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Carbon Direct

The Navigator

Distilled insights to navigate rapidly evolving carbon markets | October 2024



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Letter from the Editor

In the wake of Climate Week NYC, I am struck by the palpable sense of urgency and collaborative spirit among climate leaders. Conversations have shifted noticeably toward the implementation of climate goals. This momentum is both invigorating and a reminder of the significant work that lies ahead.

In this issue of *The Navigator*, we delve into critical pathways for action. Our spotlight on contrails sheds light on the significant, yet often overlooked, impact of aviation-induced clouds on global warming (page 4). We highlight new contrail policy developments in the European Union and discuss some surprisingly practical steps to mitigate contrail-induced warming. Community benefit plans are also gaining increased attention, especially in the context of carbon dioxide removal projects (page 7). We examine what these plans entail and outline best practices for community engagement. We also delve into the ongoing debate over ethanol production with carbon capture and storage and whether it should be classified as carbon removal or emissions reduction.

On the policy front, the Commodity Futures Trading Commission released its final guidance on voluntary carbon credit derivative contracts (page 12). While the direct impact of this guidance may be limited, we analyze how it signals a growing emphasis on quality standards across carbon policies. Finally, as we approach the 2024 US election, we are closely watching its implications for climate policy and permitting reform (page 18). At the same time, state-level legislation continues to drive progress, and we cover key developments, including the journey of California's SB 308 bill and its lessons for carbon removal policy.

You may notice this issue does not include our usual markets section. We are dedicating that analysis to our forthcoming *2024 State of the Voluntary Carbon Market* report, which will provide a comprehensive look at market trends and insights.

Thank you for reading this issue of *The Navigator*. Our aim is to distill key carbon science and policy developments, paired with expert insights, to help you navigate the complex landscape of carbon management. As always, your feedback is warmly welcomed.

Bodie Cabiyo, PhD
Editor and Senior Scientist

Science Insights

Spotlight: Contrails and policy

Jessica Walkenhorst, PhD; Liam Kilroy; and Colin McCormick, PhD

The science behind contrails

Contrails are human-caused cirrus clouds resulting from aviation. These are thin ice clouds that typically form at altitudes of 8–13 km (roughly 23,000–43,000 ft). Individually, contrails can have either cooling or warming effects on Earth's atmosphere, but are strongly warming on average.

- Cooling from contrails is caused when they reflect incoming solar radiation back into space. This cooling reaches its maximum during the day and is zero at night.
- Warming from contrails is caused when they block outgoing heat (infrared radiation) from leaving Earth's atmosphere, which happens both during the day and at night.
- Because cooling happens only during the day, and warming happens both day and night, contrails have a strong warming effect overall.

Contrails often appear near airports. Most evaporate quickly and have no significant climate effect, but a small fraction can persist for many hours and have a large climate impact. Contrails form when soot and water-rich aircraft exhausts mix with colder, ambient, humid air under specific pressure conditions. Climate-relevant contrails with large warming effects only exist within thin, cold, and humid layers of the atmosphere called ice-supersaturated regions (ISSRs). If a contrail forms in an ISSR and stays there, it can grow into a long-lived, human-caused cirrus cloud. These are the contrails that contribute to global warming.

Developments in policy on contrails

The European Union (EU) is starting to pay attention to non-CO_2 emissions, including contrails. It has mandated that all airlines must start reporting on non-CO_2 emissions of flights inside the European Economic Area (EEA) by the end of 2024. By the end of 2027, the European Commission will use this information to consider whether legislated mitigation measures are appropriate.

While sustainability efforts in the aviation industry are generally associated with optimizing operations using sustainable aviation fuel (SAF), science suggests that contrails also contribute significantly to global warming, at a level that is roughly equivalent to the aviation industry's total CO_2 emissions from flights. In 2023, the EU passed Directive 2023/958, which requires aircraft operators to report their non-CO_2 emissions annually starting in 2025. This reporting will include the radiative climate effects caused by the formation of contrail cirrus clouds. The European Commission will provide yearly reports on these emissions, followed by a final report in 2026. If appropriate, a legislative proposal for mitigating non-CO_2 aviation emissions will be made by the end of 2027.

