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**RE: Pacific Gas and Electric Comments in Response to the Air Resources Board's
September 4, 2018 Draft Cap-and-Trade Regulation Amendments**

Pacific Gas and Electric Company (PG&E) appreciates this opportunity to provide feedback in response to the Air Resources Board's (ARB) release of draft amendments to the Cap-and-Trade Regulation (Draft Regulation) on September 4, 2018, pursuant to Assembly Bill 398 (AB 398) and ARB Board Resolution 17-21 (BR 17-21).

PG&E strongly supports California's greenhouse gas (GHG) emission reduction goals and has been an active participant in California's GHG reduction programs since the inception of AB 32. PG&E has reached California's 2020 renewable energy goal of 33% three years ahead of schedule¹ PG&E has also made a commitment to take actions that will help avoid 1 million tons of greenhouse gas emissions across PG&E's operations by 2022, while continuing to provide safe, reliable, affordable and clean energy to our customers.²

Cap-and-Trade plays a critical role in California's GHG reduction strategy and will be even more important as we move to make deeper, more ambitious GHG reductions from 2020 to 2030. It is therefore imperative to design a post-2020 program that will be sustainable and capable of driving the necessary GHG reductions.

¹ PG&E News Release. February 20, 2018

https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20180220_pge_clean_energy_deliveries_already_meet_future_goals

² PG&E News Release. July 12, 2018

https://www.pge.com/en/about/newsroom/newsdetails/index.page?title=20180712_pge_launches_companywide_sustainability_goal_to_reduce_1_million_tons_of_greenhouse-gas_emissions_from_operations

PG&E provides comments on the Draft Regulation below, which are divided into the following sections:

- I. Establishing a Sustainable Price Ceiling
 - II. Establishing Post-2020 Reserve Tiers (Price Containment Points)
 - III. Post-2020 Reserve Sales Mechanism and Sales at the Price Ceiling
 - IV. “Overallocation”/Post-2020 Caps
 - V. Allowance Budgets and Distribution of Allowances
 - VI. GHG Accounting for the Energy Imbalance Market (EIM)
 - VII. Natural Gas Allocation
 - VIII. Equitable Treatment of Eligible Allowance Value Uses
 - IX. Offsets and Application of “Direct Environmental Benefits”
 - X. Legacy Contracts
 - XI. Banking and Holding Limits
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I. Establishing a Sustainable Price Ceiling

AB 398 laid out six criteria that ARB must consider when determining a price ceiling for the Cap-and-Trade Program post-2020. It is critical that in balancing these criteria, ARB does not set a price ceiling level that jeopardizes the political viability of California’s carbon pricing program.

PG&E believes ARB’s proposed price ceiling value in 2021 is reasonable and consistent with legislative direction from AB 398. PG&E concurs with ARB Staff that the 2021 price ceiling value captures the Intergovernmental Working Groups (IWG’s) central estimate of the Social Cost of Carbon (SCC) – at \$61 in 2018 dollars, it is approximately \$10 higher than the 2020 central estimate of the SCC.

However, PG&E opposes ARB’s proposed price ceiling escalation rate post-2021 of 5% plus the Consumer Price Index (CPI) per year and believes it does not effectively balance the legislative direction from AB 398. PG&E is concerned that ARB Staff are discounting the possibility of actually reaching the price ceiling. For example, ARB’s Staff Report states “CARB staff notes that in establishing the price ceiling, staff does not expect that allowance prices would reach that value, nor that a price ceiling is a feature that should be accessed in the operation of the Program.”³ While the future is uncertain, several recent studies⁴ of California’s program through 2030 show it is plausible that allowance prices could reach the price ceiling. It is therefore

³ ARB. Staff Report: Initial Statement of Reasons (ISOR). Sept. 4, 2018, Page 28.

⁴ For example, Borenstein et al 2018 and PG&E-NERA 2018

necessary that the price ceiling, including the escalation rate, be designed with the possibility of reaching it in mind.

