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REPLY COMMENTS OF THE NATURAL RESOURCES DEFENSE COUNCIL AND THE UTILITY REFORM NETWORK ON ADMINISTRATIVE LAW JUDGE'S RULING ON THE IMPLEMENTATION PATHWAY FOR INCOME-GRADUATED FIXED CHARGES

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The Natural Resources Defense Council (NRDC) is a non-profit membership organization with more than 95,000 California members who have an interest in receiving affordable energy services while reducing the environmental impact of California's energy consumption and achieving environmental goals cost-effectively and equitably. The Utility Reform Network (TURN) is a non-profit ratepayer advocacy organization representing the interests of the residential customers served by California utilities. NRDC and TURN jointly sponsored opening and rebuttal testimony in this proceeding proposing a design and implementation pathway for income-graduated fixed charges.

These reply comments respond to the opening comments of various parties to the June 19, 2023 Ruling of Administrative Law Judge Wang requesting comments on the implementation pathway for income-graduated fixed charges. The Ruling also permits parties to "respond to new proposals and information provided in reply testimonies".[1]

I. Introduction and Summary

TURN/NRDC are proposing new default rates and optional electrification rates that align with Commission policy goals and rate design principles. Our proposal enhances equity by collecting fixed charges of the grid progressively, minimizing deadweight loss/ economic inefficiency by better aligning volumetric rates with avoided costs, encouraging electrification, and maintaining signals for conservation, energy efficiency, and distributed generation.

Through these reply comments we address misconceptions about the benefits of the TURN/NRDC income-graduated fixed charge (IGFC) proposal. The TURN/NRDC IGFC proposal would lead to $640 million in savings for CARE customers in the first year of implementation, increase the adoption of beneficial electrification technologies relative to the status quo, and lead to a more equitable distribution of fixed policy and grid costs among residential customers. The TURN/NRDC implementation proposal is feasible and can be cost-

[1] ALJ Wang Ruling, June 19, 2023, page 1.

effectively implemented.

A summary of the key points made in these reply comments follows:

Objections to a meaningful IGFC are flawed and fail to acknowledge the inequitable, anti-environment, and inefficient status-quo.

- The status quo electric rate design is inequitable and will not enable rapid electrification. Recommendations for minor tweaks to existing rate design will not address fundamental challenges and ignore the overwhelming benefits of the TURN/NRDC proposal.

- Claims that the IGFC will drive increases in peak demand are not realistic and do not identify the optimal level of volumetric rates to balance competing policy objectives, grid needs, affordability, and equity.

- Assertions that customers with large bills under existing rates are energy hogs, and those with low bills are virtuous and efficient, is inaccurate.

Implementation of the TURN/NRDC IGFC Proposal is Cost-Effective and Feasible

- The first version income-graduated fixed charge should include middle- and high-income tiers to meaningfully lower volumetric rates, correct a regressive status quo, and ensure low-income customer savings without unreasonable adverse effects on any customer group. Parties recommending a three-tier IGFC with separate tiers for CARE and FERA customers effectively propose only two fixed charge levels for all customers.

- There is a near-term income verification pathway to cost-effectively implement the income-graduated fixed charge based on prior program enrollment, existing income verification services, and self-attestation. The Equifax Work Number is a reliable and readily implementable service. Even the proposals that bifurcate the CARE program into multiple tiers will require some affirmative customer action that risks defaulting the lowest income CARE customers to an inappropriately high second tier IGFC.

- Including deed-restricted affordable housing in the low tier of the income-graduated fixed charge is a readily implementable way to expand benefits for low-income customers.

The Bill Impacts and Affordability Implications of Party Proposals Do Not Satisfy Basic Thresholds as a Matter of Law and Policy

- Reallocating the California Climate Credit to finance a low-income IGFC discount may not satisfy the requirement that the fixed charge achieve average savings for low-income customers. SEIA and PAO should clarify the total bill impacts of their proposals after such reallocation for each income group.

- SEIA and the Joint IOUs' first version proposals should not be adopted because they do not deliver average savings to CARE and FERA customers in each baseline territory. TURN/NRDC's proposal would deliver ~$600 million more in savings for CARE customers each year compared to the SEIA proposal.

- The findings of Flagstaff Research are based on faulty energy modeling assumptions. The model is not robust or grounded in real-world data and should not be relied on to draw any conclusions around the distributional impacts of proposed IGFCs.

Rate design misconceptions and the impact of reducing volumetric rates on energy efficiency, distributed generation, and grid defection.

- SEIA's fixed charge proposal relies on a misunderstanding of what costs are marginal to consumption; this basic misunderstanding limit the efficacy of the IGFC.

- Applying potential IGFC rate reductions to only off-peak rates results in untenable rate structures.

- The TURN/NRDC IGFC proposal will not unreasonably impair incentives for distributed generation and energy efficiency.

- The economics of grid defection under the TURN/NRDC proposal are almost the same

as the SEIA proposal: minimal to non-existent. Based on SEIA's modeling of off-grid energy system payback periods, there is no increased risk of significant grid defection from our proposal.

II. Objections to a Meaningful IGFC are Flawed and Fail to Acknowledge the Inequitable and Inefficient Status Quo

Parties opposing a meaningful IGFC rely on three fallacies and tactics: status quo bias, propagating fear of unintended consequences, and a distorted notion of fairness. These parties ignore the fact that the status quo is inequitable, regressive, and causes both environmental and economic harm.

A. The Inequitable and Anti-Environment Status Quo Shouldn't be Perpetuated.

Multiple parties' position relies on the premise that the status quo is acceptable and that changes caused by the IGFC should be sufficiently small to have very little impact on any customer. Advanced Energy United, for example, recommends that the Commission move slow, make small changes, and warns of unintended consequences from miscalculations.[2] SEIA makes a similar recommendation, citing previous Commission implementation of time of use rates (TOU),[3] and UCAN recommends a minimalistic approach so that no misallocated customer suffers.[4] CEDMC recommends small pilots.[5] These recommendations ignore the fact that the status quo is inequitable and anti-environment. Continuing the status quo would only exacerbate existing inequities and disincentives for electrification.

TURN/NRDC previously explained how existing volumetric rates lead to regressive, inequitable, and environmentally harmful outcomes.[6] We refer to research by the Haas Energy Institute which illustrates that lower income customers spend a much larger share of their income on electricity bills, and that electricity bill expenditure is much more regressive compared to other

[2] Advanced Energy United Comments on ALJ Ruling at 2 – 3.
[3] SEIA Comments on ALJ Ruling at 1-2, 36.
[4] UCAN Comments on ALJ Ruling at 3.
[5] CEDMC Comments on ALJ Ruling at 5. "The Council also strongly urges the Commission implement an income graduated fixed charge pilot (or pilots) in order to explore various fixed charge structures and identify potential challenges and opportunities with each pilot."
[6] TURN/NRDC Opening Testimony, 9 – 12.

household expenditures.[7] Haas research also shows that because volumetric rates are much higher than short run social marginal costs, Californians pay a needless premium for electrification and all electricity use in general. At a time when Californians should be encouraged to switch from gas appliances to clean electric alternatives, this premium is environmentally harmful and economically inefficient.[8]

The Haas analyses are generally based on 2019 volumetric rates. In the last four years, rates have increased significantly. The following table shows average rate increases for residential customers of the three major IOUs since 2019:[9]

Table 1: Rate Increases for Each IOU since 2019

IOU	2019 average rate (cents/kWh)	2023 average rate (cents/kWh)	Increase (%)
PG&E non-CARE residential	23	35.1	53%
PG&E CARE residential	13.2	23.3	77%
SCE non-CARE residential	19.9	32.4	62%
SCE CARE residential	12.3	20.6	66%
SDG&E CARE residential	15.9	32.8	107%
SDG&E non-CARE residential	30.1	46.6	55%

These rate increases highlight the rapidly changing burdens facing residential customers and the growing disconnect between volumetric charges and any reasonable estimate of the costs of incremental consumption. Likely rate increases in the coming years will make these problems even worse.

Current average IOU residential rates do not represent a good benchmark for fair and just outcomes. Arguments against changes to the rate structure ignore or hide the fact that current rates are causing environmental and social harm. Recommendations to perpetuate the status quo would perpetuate and expand upon currently inequitable outcomes and frustrate the adoption of

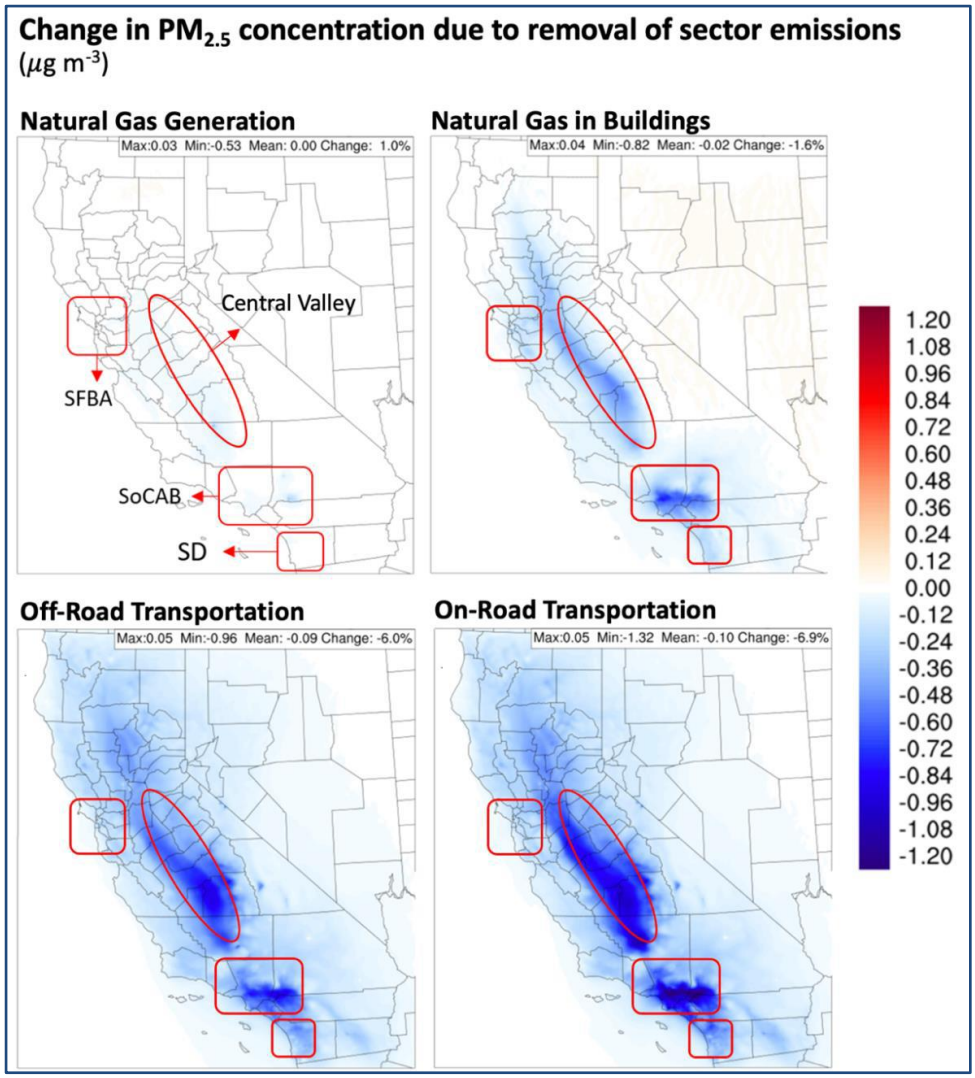
[7] Borenstein. 2020. "Reinventing Fixed Charges." Energy Institute at Haas. Available at: https://energyathaas.wordpress.com/2020/11/16/reinventing-fixed-charges/

[8] Borenstein, Fowlie, and Sallee. 2022. *Paying for Electricity in California: How Residential Rate Design Impacts Equity and Electrification*, 20. Next 10 and the Energy Institute. Available at: https://www.next10.org/sites/default/files/2022-09/Next10-paying-for-electricity-final-comp.pdf The values presented here are estimates of meeting heating demand, derived from the Residential Appliance Saturation Survey, with 2019 Energy Star standard efficiency electric heating appliance.

[9] Historical rate data was provided to TURN/NRDC by each IOU in response to data requests.

beneficial electrification. A delay in electrification adoption will result in global social damage due to increased near-term GHG emissions and local harm to communities due to pollution from cars and building equipment that runs on methane gas. A recent analysis overseen by the Commission shows that transportation and buildings are among the largest causes of local air pollution, and their impact on local health is much greater than that of the electric sector. Furthermore, increasing the pace of electrification will drive increases in retail sales and thereby help to reduce volumetric rates.

Figure 1: Transportation and Buildings Cause Much More Local Pollution than the Power Sector.[10]



[10] Change in PM2.5 concentration in 2035 due to removal of sector emissions in each scenario. Red shapes indicate air basins of interest (with highest population concentrations and currently degraded air quality). E3 and UC Irvine, Quantifying the Air Quality Impacts of Decarbonization and Distributed Energy Programs in California (2021). California Public Utilities Commission.

Finally, it is important to note here that the TURN/NRDC proposal would default CARE/FERA customers and residents of deed-restricted affordable housing to the lowest tier. This definition of low-income customers, which includes about 30% of California households,[11] would economically benefit from the adoption of a meaningful IGFC. TURN/NRDC also proposes a robust method for placing customers into the middle and high tiers with an appeals process to correct errors. The welfare-enhancing effects of this proposal for low-income customers are significant. Fear of smaller errors should be weighed against the overwhelming social and environmental benefits of the TURN/NRDC IGFC proposal.

B. Warnings That an IGFC Should be Minimal to Keep Increases in Peak Demand in Check are Misguided

Multiple parties warn the Commission that the institution of an IGFC that meaningfully reduces volumetric rates, like the TURN/NRDC proposal, would cause systemwide peak demand to spike and exacerbate challenges with meeting future customer needs.[12] These parties also suggest that an IGFC would result in a decrease in the adoption of certain distributed energy resources and further increase future peak demand.

Implicit in this argument is the assumption that any decrease in existing or future volumetric rates is undesirable and that escalating rates provide the right incentives for customers to conserve and to acquire distributed energy resources. There does not appear to be any limiting principle identified by proponents of this view – any efforts to slow or reverse the rapid escalation in retail rates would have the same claimed impact as an IGFC. By the logic offered by IGFC opponents, the Commission should avoid taking any actions to curb escalating utility expenditures and encourage rising rates so that customers will be more likely to conserve and invest in distributed energy resources. The unsaid implication, however, is that higher rates mean that customers who cannot buy distributed energy resources to reduce their own electricity bills, or face major challenges investing in energy efficiency (such as the 45% of Californians who are renters), will simply pay higher bills.

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[11] Including the 3+ million customers enrolled in CARE/FERA as of May 2023, see TURN/NRDC Comments on ALJ Ruling, 12, footnote 15. These customers overlap with the 527,528 affordable housing units in California, see TURN/NRDC Joint Reply Testimony, 21, footnote 21.

[12] See, for example, Testimony of Richard McCann (CESA), Comments of SEIA to ALJ Ruling at 6, among others.

Furthermore, this argument completely ignores the fact that current rates are much higher than economically efficient levels and are poised to rise rapidly in the coming years. The Commission should recognize the inequitable and environmentally deleterious outcomes caused by current rates (as explained above). Finally, these recommendations neglect the fact that per the ALJ ruling, the first full IGFC will be implemented in 2026. In the meantime, rates are projected to increase significantly from current levels which means that the net impact of the IGFC should be evaluated relative to a baseline of rates higher than those in place today.

