

















February 6, 2017 Richard Corey Executive Officer California Air Resources Board 1001 I Street Sacramento, CA 95812-2828

RE: California Joint Utility Group Comments on Proposed Electric Distribution Utility Allowance Allocation

Dear Mr. Corey,

Introduction

The California Joint Utility Group ("JUG")¹ respectfully submits this letter, on behalf of customer interests, to the California Air Resources Board ("ARB") regarding staff's methods for post-2020 allowance allocation to electric distribution utilities (EDUs) as presented in the 15-Day Modifications posted December 21, 2016. The JUG appreciates staff's availability for continued dialogue on the proposed changes to the Cap-and-Trade Program post-2020, and views the proposals in this letter as a step in that iterative process.

The JUG supports the amendments in the 15-day language that ensure the Renewables Portfolio Standard (RPS) component of the allowance allocation computation is applied to retail sales and not 'load including losses', which is consistent with the way compliance is calculated for the RPS Program. Additionally, the JUG supports ARB's proposal in the 15-day language that bases the allocation calculation on demand forecasts that do not include additional achievable energy efficiency (AAEE).

Despite these positive changes in the allowance allocation methodology, ARB's proposed EDU allocation spreadsheet shows that electric utilities will receive forty percent fewer allowances than necessary to cover their expected GHG emissions, and resulting Cap-and-Trade compliance cost burden for providing electricity to customers in California. The cost burden to ratepayers would be significant, which is inconsistent with the stated ARB policy objective that EDU allocations "reflect the expected ratepayer 'cost burden' associated with the cap-and-trade program emissions costs that [are] anticipated to be borne by the ratepayers for each distribution utility." ² The consequences of electric utilities not receiving a sufficient allocation include cost impacts to the state's business sector due to the increased cost of electricity, and having a chilling effect on electrification within the industrial and transportation sectors

¹ Southern California Edison, Pacific Gas & Electric Company, San Diego Gas and Electric, Sacramento Municipal Utility District, Northern California Power Agency, Pacificorp, Turlock Irrigation District, Modesto Irrigation District, M-S-R Public Power Agency

² https://www.arb.ca.gov/regact/2010/capandtrade10/res1042app1.pdf

due to the increased cost. Electrification will be necessary for the state to achieve its GHG emission reduction goals, so it is important that the cost of electricity remain affordable.

This JUG letter suggests improvements, on behalf of customer interests and facilitating the expanded use of electricity to help California meet its climate goals, to three main areas of the EDU allowance allocation structure laid out in the 15-day language. The aim of these recommendations is to minimize potential cost impacts to utility customers that could result from insufficient allowance allocation. Adopting the changes proposed in this letter will help ensure that the cost of the State's climate policies will not unduly impact California households, and will further enable EDUs to continue investing in cleaner electricity resources, providing critical support to help the State meet its ambitious climate goals at an affordable cost. While the recommendations that follow come from a wide-ranging group of California electric utilities, it is important to keep in mind that utilities of different sizes and governance structures are affected differently by the regulatory changes proposed in the 15-day language, in some cases smaller utilities may be hit hardest relative to their total EDU allocation. This letter addresses three key issues that warrant ARB's immediate attention:

- 1. **Rapid Rate of Allocation Decline** –The current proposal entails a precipitous annual reduction in allocation of approximately 7 to 9% between 2021 and 2030 due to reliance on both a cap adjustment factor (CAF) *and* a ramp up to a 50% RPS. This is approximately double the overall adjustment in the Cap over the 2021 to 2030 period, and constitutes a double counting of expected GHG reductions by the energy sector. Consequently, the JUG recommends that the ramp from 33 to 50% RPS be removed from the allocation methodology;
- 2. **Mitigating the Allocation "Program Transition Cliff" in 2021** ARB's proposed EDU allocation methodology results in a reduction in allocation between 2020 and 2021 that is greater than 50% for many EDUs. The JUG believes this is inconsistent with the allocation principles of covering the customer cost burden, and a desire to avoid abrupt increases in ratepayer costs due to carbon pricing. Understanding that this change reflects changing load and resource projections, the JUG recommends that the shock be reduced by phasing in the change over four years, from 2021 through 2025, so that the year to year change in EDU customer cost burden is significantly diminished.
- 3. **Electrification of Transportation and other End Uses** Utility customers should not shoulder additional compliance costs due to the implementation of electrification measures, which will necessarily increase electric generation but achieve net emission reductions from a societal perspective. Without a clear mechanism that awards credit for electrification initiatives, ARB would effectively impose additional costs to EDU customers for reductions achieved through electrification and reduce the incentive for EDUs to invest in electric vehicle infrastructure. JUG recommends that ARB continue work to develop allowance allocation rules and other regulatory mechanisms that are feasible to implement and that encourage vehicle electrification investments by EDUs in keeping with the spirit of SB350.

