# SMUD (Sara Christian)

Please see attachment

SMUD®

March 9, 2026

Clerk of the Board
California Air Resource Board
1015 I Street
Sacramento, CA 95814

**RE: Proposed 45-Day Amendments to the Cap-and-Invest and Mandatory Reporting Regulations**

The Sacramento Municipal Utility District (SMUD) appreciates the opportunity to provide comments on the California Air Resource Board's (CARB) proposed amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation (Cap-and-Invest) and the Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR).[1] SMUD is a local publicly owned electric utility (POU) serving approximately 673,000 customer meters, or a population of about 1.5 million, in Sacramento County and small adjoining portions of Yolo and Placer Counties. SMUD has established an ambitious goal of removing all greenhouse gas (GHG) emissions from its power supply by 2030, working within the guardrails of ensuring reliable and affordable electric service.

SMUD supports effective market-based compliance programs, such as Cap-and-Invest. Over the last decade, SMUD has reduced GHG emissions and reinvested millions of dollars in Cap-and-Invest allowance value into clean energy and GHG-reducing programs in its local region. With these comments, on behalf of its customers and community, SMUD raises serious concerns regarding the recission of approximately 2.3 million allowances—valued between roughly $75 million and $150 million—from SMUD's current allocation. This recission could have material impacts on SMUD's efforts to achieve carbon free power supply while maintaining affordable electric rates.

Because of the interrelated nature of the Cap-and-Invest and MRR programs, these comments respond to the proposed amendments to both regulations. SMUD's recommendations specific to Cap-and-Invest include:

- Preserving the 2027-2030 allocation for electric utilities to protect customers and avoid undermining the program's voluntary incentive structure.
- Support for continuing POUs' ability to either deposit allowances for compliance or use allowance proceeds for GHG-reducing projects benefiting their customers.
- Using more accurate renewables portfolio standard (RPS) emissions assumptions to calculate 2031-2035 allowance allocations.
- Shortening the duration of the transition of natural gas allowances to electric utilities and support for CARB's proposal to provide implementation lead time for POUs.

[1] These comments address proposed revisions to both the MRR and Cap-and-Invest regulations and are filed concurrently in each docket.

SMUD also recommends changes that pertain to both MRR and Cap-and-Invest, including:

- Support for revisions to the outstanding emissions calculation, with additional clarification.
- Adding a mechanism for ex post revisions to outstanding emissions in response to accounting errors.
- Providing greater regulatory certainty for the treatment of carbon capture and sequestration (CCS) technology, including complete and accurate emissions accounting and attribution to electricity generating facilities and sequestration facilities.

These recommendations are detailed in the following pages.

## I. Electric Distribution Utility (EDU) Allowance Allocations

*EDU allocations have provided critical benefits for electricity ratepayers.*

SMUD has long supported the Cap-and-Invest program as an important tool for reducing GHG emissions while protecting electric customers from program costs and supporting additional decarbonization efforts throughout the state. The existing program design allocates allowances to electric distribution utilities (EDUs) based on estimated future compliance needs. CARB intentionally designed a fixed 10-year allowance allocation schedule for EDUs in order to enable planning and provide an incentive for voluntary additional GHG reductions.[2]

For POUs like SMUD, allowances may be deposited for compliance–the costs of which would otherwise be borne by customers–or monetized and reinvested in renewable energy and GHG-reducing projects that benefit their customers. This design has been highly effective and has helped SMUD keep its rates low while increasing clean energy in its portfolio. SMUD estimates that, from 2021 to 2025, over $400 million of Cap-and-Invest allowance value has directly benefited its customers. SMUD estimates its current 2027-2030 allocation will provide an additional value of approximately $687 million for its customers by reducing costs of compliance and clean energy investments.

Maintaining affordable electricity rates is critical both for the wellbeing of Californians and to advance progress toward the state's economywide decarbonization goals – the chief strategy for which hinges on electrification. The Legislature clearly recognized the importance of electricity affordability, and preserving the Cap-and-Invest structures that