Although not explicit in their comments, CESA and SEIA both understand this phenomenon. In response to TURN/NRDC data requests, SEIA states that some "of these factors will increase rates; others will reduce them. Given all of these complexities and uncertainties, it is unclear whether and in which direction an analysis of 2026 peak load impacts would differ from the analysis of conditions in 2023 that SEIA has presented, using the Commission-specified E3 tool."[13] CESA walks back its core claim in response to the TURN/NRDC data request and states that, "CESA does not argue that a change to the variable rate will induce a significant change in peak load—it is the proponents of the IGFC who claim that a reduced variable rate will induce increased electrification."[14]

C. Debunking the Myth that Reducing Volumetric Rates Rewards Energy Wasters and Penalizes Efficient Users

The Clean Coalition,[15] Bay Area 350,[16] and CalSSA[17] all claim that volumetric rate reduction due to IGFC either rewards inefficient energy users, or energy wasters, (a.k.a. bad actors) and penalizes efficient energy users (a.k.a. good actors). The Flagstaff Research, which

[13] See Attachment 1, SEIA response to TURN/NRDC DR at 2.
[14] See Attachment 2, CESA response to TURN/NRDC DR at 2.
[15] Rebuttal Testimony of Ben Schwarz for the Clean Coalition at 2. "Avoids the conflict of high fixed charges resulting in the ratepayers with the least efficient consumption patterns realizing the greatest amount of savings, an outcome that would be antithetical to state goals."
[16] BA 350 Response to ALJ Ruling at 3 (emphasis added). "Table 1 abstracts representative data from the extensive analysis by Flagstaff Energy, which has been entered into the record, and demonstrates the increase in annual bills for those with lower energy use, and substantial savings for those with higher use–a price signal that discourages conservation and EE, and penalizes those with lower energy use."
[17] CalSSA Comments on ALJ Ruling at 3 (emphasis added). "Figure 1 shows that median income customers with low electricity usage would see significant bill increases, according to the Flagstaff Research analysis. These are customers without a lot of disposable income in this expensive state, who are aligned with California's long-standing energy conservation goals, and they would suffer significant penalties under Cal Advocates Fixed Charge proposal."

many parties refer to as justification for these conclusions, should not be relied upon by the Commission because it is incomplete and inaccurate (as explained in detail in Section IV.C.)

The Flagstaff analysis is unreliable for a variety of reasons. The analysis does not normalize home electricity usage for exogenous factors that impact home electricity usage such as weather, home occupancy, and (in the case of renters) building construction and appliance efficiency. Homes in hotter climates have higher cooling loads and will thus use more electricity relative to similar homes in coastal climate zones. Homes with more residents will also have higher total usage than homes with fewer residents. Homes with behind the meter distributed energy resources will have lower bills than those that import 100% of their consumption from the grid. Renters who typically have no control over the appliances in their home, lack the ability to install distributed generation, and cannot improve home envelope efficiency are likely to have higher consumption compared to homeowners that pay the utility bill and are motivated to upgrade their home efficiency and install solar. Wealthier residents have even greater capabilities to purchase efficient appliances and behind the meter distributed energy resources. Without accounting for any such factors, broad conclusions about the fairness of volumetric rate reduction are unfounded.

The fairness claim offered by these parties fails to account for these factors and reaches the erroneous conclusion that customers with higher consumption are wasteful and customers who consume less are efficient. There is no effort to control for a myriad of exogenous factors that are significant determinants of home electricity use.

A new Haas Institute analysis of energy use from California's Residential Appliance Saturation Survey (RASS) that controlled for household size, rooftop solar production, and climate zone, shows that there is very little difference between supposed "energy hogs" and "energy angels."[18] The analysis finds that approximately three quarters of the difference between the top and bottom halves of households, based on energy consumption, is due to these factors. These factors account for even more of the difference between the top and bottom 20% of household energy users. The research concludes that: "the usage of the top 20% isn't actually that different from other households after adjusting for three factors that few people would argue constitute hoggyness. The parallel analysis of 'energy angels', those in the bottom 20% of net

[18] Borenstein, Severin. "(Mis)judging Energy Hogs." Energy Institute at Haas. August 21, 2023. https://energyathaas.wordpress.com/2023/08/21/misjudging-energy-hogs/

household consumption, shows they also look much more like the rest of the population after these adjustments."[19]

III. Implementation of TURN/NRDC IGFC Proposal is Cost-Effective and Feasible

A. Establishing Middle- and Upper-Income Tiers is Necessary for Progressive Outcomes

A concerning number of parties recommend a first version IGFC with three tiers composed of subsets of the CARE and FERA programs, and remaining customers. The Joint IOUs, for example, recommend a first tier composed of CARE customers below 100% of the Federal Poverty Level (FPL), a second tier that includes remaining CARE and FERA customers up to 250% FPL, and a third tier for all other customers.[20] The Small and Multi Jurisdictional Utilities (SMJUs) recommend a first tier composed of CARE customers below 100% FPL, a second tier that includes CARE customers up to 200% FPL, and a third tier for all other customers.[21] Clean Coalition recommends a first tier composed of CARE customers below 200% FPL, a second tier that includes FERA customers up to 250% FPL, and a third tier for all other customers.[22]

TURN/NRDC object to this approach for the first version of the income-graduated fixed charge because the outcomes are not adequately progressive. CARE and FERA customers represent only the lowest-income Californians, with incomes below 200% and 250% FPL, which is effectively under the low-income cut-off of 80% area median income in many California counties.[23] For this reason, parties such as Sierra Club and CEJA propose graduating fixed charges for households with incomes starting above the FERA income ceiling at 250% FPL.[24] The FERA program also includes a very small number of customers, which essentially leaves the fixed charge tiers as CARE enrollees and all other customers.[25] Creating a FERA customer tier solely for the purpose of complying with the three tier statutory requirement does little to achieve the progressive outcomes envisioned by AB 205.

The creation of true middle- and upper-income tiers is necessary to ensure adequately high bill savings for low-income customers (later discussed in section IV. B) and fair distributional

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[19] *Ibid*
[20] Joint IOUs Comments on ALJ Ruling, 7.
[21] BVES Comments on ALJ Ruling at 14 and Liberty Comments on ALJ Ruling, 2.
[22] Clean Coalition Reply Testimony, 6.
[23] See TURN/NRDC Comments on ALJ Ruling, 19-20, figures 3-4.
[24] Sierra Club and CEJA Comments on ALJ Ruling, 39.
[25] See customer counts in TURN/NRDC Comments on ALJ Ruling, 12, Table 3.

impacts for customers above that threshold. As noted in opening comments, the TURN/NRDC fixed charge delivers bill savings to between 86-94 percent of CARE customers, 24-41 percent of all customers in the middle tier, and 10-15 percent of customers in the high-income tier.[26] Beyond an aggregate estimate of the percentage of customers that experience reduced bills, it is important to understand the distributional impacts of this change in more detail.

Tables 2, 3, and 4 illustrate the percent of customers in each income category, broken down by NEM status, that would experience bill savings or bill increases no larger than 5% of monthly bills (on non-electrification rates) under the TURN/NRDC proposal.[27] The tables show that 87-98 percent of CARE customers, 37-55 percent of middle tier customers, and 17-25 percent of high tier customers see bill savings or bill increases below this 5% threshold. In other words, nearly every low-income customer, half of the middle tier, and a quarter of the high tier would experience savings or relatively small increases. Given that the low-income tier includes about 30% of customers, and the middle tier includes about 50% of customers, the TURN/NRDC proposal would bring savings or very small bill increases to most California households.[28] Due to the constraints of the E3 tool, the percentage of the full TURN/NRDC low tier that would realize savings is not displayed, but FERA and affordable housing customer impacts should closely mirror those of CARE customers.

Table 2: TURN/NRDC Proposal, Percentage of CARE Customers with Bill Savings or Small Bill Increases (< 5%) by Baseline Territory, Non-Electrification Rates[29]

PG&E	% of Customers with Bill Savings or Small Bill Increase											
Income	**ALL**	**NEM Status**	**P**	**Q**	**R**	**S**	**T**	**V**	**W**	**X**	**Y**	**Z**
CARE	95-97	Non-NEM	98-99	89-100	99-99	98-99	93-98	94-99	99-99	97-99	97-98	
		NEM	68-77		64-71	61-67	50-60	50-74	59-65	56-65		

[26] See TURN/NRDC Comments on ALJ Ruling, 13-23, tables 4,6 and 7.
[27] Percentages of customers with bill savings or small increases from the TURN/NRDC fixed charge in each subgroup were found by first identifying the usage threshold, as a percent of subgroup average usage, above which customers would see a 5 percent increase in bills using the "Individual Customer Bill Comparison" tab of the E3 tool. Customer counts in usage bins above their subgroup threshold were then summed to find the number of customers saving. Percent saving is shown as a range due to instances in which the savings threshold intercepted usage bins. Customer counts by usage bin were provided through IOU data request responses.
[28] TURN/NRDC Comments on ALJ Ruling, 16, table 5.
[29] Source: NRDC analysis available at this link

SCE	% of Customers with Bill Savings or Small Bill Increase									
Income	**ALL**	**NEM Status**	**6**	**8**	**9**	**10**	**13**	**14**	**15**	**16**
CARE	96-98	Non-NEM	96-99	97-99	98-99	99-99	99-99	99-99	99-100	97-98
		NEM	60-71	74-81	78-83	79-84	78-83	72-77	79-83	76-81

SDG&E	% of Customers with Bill Savings or Small Bill Increase					
Income	**ALL**	**NEM Status**	**Inland**	**Coastal**	**Desert**	**Mountain**
CARE	87-93	Non-NEM	91-95	87-95	93-97	94-97
		NEM	50-59	42-53	59-67	59-66

Table 3: TURN/NRDC Proposal, Percentage of Middle Tier Customers with Bill Savings or Small Bill Increases (< 5%) by Baseline Territory, Non-Electrification Rates

PG&E	% of Customers with Bill Savings or Small Bill Increase											
Income	**ALL**	**NEM Status**	**P**	**Q**	**R**	**S**	**T**	**V**	**W**	**X**	**Y**	**Z**
< $150,000	40-46	Non-NEM	59-65	56-62	63-69	60-66	20-25	32-38	66-71	39-46	38-43	18-21
		NEM	30-33	39-52	29-33	27-31	18-22	15-20	26-30	30-34	28-36	

SCE	% of Customers with Bill Savings or Small Bill Increase									
Income	**ALL**	**NEM Status**	**6**	**8**	**9**	**10**	**13**	**14**	**15**	**16**
< $150,000	49-55	Non-NEM	32-39	41-48	54-61	66-73	76-76	69-69	63-68	37-42
		NEM	26-30	31-36	37-42	35-39	37-42	35-39	43-47	29-34

SDG&E	% of Customers with Bill Savings or Small Bill Increase					
Income	**ALL**	**NEM Status**	**Inland**	**Coastal**	**Desert**	**Mountain**
< $150,000	37-45	Non-NEM	45-54	32-40	53-58	66-71
		NEM	29-36	22-27	34-38	32-37

Table 4: TURN/NRDC Proposal, Percentage of High Tier Customers with Bill Savings or Small Bill Increases (< 5%) by Baseline Territory, Non-Electrification Rates

PG&E	% of Customers with Bill Savings or Small Bill Increase											
Income	**ALL**	**NEM Status**	**P**	**Q**	**R**	**S**	**T**	**V**	**W**	**X**	**Y**	**Z**
> $150,000	21-25	Non-NEM	38-43	34-39	42-47	36-42	20-25	18-22	44-49	18-22	22-26	8-12
		NEM	19-21	16-27	20-22	18-21	9-11	9-15	20-23	14-17	20-28	

SCE	% of Customers with Bill Savings or Small Bill Increase									
Income	**ALL**	**NEM Status**	**6**	**8**	**9**	**10**	**13**	**14**	**15**	**16**
> $150,000	22-25	Non-NEM	12-15	16-19	26-31	35-41	41-47	34-39	44-49	21-24
		NEM	14-16	17-20	22-25	20-23	23-26	22-25	31-34	15-18

SDG&E	% of Customers with Bill Savings or Small Bill Increase					
Income	**ALL**	**NEM Status**	**Inland**	**Coastal**	**Desert**	**Mountain**
> $150,000	17-19	Non-NEM	24-24	12-15	33-36	45-50
		NEM	19-24	15-18	24-29	24-28

Treating all non-CARE and non-FERA customers the same does not ensure the same progressivity of impacts as the TURN/NRDC proposal. Parties that raise concerns about bill impacts for middle-income customers should advocate for more, rather than less, income graduation and support the establishment of an upper income tier. There should also be recognition that the current status quo and present rate design is flawed, resulting in regressive bill impacts for many customers (as explained in Section II). Improvement from the status quo is necessary to achieve bill savings for lower income groups. To this end, the TURN/NRDC proposal is a step in the right direction. As the Commission authorizes rates that are more progressive than they are today, low-income customers should see meaningful average savings in every baseline territory, middle-income customers should see minor impacts that do not fundamentally change bill affordability, and resulting upper-income customer bill increases should be fair, reasonable, and affordable.

B. Conducting Income Verification in the Near Term is Feasible

Parties largely recommend a first version income-graduated fixed charge using individual tiers based on the CARE and FERA programs due to the perceived administrative challenge or costs associated with implementing additional income tiers in the near term. TURN and NRDC do not share these concerns and believe that a meaningfully income-graduated fixed charge, with middle- and high-income customer tiers, can be cost-effectively implemented by the ALJ's proposed deadline in 2026 using a combination of prior program enrollment, existing third-party income verification services, and self-attestation.

The Equifax Work Number is a viable service for near-term implementation.

The Joint IOUs,[30] UCAN,[31] and other parties claim that establishing middle- and high-income tiers would require relying on complex and untested income verification methods which cannot be implemented in less than five years. TURN/NRDC disagree and have laid out a near-term income verification proposal overseen by a third-party administrator that defaults low-income customers to the first tier without customer action (CARE, FERA, and deed-restricted affordable housing), allows customers to opt-in to the middle tier (incomes up to $150,000, or similar cut-off) with checks using the Equifax Work Number as needed, and defaults all other customers to the high tier.[32] This process would protect low-income customers while limiting administrative cost and effort to assigning households to the middle tier.

As discussed in prior testimony, the Equifax Work Number is an established income verification service used by California state agencies to verify incomes of applicants to the CalFresh and CalWORKS programs.[33] According to an Equifax representative, the service has demonstrated a 77% rate of success verifying applicants for California programs in this calendar year.[34] In other words, about 23% of the applicants to these programs were not found in the Work Number database of employer records. We believe that the success rate of returning applicant income records under the TURN/NRDC proposal would be higher for two reasons.

First, income cutoffs for CalFresh and CalWORKS are very low-income, between 100 and 200% FPL.[35] In the TURN/NRDC proposal, the Work Number would only be used to identify customers that would be assigned to either the middle or upper tiers of the IGFC (a demarcation closer to 650%[36] FPL). Since the Work Number contains information from employer and payroll providers, the service is more likely to return records for higher-income employees and employees with standard payroll employment. While the service may not account for California's 650,000 farm workers or 300,000 domestic employees,[37] these demographic groups are more likely to fall

[30] Joint IOUs Comments on ALJ Ruling, 5-7.
[31] UCAN Comments on ALJ Ruling, 7.
[32] See modified proposal in TURN/NRDC Reply Testimony, 25-26.
[33] PAO Comments on ALJ Ruling, 15-16.
[34] PAO Comments on ALJ Ruling, Appendix A.1.
[35] PAO Comments on ALJ Ruling, 16.
[36] FPL comparison in Joint IOUs' Opening Testimony, 5, lines 3-4.
[37] Joint IOUs Reply Testimony, 67, lines 7-10.

into households eligible for the low tier fixed charge. If the Work Number is used to cost-effectively verify only a subset of the middle tier, and that subset is chosen based on high-income characteristics such as high energy usage or upper income neighborhood, the sample could show an even higher success rate than verification of the full middle tier.

