



Christine Luther Zimmerman

Director, California Regulatory Affairs

October 6, 2025

Carbon Sequestration: Carbon Capture,
Removal, Utilization, and Storage Programs
California Air Resources Board
1001 I Street
Sacramento, CA 95814

Submitted via the Workshop Comment
Submittal Form and by email to
ccs@arb.ca.gov

Re: WSPA Responses on the Information Solicitation to Inform Implementation of Carbon Capture, Removal, Utilization, and Storage Program: Senate Bill 905

The Western States Petroleum Association (WSPA) appreciates the opportunity to comment on the California Air Resources Board's (CARB) Information Solicitation to Inform of Carbon Capture, Removal, Utilization, and Storage (CCUS) Program: Senate Bill 905, released on August 22, 2025.¹ WSPA is a non-profit trade association that represents companies involved in various aspects of the energy sector, such as importing and exporting, producing, refining, transporting and marketing petroleum, petroleum products, natural gas and other energy supplies in California and four other western states, and has been an active participant in air quality and climate planning issues for over 30 years.

As CARB has repeatedly acknowledged, CCUS is an essential component of California's climate strategy.² Some emissions sources have limited or no greenhouse gas abatement options.³ CCUS technology is in-use across the US and Europe, deploying proven technology to support low-carbon energy supplies.⁴

In response to the August 2025 information solicitation, WSPA offers the following comments:

1. *In addition to the terms defined in statute, are there other key terms that should be defined? Please provide any proposed definitions with applicable citations.*

No comment.

2. *Are there any definitions in the statute that may require further expansion or clarification?*

No comment.

¹ CARB. Information Solicitation to Inform Implementation of Carbon Capture, Removal, Utilization, and Storage Program: Senate Bill 905. 2025. Available at: https://ww2.arb.ca.gov/sites/default/files/2025-08/905_solicitation_Aug2025_0.pdf. Accessed: September 2025.

² See e.g., CARB, Responses for 9/12/2024 Joint EJAC/CARB Board Meeting. Available at <https://ww2.arb.ca.gov/sites/default/files/barcu/board/books/2024/091224/carbresp.ejac-ccus-and-dac-recs.pdf>. Accessed: September 2025.

³ CARB, Workshop Presentation: Carbon Sequestration: Carbon Capture, Removal, Utilization, and Storage Program (SB 905, Caballero, 2022). February 27, 2025. Available at https://ww2.arb.ca.gov/sites/default/files/2025-02/FEB27_2025_CARBWorkshop_Introduction_Public%20Comment.pdf. Accessed: September 2025.

⁴ Id.

Applicability:

General project categories may include:

- *Nature-based solutions*
- *Carbon capture and sequestration or storage from large emitters*
- *Carbon capture from large emitters and ambient air for “permanent” sequestration through utilization*
- *Direct capture from ambient air for “permanent” sequestration*
- *Passive air capture from ambient air for “permanent” sequestration*
- *Bioenergy with carbon capture and storage*
- *Biomass-based carbon removal with storage*

3. Are there any project categories missing from this list?

CARB should not exclude CCS projects from smaller emitters. WSPA emphasizes the importance of ensuring that smaller parties are able to participate in CCS projects, as their involvement will help scale up deployment of SB 950 initiatives.

CARB should also include ocean-based carbon dioxide removal (CDR). Ocean-based CDR projects offer significant long-term CO₂ removal potential in California. Including this category would ensure comprehensive consideration of CDR pathways.

4. Are there suggestions for further description of these categories, or ways to group categories?

One area that would benefit from clarification is the scope of CCUS project categories considered under SB 905. To fulfill SB 905’s statutory goal —facilitating the development of large-scale geological sequestration projects—CARB should avoid sidetracking or diluting this intent by expanding the scope of categories. CARB should make clear that prioritization of mature geological sequestration technology projects occurs to align with the 2022 Scoping Plan trajectory for both short-term and long-term CO₂ removal targets. This would ensure acceleration of near-term emission reductions and maximize the likelihood of successful project implementation.

