To: Matt Botill, California Air Resources Board

From: Heirloom Carbon Technologies

Date: March 28, 2025

Subject: Heirloom's Response to SB 905 Workshop Questions

On behalf of Heirloom Carbon Technologies (Heirloom), thank you for seeking public input to support the implementation of California's Carbon Capture, Removal, Utilization, and Storage Program (SB 905, Caballero, 2022).

Heirloom is a California-based company, on a mission to remove billions tons of CO_2 from the atmosphere by 2050 to limit global temperature rise to the 1.5°C warming threshold. Heirloom builds a hybrid carbon mineralization and direct air capture (DAC) technology that taps into one of the Earth's most abundant resources, limestone, to remove CO_2 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 in 2023 and is currently building a DAC facility 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 aggregated responses to the questions raised in the California Air Resources Board's (CARB) February 27, 2025 workshop presentation.

Permit and Project Portal

Heirloom's DAC facilities remove CO2 in a system that is entirely electric and able to be powered by renewable energy. Our operations are non-polluting. Our current facility operating in Tracy, CA, is 16x below San Joaquin Valley Air District's air permitting thresholds for particulate emissions, as confirmed by modelling and on-site measurements by a third-party assessor.

Heirloom's facility in Tracy, CA, was only required to obtain standard building permits because the technology does not have adverse air pollution impacts. In California, Heirloom was required to go through the California Environmental Quality Act (CEQA) approval process, prior to building our Tracy facility. In 2012, the lead agency City of Tracy's Desalination and Green Energy Project CEQA project was approved. To build

Heirloom's facility at the Green Energy Project location, a mitigated negative declaration addendum was prepared, as the project presented no new or discernable environmental impacts beyond those already considered in the original CEQA analysis. Heirloom's Tracy facility was approved in December 2022, and the project was completed less than a year later, in November 2023.

We understand that the purpose of the unified permitting platform is to manage and track the issuance of permits, with the goal of expediting project approval timelines. We urge CARB to also consider utilizing a system that improves public transparency and centralizes information for decision makers on carbon management technology options, including options that do not have adverse environmental impacts which can significantly reduce permitting timelines. This type of system could also enhance awareness of demonstrated technologies, to support industry's technology review and decision making process.

Rather than developing a new standalone system, we believe that the recently proposed Senate Bill 318 (Becker, 2025) creates an opportunity to bring together technology options to address GHG emissions and air pollutants in CARB's existing Technology Clearinghouse. This system can be used to highlight readily available, demonstrated technologies and to identify deployments worldwide. In doing so, permitting officials, industry, investors, as well as community representatives will have direct access to the state of commercial technologies and scale that can offer the most effective solutions for maximizing emission reductions while having little to no impacts on communities or the environment.

Value of Centralizing Information on Technologies

Centralizing information on technologies that address both greenhouse gases (GHGs) and air pollutants (i.e., criteria and toxic pollutants) in one consolidated location offers numerous benefits to various stakeholders:

- For Industry: A centralized database would simplify the process of identifying and comparing demonstrated commercially available clean technologies. This would help industries make informed decisions about investments in pollution control and carbon management technologies.
- For Regulators: A comprehensive up-to-date clearinghouse would provide regulators with valuable information on demonstrated commercial technology deployments, including DAC, to ensure that regulators have the knowledge base necessary to set effective standards and establish incentive programs to scale up technology deployments.
- For Technology Providers: A centralized platform would offer technology providers a space to showcase their solutions, increasing their visibility to potential

customers. This would help validate technologies by clearly displaying technology deployments.

- For Investors: Increased transparency and easier access to information on DAC technologies would help investors identify promising opportunities for investment. This would encourage the flow of capital into the development and deployment of clean technologies.
- For the Public: Centralizing information on clean technologies enhances transparency, making it easier for the public to understand what technologies are commercially available to reduce pollution in their communities.

In summary, we believe the use of an established system would provide the highest benefit due to the broad audience and readily accessible platform.

Financial Responsibility

There are many types of carbon dioxide removal (CDR) projects and carbon utilization pathways. For DAC projects, the need for financial responsibility typically arises when the captured carbon dioxide is intended for geological sequestration or other forms of permanent storage.

Instead of a one-size-fits-all approach, CARB could consider a tiered system where the level of financial responsibility is proportional to the specific risks of the CDR project. Factors like storage reservoir characteristics, injection volumes, proximity to sensitive areas, and the maturity of the technology could be considered. Requirements could be phased in over the project lifecycle. For example, lower levels of assurance might be required during the initial testing phase, increasing as the project scales up and injection volumes grow.

Given the long-term nature of DAC and potential changes in technology and understanding of risks, CARB should mandate periodic review and potential adjustment of the required financial responsibility amounts. Financial responsibility requirements could be linked to the verified amount of CO2 stored. This could incentivize effective, durable, and permanent storage.

Recognizing that DAC is different from traditional Class VI wells, CARB should develop specific guidance and potentially tailored regulations for DAC financial responsibility. This could address unique aspects like the capture process and the integration of DAC with different storage options. These additions and changes would create a more flexible, risk-informed, and comprehensive framework for financial responsibility that is better suited to the unique characteristics and long-term implications of DAC technology.

Criteria and Air Toxics Monitoring

As described in the Permit and Project Portal section, Heirloom does not emit any criteria air pollutants or toxic air contaminants. CARB should consider clearly identifying technologies that do not emit local air pollutants, so that industry is aware of solutions that may not require air monitoring, if required under the SB 905 regulations.

Summary

In conclusion, Heirloom urges CARB to clearly signal that the use of certain technologies, such as DAC, that minimize environmental impacts, may be subject to fewer requirements under SB 905. By identifying readily available, demonstrated technologies, CARB can determine which types of technologies may be eligible for expedited permitting pathways, carbon utilization pathways that require minimal financial responsibilities, and exemptions from monitoring requirements for air pollutants for technologies with no local impacts.