Second, the service is being used to assess household, rather than individual, income over a single threshold dividing the middle- and high-income tiers. Even if the service cannot return records for one income earner in a household, it is likely to return records for another earner, which could be enough to determine the household exceeds the $150,000 earning threshold. This is relevant when considering other limitations of the Work Number, such as the service's exclusion of non-payroll earnings from dividends, rental, unemployment, or welfare income.[38] Some of these sources, such as unemployment or welfare, are less relevant for the middle and higher tiers. Capital gains related income, while relevant for the high-income tier, are unlikely to make up the difference between $149,000 and $150,000 in total household income. These data sources are important for more granular graduation of income tiers, which may be possible in a future version of the IGFC, pending data sharing agreements with government agencies.

In the small portion of cases where the Equifax Work Number is unable to return customer records for a household, there is a risk of underestimating customer income and sorting too many customers into the middle-income tier. From a customer welfare perspective, this risk is less concerning than overcharging customers. However, to bolster accuracy and ensure adequate high-tier enrollment, other complementary approaches could be used for customer verification. For example, customers who do not match records through the Work Number service could be prompted to submit some proof of income for direct verification by the third-party administrator. The Work Number also includes a multilingual appeals service if customers believe their verification is incorrect or out of date,[39] although this is unlikely for multiple reasons. First, customers will provide their names, addresses, and social security numbers (where possible) upon opting into the middle tier to ensure an accurate match in the Work Number's system. Second, 2.5 million employers update payroll information with the Work Number every pay period.[40] This level of accuracy and timely updating is why government agencies already contract with the

[38] As pointed out in Joint IOUs Reply Testimony, 68, lines 1-6.
[39] PAO Opening Testimony Chapter 2, Appendix A.6.
[40] PAO Opening Testimony Chapter 2, Appendix A.7, 3.

service.

To summarize, while some households may not return record matches through the Work Number income verification service: (a) the match rate will likely be higher than 77% for income earners sorted into TURN/NRDC's proposed middle- and high-tiers; (b) available records should provide sufficient information to sort total households above and below the high-income threshold; (c) records will typically err on the side of undercounting customer income; (d) the service includes an appeals process in the event of an unexpected error; and (e) another approach could be used to verify income for those households that do not return records in the near-term, while a long-term income verification process is established.

There is no reason to believe that a high-income tier is infeasible while a low-income tier composed of a subset of CARE customers is feasible

The Joint IOUs suggestion that the creation of a middle- and upper-income tier division is too challenging is not credible given their proposal to split CARE customers into two groups in order to develop a new low-income tier. The First Version proposal would split CARE customers between the first and second tiers at around a 100% FPL cut-off. This approach is designed to ensure enough customers in the bottom two tiers since FERA program enrollment is too low to establish a tier only for this group. The Joint IOU proposal is an attempt to fulfill the AB 205 requirements with minimal administrative effort. However, Californians can currently enroll in the CARE program based on other low-income program eligibility, in addition to income self-reporting.[41] Other programs do not, as the IOUs note, provide "off-the-shelf information about whether a customer household's income is 100% FPL or under."[42]

The utilities do not know how many existing CARE customers fall above and below the 100% FPL cut-off because they do not have income information on 63% of existing CARE customers (PG&E is missing 92%, SDG&E 54%, and SCE 36%).[43] Recognizing this challenge, the Joint IOUs propose defaulting CARE customers without income data into the second tier.[44] The Joint IOUs plan to conduct marketing, education, and outreach to reach these remaining

[41] "CARE/FERA Program." CPUC. Accessed August 10, 2023. https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/care-fera-program
[42] Joint IOUs Comments on ALJ Ruling, 48.
[43] Based on the latest reported figures, see Attachment 5, IOUs Response to ED Questions, at 2.
[44] Joint IOUs Comments on ALJ Ruling, 49.

CARE customers, as well as modify the current CARE enrollment/re-enrollment applications to encourage applicants to report specific information going forward. They recommend notifying customers of the rate change 120 days before IGFC implementation, to give households time to respond. However, this approach prevents many CARE customers from moving into the lowest tier unless they affirmatively report private income and household size information directly to the utilities in response to outreach or during the program recertification process, which has a historic response rate of 50-80%.[45] The IOUs anticipate the response rate from this customer subgroup may be even lower if customers are "not as willing to provide income information for a small discount…relative to ensuring they keep a 30-35% discount."[46] This approach fails to protect the low-income customers who are most in need, defaulting a potentially significant number of CARE customers to an inappropriately high charge unless they take affirmative action to submit additional income verification (see bill impacts discussion in IV. B). To accurately implement a fixed charge with three income tiers, the IOUs will need to collect information from current CARE customers on their exact household income and size—which may be particularly burdensome for the SMJUs—or a third-party administrator will need to be established to collect that information. Either approach requires additional administrative costs and forces low-income customers to take additional action in order to receive the benefits of the lower fixed charge.

In contrast, the TURN/NRDC proposal would not require low-income customers in the CARE and FERA programs to take any additional actions. Administrative costs and effort would be used to establish a far more productive upper tier distinction. As explained by Sierra Club and CEJA, it is more worthwhile to create high income cut-offs "than to spend time and administrative costs splitting low-income customers into more granular levels."[47] In other words, it is much more useful for a third-party administrator to identify a customer's middle- or high-income tier status than for the utilities to collect information on customer's designation below 100% FPL relative to 200% FPL. Accurately identifying higher income customers makes it possible to raise the amount of the high tier fixed charge which can (1) reduce the charge levied on lower income customers and (2) ensure sufficient revenue is collected to reduce volumetric rates for all customers. In an equitable design, the size of the fixed charge is constrained by the lowest income customers in

[45] Attachment 5, 2.
[46] Attachment 5, 4.
[47] Sierra Club and CEJA Comments on ALJ Ruling, 7.

each income bracket; the top tier should be determined the highest income cut-off that can be feasibly implemented in the near-term, accepted by customers, and sufficiently populated to deliver equity and electrification savings.[48]

The TURN/NRDC income verification proposal is cost-effective.

SEIA suggests that the costs of developing a new income verification system would exceed the benefits of the IGFC for low-income customers.[49] This critique is not valid. The TURN/NRDC income verification process is designed to minimize administrative costs and maximize progressive redistribution. By leveraging existing CARE and FERA program enrollment to default low-income customers to the bottom tier, enabling middle-tier customers to voluntarily opt-in with limited, strategic third-party verification, and defaulting all other customers to the high tier, implementation costs would not exceed a small fraction of expected customer savings. TURN/NRDC estimates that CARE customers could save about $640 million annually, with additional savings for FERA customers and households in deed-restricted affordable housing.[50] Per an Equifax representative, the cost to verify each income earner would be less than $9.30.[51] Thus, if the third-party administrator were to verify every income earner in the middle tier, verification costs would have an annual ceiling that is less than 8% of CARE customer benefits, or $47.8 million..[52] Given this enrollment and reenrollment would occur no more than every two years, and that verification rates could be less than $9.30, these costs would be a small fraction of program benefits even when combined with marketing and other administrative costs.

If the modified TURN/NRDC proposal is adopted, and only a subset of the middle tier undergoes income verification as a spot check,[53] these costs could be decreased further. For example, if one in five households are subject to verification based on high usage, neighborhood, or random selection, annual verification costs would be less than 2% of CARE customer benefits, or $10 million. Given that customers could be asked to enroll on penalty of perjury, with the

[48] See TURN/NRDC Comments on ALJ Ruling, 14.
[49] SEIA Comments on ALJ Ruling, iv.
[50] See TURN/NRDC Reply Testimony at 24, footnote 31.
[51] PAO Comments on ALJ Ruling, Appendix A.1
[52] 5,141,295 middle tier-eligible households (per TURN/NRDC Comments on ALJ Ruling, 16, Table 5) multiplied by $9.30 multiplied by two (for an average of two income earners per household), divided by two (to reflect a bi-annual enrollment and re-enrollment process), equals $47.8 million.
[53] See TURN/NRDC Reply Testimony, 25-26.

possibility of external verification, there is precedent to expect low rates of customer fraud.[54] This system would also not be implemented in perpetuity, assuming the third-party administrator can access a future database for income verification enabled by data from the Franchise Tax Board and Department of Social Services.

The TURN/NRDC proposal can be implemented for manufactured housing residents.

WMA raises the concern that it may be difficult to implement the income-graduated fixed charges for households living in manufactured houses because submetered tenants are not direct "customers of the utilities."[55] While individual submetered tenants can voluntarily apply to the CARE and FERA discount programs, there is no clear mechanism for mandatory tenant enrollment if there is a need for "income verification for *all* customers."[56] WMA also objects to any requirement that Manufactured Home Park owners conduct income verification due to the importance of respecting privacy laws and maintaining trust with residents. These concerns are not valid for purposes of evaluating the TURN/NRDC IGFC proposal.

Under the TURN/NRDC proposal, income-graduated fixed charges could be seamlessly implemented for residents of manufactured homes without running into these concerns. Our proposal would not require income verification of all customers, but simply extend optional middle-tier enrollment to submetered tenants in the same manner as CARE/FERA enrollment. Middle-income customers' self-certifications and consent to verification would be processed by the third-party administrator in the same manner as customers in single- and multi-family units. Customers in the low-income tier would not have to take additional action, nor would high-income customers defaulted to the high tier. Neither individual utilities nor property owners would be responsible for income verification or handle customers' sensitive financial information. To be clear, TURN/NRDC would strongly oppose allowing Manufactured Home Park owners to be placed in the position of collecting or evaluating income data from submetered residents.

[54] Consider the lack of evidence of significant fraud from programs accepting self-attestation such as the CARE/FERA and Covered California programs
[55] WMA Comments on ALJ Ruling, 4.
[56] WMA Comments on ALJ Ruling, 5.

The SMJUs should be able to implement a similar fixed charge design as the large IOUs.

The SMJUs of Liberty and BVES argue that their smaller size and limited resources preclude them from establishing middle- and high-income tiers. [57] All three recommend that the fixed charge tiers in their territories be limited to very low-income, low-income, and all other customers. As discussed above (Section II. A), TURN/NRDC believe these tiers are insufficient for delivering meaningful bill savings to low-income customers while minimizing adverse effects for middle-income customers because the size of the fixed charge is limited by the lowest income customers in each tier. TURN/NRDC do not agree that utility size inherently limits the options for rate design in this case. As laid out in our proposal,[58] the CPUC should select a third-party administrator to assign customers to income tiers and implement the income-graduated fixed charge across the private utilities.[59] The reliance on a third-party administrator removes the burden from individual utilities of developing income verification processes while ensuring both the SMJUs and large IOUs meet the requirements of AB 205. This approach addresses the SMJUs concerns about staffing capacity and administrative costs, which TURN and NRDC recommend should be financed from the state general fund or any available cap-and-trade revenue.[60]

The third-party administrator would need to make some adjustments in SMJU territories. For example, BVES, Liberty, and PacifiCorp do not participate in the FERA program.[61] Given the small size of the FERA program in other utility territories,[62] this change would not significantly alter implementation of the income-graduated fixed charge. BVES also raises the concern that most customers in their territory are non-permanent, which poses a challenge for enrollment and re-enrollment.[63] However, customers are already able to enroll in the CARE discount and re-enroll on a bi-annual basis. It should be feasible to automatically enroll these customers in the low-income tier and enable middle-income customers to opt-in to the middle tier upon account

[57] Liberty Comments on ALJ Ruling, 3, BVES Comments on ALJ Ruling, 14
[58] See TURN/NRDC Opening Testimony, 33, lines 19-20.
[59] See TURN/NRDC Comments on ALJ Ruling, 39-40 and 48-49.
[60] See TURN/NRDC Comments on ALJ Ruling, 43.
[61] Bear Valley Electric Service Inc., "2023-2024 CARE and ESA Eligibility Income Levels Update." CPUC Energy Division. March 28, 2023. https://www.bvesinc.com/assets/documents/advice-letters/468-e-approval-2023-2024-care-and-esa-eligibility-income-levels-update.pdf, 2.
[62] The number of customers enrolled in FERA is just 2 to 3 percent of those in CARE, as discussed in TURN/NRDC Comments on ALJ Ruling, 11-12.
[63] BVES Comments on ALJ Ruling, 4.

activation. In the near-term, the TPA can use the Work Number to verify customers for this middle tier. In the long term, data from the Franchise Tax Board and Department of Social Services should enable more fluid enrollment and reenrollment processes across private utility territories.

C. Residents of Deed-Restricted Affordable Housing Should be Included in the Low Tier

A progressive income-graduated fixed charge should consider low-income households beyond those eligible for the CARE and FERA program discounts. For example, some parties recommend defining low-income customers as those households with incomes below 80% of state or area median income.[64] This cut-off sits above the income ceiling of the CARE and FERA programs in many California counties,[65] and can be a more inclusive metric for customers facing burdensome costs of living in higher-income areas of the state. In the first version of the fixed charge, TURN and NRDC recommend including residents of deed-restricted affordable housing as an implementable and administratively simple step to build out the low-income tier.[66] This measure would protect a wider range of California households and prevent utility allowance distortions or rent distortions in housing developments where units receive different rate discounts.

The Joint IOUs suggest in opening comments that deed-restricted housing residents should not be included in the low-income customer category for two reasons.[67] First, they argue it is too complicated to implement a fixed charge based on affordable housing status because the referenced housing database, which is maintained by the California Housing Partnership (CHP), is only accessible by state agencies. We disagree that this limitation is a significant obstacle to implementation. The CHP states that it makes database results "available to local governments and nonprofit housing partners upon request."[68] The CPUC could facilitate access to this information for a third-party administrator.

Second, the Joint IOUs argue that it "would appear illogical and be confusing for customers" in affordable housing units to receive the lowest fixed charge without receiving the CARE or FERA rate discounts on other bill line items. We disagree that this would inherently

[64] See Sierra Club and CEJA Comments on ALJ Ruling, 6-7.
[65] See TURN/NRDC Comments on ALJ Ruling, 19-20, figures 3-4.
[66] See additional explanation in TURN/NRDC Reply Testimony, 21-23.
[67] See Joint IOU Comments on ALJ Ruling, 71-72.
[68] "Preservation Clearinghouse." California Housing Partnership, 2023. https://chpc.net/ta/preservation/preservation-clearinghouse/

cause confusion or threaten the "alignment and consistency" of customers' electricity bills. Including affordable housing residents in the low-income fixed charge is a straightforward and easily-implementable way to expand benefits to a disadvantaged customer group and ensure no negative impacts of the rate change on affordable housing developments. In the future, the CPUC should also consider adding additional customer groups to the low-income tier via eligibility for other low-income programs or percentages of Area Median Income,[69] pending administrative capability and the development of additional income verification methods. Delivering meaningful bill savings to low-income customers should remain the priority of the income-graduated fixed charge consistent with the requirements and intent of AB 205.