Without these changes, the JUG is concerned that the proposed allowance allocations will not serve the ARB's intent of mitigating the approximate cost burden levied upon utility customers as the role of electricity expands to help achieve the state's climate goals. The 2021-2030 EDU Allocation spreadsheet from ARB shows that the proposed allocation is forty percent below the expected emissions of EDUs by 2030 in the spreadsheet, far from covering the approximate Cap-and-Trade compliance cost. Because ratepayer costs are impacted not only by these Cap-and-Trade expenditures but also by the costs of complementary measures such as the 50% RPS, doubling of energy efficiency, and energy storage mandates, the JUG contends that sufficient allowance allocation on behalf of our customers is critical to manage the broader cost burden of the state's climate programs. The Electric Sector is in a unique

position to help the state achieve its emission reduction goals. California utility customers should not have to bear significant cost burdens associated with the investments required to meet California's low-carbon goals, especially if those increased costs are not necessary to maintain the environmental integrity of the Cap-and-Trade program.

Detailed Recommendations, Ratepayer Benefit, and Rationale

Section 1. Rapid Rate of Allocation Decline

The EDU allowance Allocation method proposed by staff results in a very steep year-to-year decline in allowances to EDUs, on the order of 7-9% per year, approximately twice what the decline would be if allocations just followed the economy-wide cap. This occurs due to reliance on *both* the cap adjustment factor (CAF) and the linear ramp of RPS attainment from 2021-2030 up to 50%.

JUG Recommendation: ARB hold RPS assumptions at 33% for 2021-2030 period in the allowance allocation methodology for EDUs.

CA Ratepayer Benefit: \$1.5 billion - \$5.7 billion³

Rationale: First, the JUG understands that application of the CAF is intended to signal that emission reductions consistent with the declining cap are to be considered by EDUs. The RPS Program ramp to 50% is a primary method of achieving the reductions necessitated by the CAF. Evidence that both the CAF and the RPS "ramp" go too far can be found in the 2021-2030 EDU Allocation spreadsheet from ARB, which shows that the proposed allocation resulting from the 15-day methodology is increasingly inconsistent with the expected emissions of EDUs in the spreadsheet, dropping to 40% below expected emissions by 2030. This level of allocation is far from consistent with the emissions cost burden.

Second, as the JUG noted in the letter sent on December 9th, the assumption that each EDU's Cap-and-Trade compliance burden will be reduced by the ramp up to 50% RPS by 2030 is inappropriate when determining allowance allocations. Not all RPS eligible electricity may directly reduce an EDU's carbon obligation under the Cap-and-Trade program. The JUG's December 9th letter described three areas where the RPS program may not result in emission reductions for EDUs: 1) up to 10% of the RPS target can be satisfied using unbundled renewable energy credits (RECs), which does not reduce the EDU's carbon obligation under the Cap-and-Trade program; 2) it is unclear that the RPS Adjustment, which was intended to be claimed by the EDU's to reduce their compliance obligation for the 15%-25% of the RPS that can be met with Portfolio Content Category 2 resources and many grandfathered resources, can be fully claimed; and 3) RPS eligible electricity that is directly delivered to a California Balancing Authority area satisfies the RPS requirement but may not reduce an EDU's carbon obligation if the electricity is not delivered all the way to the EDU's service territory.

Additionally, further reducing EDU allocation because of the utilities' required investment in renewable resources is inappropriate given the expected customer cost burden from these resources and the cost of the associated infrastructure necessary to reliably deliver renewable electricity to our customers. These costs, which are essential to help the state meet its emissions

³ Cumulative customer benefit in 2015 dollars across all CA EDUs, for the 2021-2030 period, range represents the Auction Floor (low), and APCR (high), no assumptions about inflation. Additional details and EDU-specific breakdown in Appendix A and B.

reductions goal, should be considered when determining the application of the RPS in the allocation methodology.