PG&E believes that ARB's proposed price ceiling escalation rate produces price ceiling values that are too high, particularly in the second half of the 2020s when the program is at its most stringent and cost-containment is likely to be most important. For example, by 2030, the price ceiling would be \$95 in \$2018 (equivalent to roughly \$120 in 2030 dollars assuming two percent inflation); this is more than \$10 higher than the existing single tier reserve price in 2030 and \$35 higher than the IWG's central estimate of the 2030 SCC. As PG&E-NERA analysis, and ARB's own Standardized Regulatory Impact Assessment (SRIA) have shown, allowance prices well above ARB's existing single tier reserve price have negative effects on the economy and households.⁵ In addition, we are skeptical that allowance prices at the price ceiling levels proposed by ARB in the final years of the program, along with the resulting energy price impacts, would be politically acceptable. We thus disagree with ARB Staff's view that these higher price ceiling values post-2027 "...improve the likelihood of meeting the 2030 target."⁶ Rather, these price ceiling levels could endanger the program and possibly undermine an important policy tool for achieving the 2030 target cost-effectively.

PG&E also disagrees with ARB's justification for the price ceiling escalation rate. For example, ARB claims that "Maintaining the consistent escalation between the Auction Reserve Price and price ceiling allows for the two new post-2020 Reserve tiers to operate at a fixed distance between the two points. Otherwise, in later years, the two new post-2020 Reserve tiers will converge into the price ceiling, thereby negating the effectiveness of the Reserve price tiers to slow the acceleration of allowance prices."⁷ ARB's objective of maintaining distance between the price ceiling and the post-2020 Reserve tiers does not require consistent escalation rates for the floor and ceiling prices. Rather, ARB can maintain distance between any price ceiling trajectory and the post-2020 Reserve tiers by using its proposed approach for determining the post-2020 Reserve tier values in 2021 (i.e., X% of the distance between the floor and ceiling) in all other years through 2030.

ARB maintains the Draft Regulation proposal for the price ceiling is consistent with its past practices for this program ("This extension of the existing structure where the Auction Reserve Price and price ceiling values do not converge is consistent with how the Program has been designed since the very beginning."⁸). However, we note that ARB made an important change to its approach in 2017 in moving from the 2013-2020 program to the post-2020 program, switching from consistent escalation rates in the earlier years of the program (which results in divergence in the dollar gap between the floor and the ceiling) to a fixed adder in the post-2020

⁵ Summary of 2018 PG&E-NERA Analysis available here: <https://www.arb.ca.gov/lists/com-attach/40-ct-6-21-18-wkshp-ws-Uz0HZFckUGIGLVcn.pdf>

⁶ ISOR, Page 40

⁷ ISOR, Page 39

⁸ ISOR, Page 39

program (which avoids divergence in the dollar gap between the floor and ceiling). ARB explained the new approach from 2017 as follows “This approach would maintain a fixed difference between the two prices in terms of real value as it would be adjusted for inflation. In contrast, the existing schedule of increases in the Auction Reserve Price and the Reserve tier prices would lead to a divergence of these prices. With each annual increase, the Reserve would afford less protection against high prices, although with a correspondingly smaller potential to interfere with market price signals”⁹. We believe that ARB’s current proposal will result in exactly the type of divergence between the floor and ceiling, and corresponding concern about high prices that ARB recognized as a concern in 2017. Similarly, as ARB already noted in 2017, it is possible to avoid convergence between the floor and ceiling by using a fixed real adder.

Therefore PG&E recommends that ARB utilize a fixed real adder above the floor price to establish the price ceiling. Given the existing floor price escalation rate, PG&E can support a fixed real adder to the floor price as high as \$60 in 2021-30 in 2021 dollars. This would result in a price ceiling that does not converge with the price floor, is in the range under consideration by ARB in this rulemaking and was used in the 2030 Scoping Plan, encompasses the IWG’s central estimate of the social cost of carbon, and is consistent with the other criteria established by AB 398.

II. Establishing Post-2020 Reserve Tiers (Price Containment Points)

PG&E appreciates ARB Staff’s recognition of the important role the two Post-2020 Reserve Tiers can play in cost-containment and in helping to protect against rapid and large changes in allowance prices that could be destabilizing to the program. ARB notes in the Staff Report that “By placing the tiers prices meaningfully below the price ceiling, the tiers can function with increased effectiveness relative to the current Reserve to provide early signals to market participants that prices could escalate higher”¹⁰. We agree with ARB Staff that in order for the tiers to play this role, they need to be placed further away from the ceiling than the current three-tier APCR structure. PG&E believes that the tiers can best fulfill their purpose if they are evenly spaced (i.e., at 1/3 and 2/3 of the distance between the floor and the ceiling). However, we acknowledge that ARB’s proposal (i.e., 1/2 and 3/4 of the distance between the floor and ceiling) does place the tiers meaningfully below the price ceiling and is a step in the right direction.