IV. Proposals Should Achieve Low-Income Savings and Accurately Present Customer Bill Impacts

A. Low-Income Customer Savings Should Be Incremental to Current Climate Credit Payments

Multiple parties recommend redistributing the California Climate Credit to finance a lower IGFC for low-income customers, including PAO,[70] SEIA,[71] and CALSSA.[72] As TURN and NRDC discussed in reply testimony, this suggestion is exogenous to the fixed charge proceeding and should not be used to meet the requirements of AB 205. The income-graduated fixed charge must independently deliver bill savings to low-income households and progressively redistribute fixed costs among electricity customers. Proposals that do not meet this standard should be rejected. Proposals to reallocate the Climate Credit do not deliver the level of real-world savings claimed by proponents and obscure bill impacts from fixed charges in two ways.

First, any assessment of additional bill savings from Climate Credit reallocation must account for the Climate Credit that CARE and FERA customers would already receive. Because the Climate Credit is not a line item in the E3 tool that all parties used to model fixed charges, the bill impacts of proposals from TURN/NRDC and others do not include the current impact of the Climate Credit on customer bills. The measurement of bill impacts from the IGFC should be calculated to include expected changes that are incremental to current bills. In Opening

[69] See TURN/NRDC Comments on ALJ Ruling, 36-37, Question 10.
[70] PAO Comments on ALJ Ruling, 7.
[71] SEIA Comments on ALJ Ruling, 13, footnote 27.
[72] CALSSA Comments on ALJ Ruling, 2-3.

Testimony, PAO recommended using the full Climate Credit to cancel out the fixed charge for their proposed Bracket 1 customers.[73] This reallocation would be the only way for their proposed fixed charge to avoid increasing bills for the average low-income customer, as demonstrated in our comparison of party bill impacts.[74] However, it is unclear whether low-income customers would actually realize incremental savings on their total bills across baseline territories because the analysis does not account for current savings from the existing Climate Credit.[75] Where SEIA writes that "using just 50% of the Climate Credit for additional CARE discounts…would achieve the same reductions in CARE customers' monthly bills as the Joint IOUs' IGFC proposal," they also fail to account for the fact that the Joint IOUs' current proposal modelled in the E3 tool does *not* factor in the existing Climate Credit.[76] Thus, both PAO and SEIA overstate the low-income benefits of their proposed reallocation.

Second, assessments of bill impacts from the Climate Credit reallocation should also consider the resulting bill *increases* for middle- and high-income customers relative to the status quo. If the entire Climate Credit at 2022 levels was used to cover the fixed charge for Bracket 1 households under PAO's proposal, all other customers would lose that annual benefit. That means middle-income customers would miss out on $128 each year in SDG&E, $118 in SCE, and $79 in PG&E territory.[77] PAO excludes these bill increases from their bill impacts on the grounds that "the CCC credit is not part of a customer's tariff. It is something that occurs infrequently twice a year in varying amounts, so it does not constitute a bill component that customers expect."[78] But regardless of what customers expect, reallocating the climate credit changes customers' bills relative to the status quo. As a result, PAO understates bill increases for middle- and upper-income customers. This adverse impact cannot be ignored and should be considered in evaluating the distributional impacts of PAO's proposal. Similarly, under SEIA's proposal, all customers in PG&E territory would see their Climate Credit reduced from $79 to $24 at 2022 levels.[79] This decrease of $55 should also be considered in addition to the other monthly bill impacts of the proposed fixed charge on non-CARE and non-FERA customer groups.

[73] PAO Opening Testimony, 23-24.
[74] TURN/NRDC Reply Testimony, 13-14.
[75] Attachment 4, Public Advocates Office Response to TURN/NRDC DR, 1.
[76] Attachment 1, SEIA Response to TURN/NRDC DR, 2-3.
[77] PAO Opening Testimony, 24, Table 13.
[78] Attachment 4, 1.
[79] SEIA Reply Testimony, 23, footnote 24.

B. Low-Income Customers Must See Meaningful Bill Savings from the IGFC

TURN and NRDC previously noted that the IGFC must deliver bill savings for the average low-income household in each baseline territory to meet the requirements of AB 205, which should include, at a minimum, customers eligible for the CARE and FERA programs.[80] Any IGFC proposal that does not achieve this result is not reasonable and violates the law. In opening comments, SEIA writes that "the low–income ratepayer has been defined in the P.U. Code as encompassing two groups of customers – those that are eligible for the CARE and FERA subsidies."[81] SEIA's proposal, however, does not yield average savings for these low-income customers in each baseline territory.[82] For example, on default TOU rates, FERA customers in SCE's baseline territory 6 and PG&E's coastal baseline territory T would see roughly $2-3 monthly bill increases on average.[83] The overall fixed charge collected from the SEIA proposal, averaging just $8 per month,[84] is too small to deliver significant bill savings to customers.

The IOUs IGFC proposal should not be adopted for the same reason. While their first version proposal includes an average fixed charge of $41-$60 with volumetric rate reductions of 26-32% across utilities[85] (similar to TURN/NRDC's average fixed charge of $36, with rate reductions of 20-25%[86]), their lack of true middle and upper tiers limits progressive bill impacts. While the Joint IOUs state that "the First Version IGFC must satisfy AB 205's requirement that the average low-income customer in each baseline territory would realize a lower average monthly bill,"[87] their proposal does not achieve this outcome. Based on the printout results of their model using the E3 tool, CARE customers in PG&E's coastal T baseline territory would not realize average bill savings from their first version IGFC.[88] Further, CARE customers in the 100-200% FPL bracket would not realize average bill savings in territories V or X, and FERA customers appear to achieve larger savings than CARE customers across baseline territories. Such impacts

[80] See TURN/NRDC Comments on ALJ Ruling at 9.
[81] SEIA Comments on ALJ Ruling, 15.
[82] TURN/NRDC is awaiting an information request response from SEIA to confirm the impacts of their proposal, given the constraints of the E3 tool for inputting FERA customer-specific charges.
[83] See SEIA Reply Testimony Attachment RTB-3 at "2. TOU Rates – Printable Results."
[84] SEIA Reply Testimony, 2, Table 1.
[85] Joint IOUs Comments on ALJ Ruling, 9, table 4.
[86] TURN/NRDC Opening Testimony, 1.
[87] Joint IOUs Comments on ALJ Ruling, 18.
[88] See Joint IOUs Comments on ALJ Ruling, Appendix A - E3 Tool Printable Results, pages 29-30, illustrating bill impacts on default TOU and tiered rates.

are also only accurate assuming customers are appropriately sorted by their income, which may not be the case for CARE customers below 100% FPL who are defaulted into the second tier and fail to take additional steps to satisfy new income verification requirements. Based on these results, the proposal fails to prioritize the largest savings for the most vulnerable customers.

As described by Sierra Club and CEJA, AB 205's mandate is intended to solve "an urgent affordability problem."[89] It may be appropriate for the Commission to adopt a standard for low-income bill reduction that exceeds average savings by baseline territory, such as ensuring low-income ratepayers maintain an energy burden below 5% or a percentage bill reduction requirement.[90] However, as PAO writes, there cannot be "a progressive application of IGFCs to support lower income customers" without differentiation between middle- and high-income customers.[91] A CARE/FERA/others design will either fail to produce significant bill savings for low-income customers or risk adverse effects for middle-income customers.

SEIA's proposed design, for example, which includes a very low average fixed charge to avoid adverse impacts, would result in average savings of around a dollar a month for most CARE customers on default rates across baseline territories.[92] This is significantly less than the benefits under TURN/NRDC's proposal which delivers CARE customers savings on the scale of $10-$40 each month.[93] Table 5 illustrates the average savings of CARE customers from the TURN/NRDC proposal compared to the SEIA proposal in each utility territory. On a monthly basis, CARE customers would receive about an additional $15 in savings from our proposal, which translates to about $200 more each year. Given CARE customers represent more than a quarter of California households, the TURN/NRDC proposal yields nearly $600 million more in annual savings for all CARE customers than the SEIA proposal.[94]

[89] Sierra Club and CEJA Comments on ALJ Ruling, 5.
[90] Sierra Club and CEJA Comments on ALJ Ruling, 5-6.
[91] PAO Comments on ALJ Ruling, 8.
[92] See average impacts in SEIA Reply Testimony, Attachment RTB-3, "2. TOU Rates – Printable Results."
[93] TURN/NRDC Comments on ALJ Ruling, 12.
[94] An approximation of total savings taken by multiplying weighted average CARE savings on default TOU rates by the total number of CARE customers as of the May 2023 IOU reports (posted June 2023): https://liob.cpuc.ca.gov/monthly-annual-reports/

Table 5: CARE Customer Average Bill Savings on Default TOU Rates [95]

	TURN/NRDC Proposal			SEIA Proposal		
	Monthly per customer	*Annual per customer*	*Annual for all customers*	*Monthly per customer*	*Annual per customer*	*Annual for all customers*
PG&E	$18.47	$221.64	$318,771,070	$0.93	$11.16	$16,050,736
SCE	$17.70	$212.40	$250,831,019	$1.74	$20.88	$24,657,965
SDG&E	$16.84	$202.08	$71,056,986	$0.32	$3.84	$1,350,252

C. Flagstaff Research is Incomplete and Should Not Be Relied Upon

Multiple parties rely on incomplete and inaccurate analysis by Flagstaff Research to draw overly broad conclusions on the effect of IGFC.[96] These conclusions include the notion that the IGFCs reward energy hogs who engage in wasteful consumption, IGFCs promote subsidies from small to large homes, and any operational savings for IGFCs are insufficient to promote electrification.[97]

As a threshold matter, parties relying on this analysis do not apply the standardized E3 tool to understand the distributional impacts of the IGFC. But the issue with the Flagstaff Research analysis is far more significant. Flagstaff Research analysis relies on uncalibrated models, is not representative of actual changes in bills, and fails to identify distributional impacts by income or consumption level. The only useful piece of information Flagstaff Research provides is unsurprising: fixed charges and resultant lower volumetric rates provide more bill savings to homes with higher electric consumption. All other findings from this research rely on incomplete analysis and should be given little weight.

TURN/NRDC sent data requests to CalSSA and the Clean Coalition to reaffirm these findings but have not received responses by the due date for reply comments. The analysis presented in this filing is based on the data included in the Flagstaff Research memo attached to

[95] Weighted average monthly bill impacts for CARE customers on default TOU rates (E-TOU-C, TOU-D-4-9, TOU-DR1), using data and customer counts from parties E3 tool models; First illustrated in TURN/NRDC Reply Testimony, 12, Figure 8. Savings multiplied by total CARE customer program counts taken from TURN/NRDC Comments on ALJ Ruling, 12, Table 3.

[96] See, for example, Clean Coalition Rebuttal Testimony, CalSSA Comments to ALJ Ruling, and Bay Area 350 Comments on ALJ Ruling.

[97] Flagstaff Research memo is presented as an attachment to CalSSA Comments on ALJ Ruling and Clean Coalition Rebuttal testimony.

CalSSA's opening comments and Clean Coalition Rebuttal Testimony.

The first major error in the Flagstaff analysis is that the models are incorrectly constructed and their outputs incorrectly calibrated. This mistake renders any estimate of bill impacts from these models unusable. The core flaws are that the Flagstaff models (1) do not necessarily represent the building stock in California, (2) are not calibrated (which means their energy consumption estimates cannot be trusted), and (3) fail to correctly connect modeled homes to representative population or income data in order to estimate the distributional impacts of the IGFC.

A useful and robust building energy model relies on many inputs and assumptions from appliance wattage to resident occupancy schedules. To develop a representative model, the model specifications must represent in-situ specifications of the very homes that the model intends to represent. For example, to build a representative model of a single-family home in California, the inputs to the model must be based on size, construction specifications, and appliance efficiencies of real homes in single family homes California.

Moreover, the actual electricity usage in a building is also a function of occupant behavior, household economic constraints, electricity rates, weather, and other exogenous factors. Once a building simulation model has been constructed, its output or energy consumption estimates need to be calibrated to utility billing data for the same population whose inputs informed model construction. In other words, the model's inputs need to represent reality and its outputs need to represent reality as well.

These two modeling 101 steps are necessary standard building energy modeling practice.[98] The Northwest Power and Conservation Council's Regional Technical Forum (RTF) constructs representative building energy models for a set of sampled homes,[99] then applies statistical methods to calibrate building model outputs based on billing data. These calibrated models are used to estimate heating energy consumption and related energy efficiency savings. Through the calibration process, the RTF found that uncalibrated building energy model output systematically

[98] See, for example, this ASHRAE paper by Rocky Mountain Institute building scientists that explain the need for and the main steps for model calibration: Hubler et al, Pulling the Levers on Existing Buildings: A Simple Method for Calibrating Hourly Energy Models (2010), ASHRAE Transactions, Volume 116, Part 2. https://rmi.org/insight/pulling-the-levers-on-existing-buildings-a-simple-method-for-calibrating-hourly-energy-models/

[99] One for each home sampled by setting model specifications equal to building and occupancy properties measured via field surveys.

differs from billing data. Uncalibrated heating energy consumption estimates of inefficient homes were up to two times higher than heating consumption implied by billing data.[100] Estimates of changes in consumption, or savings from efficiency upgrades, from uncalibrated homes were similarly two to three times higher than savings derived from billing data; savings from calibrated models were within a reasonable range.[101] Fowlie, Greenstone, and Wolfram found similar issues with improperly calibrated building energy models when they analyzed the efficacy of a national weatherization program: improperly calibrated building energy models were overestimating savings by around a factor of 2.5.[102] The Commission's designated source for energy efficiency savings analysis, the California Technical Forum, applies calibrated models to estimate building consumption and measure savings. These models are available for public use.[103]

Building energy model output calibration needs to be end-use specific, which means the model should be able to estimate accurate lighting, appliance, heating, water heating, and cooling energy use separately. This capability is important because the model could predict a reasonable household's annual energy consumption, but it may overestimate electricity usage for one end-use (e.g. lighting) while under-estimating another (e.g. appliances). These distinctions are especially important when the objective of the analysis is to estimate savings through modeling change in consumption due to specific energy efficiency upgrades such as replacing gas space and water heaters with efficient electric alternatives.

The Flagstaff analysis performs none of these necessary steps accurately and their estimates of baseline energy consumption, and changes in energy consumption, cannot be trusted. To summarize, here are some of the many oversights in the Flagstaff analysis:

- The building energy model inputs or building specifications (e.g., wall R-Value, lighting power density, appliance efficiencies, etc.) are not statistically representative

[100] See the following slide deck for a full overview of the RTF heating energy calibration process, a comparison of modeled heating energy with heating energy estimates from billing data are presented on slide 16. https://nwcouncil.app.box.com/v/20190723SFSEEMCalibration
[101] Ibid. at 36.
[102] Fowlie, Greenstone, and Wolfram, *Do Energy Efficiency Investments Deliver? Evidence from the Weatherization Assistance Program* (2015), Energy Institute at Haas Working Paper. https://haas.berkeley.edu/wp-content/uploads/WP261.pdf
[103] CalTF, White Paper: Savings Analysis Methods Guidance for the California Statewide Deemed Energy Efficiency Measures (2020), at 5. https://static1.squarespace.com/static/53c96e16e4b003bdba4f4fee/t/5f99c9086e0b615f65265ff9/1603913995547/Cal+TF+White+Paper+Savings+Analysis+Methods+Affirmed+2020.09.24+v1.0.pdf

of the CEC RBSA data that Flagstaff uses as a reference point for model calibration. The Normal Use home that Flagstaff compares with CEC RBSA data is a 2500 square foot home built to 2016 Title 24 standards.[104] This is a relatively new home that is not representative of average single-family homes in California. Flagstaff provides no evidence of adjusting RBSA data to account for this major difference.

- The building energy model size may or may not be statistically representative of the home sizes used in the CEC RBSA data.
- The weather files used to simulate the Flagstaff model homes may or may not represent the weather for the actual year that CEC RBSA data presents home usage for.
- Determining changes in gas and electricity consumption due to electrification requires accurate baseline estimates of gas fired water and space heating. Flagstaff Research does not calibrate modeled gas space and water heating to actual usage data or home gas energy bills.

