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Carbon credit playbook for Chief Sustainability Officers

A step-by-step guide to help CSOs connect their sustainability strategy to impactful carbon credit purchasing at the project and portfolio levels

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Introduction

In 2023, carbon markets were in turmoil with the prices of many types of credits falling dramatically as confidence in the integrity of carbon credits plummeted. But more than that, there was tremendous uncertainty around how to discern credit quality — and plenty of confusion around whether and how credits could count toward corporate climate claims. The market chilled, shrinking year-over-year by 4%. Many Chief Sustainability Officers (CSO) were asking "why would you invest in carbon credits?"

Today, they're asking "why wouldn't you?"

What a difference a year makes. The first quarter of 2024 saw a big increase in demand for credits, with approximately 55 million tonnes of carbon credits retired in the first quarter, marking the third-highest amount ever recorded. What's changed?

There are some concrete developments in the regulatory and standards domains, including the release of Science Based Targets Initiative's (SBTi) Beyond Value Chain Mitigation (BVCM) guidelines, their signals on how to effectively leverage carbon credits to neutralize residual emissions, and the Voluntary Carbon Market Integrity Initiative's (VCMI) Carbon Integrity Claims. Measurement, reporting, and verification (MRV) continues to advance in terms of technology and scalability, with The Integrity Council for the Voluntary Carbon Markets' (ICVCM) Core Carbon Principles and associated label providing more credibility at the methodology-level for high-integrity carbon credit projects. And governments across Europe and North America are weighing in on when and how corporates should engage with carbon markets — from frameworks like the EU's Corporate Sustainability Reporting Directive and the U.S. Principles for Responsible Participation in Voluntary Carbon Markets to reporting requirements like California's AB 1305.

But beyond all that, what's directly driving this increased dynamism is that sustainability leaders are becoming more and more convinced of both the business and climate imperatives for carbon markets. The question CSOs need to answer is how to bring these together to drive climate action through their organization.

Why carbon credits make sense for the climate

The IPCC's AR 6 Synthesis Report laid down the sobering reality that we will almost certainly pass 1.5°C by the mid-century — if not very likely by 2030. Net-negative emissions will be essential to get back to 1.5°C by 2100. The major part of these reductions must come from rapid decarbonization, but no realistic path to 1.5°C exists without large-scale carbon dioxide removal (CDR).

But CDR solutions remain very far in scale today from where they need to be. The recently-revised Oxford Principles estimate that durable CDR will need to scale 30 times over by 2030, and 1,000 times by 2050. That gap exists alongside a climate finance gap the International Monetary Fund estimates will need to grow from $1 to $5 trillion annually by 2030 — and about half of that must come from private capital.

Carbon credits offer CSOs an immediate and flexible pathway to channel capital to these necessary climate solutions in addition to reducing greenhouse gas emissions today and in the future.

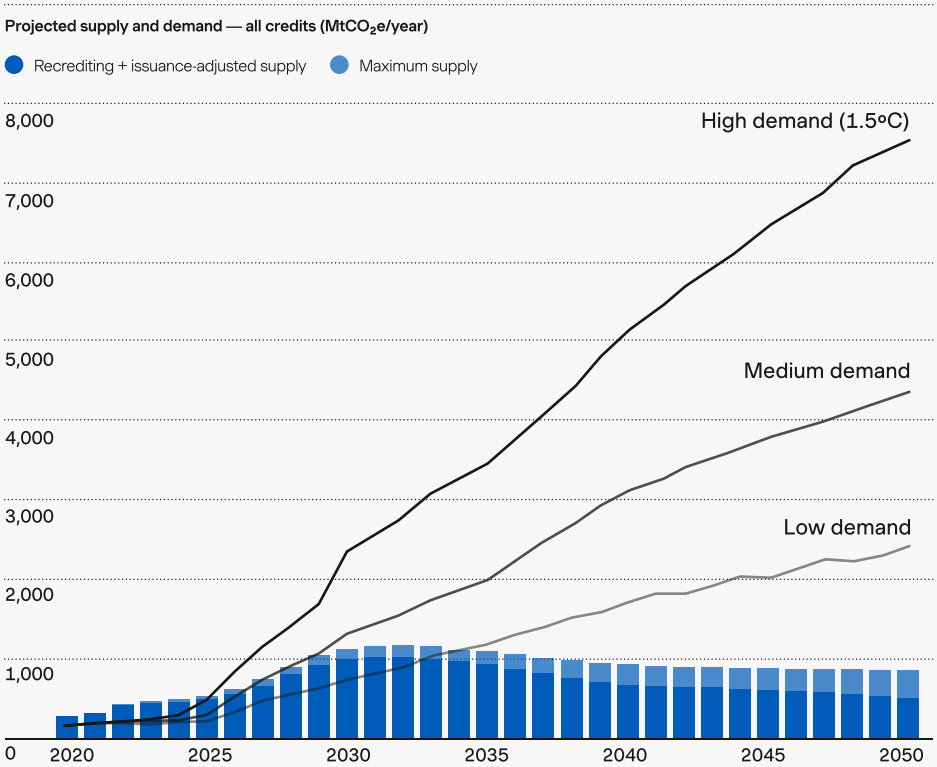
Why carbon credits make sense for business

