

# Plan to Accelerate Carbon Dioxide Removal

Axis: 1. Transitioning Energy, Industry and Transport ▾

Key objective: 2. Accelerating zero and low emission technologies in hard-to-abate sectors ▾

Solution: [The Expansion and Acceleration of Carbon Dioxide Removal](#)

Host Initiative: [WBCSD](#)

Stakeholders: The Group of Negative Emitters, Carbon Management Challenge, City CDR Initiative, The State of CDR Consortium,

Scope: [Global, cross-sectoral focus on hard-to-abate industries, national/subnational governments, and voluntary private sector demand.](#)

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Levers assessment:

- **Risk-informed decision-making:** [Medium maturity ▾](#)
  - *Rationale: Risk frameworks (Article 6.4 safeguards, reversal risk, leakage monitoring) are formalizing, and recent ITMO transfers (Norway–Switzerland) demonstrate governments are willing to operationalize risk-managed CDR under Paris Article 6. Still uneven adoption across jurisdictions.*
- **Technology shifts:** [Medium maturity ▾](#)
  - *Rationale: Core durable CDR technologies (DAC, BECCS, biochar, ERW, OAE, other Mineralization) are all advancing but at present are at different TRL levels, from research validation to early commercialization. By the end of this decade significant increases in supply, particularly for BECCS and biochar will come on line, as well as advancements in MRV and standards for each. These solutions remain costly for the most part, and not widely deployed uniformly, but all are subject to cost reduction with scale and learning, and all are experiencing rapid technological diversification and maturation. Nature-based CDR is higher TRL but faces scalability and permanence concerns. But these pathways - improved forest management, mangrove and peatland restoration, and soil organic carbon enhancement are low-cost and ready to go from an implementation perspective, and should represent the large majority of delivered CDR through to the end of this decade. Considerable advancement on MRV, however, must be realized for these pathways to secure inclusion in major compliance systems.*
- **Knowledge & Capacity building:** [Low maturity ▾](#)
  - *Rationale: The **Mission Innovation CDR Mission** has launched MRV guidance for governments and project developers. The **Removals Action Guide (2025)** (Exponential Roadmap) gives corporates practical steps to integrate removals into net-zero strategies. Despite these advances, most governments and regulators still lack internal expertise to design CDR programs or run robust MRV. However, in spite of advancements, capacity to act remains concentrated in a relatively small set of research institutions and NGOs, early voluntary corporate CDR purchasers, and pioneering national and subnational governments. A fundamental objective of this PaS is to increase knowledge and capacity for action across both government compliance and voluntary domains through the formation of new communities of practice that enable peer learning and collective action.*
- **Inclusive decision-making governance & design:** [Medium maturity ▾](#)
  - *Rationale: Governance for CDR is being shaped by emerging institutional frameworks in both the voluntary carbon markets and in governance compliance schemes. The **SBTi Net-Zero Standard v2 consultation** (still in progress) is poised to strongly influence **voluntary***

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*market behavior*, by clarifying how and when companies can credibly use removals in their net-zero strategies and by embedding guardrails against mitigation deterrence. Integrity initiatives such as the **ICVCM** (which has recently approved multiple engineered CDR methods as CCP-eligible) and **VCMI** (through its Claims Code of Practice) are embedding inclusivity, transparency, and equity in market rules. Together, these processes demonstrate growing institutional attention to governance, though structured participation of affected communities remains limited. As for government compliance schemes and CDR, regulatory advances in major jurisdictions are paving a compliance path for CDR. The UK is consulting on integrating greenhouse gas removals into its ETS with implementation planned by 2028–2029, Brazil's new national ETS law (SBCE) establishes a framework that could include removal units, and Japan's GX-ETS has announced acceptance of durable removals for compliance. These moves, driven by DESNZ in the UK, Brazilian regulators, and Japan's METI, signal that governments are actively shaping the regulatory architecture for CDR inclusion in markets. The **EU CRCF**, negotiated by EU institutions with civil society and industry input, mandates environmental and social safeguards for certified CDR projects. The **UNFCCC Article 6.4 Supervisory Body** also incorporates requirements to avoid negative impacts.