PG&E also notes that the ability of the tiers to perform their cost-containment role is contingent on the selection of a reasonable price ceiling. For example, under the current ARB proposal, the first tier is over \$60/ton in \$2018 by 2030. PG&E believes this is too high for the first cost-containment point, which would allow for a gap of approximately \$35/ton between the floor and the first tier.

⁹ 2016 ISOR, Page 15 (available at <https://www.arb.ca.gov/regact/2016/capandtrade16/isor.pdf>)

¹⁰ ISOR, Page 41

Finally, PG&E notes that it is possible to maintain the desired distance between the floor, ceiling, and tiers by using the formula for determining the tiers in 2021 in all future years rather than using an escalation rate. Use of this formula for determining the tier values in all years can avoid ARB Staff's concern about the tiers converging into the price ceiling over time. We encourage ARB to revise its proposal to do so.

III. Post-2020 Reserve Sales Mechanism and Sales at the Price Ceiling

PG&E supports ARB Staff's proposal to continue to use the existing Regulation provisions for the proposed Post-2020 Reserve Sales. PG&E also agrees with ARB Staff's proposal for the Price Ceiling sales structure, which allows covered entities to purchase allowances prior to a compliance event.

IV. "Overallocation"/Post-2020 Caps

PG&E supports the allowance budgets as reflected in the Draft Regulation. We agree with ARB Staff's evaluation that the "currently established caps would constrain GHG emissions from 2013 through 2030" and "support a steadily increasing carbon price signal"¹¹. The Cap-and-Trade Program is working as intended – filling the gap between cumulative emissions achieved by complementary measures and the state's GHG goals, as reflected in ARB's adopted allowance budgets, and is doing so cost-effectively. Existing design features, including the auction reserve price, rapidly declining post-2020 caps, and transferring unsold allowances to the Reserve after two years are sufficient to ensure a steadily increasing carbon price signal.

There are significant uncertainties in forecasting California GHG emissions through 2030, which must be considered when assessing unused allowances and post-2020 caps. Broad macroeconomic trends, including population and economic growth, will significantly influence California's emissions over time. Allowances that are currently unused have the potential to be a crucial precaution against rapidly rising allowance prices if economic or population growth exceeds current forecasts. For these reasons, PG&E strongly reiterates its support for the allowance budgets as currently proposed.

V. Allowance Budgets and Distribution of Allowances

PG&E supports ARB's proposal to split the 54 million allowances from vintage year 2021-30 budgets that ARB removed from the market in 2017 to the two new post-2020 Reserve tiers. This will expand the capability of the two new post-2020 Reserve tiers to function as intended, as discussed above. Similarly, we support ARB's proposal to not place any of the 54 million allowances in the price ceiling, as doing so would not provide any cost-containment benefits in the presence of the hard price ceiling.

¹¹ ARB. Staff Report Attachment D: AB 398: Evaluation of Allowance Budgets 2021 through 2030

PG&E does not support ARB's proposal to remove an additional 23 million allowances because of changes to the quantitative usage limit and disagree with ARB's contention that the proposal is consistent with the original rationale for funding the Reserve. In this case, ARB adopted post-2020 allowance budgets in 2017, while leaving the quantitative usage limit unchanged at 8%. Therefore, we believe AB 398's changes to the quantitative usage limit from 8% to 4% and from 8% to 6% are both in the direction of tightening the program. We do not believe it is consistent with ARB's original rationale for funding the Reserve to respond to the Legislature's tightening of the program with further action to tighten the program via removing allowances from the market. We encourage ARB to leave the 23 million allowances in the regular market rather than putting them into the second post-2020 Reserve tier.

VI. GHG Accounting for the Energy Imbalance Market (EIM)

PG&E continues to support efforts to accurately account for GHG emissions that are caused by imports into California scheduled in EIM. We recognize that this is a complex problem which must balance several factors. As part of seeking this balance, PG&E provides the following comments.

As PG&E understands the Draft Regulation (as released on September 4, 2018), the California Independent System Operator (CAISO)'s EIM would take into account the GHG allowance costs for resource-specific emissions that result from deemed imports ascribed to resources by EIM in the dispatch and pricing of the energy market. After the EIM runs, ARB would calculate the total emissions resulting from imports in each 5-minute interval using the unspecified emission rate. The responsibility to procure GHG allowances for outstanding emissions (the difference between the total emissions calculated for imports in a five-minute interval and the resource specific emissions for deemed imports in the five-minute interval accounted for in the EIM) would be assigned to California EIM Purchasers pro-rata based on their five-minute purchases from EIM.