[2] See, for example, p. 39 of the *Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms, Final Statement of Reasons*, dated August 2017, which explains: "Staff supports utilities' taking voluntary action to reduce GHG emissions from electricity generation. Given that EDU allowance allocation is based on cost burden, this is one of the reasons that ARB has opted to set fixed EDU allowance allocations for 2021-2030. *Any changes that utilities make to reduce GHG emissions will reduce their GHG costs while not changing their allocations, thus resulting in a net benefit*. This incentive is inherent to the Cap-and-Trade Program and applies in all sectors that see costs from the Program." (emphasis added)

support it, when reauthorizing the program. In Assembly Bill (AB) 1207 (Irwin, stats. 2025, ch. 117), the Legislature declared its intent for CARB to design the program in a manner that "maintains a safe, clean, affordable, and reliable electric system" and "continues elements of the current program that protect state utility ratepayers, encourages decarbonization of the state's economic sectors, and further enables Californians to affordably decarbonize and power their end uses."[3]

The fixed EDU allocation schedule, along with POUs' flexibility to optimize the allocation value for the benefit of their customers, has a direct impact on electricity affordability. At a time when costs are rising and many households and businesses struggle to afford energy bills, Cap-and-Invest presents the rare opportunity to provide *downward* pressure on electricity rates while also driving GHG emissions reductions – but only if regulatory changes do not erode these benefits.

*SMUD opposes the proposed reduction of 2027-2030 EDU allocations, which would harm electricity affordability and undermine the program's market-based incentives.*

CARB's proposed amendments to the Cap-and-Invest regulation would recalculate the EDU allocation midstream, and at significant cost to electric utility customers. **For SMUD alone, the recalculated allocation schedule results in a cumulative loss of approximately 2.3 million allowances, or an estimated value of $75 million to $175 million,[4] between 2027 and 2030 – value that SMUD will no longer have available to offset costs of compliance or renewable energy investments for its customers.** SMUD estimates that the average annual impact of this change is equivalent to a 1 to 2.5 percent rate increase each year over the four-year period, challenging SMUD's ability to maintain affordable rates while further reducing GHG emissions.

SMUD opposes CARB's proposed updates to the electricity supply and demand forecasts used to calculate the EDU allocation. The Cap-and-Invest Initial Statement of Reasons (ISOR) justifies this change by noting that "[r]ecent information from the California Energy Commission indicates that the existing total 2027-2030 EDU allocation may provide more allocation relative to the Program cost burden but leave some utilities that have seen increases in demand with fewer allowances than they need to address Program cost burden."[5]

However, as described above, establishing a fixed 10-year allocation schedule based on forecasted future compliance costs was a policy decision to provide EDUs planning certainty and incentives for voluntary additional GHG reductions. Changing course before 2030 would effectively punish customers of utilities that made additional GHG reductions, increase regulatory uncertainty, and erode future confidence that incentives

[3] California Health and Safety Code (HSC), § 38501(b)(3)-(4).
[4] This low end of this range assumes floor prices, and the high end is derived based on the "mid-range" price from Dr. Danny Cullenward's May 8, 2025 presentation to the Senate Environmental Quality Committee and Budget Subcommittee No. 2 on Resources, Environmental Protection, and Energy.
[5] See CARB, *Staff Report: Initial Statement of Reasons* (2026 Cap-and-Invest ISOR), dated January 20, 2026, at p. 50.

for voluntary action are reliable. Moreover, it would contravene the legislative direction in AB 1207 that CARB design the regulations in a manner that "encourages early action to reduce greenhouse gas emissions" and "continues elements of the current program design that protect state utility ratepayers, encourages decarbonization of the state's economic sector, and further enables Californians to affordably decarbonize and power their end uses."[6,7] To the extent that CARB is concerned that some individual utilities with unexpected and significant load growth (e.g., due to data centers or significant transportation electrification) may be under-allocated, CARB should consider updates for just those individual utilities – without wholesale revisions to the allocation schedule that would harm customers of other utilities.

CARB confronted a similar issue during the 2016 Cap-and-Invest rulemaking, observing that, when allowances are allocated in advance based on projected load and resulting cost burden, there is a risk that allocations will be too high or low.[8] However, CARB elected to leave the 2013-2020 allocation schedule intact and incorporate updated forecast data into only the prospective 2021-2030 allowance allocation. SMUD urges CARB to take a similar approach within this rulemaking: retain the existing 2015 forecast data used to calculate the 2021-2030 allocation schedule for the remainder of the 2027-2030 period and incorporate the California Energy Commission's (CEC) 2024 Integrated Energy Policy Report (IEPR) forecasts into the 2031-2035 allocation. While, as the 2026 Cap-and-Invest ISOR notes, CARB previously indicated its desire to revisit data to incorporate the effects of transportation electrification, the proposed wholesale revision of the IEPR supply and demand forecast data is broader than that original scope.[9] Moreover, notice of potential future action–which SMUD and the Joint Utilities Group (JUG) have been advocating against for years–does not obviate the harm to ratepayers that may be caused by this action.[10]