Further, CARB should provide a clear definition of “large emitters” within the project categories to ensure predictability for regulated entities and developers. CARB should provide a distinction between a “large emitter” under the proposed SB 905 regulations and a “covered entity” under the Cap and Invest Program if there is a distinction and, if there is no distinction, harmonize the terms.

Financial Responsibility (FR):

SB 905 requires CARB to develop financial responsibility requirements that are “no less stringent than Section 146.85 of Title 40 of the Code of Federal Regulations, as that section read on January 1, 2022.

5. *In addition to the instruments listed in §146.85 of Title 40, are there other existing financial responsibility instruments CARB staff should consider?*

Federal regulations under 40 CFR 146.85(a)(1) already specify qualifying financial responsibility instruments—trust funds, surety bonds, letters of credit, insurance, self-insurance/corporate guarantees, and escrow accounts—and also permit “any other instrument(s) satisfactory to the Director.” CARB should accept the instruments outlined in federal financial responsibility regulations rather than add a separate state list.

6. *What other additions or changes to the existing requirements for financial responsibility should CARB consider and why?*

Financial responsibility requirements under SB 905 should remain consistent with existing CARB/EPA demonstrations and avoid duplicative or potentially inconsistent obligations. To implement this alignment, when an operator already maintains EPA-approved FR, CARB should accept those instruments and amounts for the overlapping obligations and size only a targeted California “delta” to reflect the state’s longer 100-year permanence horizon.

7. *How should the requirements account for scenarios such as ownership transfer, bankruptcy, change of ownership structure, change in insurance carrier, etc.?*

The federal Class VI program embeds continuity-of-coverage protections (cancellation/ renewal/ continuation provisions, notice and replacement requirements, and bankruptcy safeguards) and keeps the Class VI UIC permitting authority (EPA in California) in control of approval and adequacy of instruments over time. These provisions are designed to keep FR in place through changes in ownership or financial condition; additional state overlay is unnecessary.

8. *Are there other ways to address investment uncertainty through insurance, or other mechanisms?*

Federal rules already allow one or multiple instruments to be used by project phase, require minimum financial strength for third-party providers, and subject the package to Director approval/updates. CARB should adopt this approach rather than layering on additional state mechanisms.

Criteria and Toxics Monitoring:

SB 905 requires that all projects include monitoring of “criteria pollutants and potential toxic air contaminants at one or more sites within the geologic storage complex and at mobile or fixed sites within the facility, and monitoring of ambient carbon dioxide concentrations over the geologic storage complex to facilitate leak detection.”

9. *What project-specific air monitoring activities are CCUS/CDR developers currently conducting or intending to conduct, if any?*

Developers operating under EPA Class VI and Subpart RR conduct monitoring across the wellbore, subsurface, and surface to verify performance and protect USDWs. Class VI requires: analysis of the CO₂ stream; continuous monitoring of injection pressure/rate/volume and annulus pressure/volume; quarterly corrosion monitoring; groundwater quality/geochemical monitoring above the confining zone; well testing; tracking of the CO₂ plume and pressure front; and surface air and/or soil-gas monitoring, all of which

are stated in final Class VI guidance documents for Testing and Monitoring. In parallel, Subpart RR requires an EPA-approved MRV plan that delineates monitoring areas, includes strategies to detect and quantify any surface leakage, and mandates reporting of CO₂ received, injected, produced, and emissions from equipment leaks/venting between the flow meter and wellhead.

WSPA is aware that EPA has proposed to repeal its GHG Reporting Program, including Subpart RR. WSPA notes that CARB's Mandatory Reporting Regulation (MRR) already employs similar mass balance accounting to track CO₂.⁵ Therefore, WSPA recommends that CARB allow geologic sequestration to use this same approach rather than implementing a wholesale backfill of the EPA program if the repeal is finalized.

10. What specific criteria pollutants or toxics emissions should be prioritized for monitoring and where along the CCUS/CDR project components (i.e. capture, transport, injection/utilization) should monitoring be prioritized?