The introduction of contrails reporting in the aviation industry could also have impacts on greenhouse gas accounting rules. Currently, these rules only require fuel-based emissions to be included, but companies may one day need to include contrails in their carbon accounting for business travel and air-based shipping.

What stakeholders can do about contrails

There are two basic ways to minimize the climate impact of contrails: (1) by adjusting flight paths to avoid ISSRs, and (2) by using SAF, which can shorten contrail lifetimes. Because contrail formation is an active field of research, some uncertainties in the exact numbers remain. Nevertheless, the trends are clear. Avoiding ISSRs and using SAF can have large impacts on reducing contrail-caused warming.

- *Recent studies have shown that by rerouting planes to avoid ISSRs, up to 65% of contrail-caused warming could be avoided while increasing fuel consumption by less than 0.2%.*
    - ISSRs typically cover large areas, but they are also thin, occupying only a thin layer of the atmosphere. Therefore, small changes in altitude can often be enough to avoid these regions, and such adjustments are well within the limits of operational feasibility. Recent trials have demonstrated this in practice.
    - While rerouting flights might lead to higher fuel consumption, one study estimates that using rerouting algorithms based on contrail predictions could avoid up to 65% of contrail-caused warming effects while increasing fuel consumption by less than 0.2%. From an operational perspective, this would require changes to the trajectories of fewer than 3% of flights.

- *Simulations estimate that up to 10% of contrail warming could be avoided simply by using 50% SAF for only 2% of flights. As SAF becomes more available, these reduction potentials increase further.*
    - Because SAF has a higher hydrogen density than conventional Jet-A fuel, it burns more efficiently and produces less soot. With less soot acting as crystallization seeds, the ice crystals that make up a contrail become larger, making the contrail heavier so that it sinks out of the ISSR faster and evaporates more quickly. Though the higher water content of SAF exhaust leads to slightly increased contrail formation, and larger ice crystals favor warming effects, shortened contrail lifetimes lead to an overall reduction in warming caused by contrails.
    - A recent study estimates that contrail-caused warming could be reduced by up to 45% if 100% SAF was applied to all flights. Currently, this is not feasible due to technical limitations and limited SAF availability. However, SAF use (up to its permitted blend limit of 50%) could be targeted at flights with the largest potential for contrails reduction. Estimates, based on simulations, indicate that up to 10% of contrail warming could be avoided by using a 50% SAF for just 2% of flights.

10%

of contrail warming could be avoided simply by using 50% SAF for only 2% of flights.

BOTTOM LINE

Flight contrails significantly contribute to global warming. Starting at the end of 2024, flight operators operating inside the EEA will have to start reporting on their contrail emissions. This could drive changes in carbon accounting across other industries in the mid-to-long term. Two ways of mitigating the negative impacts of contrails are slight adjustments to flight paths and the use of SAF.

Learn more at Carbon Direct's upcoming webinar with Colin McCormick, PhD, Principal Scientist at Carbon Direct and Marc Shapiro, Director of the Contrails Team at Breakthrough Energy: *Sustainable Aviation: Insights into Mitigating Contrails.*

Prioritizing community benefit plans

Grant Gutierrez, PhD and Jane Zelikova, PhD

What is a community benefit plan?

Community benefit plans (CBPs) outline strategies to ensure that local communities receive economic, social, and environmental benefits from carbon dioxide removal (CDR) projects. These plans are particularly crucial for marginalized and low-income communities that are often disproportionately affected by climate change and industrial activities. A well-designed CBP seeks to address specific community challenges, including those created or exacerbated by CDR projects. A CBP outlines specific actions the project developers will take, like creating jobs, improving local infrastructure, and alleviating short- and long-term environmental impacts. Importantly, these plans are not just about mitigating harm—they are about providing new opportunities and enhancing resilience in communities that need it most.