SMUD recognizes that limited updates to the EDU allocation may be warranted – for example, revising the Renewables Portfolio Standard (RPS) targets that are built into the cost burden calculation.[11] However, CARB can accomplish this update and mitigate impacts on electricity affordability by better aligning its calculation assumptions with

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[6] HSC, § 38562(b)(1)(A).
[7] HSC, § 38501(b)(4).
[8] See CARB, *Attachment C, First Notice of Public Availability of 15-Day Amendment Text, Proposed Amendments to the California Cap on Greenhouse Gas Emissions and Market-Based Compliance Mechanisms Regulation, 2021-2030 Allowance Allocation to Electrical Distribution Utilities*, dated December 21, 2016, at p. 3. CARB reiterates this logic in the 2026 Cap-and-Invest ISOR, p. 50.
[9] See 2026 Cap-and-Invest ISOR at p. 50.
[10] See, for example, the comments of the Joint Utilities Group (JUG) dated July 7, 2023; August 17, 2023; October 26, 2023; December 15, 2023; June 21, 2024; and November 25, 2025. See also SMUD comments dated August 17, 2023; June 21, 2024; and November 12, 2025.
[11] The EDU allocation was designed based on forecasted compliance costs that are attributable to the Cap-and-Invest program (e.g., emissions reductions beyond those driven by the RPS). When CARB established the allocation schedule, Senate Bill (SB) 350 (De Léon, stats. 2015, ch. 547) had established RPS targets culminating in 50 percent of all retail sales by 2030; however, SB 100 (De Léon, stats. 2018, ch. 312) subsequently increased and accelerated those targets to 60 percent by 2030 and in three-year compliance periods thereafter.

RPS program requirements. While many RPS resources are GHG-free, some do have associated emissions (e.g., firmed-and-shaped imports from out of state). EDUs may therefore incur Cap-and-Invest compliance obligations for some RPS-compliant resources.

Currently, the allocation calculation assumes that EDUs must meet increasing RPS targets that culminate in 50 percent of retail sales by 2030, but then adjusts that assumption downward by 5 percent–resulting in an "effective" RPS of 45 percent. A 45 percent effective RPS implies that up to 10 percent of an EDU's RPS-compliant generation may have associated emissions.[12] Use of an effective RPS enables EDUs to receive allowances to cover Cap-and-Invest compliance obligations for RPS-compliant resources. However, under RPS program requirements, up to 25 percent of RPS-compliant generation may have associated emissions – significantly higher than the current 10 percent assumption.[13] SMUD recommends, therefore, that when CARB updates the RPS targets used in the EDU allocation calculation, it should also recognize that 25 percent of RPS resources may have associated emissions and make conforming updates to the "effective" RPS (for example, adjusting from 60 percent in 2030 to 45 percent in 2030).[14] This, in turn, ensures that EDUs are allocated allowances to cover the full cost burden attributable to Cap-and-Invest.

SMUD recognizes that some firmed-and-shaped resources today use CARB's RPS adjustment, an after-the-fact true-up for firmed-and-shaped imports, to address the partial misalignment between Cap-and-Invest emissions and RPS requirements. CARB's proposed Cap-and-Invest amendments would eliminate the RPS adjustment in 2030, citing ongoing implementation challenges.[15] Nonetheless, to avoid any potential risk of double benefits between the RPS adjustment and updated RPS assumptions in the 2027-2030 EDU allocation, SMUD recommends that CARB eliminate the RPS adjustment in 2027. Together, these changes would better align the EDU allocation with the RPS program–which is especially needed as increasing RPS requirements and challenging market conditions make the targets harder to achieve–and resolve CARB's ongoing RPS adjustment challenges.[16] Most importantly, these changes would mitigate electricity affordability impacts, responding to the direction of AB 1207 to consider the impacts of the regulations on affordability.[17]

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[12] 10 percent of the 50 percent RPS requirement translates to 5 percent of the utility's total retail sales, leading to an "effective" RPS of 45 percent.

[13] Public Utilities Code § 399.16 establishes the portfolio balance requirements, which specifies that at least 75 percent of RPS procurement must be interconnected in or directly delivered to California balancing authority areas. The remainder of RPS procurement may be satisfied by firmed-and-shaped resources (or up to 10 percent may come from unbundled resources). These statutory requirements are incorporated in the CEC's RPS implementation for POUs and the California Public Utilities Commission's implementation for investor-owned utilities.

