Carbon Direct

Curated portfolios overview

Carbon Direct creates high-quality, science-backed solutions for carbon management. We help companies with each part of their carbon management from footprinting to reductions to the design, sourcing, and monitoring of high-quality carbon removal portfolios.

Our curated portfolios of pre-vetted carbon removals meet or exceed the Criteria for High-Quality Carbon Dioxide Removal, developed in partnership with Microsoft, to make rigorous, science-led, and immediately accessible procurement available for companies of any size or industry.

CARBON REMOVAL FAQS

What is carbon removal?

Carbon dioxide removal is any activity that removes CO_2 from the atmosphere and durably stores it. There are three approaches to carbon dioxide removal:

1. **Nature-based solutions** such as reforestation restore or enhance nature's ability to remove and store carbon dioxide. These efforts are necessary, but not sufficient, to meet the carbon removal capacity needed to hit 1.5°C targets.
2. **Engineered solutions**, such as direct air capture, while today account for a very small percentage of currently available carbon dioxide removal, will play an increasingly important role in carbon removal moving forward. Engineered carbon dioxide removal offers more durable carbon sequestration and has the potential to provide greater scalability than nature-based solutions. More investment in the form of carbon credit purchases, tax credits, and other capital investments is needed to ensure faster development of these technologies.
3. **Hybrid solutions** combine elements of both engineered and nature-based carbon removal solutions. Examples of hybrid solutions include biochar and biomass with carbon removal and storage.

Why is carbon removal needed?

The best available science makes it clear that two approaches are essential to avoid the worst outcomes of climate change and reach climate targets consistent with the Paris Agreement and the Conference of Parties (COP) process: 1) reducing emissions and 2) removing emissions.

Reducing emissions includes conservation and efficiency, displacement of fossil fuel systems with non-emitting systems (e.g., renewable power or nuclear power; low carbon hydrogen or sustainable fuels), electrifying vehicles, and breaking down non-CO_2 greenhouse gasses such as methane. Carbon Direct works actively with its client to deploy carbon reduction strategies.

The IPCC, IEA and other scientific consensus bodies find that reduction measures alone cannot achieve climate outcomes. The speed of the transition needed in the global economy, the lack of options for eliminating hard-to-abate sectors, and the need to address historical emissions require large scale carbon removal.

The IPCC estimates a need of ~6 gigatons of annual removal by 2050 and approximately 200-1,500 gigatons of total removal by 2100. This removal must be effective, additional, and durable.

What is a carbon credit?

Carbon credits represent the additional removal or reduction of one metric tonne of carbon dioxide equivalent from the atmosphere. In its most basic form, credits are created by calculating the difference in emissions from a baseline scenario and a project scenario:

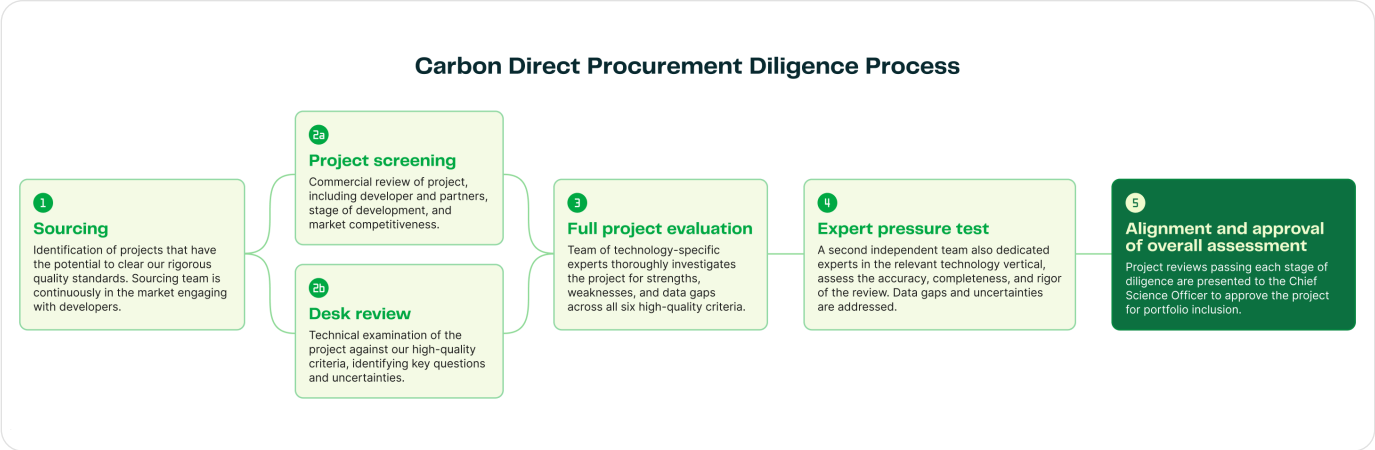
- The baseline scenario is the amount of CO_2 that would be captured through natural processes, with no capital invested.
- The project scenario is the amount of CO_2 captured (or avoided) if project developers implement the project such as planting trees or creating an engineered solution.