Renewed attention on community benefit plans

While many CDR projects are asked to address community harms and benefits in some way, little formal guidance exists to help project developers build robust and authentic CBPs. Recently, the United States (US) Department of Energy (DOE) launched the Responsible Carbon Management Initiative, which includes initial guidance for how to effectively design CBPs. The DOE guidelines represent a first pass at setting requirements for CBPs for CDR projects in the US, and there is ample room for more resources and guidance to help project developers build their CBPs.

What buyers should know about community benefit plans

Not all CBPs are created equal. Our experience working with a wide range of buyers and project developers has highlighted a few commonalities among the CBPs in use today and clear opportunities for these plans to improve. Here are some key considerations for both developers and buyers alike:

- *We are all learning*. Project developers have a continuum of familiarity and comfort with community engagement generally, and CBPs specifically. At the same time, buyers are also getting up to speed on what they should be looking for in terms of meaningful community engagement.

- *Community feedback must be incorporated into the CBP early and often.* Project developers should identify and engage key community stakeholders from the inception of the project. Each project is unique and requires background research on the local context, including unique community challenges and opportunities. A CBP should be drafted and shared with community representatives to seek their direct feedback and workshop ideas for how it can be improved.
- *The CBP should be detailed.* For example, when outlining a benefit related to workforce development, this kind of statement is insufficient: "17 jobs will be created." A detailed CBP will distinguish between seasonal or temporary jobs (e.g., construction jobs) and permanent or operational jobs. Ideally, a project developer will identify job categories that require specific training or skill sets along with a pathway for local or priority hiring to ensure that jobs are filled with workers from the local labor force.
- *The CBP should be right-sized to the potential impacts and benefits the project will generate.* A CDR project that supplies credits by retrofitting or adding a technological solution into a pre-existing system will require different degrees of attention in a CBP than a completely new facility or engineered project and system. The CBP should reflect the level of intervention into the local context, and should consider elements of profit sharing, equity stake, co-ownership, land tenure issues, resource investment in infrastructure, and local programming as a result of project profits.

BOTTOM LINE

Incorporating CBPs into CDR projects can serve as a critical step toward advancing environmental and climate justice. However, simply having a CBP plan is not enough. These plans must address key community concerns in a detailed manner and be based on authentic and continued engagement with a wide range of community members. Buyers can prioritize CBPs in their selection of CDR projects and credits to support positive social and environmental change.

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What we're watching in science

Shirin Mavandad and John Dees, PhD

Enhanced rock weathering

Enhanced rock weathering (ERW) is gaining traction as a promising, scalable CDR pathway. ERW could remove 25–100 gigatonnes of CO_2 over the next 50 years. In ERW projects, finely ground rocks are spread onto croplands. As the rocks dissolve, carbon moves into the soil column, travels into waterways and eventually the ocean, where it can be stored for millennia.

ERW offers both climate and agricultural benefits and has exciting CDR potential, but some challenges remain. Key opportunities and risks to balance in considering ERW projects include:

- ERW may boost soil health, improve crop yields, and reduce soil acidification. Recent offtake agreements show strong interest from farmers and carbon credit buyers alike.
- ERW has the potential to scale rapidly and offer credits at a relatively affordable price.
- Because the effects of ERW take place over a large, open system encompassing both terrestrial and oceanic environments, carbon accounting is a core challenge for ERW projects. Some experts suggest that measurement, reporting, and verification approaches sufficient for carbon markets are still far off.
- There is potential for ERW projects to introduce harmful contaminants and heavy metals into soils. Some experts recommend baseline testing and follow-up testing for levels of contamination as a safeguard, with current biochar standards suggested as an example to follow.

WHY IT MATTERS

ERW represents a timely and cost-competitive CDR method with agricultural co-benefits, such as improved crop yields. Additionally, ERW can be easily integrated into current farming practices using existing equipment. This gives it a unique ability to remove carbon at large scales. ERW projects are particularly feasible in countries with large areas of suitable cropland, such as China, the US, and India. This makes it a potentially important strategy for high-emitting countries to meet their global climate goals.