[14] 25 percent of a 60 percent RPS requirement translates to 15 percent of the utility's total retail sales.

[15] See 2026 Cap-and-Invest ISOR at pp. 54-55.

[16] However, if CARB declines to incorporate the "effective" RPS into the 2027-2030 *or* 2031-2035 compliance periods, CARB must continue the RPS adjustment for PCC 2 through *and* after 2030, because the RPS program–and its statutorily authorized flexibilities–also continue past 2030.

[17] HSC, § 38562(b)(7).

*SMUD strongly supports POUs' continued ability to deposit allowances for compliance or use allowance value for GHG-reducing projects and programs.*

Under the existing Cap-and-Invest regulation, POUs like SMUD are able to determine whether to retire allowances for compliance and/or consign allowances to auction and use proceeds on GHG-reducing projects and programs that benefit their ratepayers. This regulatory framework ensures that SMUD and other public, locally governed utilities can optimize their allowance allocation to best serve their customers. In line with this framework, on an annual basis, SMUD evaluates the specific needs of its community and customers and right-sizes its strategy accordingly.

SMUD therefore supports CARB's proposed Cap-and-Invest amendments that preserve POUs' ability to either deposit allowances for compliance or use allowance value for GHG-reducing projects and programs that directly benefit their customers. While SMUD's use of Cap-and-Invest allowances has varied over time, depending on its local community's specific priorities, the value derived from these allowances has always directly supported SMUD's customers and GHG emissions reductions.

*SMUD appreciates the continuation of post-2030 EDU allocations but recommends revisions to assumptions about emissions from RPS resources.*

SMUD appreciates CARB's continuation of EDU allocations after 2030 for the benefit of electric ratepayers. SMUD believes it is reasonable for CARB to use updated data from the CEC's 2024 IEPR forecasts to calculate prospective allocations for the 2031-2035 period. SMUD cautions against incorporating the CEC's 2025 IEPR data, as the utility- and balancing authority area- specific forms were released only recently, with limited time for review and vetting. Moreover, the joint decision[18] by the CEC, CPUC, and CAISO to rely on the 2024 IEPR for integrated resource planning and transmission planning underscores some uncertainties associated with the 2025 IEPR.

However, CARB's proposed methodology for calculating the allocations assumes just a 5 percent adjustment to the RPS target (a 55 percent effective RPS).[19] As described above, the RPS program requirements–which continue past 2030–allow up to 25 percent of RPS-compliant procurement to have associated emissions. CARB should therefore use the same "effective" RPS of 45 percent to calculate EDU allocations after 2030.

*SMUD appreciates the proposed transition of natural gas corporation allowances to electric utilities to provide additional support for electricity affordability*.

[18] See the *Single Forecast Agreement* at https://efiling.energy.ca.gov/GetDocument.aspx?tn=268288&DocumentContentId=105461.
[19] 2026 Cap-and-Invest ISOR, p. 50.

SMUD appreciates the Legislature's additional actions to support electric ratepayers by transitioning allowances from natural gas corporations.[20] SMUD understands that the transitioned allocations cannot–and are not intended to–offset the harm to electric ratepayers that would be caused by reducing the 2027-2030 EDU allocation. However, these transitioned allowances can provide California households with important additional relief on electricity bills.

SMUD recommends that CARB consider accelerating the pace of the transition–starting in 2029 and ending in *2031*, rather than the current proposal of *2037*–to align with the statutory direction to transition support from gas corporations to electric utilities by 2031.[21] SMUD additionally believes that careful implementation is needed to seamlessly and effectively transition allowance value to electric customers and therefore supports CARB's proposed three-year implementation runway. This proposal will allow POUs that do not currently provide Cap-and-Invest credits to determine the most impactful delivery for their residential customers, update billing and IT systems, and perform customer outreach and education.[22] At the same time, it provides flexibility for individual POUs to return the value sooner.

## II. Emissions Leakage from Western Electricity Markets

*SMUD supports the proposed changes to improve the accuracy of outstanding emissions associated with Western Energy Imbalance Market participation.*

CARB's proposed amendments to MRR § 95111 (h) revise the formula to estimate "outstanding emissions"[23] from the Western Energy Imbalance Market (WEIM). SMUD's understanding is that, under the current MRR, WEIM outstanding emissions are calculated as total WEIM imports at the default emission factor (currently 0.428 metric tonnes CO2e/MWh) less emissions reported by WEIM importers (at specified rates). These total outstanding emissions are apportioned among the EDUs that participate in the WEIM and receive Cap-and-Invest allowance allocations. The CARB Executive Officer then withholds and retires a proportional share of each EDU's allowance allocation, as specified in Cap-and-Invest § 95852 (l)(1).