Finally, the way that the RPS path is applied in the proposed methodology to reduce allocations to EDUs is inconsistent with the manner in which the 2013-2020 EDU allocation was structured. The EDU allocation in the current period simply declined by the CAF as a sector, so that allocations to EDUs overall remained a consistent proportion representing about 25% of the total economy-wide cap as those declined over time. The proposed allocation structure in the 15-day language sharply departs from the prior method, with EDU-sector allocation representing just 17% of all program allowances by 2030. The electric sector can and will make GHG emission reductions, but will also contribute to reductions in other sectors via electrification activities. Increased electrification can lead to increasing EDU emissions, while achieving a net emission reduction from a societal perspective. Reducing allocation to EDUs disproportionately to the economy-wide decline in the cap does not recognize the important contributions that the electric sector is expected to make towards the State's overall GHG goals.

The JUG recommendation to hold RPS Assumptions at 33% for the protection of ratepayers would only require additional allowances representing 2.7% of the total economy-wide cap⁴, and would have significant impacts on reducing the final carbon cost pass through to customers, while still ensuring the environmental integrity of the Cap-and-Trade Program.

Section 2. Mitigating the Allocation "Program Transition Cliff" in 2021

The proposed allocation methodology results in a significant decrease in allocation between 2020 and 2021 – as much as 50% for many EDUs. This deep and abrupt reduction in allocation is inconsistent with ARB's stated policies of customer protection and avoidance of abrupt increases in customer costs related to carbon pricing and related complementary measures.

JUG Recommendation: The 'program transition cliff' should be reduced by a linear phasing-in of the change over 4 years, from existing 2020 EDU allocations to 2025 allocations as proposed by ARB in the 15-day language, so that the year-to-year change over that period in EDU customer cost burden is significantly diminished. ⁵

CA Ratepayer Benefit: \$445 million - \$2 billion⁶

Rationale: This dramatic decrease between 2020 and 2021 represents a potential shock to EDU finances and customer bills, since the allowance value provided to utilities will be strikingly different between one year and the next. Such abrupt changes may affect individual EDU plans for program spending and/or be reflected in increased customer bills (through increased rates and/or reduced biannual on-bill climate credits).

The JUG recommendation smooths the methodological transition over the first four years of the post-2020 period, and then aligns utility allocations with the new methodology for the remainder of the 2025-2030 period. This smoothing would lessen the impact of methodological changes

⁴ Supporting evidence in Appendix A; (or '2021-2030 cumulative additional allowances from the JUG recommendation to CA EDUs' / 'cumulative allowances 2021-2030 in economy-wide Cap in 15-day language')

⁵ To apply to all EDUs except those few utilities that receive an increased allocation between 2020 and 2021 (ex. SDG&E)

⁶ Cumulative customer benefit in 2015 dollars across all CA EDUs, for the 2021-2030 period, range represents the Auction Floor (low), and APCR (high), no assumptions about inflation. Additional details and EDU-specific breakdown in Appendix A and B.

during the program transition between 2020 and 2021, and would only require allowances representing approximately 1% of the economy-wide cap.⁷

Section 3. Electrification of Transportation and other End Uses

In order to meet the State's emission reduction goals in 2030 and 2050, electrification needs to be cost effective and electricity needs to remain a low cost alternative fuel for transportation and other end uses. In addition, electrification of the transportation and other sectors of California will yield substantial net reductions in criteria pollutants that will be needed for attaining ambient air quality standards for ozone and particulate matter under the federal Clean Air Act. This is clearly identified in the text of SB350, and the JUG believes more must be done to ensure that utilities and other interested parties are encouraged to pursue electrification opportunities.

Recommendation: ARB should work with utilities and other state agencies to implement a methodology that would properly credit electrification with Cap & Trade allowances, when that electrification results in cross-sector emission reductions.

Rationale: Under the proposed ARB allocation methodology, insufficient coverage of EDU emission cost burden will lead to significant increases in ratepayer costs, particularly in a tightening market where allowance prices may approach allowance price containment reserve (APCR) levels. This runs the risk of having a preemptive chilling effect on the needed electrification initiatives of public and private sector entities. Without a clear signal that EDU emissions from electrification will be appropriately and feasibly covered by allowances or a similar policy, it will be much more difficult for California to achieve its 2030 emission reduction target. It is important that ARB develop an effective regulatory framework to avoid discouraging the electrification of transportation and other sectors of the California economy as proposed in the recent Scoping Plan Update. Key components of this framework will include recognition that most forms of electrification cannot economically or practically be accompanied by sub-metering programs, and requiring such sub-meters acts as a barrier to implementation.

