charges from the non-CARE export rate), TURN did not make a similar adjustment to CalSSA's non-CARE export compensation tariff to account for nonbypassable charges.

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[118] CalSSA opening brief, page 118.
[119] RT Vol. 9, pages 1537-1538, Chait.
[120] Because PG&E did not provide a breakdown of CARE customer usage across the small/large dimension, TURN's model required an entry in this field to perform calculations and the small/large categorization for PG&E CARE customers is therefore irrelevant.
[121] CalSSA opening brief, pages 54-55.

TURN's opening brief provides a comparison of the CalSSA, SEIA/VS and Sierra Club export compensation proposals with 2021 ACC values. That comparison correctly models the CalSSA export compensation proposal by first applying the proposed discount to retail rates and then deducting nonbypassable charges.[122] TURN's opening brief also explains that TURN's modeling of CalSSA's CARE proposal did adjust the non-CARE export rate by deducting the NEM 2.0 nonbypassable charges.[123]

In an effort to ensure that CalSSA's original non-CARE export compensation proposal is correctly reflected in modeled results, TURN corrected its original modeling to deduct the NEM 2.0 nonbypassable charges after applying CalSSA's specified discount to retail rates for purposes of setting export compensation.[124] The corrected results, produced using TURN's model, are shown in the following table for PG&E and SCE:

CalSSA Successor Tariff with Baseline E3 Non-CARE Customer with 2021 ACC Values TURN model[125]										
IOU	**Year**	**TRC**	**RIM**	**20-yr PCT**	**10-yr PCT**	**Full Disc Payback**	**Simple Payback**	**10-yr IRR**	**20-yr IRR**	**Yr 1 Cost Shift**
SCE	2023	0.40	0.21	1.98	1.71	7	5.3	16%	21%	$1,189
SCE	2024	0.43	0.22	2.06	1.78	7	5.0	18%	22%	$1,314
SCE	2025	0.48	0.22	2.24	1.92	6	4.6	20%	24%	$1,384
PG&E	2023	0.30	0.13	2.25	1.92	6	4.6	20%	24%	$1,578
PG&E	2024	0.32	0.13	2.30	1.95	6	4.5	20%	25%	$1,659
PG&E	2025	0.35	0.14	2.50	2.12	6	4.2	23%	27%	$1,784

These results are consistent (but not identical) to those produced by E3's modeling of CalSSA's tariff.[126] The E3 results are shown in the following table for all three IOUs:

[122] TURN opening brief, page 101, footnote 285.
[123] TURN opening brief, page 117, footnote 345.
[124] CalSSA opening brief, page 87.
[125] These results were produced using TURN's model (admitted into the record as Ex. TRN-5) and corrected the previously incorrect treatment of nonbypassable charges. The model first applies the specified discount to the full retail rate and then deducts the NEM 2.0 nonbypassable charges from the remaining amount.
[126] TURN explains the basis for differences between its model and the E3 results in direct testimony. Ex. TRN-1, pages 63-65.

CalSSA Successor Tariff E3 updated modeling[127]						
IOU	**Year**	**TRC**	**RIM**	**20-yr PCT**	**E3 simple Payback**	**Yr 1 Cost Shift**
SCE	2023	0.58	0.22	2.64	5.5	$1,228
PG&E	2023	0.36	0.12	3.05	4.8	$1,664
SDG&E	2023	0.39	0.09	4.20	3.5	$2,270

These results demonstrate the poor RIM scores, large cost shifts, high participant benefits, and rapid paybacks that would result from the adoption of the CalSSA tariff proposal. In particular, the Commission should take note of the extremely high IRRs in TURN's model that are more than triple the forecasted returns for investments in US Equities over the same timeframe.[128] TURN urges the Commission to recognize that the CalSSA proposal represents a very minor adjustment to the existing NEM 2.0 tariff. The result would fail to improve the alignment between tariffed compensation and the costs and benefits of the generation facility.

By comparison, the interim transition tariff proposed in the Joint Recommendations, which would apply in 2022 and 2023, produces substantially higher RIM scores and more reasonable participant benefits.[129] TURN's end-state successor tariff would produce double the RIM score of the CalSSA proposal and 20 year IRRs approximating 12% (for SCE) even with a ratepayer-funded MTC designed to achieve a 15-year discounted payback.[130] These approaches better balance the interests of participants and non-participants and are consistent with the relevant statutory direction.

[127] *Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020*, E3 updated analysis for CPUC, June 15, 2021, page 53.
[128] TURN opening brief, page 40 (TURN cited public forecasts showing annual return expectations for U.S. equities that range from 6.2% to 6.9% over a 10-year horizon and 7.1% to 7.6% over a 20-year horizon).
[129] TURN opening brief, Appendix A -- Joint Recommendations, Section 6 (Interim Transition to the NEM Successor Tariff).
[130] Ex. TRN-3, page 85, Table 13.

4. Modeling of SEIA/VS successor tariff

SEIA/VS assert that their proposal is cost effective for participants based on a weighted average PCT of 1.51 for a blended portfolio of solar and solar+storage for all three IOUs between 2023 and 2030.[131] This characterization understates the value proposition for participants by using multi-year averages, blending different technologies, and inserting higher up-front costs.

TURN's modeling of the SEIA/VS tariff proposal shows very poor RIM scores, short payback periods and high IRRs for enrollments through 2025. Changes in key scores relative to the NEM 2.0 tariff are marginal. These results are shown below and were originally presented in rebuttal testimony:

SEIA/VS Successor Tariff E3 Non-CARE Customer with 2021 ACC Values[132]										
IOU	**Year**	**TRC**	**RIM**	**20-yr PCT**	**10-yr PCT**	**Full Disc Payback**	**Simple Payback**	**10-yr IRR**	**20-yr IRR**	**Yr 1 Cost Shift**
SCE	2023	0.40	0.20	2.04	1.76	7	5.1	17%	22%	$1,250
SCE	2024	0.43	0.21	2.15	1.85	7	4.8	19%	23%	$1,395
SCE	2025	0.48	0.22	2.25	1.93	6	4.6	20%	24%	$1,395
PG&E	2023	0.30	0.12	2.37	2.02	6	4.4	22%	26%	$1,703

TURN's results are consistent (but not identical) to those produced by E3's modeling of the SEIA/VS tariff.[133] The E3 results for 2023 are shown in the following table for all three IOUs:

[131] SEIA/VS opening brief, page 93.
[132] Ex. TRN-3, pages 85-91.
[133] TURN explains the basis for differences between its model and the E3 results in direct testimony. Ex. TRN-1, pages 63-65.

SEIA/VS Successor Tariff E3 updated modeling[134]						
IOU	**Year**	**TRC**	**RIM**	**20-yr PCT**	**E3 simple Payback**	**Yr 1 Cost Shift**
SCE	2023	0.58	0.24	2.34	6.3	$1,039
PG&E	2023	0.36	0.13	2.73	5.4	$1,443
SDG&E	2023	0.39	0.09	4.17	3.5	$2,250

SEIA/VS offers several critiques of the E3 results. SEIA/VS first criticizes E3's assumption that retail rates will escalate at 4% per year over the next 30 years and instead suggests that it would be more reasonable to assume escalation of 3.5% until 2030 and 2.2% in all following years to reflect general inflation.[135] TURN disagrees and believes this approach could materially understate the costs of the SEIA/VS tariff. The Commission staff forecast prepared for the February 2021 *En Banc* event projected retail rate escalation through 2030 of 3.7% for PG&E, 3.5% for SCE, and 4.7% for SDG&E.[136] SEIA/VS characterizes these rates as "close to the inflation rate from 2021 to 2030 for PG&E and SCE, with only SDG&E experiencing rate escalation significantly higher than inflation."[137] SEIA/VS does not explain why it is reasonable to assume that inflation is approximately 4% per year through 2030 but then drops to 2.2% in all subsequent years.[138] This downward adjustment masks the long-term costs of any tariff that compensates customers using retail rates for 20 years and may be particularly misleading for modeling of a 2030 customer where the arbitrarily low 2.2% escalation rate is assumed to apply to all years of participation in the tariff. The Commission should rely on the E3 rate escalation approach to ensure that analysis of long-term

[134] Cost-effectiveness of NEM Successor Rate Proposals under Rulemaking 20-08-020, E3 updated analysis for CPUC, June 15, 2021, page 53.
[135] SEIA/VS opening brief, page 21; Ex. TRN-3, page 14; Ex. SVS-4, page 27.
[136] Ex. TRN-1, page 60.
[137] SEIA/VS opening brief, page 21
[138] SEIA/VS assert that 2.2% is reasonable given that the RESOLVE model shows average retail rates escalating at 2% per year from 2020 to 2045 (opening brief, page 21). This observation ignores the fact that RESOLVE performs calculations in real dollars (not nominal), so total escalation is greater than the 2% adjustment referenced by SEIA/VS. Moreover, RESOLVE only models generation and transmission costs which excludes many of the fastest growing areas of utility spending (wildfire mitigation and distribution).

tariffs does not understate the total bill savings realized by the participant and the costs that could be shifted to non-participants.

SEIA/VS also critique E3's decision to calculate bill impacts by assuming the customer starts on a default TOU rate and switches to a specific NEM successor tariff after installing solar, claiming that some bill savings may result solely from switching to the successor tariff structure.[139] This critique is not persuasive given that SEIA/VS propose to require participation in an electrification tariff that could otherwise be closed to the customer.[140] TURN strongly believes that bill savings calculations should assume the customer's actual pre-adoption rate structure. Contrary to SEIA/VS claims, many customers would be adversely affected by the switch to an electrification rate and, unless required to do so, would not otherwise make that transition. For example, TURN's modeling reveals the adverse bill impacts on small customers moving from a baseline rate structure that is beneficial pre-adoption to a less favorable untiered TOU rate that could be required post-adoption.[141]

None of the criticisms raised by SEIA/VS materially affect the finding that its tariff does little to reduce the cost shift, or limit overcompensation to participants, over the coming decade. The poor RIM scores demonstrate that this approach fails to satisfy the statutory requirement that the successor tariff be "based on the costs and benefits" of the system and that the "total benefits…to all customers and the electrical system are approximately equal to the total costs."[142]

[139] SEIA/VS opening brief, page 22.
[140] For example, the SCE D-Prime rate is only available to customers with an electric vehicle, energy storage, or an electric heat pump system. Customers without any of these technologies would otherwise be prohibited from taking service on this tariff.
[141] See Section IV(D)(2).
[142] Pub. Util. Code §2827.1(b)(3), (b)(4).

E. Legal analysis of §2827.1 requirements

1. Sustainable growth

CalSSA argues that the statutory reference to "sustainable growth" in §2827.1(b)(1) should apply a particular binding constraint on the design of a successor tariff.[143] After reviewing legislative history, which sheds no additional light on the meaning of this term, CalSSA concludes that the Commission must ensure that the successor tariff results in "sustained industry growth".[144]

The standard of "sustained industry growth" was not previously adopted by the Commission in the NEM 2.0 decisions (D.16-01-044 and D.16-09-036) interpreting this exact language. With respect to the statutory guidance, the Commission noted in its original NEM 2.0 decision that

> In view of the external influences and uncertainties already discussed, it is difficult to know whether a particular metric for growth will be useful. The use of year-over-year comparisons ties the Commission's evaluation process too closely to a time period in which there may be significant, but transient, perturbations, such as changes to the ITC.[145]

TURN disagrees with CalSSA's proposal to substitute the words "sustained industry growth" for the plain language of the statute which refers to "sustainable growth". There is no basis for this change given the plain words of the statute, the absence of any useful legislative history to inform any ambiguities, and the fact that this issue was previously litigated in R.14-07-002.

SEIA/VS assert that this statutory provision should "be assumed to have a function separate and apart from other provisions of the statute."[146] Both SEIA/VS and CalSSA effectively argue that the Commission should prioritize "sustainable growth" over all

[143] CalSSA opening brief, pages 7-10.
[144] CalSSA opening brief, pages 9-10.
[145] D.16-01-044, page 53. The Decision found that "average growth over a 3-5 year period" would be useful for a future review.
[146] SEIA/VS opening brief, page 74.

other statutory criterion governing the successor tariff, a result that does not comport with the Commission's prior holdings. In response to applications for rehearing of D.16-01-044, the Commission made modifications clarifying that the "sustainable growth" criteria does not have greater importance than other provisions. The decision on rehearing clarified that "all statutory objectives were thoughtfully considered", that there is no basis for diminishing the importance of any statutory objective and that the Commission was not placing "a greater emphasis on achieving sustainable growth."[147] The Commission should not disturb that conclusion in this proceeding.

2. Costs and benefits

CalSSA argues that the language in §2827.1(b)(4) requiring that the "total benefits….to all customers and the electrical system are approximately equal to the total costs" of the successor tariff should not be deemed equivalent to a pure ratepayer indifference standard.[148] Suggesting that the Commission engage in an examination of the legislative history if the plain meaning of the words remains ambiguous, both CalSSA and SEIA/VS point to revisions to AB 327 made on September 3, 2013 replacing "ratepayer indifference" with the final language that was ultimately enacted.[149] CalSSA argues that this change demonstrates a "clear legislative intent" to "strike a reasonable balance between cost-effectiveness concerns and other key statutory goals."[150]

CalSSA's review of the legislative history failed to note that the Commission previously considered this same argument in R.14-07-002. In response to applications for rehearing of the original NEM 2.0 decision cited by CalSSA, the Commission issued D.16-09-036 which assessed the relevance of changes to AB 327. That decision explains

> On September 3, 2013, the Bill was amended to eliminate those requirements. It deleted nonparticipant language in favor of evaluating costs and benefits to all customers and the electrical system on whole. PG&E acknowledges that change,

[147] D.16-09-036, page 13.
[148] CalSSA opening brief, pages 10-13.
[149] CalSSA opening brief, page 11; SEIA/VS opening brief, pages 94-95.
[150] CalSSA opening brief, page 11.

> but argues even after the amendment, bill analyses reflect an intent to prevent cost-shifting. The cited bill analyses do show that even after the amendment, there were continued references to preventing cost-shifts. And while the Commission generally strives to minimize cost-shifting to the extent possible, consideration of the legislative history is secondary to the plain language of the statute. It does not control if the statute itself is clear.[151]

TURN agrees that the required comparison of costs and benefits may be less rigid than pure ratepayer indifference. As noted in TURN's testimony and brief, analysis indicates that some cost shifting to non-participants would occur under all successor tariffs. TURN's own successor tariff proposal would not yield Rate Impact Measure (RIM) scores of greater than 1.0 for most customers.[152] TURN is not, therefore, insisting that RIM scores must equal 1.0 in order for the Commission to authorize a successor tariff. But TURN strongly disagrees with the claim that the Commission should ignore, or deemphasize, the relevance of the cost shift when evaluating successor tariff options. There is no basis for the Commission to find that minimizing cost shifting is any less important than the other statutory objectives that govern the successor tariff.

3. Relevance of §451 and §453

CalSSA argues that the Commission may not adopt fees or charges on any customer group unless it finds that they are just and reasonable (pursuant to §451) and do not result in unreasonable differences between localities and classes of service (pursuant to §453).[153] TURN agrees that these provisions of state law clearly apply to general tariffs approved by the Commission but may not be applicable to the successor tariff due to the unique language of §2827.1.[154] If the Commission finds that these provisions are applicable, they should be understood to compel the Commission to adopt major reforms to NEM tariffs and support the reasonableness of TURN's successor tariff proposal.

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[151] D.16-09-036, page 6.[emphasis added]
[152] TURN opening brief, page 22.
[153] CalSSA opening brief, page 14.
[154] Public Utilities Code §2827.1(b) directs the Commission to develop a successor tariff "Notwithstanding any other law".

There is abundant evidence to support the finding that current NEM tariffs do not adequately recover the cost of service from participating residential customers. The Lookback Study found that bill payments by residential NEM 2.0 customers, on average, covered between 9-18% of their cost of service.[155] None of the successor tariff proposals submitted by the solar parties adequately remedies this deficit. Moreover, the cost shifts resulting from current and proposed tariffs are a material driver of overall rate increases for all customers, a fact noted by the Commission in the most recent SB 695 report to the legislature addressing cost and rate trends.[156] The analysis performed by TURN and E3 show that none of the tariffs proposed by solar parties would adequately address this cost shift.[157]

Significant reforms are necessary to ensure that the rates charged to all customers are "just and reasonable" and to prevent "unreasonable differences" between rates charged to customers with, and without, BTM generation.[158] To the extent that nonparticipants are forced to bear unreasonable rate differences due to the participation of customers in the successor tariff, and the requirements of §451 and §453 are found to apply to the successor tariff, the arguments raised by CalSSA suggest that the Commission may be compelled to take action to reform that tariff to prevent discrimination against non-participants.

