To: Rajinder Sahota, California Air Resources Board

From: Christian Theuer, Heirloom Carbon Technologies

Date: March 21, 2025

Subject: Heirloom’s Response to Request for Information on California’s Climate and Financial Disclosure Program

On behalf of Heirloom Carbon Technologies (Heirloom), thank you for seeking our input for the purpose of implementing California’s world-leading Climate and Financial Disclosure program.

Heirloom is a California-based company, on a mission to remove billions tons of CO2 from the atmosphere by 2050 to limit global temperature rise to the 1.5℃ warming threshold. Heirloom [builds a hybrid carbon mineralization and direct air capture (DAC) technology](https://www.heirloomcarbon.com/technology) that taps into one of the Earth’s most abundant resources, limestone, to remove CO2 directly from the atmosphere; and then permanently stores it using a range of different storage partners.

Heirloom [unveiled America’s first DAC facility in Tracy, CA](https://www.heirloomcarbon.com/news/heirloom-unveils-americas-first-commercial-direct-air-capture-facility) in 2023 and is currently building [a DAC facility](https://www.heirloomcarbon.com/news/two-direct-air-capture-facilities-in-northwest-louisiana) in Northwest Louisiana capable of removing hundreds of thousands of tonnes of carbon dioxide per year. Heirloom is also committed to robust public engagement processes about the deployment of such carbon removal technologies to minimize impacts on impacted communities and to support the development of community benefits plans for any region we seek to build in.

Please see below our responses to a subset of questions included in the Request for Information (RFI) that are relevant to enabling the deployment of DAC and carbon dioxide removal (CDR) technology.

**1. SB 253 and 261 both require an entity that “does business in California” to provide specified information to CARB. This terminology is not defined in the statutes.**

**a. Should CARB adopt the interpretation of “doing business in California” found in the Revenue and Tax Code section 23101?**

*Heirloom supply companies with permanent CDR credits to support global efforts to remove carbon from our atmosphere. We believe that transparency and accountability are essential for building trust and driving meaningful climate action. We believe that the 'doing business in California' definition within the Revenue and Tax Code section 23101, will allow CARB to identify major companies doing business in the state and their associated GHG emissions, while relying on established definitions rather than creating new ones We also encourage CARB to allow companies that do not meet the thresholds associated with this definition, to voluntarily report to this program to showcase the commitment of smaller companies in addressing climate change, and to provide valuable data to investors, policymakers, and the public. This inclusion fosters a level playing field, encourages innovation in carbon removal, and ultimately accelerates the transition to a net-zero economy.*

**b. Should federal and state government entities that generate revenue be included in the definition of a “business entity” that “does business in California?”**

*Heirloom believes that comprehensive and transparent climate reporting is essential for informed decision-making and effective climate action. Including federal and state entities that generate revenue in climate disclosure programs would offer several key benefits:*

* ***Informed Technology Deployment:*** *Publicly available climate disclosures from government entities would provide valuable insights into their emissions profiles and reduction efforts. This information would help CDR companies like ours identify opportunities to deploy our technology and solutions to support government agencies in achieving their climate goals.*
* ***Progress Tracking on Federal Initiatives:*** *Standardized climate reporting across government agencies would facilitate the tracking of progress towards federal climate initiatives, such as those outlined in Executive Order 14057, which set ambitious targets for federal agencies to reduce their emissions. Although this Executive Order was recently revoked, action by California would enhance transparency on GHG emissions associated with federal agencies.*
* ***Alignment with State Legislation:*** *Expanding the scope of climate disclosure to include government entities would align with the spirit of proposed legislation like SB 643 (Caballero, 2025), the CDR Program. This bill seeks to accelerate the development and deployment of CDR technologies, and comprehensive climate data from government agencies would be invaluable in achieving this objective.*
* ***Enhanced Public Trust and Accountability:*** *Greater transparency in government climate performance would enhance public trust and ensure accountability for taxpayer-funded agencies.*

*We urge you to consider the benefits of including federal and state government entities that generate revenue in the definition of “business entity” for climate disclosure purposes. This step would provide critical information to support the development and deployment of innovative climate solutions, while also ensuring greater transparency and accountability, which could encourage early state and federal leadership on decarbonization efforts.*

**3. CARB is tasked with implementing both SB 253 and 261 in ways that would rely on protocols or standards published by external and potentially non-governmental entities.**

**a. How do we ensure that CARB’s regulations address California-specific needs and are also kept current and stay in alignment with standards incorporated into the statute as these external standards and protocols evolve?**