SMUD understands that the revised formula in MRR § 95111 (h) would limit the scope of potential leakage to only those imports into California that are below participating resources' base schedules (i.e., not surplus) and therefore have a higher likelihood of being backfilled by a higher emitting out-of-state resource. SMUD believes CARB's proposed changes will improve the accuracy of the outstanding emissions calculation and supports their inclusion in the MRR.

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[20] HSC, § 38562 (b)(1)(B)(i)
[21] HSC, § 38562 (b)(1)(B)(i)
[22] 2026 Cap-and-Invest ISOR, pp. 51-52.
[23] SMUD understands that "outstanding emissions" generally refers to the potential for emissions leakage from market participation that is not otherwise captured in reporting (e.g., dispatch of higher-emitting out-of-state resources to backfill for lower-emitting imports to California).

However, SMUD requests additional clarification of several terms used in the outstanding emissions calculation. First, SMUD suggests that the definition of "committed capacity" in MRR § 95102 (a) should include *any* resource contracted to serve California load, not just those contracted to meet a resource adequacy obligation. Resources contracted to serve California load do not pose a leakage risk because they never intended to serve native balancing authority load. These resources therefore should be excluded from the outstanding emissions calculation. Additionally, SMUD requests that CARB clarify the meaning of "MWh of WEIM imports used to serve California load *that were below participating resources' base schedules*" (emphasis added) within MRR § 95111 (h), to ensure a common understanding and avoid the potential for confusion.

SMUD additionally agrees with the recommendation of the JUG with respect to incorporating the Extended Day-Ahead Market (EDAM) into the outstanding emissions calculation. As noted by the JUG, EDAM has not yet launched, and there may be a need to iterate on implementation. Therefore, CARB should seriously consider the JUG's recommendation to defer EDAM's inclusion in outstanding emissions until after EDAM launches, data pathways are validated, and a formal error correction process is in place, the last of which is detailed below.

*SMUD recommends adding a mechanism for ex post revisions of outstanding emissions and allowance withholding to address calculation errors.*

Currently, neither the MRR nor Cap-and-Invest regulations includes a mechanism to enable after-the-fact updates to outstanding emissions or the corresponding quantity of allowances withheld from EDUs. This is a problem that presents material harm to ratepayers when errors in outstanding emissions calculations occur.

For example, the California Independent System Operator (CAISO) identified an issue with the real-time WEIM transfers serving California load that occurred from April 2021 to January 2022.[24] During this period, the market incorrectly included transfers within LADWP's base schedule in the calculation of WEIM imports to California. This error resulted in an artificially high assumption of WEIM imports, and accordingly, an artificially high estimate of outstanding emissions *and* an artificially high withholding of allowances from EDUs.

While the error was recognized and communicated to utilities, there were neither opportunities nor regulatory mechanisms available to CARB to correct the error (e.g., by reallocating withheld allowances to utilities) after CAISO identified it. SMUD therefore recommends that CARB amend both MRR and Cap-and-Invest to enable ex post updates to respond to and rectify the impacts of accounting errors.

[24] See CAISO, *Market Issues Bulletin: Incorrect Inclusion of Base Energy Transfers in Greenhouse Gas Attributions*, revised July 24, 2023.

## III. Carbon Capture and Sequestration

*Carbon capture and sequestration retrofits of electricity generating facilities can support state carbon neutrality goals but require regulatory certainty.*

Carbon capture and sequestration (CCS) is a promising and well-positioned emerging technology to support the near-term decarbonization of California's power supply, which is a key component of the state's economywide GHG reduction goals. Critically, CCS technology will allow electric utilities to significantly reduce GHG emissions while supporting affordability and reliability—two essential features of a resilient grid that will further encourage electrification of transportation, buildings, industry, and other end-uses. It has been widely acknowledged that CCS will be necessary to reach carbon neutrality by 2045, and recent CEC modeling shows that CCS has the potential to achieve significant cost savings for the electricity sector as a clean, firm resource.[25,26] CCS's ability to deliver significant, immediate emissions reductions is especially important as other emerging technologies, like green hydrogen and seasonal long-duration storage, are still under development and have not yet reached commercial maturation. It is imperative that all options for reducing electricity sector emissions remain on the table to continue and accelerate progress toward the state's decarbonization goals.

