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August 21, 2023

To: California Air Resources Board
From: University of California, Office of the President
Subject: Comments re: Forthcoming Cap-and-Trade Regulation Update

Thank you for the opportunity to submit comments regarding potential amendments to the Cap-and-Trade regulation, California’s greenhouse gas reduction program. Since 2013, the University of California (UC or The University) has charted a path to reduce its greenhouse gas emissions and has utilized electrification, energy efficiency, renewable electricity and biomethane procurement to meet this target—all while striving to center equity and environmental justice during this transformation.

The University is writing to share its lessons learned from ten years of experience purchasing Cap-and-Trade eligible biomethane. UC appreciates the work ARB has done to operationalize the enabling legislation to incentive methane capture from biogenic sources while also minimizing emissions leakage. These comments provide background on UC and offer recommendations to streamline and enhance the utilization of the biomethane pathway within the Cap-and-Trade regulation to help achieve the State’s ambitious carbon reduction goals.

The University of California Background

UC generates nearly \$82 billion in economic activity in California annually, employs 229,000 faculty and staff, operates the largest academic health system in the country, and maintains approximately 6,000 buildings enclosing 137 million gross square feet.¹ Through these activities—even after many years of emissions reductions through energy efficiency measures and increasing renewable energy production and procurement—the University still emits approximately 1 million metric tons of Scope 1 and Scope 2 emissions (CO₂e) each year across its 10 campuses and 5 medical centers.² Approximately 78% of these emissions come from combusting fossil natural gas at combined heat and power plants located on UC campuses. When they were installed between 1980-2012, these plants were the lowest-emission, most cost-effective options available. The plants currently provide cost-effective and reliable power, hot water, and steam, and are an important resilience tool to protect hospital patients and billions of dollars in research in the face of increasingly frequent power outages caused by wildfires and grid stress.

¹ <https://universityofcalifornia.edu/sites/default/files/economic-impact-report-2021-fact-sheet.pdf> and <https://accountability.universityofcalifornia.edu/2017/chapters/chapter-13.html>

² <https://cnidashboard.ucop.edu/>

Since 2013, UC has made over a billion dollars in investments in durable, lasting solutions to decarbonize, including:

- **Direct Electrification:** Every campus is actively studying how to electrify vast portions of their infrastructure and several campuses have already launched ambitious direct electrification efforts. UC Davis is engaged in a multi-year infrastructure process to electrify the heat source for the hot water used to heat buildings across campus;³ UC Berkeley is drilling test geothermal wells and planning a resilient, all-electric microgrid to power campus;⁴ and the UC Irvine Medical Center is planning to build an all-electric, world-class hospital.⁵ In each instance, extensive techno-feasibility studies have found that direct electrification requires a multi-decade timeframe and hundreds of millions of dollars in project costs at each campus. As such, UC is pursuing additional measures (detailed next) to mitigate emissions in the interim.
- **Energy Efficiency:** The University has executed over 1,100 energy efficiency projects across the campuses and medical centers, reducing UC's energy use by 12% since 2009 on a per square foot basis.
- **Renewable Electricity:** UC has more than 100 operational renewable energy projects, including onsite and offsite installations. In its role as an Electric Service Provider, UC has delivered 100% carbon-free electricity to participating electric accounts since 2019.⁶
- **Biomethane as a transition fuel:** UC is procuring Cap-and-Trade biomethane from landfills and food waste sources that was previously vented into the atmosphere or flared. By investing in these projects, UC can prevent these emissions at the source and use the captured biomethane to displace the fossil natural gas currently burned at its central cogeneration plants. Beginning in 2025, UC intends to displace approximately 20% of the fossil gas currently used on our campuses with zero-carbon biomethane. This supply will sunset by 2040. When this volume is reached, UC estimates that this solution will mitigate approximately one-sixth of its overall emissions.
- **Location-specific measures:** State-funded decarbonization studies are already underway at all campuses and academic health centers that will inform strategies, targets, and location-specific climate action plans that complement the approaches detailed above. Based on those findings, UC locations will create greenhouse gas reduction plans by January 2025. Under the new policy, UC campuses and academic health centers are expected to fully decarbonize no later than 2045, while hitting progressively significant emission reductions by 2030, 2035 and 2040. The transition to clean energy sources is already underway across UC, and leaders expect that several UC campuses will achieve decarbonization well ahead of the timetable.

³ <https://bigshift.ucdavis.edu/>

⁴ <https://cleanenergycampus.berkeley.edu/about>

⁵ <https://news.uci.edu/2021/01/21/uci-to-build-world-class-hospital-on-irvine-campus/>

⁶ Verified through The Climate Registry <https://www.theclimateregistry.org/tools-resources/reporting-protocols/electric-power-sector-protocol/>

In sum, UC is deeply invested in comprehensive, rigorous strategies to decarbonize and is moving rapidly given current technological, operational, and financial realities across the UC system.⁷ These measures comprise UC's comprehensive strategy to slash 90% of its emissions by 2045, based on 2019 levels.

Proposed Policy Recommendations

Since beginning its biomethane procurement program in 2013, UC has sought to purchase biomethane that complies with Section 95852.1 and 95852.2 (“Compliance Obligations for Biomass-Derived Fuels” and “Emissions without a Compliance Obligation”) and appreciates ARB’s efforts to provide guidance on how to comply with these requirements. Having contracted for biomethane that was previously flared or vented from multiple facilities—both within and outside of California—the University offers the following recommendations for how to clarify the existing eligibility criteria for biomethane in the existing Cap-and-Trade regulation while seeking to maintain the emissions reduction goal of the underlying statute.