- **Standards & Taxonomies:** **Medium maturity** ▾
  - *Rationale:* Major integrity anchors are advancing: the **EU CRCF** defines categories for permanent removals, carbon farming, and carbon storage in products; the **UNFCCC Article 6.4** standard sets global rules for removals; **SBTi's Net-Zero v2 draft** updates corporate accounting for removals; **ICVCM** has approved removal methodologies under its CCP label. Alignment across these is progressing, but full global interoperability is incomplete.
- **Supply:** **Low maturity** ▾
  - *Rationale:* The global supply base for carbon removal is growing and diversifying, with suppliers active across at least 49 countries and multiple CDR pathways (biochar, BECCS, DACCS, enhanced weathering). Biochar is currently the leading removal method in contracted volume: over 3.04 million tonnes were contracted between 2022 and mid-2025, with 658,000 tonnes delivered to date. Meanwhile, novel CDR deployment is rising—over 1.35 million tonnes of CO<sub>2</sub> were removed via novel CDR methods in 2023, though only ~139,000 tonnes were delivered through market contracts, highlighting a gap between operational capacity and market deployment. Despite this growth, total supply remains small relative to projected demand, and science-based targets. McKinsey estimates announced supply capacity might reach ~50 Mt CO<sub>2</sub>/year by 2030, while durable demand could reach up to ~100 Mt CO<sub>2</sub> — signaling a likely supply shortfall unless deployment accelerates.
- **Demand:** **Low maturity** ▾
  - *Rationale:* Demand is broadening. The SBTi consultation emphasizes near-term CDR as part of corporate net-zero strategies. Record corporate purchasing in 2025, led by Microsoft, Stripe, and Frontier, shows accelerating uptake. The Removals Action Guide encourages portfolio approaches for corporates. Compliance signals are emerging: the UK ETS will integrate removals by 2029, Brazil's 2024 ETS law includes tradable removals, and Japan has announced it will accept durable CDR in its scheme.
- **Public/private finance:** **Low maturity** ▾
  - *Rationale:* Finance levers are strengthening. Public procurement programs (California's SB643, Switzerland's co-financed Article 6 model, EC pilot procurements) are crowding in private buyers. Insurance providers like WTW and new peer groups are piloting permanence and delivery coverage. Philanthropic AMCs (Frontier, Terraset) remain important anchors, but large-scale institutional finance is still limited.

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- **Partnerships and collaboration:** Medium maturity ▾
  - *Rationale: A growing set of collaborative mechanisms are shaping early CDR markets by pooling demand, de-risking supply, and building standards alignment. Frontier, backed by leading tech companies, has pioneered the advance market commitment model to accelerate supply. In Europe and Asia, the NextGen CDR Facility—supported by Mitsubishi and South Pole—is aggregating corporate and government demand for high-durability removals. The First Movers Coalition, led by the World Economic Forum and the U.S. State Department, has expanded its commitments to include durable CDR, sending a powerful global demand signal across multiple hard-to-abate sectors. In parallel, governments are also driving cross-border collaboration: the Switzerland–Norway Article 6 ITMO transfer for CDR established a landmark precedent for international compliance-grade crediting. Together, these initiatives illustrate the breadth of actors—from private sector buyers to intergovernmental deals—working to coordinate investment, signal confidence, and accelerate the emergence of functioning markets for carbon removals.*
- **Policy & regulatory:** Medium maturity ▾
  - *Rationale: The policy landscape for CDR has advanced rapidly, with governments beginning to establish frameworks that both create demand and provide certainty for private sector investment. The **European Commission’s Carbon Removal Certification Framework (CRCF)** is setting EU-wide rules for certification, while the **UK ETS** has formally committed to include durable removals. In **Brazil**, the new carbon market law explicitly covers CDR, and **Japan** has confirmed that durable removals will be eligible under its emissions trading scheme. **Sweden** has pioneered a reverse auction mechanism to contract durable removals, and **Finland** has gone further by embedding a net-negative target into law. At the international level, **COP29 negotiations on Article 6 established explicit rules for including CDR in the Paris Agreement Crediting Mechanism (Article 6.4)**, with standards for reversals, monitoring, buffer pools, and authorization processes, providing a pathway for removals to flow into compliance markets globally. Australia is set to publish its final CDR policy roadmap just before COP; The Netherlands released its own such plan in April 2025. Early bilateral cooperation under **Article 6.2**, such as the **Switzerland–Norway ITMO transfer deal**, has also demonstrated how CDR can be mobilized through international cooperation. Together, these developments show that policy is beginning to evolve from high-level ambition toward operational rules that integrate CDR into carbon markets and climate strategies, mobilizing both public and private sector participation.*
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- **Public opinion:** Medium maturity ▾
  - *Rationale: Public awareness of CDR is still very low, but support rises quickly with basic information: a February 2025 Data for Progress survey found that after a short explainer, roughly two-thirds of U.S. voters view CDR favorably and back public investment (including bipartisan support). At the same time, cross-country focus groups (22 nations) show people consistently ask for strong public rules, equity safeguards, and clear governance for different CDR methods—preferences that translate into support when credible oversight is visible. Social-science evidence also cautions that legitimacy depends on how projects engage communities where demonstrations occur; perceptions are shaped by site-level process, not just messaging. Overall, public opinion is malleable and can become supportive under trusted governance and transparent benefits, but broad political mandates remain uneven—suggesting targeted engagement and visible integrity standards are essential to convert latent openness into durable political will.*