But for CCS to truly succeed in California, the electricity sector urgently requires regulatory support and certainty. Specifically, CARB must ensure that atmospheric emissions from a given electricity generating facility are the basis for attribution under the MRR and compliance obligations under the Cap-and-Invest program. To ensure complete and accurate emissions reporting, accounting, and compliance obligations, both regulations should clearly delineate roles and responsibilities at each stage of the CCS process – capture at electricity generating facilities, pipeline transport, and geologic sequestration.

The MRR is the foundation for the state's GHG emissions data and is therefore the appropriate venue to address emissions accounting for CCS. Because other agencies, regulations, and programs look to the MRR to determine facility-specific emissions factors, MRR must accurately attribute emissions; if a gas-powered facility with CCS is emitting 95 percent less than a facility situated elsewhere, that gas-powered facility should have an emissions factor reflecting its actual emissions. Gases that are not released into the atmosphere—e.g., those that are captured, transported, and

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[25] For example, AB 1279 (Muratsuchi, stats. 2022, ch. 337) directs CARB to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California to complement emissions reductions and achieve [the state's emission reduction goals]" (as detailed in HSC, §38562.2). CARB's 2022 Scoping Plan Update highlights the need for CCS and other carbon removal technologies in reducing emissions in hard-to-decarbonize sectors, including power generation (see p. 86).

[26] See CEC, *2025 Senate Bill (SB) 100: Draft Modeling Results Workshop* presentation, dated February 19, 2026, at slide 45.

sequestered or utilized—are not "emissions" that should be attributed to any electricity generating facility or operator.

SMUD appreciates that additional important work regarding financial responsibility, monitoring, and development of a voluntary unified permit application for CCS facilities will be established in the SB 905 rulemaking process, along with strategies to minimize environmental and local air quality impacts associated with CCS project development.[27] But these revisions to the MRR need not and should not wait for that process to be complete; utilities across California, including SMUD, are evaluating and pursuing potential CCS projects today, and further delay and regulatory uncertainty will unnecessarily interrupt those carbon-reducing efforts.

California must take steps to ensure its policies, programs, and regulations support the entire ecosystem of decarbonization opportunities, including CCS. At this important juncture, CARB has a unique opportunity to pave the way for a promising tool that will deliver near-term, reliable, affordable decarbonization within the state. Accordingly, SMUD strongly urges CARB to integrate the concepts set forth below into 15-Day language for MRR and Cap-and-Invest.

*MRR and Cap-and-Invest should clearly differentiate the roles and responsibilities of electricity generating facilities, $CO_2$ transportation pipelines, and geologic sequestration facilities.*

To ensure complete and accurate emissions reporting and accounting at each step of the CCS process, the MRR should clearly differentiate between electricity generating facilities, geologic sequestration facilities, and $CO_2$ transportation pipelines. This is necessary because different entities may own and control one or more of these facilities. The current MRR does not define "geologic sequestration facility" or "$CO_2$ transportation pipeline," but relies instead on a broad definition of "carbon dioxide supplier"[28] in § 95102 (a):

> (a) . . . . "Carbon dioxide supplier" means: (a) facilities with production process units, located in the State of California that capture a $CO_2$ stream for purposes of supplying $CO_2$ to another entity or facility or that capture the $CO_2$ stream in order to utilize it for geologic sequestration where capture refers to the initial separation and removal of $CO_2$ from a manufacturing process or any other process, (b) facilities with $CO_2$ production wells located in the State of California that extract or produce a $CO_2$ stream for purposes of supplying $CO_2$ for commercial applications or that extract a $CO_2$ stream in order to utilize it for geologic sequestration, (c) exporters (out of the State of California) of bulk $CO_2$ that export

[27] SB 905 (Caballero, stats. 2022, ch. 359) requires CARB to create a Carbon Capture, Removal, Utilization, and Storage program to evaluate, demonstrate, and regulate financial responsibility and environmental monitoring of CCS and carbon dioxide removal projects, among other requirements.
[28] The same definition is incorporated in Cap-and-Invest § 95802.