For purposes of CCUS/CDR project development, the requirements of air emissions monitoring should be derived from existing regulatory frameworks rather than creating new criteria or toxics pollutant-specific requirements unique to these technologies. Federal, state, and local agencies already administer comprehensive permitting, compliance and monitoring programs for criteria air pollutants and toxic air contaminants. For example, large industrial sources are subject to New Source Review (NSR), and Title V permit conditions, and state and local air district rules that require monitoring, recordkeeping, and reporting for NO_x, SO₂, CO, PM, VOCs, and hazardous air pollutants. In some cases, these operations may also be subject to requirements to install and operate Continuous Emissions Monitoring Systems (CEMS).

Additionally, emissions of criteria pollutants and toxic air contaminants from industrial sources are already subject to rigorous oversight by EPA, CARB and local air districts. Air districts have set stringent limits and monitoring requirements for combustion sources, flares, boilers, turbines, and other equipment. Additional oversight comes from CARB AB 617 community air monitoring and reporting requirements, which further ensure transparency and emissions reductions in disadvantaged communities which have been overburdened by air pollution. These existing frameworks comprehensively regulate air emissions from industrial facilities. Accordingly, CCUS/CDR projects should be treated in a consistent manner with other industrial sources, with monitoring focused at the same project components where combustion, processing, or other emissions could occur.

There is no need demonstrated for additional monitoring for CCUS projects. Monitoring should leverage requirements for criteria pollutants and toxic air contaminants under existing programs. In this way, CCUS/CDR projects should be integrated into the established permitting and enforcement mechanisms without duplicative or inconsistent requirements.

11. How long should criteria or toxics monitoring be conducted for?

Any criteria pollutants or air toxics monitoring requirements, including duration, for CCUS projects should derive from existing applicable regulatory programs and be applied at the same project components where combustion, processing, or other potential emissions

⁵ See e.g., 17 CCR Sections 95102 and 95123.

occur. There has been no need demonstrated for additional monitoring of these pollutants from CCUS projects.

12. Are there examples of existing regulatory monitoring efforts being conducted in other sectors/sources that may be instructive for SB 905?

WSPA reiterates that criteria pollutant and air toxics monitoring requirements for CCUS projects should be governed by existing programs. SB 905 does not authorize CARB to establish new monitoring requirements; rather, it places responsibility on project operators to “[c]reate an air monitoring and mitigation plan to measure, track, and minimize potential toxic air contaminants and criteria air pollutants.”

13. What frequency of monitoring and reporting should CARB consider, and should this differ by project type? Do you have estimates of costs for monitoring and reporting?

The frequency of monitoring and reporting for CCUS projects is already governed by existing federal and state programs. For example, EPA’s Class VI Underground Injection Control (UIC) program establishes robust monitoring, reporting, and verification requirements for geologic sequestration projects, including continuous and periodic monitoring of injection operations, reservoir integrity, and long-term post-injection site care.

In addition, major industrial sources are subject to well-established monitoring frameworks such as continuous emissions monitoring systems (CEMS) for NO_x, SO₂, CO, and CO₂; periodic monitoring and recordkeeping under Title V permits; AB 617 specifies community monitoring programs in many areas of the state; and local air district conduct extensive fixed and mobile monitoring programs. These programs set clear expectations for monitoring frequencies and reporting intervals, which typically range from quarterly to annually depending on the pollutant and permitting framework.

CCUS projects in California do not present fundamentally different air emission profiles than other regulated industrial sources. Therefore, their monitoring and reporting frequencies should be determined by the applicable existing program requirements. Relying on these established approaches—rather than creating duplicative or inconsistent obligations—will minimize confusion and ensure regulatory consistency across sectors.

14. Should CARB consider different monitoring requirements at carbon capture sites versus carbon removals utilizing natural systems?