Learn more in Carbon Direct's *A Buyer's Guide to Enhanced Rock Weathering in Croplands.*

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Ethanol carbon capture and storage

The debate over whether ethanol production with carbon capture and storage (CCS) qualifies as carbon removal or emissions reduction remains unsettled, with critical implications for climate strategies and carbon markets.

There are a few key points of contention within this debate:

- *Life cycle assessment (LCA) boundaries:* Proponents of ethanol CCS claim that because ethanol is a renewable fuel made from corn and other plants, and plants capture atmospheric CO_2 through photosynthesis, it should count as carbon removal. However, critics argue that the overall life cycle of ethanol production still results in net-positive emissions, making it misleading to label ethanol CCS as CDR.
- *Retrofit versus greenfield CCS:* Proponents of ethanol CCS as CDR have suggested that a CCS retrofit on an existing facility should be treated differently than greenfield operations (i.e., should count as CDR). These proponents argue that in retrofits the appropriate system boundary is limited to the CCS operation while a greenfield operation should account for the full life cycle of ethanol production and CCS. They further assert that in retrofits the CCS process is net negative relative to the business-as-usual scenario whereas in greenfield operations the full process may be net positive.
- *Infrastructure lock-in:* Some question whether the focus on ethanol CCS reinforces a reliance on corn-based ethanol, which may not have a place in a net-zero future. Critics worry this could delay a broader shift to more sustainable energy systems.
- *Resource allocation:* Misclassifying ethanol CCS could divert funding and attention from high-durability CDR solutions, such as DAC, potentially slowing progress toward global climate goals.

The stakes of this debate are high, particularly as the CDR industry grows. If activities like ethanol CCS are categorized as CDR, it could weaken efforts to scale up CDR solutions that are proven to be net negative. Alternatively, if ethanol CCS is not categorized as CDR, it could dissuade investment in a relatively low-cost, high-integrity solution for buyers with a preference for CDR over other types of carbon credits. The integrity of the CDR market depends on clear, consistent definitions that align with scientific principles, ensuring that credits accurately reflect genuine climate benefits.

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WHY IT MATTERS

Ethanol CCS is seen as one of the largest near-term CDR pathways, according to the *2024 State of Carbon Dioxide Removal* report. Current proposals aim to store up to 18 million tonnes of CO_2 per year before 2030. However, the question remains whether limited CDR resources should be directed toward a technology with unresolved classification issues. The outcome of this debate will influence whether carbon markets remain grounded in science and are able to prioritize the most impactful climate solutions.

Notable recent research

Cost-effectiveness of natural forest regeneration and plantations for climate mitigation: Plantation forests often have a fraught reputation due to concerns over biodiversity loss and support of forest monocultures. However, they can be surprisingly effective at providing CDR. This paper shows that plantations, in combination with natural regeneration, can sequester 31.4 billion tonnes of CO_2 over 30 years at costs below US$50 per tonne. This represents 44% more sequestration than can be achieved through natural regeneration alone. BTG Pactual is piloting a plantation-based approach in South America with funding from Microsoft and Meta, suggesting that this method of CDR may be scaling up quickly.

Machine learning demonstrates the impact of proton transfer and solvent dynamics on CO_2 capture in liquid ammonia: New research from Lawrence Livermore National Laboratory utilizes machine learning to gain an atomic-level understanding of CO_2 capture with amine-based sorbents, revealing intricate details of the chemical processes involved. This could enhance the efficiency of DAC technologies, eventually lowering project costs. The integration of machine learning with experimental methods offers a promising pathway to optimize the efficacy of carbon capture materials.