[155] Ex. TRN-1, page 10, *citing Lookback Study*, Tables 5-9 and 5-11
[156] Ex. TRN-1, page 39, *citing Utility costs and Affordability of the Grid of the Future: An Evaluation of Electric Costs, Rates, and Equity Issues Pursuant to P.U. Code Section 913.1*, California Public Utilities Commission, May 2021
[157] TURN opening brief, page 22 (many of the tariffs proposed by the solar parties (CalSSA, SEIA/VS) show RIM scores that are in the range of 0.12-0.26 for both Non-CARE and CARE residential customers)
[158] Cal. Pub. Util. Code §451, §453.

F. Other elements of guiding principles

1. Title 24 New Solar Home Mandate

CalSSA and SEIA/VS argue that the adoption of a successor tariff that compensates all generation output at avoided costs is unlikely to satisfy the cost-effectiveness tests used by the California Energy Commission to justify the New Solar Home requirements.[159] CalSSA warns the Commission that the Mandate would be at risk if any of the successor tariff proposals submitted by TURN and other pro-reform parties are adopted.[160] SEIA/VS similarly suggest that future review of the standard at the Energy Commission may result in a finding that the mandate is no longer cost effective.[161]

There is no reason for the Commission to reject any successor tariff based on potential interactions with the New Solar Home Mandate. First, the Commission is directed to establish the successor tariff solely pursuant to the requirements of §2827.1 "notwithstanding any other law".[162] Had the Legislature intended to ensure that the successor tariff is aligned with building codes, it would have provided a cross-reference or other caveat. Second, the CEC previously considered a range of future NEM tariff reforms including a 'buy-all sell all' model that compensated all generation output at avoided cost.[163] TURN's successor tariff would compensate the customer for onsite consumption using generation rates which are higher than avoided costs. Third, the cost of adding solar to new construction is likely lower than the costs of retrofits analyzed in this proceeding.[164] Fourth, the Commission may support the New Solar Homes Mandate by authorizing a community solar alternative that provides a cost-

[159] CalSSA opening brief, pages 40-41; SEIA/VS opening brief, pages 80-82.
[160] CalSSA opening brief, page 42.
[161] SEIA/VS opening brief, pages 79-82.
[162] Cal. Pub. Util. Code §2827.1(b)(Notwithstanding any other law, the commission shall develop a standard contract or tariff, which may include net energy metering, for eligible customer-generators with a renewable electrical generation facility that is a customer of a large electrical corporation no later than December 31, 2015…)[Emphasis added]
[163] Ex. CUE-3.
[164] TURN opening brief, page 60.

effective option for home builders such as the concept put forth by CCSA.[165] This alternative is permitted under Title 24 and a specific program to offer community solar as an alternative to onsite generation was recently approved by the CEC.[166] Fifth, the Commission can authorize an MTC for new construction to ensure that a particular participant cost-effectiveness result is achieved.[167]

The Commission should not arbitrarily constrain its own authority to adopt a successor tariff that meets the governing statutory criteria based on concerns about a program and regulations that are outside of its jurisdiction. Instead, the Commission should adopt a successor tariff that is fair to all customers and minimizes the cost shifting that threatens the basic affordability of electricity service. To the extent that accommodations are deemed necessary by the Commission with respect to Title 24, TURN has provided two specific methods (community solar and the MTC) that can be adopted as an alternative to abandoning efforts at meaningful reform.

2. *The Rate Design principles adopted in D.15-07-001*

Several parties assert that the Commission should apply the residential rate design principles adopted in D.15-07-001 to successor tariff design. CalSSA argues that the Commission should find that incorporating any Grid Benefit Charges or NUS charges into the successor tariff would violate several of these adopted principles.[168]

In this proceeding, the Commission specifically adopted guiding principles governing the development of a successor tariff in D.21-02-007. None of the rate design principles adopted in D.15-07-001 are included within the guiding principles in D.21-02-007. In comments on the guiding principles, CalSSA did not request that the Commission incorporate the D.15-07-001 principles into this proceeding and the final decision does

[165] TURN opening brief, page 61.
[166] Ex. TRN-12, SMUD Neighborhood SolarShares Program application (revised), California Energy Commission Resolution 20-0220-11.
[167] TURN opening brief, page 60.
[168] CalSSA opening brief, page 149.

not reference them as applicable. Only now has CalSSA decided to point to a subset of the D.15-07-001 principles and claim they are binding. The Commission should reject this effort to relitigate the issues decided in D.21-02-007. Because the successor tariff is being developed pursuant to a discrete statutory provision, and applies to only a subset of customers (rather than the default rates for all customers considered in R.12-06-013), TURN does not believe that the Commission should assess the extent to which tariff proposals are consistent with the D.15-07-001 rate design principles.

If the Commission does wish to consider their applicability in this case, TURN submits that its tariff proposal is well aligned with the guidance provided in R.12-06-013. For example, TURN's proposal to collect a variety of costs through an NUS charge retains the incentive for customers to engage in energy efficiency and conservation (rate design principle 3) because the charges are based solely on self-consumption quantities. To the extent that a customer reduces their usage, more behind the meter production will be exported and less will be used to offset consumption. As a result, customers would reduce their NUS cost responsibility by engaging in efficiency or conservation.

Any consideration of D.15-07-001 should also include additional principles adopted by the Commission in that Decision which were conveniently omitted from CalSSA's brief:[169]

> #7 -- Rates should generally avoid cross-subsidies, unless the cross-subsidies appropriately support explicit state policy goals;
>
> #8 -- Incentives should be explicit and transparent;
>
> #9 -- Rates should encourage economically efficient decision-making;

TURN believes that the solar party tariff proposals are at cross-purposes with these principles, particularly as they relate to making incentives "explicit and transparent" (#8) and avoiding "cross-subsidies" (#9). TURN's tariff proposal is designed to make all

[169] D.15-07-001, page 28.

incentives "explicit and transparent" through the Market Transition Credit while the solar party tariffs would hide the level and form of subsidization by using retail rates to compensate behind the meter production. Moreover, TURN's proposal is intended to minimize cross subsidization while the solar parties propose to perpetuate the cost shifting associated with the status quo.

G. Relevance of NEM reform efforts in other states

CalSSA cites to an assessment of fixed charges and additional grid charges assessed on solar customers by utilities in various states in an effort to demonstrate that successor tariff proposals that include grid or fixed charges would place California solar customers in a far worse position than their counterparts in other states.[170] A review of the EQ research study commissioned by CalSSA reveals serious deficiencies that prevent it from being used for purposes of comparing utility rates. In response to a TURN data request, CalSSA acknowledged that the study did not consider the average residential rates for each utility, the level of export compensation provided to solar customers, the average bills for typical customers or any other elements of rate design.[171] These factors are critical to any assessment of the relative economics of solar for participants and the reasonableness of compensation from the perspective of all customers.[172] Since average utility rates in California are substantially higher than in most of the states surveyed by EQ research, this missing information would be critical to making valid comparisons.

[170] CalSSA opening brief, pages 165-166.
[171] Ex. TRN-6, CalSSA response to TURN Data Request 3, Q13.
[172] For example, a utility with usage rates of 10 cents/kWh and existing fixed charges for all customers may not require additional fixed or grid charges to prevent significant cost shifting. But a California utility with usage rates of 25-30 cents/kWh and no fixed charges may need to apply substantial new fixed or grid charges to prevent cost shifting. Moreover, new grid charges in California could still result in solar customers receiving higher compensation than in other states surveyed by EQ (due to major differences in overall rate levels).

SEIA/VS reference revised net metering tariffs in Nevada and Arizona that have resulted in successful industry growth.[173] A review of the current NEM tariffs in Nevada and Arizona reveals tariffs that compensate solar production at prices well below the levels that the solar parties insist are necessary to support adoption by California customers. A review of rates in these other states undermines the claim that tariffs proposed by the solar industry in California are needed to support solar adoption.

In Nevada, SEIA/VS note that 2015 reforms adopting an export rate of 2.7 cents/kWh were fixed through legislation passed in 2017 that reformed NEM tariffs and caused the market to rebound.[174] SEIA/VS witness Gallagher explained that the current rates have resulted in "steady adoption of distributed solar."[175] In Nevada, the two IOUs currently have fixed charges that range from $12.50 to $15.25 per month and compensate NEM customers at rates that range from a low of 7 cents/kWh for self-consumption to a high of 10.133 cents/kWh for exports.[176]

In response to a data request asking whether SEIA would support export compensation rates for California customers that are the same as the current export rates for Nevada utilities, SEIA/VS witness Gallagher objected based only on his understanding that Nevada utilities offer "a single rate that is not time differentiated."[177] During evidentiary hearings, Mr. Gallagher acknowledged that his response was incorrect because the Nevada utilities do offer time differentiated export rates to residential solar customers.[178] As shown in the NV Energy tariffs, the optional TOU rate schedule for NEM customers includes a fixed charge of $12.50 per month.[179] The TOU rate schedule

[173] SEIA/VS opening brief, page 77.
[174] SEIA/VS opening brief, page 77.
[175] Ex. SVS-1, page 13.
[176] Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Q6; RT Vol. 9, pages 1463-1465, Gallagher
[177] Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Q7a.
[178] RT Vol. 9, page 1468, Gallagher
[179] Ex. TRN-14, Nevada Power Company rate schedule ORS-TOU.

offers export compensation as low as 3.9 cents/kWh during many summer off-peak hours, a peak export rate of 26 cents/kWh during summer peak hours and less than 4.4 cents/kWh during all hours for 8 months out of the year.[180] Based on the TOU period definitions, the portion of exports to be compensated at off-peak rates would typically be substantial.[181] The import rates that can be offset by solar power are only slightly higher.[182]

In Arizona, export compensation shifted in 2016 to an approach that relies the pricing of wholesale Power Purchase Agreements for utility-scale solar, a tariff that SEIA/VS claims is "economically viable" for participants and has led to a "sustainable solar market."[183] SEIA/VS witness Gallagher noted that, under this net billing tariff, "the distributed solar market has experienced annual growth in all but 1 year" and Arizona "continues to rank near the top for distributed solar deployment".[184] This tariff provides "new solar customers stability in their rate structure" by providing an export rate that is guaranteed for 10 years.[185] TURN's successor tariff would also provide a similar 10-year guaranteed export rate.

A review of Arizona NEM rates reveals compensation for exports and self-consumption far below the levels proposed by SEIA/VS in this proceeding. Residential solar customers of Arizona Public Service currently receive compensation for exports at a rate

[180] Ex. TRN-14, Nevada Power Company rate schedule ORS-TOU provides export compensation at 3.867 cents/kWh during summer off peak defined as 7:01pm through 1pm during June through September, 25.957 cents/kWh during summer peak hours defined as 1pm through 7pm during June through September, and 4.327 cents/kWh in all hours during October through May.
[181] Ex. TRN-14. Solar exports during summer days would be valued at off-peak rates until 1pm.
[182] Ex. TRN-14, Nevada Power Company rate schedule ORS-TOU charges import rates of 5.156 cents/kWh during summer off peak defined as 7:01pm through 1pm during June through September, 34.609 cents/kWh during summer peak hours defined as 1pm through 7pm during June through September, and 5.769 cents/kWh in all hours during October through May.
[183] SEIA/VS opening brief, pages 77, 86
[184] Ex. SVS-1, page 19.
[185] Ex. SVS-1, page 21.

of 9.405 cents/kWh in all hours for 10 years.[186] During cross examination, SEIA/VA witness Gallagher agreed that Arizona solar customers do not know what export rate will apply after year 10.[187] The basic tariff governing import rates includes a $12.81/month fixed charge and an $8.40/kW demand charge.[188] SEIA/VS witness Gallagher stated that, to his knowledge, none of the demand charges can be avoided by a solar customer.[189] Rates for consumption that can be avoided by solar generation are 7.798 cents/kWh during off-peak hours (8:01pm through 2:59pm Monday through Friday, and all hours on Saturday/Sunday) and 11.017 cents/kWh (winter) to 13.16 cents/kWh (summer) during the on-peak periods (3pm to 8pm Monday through Friday).[190]

A summary of the Nevada and Arizona residential solar rates are provided in the following table:

Current residential solar customer tariffed compensation Nevada and Arizona			
	NV Energy[191]	**Sierra Pacific (NV)[192]**	**Arizona Public Service[193]**
Fixed charge ($/month)	12.50	15.25	12.81
Demand charge ($/kW)	None	None	8.40
Export rate (cents/kWh)	7.60	7.003	9.405
Compensation for self-consumption (cents/kWh)	10.133	9.397	7.798-13.160
Up front MTC/rebate	None	None	None

The revised tariff proposals of both SEIA/VS and CalSSA for California IOUs would provide much higher levels of average compensation for both exports and imports than

[186] Ex. TRN-15, APS Rate Rider RCP, page 2 of 3; RT Vol. 9, page 1471, Gallagher.
[187] RT Vol. 9, page 1472, Gallagher.
[188] Ex. TRN-15, APS Schedule R-2, page 2 of 4.
[189] RT Vol. 9, page 1475, Gallagher.
[190] Ex. TRN-15, APS Schedule R-2, page 2 of 4.
[191] Ex. TRN-14; Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Q6
[192] Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Q6
[193] Ex. TRN-15, APS rate rider RCP (exports), Schedule R-2 for other tariff elements.

the rates in place for the cited Nevada and Arizona utilities. For SCE, both SEIA/VS and CalSSA propose 20-year export compensation that would start at 15-16 cents/kWh for new customers enrolling in 2023 (subject to annual escalation), average 14 cents/kWh for new customers enrolling in 2024 and 2025 (subject to annual escalation), remain above 11 cents/kWh for new customers enrolling in 2027 and only reach the levels comparable to the Nevada and Arizona utilities by 2030.[194] For PG&E and SDG&E, the export rates would be significantly higher in all relevant years.

Because SEIA/VS and CalSSA propose to allow solar customers to be compensated for self-consumption at retail rates, the disparity with Nevada and Arizona becomes much more stark. Current average residential rates for the three IOUs range from 22 cents/kWh (SCE) to 31.94 cents/kWh (SDG&E).[195] Average compensation from all sources (avoided imports and exports) for NEM 2.0 residential customers ranges from 22.5 cents/kWh (SCE) to 27.8 cents/kWh (SDG&E).[196] Even cutting these values in half would still yield compensation significantly higher than the compensation rates in Nevada and Arizona that SEIA/VS characterizes as successful at stimulating industry growth. There is no basis for concluding that small variations in installed system costs between states justifies this massive disparity in compensation.

Finally, SEIA/VS point to Hawaii's recent NEM reforms and claim that they caused a "dramatic downturn" that led to job losses and industry downsizing.[197] This characterization does not provide a balanced portrait of the current industry in that state. A review of the most recent information prepared by SEIA shows that Hawaii has not experienced a downturn in the combined installations of residential and commercial systems in recent years with 2019 recording the largest amount of MW installed in the last decade and 2020 on par with historical results in 2017 and 2018.[198] SEIA projects an

[194] TURN opening brief, page 101.
[195] Ex. PAO-1, page 2-43.
[196] Ex. PAO-2, page 3-24.
[197] SEIA/VS opening brief, pages 84-85.
[198] Ex. TRN-13, SEIA Hawaii State Solar Spotlight, Hawaii Annual Solar Installations.

additional 1,403 MW of solar will be added in the next five years, which represents an approximate doubling of existing solar generating capacity in the state.[199] Although SEIA does not break down the mix of future additions by application, it appears that the state continues to be an attractive market for the solar industry with significant investments and activity anticipated in the next five years.[200]

The Commission should take several key lessons from this review of other states and solar industry claims about net metering tariffs across the country. First, the level of solar compensation in other states (for both exports and imports) is typically dramatically lower than existing NEM rates for the California IOUs and those proposed in the solar industry successor tariffs. Second, other states that offer far lower compensation continue to experience growth in customer solar that is characterized positively by the solar industry. Finally, even in states that have enacted significant reforms (Hawaii), robust solar market activity is predicted in the coming years across a range of applications. These observations put into perspective claims that any material reductions in compensation for solar customers in California would make adoption uneconomic and devastate the industry.