As noted in responses to Questions 10-13, WSPA reiterates that monitoring requirements for carbon capture sites should be consistent with existing federal regulations rather than introducing any new framework. At the federal level, EPA’s Class VI UIC program and Greenhouse Gas Reporting Program (Subpart RR) already establish robust monitoring, reporting, and verification requirements for geologic sequestration projects, including continuous and periodic monitoring of injection operations, reservoir integrity, and long-term post-injection site care. In addition, air emissions from capture facilities are already subject to monitoring under the Clean Air Act and local air district permitting, using established requirements for criteria pollutants and hazardous air pollutants.

As existing federal frameworks already provide a comprehensive foundation, monitoring and reporting requirements for SB 905 projects should be determined by the applicable existing programs. WSPA strongly opposes any effort by CARB to establish new, SB 905-specific

monitoring requirements, as doing so would create unnecessary barriers to project implementation and run counter to SB 905's statutory goal of facilitating the development of CCUS projects.

Minimizing local water and air quality impacts:

SB 905 calls for strategies to ensure that carbon dioxide capture, removal, or storage projects minimize, to the maximum extent technologically feasible, local water pollution or air pollution from construction- and transportation-related impacts from the projects in communities adjacent to carbon dioxide capture removal, or storage projects, including a geologic storage complex.

15. What types of strategies are in use in other regulatory or voluntary programs that could be adapted to meet the statutory requirements?

CARB can meet SB 905's intent without creating new programs by adopting proven federal frameworks already designed to protect local water and air. The UIC Class VI program minimizes water-quality risks through: (i) stringent site-selection and characterization (suitable injection and confining zones; detailed subsurface data before construction and again before operation); (ii) Area of Review (AoR) modeling and corrective action to find and fix potential leakage pathways (e.g., legacy wells) and to periodically re-evaluate the AoR as monitoring data come in; (iii) performance-based well construction and mandatory mechanical integrity testing that prevent movement of fluids into or between USDWs; and (iv) a comprehensive testing and monitoring program, which includes continuous operational monitoring, groundwater monitoring above the confining zone, and plume/pressure-front tracking during injection and into post-injection site care to detect and address any migration risks early.

For air and leak-detection needs, EPA's GHGRP Subpart RR requires an MRV plan that maps monitoring areas, identifies potential surface-leakage pathways, and sets strategies to detect and quantify any surface leakage; it also requires recordkeeping and reporting of equipment leaks and vented emissions at the surface.

16. Are there other guardrails that should be considered beyond existing local, state, and federal regulations to minimize impact? For example, many projects will have to meet the requirements of the California Environmental Quality Act (CEQA), what other requirements should be included and why? If proposing other requirements, please also provide any cost and time estimates for implementation.

Current programs—including EPA's Class VI UIC program, Greenhouse Gas Reporting Program, Clean Air Act permitting, AB 617 community air monitoring, and local air district requirements—already provide comprehensive monitoring, reporting, and enforcement mechanisms for both air emissions and underground storage integrity. Therefore, WSPA believes it is unnecessary to develop additional requirements. Also, including additional requirements would be counter to the SB 905 objective to accelerate development of these projects.

CCUS/CDR projects will already need to conduct environmental analyses to meet CEQA requirements.⁶ To facilitate expedient review, it would be helpful for CARB and air districts to

⁶ We note that CARB previously has acknowledged in response to Environmental Justice Advisory Committee (EJAC) comments on SB 905 that "All CCUS projects [already] must be in compliance with existing



provide clear guidance on how CEQA lead agencies could assess CCUS projects, including both air emissions and storage-related risks. This guidance could reduce uncertainty for project developers and ensure CEQA reviews are thorough, transparent, and aligned with existing regulatory frameworks, without imposing unnecessary new regulatory burdens.

17. Is there any information from existing studies or projects to inform a CEQA analysis for the rulemaking?

No comment.