Standards bodies, federal governments, and regulatory agencies are coalescing around credible and effective ways for companies to engage with carbon markets as part of their sustainability strategies. Carbon credits are now a recommended part of many claims, including SBTi's BVCM and VCMI's Carbon Integrity Claims. No matter what your corporate climate commitment is, there's now both a climate need and a credible path toward including carbon credits as part of it. All signals point to credits becoming a core part of any credible climate strategy going forward and there's a path to get there today.

Based on skyrocketing projections of future demand, companies would be wise to lock in supply and prices soon — both to ensure access to high-integrity carbon credits, but also to send advance demand signals that enable these projects to scale. By 2030, we'll all need a lot more.

And given how inelastic supply is — whether due to the nascency of technology or the biological and land-use limitations of nature-based projects — it will take time for suppliers to catch up to demand. Direct air capture plants will have to be built. Forests will take time to grow. And MRV can take years.

Those are all cost considerations. But what about the growth potential? Each carbon credit project represents an opportunity to tell a story about your proactive climate impact — one that can differentiate your sustainability strategy. High-integrity projects represent some of the most visible, tangible action to mitigate climate change. These projects are drawing carbon down from the atmosphere and storing it durably in geological sinks, abating short-lived climate pollutants like methane and nitrous oxide that are up to 300 times more potent than CO_2, and restoring native forests to improve biodiversity and support workforce development for women and Indigenous communities in the Global South.



Demand includes potential demand from corporates net zero targets (SBTI and non-SBTI approved), carbon neutral claims, CORSIA, compliance schemes, and governments under Art 6.2/6.4. Supply includes registered and pipeline projects. By 2030 roughly half of credit supply will come from registered and half from pipeline projects.

Source: Investment Trends and Outcomes in the Global Carbon-Credit Market (C) MSCI Carbon Markets 2023

Measuring, reporting, and verification

Some of the scrutiny around carbon markets has orbited around the question of whether carbon credits represent the climate impact that they claim. MRV is how verification and validation bodies (VVBs) attempt to answer that question scientifically on a project-by-project basis. Different types of solutions require different MRV methods.

Some forestry projects, for example, rely on drone and satellite surveillance, AI analysis, and complex modeling. Assessing the durability of enhanced rock weathering methods depends on accurately estimating the flow of carbon atoms through watersheds to the sea. Ensuring the integrity of improved cookstoves means creating scalable incentives for people in rural areas to actually use them.

Carbon credits live at the intersection of vastly complex atmospheric systems and (perhaps) even more complex systems of human behavior. It takes sophisticated science to measure, report, and verify the outcomes of carbon credit projects — MRV. This scientific process is critical to developing these projects and to ultimately bringing high-integrity credits to market.

The bottom line

CSOs operate in multiple worlds. The job encompasses regulatory compliance, navigating rapidly evolving science and policy, growing and protecting the company's brand, and above all, delivering real climate impact in service of business goals. CSOs have to satisfy a wide variety of stakeholders — sometimes with competing interests. It's about both public relations and board relations. It's about complying with international law at a reduced cost. It's about following through on company-level sustainability commitments, often within a modest budget.