The feasibility of reaching gigatonne scale CO_2 storage by mid-century: This paper highlights the limitations of current geologic CO_2 storage projections (5–6 gigatonnes of CO_2 per year by 2050), showing that the Intergovernmental Panel on Climate Change's Sixth Assessment Report estimate of feasible storage growth (1–30 gigatonnes of CO_2 per year by 2050) is too high. It underscores the critical role the US must play, contributing up to 60% of global storage by 2050. For the CDR community, this means recalibrating expectations for storage growth, particularly in regions like China and Indonesia, and ensuring that policy and investments align with more realistic, region-specific capacity constraints.

Policy insights

Spotlight: Commodity Futures Trading Commission final guidance

Thaddeus Woody and Sarah Braverman

Background and rationale for the guidance

In December 2023, the Commodity Futures Trading Commission (CFTC) released Proposed Guidance Regarding the Listing of Voluntary Carbon Credit Derivative Contracts. The CFTC's proposed guidance outlined factors that designated contract markets (DCMs) should consider when addressing certain requirements relevant to the listing for trade of voluntary carbon credit (VCC) derivative contracts. These are requirements under the Commodity Exchange Act (CEA) and CFTC regulations. The proposal focused primarily on physically-settled VCC derivative contracts listed by DCMs.

Within the CFTC rulemaking structure, final guidance is not considered a strict rule or formal regulation. Instead, it serves as an important framework for exchanges to follow, ensuring compliance with broader CFTC regulations and promoting market integrity, transparency, and liquidity. In practice, industry participants are likely to adhere to this guidance to align with regulatory expectations and to avoid potential issues.

The CFTC sought public comment and received 94 responses. Carbon Direct submitted comments which largely reflected the principles laid out in our *Criteria for High-Quality Carbon Dioxide Removal*.

Impacts of the final guidance

On September 20, 2024, the CFTC released their final guidance. This final guidance, which is non-binding and does not establish new obligations for DCMs, was similar to the proposed guidance. Given the CFTC's limited jurisdiction, the final guidance only covers certain DCMs that allow for the trade of VCC derivatives. It does not cover all carbon credits listed throughout the voluntary carbon market (VCM). As in the proposed guidance,

the final guidance addresses quality standards in order to “promote accurate pricing, reduce susceptibility of the contract to manipulation, help prevent price distortions, and foster confidence in the voluntary carbon credit contracts.”

Key elements of the guidance include quality standards that require DCMs to consider transparency, additionality, permanence, risk of reversal, and the principle of robust quantification which the CFTC defines as greenhouse gas emission reductions or removals being “conservatively quantified.” The guidance also defines “governance,” “tracking,” and standards to prevent “double counting.”

Near-term direct impacts will be limited. Only three actively traded futures contracts on VCCs are listed on CFTC-regulated exchanges: the New York Mercantile Exchange (NYMEX) Climate and Biological Exchanges (CBL) Global Emissions Offset futures contract, the NYMEX CBL Nature-Based Global Emissions Offset futures contract, and the NYMEX CBL Core Global Emission Offset futures contract. However, whether more derivatives contracts are traded in the future or not, this guidance signals a growing desire from regulatory bodies and corporate buyers to see robust quality standards guiding the carbon market.

BOTTOM LINE

This guidance is important because inconsistent quality standards ultimately disincentivize participation in the VCM. While the CFTC does not have direct statutory jurisdiction to impose standards over the VCM, it can use its anti-manipulation and anti-fraud authority with respect to certain commodity exchanges to signal what represents quality to the VCM in an indirect way.

Data Summary: Inflation Reduction Act funds

Thaddeus Woody

Historic climate funding

Signed just over two years ago, the Inflation Reduction Act (IRA) represents the largest single investment in climate and clean energy in US history. It allocates nearly US$500 billion for clean energy and climate initiatives. A significant amount of this funding will be disbursed through tax incentives. Key tax credits supported by the IRA include 45Q, 45V, and various other investment and production tax credits.