> $CO_2$ for the purpose of geologic sequestration, (d) exporters (out of the State of California) of bulk $CO_2$ that export for purposes other than geologic sequestration, and (e) importers (into the State of California) of bulk $CO_2$. This source category is focused on upstream supply and is not intended to place duplicative compliance obligations on $CO_2$ already covered upstream. The source category does not include transportation or distribution of $CO_2$, purification, compression or processing of $CO_2$, or on-site use of $CO_2$ captured on-site.

SMUD is concerned that this definition lacks the precision needed to clearly and accurately address the scenario in which an electricity generating facility is equipped with CCS but subsequently transfers the captured carbon to another entity for sequestration. For example, category (a) of the above definition appears to cover electricity generating facilities equipped with CCS ("facilities with production process units … that capture a $CO_2$ stream for purposes of supplying $CO_2$ to another entity"), but not the entity that *receives* the $CO_2$ for purposes of geologic sequestration. The entity(ies) that receive the captured $CO_2$ (e.g., for transportation and sequestration) also do not appear to fall within the additional categories of the definition (production wells, exporters, importers). However, it is the entity(ies) *receiving* $CO_2$ for ultimate disposition, not the entity capturing and transferring the $CO_2$, that should be responsible for reporting emissions that occur after that entity takes custody of the gas (e.g., to account for the quantity of transferred and sequestered emissions as well as any fugitive emissions).

SMUD therefore recommends that CARB amend definitions within both MRR and Cap-and-Invest to differentiate between these distinct roles. SMUD believes this could be accomplished by adding individual definitions for "$CO_2$ transportation pipeline" and "geologic sequestration facility", *or* by revising the definition of "carbon dioxide supplier" as follows:

> *(a) . . . .* "Carbon dioxide supplier" means: (a) facilities with production process units, excluding electricity generating units and cogeneration units, located in the State of California that capture a $CO_2$ stream for purposes of supplying $CO_2$ to another entity or facility or that receive, transport or capture the $CO_2$ stream in order to utilize it for geologic sequestration where capture refers to the initial separation and removal of $CO_2$ from a manufacturing process or any other process, . . . .

This change would make clear that entities *receiving* a $CO_2$ stream for purposes of sequestration or utilization are covered under the definition of carbon dioxide supplier, but electricity generating facilities that transfer responsibility for captured $CO_2$ to another entity are not. It would also ensure that entities receiving captured $CO_2$ for sequestration are covered by and subject to MRR requirements, which SMUD anticipates may be necessary for complete and accurate accounting of $CO_2$ emissions. SMUD additionally recommends conforming changes to the definition in Cap-and-Invest § 95802 for consistency and to enable accurate attribution of Cap-and-Invest compliance

obligations. These changes can be accomplished now and will be necessary regardless of the outcome of the SB 905 process.

*CARB should amend MRR § 95112 (b) to expressly clarify that captured and sequestered $CO_2$ is excluded from an electricity generating facility's MRR report.*

Under the current MRR, electricity generating facilities are generally required to report emissions using the methodologies specified in Subparts C and D of 40 CFR Part 98 or Subpart D of Part 75. SMUD's understanding is that none of the current calculation methodologies expressly address carbon capture and sequestration. While the Tier 4 calculation methodology (i.e., calculating $CO_2$ mass emissions using continuous emissions monitoring systems) would *implicitly* account for the effects of CCS, as emissions would be measured after the absorber, SMUD understands that other methodologies, such as Tier 3, would not. The scenario could therefore arise where two identical electricity generating facilities are both retrofitted with CCS with a 95 percent capture rate and each produce 100,000 MT $CO_2$, but one facility reports 5,000 MT $CO_2$ using the Tier 4 methodology, and the other facility reports 100,000 MT $CO_2$ using the Tier 3 methodology. This would be an illogical outcome and would result in inaccurate data regarding the latter facility's emissions factor.

To ensure consistent and accurate accounting, CARB should amend the MRR to clearly address the effect of CCS on electricity generating facility emissions, *regardless* of which calculation tier methodology is used. As described above, only $CO_2$ that is actually emitted into the atmosphere at the time of generation should be attributed to the electricity generating facility. Reports regarding $CO_2$ that is captured and transported to another entity for sequestration should be the obligation of the entity(ies) responsible for such transport and sequestration.