*Heirloom recognizes the critical role of robust GHG reporting protocols in driving effective climate action. However, current frameworks must evolve to accurately reflect the critical contribution of carbon removal technologies like CDR. Existing protocols primarily focus on emissions reduction, often overlooking the vital role of concurrently scaling permanent carbon removal technologies in the near-term to achieve our 2045 net-zero goal as presented in the 2022 Scoping Plan. To ensure accurate accounting and incentivize investment in CDR, new climate disclosure programs should incorporate clear, standardized methodologies for quantifying and verifying carbon removals. This includes addressing key considerations like additionality, permanence, and the avoidance of double counting, while also distinguishing between nature-based and engineered removal solutions. This guidance should also consider how the program can support interim targets or goals for carbon removal, in line with net-zero goals. Providing guidance on the use of carbon removals in supporting marketing claims around net-zero and carbon neutrality, particularly taking into account the long-term durability of removals is needed to help customers make better informed decisions. .*

*The evolution of climate disclosure programs to recognize and account for CDR is not just a matter of technical accuracy; it is essential for fostering a thriving carbon removal industry. By providing clear pathways for companies to report and claim credit for their CDR-enabled removals, these programs can unlock critical financing and drive innovation in this vital sector. This, in turn, will accelerate the deployment of CDR technologies, enabling us to tackle the growing challenge of atmospheric CO2 and pave the way for a more sustainable future. A climate disclosure program that evolves with the inclusion of new GHG protocols and guidance focused on both regulatory and voluntary markets will facilitate needed transparency, and spur growth in the carbon removal industry.*

**6. If contracting out for reporting services, are there non-profits or private companies that already provide these services?**

*Heirloom does not have a perspective on which non-profits or private companies have valuable reporting services. Instead, our response focuses on describing the type of information that would be useful in these reports, and how it could be used by solutions providers.*

*Valuable Information:*

* *Scope 1, 2, and 3 Emissions Data:*
  + *Detailed emissions data (e.g. annual GHG emissions for Scope 1, 2, and 3 associated with specific business entities/subsidiaries, key emission generating activities with locational information to the extent feasible) from reporting companies is crucial. This helps CDR companies identify potential clients and target deployment efforts with industries with high emissions footprints.*
  + *Specifically, understanding a company's Scope 3 emissions (value chain emissions) reveals opportunities for CDR to address indirect emissions.*
* *Data on Residual Emissions:*
  + *Reports that show the amount of emissions that will remain after a company has done all that it can to reduce emissions. This shows the need for carbon removal.*
* *Corporate Commitments:*
  + *Detailed description of any climate commitments that corporation may have made to its shareholders/public including the associated targets and progress to date.*

*Collectively, information from reports generated from CARB’s Climate and Financial Disclosure programs could support solutions providers efforts to perform market analysis, conduct targeted outreach, identify partnership opportunities, and secure future investments and project financing.*

**7. Entities must measure and report their emissions of greenhouse gases in conformance with the GHG Protocol, which allows for flexibility in some areas (i.e. boundary setting, apportioning emissions in multiple ownerships, GHGs subject to reporting, reporting by sector vs business unit, or others). Are there specific aspects of scopes 1, 2, or 3 reporting that CARB should consider standardizing?**

*The GHG Protocol provides a broad framework for emissions accounting, but the overarching nature leaves gaps, particularly in Scope 3 reporting, where accounting nuances vary across industries. For emerging climate solutions and sectors with complex supply chains, such as aviation, clear and standardized reporting guidance is essential to ensure accurate disclosure and incentivize emissions reductions.*

*Aviation presents a notable example of Scope 3 accounting challenges. Currently, corporations purchasing sustainable aviation fuel (SAF) to reduce emissions from business travel cannot reflect these reductions in their Scope 3 disclosures under existing GHG Protocol guidance nor obtain limited assurance for their SAF purchases. This creates a disincentive for investment in low-carbon aviation solutions, as companies seeking to decarbonize travel have no recognized mechanism for reporting these reductions.*

*DAC offers another opportunity for reducing aviation emissions, yet existing reporting structures do not account for it. Carbon captured via Heirloom’s technology can be used as a feedstock for SAF, effectively closing the carbon loop, or be sequestered to neutralize CO2 emissions. Heirloom has a deal with United Airlines to remove or utilize up to 500,000 tons of CO2. However, current GHG Protocol guidance lacks a standardized method for recognizing these reductions in corporate emissions inventories. Without explicit guidance, companies purchasing SAF derived from DAC-based carbon have no clear way to account for the climate benefits.*

*To make Scope 3 reporting more transparent, actionable, and aligned with real-world decarbonization efforts, CARB should:*

* *Standardize industry-specific Scope 3 accounting where GHG Protocol guidance remains unclear, starting with aviation and other sectors reliant on nascent decarbonization technologies.*
* *Incorporate pathways for emerging carbon removal and utilization technologies, ensuring that DAC-derived feedstocks used in SAF and other low-carbon fuels are accurately accounted for in corporate inventories.*

*Standardization in Scope 3 reporting is critical for ensuring that corporate emissions disclosures reflect real decarbonization efforts. Without clear guidance, companies investing in emissions reductions from SAF are left without a viable accounting mechanism. CARB has the opportunity to bridge these gaps by providing industry-specific Scope 3 guidance, particularly for aviation, to ensure that corporate sustainability actions are accurately reflected and effectively incentivized.*