IV. ELEMENTS AND FEATURES OF A SUCCESSOR TARIFF

A. Responses to Critiques of TURN successor tariff

1. Export Compensation

TURN's successor tariff proposal would provide export compensation based on forecasted and, to the extent possible, actual avoided cost values tied to the ACC.[201] Consistent with the Joint Recommendations, TURN supports averaging the two most recent ACC updates for purposes of establishing hourly compensation values.[202] TURN

[199] Ex. TRN-13, SEIA Hawaii State Solar Spotlight, Hawaii Annual Solar Installations. Total solar currently installed is 1,427 MW.
[200] RT Vol. 9, pages 1453-1454, Giese (Growth projection includes residential, commercial and utility-scale applications).
[201] Ex. TRN-1, pages 45-47.
[202] Appendix A, Joint Recommendations, Section 2 (Export Compensation).

also proposes to initially aggregate hourly ACC values into Time of Use (TOU) periods that vary by month or season.[203] Once the IOUs are able to accommodate real-time pricing tariffs, TURN recommends dividing the ACC into non-energy and energy supply costs. The energy supply costs would ultimately be calculated using day ahead CAISO market pricing, an approach that would ensure that export compensation is aligned with actual wholesale market costs rather than ACC forecasts.[204] Finally, TURN proposes to allow new participating customers to opt into fixed export rates covering all avoided cost values over a defined term of 5 or 10 years.[205]

a. TURN's export compensation provides the option of 10-year certainty for participants

CalSSA criticizes TURN's proposal to rely on ACC values for export compensation as leaving "customers with excessive uncertainty on whether their investment will be worthwhile."[206] A few pages after offering this critique, CalSSA acknowledges that TURN proposes to allow a 10-year lock in of export compensation values which would provide certainty over this period.[207] CalSSA suggests that TURN should support a 10-year levelized value as part of a lock-in option to ensure that benefits and costs are front-loaded for the participant.[208] Consistent with the Joint Recommendations submitted by the Independent Parties in opening briefs, TURN would not oppose levelizing a portion of these future values limited to a duration of no more than four years while providing certainty as to the values that would apply for the remaining 6 years.[209]

[203] TURN opening brief, page 73.
[204] TURN opening brief, page 74.
[205] TURN opening brief, page 75.
[206] CalSSA opening brief, page 93.
[207] CalSSA opening brief, pages 95-96.
[208] CalSSA opening brief, page 96.
[209] TURN opening brief, Appendix A, Joint Recommendations of the Independent Parties, Section 2.

b. Using actual wholesale market prices for the portion of avoided costs that reflect energy supply values

TURN's proposal would replace the energy supply portion of ACC values with CAISO day-ahead market prices in the coming years. SEIA/VS express concern over this element based on the lack of customer experience with wholesale market prices and the need to develop billing infrastructure.[210] CalSSA also takes issue with the costs of TURN's proposal to include day ahead wholesale market prices in export compensation.[211]

As explained in TURN's opening brief, since the use of actual hourly wholesale prices may not be immediately implementable, TURN proposes to delay this feature until the IOUs have adequate billing capability and real-time pilot programs have been rolled out for eligible customers.[212] TURN's implementation proposal calls for this capability to be incorporated into successor tariff design by the end of 2025.[213] TURN agrees that issues regarding cost recovery would need to be addressed but does not believe that there would be incremental costs billed to the participating customers for this feature of the tariff. The Commission can, and should, consider these issues as part of the multi-year implementation process.

TURN's proposal is aligned with the Commission's support for the development of Real Time Pricing (RTP) pilot programs. In A.19-03-002, the Commission considered dynamic rate proposals for SDG&E submitted by a coalition of parties that included CalSSA. CalSSA's proposal would have replaced the generation component of customer rates with CAISO 15-minute real-time wholesale energy prices.[214] In a final decision, the

[210] SEIA/VS opening brief, pages 54-55.
[211] CalSSA opening brief, page 34.
[212] TURN opening brief, page 74.
[213] TURN opening brief, pages 130-131.
[214] D.21-07-010, page 48.

Commission ordered SDG&E to proceed with RTP pilot programs that would commence at the end of 2022.[215]

Although TURN recognizes (and agrees with) concerns over moving residential customers to RTP rates, the recommended approach to incorporating actual wholesale energy prices into export compensation is fundamentally different. TURN does not propose that successor tariff customers would be charged for their usage based on wholesale pricing. Only exports would be subject to this approach, which means that customers would not be vulnerable to having their bills spike during extreme system conditions when market prices are high. Instead of being penalized during periods of high market prices, these customers would be rewarded for exports based on these higher prices. As a result, TURN is not concerned that the use of wholesale prices for this purpose would result in unintended adverse consequences for successor tariff customers.

c. TURN's export compensation proposal is not at odds with the requirement to present bill savings

SEIA/VS argue that any successor tariff that includes an export compensation rate subject to change over the course of 20 years would be at odds with the Commission's previous approval of standardized inputs and assumptions for calculating estimated bill savings for NEM customers.[216] This critique is not persuasive in light of the underlying statutory requirement, the Commission's justification for selecting a 20-year timeline under current NEM tariffs, and the certainty that the Commission will be required to update this approach regardless of the successor tariff that is adopted. Furthermore, it would be absurd to conclude that the Commission is constrained from carrying out its obligations pursuant to §2827.1 based on its obligation to approve a methodology for determining bill savings.

[215] D.21-07-010, page 52.
[216] SEIA/VS opening brief, pages 55-57.

The Commission is statutorily required to develop "standardized inputs and assumptions to be used in the calculation of electric utility bill savings to a customer that can be expected by using a solar energy system".[217] The statute does not specify any particular minimum or maximum duration for the approved inputs, assumptions or savings estimates. This provision is intended to ensure that solar vendors use common assumptions when communicating to customers about anticipated bill savings. The Commission adopted a 20-year timeline for key inputs and assumptions based, in part, on the fact that prior decisions addressing NEM 1.0 and 2.0 tariffs considered payback over the course of 20 years using retail rates as the method of compensation.[218] The adopted staff proposal noted that the Commission may "revisit and modify" the inputs and assumptions in the future based on "changes in factors impacting the inputs and assumptions."[219]

The adoption of any of the proposed successor tariffs under consideration in this proceeding would require the Commission to modify and update the methodology approved in D.20-08-001. Those updates would include changes to eligible rate schedules, modified export compensation rates, and any other relevant input and assumption that materially differs from the prior NEM tariff structure. TURN submits that the Commission can and should, as part of those updates, revise the relevant timeframe applicable to the standardized assumptions to conform to the method of export compensation approved in this case. It is not reasonable to conclude that the Commission must conform the design of the successor tariff to support a static methodology for developing bill savings inputs and assumptions.

TURN's proposal to allow a 10-year lock in of export compensation would provide greater certainty with respect to bill savings over this period than the proposals submitted by parties that rely on retail rates and related elements of retail rate design as

[217] Cal. Pub. Util. Code §2854.6(a)
[218] D.20-08-001, Attachment B, page 10.
[219] D.20-08-001, Attachment B, page 12.

the basis for compensation. Moreover, the SEIA/VS proposal to require participation in electrification rates could pose much greater challenges for long-term forecasting of savings given likely (but hard to predict) changes in fixed charges, TOU periods and TOU rate differentials over the course of 20 years. By comparison, TURN's approach can yield much more reliable assumptions for purposes of forecasting.

SEIA/VS also suggests that the process for forecasting relevant "inputs and assumptions" would be frustrated by party proposals that could result in changes to "grid access charges" over the course of two decades.[220] With respect to TURN's proposal, this critique is not valid. TURN's approach would credit the customer with the retail generation rate for production consumed onsite. The only forecasting issue relates to the growth in generation rates over time, an exercise that is no different than the development of total retail rate escalation forecasts approved in D.20-08-001. This element of TURN's proposal is likely easier to forecast given the limited set of generation costs that would be subject to a common escalator.

2. Import rates

TURN's successor tariff proposal would allow customers with stand-alone solar to take service under any available Time of Use (TOU) rate but require customers with paired energy storage to take service under an electrification tariff. Sierra Club urges the Commission to reject proposals that would allow successor tariff customers to take service under any applicable TOU rate.[221] TURN recognizes that electrification rates are appropriate for customers with paired storage to maximize the value of storage utilization to the grid by incentivizing dispatch at high value times. For customers with stand-alone solar, TURN is concerned about the potential for certain customers to experience adverse bill impacts when switching from a baseline rate to an untiered TOU rate under its successor tariff.[222]

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[220] SEIA/VS opening brief, page 56.
[221] Sierra Club opening brief, page 14.
[222] TURN opening brief, page 77; Ex. TRN-3, page 42. TURN's modeling results show that, under TURN's successor tariff proposal, small customers taking service on a baseline rate

In Section III(D)(2), TURN highlights one modeling result that shows adverse impacts when smaller residential customers taking service on tariffs with all-electric baseline quantities prior to solar adoption are switched to untiered TOU rates, adopt stand-alone solar, and do not undertake any electrification measures to increase their usage.[223] This highlights the fact that smaller customers benefiting from a baseline quantity are more likely to be adversely affected by the switch to electrification rates. While Sierra Club focuses on the opportunities for customers to save money through electrification rates, its own modeling does not actually take into account the cost of up-front investments needed to realize these savings.[224]

TURN's concerns over requiring customer participation in an electrification rate are reduced if the Commission does not adopt TURN's proposed successor tariff or modifies the NUS charge such that the adverse bill impacts for certain smaller customers would not occur. For example, TURN supports the Joint Recommendation to rely on an interim successor tariff structure that requires participation in an electrification rate.[225] This support is based on the use of a tariff structure that does not include the NUS charge and is sufficiently generous to ensure that all participants realize benefits. Recognizing that electrification rates are better aligned with cost of service, and can offer a method of moderating compensation to solar customers, TURN is open to their use for minimizing cost shifting if the base successor tariff structure otherwise fails to adequately align costs and benefits.

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structure prior to successor tariff participation may experience lower 20-year bill savings on a successor tariff electrification rate than on a successor tariff with a baseline structure.

[223] RT Vol. 9, page 1542, Chait.

[224] Ex. SCL-2, page 10 ("Although the model analyzes total energy bills before and after adoption of beneficial electrification technologies, the model does not analyze customer economics of the upfront cost of the electrification technologies.")

[225] TURN opening brief, Appendix A, Joint Recommendations, Section 6.

3. *Self-consumption charge for Nonbypassable, Unavoidable and Shared (NUS) costs*

TURN proposes a separate monthly charge to recover Nonbypassable, Unavoidable and Shared (NUS) costs associated with self-consumption of output from customer BTM generation.[226] This charge is designed to recover non-generation costs that would be paid by the participating customer but for production from the BTM resource. The NUS charge would be dynamically calculated based on either actual or estimated self-consumption attributable to BTM generation. The total charge for a participating customer each month would be directly correlated with the amount of actual usage supplied by BTM resources and not exported to the grid.[227] TURN's proposal should therefore not be characterized as either a fixed monthly charge or a solar capacity charge.[228]

Some parties appear to misunderstand TURN's proposal. For example, CalSSA suggests that the NUS charge would result in customers being credited only for "the wholesale market price of generation for electricity they generate and consume onsite."[229] In fact, TURN's proposal would credit behind-the-meter production that is consumed onsite at the retail generation rate which includes costs incurred by the Load Serving Entity that go beyond "the wholesale market price of generation." TURN's opening brief also highlights the potential for the Commission to adopt a modified NUS charge that credits customers with defined portions of other retail rate components if the Commission finds that such an approach is warranted.[230]

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[226] Ex. TRN-1, pages 48-51.
[227] In a billing cycle when the customer records *de minimus* self-consumption, the monthly NUS charge would also be *de minimus*.
[228] Ex. TRN-3, page 48. TURN's NUS is not denominated in $ per kW of installed capacity but is instead assessed on a cents/kWh basis, relies on existing charges currently collected from all customers, and is tied to actual or estimated self-consumption quantities in each monthly billing cycle.
[229] CalSSA opening brief, page 143.
[230] TURN opening brief, pages 79-80.

SEIA/VS accuses TURN's witness of providing a confusing description of the NUS during evidentiary hearings.[231] Pointing to TURN witness Chait's suggestion that the Commission could improve payback periods for non-CARE successor tariff customers by excluding or discounting certain cost categories from the NUS (rather than relying on an MTC), SEIA/VS states "it is not clear" whether TURN endorses or has otherwise described this type of adjustment.[232] The implicit suggestion that TURN's witness invented the concept of a discounted NUS during cross-examination is incorrect and demonstrates a lack of attention to TURN's written submissions in this case.

Possible adjustments to the NUS cost categories were previously described in TURN's original proposal, direct testimony and rebuttal testimony.[233] In direct testimony, TURN specifically urged the Commission to, at a minimum, classify a comprehensive set of Nonbypassable Charges as NUS costs and "consider ensuring that the portions of Transmission and Distribution costs that are not affected based on a customer's decision to rely on self-generation are included in the NUS definition."[234] In rebuttal testimony, TURN provided modeling results for scenarios where the PCIA is included (or excluded) in the NUS and where the NUS charge is set to recover 75% of total costs.[235] TURN's rebuttal testimony also noted that reducing the NUS to recover 75% of costs "can improve the 20-year PCT by 0.12 and improve the 20-year IRR by 3%".[236] TURN's witness provided responses during hearings that were entirely consistent with her prepared testimony.

a. The NUS would not make it difficult to project overall bill savings over time

Several parties assert that TURN's NUS charge would be sufficiently complex and difficult to forecast that customers would have no ability to forecast the bill impacts of

[231] SEIA/VS opening brief, page 67.
[232] SEIA/VS opening brief, page 67.
[233] Ex. TRN-1, page 50; Ex. TRN-2, Attachment C (TURN March 15 Tariff Proposal), pages 15-17
[234] Ex. TRN-1, page 50.
[235] Ex. TRN-3, pages 85-90.
[236] Ex. TRN-3, page 81.

behind the meter generation. For example, SEIA/VS argues that the "complex" and "ever-changing nature" of TURN's NUS charge would frustrate the ability of solar vendors to provide estimates of bill savings to customers.[237] This claim is not supported by a review of TURN's proposal.

As explained in testimony and the opening brief, TURN's NUS charge would effectively credit the customer at the retail generation rate for all solar production that is consumed behind the meter. It should therefore be simple for vendors and customers to forecast a rate of growth for generation rates with the same techniques that solar vendors use to forecast growth in overall retail rates under NEM 2.0. To the extent that the Commission selected a fraction of other rate components to exclude from the NUS, any forecasting exercise would also apply an escalation rate to these other values.

Efforts to forecast the fraction of generation subject to the NUS charge over time would involve the same methodology that vendors currently use to model customer bill savings under NEM 2.0. SEIA/VS witness Beach acknowledged that "it's relatively easy" to estimate "how much of the power's going to be used on-site versus exported."[238] Since virtually every successor tariff proposal would result in a growing gap between the compensation provided for self-consumption and exports (with exports being valued far lower), this type of forecasting will be important regardless of the tariff proposal adopted in this case. Knowing the fraction of output to be used for either purpose will become increasingly critical for any assessment of cost-effectiveness and projected bill savings provided to an individual customer. The adoption of TURN's NUS charge does not complicate this effort or increase the uncertainty faced by any prospective customer.

[237] SEIA/VS opening brief, pages 7, 57.
[238] RT Vol. 8, page 1313, Beach

b. TURN's proposal to measure self-consumption using a second meter or an estimate of production

TURN's proposal to track self-consumption quantities would require direct measurement or estimation of generation output. CalSSA expresses concern regarding which entity could own a second production meter and how production data would be provided to the utility.[239] TURN's opening brief explains that the meter could be installed by either the customer or the utility.[240] TURN does not oppose allowing customers to own the second meter so long as it meets minimum requirements established by the utility. With respect to protocols governing the transmission of data to the utility, TURN believes these issues can be developed in the second of three phases of implementation outlined in the opening brief and should include consideration of the existing protocols used to collect and transmit customer self-generation data under the existing CGDL tariffs that assess nonbypassable charges on certain customer self-generation loads.[241]

The implementation phase considering these issues would begin upon adoption of a final decision in this proceeding with the objective of allowing an end-state tariff to be operational (including the resolution of metering/data issues) by January 1, 2024.[242] Prior to the completion of this implementation process, TURN supports having new customers enroll in the Interim Successor tariff proposal contained in the Joint Recommendations of the Independent Parties.[243] This timeline should permit sufficient exploration and resolution of metering issues to allow implementation within this period.