The statement that the Flagstaff analysis may or may not be representative of real-world data reflects the fact that TURN/NRDC are waiting for data request responses from CalSSA and Clean Coalition to confirm these facts. The Flagstaff memo attached to CalSSA opening comments and Clean Coalition rebuttal testimony indicates that all these suspected oversights exist in Flagstaff Research's analysis. If the uncalibrated models Flagstaff uses have similar systematic biases as the examples we identify, their large inefficient home energy use estimates may be off by a factor of two.

The implications of this inaccuracy are significant. If the Flagstaff estimates of building energy consumption are in fact off by a factor of two, then their estimates of bill savings that large energy-inefficient customers receive may also be off by a factor of two. Their electrification bill impacts could be even more inaccurate. Calculating change in consumption due to electrification requires calibrated pre-and post-electrification heating and water heating consumption. Unlike gas equipment, which have a near-constant efficiency across heating load, heat pump efficiency varies with heating load. Moreover, any conclusions the Flagstaff analysis draws on the distributional impacts of the IGFC should be rejected because Flagstaff has not conducted any analysis

[104] Flagstaff Research Memorandum at 1. Presented as Attachment to CalSSA Comments and Clean Coalition Rebuttal Testimony.

connecting their models with customer income demographic data.[105]

The only thing that the Flagstaff analysis corroborates is obvious. A fixed charge reduces volumetric rates and thus people who consume more electricity are more likely to save relative to their current bills than people who consume less electricity. If our understanding of their modeling process is confirmed, then the following analogy best explains the problems with the Flagstaff analysis: A macroeconomist sets out to model the impacts of various policy on California's GDP. They use a mix of California, Texas, and Illinois specific inputs to develop a model of California's economy. They then draw a graph showing the output of their model alongside the GDP of all U.S. states, eyeball this comparison and conclude that their model does fine on average. They then proceed to make assertions of the impacts of various policy changes in California and ask policymakers to find that their modeling is useful for this purpose.

Given these systematic flaws, and the lack of consistency with established modeling conventions, the Commission should decline to give any weight to the findings of the Flagstaff analysis.

V. Rate Design Misconceptions and the Impact of Reducing Volumetric Rates

A. SEIA's fixed charge proposal relies on a misunderstanding of what costs are marginal to consumption that limits the efficacy of the IGFC

The underlying premise of SEIA's proposal – that only marginal customer access costs (MCAC) are fixed – is inaccurate.[106] Reliance on this false premise would prevent the adoption of meaningful fixed charges and fail to put any material downward pressure on volumetric rates.[107] IGFCs based on this premise would not deliver noticeable savings to low-income customers (See Section IV.B.). As explained in TURN/NRDC's rebuttal testimony, SEIA's assertion that only MCAC are fixed is based on faulty economics and an incomplete understanding of which costs are marginal to consumption both in the short and long run. MCAC are merely the lower bound of fixed costs and do not account for a variety of cost categories that are unaffected by customer

[105] Attachment 1 to CalSSA Comments at 1. "The results of this analysis for the mid-size home and the middle-income household are similar to those in the E3 Fixed Charge Design Model that was used by parties in opening testimony. Our assessment diverges significantly from that model for different home sizes and income levels."
[106] SEIA Comments to ALJ Ruling at 5, 16, and 18 for example.
[107] Figure 5, page 8, of TURN/NRDC's Rebuttal testimony shows that SEIA proposal puts minimal downward pressure on rates.

demand or usage.. All proposals and recommendations based on this premise, such as those of SEIA, Advanced Energy United,[108] CalSSA,[109] and the Clean Coalition, should be rejected for failing to comply with Commission rate design principles (RDP).

The TURN/NRDC direct and rebuttal testimony explain which costs are marginal to usage. Through our rebuttal testimony we explain that SEIA's proposal is based on inaccurate rate design theory that fails to differentiate between costs marginal to usage and costs due to exogenous factors.[110] Through a hypothetical high distributed generation uptake scenario, we also explained how SEIA's proposal could lead to disastrous outcomes. If 80% of PG&E customers adopt solar and storage on the net billing tariff (NBT), which is consistent with SEIA's proposal, a non-participating customer would pay at least $490 per month to cover the transmission and distribution revenue requirement alone.[111] Their full monthly bill would be significantly higher. Although this scenario is hypothetical, a true cost-based rate wouldn't fail so spectacularly when put to the test.

When evaluating distributed energy resources, the Commission has repeatedly stated that only those costs included in the avoided cost calculator are avoidable. By definition, the Commission implies that remaining costs aren't avoidable or marginal due to changes in usage and should be eligible for collection via the IGFC.

B. Applying Potential IGFC Rate Reductions to Only Off-Peak Rates Result in Untenable Rate Structures

CalSSA,[112] Clean Coalition,[113] and other parties recommend the Commission first adopt the very minimal fixed charge proposed by SEIA and then develop highly variable TOU rates that provide rate relief in all periods except for the summer on-peak period. These parties recommend against adopting a meaningful IGFC that would provide lower volumetric rates in all hours and claim that their preferred strategy will better encourage electrification while adhering to cost

[108] Advanced Energy United Comments at 3. "Long-run marginal costs should not be included in the IGFC because almost all costs of service vary in the long run and affecting these costs through customer response to rates is a critical state policy objective."
[109] CalSSA Comments on ALJ Ruling at 2.
[110] TURN/ NRDC Rebuttal Testimony, 28-36.
[111] Ibid. 34-36.
[112] CalSSA Comments on ALJ Ruling at 2.
[113] See, for example, Clean Coalition Comments on ALJ Ruling at 2-3. Clean Coalition also refer to the same Flagstaff Research as CalSSA and include it in their rebuttal testimony.

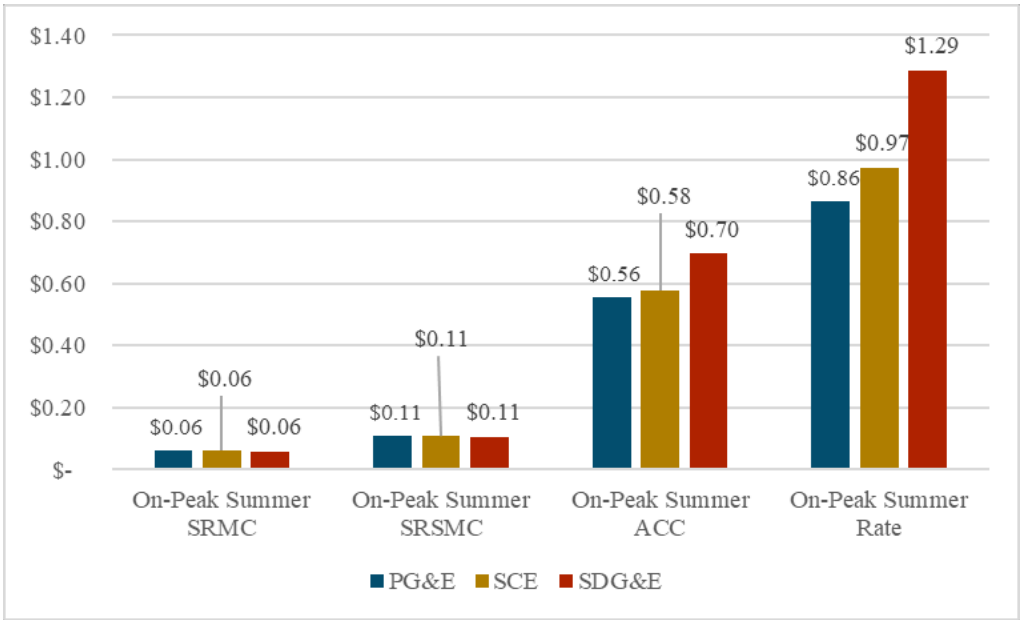
causation principles. SEIA recommends incentivizing electrification by significantly reducing off-peak rates as long as they remain above marginal costs.[114] These recommendations rely on the incorrect assumption that MCAC is the only cost category that is ever fixed and would make on-peak rates untenably high to the point of causing material harm to many customers.

CalSSA and Clean Coalition refer to Flagstaff Research analysis to show that electrification-friendly rates can be developed by reducing off-peak rates and increasing on-peak rates. The hypothetical PG&E rate developed by Clean Coalition has a summer on-peak rate of about $0.87 per kWh.[115] TURN/NRDC calculated similar hypothetical rates for all utilities if fixed charges are capped at SEIA's levels and off-peak rates are set at the levels described in the TURN/NRDC proposal (which, for example would be around $0.21 to $0.25 per kWh for PG&E). We then compared these new Summer On-Peak rates with an estimate of summer on-peak short run marginal costs (SRMC), summer on-peak short run social marginal costs (SRSMC) and CPUC avoided costs (ACC) for a sample climate zone in each utility.

[114] SEIA Comments on ALJ Ruling at 9. "The Commission should take the opportunity here to adopt a clear policy that reducing off-peak rates should be the focus of rate changes designed to incentivize beneficial electrification. An important first step would be to use IGFC revenues primarily or entirely to fund reductions in the off-peak rates in the IOUs' default residential rates." And "SEIA, however, cautions the Commission that there are limits to the idea of focusing IGFC revenues on off-peak rate reductions. Most important, the resulting off-peak rates should be at least high enough to cover marginal energy and marginal grid-related distribution costs."

[115] CalSSA Comments on ALJ Ruling at 27.

Figure 2 Hypothetical On-Peak Summer Rate When Average Fixed Charge Equals SEIA Proposal and Off-Peak Rates Equal TURN/NRDC Proposal[116]



This proposal would lead to Summer On-Peak rates that are 12 to 20 times higher than short run marginal costs, and 1.5 times higher than ACC values weighted by usage. The SRMC represent the hypothetical low end of on-peak rates and the ACC represent the upper bound. These high ACC values are a consequence of how capacity, transmission & distribution costs are determined and allocated to a small set of summer on-peak hours. Loading majority of fixed costs to summer on-peak rates results in much higher rates compared to what is justified based on cost causation principles. If this proposal's rationale would be applied to TURN/NRDC electrification rates, Summer On-Peak rates will be even higher.

If such a rate proposal is applied to default rates, default rates will become needlessly inefficient and will cause harm and reduced welfare. Using this proposal to develop optional electrification rates will avoid this harm, but it will still be needlessly inefficient. Imposing such high rates during peak summer periods, when Californians with electrification technologies need to use electricity to cool their homes, could have severe bill impacts and are not aligned with the costs to produce electricity during these periods (and related externalities. The parties offering this suggested alternative electrification rate have offered no analysis with respect to the bill impacts of

[116] Short run marginal costs are equal to generation plus losses; short run social marginal costs are equal to short run marginal costs plus environmental externalities. This method is consistent with TURN/ NRDC Opening testimony, detailed methodology provided in Appendix to TURN/NRDC Opening Testimony. Analysis file available at this link.

such a high on-peak rate. Moreover, if customers respond by reducing electricity consumption sharply during on-peak summer hours, maintaining the proposed off-peak discounts may require raising rates even more during on-peak hours (until a new demand-supply equilibrium is reached). This approach is simply not realistic or stable and would likely trigger major customer dissatisfaction.

C. TURN/NRDC IGFC Proposal Will Not Impair Incentives for Distributed Generation and Energy Efficiency

If the TURN/NRDC proposal is adopted, there will still be very strong incentives for both efficiency and distributed generation. Under our proposal, residential volumetric electric rates would return to the levels in effect in 2020. Unfortunately, California utility volumetric rates would still be among the highest in the nation. Since the IGFC may not completely be instituted until 2026, volumetric rates would be expected to rise significantly beyond 2020 levels even after the IGFC is instituted. These high volumetric electricity prices provide very strong incentives for customers to reduce their bills by conserving, adopting energy efficiency measures and installing rooftop solar plus storage.

California's new rooftop solar and storage policy, called the Net Billing Tariff or NBT, is based on an assumed payback period of around nine years for new solar and paired energy storage systems. This payback period is achieved, in part, through a pre-determined subsidy level added to export compensation. TURN/NRDC recommend that this subsidy be re-calculated if needed to ensure the same payback window for new solar and storage systems under an IGFC. A major part of a customer's bill savings would be realized through self-consumption which will yield savings at the retail rate during the relevant time of use period.

Customers adopt energy efficient appliances and rooftop solar plus storage for many reasons. These include environmental values, superior service from energy efficient products, bill savings, and using solar plus storage as backup power in case out of power outages.[117] Reforming electric rates will impact potential bill savings but will not impact all the other benefits. Finally,

[117] As the American Council for an Energy Efficient Economy (ACEEE) explains: "Energy efficiency programs can also directly improve health, comfort, and safety for households and businesses. A typical program may include replacing outdated appliances, improving heating and cooling, upgrading lighting and insulation, and sealing out cold drafts. For many households, these non-energy benefits are the primary motivations for implementing efficiency upgrades." See page 9 here: https://www.aceee.org/sites/default/files/publications/researchreports/u1604.pdf

utility energy efficiency incentives are offered for measures that are cost-effective as determined by the CPUC's Total Resource Cost test (TRC). The TRC is a function of the ACC and the incremental costs of the energy efficiency measure. Changing rates will not impact which measures are found cost-effective per the TRC and are eligible for utility energy efficiency incentive programs.

D. Inconsistent Arguments on How Customers will Respond to IGFC Should be Rejected; History Shows that it's Possible to Explain Marginal Rates to Customers

CESA states that the "reality is that most customers respond to the total bill" as opposed to their marginal rate, citing research by Koichiro Ito.[118] In the cited research, the average rate is defined as monthly bill divided by total usage.[119] CESA also states that reducing the electricity price would increase consumption due to the negative elasticity of electric demand (i.e. when price goes down, consumption increases). SEIA similarly argues that any IGFC will reduce the volumetric rate and cause increased consumption and that customers will be confused by a major spike on their electric bills because they will not understand the difference between volumetric rates and fixed charges.[120]

These arguments are inconsistent. If customers only respond to their average rate, as CESA states, then only those customers that see a decrease in their bill post-IGFC will think their average rate has decreased. Those customers that see an increase in their bill post-IGFC will see think their average rate has increased. Based on this understanding, some customers would be expected to consume more electricity after the IGFC is enacted and some customers would be expected to consume less electricity due to perceptions of the change in their average rate. The increase in peak demand among some customers due to the decrease in their perceived average rate (specifically customers in the low IGFC tier) may very well be offset by the decrease in peak demand among others (customers in the high IGFC tier) who believe their average rate has increased. These effects are not considered by CESA or SEIA. Instead, both parties limit their analysis to volumetric rates and ignore the impact of any fixed charge on customer bills.

If SEIA's concerns about the inability of customers to understand the new structure of rates are valid, , it is illogical to also assume that customers will adjust their consumption solely on

[118] CESA Rebuttal Testimony, at 6 lines 18 through 20.
[119] See Attachment 2, CESA Response to TURN/NRDC data request.
[120] SEIA Comments to ALJ Ruling at 7,15.

the level of the volumetric rate. Instead, customers should be expected to react to their total bill. If customers react to the total bill, there is no basis for concluding that the IGFC will drive net increases in peak demand.