1. **Additionality:** UC believes that the additionality test required for out-of-state biomethane facilities under 95852.1.1.2 and 95852.1.1.3 is fundamental to ensuring investments in biogas used to alleviate a Cap-and-Trade compliance obligation are consistent with the regulation’s emission reduction goals. Indeed, by capturing biogenic methane that otherwise would be vented or flared, the regulation reinforces the 2021 IPCC Working Group I report on the physical science driving climate change, which recommended that the first priority for policy makers to limit near-term warming effects and improve air quality should be “strong, rapid, and sustained reductions in CH₄ emissions.”⁸ UC recommends keeping the three-year lookback period specified in the regulation as an effective tool to establish the baseline against which Cap-and-Trade eligibility is calculated. We see room to clarify related operational questions regarding how to manage biomethane from these types of facilities, detailed below.
2. **Delivery to California:** The current regulation is silent as to how, or when, biomethane that qualifies under 95852.1.1.2 and 95852.1.1.3 must be delivered to California. ARB issued the “Biomass-Derived Fuels Guidance” on 1/11/19 that introduced a requirement that, for out-of-state facilities, “the entity claiming the biomass-derived fuel must purchase biomethane that meets the criteria for eligibility under Cap-and-Trade and consume it in California during that reporting year.”⁹ This delivery and consumption language has raised a host of questions: What is the definition of “consume”? Is a reporting “year” the calendar year (Jan 1-Dec 31), a fiscal year (UC’s is July 1-June 30), or a contract year (which could begin on any date and run for 365 days)? And perhaps most critically, why is there a need for this first-year consumption in California requirement? Buyers who seek to purchase Cap-and-Trade eligible biomethane will be paying a premium to capture fugitive methane emissions to displace fossil natural gas. It’s not clear how requiring consumption in California in the first year, under any definition, will prevent leakage or advance emissions reduction goals. Given the effective policy design that

⁷ The full analysis of UC’s emissions and the proposed suite of solutions to address them are available on UC’s Carbon Neutrality Dashboard: <https://cnidashboard.ucop.edu/>.

⁸ https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_SPM.pdf, pg 27

⁹ <https://ww2.arb.ca.gov/sites/default/files/classic/cc/reporting/ghg-rep/guidance/biomass.pdf>

requires additionality and a three-year lookback, UC believes the first year California consumption requirement is unnecessary and respectively suggests it be eliminated from the guidance and any forthcoming regulatory updates.

3. Start Date on Look-back Period: As previously discussed, UC believes that the three-year lookback period provides an effective safeguard to ensure that biomethane volumes that were previously flared, vented, and/or resulted from an expansion are accurately quantified. The regulation does not specify when to begin this calculation. UC suggests that, if ARB desires to clarify this point, choosing the contract execution date would be the most effective point at which to calculate the baseline. The reason has to do with the development chronology. The typical facility development process is the following: the developer secures the biogas rights, negotiates the offtake agreement, and then there is approximately 1-3 years required to finance, permit, construct, and commission the facility. From the seller's perspective, the loan size and terms, equipment sizing, and interconnection agreement are all predicated upon the contracted volume; from the buyer's perspective, the quantity of biogas will drive other procurement and operation decisions, such as whether to pursue additional supply. As such, establishing the baseline at the time the contract is finalized ensures certainty and eliminates the need to renegotiate the contract volume later in the development process when it could have substantial repercussions on the facility's success.
4. Preserve section 95852.1.1.a.4. This existing clause is essential to ensure that projects that were previously eligible under the existing regulation are not at risk of being disqualified due to any changes. UC has entered multiple, long-term (10-20 year) contracts with the understanding that these agreements would qualify for Cap-and-Trade eligibility and, therefore, would like to minimize disruptions to agreements that were put in place under a previous iteration of the regulation.
5. Further Incentivize California-based Projects: UC has prioritized procurement from biogas projects within the state. There are additional costs, however, related to interconnection, permitting, construction, and gas specifications that increase the overall price and/or slow the development timeline for California biomethane facilities. These factors translate into fewer in-state opportunities—often resulting in continued flaring of gas—and much higher prices. UC recognizes that many of these challenges are outside of the scope of the Cap-and-Trade regulation to solve. But to the extent there are ways to further incentivize California-based projects with any updates to this regulation—without increasing obligations for out-of-state projects—UC believes these would be beneficial to pursue.

Compliance Pathway for Pipeline-injected Green Hydrogen: UC is open to purchasing green hydrogen to accelerate its decarbonization efforts. Provided there are sufficient environmental and safety guiderails, one of the principal ways green hydrogen may be transported in the future is via the existing natural gas pipeline system. Under this construct, a green hydrogen producer would inject green hydrogen into the pipeline and then the end-user would withdraw a corresponding amount of natural gas (measured via the equivalent energy content) for use in their facility. Designing a compliance pathway that would allow the end-user to count the energy content of the green hydrogen

as exempt, The Cap-and-Trade regulation could incentivize those entities with a compliance obligation to invest in green hydrogen production facilities—helping drive forward this nascent and promising decarbonization technology.

UC appreciates ARB's ongoing efforts to chart a decarbonization path and looks forward to continuing to engage on these critical topics.

Sincerely,

A handwritten signature in cursive script that reads "David Phillips".

David Phillips
AVP, Energy & Sustainability