CalSSA additionally objects to TURN's proposal to allow customers to use estimates of production as an alternative to the installation of a second meter. Specifically, CalSSA

[239] CalSSA opening brief, pages 156-157.
[240] TURN opening brief, page 82, footnote 222.
[241] Ex. TRN-3, pages 49-50
[242] TURN opening brief, page 131.
[243] TURN opening brief, Appendix A, Section 6.

notes that this approach would require a forecast of hourly output and the incorporation of degradation rates over time.[244] SEIA/VS similarly claims that the use of an estimate could prove unreliable.[245] During hearings, TURN witness Chait explained that hourly production could be forecast using commonly available models like PVWatts that are tied to a customer address and incorporate a degradation rate over time.[246] Further, Ms. Chait noted that estimates of hourly production could easily be aggregated into time-of-use periods to make the process simpler.[247]

TURN's approach to the development of estimated production would rely on the same methods that are commonly used in the solar industry to forecast solar generation. Specifically, TURN witness Chait referred to the use of the PVWatts tool for this purpose.[248] The industry-standard PVWatts calculator, developed by the National Renewable Energy Laboratory, is relied upon by solar installers to forecast production and is the basis for estimates used by many parties in this proceeding including TURN,[249] SEIA/VS,[250] Aurora Solar,[251] Protect Our Communities Foundation,[252] the Joint IOUs,[253] and the Public Advocates Office.[254] CalSSA also relied upon PVWatts for its modeling of hourly exports from a successor tariff customer and explained its approach as follows:

> The process for determining a solar export profile is simple. It uses National Renewable Energy Laboratory's (NREL) Photovoltaic (PV) Watts tool to determine hourly generation values. The hourly customer usage data is

[244] CalSSA opening brief, page 158.
[245] SEIA/VS opening brief, page 65.
[246] RT Vol. 9, page 1516, Chait.
[247] RT Vol. 9, page 1519, Chait.
[248] RT Vol. 9, page 1516, Chait.
[249] Ex. TRN-1, page 61 (TURN used PVWatts to develop generation profiles for one inland and one coastal location for each utility).
[250] Ex. SVS-1, pages 15-16
[251] Ex. ASO-1, page 9
[252] Ex. PCF-1, page 9.
[253] Ex. IOU-1, page 75.
[254] Ex. PAO-1, pages 3-17, 3-40.

> described above. Subtracting consumption from production and eliminating negative values produces hourly exports.[255]

The fact that the estimation process is so widely relied upon by a range of experts, including the solar industry, attests to its reliability and accuracy. TURN submits that the Commission can direct the utilities to use this tool for purposes of developing production estimates. Since solar customers typically have access to production data from their BTM generation, in many cases via web-based portals, any divergence between estimates and actual experience over time could be observed. In this case, TURN would support allowing the customer to request a revised estimate that accounts for newly developed shading or faster-than-expected panel degradation. Alternatively, the customer could install a second meter.

SEIA/VS suggests that reliance on a production estimate would be problematic if customer consumption patterns "change over the 20-year life of its system as the customer buys more efficient appliances, adds other DERs, and increases and then decreases the family's size (and electric load) as children are born, grow up, and move away."[256] This critique demonstrates a fundamental misunderstanding of TURN's proposal. TURN does not propose to develop estimates of future customer consumption. The proposed estimate would apply only to the output of the renewable generator. Self-consumption quantities would be determined by deducting metered exports to the grid (which are recorded by the utility meter) from estimated generation over a particular billing cycle.[257] The difference between these two quantities would represent actual self-consumption. The use of utility meter data for exports would capture ongoing changes in consumption caused by a variety of factors. If a customer increases consumption during periods of solar generation, the amount of metered exports would decline and NUS cost responsibility would rise to reflect greater amounts of self-consumption. If the customer reduces their consumption due to the

[255] Ex. CSA-1, page 14.
[256] SEIA/VS opening brief, page 65.
[257] Ex. TRN-1, page 51.

factors referenced by SEIA/VS, the amount of metered exports would increase and the resulting NUS cost responsibility would decline to reflect less self-consumption. As explained in TURN's direct testimony, "a customer that goes away on vacation or lives at their residence seasonally would have very little onsite consumption subject to the charge."[258] This feature of TURN's proposal should be considered a strength because it would more precisely align cost responsibility with actual self-consumption than the use of fixed charges or grid benefit charges based solely on system capacity.

Finally, CalSSA asserts that TURN's modeling fails to include the $900 cost of installing a production meter that a successor tariff can elect as an alternative to estimating onsite production.[259] This critique is misleading. As explained by TURN witness Chait during hearings, TURN's modeling assumed that successor customers select the estimation method which includes an upfront $100 cost along with recurring charges of $50/year over the course of 20 years.[260] As noted by Ms. Chait, the total modeled costs to the customer associated with either a production meter or estimated production "were reasonably similar."[261] TURN's modeling therefore does not omit any relevant costs or bias the results of the analysis.

c. The Commission has the authority to assess charges on power produced and consumed behind the meter

CalSSA objects to the application of any charges based on the production of energy that "never crosses to the utility's side of the meter" and charges customers "for services they never receive."[262] CalSSA further argues that the Commission may not apply unique charges on solar generators pursuant to the language of Public Utilities Code §453(c) which prohibits unreasonable differences in rates and charges between classes of service.[263] CalSSA similarly argues against any requirement for successor tariff

[258] Ex. TRN-3, page 45, footnote 95.
[259] CalSSA opening brief, page 34.
[260] RT Vol. 9, pages 1522, 1525, Chait.
[261] RT Vol. 9, page 1525, Chait.
[262] CalSSA opening brief, page 125.
[263] CalSSA opening brief, page 134.

customers to take service under an electrification rate on the same basis.[264] However, CalSSA fails to cite a single Commission precedent that supports any of its legal contentions.

With respect to the application of unique charges on energy that is not exported, the Commission previously approved unique retail rate charges for self-generation customers to collect the Cost Responsibility Surcharge for "departing load" (i.e. consumption) served by new on-site generation.[265] In a 2003 decision, the Commission rejected arguments that such generation was outside the scope of its jurisdiction and found that it had sufficient legal authority to impose charges on behind-the-meter load served by self-generation pursuant to specific statutory provisions including Public Utilities Code §701.[266]

With respect to a requirement that successor tariff customers take service on an electrification rate, CalSSA offers no particular legal argument (supported by references to Commission or Judicial decisions) to support the claim that the Commission is prohibited from requiring NEM customers to take service under a particular tariff. In D.16-01-044, the Commission required NEM 2.0 customers to take service on Time of Use rates even though all other customers (including those with identical load profiles) faced no similar obligation.[267] If CalSSA's sweeping interpretation of §453 is valid, the Commission would have violated that provision in its authorization of the NEM 2.0 tariff. It is worth noting that the other major solar industry representative in this case (SEIA/VS) proposes that new solar customers be obligated to take service under

[264] CalSSA opening brief, page 160.
[265] D.03-04-030.
[266] D.03-04-030, page 38 ("we conclude that the Commission has the requisite legal authority to authorize and implement cost responsibility surcharges on customer generation load."), footnote 67 ("The Commission's authority to adopt and allocate CRS to Customer Generation load is also found in AB 1X concerning the obligations to retail end-use customers for DWR costs, and our broad authority to regulate "to do all things...which are necessary and convenient in the exercise of such power and jurisdiction," under Public Utilities Code Section 701"), Conclusions of Law 1, 2, 3.
[267] D.16-01-044, page 92.

electrification rates. This fact demonstrates the extreme nature of CalSSA's claims and the absence of credible support for its legal arguments.

In this proceeding, the Commission is acting pursuant to Public Utilities Code §2827.1 which directs the development of a successor tariff that satisfies the conditions within that section "notwithstanding any other law".[268] The use of this very intentional phrasing has been held by the California Supreme Court to mean that the legislature intends the relevant section to override all contrary law.[269] The Commission should therefore dismiss arguments that successor tariff design is constrained by other provisions of the Public Utilities Code.

In light of the direction to proceed "notwithstanding any other law", the Commission may exclusively consider the import of the remaining subdivisions in §2827.1 which articulate the factors guiding the development of a "standard contract or tariff" applied uniquely to customer generators and may incorporate fixed charges which differ from those allowed for residential customers without behind the meter generation.[270] The grant of authority to the Commission under this section is exceptionally broad. Importantly, there is no countervailing language limiting the Commission's authority to assess charges based on production occurring behind the meter to the extent that such charges are necessary to ensure that "the total benefits of the standard contract or tariff to all customers and the electrical system are approximately equal to the total costs."[271]

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[268] Cal. Pub. Util. Code §2827.1(b).
[269] *Arias v. Superior Court* (2009) 46 Cal.4th 969, 983, quoting *Klajic v. Castaic Lake Water* Agency (2004) 121 Cal.App.4th 5, 13 ("[n]otwithstanding any other law," which has been described as "a term of art" " [citation] that declares the legislative intent to override all contrary law.")
[270] Cal. Pub. Util. Code §2827.1(b)(7)("The commission shall determine which rates and tariffs are applicable to customer generators only during a rulemaking proceeding. Any fixed charges for residential customer generators that differ from the fixed charges allowed pursuant to subdivision (f) of Section 739.9 shall be authorized only in a rulemaking proceeding involving every large electrical corporation. The commission shall ensure customer generators are provided electric service at rates that are just and reasonable.")
[271] Cal. Pub. Util. Code §2827.1(b)(4).

As explained in TURN's opening brief, the notion that customers are protected against being charged for "services they do not receive" does not withstand even a modicum of scrutiny.[272] Retail utility customers are routinely charged for services they do not, or cannot, access and for costs that they do not directly cause. The principle articulated by CalSSA, if applied to general rate design, would prevent the collection of many costs from most customers. The Commission should decline to embrace any new and unique rights that apply only to self-generating customers and instead focus on the importance of rates that result in fairness and equity for all customers.

d. The NUS charge does not violate federal law

In opening briefs, several parties argue that the application of any Grid Benefit Charge to NEM customers would violate provisions of the Public Utility Regulatory Policies Act (PURPA) of 1978. Specifically, SEIA asserts that PURPA requires that rates for sales to may not "discriminate against any qualifying facility" by charging a different rate than would apply to "other customers with similar load or cost-related characteristics."[273] CalSSA similarly argues that PURPA regulations addressing rates charged by utilities to Qualifying Facilities (QFs) equally apply to all NEM tariffs.[274] Sierra Club joins this chorus and argues that import rates for NEM customers must be "PURPA-compliant".[275]

In support of these claims, CalSSA and SEIA cite a recent statement by two Federal Energy Regulatory Commission (FERC) Commissioners expressing concern about the Alabama Public Service Commission's approval of a rate rider that applies a capacity charge to QFs.[276] Although FERC declined to initiate an enforcement action relating to Alabama QF rates, CalSSA and SEIA suggest that the concurring statement of the two FERC Commissioners should be interpreted to mean that PURPA requirements

[272] TURN opening brief, pages 81-82.
[273] SEIA opening brief, page 62, *citing* 18 C.F.R. § 292.305
[274] CalSSA opening brief, pages 137-138.
[275] Sierra Club opening brief, pages 33-35.
[276] SEIA opening brief, page 62, footnote 212; CalSSA opening brief, page 138, footnote 704.

applicable to QF rates under 18 C.F.R. § 292.305(a) should also govern the terms and conditions of Net Energy Metering (NEM) arrangements. The Commission should reject this argument for several reasons.

As a threshold matter, neither CalSSA nor SEIA discloses the fact that the referenced controversy addressed by FERC did not involve net metering tariffs. Alabama does not offer net energy metering to its customers and instead treats any retail customer with behind the meter generation as a QF served under tariffs that provide "back-up power to qualifying small power production facilities and co-generation facilities."[277] In approving recent changes to the tariff that were subsequently challenged at FERC, the Alabama Commission noted the absence of any dispute that "backup power is a service", that "Alabama Power is required to provide that service in accordance with PURPA and federal regulations" and that backup power is a service provided "whenever the customer's generation does not produce – including when that drop in production is the result of unscheduled outages such as those related to whether conditions (e.g., cloud cover) or mechanical failure."[278] Because the tariffs at issue in the Alabama case related to backup service provided to QFs, they are fundamentally different from the net metering and billing tariffs being litigated in this proceeding.[279]

As explained in the following sections, the solar parties are incorrect as to the scope of federal jurisdiction, ignore relevant FERC and federal court precedents and fail to cite past California holdings. Moreover, the solar parties do not recognize that adopting the position that NEM rates are subject to PURPA would prohibit the adoption of their own successor tariff proposals in this proceeding and require immediate and substantial

[277] Alabama Public Service Commission Order, *Bankston, et al. v. Ala. Power Co. – In re: Rate Rider RGB (Supplementary, Back-up or Maintenance* Power), Docket Nos. 32767 & U-4226, Oct. 16, 2020, page 7.
[278] Alabama Public Service Commission Order, *Bankston, et al. v. Ala. Power Co. – In re: Rate Rider RGB (Supplementary, Back-up or Maintenance* Power), Docket Nos. 32767 & U-4226, Oct. 16, 2020, pages 18, 21.
[279] There is no reference to any applicability to net metering in the FERC order, the concurring statements by the two FERC Commissioners, or the Alabama Public Service Commission order.

changes to the rates for all legacy NEM customers. The Commission should affirm its own precedents and reject the flawed legal arguments raised by these parties.

i. Net Metering is not subject to FERC jurisdiction or the requirements of federal law

FERC has repeatedly held that net metering and net billing tariffs between a retail customer and its utility are not within its jurisdiction and not subject to the requirements of PURPA. State legislatures and regulatory commissions have authorized, established, and administered net metering programs for decades without any requirement that such programs comply with the requirements of PURPA. In the 2001 *MidAmerican* order, FERC upheld the authority of states to determine net metering arrangements without federal interference. That order explains that "in implementing PURPA, the Commission similarly recognized that net billing arrangements like those at issue here would be appropriate in some situations, and left the decision of when to do so to state regulatory authorities."[280] In the 2009 *SunEdison* decision, FERC reaffirmed its prior holding in *MidAmerican* and explained that:

> Where there is no net sale over the billing period, the Commission has not viewed its jurisdiction as being implicated; that is, the Commission does not assert jurisdiction when the end-use customer that is also the owner of the generator receives a credit against its retail power purchases from the selling utility. Only if the end-use customer participating in the net metering program produces more energy than it needs over the applicable billing period, and thus is considered to have made a net sale of energy to a utility over the applicable billing period, has the Commission asserted jurisdiction.[281]

To date, there is no instance of FERC asserting jurisdiction over, or ordering changes to, a net metering tariff approved pursuant to state law. CalSSA's brief asserts that PURPA provides protections to NEM customers but fails to identify any instance where FERC asserted jurisdiction over retail NEM tariffs or a reviewing court found any such tariffs to violate federal law.[282] SEIA/VS could not identify a single instance of FERC or a

[280] *MidAmerican Energy Co.*, 94 FERC ¶61,340 (2001), pages 5-6.
[281] *SunEdison*, 129 FERC ¶ 61,146, ¶18.
[282] CalSSA opening brief, pages 16-17.

reviewing court finding that specific fees charged to net metering customers violate PURPA.[283] The absence of any such instance is unsurprising because FERC jurisdiction is limited to transactions that involve interstate commerce and involve net sales.[284] Retail customers served under net metering tariffs do not engage in interstate commerce because they export to the local distribution network and do not commingle their output with out-of-state power before the point of sale, the electricity is purely intrastate in character and remains outside the reach of federal jurisdiction, and compensation for the export is provided as a netting credit on the bill that cannot be cashed out.[285] The absence of federal jurisdiction over intrastate transactions is found in provisions of the Federal Power Act that prohibit FERC from regulating "any other sale" of energy and reserving to the states the regulatory authority over those "other sale[s]."[286]

The recognition that net metering programs are part of state-jurisdictional retail service can be found in both the *MidAmerican* order and in provisions of the Energy Policy Act of 2005 (EPAct 2005) confirming that state net metering programs do not implicate the Commission's jurisdiction, specifically the addition of language to Section 111(d) of PURPA directing states to consider whether to adopt net metering programs.[287] The enacted definition of net metering clarifies that Congress regards net metering as a

[283] Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Question 24.
[284] *Ark. Power & Light Co. v. Fed. Power Comm'n*, 368 F.2d 376, 379 (8th Cir. 1966); *Pa. Water & Power Co. v. Fed. Power Comm'n*, 343 U.S. 414, 419-20 (1952); *S. Cal. Edison Co.*, 376 U.S. at 208-09; *Northern States Power Company v. FERC*, 176 F.3d 1090
[285] As the Commission noted in D.11-06-016, federal law only applies to a net metering program when there is a "net sale" that occurs at the end of the relevant true-up period (12 months in California).
[286] 16 U.S.C. §824(b).
[287] 16 U.S.C § 2621(a), (d)(11)(The list of standards set forth in subsection (d) includes, in addition to net metering programs, many other retail ratemaking matters that are exclusively within state jurisdiction. These standards include retail rate design that reflects the cost of service, time-of-day rate design, integrated resource planning, investments in conservation and energy efficiency, the development of retail rate design and incentives to encourage energy efficiency, minimization of dependence on a single fuel source, increased efficiency for fossil fuel generation, and investments in smart grid technologies.)

retail service, not a wholesale sale subject to the Federal Power Act.[288] In defining net metering as a retail function and directing states only to consider whether to adopt such retail tariffs[289], EPAct highlights the longstanding view that net metering programs are a function of retail sales, rather than wholesale sales, and therefore do not trigger federal jurisdiction.