With the correct marketing, outreach, and education, most customers will adapt to the new rate structure. The rooftop solar industry has successfully explained the legacy tiered rate structure, marginal rates, and marginal savings to customers that took up service under NEM 1.0, as illustrated by the marketing materials in Attachment 3. As TURN/ NRDC explain in rebuttal testimony, maintaining consistent and meaningful Time of Use signals will help manage peak load even as volumetric rate decreases due to the IGFC. Ultimately, with a well-designed IGFC and California's suite of other electrification and energy efficiency policies in place, customers will have a clear economic incentive to switch from gas appliances and vehicles to clean, electric, and efficient alternatives, with behaviors that respond to time-of-use signals, supporting a clean and reliable grid.

E. The Economics of Grid Defection Under the TURN/NRDC Proposal are almost the same as the SEIA Proposal: Minimal to Non-Existent

The TURN/NRDC opening comments explain that one possible criterion to determine the cap on the IGFC for the highest tier customers could be the point at which grid defection makes economic sense.[121] The fixed charge should not be so high that customers are sufficiently motivated to abandon the high-income tier and disconnect entirely from the grid. Such an outcome would make it more difficult to recover costs of the grid and reduce low-income customers electricity bills. SEIA raised the concern in reply testimony that one of the "likely impacts" of the TURN/NRDC proposal would be "large rate increases for higher-income customers [that] will increase the potential for significant grid defection."[122]

In a response to an information request, SEIA's modelled grid defection results of the TURN/NRDC proposal do not demonstrate cause for concern.[123] In tables modelling payback periods for solar and storage with natural gas or electric vehicle backup, there is very little or no difference in the results from SEIA and TURN/NRDC IGFC proposals. Assuming the 2025 NREL annual technology baseline for solar and storage costs, for example, paying off a solar, storage and

[121] TURN/NRDC Comments on ALJ Ruling, 21.
[122] SEIA Reply Testimony, 5, lines 8-16.
[123] See Attachment 1, SEIA Response to Data Request TURN-NRDC-1 (004) at 4-5.

natural gas backup system would take 11-13 years under the TURN/NRDC proposal and 11-14 years under SEIA's proposal in PG&E territory; 10-12 years versus 10-14 years in SCE territory; and 7-8 years versus 7-9 years in SDG&E territory. In other words, payback periods under the TURN/NRDC proposal decrease by no more than two years for lower usage customers and not at all for higher usage customers. It is simply not credible to claim that this minor difference would "increase the potential for significant grid defection." Instead, the TURN/NRDC proposal would deliver *significantly* higher bill savings for low-income customers without noticeably increasing grid defection risk.

It is also worth noting limitations to the modeling that may overstate the risk of grid defection. Many homeowners would not, for example, have access to the electric vehicle Vehicle 2 Home (V2H) backup technology which SEIA acknowledges "is just beginning to emerge" on the market.[124] Relying on backup natural gas generation requires permitting, which can cost hundreds of dollars,[125] an expense SEIA did not incorporate in its model. Further, payback periods alone do not tell the full story of customer likelihood to pursue grid defection, including comfort with off-grid energy reliability and the effort required to fully 'cut the cord' with a utility.

[124] See Attachment 1, SEIA Response to Data Request TURN-NRDC-1 (004), at 6.
[125] For example, the permit fee for a natural gas backup generator was $277.75 in Placer County, California, as of July 2023: "Building Department Fee Schedule." Placer County. July 23, 2022. https://www.placer.ca.gov/DocumentCenter/View/62851/2022-Building-Fee-Schedule-

VI. Conclusion

TURN and NRDC appreciate working with the Commission and stakeholders on this landmark proceeding.

Respectfully submitted,

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Dated: August 21, 2023

Attachment 1: SEIA Response to TURN/NRDC Data Request #1

SEIA Response to
TURN/NRDC Data Request #1
R.22-07-005

August 4, 2023

1. Pages 8-9 of SEIA's rebuttal testimony states that:

"The Joint IOUs propose to reduce summer on-peak volumetric residential default rates by an average of -26%. This will increase the summer peak residential demand of the IOUs by +3.4% in the short-run and by +13% to +26% in the long-run, assuming a short-run price elasticity of electric demand of -0.13 and a long-run elasticity of -0.5 to - 1.0. Today's residential peak demand for the three IOUs in the net load peak hours is about 17,000 MW, based on the residential load profile data in the E3 Tool. Thus, if the Joint IOU proposal is adopted, demand in the net load peak could be expected to Increase by 575 MW immediately and by 2,200 to 4,400 MW over time. This contrasts to the SEIA proposal, which would increase short-run demand by just 130 MW and long-run demand by 500 to 1,000 MW."

   a. Does SEIA's analysis consider the impact of increased average residential rates through 2026 prior to the implementation of an IGFC on residential peak demand?

Response: Yes. SEIA's statement considers how residential load, as modeled in the E3 tool, might increase due to demand elasticity and lower volumetric rates resulting from a new residential IGFC. The Commission has asked all parties to use the E3 tool to estimate bill impacts and rates under their proposed IGFC structures. The E3 tool is based on a snapshot of 2023 rates and bill impacts (i.e. it does not include a forecast). Nonetheless, it provides a reasonable initial estimate of bill impacts in future years such as 2026 – in terms of the percentage changes in customer rates, which are what drive the impacts on customer demand – under the reasonable starting assumption that all of the elements in rates escalate at the same rate. In other words, the percentage changes in rates in 2026 will be the same as what E3 models for 2023 if (1) the overall escalation in rates and (2) the escalation in the IGFC from 2023 to 2026 are the same. SEIA believes that this is a reasonable starting assumption to make and is consistent with the Commission's direction to the parties to use a common modeling approach in this proceeding.

SEIA observes that this case will be greatly complicated if the Commission has to adjudicate different rate forecasts for years beyond 2023. The following factors that will impact 2026 rates would need to be considered:

- Future inflation;
- Future natural gas prices for electric generation;
- The pace of future load growth, including due to electrification;
- Impacts of the near-record snowfall in 2022-2023, the resulting high hydro output in 2023, and replenished water storage in reservoirs;

- Increasingly volatile weather conditions in California and across the western U.S., due to climate change;
- Possible changes in the resource mix, such as slower growth in customer-sited solar and storage due to the new net billing tariff adopted in D. 22-12-056, which may increase loads served from the grid.

Some of these factors will increase rates; others will reduce them. Given all of these complexities and uncertainties, it is unclear whether and in which direction an analysis of 2026 peak load impacts would differ from the analysis of conditions in 2023 that SEIA has presented, using the Commission-specified E3 tool. SEIA believes that the common modeling platform that the Commission has adopted, based on 2023 rates, is reasonable for the purposes of this case.

b. If the answer to (A) is no, please use the same methodology contained in SEIA's rebuttal testimony to calculate changes to residential peak load (relative to the 17,000 MW demand cited in SEIA's testimony) under a scenario that assumes escalating average residential rates through 2026 and explain the basis for the assumed escalator.

Response: See response to Q1(a).

2. SEIA rebuttal, page 20 lines 6 – 11, recommends lower off-peak rates as an effective alternate strategy to induce beneficial electrification compared with IGFCs that reduce rates at all TOU periods.

    a. Does SEIA agree that if volumetric rate reduction achieved via IGFCs were applied to only the off-peak periods, this approach would provide further encouragement for beneficial electrification relative to SEIA's proposal?

Response: Yes. SEIA supports the approach of applying IGFC revenues to reduce off-peak rates only – particularly in the "TOU-lite" residential default rates – so long as the resulting off-peak rates are above marginal costs. As explained in SEIA's opening comments, at pages 7-10, SEIA expects such an approach would promote increased electrification loads in off-peak periods, while avoiding system stress in on-peak periods.

    b. Would applying all volumetric rate reductions achieved via the IGFC to off-peak rates, and making minimal changes to on-peak volumetric rates (SEIA rebuttal page 21 lines 6 – 12), limit increases in on-peak usage and thereby limit grid and capacity expansion costs?

Response: Yes.

3. SEIA recommends applying the California Climate Credit (SEIA rebuttal page 23 lines 5 – 11) to provide more savings to low-income customers.

a. Does SEIA agree that allocating a greater share of the Climate Credit to low income customers would result in bill increases for all other residential customers?

Response: Yes, because other customers would receive a smaller share of CCC funds. This is no different than the bill reductions for low-income customers from IGFCs, which are also funded by higher-income ratepayers.

b. Would the SEIA recommendation change if the total available funding to support the Climate Credit decreases in future years?

Response: No. The SEIA proposal notes that the use of only 50% of the California Climate Credit (CCC) funds for low-income bill reductions would produce the same benefits for low-income customers as the Joint IOU proposal for extremely high IGFCs. SEIA would give first priority to the use of CCC funds for low-income bill reductions. As a result, there would have to be a dramatic reduction in available CCC funds before there would be a need to cut low-income bill reductions. CCC funds may decline slowly as the state's GHG emissions drop, but a 50% drop in emissions will take at least a decade to accomplish, and, even if emissions drop by 50%, CCC funds may not decline by 50% if allowance prices increase as carbon emission constraints tighten.

c. What other sources of funds would SEIA recommend be used to finance savings for low-income customers?

Response: Other sources of funds to finance low-income customer bill savings include: (1) IGFC revenues from higher-income customers, or (2) direct benefits from participation in low-income community solar programs (such as the Net Value Billing Tariff community solar program recommended in A. 22-05-022 by the Coalition for Community Solar Access [CCSA], pursuant to AB 2316). In addition, SEIA notes that the CARE and FERA programs will continue to provide bill savings to low-income customers and that AB 205 expands the effective bill reductions for CARE customers, as discussed at pages 12-13 of SEIA's opening comments.

4. On page 55-56 of SEIA's rebuttal, SEIA states that "primary distribution facilities that are installed are dependent to a significant extent on the size of the loads that are served, as shown by the fact that these marginal costs are calculated per kW of load served."

a. Can the marginal costs of primary distribution facilities also be calculated per kWh of load served or per customer served?

Response: Such a computation would only be appropriate if kWh of customer load, or the number of customers, was the key driver of marginal primary distribution costs. An increment of off-peak kWh load, or the addition of a new residential customer, is unlikely to cause

distribution system constraints requiring capacity expansion. In contrast, an increment of peak kW of demand on the distribution system is the key driver of investments in the primary distribution system. kW of peak demand at the distribution level has been used as the driver of marginal primary distribution costs in California electric rate design for many years.

There are applications where marginal primary distribution costs are expressed on a $ per kWh basis, by hour – for example, in the Avoided Cost Calculator. This is because the $ per kW marginal cost has been allocated to the small set of hours of the year when peak demands occur on the distribution system.

b. Has SEIA analyzed potential changes in marginal primary distribution costs if new customer load increases by 10% (both in kWh and kW)?

Response: SEIA has not estimated potential changes in marginal primary distribution costs if new customer load increases by 10%, in terms of increases in either energy or demand. Generally, SEIA would expect that, if customer loads (in kW) in peak periods are growing rapidly, marginal primary distribution costs will increase, because increasingly more expensive system upgrades will be needed to serve the growing marginal demand.

5. On page 5, lines 8-16, of rebuttal testimony, SEIA states that one of "likely impacts" of the NRDC/TURN proposal is "large rate increases for higher-income customers [that] will increase the potential for significant grid defection."

a. On page 40 of SEIA's rebuttal, tables 10a-10c, SEIA presents the results of its grid defection model for proposals from Sierra Club and the Joint IOUs. Has SEIA completed similar modeling for the NRDC/TURN proposal, and if so, what are the results?

Response: Yes. See the following **Tables 1-3**. We used the Grid Defection model provided in SEIA's rebuttal workpapers to generate these results.

Table 1: *Grid Defection Model Results – Paybacks (years) – PG&E*

Off-the-grid System	**Cost Case**	**NRDC/TURN IGFC Proposal**			**SEIA Proposal**		
		Annual Usage *(kWh/yr)*			**Annual Usage** *(kWh/yr)*		
		6,000	7,500	9,000	6,000	7,500	9,000
Solar + Storage Natural gas backup	Current	19	18	17	21	19	17
	Low	17	16	15	18	16	15
	2025 ATB	13	11	11	14	12	11
Solar + Storage EV V2H backup	Current	17	16	15	16	15	14
	Low	14	13	13	14	13	12
	2025 ATB	10	9	9	10	9	8

Table 2: *Grid Defection Model Results – Paybacks (years) – SCE*

Off-the-grid System	Cost Case	NRDC/TURN IGFC Proposal			SEIA Proposal		
		Annual Usage *(kWh/yr)*			Annual Usage *(kWh/yr)*		
		6,000	7,500	9,000	6,000	7,500	9,000
Solar + Storage Natural gas backup	Current	18	16	15	21	18	16
	Low	16	14	13	18	15	14
	2025 ATB	12	10	10	14	11	10
Solar + Storage EV V2H backup	Current	16	14	13	17	15	14
	Low	13	12	11	14	13	11
	2025 ATB	10	8	8	10	9	8

Table 3: *Grid Defection Model Results – Paybacks (years) – SDG&E*

Off-the-grid System	Cost Case	NRDC/TURN IGFC Proposal			SEIA Proposal		
		Annual Usage *(kWh/yr)*			Annual Usage *(kWh/yr)*		
		6,000	7,500	9,000	6,000	7,500	9,000
Solar + Storage Natural gas backup	Current	13	12	11	14	12	11
	Low	11	10	9	12	10	9
	2025 ATB	8	7	7	9	8	7
Solar + Storage EV V2H backup	Current	10	9	9	10	9	8
	Low	9	8	7	9	8	7
	2025 ATB	6	5	5	6	5	5

Also, in preparing this response, we discovered that Table 10c in our rebuttal testimony mistakenly showed the grid defection results for California Public Advocates instead of Sierra Club / CEJA. Here is a corrected Table 10c, in redline, which we will include in an upcoming errata.

Table 10c: *Grid Defection Model Results – Paybacks (years) – SDG&E*

Off-the-grid System	Cost Case	SDG&E IGFC Proposal			Sierra Club IGFC Proposal		
		Annual Usage *(kWh / yr)*			Annual Usage *(kWh / yr)*		
		6,000	7,500	9,000	6,000	7,500	9,000
Solar + Storage Natural gas backup	Current	13	12	12	~~14~~ 10	~~12~~ 10	~~11~~ 9
	Low	11	10	10	~~12~~ 9	~~11~~ 8	~~10~~ 8
	2025 ATB	8	8	7	~~9~~ 7	~~8~~ 6	~~7~~ 6
Solar + Storage EV V2H backup	Current	11	11	10	~~11~~ 8	~~10~~ 8	~~9~~ 7
	Low	10	9	9	~~9~~ 7	~~8~~ 6	~~8~~ 6
	2025 ATB	7	6	6	~~6~~ 5	~~6~~ 4	~~5~~ 4

b. Has SEIA completed similar grid defection modelling for electric rates with SEIA's proposed fixed charges, and if so, what are the results?

Response: Yes. See response to subpart a.

c. SEIA's grid defection model, as shown on page 38, table 9, accounts for three cost cases for solar and storage, but only one cost case for a natural gas backup generator. Is this correct? What is the source for the $0.55/kWh operating cost?

Response: SEIA's costs for backup gas-fired generation use the operating costs a 10 kW Generac Guardian natural gas generator (see p. 38, footnote 54). The operating costs of $0.55 per kWh are developed in the "Gas Backup Gen" tab of the Grid Defection model. To be conservative, and to reflect the fact that the gas generator might have to follow the home's load, we used the half-load heat rate for the 10 kW Generac unit, from the Spec Sheet for the Generac unit. For fuel costs, we used the average PG&E residential natural gas rate for 2021-2022, including both commodity and transportation.

d. Does SEIA's grid defection model account for reliability disadvantages, product availability, or customer burden of "cutting the cord" with the utility? If so, please explain how these factors are considered.