Unfortunately, in many cases, carbon credits are created based on scenarios where the injection of capital doesn't result in additional carbon dioxide removal. This can happen, for example, when credits are sold for carbon removal associated with a forest that would have been preserved even without the additional carbon finance.

What is a carbon removal portfolio?

A carbon removal portfolio is a diversified mix of removal credits from multiple projects and removal pathways. Carbon removal pathways include: afforestation/reforestation, improved forest management, biochar, bioenergy with carbon capture and storage, direct air carbon capture and storage, and other evolving pathways.

How does the Carbon Direct science team assess portfolio projects?



Only projects that clear all stages can be included in a Carbon Direct portfolio. At each stage, technical experts examine projects against the Carbon Direct Criteria for High-Quality Carbon Dioxide Removal.

Carbon Direct scientists use deep expertise and state-of-the-art science methods to assess projects against our quality criteria, which is updated annually and shared publicly. The scientific methods used are specific to each project type to account for differences in carbon removal technologies.

Each project is analyzed by multiple Carbon Direct scientists and approved by the Chief Science Officer before it can be included in a Carbon Direct portfolio.

Over the last three years, Carbon Direct has reviewed hundreds of projects for our clients. Fewer than 10% of reviewed projects meet the high bar set by Carbon Direct's quality criteria, our Criteria for High-Quality Carbon Dioxide Removal (the criteria), the same high standards applied to this portfolio.

Specifically, Carbon Direct has two or more technology-specific experts independently review each potential portfolio project to provide confidence in quality assessments and avoid bias. Experts bring deep technical expertise to the review, as well as unique perspectives as field researchers, academics, and practitioners. Stages of scientific diligence for each project include:

1. **Selection and foundational diligence**

   Our team identifies projects across the market that have the potential to clear our rigorous criteria. The sourcing team engages developers via dedicated outreach to gain early insights on new high-potential projects.

2. **Initial investigation**

   a. **Scientific desk review**

      A technical expert uses an initial suite of data and documentation to evaluate the project against our criteria, identifying key questions and uncertainties. These uncertainties are examined in the full evaluation if the project advances.

   b. **Project screening**

      Concurrently with the desk review, our sourcing experts evaluate project developers, partners, and stakeholders, considering key commercial, development stage, and risk factors.

3. **Full project evaluation**

   If the project meets or exceeds initial consideration against Carbon Direct's six pillars of the criteria and passes the project screening, it may advance to a full evaluation. In this step, a review team of technology-specific experts thoroughly investigates the extent to which the project adheres to the musts and shoulds that define each pillar of the criteria:

   - Social harms, benefits, and environmental justice
   - Environmental harms and benefits
   - Additionality and baselines
   - Measurement, monitoring, reporting, and verification
   - Durability
   - Leakage

   The expert review team integrates information provided from the supplier or project developer, background research, publicly available project materials (e.g., registry documents), and, where relevant, additional analysis via remote sensing or other methods. Full project evaluation involves detailed assessment of project quality based on current design and is conducted according to Carbon Direct's robust project evaluation framework. This includes careful consideration of data completeness, or Carbon Direct's assessment of how thoroughly the project can be evaluated against the criteria based on the data and documentation provided. Carbon Direct also updates its criteria annually to reflect the latest science and evolving best practices. Projects may be reassessed over time to ensure continued alignment with these evolving standards.

   The expert review team synthesizes its findings in a project evaluation that highlights project strengths, weaknesses, risks, and any relevant data gaps that may impact the project or purchasers of its credits.

4. **Expert pressure test**

   A separate technical pressure test team, also dedicated experts in the relevant technology vertical, assess the accuracy, completeness, and rigor of the review. The pressure test and

review teams discuss any data gaps and uncertainties in the report, resolving discrepancies by consulting project documentation, registry information, or conducting final internal analyses. Outstanding questions that cannot be reconciled are elevated for consideration to the Chief Science Officer (CSO). Unresolved data gaps are noted as such, including their impact on Carbon Direct's evaluation of the project quality.