SMUD therefore recommends that CARB add a subparagraph (9) to MRR § 95112 (b) to ensure accurate accounting for reported emissions when $CO_2$ emissions are geologically sequestered:

> (b)(9) Capture, transportation and geological sequestration of $CO_2$ either on-site or off-site. The total reported emissions for any electricity generation unit or cogeneration unit that captures carbon dioxide shall only include quantities of gases that are released into the atmosphere and are not transferred to any entity or entities responsible for the transportation, sequestration, or use of those gases, including a Carbon Dioxide Supplier, as defined in Section 95852(g).
>
> (A) Notwithstanding the foregoing, if the owner or operator of an electricity generation unit or cogeneration unit is also a Carbon Dioxide Supplier, or otherwise geologically sequesters $CO_2$ produced by the facility, the owner or operator shall separately report the $CO_2$ geologically sequestered, consistent with the requirements of Section 95123 or Section 95125, as applicable.

(B) If the owner or operator of any electricity generation unit or cogeneration unit that captures $CO_2$ and transfers the captured $CO_2$ to a separate entity or entities, such as a Carbon Dioxide Supplier, for purposes of sequestration or use by that separate entity, the owner or operator of the electricity generation unit or cogeneration unit shall report the quantity of $CO_2$ captured and transferred to such entity. The quantity of $CO_2$ captured, transferred and sequestered shall not be considered an "emission" from the electricity generating unit or cogeneration unit.

(C) Carbon Dioxide Suppliers responsible for the transportation, sequestration, or use of Carbon Dioxide shall be independently responsible for reporting surface leakage and other emissions of $CO_2$ received from electricity generation and cogeneration units, consistent with the requirements of Section 95123 or 95125, as applicable.

(D) For all electricity generation and cogeneration units utilizing carbon capture or transferring $CO_2$ to a Carbon Dioxide Supplier, the Executive Officer shall publish emissions levels for those units that reflect only those greenhouse gases emitted into the atmosphere at the facility during the reporting period, and consistent with this section, shall exclude any quantity of greenhouse gases captured, sequestered, transported, or otherwise stored by a Carbon Dioxide Supplier.

*CARB should clarify that Cap-and-Invest compliance obligations align with atmospheric emissions and incorporate flexibility to support near-term deployment of CCS technology.*

SMUD appreciates the intent of the proposed amendments in Cap-and-Invest § 95852.3 (a), which clarify that $CO_2$ that is verified to be sequestered or utilized through use of a Board-approved CCS methodology will be excluded from an entity's Cap-and-Invest compliance obligation. However, the amendments also defer the effect of CCS in reducing compliance obligations until *after* a subsequent Cap-and-Invest rulemaking incorporates the Board-approved CCS procedure.

SMUD is concerned that deferring CCS's ability to reduce Cap-and-Invest compliance obligations until after the completion of three successive rulemakings–the current Cap-and-Invest rulemaking, the as-yet-uninitiated SB 905 rulemaking, and a subsequent Cap-and-Invest rulemaking–could add substantial and unnecessary delays. Rather than deferring to a subsequent Cap-and-Invest rulemaking, CARB should clarify that CCS will reduce compliance obligations only for those facilities that satisfy the Board-approved methodology.

SMUD accordingly suggests the following amendments to Cap-and-Invest § 95825.3:

~~An entity~~ A carbon dioxide supplier has an aggregated compliance obligation for every MT of $CO_2$ captured from a $CO_2$ stream, except for $CO_2$ that is verified to be sequestered or utilized through use of a Board-approved carbon capture, utilization, and sequestration quantification methodology that ensures that the emissions reductions are real, permanent to at least a 100-year permanence standard, quantifiable, verifiable, and enforceable. Any methodology must be consistent with Section 39741.1 of the Health and Safety Code. The CO2 supplier must meet the requirements of the ~~The~~ Board-approved quantification methodology ~~must be incorporated into the Cap-and-Invest Regulation~~ before sequestered or utilized carbon ~~it~~ can be used to reduce a $CO_2$ supplier's compliance obligation. The compliance obligation for an electricity generating facility equipped with carbon capture technology shall be based on its atmospheric emissions reported in MRR.

## IV. Conclusion

SMUD appreciates the opportunity to provide comments and reiterates the important roles of Cap-and-Invest and MRR in advancing achievement of the state's emissions reduction goals, encouraging voluntary GHG reductions, supporting electricity affordability, and enabling complete and accurate emissions accounting. To that end, SMUD urges CARB to revisit its proposal to reduce the 2027-2030 EDU allocation schedule in Cap-and-Invest, which would challenge the ability of utilities like SMUD to maintain affordable rates while reducing GHG emissions, and address complete and accurate emissions accounting in both regulations for electricity generating facilities equipped with CCS.

/s/

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