Response: SEIA does not believe that a solar-plus-storage off-the-grid system, with a gas generator or V2H technology as backup, would necessarily be at a "reliability disadvantage" to utility service, whose reliability today is not 100% and is declining.

In terms of product availability, backup natural gas generators, such as the Generac unit modeled by SEIA, are widely available today. SEIA's grid defection study recognizes that V2H technology is just beginning to emerge in products such as the Ford F-150 Lightning pickup truck.

With respect to the "customer burden" of "cutting the cord," SEIA's grid defection model does calculate and include the costs that a grid defection customer will incur to maintain adequate reliability, including the cost of backup gas generation or of trips to EV public charging stations to bring kWhs home to refill the house's battery storage when solar production is inadequate. SEIA observes that there also are significant and growing costs to customers from unreliable utility service, which off-the-grid systems will avoid. EIA data shows that customer electric outages have doubled in the last decade, to seven hours per year, including "major events." See https://www.eia.gov/todayinenergy/detail.php?id=54639#:~:text=U.S.%20electricity%20customers%20averaged%20seven%20hours%20of%20power%20interruptions%20in%202021&text=On%20average%2C%20U.S.%20electricity%20customers,hour%20less%20than%20in%202020.

e. Does SEIA's grid defection analysis include the costs associated with permitting requirements for any gas-fired backup generation?

Response: No.

Attachment 2: CESA Response to TURN/NRDC Data Request #2

Response to TURN/NRDC Data Request #2 to CESA
Submitted July 21, 2023

Proceeding Number: R.22-07-005
Proceeding Name: Demand Flexibility OIR

Date: July 27, 2023

California Energy Storage Alliance
Rachel E McMahon
Vice President, Policy
California Energy Storage Alliance
Email: rachel@torageallliance.org

Response by:

Richard McCann
Partner
M.Cubed
Email: mccann@mcubed-econ.com

Q1. Page 9 of CESA's rebuttal testimony, lines 5 through 10 states:

"Instead, if as the utilities suggest that customers are price sensitive to the variable price alone and the energy charge drops from, for example for PG&E, an average of 34 cents per kWh to 22 cents (or 35%), with a typical short-term elasticity of -0.3, California Independent System Operator peak demand could rise as much as 10% or over 5,000 megawatts. Almost none of this increase would be for switching from fossil fuels to electricity because that is a long-term response not captured in the short-term elasticity estimate."

a. Please provide any workpapers or other calculations performed by CESA that support this calculation.

Response: The calculation is a "back of the envelope" estimate to show how the proponents of the IGFC have not accounted for the potential adverse effects of implementing such a rate change if consumers are price responsive in the way that the proponents assume. The workpaper for that calculation is attached as M3-CESA Peak Load Impacts.xlsx.

b. In performing this calculation, is CESA applying the assumed demand elasticity to the entire peak load for the CAISO balancing authority area, to the share associated with all PG&E customers, or to the share associated with PG&E residential customers that would be subject to any new fixed charges?

Response: The original calculation overlooked the adjustment to account for the residential share, which is about 50% according to the utilities' GRC Phase II workpapers. The revised estimate is 2,750 MW of increased peak load, of which less than 10% is likely to be due to electrification and 90% due to a general increase in usage. This estimate gives a reasonable order of magnitude change. Given that the state recently extended the life gas-fired of once-through cooling (OTC) amounting to about 2,500 MW of capacity to meet short-term reliability concerns,[1] this amount of added unanticipated peak load will likely stress the state's utility system even further.

c. How would CESA propose to calculate the impact on peak load if its elasticity estimate is only applied to the residential customers of the three investor-owned utilities participating in CAISO?

Response: The calculation is a "back of the envelope" estimate to show how the proponents of the IGFC have not accounted for the potential adverse effects of implementing such a rate change if consumers are price responsive in the way that the proponents assume. The workpaper for that calculation showing a simple method is attached as M3-CESA Peak Load Impacts.xlsx.

d. How does CESA's calculation of changes to residential peak load account for increases in average residential rates since 2022 that may occur through 2026 due to higher CPUC-approved utility revenue requirements? Please provide calculations showing changes to CAISO peak load if IGFCs are implemented in 2024, 2025 and 2026.

Response: The calculation is a "back of the envelope" estimate to show how the proponents of the IGFC have not accounted for the potential adverse effects of implementing such a rate change if consumers are price responsive in the way that the proponents assume. The calculation is illustrative using the changes in rates put forward by the joint utilities in their filing. The utilities, not CESA, possess the data needed for the more precise calculations that NRDC and TURN request. CESA does not argue that a change to the variable rate will induce a significant change in peak load—it is the proponents of the IGFC who claim that a reduced variable rate will induce increased electrification. The fact is that the IGFC does not provide a price change targeted at electrification, so the effect will propound broadly to all electricity uses that increase peak loads.

e. How do CESA's elasticity assumptions align with changes to historic CAISO peak demand and historic retail rates for residential customers of the three IOUs? Provide calculations showing the extent to which recorded

[1] See https://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/docs/2022/saccwis_report.pdf

historical CAISO peak demand has changed due to changes in tariffed volumetric rates for residential customers of the three IOUs.

Response: The calculation is a "back of the envelope" estimate to show how the proponents of the IGFC have not accounted for the potential adverse effects of implementing such a rate change if consumers are price responsive in the way that the proponents assume. The calculation is illustrative using the changes in rates put forward by the joint utilities in their filing. The utilities, not CESA, possess the data needed for the more precise calculations that NRDC and TURN request. CESA does not argue that a change to the variable rate will induce a significant change in peak load—it is the proponents of the IGFC who claim that a reduced variable rate will induce increased electrification. The fact is that the IGFC does not provide a price change targeted at electrification, so the effect will propound broadly to all electricity uses that increase peak loads.

Q2. Page 6, lines 18 through 20, of CESA's rebuttal testimony states that the "reality is that most customers respond to the total bill" as opposed to their marginal rate, citing research by Koichiro Ito.

a. The research by Ito states that customers respond to their average rate, or total bill divided by total energy consumed. Does CESA agree with this interpretation?

Response: Yes.

b. Is it CESA's understanding that the average rate will only decrease for those residential customers that experience a decrease in their total bill after the adoption of any income-graduated fixed charge?

Response: Yes. And the distribution of customers who will experience decrease in their bills will likely be those customers who already have above average electricity use, so a percentage change in their usage will result in a large absolute change in general electricity use than the decrease in usage for those customers will likely see an increase in rates with lower than average use.

c. Is it CESA's understanding that the average rate will only increase for those residential customers that experience an increase in their total bill after the adoption of any income-graduated fixed charge?

Response: Yes. And the distribution of customers who will experience increase in their bills will likely be those customers who already have below average electricity use, so a percentage change in their usage will result in a smaller absolute change in general electricity use than the increase in usage for those customers will likely see a decrease in rates with higher than average use.

d. Has CESA performed any calculations as to potential changes in residential usage that would result from the adoption of different IGFC proposals assuming "customers respond to the total bill"? If yes, provide any such calculations.

Response: No. CESA doesn't have access to the customer data necessary to make that calculation. The proponents of the IGFC should prepare an estimate for their proposal and allow other parties to use those workpapers for their own calculations.

e. Does CESA agree that residential customers installing behind the meter resources have experienced the largest reductions in their total utility bills? Assuming the validity of research performed by Dr. Ito, how would usage by customers with behind the meter resources be expected to change as a result of reductions in their total utility bills?

Response: CESA is unable to answer this question because no benchmark is provided as to define "largest" and in response to what action.

Q3. On page 14, lines 5-6, of reply testimony, CESA recommends that fixed charges "be separated by multifamily and single-family service." Does CESA have a proposal for assigning and implementing fixed charges differently for single and multi-family accounts? If so, please provide any details relating to such a proposal.

Response: The paragraph above on page 13 describes how CESA proposes that the fixed charge can be developed from existing data on single and multi-family service connection costs:

The utilities each have detailed estimates of the costs for their TSM for different customer types, and the residential TSM costs have been litigated extensively in setting the mobilehome park master-meter discount. Both PG&E and SCE have gone so far as to distinguish between costs to serve multifamily and single-family residential customers. This information should be applied more broadly to establish the appropriate fixed charges that comply with Assembly Bill 205.

Attachment 3: Sunrun Marketing Materials

TAKE CONTROL OF YOUR ELECTRIC BILL WITH SUNRUN

You're in charge of your electric costs

This plan lets you customize your solar energy, and pay less on your monthly electric bill.

BRIGHTSAVE CUSTOM PLAN	
Sunrun rate:	$0.162
Upfront payment:	$0
Annual increase:	2.90%
Sunrun monthly bill:	$119
Remaining monthly electric bill:	$20
Estimated 20 yr savings:	$39,094

YOUR CURRENT UTILITY	
Offset electric rate:	$0.285
Upfront payment:	$0
Annual increase:	4.75%
Sunrun monthly bill:	$0
Remaining monthly electric bill:	$230
Estimated 20 yr savings:	$0

Angie's list
A LISTING

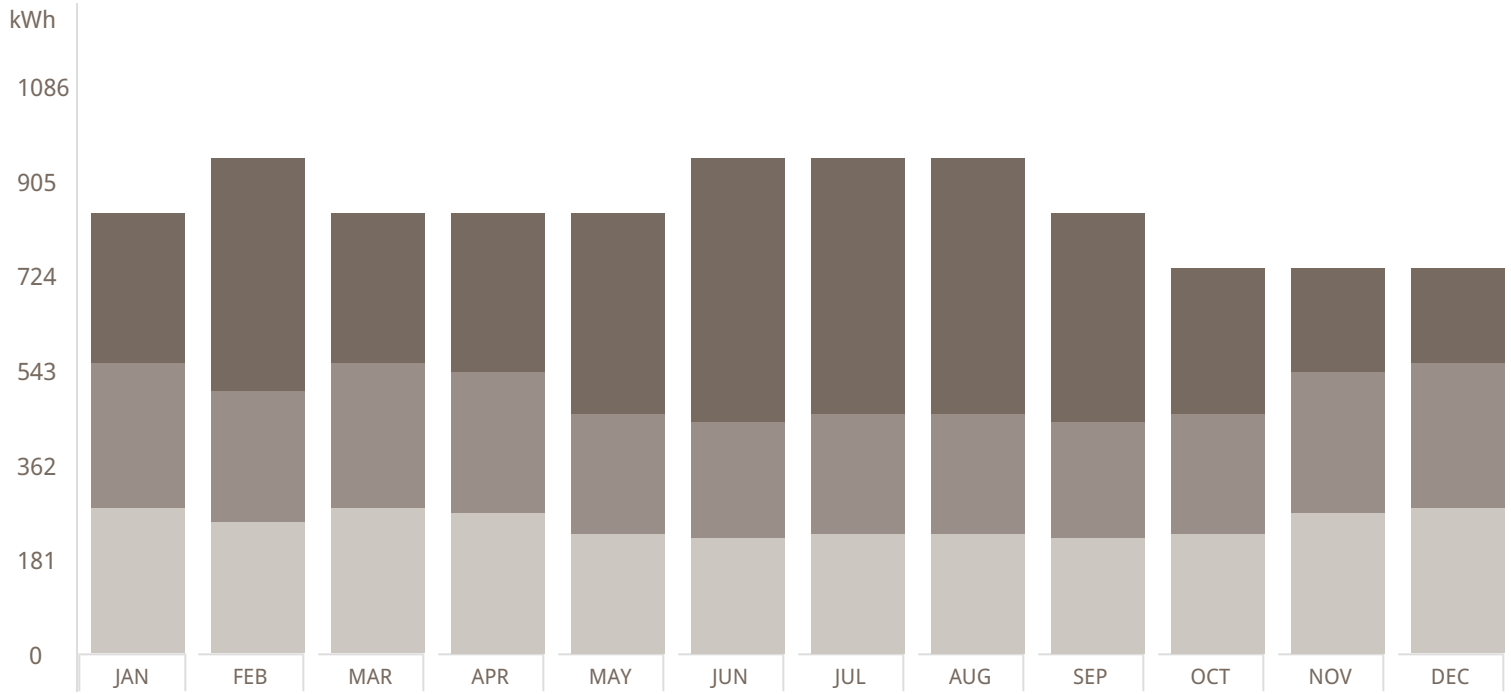
BBB RATING
A+

Proposal ID: PK1DCL4CFNF9 | Pricing valid until 10/17/2016

Please note this proposal is an estimate and does not guarantee actual system production or savings. The system design may change based on a detailed engineering site audit. Actual system production and savings will vary based on the final system size, design, configuration, utility rates, applicable rebates and your family's energy usage. Under Net Energy Metering ("NEM") 2.0, solar customers are required to be on a time-of-use tariff and to pay non-bypassable charges for all of their energy, including exports. This savings calculation assumes the customer is on rate tariff E-TOUA after going solar, and the post-solar bills are based on a typical customer's consumption and solar production load profile. CSLB License No. 969975 E

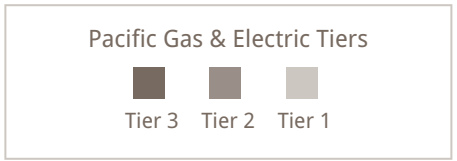
SUNRUN

SEE HOW YOU CURRENTLY PAY FOR ELECTRICITY



Let's break this down

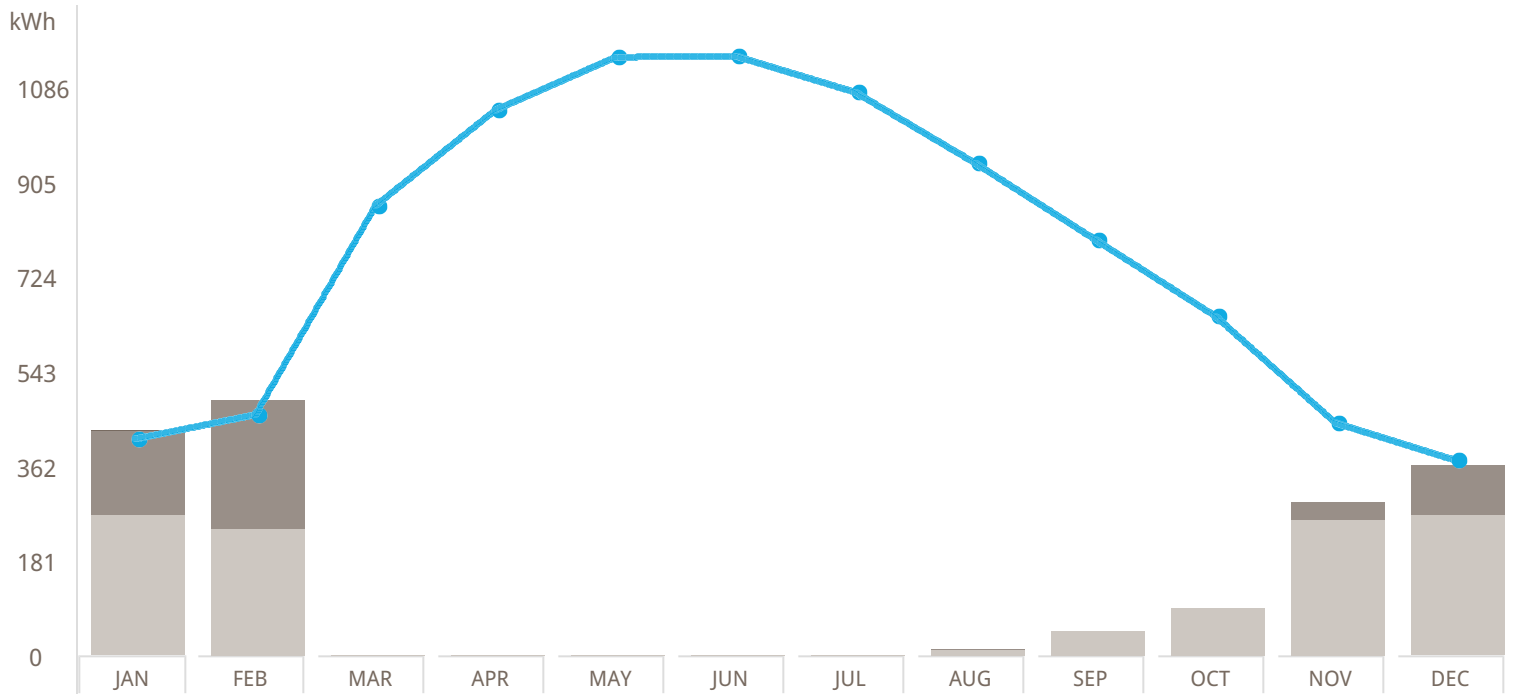
Currently you pay for energy across a tier platform. During peak periods you're paying at a higher tier, making energy more expensive. By using solar energy during these high-tier times, you use fewer kWhs from your electric company. This puts you in lower tiers and brings down your cost of energy. It's just that simple.