Permit and Project Portal:

SB 905 requires that CARB adopt regulations for a unified permit application for the construction and operation of carbon dioxide capture, removal, or sequestration projects to expedite the issuance of permits or other authorizations for the construction and operation of those projects. Project developers and non-state agency use of a streamlined permit application is voluntary. CARB is also developing a data and information portal to assist project developers through the permitting process. This portal will also support the implementation of the unified permit application.

NOTE: SB 905 does not call for CARB to issue permits for the construction or operation of CCUS or CDR projects.

18. What key issues should CARB address when developing the unified permit application?

SB 905 directs CARB to “adopt regulations for a unified permit application for the construction and operation of carbon dioxide capture, removal, or sequestration projects to *expedite* the issuance of permits”. WSPA would like to stress that this mandate does not call for creating a new permitting program or imposing additional permitting requirements that may delay the permitting process. Consequently, in developing the unified permit application, CARB must prioritize the leveraging of existing regulations to streamline the permitting process. CARB should rely on the robust federal, state, and local frameworks already in place—such as EPA’s Class VI UIC program, federal GHGRP requirements, Title V, and local air district rules/programs—to streamline application, monitoring, and reporting obligations in its regulation.

By leveraging existing programs rather than duplicating or expanding them, CARB can avoid creating new burdens on project developers, streamline application processes, and help facilitate the timely development of large-scale CCUS projects in California, consistent with the statutory purpose of SB 905.

environmental laws requiring EIRs and CEQA as applicable.” CARB, Responses for 9/12/2024 Joint EJAC/CARB Board Meeting. Available at <https://ww2.arb.ca.gov/sites/default/files/barcu/board/books/2024/091224/carbresp.ejac-ccus-and-dac-recs.pdf>. Accessed: September 2025.

19. Considering the data and information portal will be voluntary to use, what features of the permit portal would increase the likelihood the portal is used by both project developers and permitting agencies?

WSPA reiterates that the unified permit application regulation should not require information beyond what existing federal, state, and local permit programs already demand. Adding new requirements would create unnecessary burdens and could undermine the efficiency of the unified application process. Additionally, WSPA emphasizes the importance of clarifying how information submitted through the application would be handled if CARB establishes a public-facing data portal. Clear guidance on confidentiality and data use is essential to protect sensitive business information while supporting transparency objectives.

20. Are there examples of existing similar systems (e.g. CEQAnet) that CARB should look to when developing the permit portal?

WSPA does not have a specific permitting portal or project database system to recommend as a model. However, if CARB proceeds with developing such a system, we request that the agency make clear that its implementation will not create additional prerequisites or bottlenecks that delay projects from moving forward. The portal should be structured as an optional efficiency tool, rather than a new gating requirement, so that SB 905 regulatory deployment and associated CCUS project deployment are not hindered by state IT rollout challenges.

21. Are there examples of existing public CCUS project databases that we should look at and/or emulate for public reporting on project deployment?

WSPA does not have a specific permitting portal or project database system to recommend as a model. However, if CARB proceeds with developing such a system, we request that the agency make clear that its implementation will not create additional prerequisites or bottlenecks for eventual regulatory implementation that delay projects from moving forward. The portal should be structured as an optional efficiency tool, rather than a new gating requirement, so that project deployment is not hindered by IT rollout challenges.

Integration with Existing State Programs and Potential New Policy Support:

Projects developed under SB 905 have the potential to be used for compliance or reporting under several state climate efforts and programs. Those programs include the following:

- *Reducing the Cap-and-Trade compliance obligation for capturing and storing carbon from the state's largest greenhouse gas facilities such as power plants and manufacturing and offsets for ambient air carbon dioxide removal.*
- *The Low Carbon Fuel Standard to reduce transportation fuel carbon intensity or generate direct air capture credits.*
- *Reporting under the Corporate Greenhouse Gas Reporting and Climate Risk Financial Disclosure Programs*
- *Reducing the carbon intensity of products included in the program for Embodied Carbon in Buildings*
- *The Net Zero Emissions Strategy for the Cement Sector*

22. *What role could projects developed under SB 905 play in these programs and are there other programs or policies in which carbon capture removal, storage, and utilization could play a role for compliance?*

WSPA supports allowing SB 905 projects to directly reduce Cap-and-Trade compliance obligations for covered entities which are capturing and sequestering carbon. To be effective, SB 905 should establish practical policy mechanisms that distinguish between project types. For projects that directly reduce GHG emissions from covered entities, CARB should implement changes under the MRR so that those reductions are properly reflected in the facility's covered emissions under the Cap-and-Invest program. For other project types, such as agricultural or land-based projects that do not directly tie to covered facility emissions, CARB should focus on developing new offset protocols.