The ARB should recognize that in the long run electrification has significant positive implications for environmental justice. Transportation electrification will not only reduce emissions from automobiles and trucks in and near disadvantaged communities, but over time over time reduce the demand for refinery fuels, leading to likely emission reductions from stationary sources in that sector, bringing benefits to disadvantaged communities surrounding those facilities. Policies to incent electrification should be a key environmental justice consideration.

The JUG recommends that ARB keep this "big picture" perspective in mind as it develops the post-2020 allowance allocation rules for the electricity sector with regard to carbon-reducing electrification.

Conclusion

Member companies of the Joint Utility Group appreciate the continued dialogue with ARB staff and management on these important issues. JUG members urge ARB staff to include the proposed changes to the EDU allowance allocation methodology. Thank you for your time and for your careful consideration of these issues.

⁷ Supporting evidence in Appendix A; 26.2 million allowances/ 2.6 Billion allowances (or '2021-2030 cumulative additional allowances from the JUG recommendation to CA EDUs' / 'cumulative allowances 2021-2030 in economy-wide Cap in 15-day language')

CC: Rajinder Sahota Steve Cliff Edie Chang Mary Jane Coombs Jason Gray Michael Gibbs

Appendix A. EDU Allocation Analysis Implementing JUG Recommendations

ARB - Current Proposal	in 15-day Lang	uage (allow	ances millio	ons)										
EDU	2020 in Regulation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Cumulative		
PG&E	22.64	15.56	14.43	13.64	12.88	11.51	16.43	15.04	13.75	12.51	11.30	137.05		
LADWP	11.68	9.66	9.01	8.39	7.71	7.41	7.01	5.23	3.63	3.30	2.98			
SCE	24.7	22.86	21.39	20.21	18.72	17.31	16.18	14.81	13.51	12.26	11.05			
SDG&E	6.14	6.16	5.79	5.48	5.11	4.74	4.45	4.09	3.75	3.42	3.10	-		
SMUD	3.19	2.51	2.34	2.22	2.05	1.89	1.78	1.62	1.48	1.35	1.22	,		
SCPPA (Excl. LADWP)	7.6	5.58	5.25	4.99	4.65	4.33	4.07	3.18	2.37	2.16	1.96	_		
TID	0.9	0.40	0.38	0.36	0.33	0.31	0.29	0.26	0.24	0.22	0.20			
Modesto ID	1.16	0.66	0.62	0.59	0.55	0.51	0.49	0.44	0.41	0.37	0.34	_		
NCPA Pacificorp	2.94	1.61	1.49 0.48	1.41 0.46	1.30 0.41	1.19 0.39	1.12	1.01 0.33	0.92	0.83	0.74			
Other	0.77 1.41	0.51	0.48	0.46	0.41	0.39	0.36	0.56	0.31	0.29	0.20	_		
All EDUS	83.14	66.40	62.01	58.54	54.45	50.25	52.79	46.58	40.88	37.18	33.55	502.62		
All LDO3	83.14	00.40	02.01	36.34	34.43	30.23	32.73	40.36	40.88	37.10	33.33	302.02		
Hold RPS Assumptions	@ 33% (allowan	ces millions,)					,		ļ.		ļ.		
EDU	2020 in Regulation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Cumulative	Cumulative Δ from ARB	
PG&E	22.64	15.91	15.46	14.96	14.78	13.92	19.02	18.05	17.12	16.18	15.21	_	23.56	
LADWP	11.68	9.76	9.30	8.76	8.24	8.08	7.74	6.07	4.57	4.33	4.08	-		
SCE	24.7	23.21	22.40	21.51	20.59	19.69	18.72	17.76	16.81	15.85	14.86	7		
SDG&E	6.14	6.24	6.04	5.80	5.56	5.31	5.06	4.80	4.55	4.29	4.03	-		
SMUD	3.19	2.55	2.48	2.40	2.31	2.23	2.14	2.04	1.95	1.86	1.77	7		
SCPPA (Excl. LADWP)	7.6	5.62	5.39	5.15	4.88	4.84	4.62	3.73	2.92	2.77	2.61	_		
5	0.9	0.41	0.40	0.39	0.38	0.36	0.35	0.33	0.32	0.31	0.29			
Modesto ID NCPA	1.16	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a 12.75	n/a	
Pacificorp	2.94 0.77	1.64 0.51	1.59 0.48	1.53 0.46	1.47 0.41	1.41 0.39	1.35 0.36	1.28 0.33	1.22 0.31	1.16 0.29	1.10 0.26			
Other	1.41	0.92	0.48	0.46	0.41	0.39	0.30	0.33	0.68	0.64	0.60	_		
All EDUS	83.14	67.43	65.02	62.39	59.99	57.54	60.60	55.55	50.87	48.07	45.15	572.61	69.99	
													30.00	
Straight-line smoothing	from 2020 to 2	025 (allowa	nces millio	nc)										
		OLS (UNOWU		,										
EDU	2020 in Regulation	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Cumulative	Cumulative Δ from ARB	
EDU PG&E	2020 in				2024 13.73	2025 11.51	2026 16.43	2027 15.04	2028 13.75	2029 12.51	2030 11.30	Cumulative	from ARB	
	2020 in Regulation	2021	2022	2023									from ARB	
PG&E	2020 in Regulation 22.64	2021 20.41	2022 18.19	2023 15.96	13.73	11.51	16.43	15.04	13.75	12.51	11.30	148.82	from ARB 11.78	