The limits on FERC's jurisdiction over retail sales and rates have been addressed in a variety of court decisions. In *FPC v. Conway Corporation*, the US Supreme Court stated that "the Commission has no power to prescribe the rates for retail sales of power companies."[290] In the recently decided *FERC v. EPSA*, the Supreme Court found that "states are entitled to define the terms of retail service, and to measure retail service as they see fit. FERC may not "specif[y] terms of sale at retail"—this "is a job for the States alone."[291] The Decision further notes that "the Commission may not regulate either within-state wholesale sales or, more pertinent here, retail sales of electricity (*i.e.*, sales directly to users). State utility commissions continue to oversee those transactions."[292] Finally, the Court explained that the Federal Power Act reserves "regulatory authority over retail sales (as well as intrastate wholesale sales) to the States."[293]

Despite the briefing claim that any unique retail rate charge on NEM customers would violate federal law, SEIA/VS witness Gallagher acknowledged that SEIA did not challenge the legality of Grid Benefits Charges approved by the New York Public

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[288] 16 U.S.C § 2621(d)(11)("net metering service means service to an electric consumer under which electric energy generated by that electric consumer from an eligible on-site generating facility and delivered to the local distribution facilities may be used to offset electric energy provided by the electric utility to the electric consumer during the applicable billing period.")
[289] *FERC v. Mississippi*, 456 U.S. 742, 764 (1982)("Titles I and III of PURPA require only consideration of federal standards.")
[290] *FPC v. Conway*, 426 U.S. 271 (1976)
[291] *FERC v. Elec. Power Supply Ass'n*, 136 S. Ct. 760, 775 (2016).
[292] *FERC v. Elec. Power Supply Ass'n*, 136 S. Ct. 760, 768 (2016).
[293] *FERC v. EPSA* at 17 (quoting *New York v. FERC*, 535 U.S. at 17); *accord Detroit Edison*, 334 F.3d 48, 53 (D.C. Cir. 2005) (explaining that Section 201(b)(1) of the FPA "denies FERC jurisdiction over local distribution facilities and any unbundled retail service occurring over those facilities").

Service Commission for NEM customers.[294] Although these charges are only assessed on customers with behind-the-meter renewable generation, SEIA did not assert that the charge is impermissible as a matter of federal law and no stakeholder sought any form of judicial review.[295] This fact is relevant given that both SEIA and CalSSA argue in briefs that any such charge, no matter how small, would run afoul of federal law.

Based on the history of FERC and federal court precedents addressing the relevant jurisdictional issues, the Commission should decline to adopt the solar parties' view that NEM tariffs must comport with the requirements of PURPA. Embracing this view would upend settled law and introduce a variety of complex issues that could force major revisions to the entire NEM program for both existing and new customers.

ii. The Commission previously found that FERC jurisdiction over California's NEM program is limited to net sales eligible for net surplus compensation

The Public Utilities Commission previously addressed the extent to which FERC has jurisdiction over net metering programs. In a decision approving the methodology for net surplus compensation applicable to NEM customers, the Commission summarized the issue as follows:

> When we consider federal law, we find the utilities are correct that FERC has held that a net billing arrangement is not subject to FERC jurisdiction so long as no "net sale" is made to the utility. In addition, FERC has held that transfers of net surplus energy by a net metering customer to a utility are wholesale transactions that may comply with either the Federal Power Act (FPA) or PURPA.[296]

The Commission found that a net sale occurs if, after the 12-month true up period, the customer records electricity exports that exceed total imports over this period. Any power treated as excess at the end of this period is considered a net sale that is

[294] RT Vol. 9, pages 1458-1459, Gallagher.
[295] RT Vol. 9, pages 1458-1459, Gallagher.
[296] D.11-06-016, pages 9-10.

compensated, consistent with an avoided cost approach, using a rolling average of wholesale energy prices with a renewable energy adder if the customer conveys the Renewable Energy Credits (RECs) to the utility.[297] Any power subject to netting and bill credits within the 12-month period is considered part of the NEM program that is not subject to federal law and outside the scope of FERC jurisdiction. Consistent with holding, the Commission should affirm that federal law only applies to the compensation provided for "net sales" eligible for net surplus compensation.

iii. If PURPA does apply to consumption rates charged to NEM customers, it also applies to export compensation

If the legal position of the solar parties is accepted at face value, and the Commission concludes that PURPA applies to the terms and conditions associated with retail net metering service, this conclusion would severely constrain state authority with respect to the design of NEM tariffs for both existing and future customers. While the solar parties focus on provisions of PURPA that apply to rates charged by the electric utility to a QF, they ignore other related provisions of the same statutory scheme. To the extent that utilities must conform rates charged to NEM customers with restrictions applicable to rates charged for all QFs, the utilities would need to conform export compensation to the provisions of PURPA applicable to QFs. If applied to NEM tariffs, these provisions would prohibit the export compensation method used for existing NEM customers and prevent the adoption of successor tariff proposals that link export compensation to retail rates.

Sierra Club recognizes that subjecting NEM successor tariffs to PURPA requirements governing import rates would also trigger the related provisions governing the pricing of exports.[298] However, Sierra Club misunderstands the applicable law by suggesting that PURPA's "minimum requirements" are satisfied so long as the utility is required to

[297] D.11-60-016, page 26, Ordering Paragraph 2.
[298] Sierra Club, pages 34-35.

purchase electricity at rates that are no lower than avoided cost.[299] Sierra Club surmises that the avoided cost threshold represents a minimum that the Commission can choose to exceed at its discretion.

The relevant provisions of PURPA not mentioned by the solar parties, and misunderstood by Sierra Club, prevent a state commission from requiring that a utility pay "more than avoided costs for purchases" from a QF.[300] These provisions provide additional direction with respect to the obligation of utilities to purchase electricity from QFs. These obligations include the development of avoided costs that serve as a cap on purchase prices[301], the use of standard rates for each utility purchases from qualifying facilities less than 100 kW in size[302] and a prohibition on requiring the utility to purchase electricity or capacity from a QF if the costs will exceed those that "the utility would incur if it did not make such purchases".[303] In all cases, the pricing is based on wholesale costs and may not be tied to the retail rate unless that rate can be shown to satisfy the various avoided cost methods outlined under federal law. Under no circumstances can a state Commission treat avoided costs as a minimum threshold and order the utility to make purchases from a QF at a higher rate.

In D.20-05-006, the Commission adopted a standard offer contract available to any QF 20 MW or less in size seeking to sell electricity to a utility pursuant to PURPA. This contract has a maximum term of 12 years, relies on CAISO Locational Marginal Prices for energy pricing, and sets terms for as-available capacity prices based on recent Resource Adequacy pricing data.[304] The Decision also sets an as-available energy price for QFs that do not accept the standard contract.[305] In D.20-10-005, the Commission

[299] Sierra Club, pages 34-35.
[300] 18 CFR §292.304(a)(2).
[301] 18 CFR §292.304(b)(3).
[302] 18 CFR §292.304(c)(1).
[303] 18 CFR §292.304(f)(1).
[304] D.20-05-006, pages 2, 50, Appendix.
[305] D.20-05-006, page 3.

adopted modifications to the Renewable Market Adjusting Tariff (ReMAT) program required pursuant to a decision by the Ninth Circuit Court of Appeals which found that the prior pricing method violated PURPA because it failed to set a rate "based on the utilities' avoided cost."[306] For eligible facilities less than 3 MW in size, this decision relies on administratively set fixed avoided cost rates for electricity based on the weighted average price of recent long-term RPS contracts.[307] The Decision identifies the current pricing for as-available peaking facilities as $52.34/MWh.[308]

If the requirements of PURPA apply to NEM customers, as the solar parties contend, the pricing must be consistent with the approaches applicable to small QFs such as the methods used in D.20-05-006 and D.20-10-005. Moreover, the netting period used to determine exports subject to this pricing would also need to be consistent with the limited hourly approach used for QFs in California.[309] These methods are fundamentally inconsistent with solar party proposals to use retail rates, or fractions thereof, to set export compensation for net exports (within the relevant netting interval). Moreover, the determination that PURPA applies to NEM tariffs would also require immediate reforms to export compensation for legacy NEM 1.0 and 2.0 customers to conform those tariffs to the relevant PURPA requirements.

The Commission should decline to find that PURPA applies to the design of existing and proposed NEM tariffs. There is no legitimate basis for this finding and the consequences of the solar parties' position would deprive the Commission of its lawful authority to oversee the design of retail rates. As noted in this section, those consequences would include the need to immediately reform existing and future NEM

[306] D.20-10-005, page 6; *Winding Creek Solar, LLC v. Peevey* (N.D. Cal. 2017) 293 F.Supp.3d 980, 983, 989-90 (*Winding Creek Order*), aff'd sub nom. *Winding Creek Solar, LLC v. Carla Peterman, et al.* (9th Cir. 2019) 932 F.3d 861.
[307] D.20-10-005, page 9.
[308] D.20-10-005, Appendix 1, page 2.
[309] Ex. CRE-8 provides an overview of CAISO tariff changes that narrow the scope of onsite loads eligible for netting and note the hourly interval used in California.

tariffs to conform with all aspects of PURPA including those governing the pricing of net sales for QFs.

e. The collection of Nonbypassable Charges via the NUS charge is permissible under §2827.1 and consistent with state law

CalSSA argues that because §381 of the Public Utilities Code requires certain nonbypassable charges to be collected "on the basis of usage", any optional method for the customer to accept an estimate of self-consumption is impermissible.[310] CalSSA's attempt to exempt successor tariff customers from making a full contribution towards nonbypassable charges is unreasonable and not required by law. The fact that CalSSA's legal claim is unaccompanied by any citation to a Commission precedent or judicial decision speaks volumes.

The costs subject to the requirements of §381 include energy efficiency, the CARE program, and research and development (including the EPIC program).[311] TURN's NUS proposal is consistent with this requirement because all nonbypassable charges, including the cost categories referenced in §381, would be collected on the basis of a customer's entire usage including self-consumption. TURN's proposal would collect PPP costs associated with participating customer imports using existing consumption rates applied to all customers on the same tariff without BTM resources. The NUS charge would collect additional PPP costs associated with self-consumption by calculating the portion of a customer's actual monthly consumption supplied by BTM resources. Because the amount of costs collected from each customer via the NUS charge would vary based on actual (or estimated) self-consumption in each month, they would not be fixed for any NEM customer. The resulting charge is based entirely on customer usage.

[310] CalSSA opening brief, page 147.
[311] D.11-12-035, page 32 (The Commission directed EPIC costs to be recovered as part of the PPP rate component).

CalSSA is apparently unaware that the Commission previously ordered a wide array nonbypassable costs (including the Public Purpose Program charge) to be assessed on the portion of certain departing load customer consumption served entirely by onsite generation.[312] Pursuant to that Decision, all three IOUs have rate schedules that collect several nonbypassable charges from eligible departing load customers based on the metered or estimated production from onsite generation used to serve the customer's load.[313] The calculation of customer cost responsibility includes either metering or estimating production from onsite generation. The fact that the Commission approved this treatment and these tariffs demonstrates that estimates of self-consumption are permissible for purposes of satisfying the §381 requirements.

Moreover, §2827.1(b) directs the Commission to develop a successor tariff "notwithstanding any other law" which allows the successor tariff developed pursuant to that section to be exempt from any conflicting requirements. The Commission may therefore conclude, if necessary, that the §381 limitation is not binding only for purposes of the NEM successor tariff.

f. There is no fundamental right of customers connected to the electrical grid to generate and consume electricity without incurring any cost obligations

CalSSA asserts that proposals to collect grid benefit charges, or TURN's NUS charge, violate "the right of customers to self-generate their own electricity, which is rooted in both Federal and State law."[314] Despite this bold statement, CalSSA offers no support for this claim and fails to cite any relevant case law. Instead, CalSSA points to a California Supreme Court case involving the rights of wild fish and a Kentucky Court of Appeals decision involving the ability of the state to require customers with septic

[312] D.03-04-030.
[313] Ex. TRN-3, pages 49-50, *citing* SCE Schedule CGDL-CRS, SG&E Schedule CGDL-CRS, SDG&E Schedule E-DEPART, PG&E Schedule E-DCG; These schedules collect nonbypassable charges that include the Nuclear Decommissioning Charge, Public Purpose Program Charge, Competition Transition Charge, Power Charge Indifference Adjustment, DWR bond charges, Wildfire Fund Charge, and Energy Cost Recovery Amount (PG&E only).
[314] CalSSA opening brief, page 143.

tanks to connect to a public sewer system.[315] None of these cases are remotely applicable to the legal or policy issues in this proceeding and CalSSA cannot conjure even a single precedent that involves a relevant state or federal law supporting its cause.

CalSSA further relies on PURPA in support of the claim that a state may not set retail rates in a manner than infringes upon the ability of a customer to self-generate free from any additional charges.[316] As explained in Section IV(A)(3)(d), this argument rests on a series of false assumptions regarding the reach of PURPA, the exemptions provided for net metering tariffs, and the fundamental right of states to retain jurisdiction over retail rates. While the notion that customers have a right to self-generate may sound like it is rooted in larger legal principles, there are no controlling authorities that support this notion. The Commission retains authority to set retail rates and to collect costs from retail customers pursuant to applicable state law.

AECA and the Farm Bureau express similar concerns and argue that any charge on self-generation constitutes an infringement on private property rights and is "contrary to the current structures for self-generation".[317] As noted in the prior section, the Commission has approved rates that collect a wide array of nonbypassable charges from self-generation customers based on the portion of their generation serving onsite load.[318] The claim that such charges are inconsistent with the Commission's treatment of self-generation is therefore incorrect. With respect to private property rights, AECA and the Farm Bureau fail to cite a single statute, decision, or other specific legal principle that prevents the Commission from adopting the rate design elements being proposed by TURN and other parties in this case.

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[315] CalSSA opening brief, page 144, footnotes 722 and 723, *citing People v. Truckee Lumber*, 116 Cal. 397, 402 (1897) and *Sanitation District v. Campbell,* 249 S.W.2d 767, 772 (Ky. 1952).
[316] CalSSA opening brief, pages 144-145.
[317] AECA/Farm Bureau opening brief, page 24.
[318] D.03-04-030.

g. TURN's proposed charge would not violate or jeopardize any customer privacy rights

TURN proposes to allow successor tariff customers to elect between two methods of calculating the portion of customer self-consumption supplied by BTM resources. Under the first approach, the customer may install a second meter on the BTM resource and provide production data to their utility.[319] Under the second approach, hourly and monthly production from the BTM resource would be estimated based on engineering estimates that account for system capacity, location, orientation and any other relevant factors. Customers with paired storage should be required to implement the second meter alternative due to the complexity of estimating storage dispatch. TURN's proposal would continue the application of privacy protections to customer-specific usage and billing data.[320]

CalSSA suggests that this proposal constitutes a "privacy intrusion" that could result in public disclosure of individual customer electricity usage data.[321] To "protect utility customers' privacy rights", CalSSA urges the Commission to reject any proposal to track or measure behind the meter generation.[322] In suggesting that the mere collection of customer data would result in public disclosure, CalSSA fundamentally misrepresents relevant Commission precedent. The Decision quoted by CalSSA discusses the importance of collecting granular data on individual customer consumption and affirms that the Commission has "broad powers and a legislative mandate to develop rules and regulations to protect the usage data of utility customers vis-à-vis the utility, its operational contractors and those with whom a utility contracts to provide energy monitoring services to utility customers."[323]

[319] TURN opening brief, pages 82-83.
[320] Ex. TRN-3, page 51.
[321] CalSSA opening brief, page 148.
[322] CalSSA opening brief, page 148.
[323] D.11-07-056, page 33.