But ultimately, it's about using your leverage to help put our planet back into balance. A CSO's spending power in the voluntary carbon market is a major part of that leverage, and we can't leave it on the sidelines. This guide walks through Workday and Patch's carbon credit strategy to help you engage with carbon markets effectively and judiciously.

01

Decarbonization

Decarbonization

A credible carbon credit strategy needs to go hand in hand with a science-based approach to reduce your company's greenhouse gas emissions. The science is clear: our collective progress on decarbonization over the next six years will make or break our chances to flatten the climate curve and limit the worst impacts of the climate crisis. Every strategy starts with defined targets that have clear and aggressive timelines. There are several roadmaps that prescribe pathways for setting and meeting these targets, including:

01 The SBTi Corporate Net-Zero Standard

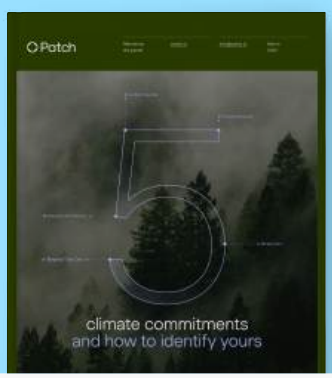
02 The ISO Net Zero Guidelines

03 The Change Climate Project Climate Neutral Label

Generally speaking, however, decarbonization has three stages:

5 climate commitments and how to identify yours

Read more about the most common types of climate commitments here.



Measure

Calculate your company's greenhouse gas emissions across all three scopes:

Scope 1: emissions created directly by your company

Scope 2: emissions generated indirectly by the energy sources used by your company

Scope 3: all other indirect emissions besides scope 2 within the value chain of your company

Reduce

Take action to draw down the amount of emissions generated by your company across all three scopes, such as:

1. Minimizing waste, adopting circular practices, or lowering manufacturing emissions

2. Implementing energy efficiency measures, adopting renewable energy, reducing reliance on non-renewable grid electricity

3. Enabling suppliers to adopt lower-carbon operations or finding more sustainable vendors

Report

As part of a science-based strategy, your reductions should be reported publicly, accurately, and transparently.

The EU, California, and other state and national governments are increasingly requiring companies to disclose their emissions via policies including:

1. EU Carbon Removal Certification Framework

2. EU Green Claims Directive

3. California AB 1305

4. Corporate Sustainability Reporting Directive

How Workday approaches decarbonization

Over the years Workday has evolved our sustainability practices to ensure we're keeping up with the latest science-based recommendations on how we can drive impact. We've shifted our focus over time to ensure we're keeping pace with the scientific community and are funding efforts to support permanent carbon removal. Science-based best practices we've adopted to mitigate our environmental impact include:

- Avoiding carbon-intensive activities where possible and reducing through efficiency
- Replacing high-carbon energy sources with carbon-free sources
- Investing in high-quality carbon credits for those emissions we can't avoid
- Partnering with peers to support long-term change and contribute to cutting-edge climate solutions
- Accelerating the development of permanent carbon removal technologies through advance market commitments
- Investing in catalytic nature-based solutions

We know the rest of this decade will be a critical time to reduce carbon emissions and limit the worst climate change impacts. Therefore, we've aligned our sustainability strategy at Workday with transitioning to a zero-carbon future. We've achieved net-zero carbon emissions (across offices, data centers and public cloud, and business travel), have reached our 100% renewable electricity goal ahead of schedule, and have provided our entire customer community with a carbon-neutral cloud.

Approved by SBTi in 2022, Workday's science-based targets (SBTs) are aligned with a 1.5°C pathway:

- Workday commits to continue annually sourcing 100% renewable electricity through our fiscal year 2030.
- Workday commits to reduce absolute Scope 3 business travel greenhouse gas emissions by 25% by FY 2026 (using FY 2020 as our base year).
- Workday commits that 70% of our suppliers, by spend covering purchased goods and services and capital goods, will have science-based targets by our FY 2026.

Workday's SBTs prioritize emissions reductions in alignment with climate science, and as an organization focused on supporting our customers' sustainability journeys as well as our own, we knew putting our SBTs into action was an important step in our strategy. We've continued to work to make progress against SBTs, while simultaneously identifying the areas where we need to adjust our strategy in order to improve.