Targeted programs for funding

Along with tax credits, the IRA provides funding to specific programs in the form of loans, grants, and direct federal spending. Specifically, the IRA provided the DOE Loan Programs Office (LPO) with US$11.7 billion to support new loans, which increased the LPO's total lending authority to US$400 billion. The LPO provides attractive debt financing for high-impact, large-scale energy infrastructure projects in the US, and often helps companies reach commercialization. Additionally, the IRA includes direct funding and grants for other programs, such as DOE grants and awards that are key to accelerating technologies early in their development cycle. The White House maintains a list of open funding opportunities at the DOE and other relevant agencies. With the IRA's two-year anniversary in August, this is a good opportunity to review some of the funding that has already been allocated to specific programs under this historic piece of legislation (**table 1**).

BOTTOM LINE

The IRA continues to have a significant climate impact in the US, providing funding in the form of loans, grants, and tax credits that enable a variety of climate-related projects and programs across the country.

Table 1. Selected IRA funding

Program name	Amount allocated (US$)	Program type	Sector
Industrial Demonstrations Program	$6.3 billion	Grant	Industrial
Advanced Technology Vehicles Manufacturing Loan Program	$3 billion credit subsidy (increases loan authority by $40 billion)	Loan	Auto
Clean Energy Financing	$3.6 billion credit subsidy (increases loan authority by $40 billion)	Loan	Clean energy
Domestic Automotive Manufacturing Conversion Grants	$2 billion	Grant	Auto
Energy Infrastructure Reinvestment Financing	$5 billion credit subsidy (increases loan authority by $250 billion)	Loan	Electric power
Defense Production Act: Electric Heat Pumps	$250 million	Grant	Heat pumps
Home Efficiency Rebates	$4.3 billion	Grant	Residential dwellings
Home Electrification and Appliance Rebate	$4.5 billion	Grant	Home appliances
Interregional and Offshore Wind Electricity Transmission Planning, Modeling and Analysis	$100 million	Direct federal spending	Clean energy
Training for Residential Energy Contractors Grants	$200 million	Grant	Energy workforce
Technical Assistance for the Adoption of Building Energy Codes	$1 billion	Grant	Building codes
Transmission Facility Financing	$2 billion credit subsidy (loan authority is up to 10 billion)	Loan	Electric transmission
Transmission Siting and Economic Development Grants Program	$760 million	Grant	Electric transmission
Tribal Energy Loan Guarantee Program	$75 million credit subsidy (increases loan authority by $20 billion)	Loan	Clean energy

Recap: New York Climate Week

Sarah Braverman

From September 22–29, the Climate Week NYC Events Program hosted over 600 events city-wide for tens of thousands of people. Every year, Climate Week NYC showcases climate action and stakeholder values across all sectors, from non-profits to finance, from technology to policy. This event brings stakeholders together to learn from one another, make connections, and form long-lasting partnerships that can lead to high-impact climate action. The presence of key actors from around the world provides an opportunity for global insights to be exchanged, which is essential to informing climate projects internationally. In addition to host program events, hundreds of side events were held across the city. Carbon Direct team members attended, networked, and spoke at dozens of events. We took away a few common themes from this year's program.

Interest in carbon removal has grown

There were many CDR suppliers and intermediaries at events during Climate Week this year. At events where CDR was the central topic, they appeared to outnumber buyers and investors. The impressive growth of the CDR sector was evident at the CarbonSmart Summit, which hosted a range of speakers, including Representatives from the US Congress, Ernst and Young, Citi, and the XPRIZE for Carbon Removal. While this growing interest in the CDR market is promising, it was clear that the market is dominated by intermediaries and suppliers. The success of the CDR industry depends on sustained investment and demand from buyers, be it through early-stage investments into new technologies and companies or the purchase of carbon credits.

Private finance will play a crucial role

Private finance and investment were recognized as essential vehicles for advancing emerging economies in a low-emission, sustainable, and just way. This was one of the key messages throughout the presentations held at the Sustainable Investment Forum North America, hosted by the United Nations Environment Finance Initiative (UN EFI). The upcoming COP29, which will be hosted in Baku, Azerbaijan, was highlighted and referred to as the "finance COP" where the primary topic of discussion will be how to finance the climate transition. Speakers at the UN EFI event predicted that blended finance will be recognized at COP29 as an effective tool for scaling climate adaptation and mitigation projects.