State law provides abundant protections against public disclosure of private customer information collected by the utilities and expressly prohibits the utilities from making individual customer data publicly available.[324] CalSSA fails to identify any basis for its concern that the mere existence of generation production data, as well as related consumption data the utility routinely collects from these same customers via SmartMeters, jeopardizes customer privacy. Ironically, CalSSA also ignores the fact that most customer-owned (or leased) behind the meter generation includes monitoring and metering technology that transmits real-time production data to third party vendors not regulated by the Commission.[325] This information is held by the third party, shared with the customer via Web-based interfaces and can be made available to other entities subject to terms and conditions negotiated in the customer contract.

While utility customer data is subject to protections under state law, cannot be disclosed except pursuant to Commission order, and is not publicly available in disaggregated form, there are no similar privacy protections for customer generation data routinely collected and transmitted directly to third party solar vendors. CalSSA's concerns about customer privacy, and objections to the collection of any data relating to behind the meter generation, conveniently ignore the fact that this same customer generation production data is routinely collected, maintained and shared by solar customers with CalSSA member companies. The Commission should find that the collection of individual customer data by the utility is secure, protected from disclosure, and subject to extensive state regulation.

To the extent that the Commission believes existing customer data privacy protections are insufficient, TURN would support enhancements to ensure that no intentional or inadvertent public disclosure of sensitive information occurs. Absent such a concern,

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[324] Cal. Pub. Util. Code §8380.

[325] CalSSA includes a graphic showing data from the "Enphase monitoring platform" in Ex. CSA-1, page 118, Figure 24. CalSSA witness Plaisted previously worked for a company that developed home automation platforms that collect and analyze this data for individual customers (Ex. CSA-1, Attachment 3).

TURN finds no rationale for arbitrarily finding that behind-the-meter production data should not be collected if it is used by the utility for billing purposes.

4. Up-front incentive (Market Transition Credit)

TURN proposes a Market Transition Credit (MTC) in the form of a one-time upfront subsidy payment to ensure sustainable growth and achieve equity goals.[326] TURN's proposed MTC is designed to transparently reflect the entirety of any incentives and subsidies provided to NEM participants. While the remaining elements of TURN's proposal would fairly compensate NEM participants for the value they provide to all customers and the electrical grid, the MTC buydown provides a transparent subsidy lever designed to achieve Commission-defined customer adoption objectives.

Some parties express concerns over the use of an MTC. CalSSA claims that an MTC is "bad policy" because of past experiences where the Commission failed to issue timely decisions relating to incentive programs.[327] Apart from this critique, CalSSA fails to offer any particular substantive objection to the use of up-front incentives like those that were at the core of the successful California Solar Initiative and the many equity programs for low-income customers that are referenced positively in other parts of CalSSA's brief.

An MTC is a valuable tool that can serve many objectives relating to the successor tariff. As explained in the E3 Whitepaper commissioned for this proceeding,

> the market transition credit is needed to enable the transition of NEM customers towards a more fully cost-reflective rate, by making up the gap between the estimated acceptable payback amount and the transitional rates that will more closely align rates with avoided costs. Without a mechanism of this type combined with the ability to offer a NEM specific rate design, the rate transition becomes constrained by both the legislative sustainability requirements and the effort to mitigate billing impacts. The MTC structure also provides certainty for developers of customer-sited renewable generation systems by providing a clear

[326] These goals are identified in Public Utilities Code §2827.1(b)(1).
[327] CalSSA opening brief, pages 116-117.

> and transparent value to plan around, including the timing of when this credit would be adjusted for later vintages. The MTC can be calibrated for different geographic, income-based, or other populations depending on policy goals, providing flexibility in determining the appropriate compensation to be awarded to different groups of customers with onsite renewable generation. Finally, this mechanism allows for direct cost tracking for future collection.[328]

CalSSA suggests that TURN's proposed use of an MTC is problematic because the raw value of the incentive could be substantial and would be coupled with a structure that provides lower ongoing bill savings than current NEM tariffs.[329] CalSSA cites a cost of $400 million per year to support MTC subsidies, a calculation that was performed by SEIA/VS and is based on 40,000 new CARE customer enrollments per year.[330] TURN's opening brief notes that less than 9,000 new CARE customers enrolled in NEM tariffs in 2019, so the estimate provided by SEIA/VS assumes that enrollments increase by more than 4x relative to prior levels.[331]

While TURN agrees that the amount of money required to support a robust MTC could be substantial, the solar party proposals involve far larger amounts of opaque funding collected from all customers in rates. As noted by the Public Advocates Office, current NEM 1.0 and 2.0 tariffs shift approximately $3.37 billion per year to the customers of the three IOUs, a figure that will grow to $6.9 billion per year in 2030 if no material reforms are made to NEM tariffs.[332] In contrast to the solar parties' preference to make the costs opaque and buried within retail rates, TURN believes that subsidies provided to successor tariff customers should be transparent and structured in a manner that can accommodate external funding sources. This features of the MTC are strengths rather than weaknesses.

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[328] *Alternative Ratemaking Mechanisms for Distributed Energy Resources in California*, E3 and Verdant for the California Public Utilities Commission, January 28, 2021, page 17
[329] CalSSA opening brief, page 117.
[330] CalSSA opening brief, page 117, *citing* Ex. SVS-4, page 51.
[331] TURN opening brief, page 90.
[332] Ex. PAO-1, page 2-18.

SEIA/VS claims that the MTC is problematic because key details of the calculation are "up for grabs" as part of an implementation phase including relevant data inputs that "are being debated in this proceeding."[333] This concern is overblown. TURN has provided a transparent set of inputs for determining the value of an MTC under different target payback period scenarios.[334] The Commission can use, or modify, these inputs based on the testimony provided in this proceeding and in a subsequent implementation phase.

As described in TURN's opening brief, the implementation process for finalizing the input assumptions and resulting MTC values would begin after the adoption of a decision in this phase with the goal of Commission approval of these values by June of 2023.[335] This implementation process should allow sufficient time to work out the details prior to the tariff going into effect in 2024. The Commission should recognize that any new mechanism will require implementation. To suggest that a successor tariff should not be embraced unless it can be put into effect immediately without any ongoing process is merely an argument in defense of minimal change relative to the status quo.

SEIA/VS further object to TURN's MTC because it would result in recipients "having their solar systems substantially paid for by other customers, but then achieving minimal bill savings."[336] This critique ignores the fact that the solar parties also propose having these systems "substantially paid for by other customers" in the form of bloated compensation divorced from the value provided by these resources to all customers. The excessive compensation is paid by all customers and constitutes the primary method by which the customer recovers their investment. Rather than burying these subsidies in payments made over 20 years or more, the Commission should embrace an

[333] SEIA/VS opening brief, page 67.
[334] Ex. TRN-1, pages 20-24, 60-63
[335] TURN opening brief, page 131.
[336] SEIA/VS opening brief, page 69.

approach that transparently identifies the subsidy and provides it as a separate up-front incentive that can be used to directly reduce the initial customer investment. This direct offset means that customer investments are lower and smaller bill savings are needed to ensure sufficient payback and returns. The critique made by SEIA/VS actually demonstrates the strength of TURN's proposal.

5. Paired Storage rate and dispatch obligations

TURN proposes that customers with paired storage be placed on an electrification tariff to support optimal dispatch that benefits the grid and all customers.[337] The Commission should make participation in an electrification rate mandatory for any customer (including legacy NEM 1.0 and 2.0 customers) that installs paired storage after receiving an incentive through the Self-Generation Incentive Program (SGIP).[338] The Commission should further direct the IOUs to propose, in the appropriate rate design proceedings, a separate tariff for paired storage that includes additional time of use (TOU) granularity and TOU price signals that are better aligned with grid conditions.[339] The resulting tariff should be designed to incentivize optimal dispatch that benefits the grid and all customers and provide appropriate compensation for performance during periods of peak need.

CalSSA objects to requiring successor tariff customers with paired storage to dispatch their systems under any circumstances regardless of grid conditions.[340] In particular, CalSSA focuses on the risks to customers with medical needs that are served under medical baseline tariffs and rely on critical medical equipment.[341] As explained by Ms. Chait during hearings and in TURN's opening brief, medical baseline customers would be exempted from any dispatch requirements.[342] Additionally, CalSSA argues that any

[337] Ex. TRN-1, pages 56-57.
[338] Ex. TRN-3, page 72.
[339] Ex. TRN-3, page 73.
[340] CalSSA opening brief, pages 182-184.
[341] CalSSA opening brief, page 182.
[342] TURN opening brief, page 96; RT Vol. 9, page 1534, Chait; RT Vol. 10, page 1662, Chait.

programs involving storage dispatch should be purely voluntary and include compensation.[343]

TURN agrees that compensation should be provided for dispatches but does not agree that participation should be voluntary when CAISO calls a Stage 2 emergency or identifies other extreme summer net peak conditions that create the risk of statewide outages.[344] Participation in dispatch requirements would ensure that the resiliency value of customer storage benefits all customers and the grid rather than exclusively benefiting the customer with the storage. The coordinated dispatch of customer storage could help avoid systemwide outages and address the countervailing motivation of customers to resist discharging during grid stress conditions to ensure a high state of charge in the event of widespread outages.[345] In addition, a maximum discharge threshold can be established.

CalSSA's final critique relates to the implementation timeline and challenges of developing adequate technical capability for remote dispatch by the utilities.[346] TURN agrees that significant additional work is needed to develop a dispatch program for customer storage. Based on this acknowledgement, TURN's opening brief outlines a revised schedule for implementation of an end-state successor tariff. This schedule would place communication/dispatch protocols for paired storage and related issues into a third phase targeted for completion by the end of 2025.[347] The Commission can endorse TURN's proposal now and direct parties to work on key implementation issues over the next few years. This approach would ensure that the collective benefits of

[343] CalSSA opening brief, page 184.
[344] TURN opening brief, page 96; Ex. TRN-1, page 57, footnote 98. The CAISO defines a stage 2 emergency notification as a situation where "The ISO has taken all mitigating actions and is no longer able to provide its expected energy requirements. Requires ISO intervention in the market, such as ordering power plants online."
[345] TURN opening brief, page 97.
[346] CalSSA opening brief, page 183.
[347] TURN opening brief, page 130.

customer storage can be realized and that both vendors and customers have sufficient advance notice to adapt to the new requirements.

6. CalSSA critiques of TURN's CARE tariff

CalSSA asserts that tariffs proposed by TURN and other parties would "impose new barriers for low-income customers" and cites to a 2016 California Energy Commission in support of this claim.[348] CalSSA further claims that TURN's proposal to provide an MTC to CARE customers would harm these customers and produce more adverse economics "compared to the present tariff terms."[349] These claims ignore key elements of TURN's proposal and the modeling that shows the opposite of what CalSSA claims.

TURN's MTC is designed to significantly reduce the up-front cost of installation for a CARE customer and mitigate the impact of the CARE discount on tariffed compensation. As noted in the Energy Commission study cited by CalSSA, low-income customers lack access to capital and "are less capable of participating in programs with high upfront payments or co-payments for energy efficiency or renewable equipment."[350] TURN's up-front MTC would directly offset initial system installation costs for CARE customers, limit the up-front costs or financing required, and remove a key barrier to adoption. The reduced level of up-front investment by CARE customers is a key virtue of TURN's proposal and reduces the recurring costs borne by the customer. By contrast, CalSSA would force these customers to pay for full-priced systems under leasing or PPA agreements that provide maximum financial benefits to CalSSA members.

CalSSA's claim regarding the relative participant economics of TURN's tariff proposal relative to existing NEM tariffs is not accurate. TURN's direct testimony shows that current NEM 2.0 tariffs are projected to result in a full discounted payback period

[348] CalSSA opening brief, page 63.
[349] CalSSA opening brief, page 66.
[350] *California Energy Commission Final report for the SB 350 Low-Income Barriers Study*, page 3; This study is cited in CalSSA's opening brief at page 63 and in Ex. CSA-2, page 21, footnote 67.

within 9-13 years for CARE customers of PG&E, SCE and SDG&E (with simple paybacks ranging from 6.4 to 8.9 years).[351] By comparison, TURN's tariff proposal would result in a 10 year full discounted payback for customers of all three IOUs with simple paybacks ranging from 5.1 to 6 years).[352] Moreover, TURN's tariff proposal would yield higher Internal Rates of Return (IRR) for CARE customers (15.7-20.0%) compared to existing NEM tariffs (12.7-17.9%).[353]

TURN's CARE tariff also produces participant results that are comparable to CalSSA's proposal. In rebuttal testimony, TURN compared results from tariff proposals submitted by various parties for CARE customers. While TURN's proposal results in a 10-year full discounted payback for SCE CARE customers (or between 4.4 and 7 year simple paybacks depending upon the initial year of installation), CalSSA's proposal would result in full discounted paybacks of between 8 and 10 years (or between 5.8 and 6.9 year simple paybacks).[354] The 10-year IRR values ranged from 13-15% for TURN's tariff and 10-14% under CalSSA's tariff.[355] However, TURN's tariff yielded superior RIM values (0.4 to 0.45) compared to the CalSSA tariff (0.26 to 0.35), primarily due to the fact that the CalSSA tariff subsidizes CARE customers by using retail rates for a 20-year period while TURN's proposal loads most of subsidy into a one-time up-front MTC payment.[356]

The Commission should find that TURN's proposal is more effective at inducing participation by CARE customers, yields comparable or superior payback terms to alternative proposals, and minimizes the long-term cost shifting to non-participating customers. Further, a portion of the MTC can be funded by legacy NEM 1.0 and 2.0

[351] Ex. TRN-1, page 76.
[352] Ex. TRN-1, page 76.
[353] Ex. TRN-1, page 76. The higher IRRs under TURN's proposal are also attributable to the fact that the MTC reduces the up-front cost to participants and thereby results in a much smaller investment amount.
[354] Ex. TRN-3, pages 88-90.
[355] Ex. TRN-3, pages 88-90.
[356] Ex. TRN-3, pages 88-90.

non-CARE customers or from external sources which would significantly improve the RIM scores and reduce the costs shifted to all other customers.

7. TURN's MTC can be added to incentives under other programs to support low-income customers and disadvantaged communities

CalSSA argues that reforms to the NEM tariff could jeopardize the effectiveness of various solar incentive programs designed to support adoption by low-income customers in disadvantaged communities. Specifically, CalSSA claims that reforms to NEM tariffs would undermine the value proposition for participants in the Disadvantaged Communities-Single Family Affordable Solar Homes (DAC-SASH), Solar on Multifamily Affordable Housing (SOMAH), Single Family Affordable Solar Homes (SASH), and Multifamily Affordable Solar Housing (MASH) programs.[357] CalSSA further asserts that participants in these programs would not be motivated to participate under a reformed NEM tariff even if generation was installed at no cost to the customer, a contention for which it offers no supporting evidence.[358]

TURN's proposal is designed to accommodate and support these existing programs. As explained in testimony, TURN supports providing an MTC, in addition to existing up-front incentives already authorized under these programs, to ensure that any system serving a customer in a DAC achieves a payback within 10 (or fewer) years.[359] The MTC amount could be calibrated to achieve a shorter payback for these customers if the Commission finds that such an outcome is justified. Additional classes of low and moderate-income customers could be made eligible for the MTC based on income criteria that are under development in other Commission proceedings.[360] TURN would support expanding eligibility beyond CARE customers if coordinated with other

[357] CalSSA opening brief, pages 68-69.
[358] CalSSA opening brief, page 69.
[359] Ex. TRN-1, page 32.
[360] For example, CalSSA proposes basing eligibility for a low-income tariff using 80% of Area Median Income (CalSSA opening brief, page 73).

affordability initiatives authorized by the Commission.[361] The availability of this tool would ensure that these programs will provide an acceptable payback period for participants and serve the state's equity objectives.

Under TURN's successor tariff, a customer with behind the meter solar will realize material bill savings. For example, TURN's modeling found that a PG&E CARE customer receiving an MTC sufficient to achieve a 10-year full discounted payback would realize net bill savings of between 7.5 and 8.5 cents/kWh over the course of 20 years.[362] This level of bill reduction would significantly enhance the affordability of electricity service for participating customers. To the extent that the Commission wishes to improve the economics of TURN's successor tariff for participants in specific programs, it could either increase the MTC to achieve a shorter payback period or adjust the NUS charge to remove or discount the collection of certain cost components.

TURN's successor tariff is designed to provide targeted incentives and bill savings to subgroups of customers that are identified as requiring additional economic benefits. By contrast, the solar parties would provide excessive and unsustainable economic benefits to any participating customer. The Commission should embrace TURN's approach as a more appropriate method of channeling economic value to low-income customers and disadvantaged communities and other customer groups in a manner that minimizes the cost burden on all other customers, including low-income customers not participating in these programs.