PG&E LADWP SCE SDG&E	2020 in Regulation 22.64 11.68	2021 20.41 10.83	2022 18.19 9.97	2023 15.96 9.12	13.73 8.26	11.51 7.41	16.43 7.01	15.04 5.23	13.75 3.63	12.51 3.30	11.30 2.98	148.82 67.75	from ARB 11.78 3.40	
PG&E LADWP SCE SDG&E SMUD	2020 in Regulation 22.64 11.68 24.7	2021 20.41 10.83 23.22 n/a 2.93	2022 18.19 9.97 21.74	2023 15.96 9.12 20.26	13.73 8.26 18.78 n/a 2.15	11.51 7.41 17.31	16.43 7.01 16.18 n/a 1.78	15.04 5.23 14.81	13.75 3.63 13.51 n/a 1.48	12.51 3.30 12.26	11.30 2.98 11.05	148.82 67.75 169.13 n/a 19.51	11.78 3.40 0.84 n/a 1.06	
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP)	2020 in Regulation 22.64 11.68 24.7 6.14	2021 20.41 10.83 23.22 n/a 2.93 6.95	2022 18.19 9.97 21.74 n/a	2023 15.96 9.12 20.26 n/a	13.73 8.26 18.78 n/a	11.51 7.41 17.31 n/a	16.43 7.01 16.18 <i>n/a</i> 1.78 4.07	15.04 5.23 14.81 n/a	13.75 3.63 13.51 n/a	12.51 3.30 12.26 n/a	11.30 2.98 11.05 n/a	148.82 67.75 169.13 n/a 19.51 41.93	11.78 3.40 0.84 n/a 1.06 3.40	
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PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29	11.30 2.98 11.05 <i>n/a</i> 1.22 1.96 0.20 0.34 0.74 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46	
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90	
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29	11.30 2.98 11.05 <i>n/a</i> 1.22 1.96 0.20 0.34 0.74 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90	
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19	15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90	
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19	15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90	Cumulative ∆
PG&E LADWP SCE SDG&E SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 pplication of JUC 2020 in Regulation	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85	18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a.	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 nillions)	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55	148.82 67.75 169.13 <i>n/a</i> 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative ∆ from 33% RPS	from ARB
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 pplication of JUG 2020 in Regulation 22.64	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a.	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions)	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55	148.82 67.75 169.13 <i>n/a</i> 19.51 41.93 3.93 5.91 14.07 4.27 7.338 528.78	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative △ from 33% RPS 12.02	from ARB 35.58
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 pplication of JUC 2020 in Regulation 22.64 11.68	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 6 Recommen 2021 20.90 10.96	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.666 0.90 2.24 0.62 1.11 70.19 adations (a)	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023 17.41 9.52	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions) 2024	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.112 0.36 0.62 52.79	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47	from ARB 35.58 10.05
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 2020 in Regulation 22.64 11.68 24.7	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.699 1.26 76.85 6 Recommen 2021 20.90 10.96 23.70	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a.2) 2022 19.15 10.24 22.69	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 llowances n 2023 17.41 9.52 21.69	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 nillions) 2024	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 14.86	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06	35.58 10.05 24.18
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 2020 in Regulation 22.64 11.68 24.7 6.14	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 6 Recommen 2021 20.90 10.96 23.70 6.24	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a 2022 19.15 10.24 22.69 6.04	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 llowances r 2023 17.41 9.52 21.69 5.80	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 13.92 8.08 19.69 5.31	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative ∆ from 33% RPS 12.02 3.47 1.06 0.00	from ARB 35.58 10.05 24.18 5.61