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Expected impact of this plan on the 2030 targets (if any): **High**

This plan directly accelerates delivery of 2030 targets by creating actionable support for a five-year implementation target for carbon dioxide removal (CDR). Unlike distant long-term targets, which often lack urgency, a near-term milestone provides a concrete proof point that accelerates investment, mobilizes collaboration, and establishes the enabling conditions on which long-term success depends. This urgency has been lacking for CDR, both in the voluntary and compliance domains, which generally operate against IPCC 2050 and 2100 timescales. By positioning CDR within the COP Action Agenda as a short-term deliverable, this plan ensures that governments, industries, and voluntary markets align around an actionable framework for scaling.

The 2030 CDR Implementation target creates urgency and reduces uncertainty for early adopters, making participation less risky and more attractive. By generating visible early results, it provides proof of concept and demonstrates value, thereby accelerating buy-in from policymakers, investors, and corporate leaders. This early momentum builds critical mass and network effects: once a baseline of demand and supply is established, participation becomes self-reinforcing, attracting further resources and innovation.

Beyond mobilizing markets, the PaS creates structured spaces—peer forums, communities of practice, and public–private policy dialogues—that accelerate learning, trust-building, and cross-pollination of innovation. Decades of research show that such collaborative mechanisms reduce barriers to sharing, increase peer accountability, and spread practices rapidly across institutions. By embedding these structures in the Action Agenda, the plan provides an enduring collaborative infrastructure for innovation, learning, and political commitment. This specific PaS thus resonates with the overarching ethos of COP 30: urgency and collaboration (“**Mutirão**”).

In practice, the PaS will advance demand generation in voluntary markets, help governments design procurement and ETS pathways for removals, and accelerate industrial integration. These actions directly address the implementation barriers identified by the IPCC and Mission Innovation—demand signals, policy frameworks, MRV, finance, and legitimacy. The plan will therefore deliver measurable progress toward 2030 benchmarks (100 Mt durable CDR, 3 Gt nature-based), inform the Global Stocktake with evidence of near-term implementation, and contribute to multiple SDGs (climate action, innovation, sustainable industry, resilient communities).

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### Expected contributions to global processes:

This plan will contribute directly to the **Global Stocktake (GST)** by generating near-term evidence of progress on carbon dioxide removal, including demand signals, policy pathways, and measurable delivery toward 2030 benchmarks. By establishing a 5-year implementation target, it creates a framework for interim reporting that strengthens transparency and accountability within GST cycles.

The plan also supports implementation of **Article 6 of the Paris Agreement**, building on the COP29 adoption of explicit rules for removals under Article 6.4 and demonstrating pathways for bilateral and multilateral cooperation under Article 6.2. Actions piloting authorized CDR transfers and demand aggregation mechanisms will provide proof-of-concept examples that can be scaled in future NDCs.

In addition, the PaS aligns with and reinforces the **Breakthrough Agenda** and **Mission Innovation CDR Mission**, by advancing shared standards, monitoring frameworks, and demand creation mechanisms that can be tracked in annual Breakthrough reports.

Beyond climate governance, the plan contributes to the **Sustainable Development Goals** by:

- Advancing **SDG 13 (Climate Action)** through net-negative pathways,
- Supporting **SDG 9 (Industry, Innovation and Infrastructure)** via technology deployment and industrial integration,
- Strengthening **SDG 11 (Sustainable Cities and Communities)** through subnational leadership, and
- Creating economic and employment co-benefits consistent with **SDG 8 (Decent Work and Economic Growth)**.

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Output	Action Scope	Action	Type of action	Implementation Lever	Responsible	Time horizon	Stakeholder engagement	Committed Stakeholders
Implementation of 100 million tonnes of >1000 year durability carbon removals and 3 billion tonnes of <1,000 durability carbon removals, globally by 2030.	Global	Establish broad private sector and national and sub-national government mobilization global 2030 implementation target of 100 million tonnes of >1000 year durable carbon removals and 3 billion tonnes of <1,000 durability carbon removals	Existing a... ▾	Supply ▾ Knowledge & ... ▾ Demand ▾	NA	Novemb... ▾	Multi-sta... ▾	NA
Annual 2030 CDR Implementation Target Assessment and Tracking	Global)	State of CDR Report to track progress, assess barriers, and map pathways to 2030 targets.	New action ▾	Knowledge & ... ▾ Risk-informed... ▾	State of CDR Report Consortium	Novemb... ▾	Multi-sta... ▾	State of CDR Report consortium
Build a global, university-based, open-access hub for carbon management knowledge, training, and collaboration.	Global	Deliver training courses (building from the inaugural intensive course in Riyadh), expand a global resource library, develop an interactive directory of experts, and connect institutions across North	Existing a... ▾	Knowledge & ... ▾ Technology sh... ▾ Partnerships ... ▾	Carbon Management Challenge	Novemb... ▾	Countries ▾ Technic... ▾	17 universities and research institutions already involved, with anchor partners including <b>Stanford, University of Pennsylvania, Imperial College London, University of Texas at Austin,</b>