8. Charges for legacy NEM customers

CalSSA argues that the Commission cannot lawfully consider any changes to the tariffs governing NEM 1.0 and 2.0 customers in this proceeding. These changes include

[361] TURN does not believe that the record in this proceeding is sufficiently developed to establish new standards for eligibility.
[362] Ex. TRN-2, Attachment B, LNoBWI tab, page 1 of 11, PG&E CARE customers receiving incentive with leased system and no baseline. The net bill savings reflects gross savings net of expected costs of a lease over the relevant period.

TURN's proposal to apply a monthly fee to non-CARE legacy NEM customers that would be used to support some of the costs of an MTC for new CARE successor tariff enrollees. CalSSA argues that these issues are outside the scope of the proceeding and, therefore, parties have been denied due process related to their consideration.

CalSSA's pleas are unfounded and untimely. The Commission explicitly ruled that issues related to "current net energy metering tariffs" are within the scope of this case.[363] CalSSA engages in a tortured reading of this scoping item to suggest that the Commission could not have intended for it to encompass any modifications to existing NEM 1.0 and 2.0 tariffs.[364] This reading is not credible given the plain words of the scoping ruling which allow for consideration of any issue relating to existing net energy metering tariffs.

Parties relied upon that language to offer proposals that include changes to existing NEM tariffs. These proposals were first submitted on March 15, were subsequently presented at a two-day Commission workshop, and were further described in prepared direct and rebuttal testimony. At no point over the course of more than four months between the submission of proposals and the commencement of evidentiary hearings did CalSSA file a motion to strike these proposals or request clarification as to the scope of the proceeding. A motion to strike is the appropriate procedural method that parties employ in situations where party testimony includes elements that are believed to be outside the scope of the case. CalSSA chose not to avail itself of this well-known remedy, conducted discovery on the proposals at issue, participated in hearings where the relevant proposals were discussed, and briefed the merits of the proposals. Despite

[363] Joint Assigned Commissioner Scoping Memo and Administrative Law Judge Ruling, November 19, 2020, page 3 (scoping item #6 -- Other issues that may arise related to current net energy metering tariffs and subtariffs, which include but are not limited to the virtual net energy metering tariffs, net energy metering aggregation tariff, the Renewable Energy Self-Generation Bill Credit Transfer program, and the net energy metering fuel cell tariff.).
[364] CalSSA opening brief, page 226.

having fully participated in the debate over these proposals, CalSSA still complains that there was a lack of adequate notice and due process.[365]

The Commission should find that the Issue #6 in the scoping memo clearly identified potential changes to any existing NEM tariff as within the scope, that CalSSA was given adequate notice that these issues would be considered, and that the failure to submit a motion to strike earlier in the proceeding is fatal to their last-minute claims. Moreover, the Commission should consider the interests of other parties that devoted time and effort to the development of these proposals in reliance on the scoping ruling and in the absence of any motions to strike throughout the course of the proceeding.

In the unlikely event that the Commission agrees with CalSSA's due process arguments, it should issue an amended scoping memo and direct parties to conduct any supplemental briefing on the merits of proposals affecting existing NEM tariffs. Although TURN does not believe such a sequence of events is necessary, this approach would ensure that proposals are given adequate consideration in a second phase of the case if the Commission concludes that additional notice is required.

Apart from its due process claims, CalSSA argues that any new fee applied to NEM 1.0 customers violates §2827(g) which required net metering tariffs to be identical to tariffs offered to non-participants.[366] This argument ignores the subsequent enactment of §2827.1(b)(6) in AB 327 which specifically directed the Commission to establish a transition period for NEM 1.0 customers to switch to a new structure. Consistent with the requirements of §2827.1(b)(6), the Commission adopted a 20-year transition period for eligible NEM 1.0 customers in D.14-03-041. Moreover, the Commission is directed to establish a successor tariff "notwithstanding any other law" which specifically exempts the successor tariff from any constraints enumerated in §2827(g).[367]

[365] CalSSA opening brief, pages 224-225.
[366] CalSSA opening brief, pages 227-228.
[367] Cal. Pub. Util. Code §2817.1(b).

If the Commission concludes that TURN's proposed charge would infringe upon the adopted transition period for non-CARE NEM 1.0 customers, it can modify the original decision pursuant to Public Utilities Code §1708.[368] SEIA/VS acknowledge that the Commission has the authority to modify prior decisions that established transition periods.[369] The Commission has previously held that it may modify a prior decision if new facts are brought to its attention, conditions have undergone a material change or the Commission proceeded on a basic misconception of law or fact.[370] TURN submits that these conditions could be satisfied by the rapidly escalating cost shift resulting from NEM, the overall decline in residential retail sales tied to NEM subscriptions, and accelerating increases in utility rates due to factors that could not have been known (or predicted) at the time that D.14-03-041 was adopted.[371]

Apart from the legal concerns it raises, CalSSA argues that legacy NEM tariffs should not be modified if the result would be a reduction in these customers' happiness "with their returns on their investments".[372] CalSSA further suggests that a key criterion is whether the Commission remains a "good investment partner".[373] In this respect, CalSSA adopts the types of arguments that could be expected from utilities seeking to retain outsized profits and robust returns for their investors. The Commission should decline to determine NEM policy based on whether participants believe they are

[368] Cal. Pub. Util. Code §1708 (The commission may at any time, upon notice to the parties, and with opportunity to be heard as provided in the case of complaints, rescind, alter, or amend any order or decision made by it. Any order rescinding, altering, or amending a prior order or decision shall, when served upon the parties, have the same effect as an original order or decision.)
[369] SEIA/VS opening brief, page 122.
[370] D.97-04-049, 1997 Cal. PUC LEXIS 427, *17.
[371] To the extent that the Commission finds the 20-year transition period is no longer needed for non-CARE NEM 1.0 customers to achieve payback, and the proposed surcharge would not infringe upon the achievement of payback over that period, it would be reasonable to modify D.14-03-041 to permit the imposition of a modest surcharge to cover a portion of the costs of the MTC for new low-income NEM customers.
[372] CalSSA opening brief, page 232.
[373] CalSSA opening brief, page 232.

delighted by the profitability of their historic investments in BTM generation. These customers have been handsomely rewarded under lucrative tariffs for many years.

In light of the lucrative investment returns realized by legacy customers, TURN's proposal would apply a very modest monthly charge to fund low-income customers solar adoption. Assuming an MTC sufficient to provide a 10-year discounted payback for CARE customers, and 25,000 new installations per year (2.5x recent observed levels), recovering 50% of total funding needs from legacy non-CARE NEM customers would require a monthly charge of $8.33/customer.[374] The monthly charge would be significantly lower if new CARE customer installations track closer to the historical pace. Given the inequities associated with CARE customer adoption, the Commission should find that concerns about keeping legacy customers happy with their investment returns are less important than implementing methods to fund new incentives and reduce the cost burdens on non-participating customers.

9. Transition glidepath

CalSSA expresses concern that a transition to the full end-state successor tariffs proposed by TURN and other parties would have adverse impacts for the members of its trade association.[375] In particular, CalSSA argues that time is needed to "translate new regulatory frameworks into marketable products" and prevent disruptions to the industry.[376] This concern is misplaced in two respects.

First, TURN and the Independent Parties have developed an interim successor tariff that would apply to new customers shortly after the adoption of a decision in this case and remain in effect until end-state successor tariff details can be finalized and implemented. This interim tariff would require participation in an electrification tariff and set export compensation for non-CARE customers and CARE customers to achieve

[374] TURN opening brief, page 92; Ex. TRN-3, page 64.
[375] CalSSA opening brief, page 115.
[376] CalSSA opening brief, page 116.

full discounted paybacks in less than 15 years (for SCE and PG&E) and 10 years (for SDG&E).[377] The interim tariff would be simple to implement, continues key elements of the existing NEM framework, and produces attractive financial returns for participants.

Second, TURN's end-state successor tariff would combine a tariff structure that aligns costs and benefits, minimizes cost shifting to nonparticipants, and provides up-front incentives to new subscribers sufficient to achieve defined payback periods. Given the multi-year implementation timeline associated with the end-state tariff, industry participants would have sufficient opportunity to familiarize themselves with the core provisions and develop "marketable products" prior to the new structure going into effect.

The transition glidepath proposed in the Joint Recommendations is superior to the approach of the Joint Utilities. The Utilities would enroll customers in NEM 2.0 tariffs until a later date when they would be transitioned to the end-state tariff.[378] The Joint IOU approach would be far more disruptive than the proposal made by TURN and the Independent Parties. The interim tariff proposed in the Joint Recommendations would provide greater certainty and continuity for participants because export compensation and enrollment terms would be fixed for periods of 10 or 15 years. After billing system modifications can be completed by the IOUs, only newly enrolled customers would take initial service under the end-state successor tariff.

B. Concerns about other party proposals

1. Export Compensation

A large number of parties propose to tie export compensation to retail rates either through a continuation of NEM 2.0 or through a set of step-downs that would set export rates for each new tranche of enrolled customers at a pre-determined percentage of the

[377] TURN opening brief, Appendix A, Joint Recommendations of the Independent Parties, Section 6 (Interim Transition to the NEM Successor Tariff).
[378] Joint IOU opening brief, pages 101, 105.

applicable retail rate. Parties proposing this approach include CalSSA, SEIA/VS, Sierra Club and Grid Alternatives. TURN opposes these approaches to export compensation as part of any end-state tariff design and supports the adoption of ACC values for this purpose.[379]

CalSSA urges the Commission to use the ACC only "as a guide to inform export compensation levels" which could be used to set the fraction of retail rates that escalate over time.[380] This view appears to be based on CalSSA's newfound distrust of the ACC model in light of the Commission rejecting its critiques of the 2021 update. Nevertheless, CalSSA's alternative step-down proposal would still result in an export rate denominated as a percentage of the applicable retail rate over the course of 20 years.[381] As noted in TURN's opening brief, the escalation of retail rates is a material factor in the determination of payback periods and cost shifts to non-participants. To the extent that CalSSA's proposal is adopted, the resulting cost shift would accelerate future escalation in retail rates over the course of the coming decades. This acceleration would benefit legacy participants that locked into export compensation tied to retail rate levels.

a. The SEIA/VS tariff proposals would create uncertainty, litigation and an annual gold rush associated with the end of a step

SEIA/VS proposes a tariff that would involve stepdowns in the percentage discount applied to each IOU's retail rate for purposes of determining 20 years of export compensation.[382] Each stepdown would be based on particular increments of customer installations (in MWs). Moreover, SEIA proposes to revisit the pace of the stepdowns under regular Commission review processes that would allow parties to reargue many of the issues under consideration in this proceeding.[383] The Commission should

[379] TURN supports linking export compensation to a discounted retail rate only for purposes of an interim tariff that would be in place prior to the implementation of the end-state tariff.
[380] CalSSA opening brief, page 92.
[381] CalSSA opening brief, pages 89-90.
[382] SEIA/VS opening brief, pages 119-120.
[383] Ex. SVS-4, page 25.

recognize that this approach invites never-ending litigation of export compensation, annual gold rushes of subscriptions fueled by solar vendors that could increase the total capacity included within each step, and endless opportunities for the solar industry to invent new rationales for delaying the transition to lower export compensation.

SEIA/VS suggests that the change in export compensation steps would be preceded by an IOU announcement three months prior to a date certain.[384] There is little question that these regular advance notices would become an advertising pitch for solar vendors urging customers to sign up prior to the deadline to lock in 20 years of compensation. SEIA/VS offer no particular remedy for the oversubscriptions to each step that could occur under this approach.

Despite touting the stability of their proposal, SEIA/VS also ask the Commission to commit to regular reevaluations of the various steps and export compensation values shortly after the new tariff is implemented. The SEIA/VS tariff is intended to be in place by January 1, 2023 with an initial reevaluation that occurs no later than the 2024 major ACC update.[385] Although SEIA/VS witness Beach claims that the purpose of this reevaluation would be to make changes to the later steps of the successor tariff, the scope of these processes would include factors that could affect near-term compensation.[386] In response to a TURN data request, SEIA/VS suggested that this evaluation process could cause the stepdown to be altered due to "solar and storage costs, the current design of electrification rates, and avoided costs from the ACC" along with any changes to the federal Investment Tax Credit (ITC).[387] With respect to factors like an expansion or extension of the federal ITC, which would have a major impact on participant costs and should justify a reduction in export compensation, SEIA/VS witness Beach suggests that no changes to export compensation may be necessary.[388]

[384] SEIA/VS opening brief, page 120.
[385] Ex. SVS-4, page 25; RT Vol. 8, page 1297, Beach.
[386] RT Vol. 8, pages 1298-99, Beach.
[387] Ex. TRN-10, SEIA/VS response to TURN Data Request 2, Q22.
[388] RT Vol. 8, page 1296, Beach.

The process proposed by SEIA/VS is designed to allow the solar industry to continuously pressure the Commission to put the brakes on any reductions in export compensation. It would effectively invite continuous relitigation of successor tariff design and encourage the solar industry to argue for more generous benefits that would slow any declines in export compensation. Rather than providing stability, these re-evaluations would merely embolden the solar industry to justify extensions of any glidepath.

2. *Market Transition Credit proposals by other parties*

SEIA/VS assert that their tariff proposal effectively incorporates an MTC through the stepdown in export compensation rates over time for each tranche of new customers.[389] This characterization is useful because it highlights the inefficiency of using the SEIA/VS proposal to achieve the articulated purpose of an MTC. As described in the E3 white paper provided to the Commission, the MTC is designed to accomplish the twin goals of achieving payback of customer investment over a target period and making the payment transparent so the associated costs can be tracked and collected separately.[390]

The SEIA/VS proposal fails on both accounts. First, SEIA/VS would subsidize participants for a period of 20 years (the duration of the tariff) despite the providing a full payback in a fraction of that time. There is no reduction in compensation after the customer achieves payback. Instead, export compensation would continue to escalate after payback is achieved based on overall increases to retail rates. This result fails to target the level of the subsidy to the payback period and results in long-term oversubsidization. Second, the embedded subsidy in the SEIA/VS export compensation proposal is not transparent or easily trackable. As a result, there is no proposed method

[389] SEIA/VS opening brief, page 38.
[390] *Alternative Ratemaking Mechanisms for Distributed Energy Resources in California*, E3 and Verdant for the California Public Utilities Commission, January 28, 2021, page 17

for identifying the embedded subsidy or collecting these costs through specific ratemaking approaches or external funding sources.

3. Proposed low-income customer tariffs

a. Joint Parties Policy B and CalSSA community-owned solar proposal

The Joint Parties (Grid Alternatives, SEIA-VS, Sierra Club) propose an additional tariff that would exempt a customer from the NEM 3.0 successor tariff and extend NEM 2.0 eligibility for projects that meet certain criteria including specific ownership requirements.[391] CalSSA offers a similar proposal.[392] Both proposals would allow the host customer to receive NEM 2.0 tariff treatment for a term of 20 years. The sponsors hope that this tariff would benefit residents of Environmental and Social Justice (ESJ) communities.

SEIA/VS describe this proposal as applying only to "clean DG projects located in an ESJ community and owned and controlled by the community".[393] The Joint Parties similarly assert that this policy would "provide a pathway for Environmental and Social Justice communities to own and operate distributed generation and storage projects in their communities and to their benefit."[394] Unfortunately, a review of the specific requirements of the proposed tariff does not inspire confidence that these objectives will be realized. The eligibility requirements for both project location and owners articulated by CalSSA and the Joint Parties create substantial ambiguities regarding the likely beneficiaries.

The Joint Parties offer internally conflicting statements with respect to the locational requirements for an eligible project. During hearings, Joint Parties' witness Campbell repeatedly insisted that the eligible project would not need to be located within an ESJ

[391] Joint Parties opening brief, page 29.
[392] Ex. CSA-1, page 28.
[393] SEIA/VS opening brief, page 92.
[394] Joint Parties opening brief, page 3.

community.[395] Mr. Campbell specifically agreed that an eligible project could be located in a high-income community.[396] In its opening brief, the Joint Parties assert that the project should be "located in an ESJ community".[397] The fact that the sponsors of this proposal offer opposite contentions on core eligibility requirements in oral testimony and briefs creates confusion about this important criteria. At a minimum, the Commission should decline to extent NEM 2.0 treatment to projects serving customers located outside ESJ communities.