PG&E has two concerns with this proposal:

1. The allowances to cover outstanding emissions will be assigned to California EIM Purchasers after EIM has run. As such, the cost of the allowances for outstanding emissions that will be borne by California EIM Purchasers cannot be taken into account in the EIM dispatch. The EIM Purchasers are exposed to costs which they will be unable to manage. This can make participation in EIM more risky.
2. The CAISO will collect revenue sufficient to pay for allowances to cover emissions from deemed imports at the marginal GHG cost. This revenue will be paid to resources that EIM selected to supply the energy that is deemed imported. For resources dispatched to provide deemed imported energy that do not produce emissions or produce less than the marginal emissions, this revenue will exceed the cost of the allowances that the resource will be required to surrender to cover resource-specific emissions resulting from the deemed imports. Only after EIM has run will ARB calculate the total emissions it ascribes to imports and require the California EIM Purchasers to surrender allowances for

the outstanding emissions. As a consequence, the combination of the EIM treatment of allowances for deemed imports and ARB's treatment of allowances for outstanding emissions may over-collect the cost of allowances required for the total emissions from imports.

These two effects can make participation in CAISO's Real-Time market more risky for California participants, leading them to try to reduce their purchases in EIM. This could reduce the economic efficiency of the EIM dispatch and mute the EIM price signals.

PG&E would encourage CAISO, ARB and stakeholders to continue considering ways to better account for outstanding emissions within the EIM dispatch and pricing. Since this has proven to be a difficult problem, PG&E appreciates ARB's desire to better account for the total GHG emissions effects arising from imports into California after EIM has run. To accomplish this in a timely fashion while reducing the possibility of disturbing the efficiency of the EIM, an approach based on retiring allowances after the fact based on outstanding emissions, rather than requiring EIM Purchasers to purchase allowances for a share of outstanding emissions, seems appropriate. In this vein, PG&E supports the position of the California electric utilities as expressed in the Joint-Utility Group (JUG) comments.

Allocating the reduction of allowances in the subsequent year as is currently done in the existing bridge solution may reduce the possibility of misdirected impacts and the concerns PG&E noted above. If ARB decides that these allowances should be retired from the allowance allocations of individual EIM Purchasers (assumed to be the EDUs), then PG&E recommends that each EIM purchaser's compliance obligation should be consistent with an entity's actual share of EIM purchases, rather than other approaches such as share of total retail sales. PG&E also recommends both the CAISO and the ARB work to provide a transparent methodology for how the total obligation will be measured and included in other transparent obligation data posted by the ARB. PG&E looks forward to continuing to work with ARB and other stakeholders on the details of how such an approach could work.

VII. Natural Gas Allocation

In ARB's Staff Report, ARB Staff notes they will continue to review and consider adjustments to natural gas supplier allocation if a renewable gas mandate or other changes to the sector occur. PG&E agrees with ARB's continued review of this issue since efforts to decarbonize the natural gas pipeline are already underway, and the current natural gas supplier allowance allocation does not reflect the increased costs of such efforts for utility customers.

With the recent passage of SB 1440, the CPUC will be required to consider setting biomethane procurement targets, in consultation with ARB. PG&E is supportive of this effort to foster cost-effective procurement of RNG through a state-wide program and looks forward to working with ARB and other stakeholders in this proceeding. In the meantime, PG&E has already started programs to foster the decarbonization of the natural gas system.

For example, PG&E recently opened a solicitation through a Voluntary RNG Procurement Pilot that seeks to purchase RNG to meet the compressed natural gas (CNG) vehicle fuel demand from PG&E's 28 CNG stations. Per SB 1383, the CPUC's dairy pilot biomethane solicitation program is also underway and will approve at least five dairy biomethane projects for pipeline interconnection to investor-owned utilities in California by the end of 2018.

RNG will play an important role in helping to achieve the State's climate goals by providing a lower-emission, beneficial use for Short-Lived Climate Pollutants that are otherwise emitted to the atmosphere. PG&E looks forward to continuing to work with ARB to recognize the value of RNG-related and other decarbonization efforts in the natural gas supplier allowance allocation in future Cap-and-Trade rulemaking.