Proposal ID: PK1DCL4CFNF9 | Pricing valid until 10/17/2016

sunrun

SEE HOW MUCH YOU CAN SAVE WITH SUNRUN



Higher energy production = Lower utility bills

In the summer months, your system will produce more energy - that means you'll benefit with a lower utility bill. Plus, the extra energy your system produces will be converted into credits you can use in the winter, when your utility bill may be slightly higher.

Your estimated Pacific Gas & Electric bills

Tier 3 Tier 2 Tier 1

Energy produced by your Sunrun system

Proposal ID: PK1DCL4CFNF9 | Pricing valid until 10/17/2016

Please note this proposal is an estimate and does not guarantee actual system production or savings. The system design may change based on a detailed engineering site audit. Actual system production and savings will vary based on the final system size, design, configuration, utility rates, applicable rebates and your family's energy usage. Under Net Energy Metering ("NEM") 2.0, solar customers are required to be on a time-of-use tariff and to pay non-bypassable charges for all of their energy, including exports. This savings calculation assumes the customer is on rate tariff E-TOUA after going solar, and the post-solar bills are based on a typical customer's consumption and solar production load profile. CSLB License No. 969975 E

sunrun

SOLAR SUMMARY

SYSTEM INFORMATION

System size (kW DC):	6.89
Number of panels:	26
Panel Manufacturer:	Canadian Solar
Number of Inverters:	1
Inverter Manufacturer:	ABB
Year 1 estimated production:	8,819 kWh
Electric usage offset:	91%

UTILITY INFORMATION

Utility company:	Pacific Gas & Electric
Avg monthly elec bill:	$230
Annual elec usage:	9,700 kWh
Assumed utility rate increase:	4.75%

TERMS

Sunrun rate:	$0.162
Annual payment increase:	2.90%
Non-refundable signing payment:	$0.00
Agreement terms:	20 years
End of Term options:	Choice to renew, upgrade or free removal

ACH	Monthly payment shown include a $15 discount for paying through ACH withdrawal.

Proposal ID: PK1DCL4CFNF9 | Pricing valid until 10/17/2016

sunrun

Cash Flows

See How Your Savings Can Grow With Sunrun Solar Service^

^Assumes Pacific Gas & Electric rates rise at 4.75% per year. Actual savings may vary depending on future utility tier rate structure and rates, your usage, the system's production, and other factors.

UTILITY			CUSTOM		
Year	Old Pacific Gas & Electric Bill	New Pacific Gas & Electric Bill	Sunrun Bill*	Yearly Savings	Total Savings
1	$2,763	$235	$1,429	$1,099	**$1,099**
2	$2,894	$260	$1,470	$1,164	**$2,263**
3	$3,032	$286	$1,513	$1,234	**$3,497**
4	$3,176	$313	$1,557	$1,306	**$4,803**
5	$3,327	$343	$1,602	$1,382	**$6,185**
6	$3,485	$375	$1,648	$1,462	**$7,647**
7	$3,650	$409	$1,696	$1,545	**$9,192**
8	$3,824	$445	$1,745	$1,633	**$10,825**
9	$4,005	$484	$1,796	$1,725	**$12,550**
10	$4,196	$526	$1,848	$1,823	**$14,373**
11	$4,395	$570	$1,901	$1,924	**$16,297**
12	$4,604	$617	$1,957	$2,031	**$18,328**
13	$4,822	$667	$2,013	$2,142	**$20,470**
14	$5,052	$720	$2,072	$2,260	**$22,730**
15	$5,291	$777	$2,132	$2,382	**$25,112**
16	$5,543	$837	$2,194	$2,512	**$27,624**
17	$5,806	$901	$2,257	$2,647	**$30,271**
18	$6,082	$970	$2,323	$2,790	**$33,061**
19	$6,371	$1,042	$2,390	$2,939	**$36,000**
20	$6,673	$1,120	$2,459	$3,094	**$39,094**
TOTAL	**$88,991**	**$11,896**	**$38,001**	**$39,094**	**$39,094**

*Assumes automated clearing house (ACH) withdrawal is used for monthly payments. If payment is not made using ACH, this amount will be $180 higher per year.

 CSLB License No. 969975 Proposal ID: PK1DCL4CFNF9. Pricing valid until 10/17/2016.

Attachment 4: Public Advocates Office Response to TURN/NRDC Data Request #1

Public Advocates Office Response to TURN/NRDC Data Request #1
R.22-07-005(Data Request Date: August 10, 2023)
(Data Response Date: August 18, 2023)

Q1. On page 7 of comments in response to the ALJ's June 19, 2023 ruling, Cal Advocates writes: "Cal Advocates' IGFC proposal ensures reduced bills for low-income customers by an amount commensurate to appropriate reallocation of the CCC."

On Page 19 of Opening Testimony (Errata), Cal Advocates writes that: "Table 11 shows similar and significant average bill decreases for all Bracket 1 (lowest income) customers across each IOU, with $29-$37 and $15-$19 monthly bill reductions for non-CARE and CARE average-usage low-income customers, respectively. These significant bill reductions are realized by removing the non-CARE and CARE fixed charges to Bracket 1 customers from the Tool's bill impacts based on Cal Advocates proposal to use the CCC to offset the fixed charge for these customers."

a. In measuring the existing bills from which savings are achieved for low-income customers under an IGFC, how does Cal Advocates treat the existing CCC?

   The CCC credit is not part of a customer's tariff. It is something that occurs infrequently twice a year in varying amounts, so it does not constitute a bill component that customers expect. For these reasons, Cal Advocates did not include the existing CCC in the pre-IGFC bills for any proposed customer bracket. The CCC offset was included in "low-income" customers' post IGFC bill since Cal Advocates' proposal would apply the offset on a regular reoccurring monthly basis.

b. Are the modeled bill reductions for low-income customers additional to savings those customers would have realized under existing rates assuming no change in the allocation of the CCC?

   See response to part a and d.

c. If the answer to (b) is no, please identify the incremental savings (relative to current CCC allocation) for low-income customers under the Cal Advocates proposal?

   Cal Advocates did not calculate the savings from Cal Advocates' proposal compared to the current CCC allocation. See response to d for how Cal Advocates calculated savings.

d. How has Cal Advocates modeled the impacts of reallocating the CCC on the bills of non-CARE customers?

   Please see footnote 38 in Cal Advocates' Errata Testimony, Chapter 1, Section II.D on bill impacts. Here we explain how the E3 tool results are modified to apply the

reallocation of CCC funds to cover all Non-CARE and CARE IGFCs for customers in the low-income bracket. As such, the bill impacts shown in Appendix A are directly from the E3 Tool, which Energy Division directed to use in preparation of testimony. These Appendix A bill impacts do not include our proposed follow-up step of reallocating the CCC funds. You can see this additional step taken in Table 11, illustrating the significant bill savings this reallocation would create for all customers in the low-income bracket.[1]

Under Cal Advocates' proposal, fixed charges for the lower two income brackets in the E3 Tool, $0-$25,000 and $25,000 -$50,000, are zeroed out and the resulting savings are added to the Tool's bill impacts. Thus, the incremental savings due to the CCC would be equal to the IGFCs that are zeroed out for low-income customers. To illustrate, below are Cal Advocates' proposed IGFCs for low-income customers that would be reduced to zero with the CCC:

IGFCs to zero out for low-income customers (for income brackets $0-$25,000 and $25,000-$50,000 in the E3 Tool)	CARE IGFCs	Non-CARE IGFCs
PG&E	$10.20	$22.75
SCE	$10.83	$21.86
SDG&E	$13.70	$26.43

[1] See Table 11: Average Monthly Customer Bill Impact for each IOU by Income Group from the E3 IGFC Tool in Cal Advocates' Errata Testimony, Chapter 1, Section II.D on bill impacts, at 22.

Attachment 5: IOU Response to CPUC Energy Division Questions

Ashford, Sylvie

From: Andre Ramirez <Andre.Ramirez@sce.com>
Sent: Sunday, August 20, 2023 9:40 PM
To: matthew (turn.org); Chhabra, Mohit; Ashford, Sylvie
Cc: Robert A Thomas; colin.kerrigan@pge.com; Morien, Gwen R; James Whooley; Slocum, Gail (LAW)
Subject: FYI - IGFC info to ED from IOUs

Hi Sylvie, Matt and Mohit –
In the spirit of sharing info on the IGFC case, we wanted to forward our responses to a few questions from Energy Division regarding the IGFC and processes for CARE customer income verification.

While I know we don't agree on the approach for three tiers, you might find this info useful and perhaps it gives you more confidence that we can in fact execute this plan as a first step without having to separate non-CARE customers at this stage.

Regards,
Andre

Andre Ramirez
Sr. Advisor
Pricing, Design & Research - Regulatory Policy
Andre.Ramirez@sce.com
O: 626-302-5738
C: 925-413-3940

SOUTHERN CALIFORNIA EDISON® | Energy for What's Ahead™

In the IOUs' proposal for a first version of IGFCs, the IOUs proposed maintaining the distinction between CARE customers who make less than 100% of FPL and all other CARE/FERA customers. The ruling comments indicated that this could be implemented by using income data that is already on hand for some CARE customers and that the remaining income data can be obtained "through customer solicitations for the remaining CARE customers in time for First Version IGFC implementation".

1. **For how many CARE customers would you need to collect income data?**

The Joint IOUs are not suggesting that they would need to collect income data for all remaining CARE customers for which we do not already have data. The proposal is to solicit

the remaining CARE customers for whom we do not have data and seek income information to the extent those customers are in the "less than 100% of FPL" group.

IOU	# CARE customers	# with Income Data	# Remaining	% Remaining
PGE*	1,228,988	102,086	1,126,902	92%
SDG&E**	351,628	160,573	191,055	54%
SCE***	1,156,040	739,645	416,395	36%

*Electric customers as of July 2023; customer counts will continue to decline daily as data continues to be collected.
** As of April 2023
*** As of March 2023

2. **What method(s) would you use to reach out to them?**

In order to ensure CARE customers receive the opportunity to provide income information using low barrier methods for response, in addition to utilizing the CARE recertification process we would utilize additional ME&O methods. The CARE re-certification process has demonstrated a response and re-certification rate of approximately 50%- 80% as provided in Table V-9 in Opening Testimony.

Table V-9
CARE Recertification Non-Response Rates 2022

IOU	CARE Recertification Non-Response Rates 2022
PG&E	50%
SCE	20%
SDG&E	38%

Specifics for each IOU are detailed below:

SCE
Currently SCE's CARE/FERA application instructs customers who are categorically eligible for CARE to skip the section requesting income information. Similarly, in the web form and automated phone application processes, this step is skipped. SCE intends to file an advice letter with the Commission to revise our CARE/FERA application form to remove the instructions to skip that section and instead make that section optional, but recommended, for categorically eligible customers. SCE anticipates this will result in a higher percentage of CARE/FERA applications providing income data organically than is done in the current process.

Upon receipt of a final decision that includes using CARE/FERA stated income data to assess the IGFC bracket, SCE would conduct multi-touch, multi-channel outreach such as direct mail, email and partnerships with third parties and CBOs to reach CARE/FERA enrolled customers without income data and encourage them to provide their income data so that they can be accurately placed in the correct IGFC bracket. SCE

also intends to include messaging for these customers in the communications sent to all residential customers as part of the IGFC implementation.

PG&E
Like SCE and SDG&E, PG&E has updated the application and recertification forms for CARE and will be collecting income data here to forth to identify (greater 100% FPL) bracket customers.

After a Final Decision is reached, targeted efforts to collect additional income data from those CARE customers for whom we do not yet have information will be conducted. PG&E aims to make this as easy as possible for customers by collecting income data through online forms, email, phone and other channels that have proven successful in similar efforts. Additionally, the robust CBO outreach approach proposed in the original ME&O plan filing will be employed to support income data collection.

Aligned with the originally filed testimony, all customers will then be notified up to 120 days in advance of IGFC beginning. At that time, they will be notified of their income bracket and given a chance to recategorize themselves by providing proof of income and reassignment can take place if qualified.

PG&E expects this data gathering to be an ongoing process as new customers apply and enter the CARE program.

SDG&E
SDG&E will look into updating its CARE/FERA application in Q2 2024 to encourage all applicants to optionally provide household income and size. After the Commission issues a Decision, SDG&E would reach out to CARE enrolled customers for whom they do not have self-reported household income (approximately 54% of total customers) through targeted, multi-channel outreach efforts and by raising awareness of the First Version IGFCs during the Phase 1 Education & Awareness stage of Marketing, Education and Outreach.

As with SCE and PGE and in alignment with the original ME&O testimony, upon a final decision SDG&E would conduct a multi-touch, multi-channel outreach effort to engage CARE/FERA enrolled customers without income data and encourage them to provide their data so that they can accurately be placed within the IGFC bracket.

3. How much time will be needed for this process?

SCE
SCE plans to update the CARE/FERA application in 2023 in advance of a decision on the IGFC. We anticipate that we could complete the remainder of the actions described above in 12 months after the final decision is received.

PG&E

PG&E expects this data gathering to be an ongoing process as new customers apply and enter the CARE program. Our data gathering forecast is in the table below that only forecasts new application and recertification efforts (prior to additional ME&O deployment)

Year-End	% of All CARE Customers
Jun-2023	6%
2023	15%
2024	29%
2025	43%
2026	52%
2027	61%
2028	70%
2029	79%
2030	88%

SDG&E
SDG&E anticipates completing general awareness and targeted efforts within 12 months after the Final Decision is received.

4. What overall response rate are you expecting?

Based off CARE recertification rates, we believe it is reasonable to anticipate a high response rate given we have seen recertification response rates of 50%-80%. However, these recertification statistics represent all CARE customers that previously submitted a CARE application and there will be a subset of these customers eligible for the less than 100% FPL bracket.

In addition, customers may not be as willing to provide income information for a small discount on their fixed charge relative to ensuring they keep a 30-35% discount.

5. What bracket assignment do you propose for customers who do not respond?

CARE/FERA enrolled customers which have enrolled with categorical eligibility but which have not provided any income data as part of their application or in response to additional solicitations should be placed in the second "low income" bracket. This is reasonable because all categorical programs have income requirements which exceed 100% FPL. This also provides an incentive for customers to provide income data in addition to their categorical eligibility.

6. Is there any ME&O that would be needed for this specific element of IGFC implementation?

Yes - please see the response to question 2 for examples of outreach activities.