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		America, South America, Europe, Africa, Asia, and the Middle East.						and IEA GHG .
Corporate demand mobilized toward the COP30 CDR Implementation Target, with members setting interim CDR commitments and executing first “learning” purchases on a pathway to 2030.	Global :	Establish <i>the Carbon Removal Launchpad</i> to mobilize corporate demand for carbon removals. Provide a platform for peer-learning, joint procurement pilots, and standard-setting to accelerate adoption of CDR in company net-zero strategies.	New action ▾	Knowledge & ... ▾ Demand ▾ Partnerships ... ▾	WBCSD	June 20... ▾	Compan... ▾	Exponential Roadmap
Accelerated development, coordination and implementation of national carbon removal policy commitments	Global	Launch Negative Emissions Policy Forum with monthly workshops to develop and align CDR policies; a digital member platform for sharing, learning and partnership; annual convening at London Climate Week (June 2026) to assess new commitments.	New action ▾	Partnerships ... ▾ Policy & regul... ▾ Inclusive deci... ▾	The Group of Negative Emitters (GONE)	Novemb... ▾	Countries ▾	Denmark, Kenya, Netherlands, Sweden, Ethiopia, Suriname, Panama, Finland
100 cities adopt and implement	Global (Cities)	Launch a program to engage 100 cities	New action ▾	Partnerships ... ▾ Policy & regul... ▾	City CDR Initiative	Novemb... ▾	Cities a... ▾ Regulat... ▾	

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CDR strategies, becoming “carbon sink cities” through soil restoration, biomass utilization, and carbon-negative construction.		worldwide to adopt and implement CDR strategies (soil restoration, biomass use, carbon-negative construction materials, etc.), making them “carbon sink cities.” Support includes technical assistance, peer exchange, and demonstration projects.		<span style="background-color: #FFD700; border: 1px solid black; border-radius: 5px; padding: 2px;">Demand ▾</span> <span style="background-color: #ADD8E6; border: 1px solid black; border-radius: 5px; padding: 2px;">Knowledge &amp; ... ▾</span>			<span style="background-color: #D3D3D3; border: 1px solid black; border-radius: 5px; padding: 2px;">Multi-sta... ▾</span>	
Methodological approval of agriculture-based carbon removal practices (soil carbon enhancement, biochar, enhanced rock weathering) for PACM, national and regional ETS and compliance systems by 2030	Global, National	The Global Carbon Harvest Coalition to coordinate and implement large-scale field trials, establish harmonized MRV standards, and launch innovations like an MRV Prize to overcome barriers to adoption. Pool evidence, align policy, and embed financing into early projects to prepare agriculture-based removals for compliance recognition.	<span style="background-color: #4682B4; border: 1px solid black; border-radius: 5px; padding: 2px;">New action ▾</span>	<span style="background-color: #ADD8E6; border: 1px solid black; border-radius: 5px; padding: 2px;">Knowledge &amp; ... ▾</span> <span style="background-color: #666666; border: 1px solid black; border-radius: 5px; padding: 2px;">Inclusive deci... ▾</span> <span style="background-color: #90EE90; border: 1px solid black; border-radius: 5px; padding: 2px;">Standards &amp; T... ▾</span> <span style="background-color: #4169E1; border: 1px solid black; border-radius: 5px; padding: 2px;">Partnerships ... ▾</span>	CGIAR	<span style="background-color: #DDA0DD; border: 1px solid black; border-radius: 5px; padding: 2px;">Novemb... ▾</span>	<span style="background-color: #3CB371; border: 1px solid black; border-radius: 5px; padding: 2px;">Countries ▾</span> <span style="background-color: #2E8B57; border: 1px solid black; border-radius: 5px; padding: 2px;">Technic... ▾</span> <span style="background-color: #8B4513; border: 1px solid black; border-radius: 5px; padding: 2px;">Regulat... ▾</span> <span style="background-color: #D3D3D3; border: 1px solid black; border-radius: 5px; padding: 2px;">Multi-sta... ▾</span>	Brazil: MAPA, EMBRAPA  INDIA: ICAR  KENYA: KALRO  Cascade Climate, 4per1000 Initiative, BNEF, Energy Transitions Commission