The Joint Parties also offer conflicting statements regarding the requirements for project ownership. During hearings, Joint Parties' witness Campbell was adamant that project ownership be limited to a cooperative organization or non-profit organization that has a "signed agreement with the member owners", all of whom must be "ESJ participants" and share in all profits.[398] In its opening brief, the Joint Parties assert that projects could be owned by a California cooperative corporation with beneficiaries that reside "in ESJ communities" or any 501(c)(3) non-profit organization (regardless of its ties to a particular community) with no additional showing that there are benefits to ESJ communities.[399]

If the policy merely requires project ownership by any non-profit organization, the universe of potential owners would be extremely large. For example, this proposal

[395] RT Vol. 6, pages 1016-1017, Campbell ("The actual location does not need to be an environmental and social justice community because we do not want to limit the availability of buildings to provide the benefits to ESJ members.", "The geographic location can be outside an ESJ loca – identified community", "we do not want to limit the building or land to an ESJ community."), pages 1024-1025 ("Q: And this policy would allow any customer in any community in the state to retain NEM 2.0 treatment so long as the ownership conditions were satisfied that you've identified; is that right? / A: Yes.")
[396] RT Vol. 6, page 1018, Campbell ("Q: So under Policy B, you could locate the project in a high-income community and it would still be eligible for NEM 2.0 treatment so long as it satisfied the ownership requirements that you've identified? / A: Yes. They would be the account holder.")
[397] Joint Parties opening brief, page 29.
[398] RT Vol. 6, page 1019, Campbell.
[399] Joint Parties opening brief, page 29; Ex. GRD-1, page 21; *See also* Ex. TRN-9, Grid Alternatives Response to TURN Data Request 2, Q6, Q7a.

would allow its primary sponsors (Grid Alternatives, Sierra Club, and Vote Solar) to own such projects and develop lines of business that involve actively marketing NEM 2.0 tariff treatment to eligible customers. Even more broadly, such projects could be owned by TURN, most of the parties participating in this proceeding, a non-profit headquartered thousands of miles away from California, or any national non-profit organization regardless of ties to any California community. This open-ended eligibility is rife with the potential for abuse. If the Commission wishes to adopt a version of Option B, ownership should be limited to community cooperatives that can demonstrate all of the relevant financial benefits are distributed to individuals (not corporations) within the same ESJ community as the project. Otherwise, there is little likelihood that projects will be financed and developed in a manner that benefits local ESJ community members.

TURN is also concerned that the real beneficiaries of an eligible system would be the customer hosting the project. The host would be exempted from the NEM 3.0 successor tariff and allowed to take service under the current NEM 2.0 tariff for 20 years. The Joint Parties suggest that any residential, commercial or industrial customer located in an ESJ would be eligible to host a project (although the testimony of its witness argues for no geographical limitations).[400] There would be no obligation for the host customer to show that the bill savings from NEM 2.0 flow through to low-income customers, or even to customers located in ESJ communities.[401] High-income residential customers and profitable commercial customers that are part of corporate chains (including big box retailers) could be the primary beneficiaries. Despite the fact that Joint Parties' witness Campbell agreed during evidentiary hearings that he would be concerned if the

[400] Joint Parties opening brief, page 29; Ex. TRN-9, Grid Alternatives Response to TURN Data Request 2, Q6, Q7a; RT Vol. 6, pages 1016-1017, Campbell

[401] Given the conflicting positions offered in this case, it remains unclear whether projects would need to be located in ESJ communities. For example, see RT Vol. 6, pages 1017-1018, Campbell (project owners should not be required to live in an ESJ community and project location should not be limited to an ESJ community).

primary beneficiaries are large commercial customers, the specific tariff proposal does nothing to prevent this result from occurring.[402]

The CalSSA proposal creates more opportunities for gaming and unintended beneficiaries. While characterizing its proposal as "expanding access to distributed energy resources among customers in ESJ communities", there is little to suggest that the low-income individuals are likely to be the beneficiaries.[403] Moreover, CalSSA does not explain whether eligible projects would need to be located within an ESJ community.[404] CalSSA's testimony emphasizes the importance of "bringing in resources from higher-income communities" and its brief proposes no limits on the income brackets or location of individuals who participate in cooperatives.[405] The predictable result of CalSSA's proposal would be the development of lucrative projects by cooperatives composed of high net worth individuals seeking to maximize their investment returns. There is no basis for finding that this model would benefit ESJ residents with minimal resources.

The Joint Parties suggest that the Commission should evaluate their tariff using additional non energy benefits such job creation for low-income workers, "increased homeowner wealth through solar ownership", remediation of "housing/lending discrimination" and "energy resilience."[406] Yet there is no effort to quantify or otherwise measure the impact of the proposed successor tariff options on these metrics. Moreover, it is unclear how some of these criteria (housing/lending discrimination) are relevant to tariff design or could be remedied with any proposal under consideration in this case.

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[402] RT Vol. 6, page 1015, Campbell.
[403] CalSSA opening brief, page 83.
[404] CalSSA's opening brief does not affirmatively establish any locational requirement for the project.
[405] Ex. CSA-1, page 28; CalSSA opening brief, page 85.
[406] Joint Parties opening brief, pages 8-9.

None of the sponsors have demonstrated that this proposal is likely to result in bill savings for low-income customers, employ moderate or low-income residents of an ESJ or satisfy any of the outlined objectives. For example, the absence of labor requirements means that solar installers may use the same employees for ESJ projects as for any other non-ESJ project and few or none of the employees may live in the ESJ community where the project is located.

With respect to metrics relating to homeowner wealth, these outcomes are reflected in the PCT and IRR metrics that TURN quantifies in its modeling. While TURN is generally sympathetic to the goal of using rates, tariffs and programs to support equity outcomes, the Commission should scrutinize proposals to ascertain whether they are actually likely to cause any of the claimed outcomes to occur, whether alternative strategies are more cost effective, and the extent to which unintended outcomes could enrich those who are not the intended beneficiaries.

Rather than continuing to provide NEM 2.0 to any new customer, TURN believes that the Commission should adopt a cost-based tariff for all customers and authorize an MTC for eligible customers. To the extent that the Commission wishes to promote solar adoption in ESJs, it should use an up-front MTC to accomplish this objective and could set a shorter payback period, if desired, for specific customer subgroups subject to an aggressive adoption target.

C. Community Solar Virtual Net Energy Metering proposal

CCSA proposes a community solar tariff that would allow any customer to subscribe to a remote solar generating facility and receive bill credits reflecting the value of the energy exported by the generator to the grid. In its opening brief, CCSA notes that the development of larger facilities raises the cost-effectiveness results under the TRC and produces high RIM scores due to the good alignment between compensation for all

output and avoided costs.[407] TURN agrees with these observations and believes the CCSA proposal has merit. In its opening brief, TURN proposes that the concept should be adopted by the Commission subject to modifications that would be considered as part of an implementation phase.[408]

CCSA's opening brief explains that its proposal is designed to permit compliance with the Title 24 Building Energy Efficiency Standards that apply solar requirements to new construction and authorize a community solar alternative.[409] As noted in TURN's opening brief, the California Energy Commission (CEC) recently approved the use of a community solar option developed by the Sacramento Municipal Utility District (SMUD) as a valid compliance option under the Title 24 standards.[410] The SMUD program approved by the CEC permits builders and developers to enroll some or all new housing units into a Neighborhood SolarShares program that provides access to newly constructed solar facilities located within the SMUD service territory and guarantees bill savings to participants.[411] The availability of CCSA's program for all customers located in IOU service territories would provide a viable and cost-effective Title 24 option for new home construction.

TURN offers qualified support for the CCSA tariff proposal. The issues that remain to be finalized are as follows:

- The duration of any lock-in or levelization of ACC values for purposes of determining export compensation. TURN does not support a 25-year levelization for these projects (or as part of any successor tariff structure), in part because

[407] CCSA opening brief, pages 13-14.
[408] TURN opening brief, pages 122-128.
[409] CCSA opening brief, pages 10-11.
[410] TURN opening brief, pages 61-62.
[411] Ex. TRN-12, SMUD Neighborhood SolarShares Program application (revised), California Energy Commission Resolution 20-0220-11.

later year ACC values are highly speculative and unreliable.[412] Notwithstanding CCSA's opening brief argument that projects are expected to have useful lives or 25 years, TURN strongly opposes setting unmodifiable compensation values that span this entire period and believes that the Commission should explore other methods of providing adequate certainty to support project financing.[413]

• Minimum or standardized terms and conditions for customer contracts.[414]

• Clarifying that all Renewable Energy Credits (RECs) associated with energy credited to a subscriber account should be retired on behalf of the subscribers.[415] CCSA's opening brief affirms that this treatment is appropriate.[416]

• Investigating the development of program elements that promote subscriber ownership options.[417]

• Developing a Market Transition Credit that limits eligibility to low-income customers, ensures a discount relative to existing rates without replicating NEM 2.0 participant benefits, does not subsidize participation by higher income ratepayers and prevents unjust enrichment by the project owner.[418] CCSA responds to some of TURN's concerns in its opening brief but fails to demonstrate that its current proposal addresses these issues.[419] In light of the extreme funding levels proposed by CCSA ($7.6 billion over 25 years), the Commission should direct parties to work on the development of a revised MTC

[412] TURN opening brief, page 123.
[413] CCSA opening brief, pages 16-17.
[414] TURN opening brief, pages 123-124.
[415] TURN opening brief, page 124.
[416] CCSA opening brief, pages 17-18.
[417] TURN opening brief, pages 124-125.
[418] TURN opening brief, pages 125-127.
[419] CCSA opening brief, pages 18-19.

construct for community solar that addresses TURN's concerns while providing a workable method of subsidizing low-income customer participation.

In light of both the promise of the CCSA proposal and the unresolved issues that require further attention, TURN recommends that the Commission adopt a community solar tariff concept in its upcoming decision and direct parties to work on the key concerns as part of an implementation phase. TURN's opening brief proposes three phases of implementation – the first devoted to an interim tariff, the second focused on refinements of an end-state successor tariff, and the third devoted to end-state tariff refinements and augmentations.[420] The CCSA tariff should be included in the second phase with a goal of having an operational tariff by January 1, 2024. Under TURN's proposal, this second phase would also include the method of calculating the MTC for all eligible successor tariff customers.

The implementation process for the CCSA tariff should include workshops, an informal working group, and written comments. The goal should be to reach agreement on as many issues as possible through a collaborative process with any remaining disputes addressed through comments and resolved in a Commission decision. Given the importance of some of the key disputes (such as the structure and funding level for an MTC) and magnitude of associated funding, TURN believes that a formal Commission decision is necessary to adopt these program elements.

The Commission should find that the CCSA concept, when compared to many of the successor tariff proposals in this proceeding, promises higher value to the system at lower cost to all customers. This superior value proposition, along with the opportunity for participation by all customers (including renters, multi-family residents, and homeowners with unsuitable rooftops), argues for adopting this approach as a valid alternative to tariffs that limit eligibility to onsite generation.

[420] TURN opening brief, page 130.

The Commission should reject alternative community solar concepts that provide bill credits to participants using NEM 2.0 rates for generation from larger remote installations configured for export to the grid. PCF urges the Commission to adopt this type of model.[421] Providing NEM 2.0 retail rate credits for exported electricity would massively overcompensate both project owners and subscribers and raise rates for all customers. It is not necessary to provide high retail rates to support the financing of the larger generating facilities envisioned under a community solar model which can be constructed at much lower cost than smaller rooftop systems. TURN supports the CCSA community solar concept because it calibrates export compensation to avoided cost rather than perpetuating the current unsustainable model of pricing wholesale exports using retail rates.

D. Timeline and Process for Implementation

TURN's opening brief provides a revised structure and schedule for implementation of an interim successor tariff, an end-state successor tariff, and subsequent refinements and enhancements to the end-state tariff.[422] These revisions reflect information gained from evidentiary hearings, a review of rebuttal testimony, and discussions with other parties that led to the Joint Recommendations. Under the revised approach, the interim tariff can be in place 90 days after the issuance of a final decision and remain in effect until the end-state tariff design has been finalized and utility billing systems are modified to accommodate the changes.

In opening briefs, a number of parties argue that major NEM tariff reform proposals will take time to implement and should therefore be rejected. SEIA/VS suggests that a 14-month implementation timeline is appropriate but also acknowledges that the Commission would need to revisit export compensation and glidepath issues no later

[421] PCF opening brief, page 62.
[422] TURN opening brief, pages 128-131.

than the 2024 ACC update.[423] CalSSA points to various elements of the successor tariff proposals submitted by parties like TURN and asserts that implementation could take years.[424] In contrast, CalSSA argues that the Commission should adopt its proposal because it can be implemented with very little process or delay.[425]

TURN agrees that elements of its proposal will require time to implement and has specifically adjusted the proposed timeline to account for delays associated with the required processes including changes to the utility billing systems.[426] The Commission should emphasize, as part of any final decision, the importance of the IOUs prioritizing modifications to their billing systems that can accommodate adopted successor tariffs. The revised timeline would allow for quick implementation of an interim/transitional tariff (as proposed in the Joint Recommendations) and two additional phases that would allow for an end-state tariff to be in effect by 2024 with enhancements in place by the end of 2025.[427] The phased approach would address both implementation timing concerns, including modifications to the IOU billing systems, and the participant benefits of a glidepath towards end-state rates.

Core elements of the end-state successor tariff should be finalized during 2022 and the first half of 2023.[428] These elements include the use of updated ACC values to set export compensation, selecting the percentage of individual rate components to be recovered through the NUS charge, a final method for MTC calculation and initial values, and rules governing production estimates and second meter protocols. Once these elements are finalized, the end-state tariff will be ready to enroll new customers.

[423] SEIA/VS opening brief, page 111; Ex. SVS-4, page 25.
[424] CalSSA opening brief, pages 206-207.
[425] CalSSA opening brief, pages 201-203.
[426] SEIA/VS note in their opening brief (page 118) that changes to the IOU billing systems could take 12-24 months. The Joint IOU opening brief also references this timeline (pages 101, 105).
[427] TURN opening brief, pages 129-131.
[428] TURN opening brief, page 130.

Enhancements to the end-state tariff would be developed in a third phase, running concurrently with the second phase, that should be complete in 2025.[429] This phase would tackle enhancements that require more time and do not need to be resolved prior to initial tariff rollout. These elements include incorporating day ahead CAISO pricing into export compensation, communication and dispatch protocols for paired storage, and requirements governing paired storage dispatch and compensation.

While TURN agrees that the very minor changes to the existing NEM tariffs proposed by CalSSA and SEIA/VS should not require major implementation efforts, ease of implementation should not be the primary factor guiding the Commission's decision. The proposed prioritization of proposals that require little work constitutes an attempt to prevent any major reforms from being embraced. Had the Commission wanted to avoid tackling challenging reforms in this case, it should have already made this intention clear.

Moreover, the solar party proposals may have implementation timing challenges as well. CalSSA proposes to rely on adopted 2022 ACC values under the first step its alternative glidepath.[430] Since it is not clear that the 2022 values will be finalized by early 2022, CalSSA's promise of quick implementation may be based on the implementation of its initial proposal that does not consider ACC values at all.[431] SEIA/VS further urge regular reevaluations of a wide array of issues relating to export compensation that would begin no later than the 2024 ACC update and could result in ongoing changes to the tariff.[432]

[429] TURN opening brief, page 130.
[430] CalSSA opening brief, page 89 (CalSSA first step export rate would be based on a percentage difference between retail rates and adopted 2022 ACC values).
[431] CalSSA elsewhere argues (on page 204) that the IOU proposals relying on 2022 ACC values cannot be implemented in a timely manner.
[432] Ex. SVS-4, page 25; RT Vol. 8, page 1297, Beach.

CalSSA also makes veiled threats to launch litigation challenges to any tariff reform it does not support and suggests that the resulting delays would make it difficult to implement major reform proposals.[433] As explained in prior sections, CalSSA has not articulated a single valid legal argument that raises concerns about the validity of successor tariff proposals under state or federal law. The Commission should not reward the solar parties by adopting their preferred outcomes solely because these parties make baseless litigation threats. Indeed, TURN and other parties may seek judicial review of any decision that fails to comply with the statutory requirements. This fact should not prevent the Commission from moving forward with reform.

TURN urges the Commission to adopt the phased implementation schedule proposed in its opening brief and to recognize the importance of establishing specific guidance, and boundaries, to govern this process. Parties should be directed to work constructively on solutions rather than rearguing issues on which they failed to prevail in this phase. TURN is committed to offering solutions and providing productive input in order to achieve a workable successor tariff that balances the interests of all stakeholders and sets California on a path for the sustainable growth of BTM resources.

V. CONCLUSION

TURN urges the Commission to embrace a significant course correction with respect to NEM tariffs that fairly balances the interests of participants and non-participants. TURN's successor tariff provides a framework and the tools to accomplish all the objectives outlined in the Guiding Principles.

[433] CalSSA opening brief, pages 200-201.

Respectfully submitted,

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