PG&E LADWP SCE SDG&E SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 **plication of JUC 2020 in Regulation 22.64 11.68 24.7 6.14 3.19	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 76.885 2021 20.90 10.96 23.70 6.24 3.00	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a 2022 19.15 10.24 22.69 6.04 2.80	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.59 0.96 63.59 2023 17.41 9.52 21.69 5.80 2.61	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 2025 13.92 8.08 19.69 5.31 2.23	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06 2.14	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 14.86 4.03 1.77	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06 0.00 1.09	from ARB 35.58 10.05 24.18 5.61 4.36
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP)	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 **plication of JUC 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 2021 20.90 10.96 23.70 6.24 3.00 7.05	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 2022 19.15 10.24 22.69 6.04 2.80 6.50	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023 17.41 9.52 21.69 5.80 2.61 5.94	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42 5.39	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 2025 2025 2025 2025 2025 2025	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86 2.77	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 33.55 2030 15.21 4.08 4.03 1.77 2.61	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85	35.58 10.09 24.18 5.62 4.36 7.84
PG&E LADWP SCE SDG&E SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 6.0 9.9 7.6 6.0 9.9 7.6 6.0 9.9	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 6 Recommen 2021 20.90 10.96 23.70 6.24 3.00 7.05 0.79	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 dations (a. 2022 19.15 10.24 22.69 6.04 2.80 6.50 0.69	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 Illowances P 2023 17.41 9.52 21.69 5.80 2.61 5.94 0.58	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 nillions) 2024 15.67 8.80 20.69 5.56 2.42 5.39 0.47	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 2025 2025 2026 2027 2028 4.84	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62 0.35	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92 0.32	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86 2.77 0.31	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 4.03 1.77 2.61 0.29	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37 4.50	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85 0.95	35.58 10.09 24.18 5.62 4.36 7.84 1.52
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 2.77 1.41 83.14 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 0.9 1.16	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 6 Recommen 2021 20.90 10.96 23.70 6.24 3.00 7.05 0.79 1.03	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 2022 19.15 10.24 22.69 6.04 2.80 6.50 0.69 0.90	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 Illowances r 2023 17.41 9.52 21.69 5.80 2.61 5.94 0.58	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42 5.39 0.47 0.64	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 13.92 8.08 19.69 5.31 2.23 4.84 0.36 0.51	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62 0.35 0.49	15.04 5.23 14.81 n/a 1.62 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92 0.32 0.41	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86 2.77 0.31 0.37	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 4.03 1.77 2.61 0.29 0.34	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37 4.50 5.91	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85 0.95 n/a	35.58 10.05 24.18 5.61 4.36 7.84 1.52 0.92