Governments must play a leading role

The public sector has the opportunity to facilitate the mobilization of private capital into clean technologies and climate-positive projects. Throughout Climate Week NYC, the US Inflation Reduction Act and the Infrastructure Investment and Jobs Act were applauded for their combined investment into the development and deployment of essential carbon reduction pathways, such as renewable energy and CCS technologies. Policies like these were highlighted at the International Emissions Trading Association's North American Climate Summit (NACS) as examples of government intervention that attracts private capital. NACS also highlighted the carbon management and climate initiatives taking place at the subnational level—specifically in the states of California, Colorado, Oregon, Washington, and New York.

BOTTOM LINE

Climate Week NYC reinforced that there is a need for greater participation from both the private and public sectors in the CDR market, especially from buyers and investors. Governments must continue to enact policies that foster the participation of private sector stakeholders in the climate transition.

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What we're watching in policy

Thaddeus Woody and Sarah Braverman

2024 US election: implications for climate and permitting reform

The 2024 US Presidential and Congressional elections will determine whether the Biden administration's climate initiatives will continue or face potential reversal. A second Trump administration would likely continue the agenda of his first term to boost fossil fuel production and ease environmental regulations. The US would also probably withdraw from the Paris climate agreement again.

Beyond executive action, congressional control will be key to how climate policy plays out. For months, the most likely scenario has been a Republican Senate and a Democratic House. Mixed control would essentially mean maintenance of the status quo, preventing a repeal of the IRA but with no new climate legislation passed.

Permitting reform remains an area of potential compromise across the aisle, whether in the lame duck period between the election and the inauguration or in the 119th Congress. One likely starting point for negotiations is the recently released Manchin-Barasso permitting reform bill which aims to streamline approvals for energy projects. Key provisions of this legislation include setting maximum timelines for environmental review and limiting legal challenges. Its prospects for passage depend on bipartisan support and post-election congressional makeup.

WHY IT MATTERS

Given the lack of bipartisan consensus on climate issues, the outcome of this election will have huge implications for meeting our climate goals. The fate of the IRA hangs in the balance. Ultimately, the 2024 elections will shape the US climate policy landscape for years, if not decades, to come.

State-level legislation

California's SB 308 bill was reviewed and ultimately died in the Assembly Committee on Appropriations in August 2024. The bill was developed to establish a framework meant to guide California in meeting its 2045 net-neutral emissions goal, which was set by the passage of California's 2006 Global Warming Solutions Act. If enacted, this policy would

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require the California Air Resources Board (CARB) "to establish separate interim targets for greenhouse gas emissions reductions and carbon dioxide removals" beginning no later than January 2030, and "to report on progress toward achieving those targets." Additionally, this policy would have specified certain approval requirements for CDR processes.

Despite unprecedented coalition-building and advocacy for this policy, SB 308 was held in the Assembly Appropriations Committee during a hearing on August 15, 2024. While the Committee made significant efforts to include input from labor rights coalitions in the development of the bill, the final product did not have the full support of labor rights groups. Additionally, policymakers were not aligned in how this policy should be rolled out—either through the passage of SB 308 or through another approach, such as including elements of SB 308 in the reauthorization of California's cap-and-trade program, the process for which will begin next year.

WHY IT MATTERS

CDR policymakers have a lot to learn from the journey of SB 308. First, supporters of SB 308 prioritized the inclusion of input from environmental justice coalitions and labor unions. This both enhanced the policy and expanded the constituent's knowledge of CDR pathways. Second, the developments around SB 308 show that the climate policy landscape continues to be active at the state level. Regardless of national election outcomes in November, state-level policies will have significant potential to scale CDR pathways and carbon management technologies.

Credits and Disclaimer

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