VIII. Equitable Treatment of Eligible Allowance Value Uses

PG&E appreciates ARB's overall efforts to provide greater clarity on the allowable uses of revenue from allowances directly allocated to electric distribution utilities (EDUs) and natural gas (NG) suppliers. However, we continue to remain concerned with inequitable treatment between eligible uses for EDUs and NG suppliers. We recommend the inclusion of allowable cost categories for NG suppliers for renewable natural gas infrastructure, and other projects supporting GHG emissions reductions and near-zero emissions vehicles or public transportation. These activities would help drive the most cost-effective and innovative GHG reduction strategies and are broadly consistent with the 'renewable energy' category for EDUs. PG&E supports the specific regulatory suggestions offered in the Gas Utility Group (GUG) comment letter to help address this disparity.

By limiting eligible uses of allowance value, the proposed framework excludes other potentially beneficial activities and viable emission reduction measures. Other solutions and technologies need to be encouraged and funded as a variety of GHG reduction approaches will benefit more customers who want to reduce GHG emissions. PG&E recommends the proposed regulation be amended to provide the same opportunities for both EDUs and NG suppliers.

IX. Offsets and Application of "Direct Environmental Benefits"

PG&E generally supports Staff's proposal on offsets and offset program implementation. We appreciate Staff's recognition of the important cost-containment and compliance flexibility role that offsets play in the market. We therefore support the application of a definition of "Direct Environmental Benefits" (DEBS) to automatically include in-state projects and pave a way for ozone-depleting substance (ODS) projects and out-of-state projects to be considered. This DEBS application, which helps retain the stability of the program and minimizes legal risk, will incent further reductions to occur inside and outside of California. We also support the clarification that up to one half of a covered entity's quantitative offset usage may be met by ARB offset credits that do not provide DEBS, independent from surrendering credits that do provide DEBS. These proposals support the cost-containment benefits of a healthy offset supply while meeting the spirit of the DEBS provision.

Maximizing offsets will have direct positive economic and environmental benefits within California and PG&E would like to reiterate a few recommendations from our previous comments to support full usage of offsets. We encourage ARB to actively support the development of offset projects that meet the DEBS requirement as the current forecasted supply isn't sufficient to allow full usage of the offset limit. We also encourage ARB's continued support for the development of projects that reduce emissions in tropical deforestation and other uncapped sectors. Finally, we recommend that ARB do not retroactively apply the DEBS requirement to projects that have already received issuance. This would be administratively burdensome, disrupt the offset marketplace, and incur significant costs to ARB, offset developers, and owners.

X. Legacy Contracts

The Draft Regulation re-introduces the provision of Transition Assistance to legacy contract generators without industrial counterparties. PG&E does not believe that any of its counterparties qualify for such Transition Assistance. The core purpose of Transition Assistance is to reduce the financial responsibility for GHG costs for generators with Power Purchase Agreements (PPA) that do "not allow the covered entity to recover the cost of legacy contract emissions from the legacy contract counterparty."¹²

PG&E's arbitration with Panoche Energy Center ("Panoche"), however, proved that: 1) Panoche's PPA assigned responsibility for GHG costs to Panoche; 2) at the time Panoche signed the PPA, it understood that it would be responsible for paying future GHG emissions costs; and 3) the PPA already provides for Panoche's recovery of GHG costs and provides a payment mechanism for that recovery. The arbitrators ruled for PG&E and against Panoche on all counts and issued a reasoned decision detailing the evidence they heard and the rationale for their ruling. Therefore, PG&E reiterates that Panoche does not meet the requirements for receiving Transition Assistance because it is not a party to a legacy contract.

XI. Banking and Holding Limits

PG&E concurs with ARB Staff's evaluation¹³ that existing banking rules, holding limits and other program provisions already meet the directive of AB 398 to "discourage speculation, avoid financial windfalls, and consider the impact on complying entities and volatility in the market." Therefore, PG&E supports the maintenance of current banking rules, which support market continuity, allow compliance entities to adequately plan for their compliance obligations, help maintain investment in high-quality offset projects, and avoid potential price volatility and market disruption.

¹² ISOR, Page 56.

¹³ ARB. Staff Report Appendix D – AB 398: Evaluation of Allowance Budgets 2021 through 2030. Page 6-7

Conclusion

PG&E continues to support Cap-and-Trade as a program that will help the state meet its aggressive environmental goals while maintaining a healthy economy. We look forward to working with ARB staff to further refine the Regulation in line with AB 398 and BR 17-21. Please feel free to contact me if you have any questions or concerns.

Sincerely,

/s/

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Pacific Gas and Electric