PG&E LADWP SCE SDG&E SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 **plication of JUC 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 76.85 2021 20.90 10.96 23.70 6.24 3.00 7.05 0.79 1.03 2.63	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a 2022 19.15 10.24 22.69 6.04 2.80 6.50 0.69 0.90 2.33	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023 17.41 9.52 21.69 5.80 2.61 5.94 0.59	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42 5.39 0.47 0.64 1.72	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 13.92 8.08 19.69 5.31 2.23 4.84 0.36 0.51 1.41	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62 0.35 0.49 1.35	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73 0.33 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92 0.32 0.41 1.22	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86 2.77 0.31 0.37	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 4.03 1.77 2.61 0.29 0.34	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37 4.50 5.91	11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative ∆ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85 0.95 n/a 2.48	35.58 10.05 24.18 5.61 4.36 7.84 1.52 0.92 4.61
PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 polication of JUC 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 6 Recommen 2021 20.90 10.96 23.70 6.24 3.00 7.05 0.79 1.03 2.63 0.69	18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 ndations (a 2022 19.15 10.24 22.69 6.04 2.80 6.50 0.69 0.90 2.33 0.62	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023 17.41 9.52 21.69 5.80 0.58 0.77 2.02 0.54	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.47 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42 5.39 0.47 0.64 1.72	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 2025 2025 2025 2025 2025 2025 2025 203 4.84 0.36 0.51 1.41 0.39	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.112 0.36 0.62 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62 0.35 0.49	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73 0.33 0.44 1.28 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92 0.32 0.41 1.22 0.31	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 4.33 15.85 4.29 1.86 2.77 0.31 0.37 1.16 0.29	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 33.55 2030 15.21 4.08 4.03 1.77 2.61 0.29 0.34 1.10 0.26	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37 4.50 5.91 16.23 4.27	From ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative △ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85 0.95 n/a 2.48 0.46	7.84 1.55 1.005 24.18 5.61 4.36 7.84 1.52 0.92 4.61 0.46
PG&E LADWP SCE SDG&E SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA Pacificorp Other All EDUS Allocation Based on Ap EDU PG&E LADWP SCE SDG&E SMUD SCPPA (Excl. LADWP) TID Modesto ID NCPA	2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94 0.77 1.41 83.14 **plication of JUC 2020 in Regulation 22.64 11.68 24.7 6.14 3.19 7.6 0.9 1.16 2.94	2021 20.41 10.83 23.22 n/a 2.93 6.95 0.78 1.03 2.59 0.69 1.26 76.85 76.85 2021 20.90 10.96 23.70 6.24 3.00 7.05 0.79 1.03 2.63	2022 18.19 9.97 21.74 n/a 2.67 6.29 0.66 0.90 2.24 0.62 1.11 70.19 adations (a 2022 19.15 10.24 22.69 6.04 2.80 6.50 0.69 0.90 2.33	2023 15.96 9.12 20.26 n/a 2.41 5.64 0.54 0.77 1.89 0.54 0.96 63.59 2023 17.41 9.52 21.69 5.80 2.61 5.94 0.59	13.73 8.26 18.78 n/a 2.15 4.98 0.43 0.64 1.54 0.82 56.92 millions) 2024 15.67 8.80 20.69 5.56 2.42 5.39 0.47 0.64 1.72	11.51 7.41 17.31 n/a 1.89 4.33 0.31 0.51 1.19 0.39 0.67 50.25 2025 13.92 8.08 19.69 5.31 2.23 4.84 0.36 0.51 1.41	16.43 7.01 16.18 n/a 1.78 4.07 0.29 0.49 1.12 0.36 52.79 2026 19.02 7.74 18.72 5.06 2.14 4.62 0.35 0.49 1.35	15.04 5.23 14.81 n/a 1.62 3.18 0.26 0.44 1.01 0.33 0.56 46.58 2027 18.05 6.07 17.76 4.80 2.04 3.73 0.33 0.33	13.75 3.63 13.51 n/a 1.48 2.37 0.24 0.41 0.92 0.31 0.51 40.88 2028 17.12 4.57 16.81 4.55 1.95 2.92 0.32 0.41 1.22	12.51 3.30 12.26 n/a 1.35 2.16 0.22 0.37 0.83 0.29 0.46 37.18 2029 16.18 4.33 15.85 4.29 1.86 2.77 0.31 0.37	11.30 2.98 11.05 n/a 1.22 1.96 0.20 0.34 0.74 0.26 0.41 33.55 2030 15.21 4.08 4.03 1.77 2.61 0.29 0.34	148.82 67.75 169.13 n/a 19.51 41.93 3.93 5.91 14.07 4.27 7.38 528.78 Cumulative 172.63 74.40 192.47 51.68 22.82 46.37 4.50 5.91	from ARB 11.78 3.40 0.84 n/a 1.06 3.40 0.95 0.92 2.45 0.46 0.90 26.15 Cumulative Δ from 33% RPS 12.02 3.47 1.06 0.00 1.09 3.85 0.95 n/a 2.48 0.46 0.91	

Appendix B. Assumed Price Curve for Quantifying Ratepayer Benefit

PRICE CURVE	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Floor Price	15.40	16.20	17.01	17.86	18.75	19.69	20.68	21.71	22.80	23.93	25.20
Reserve Price	72.10	76.20	77.01	77.86	78.75	79.69	80.68	81.71	82.80	83.93	85.20