5. **Alignment on overall assessment and approval by Chief Science Officer**

   Project reviews passing each stage of diligence are presented to the CSO to determine whether the project meets or exceeds the criteria. The CSO scrutinizes the report and investigates any outstanding questions and uncertainties elevated in previous stages of diligence. The CSO further confirms whether the expert review team assessment of the project against each quality pillar is appropriately evidenced by the project data and documentation provided. The CSO's determination is informed by the findings and recommendations of the expert review and pressure test teams, ensuring each project undergoes thorough, multi-layered evaluation before final approval. Only those projects that Carbon Direct confidently believe meet or exceed the bar for high-quality carbon dioxide removal are approved for inclusion in the portfolio.

Carbon Direct's project assessments reflect the expert opinions of our scientific team and do not constitute warranties or guarantees regarding project outcomes. Our evaluations incorporate a range of sources, including information provided by project developers, public registries, and independent research. While we take care to assess the credibility and completeness of this information, some materials are supplied by third parties and may not be independently verified.

What makes a quality carbon credit?

Additionality and durability are the most common considerations when evaluating the quality of a carbon credit. But other factors can also affect credit quality. Below are the considerations that are important when assessing carbon dioxide removal quality:

Additionality and baselines

Refer to the total amount of additional carbon removed versus the baseline scenario. Projects in which little to no additional carbon is removed as a result of capital investment lack additionality.

Carbon accounting + monitoring, reporting, and verification

Refers to the methodology used to ensure that the project accurately represents tonnes of CO_2 removed from the atmosphere and the monitoring approaches that help confirm the project is achieving the claimed carbon benefits.

Durability

Refers to the duration or permanence of the stored CO_2. To meet quality standards, CO_2 storage should endure for a minimum of decades (typically in nature-based solutions) or be permanent (a state possible through many engineered methods).

Leakage

Occurs when greenhouse gas emissions are increased outside the boundary of the project. When leakage occurs, it does not actually remove CO_2, but instead shifts the burden of that emissions elsewhere.

Harms and benefits

Refer to the impact on the environment and the community in the local vicinity of the project. Carbon removal projects that lack the support of the local community or result in harm to the local community are less likely to be successful, and even if successful may be more detrimental than valuable. Conversely, a project that is aligned to community needs and values, has community support, and accrues benefit to the community has a great likelihood of long-term impact.

Environmental and Climate Justice

Promotes and incorporates equitable environmental decision-making in the development of carbon dioxide removal projects. It relates to harms and benefits in that it acknowledges the role and engagement of the community in the success of carbon dioxide removal.

How does Carbon Direct structure a removal portfolio?

For projects that clear our rigorous assessments, our commercial team engages to assess company and project level risk, and to incorporate robust pricing, delivery, risk mitigation clauses, and remedies. Our contracting and purchasing structures are designed to simplify the buying experience for purchasers and actively advance the market. As part of this work, Carbon Direct defines pricing and delivery terms, project-specific milestones and risk mitigations, and early warning systems and remedies. Our process reduces transaction costs for buyers and structures purchases to grow the supply of high quality tons. This helps scale the market and bring projects down the cost curve.

CUSTOMIZATION FAQS

How can I plan ahead for future carbon credit purchases?

Since your carbon-emitting activities occur every year, you should plan on purchasing credits against each year if you want to maintain your environmental impact. Many carbon removal project developers are still in their early stages and thus are in need of forward-looking offtake agreements from buyers to secure financing and scale up operations. Consider procuring in-development credits to lock in pricing and help bring more CDR online.

If your company already has a sense of the number of tonnes you want to purchase over the next few years, we facilitate customers finding future credits to match their anticipated demand. Contact our team via this form to learn about available options.

How does customizing a portfolio work?

For customers who want to purchase a different combination of projects and proportions of credits from each project, we support full customization of our portfolios with the projects available on the Platform.

1. Review the projects available in our curated portfolios on the Platform. You will find details on the locations, technologies, and other attributes of each project.
2. Contact our team to discuss what composition of credits best fits your needs. For example, you may want to prioritize certain locations, technologies, or budget ranges.
3. Based on availability of tonnes, our team will create a customized portfolio just for your company for no additional cost.
4. Once your custom portfolio is visible on the Platform, you can review and purchase the tonnes through the platform and track your order and impact.

What are the different carbon removal technologies and project types available to choose from for customized portfolios?

For Carbon Direct Platform customized portfolios, customers can select any of the available projects listed within our curated portfolios. If you want us to review new projects or select from a wider range, we will connect you with our team for bespoke portfolios.

Can I specify certain geographic regions or countries I want the projects to be located in for my custom portfolio?

Yes, part of the customization process can include increasing the proportion of credits from a specific geographic region or country. There can be a number of different motivations for customizing portfolios. Get in touch with our team if you have more specific requirements.