WSPA emphasizes that while accounting for GHG reductions from CCUS projects for Cap-and-Invest compliance may require amendments to the Cap-and-Invest and the MRR programs, such GHG accounting should not require any CARB approval under SB 905. In other words, covered entities should be able to account for GHG reductions from CCUS projects for Cap-and-Invest compliance without any additional "CARB approval" under SB 905 being a prerequisite.

In all cases, CARB should provide clear guidelines for monitoring, reporting, and accounting of GHG reductions from SB 905 projects so these reductions can be reliably recognized across other regulatory programs, such as Cap-and-Trade and the Low Carbon Fuel Standard, without requiring additional independent validation.

23. *Are there other things the state could be doing to scale up deployment of projects under SB 905?*

To effectively scale up deployment of projects under SB 905, the state should focus on providing clarity, consistency, and certainty for project developers while recognizing the core purpose of the law. First, permitting for CCUS projects is already addressed through existing federal, state, and local programs—such as EPA's Class VI UIC program and established air emissions permitting frameworks—so there is no need for CARB to develop additional, SB 905-specific permitting or monitoring requirements. Second, the accounting mechanisms for SB 905 projects should directly support Cap-and-Trade compliance by ensuring that GHG reductions from qualifying projects can be recognized against covered entity obligations without requiring any additional CARB approval under SB905. Clear and consistent guidance in these areas will reduce uncertainty, encourage investment, and accelerate the deployment of large-scale CCUS projects in California.

Additionally, WSPA also recommends CARB and other State agencies should encourage leasing of pore space under state lands and expedite completion of the pore space unitization guidelines, which would help reduce uncertainty for both investors and landowners and support broader deployment of projects under SB 905.

24. *Is there a potential role for carbon removal using climate-smart agriculture practices under the SB 905 framework?*

No comment.



Protocols

SB 905 authorizes CARB to adopt protocols to support additional methods of utilization or storage of captured carbon dioxide.

25. Are there certain carbon capture, removal, utilization, and storage project type methodologies that should be prioritized based on existing science, existing methodologies, or implementation experience?

WSPA recommends prioritizing mature, scalable CCUS while providing a simple route for emerging technologies to participate. Emphasis should be on approaches that can deliver near-term deployment that can be harmonized with existing federal requirements to avoid duplication.

26. Should CARB consider adopting project type specific protocols or defining more widely applicable standards, or a combination of both? If CARB were to define key standards applicable to all methodologies as opposed to individual methodologies based on specific technology or storage, what could those look like (i.e. recommendations on existing standards), and would that approach help to scale and innovate in this space faster than development of individual protocols?

WSPA supports a combination approach: adopt a concise technology-neutral core standard that applies to all CCUS projects, and add brief technology-specific modules only where needed. Where possible, CARB should accept existing federal or consensus methods by reference to avoid duplication.

Public Project Database:

27. Are there examples of existing public CCUS project databases that we should look to and/or emulate for public reporting on project deployment

WSPA does not recommend that CARB develop a new public CCUS project database. Authoritative, regularly updated repositories already exist. CARB should prioritize resources elsewhere rather than new data infrastructure.

Thank you for considering our comments. We would welcome the opportunity to discuss these concerns in more detail. If you have any immediate questions, please feel free to contact me at czimmerman@wspa.org. We look forward to working with you on these important issues.

Sincerely,

Christine Luther Zimmerman
Director, California Regulatory Affairs