Part of setting ambitious goals means we actively need to track our progress and performance against our goals. We've met our 100% renewable electricity goal, and we'll continue to engage with our suppliers to commit to having their own SBTs, as well as taking steps to reduce our business travel and help us get on track. We are committed to being transparent about obstacles and our efforts to overcome them. While sharing our progress and setbacks openly and with integrity, we remain dedicated to working toward our SBTs and continuously improving our sustainability practices.

Read more about Workday's science-based targets in our Global Impact Report

02

Setting strategic goals for carbon credits

Setting strategic goals for carbon credits

In theory, top-level strategy is the obvious place to start for a C-level leader. In practice, most CSOs find themselves with constraints, including pre-existing commitments and fixed budgets set ahead of the sustainability strategy. They can end up confined to a carbon credit plan that was pre-determined rather than a strategy that was built to achieve broader goals.

How you approach your carbon market strategy should always ladder up to your overall sustainability goals at the company level — both from a business and climate perspective.

Beginning with the question "what carbon credits can I buy that fit my specifications?" is the wrong starting point. You may end up making a purchase that fits your budget, but falls short of high-integrity and authentic climate impact. You could neutralize some of your emissions footprint, but miss opportunities to engage your stakeholders and catalyze growth for climate technologies.

What are your strategic goals for engaging with the voluntary carbon market? Here are a few common ones we've heard from CSOs — but by no means is this an exhaustive list:

Business Impact

- [ ] Mitigate residual emissions you otherwise cannot reduce in good faith
- [ ] Support progress towards net-zero targets
- [ ] Support UN Sustainable Development Goals (SDGs)
- [ ] Secure long-term access and favorable pricing ahead of forecasted demand increases
- [ ] Build a sustainable brand
- [ ] Tell a compelling sustainability story

Climate Impact

- [ ] Scale climate solutions in alignment with the Oxford Principles
- [ ] Promote biodiversity
- [ ] Foster technological innovation
- [ ] Drive investment by providing demand signals to the market
- [ ] Fund projects with local co-benefits
- [ ] Create social impact in strategic geographies of interest (e.g. projects co-located with business operations)

Workday's strategic goals for carbon credits

Accelerate the development of engineered carbon removal

Most climate models agree we need to remove carbon from the atmosphere on the scale of 5-10 gigatonnes per year by 2050. Just 100,000 tonnes of carbon have been permanently removed to date, so to make a difference we must accelerate high-potential carbon removal solutions. Existing nature-based solutions, including reforestation, afforestation, and soil carbon storage, are valuable but will not scale to the size of the problem as quickly as we need. New technologies are emerging, but too slowly. Funding is needed to signal demand and drive these innovations, so they can scale at a faster pace to effectively confront the climate crisis.

Purchasing carbon removal today instead of waiting is thus one of the highest-impact use of funds. High costs, limited capacity, and a lack of standards for buying carbon removal mean most organizations don't participate. So with limited customers, new carbon removal technologies cannot grow to the scale needed without massive advance commitments paving the way. Workday is a member of Frontier, a $1 billion advance market commitment to buy permanent carbon removal, and therefore scale the industry. Workday has committed to a total of $25M towards these solutions.

Maximize environmental and social impacts

No single solution will get us to a 1.5°C world, which means companies need to implement diverse solutions from tried-and-true methods while also investing in new and innovative technologies. And while not all carbon credits are equally beneficial, Workday has long had a strategy of using high-quality investments, including leveraging specific criteria, that maximize both environmental and social impacts.

For example, mitigating greenhouse gasses with high global warming potential (including methane, nitrous oxide, and hydrofluorocarbons) as fast as possible is one of our most urgent needs. Funding projects like plugging orphaned oil and gas wells and refrigerant destruction can deliver outsized benefits for the climate. Likewise, protecting critical carbon sinks in the Amazon rainforest can help prevent ecological collapse as well as global warming tipping points. These projects and many more can help spread both the benefits of climate finance, as well as hedge against the risk of any single method under-delivering on climate impact.

Scale private sector climate finance for climate solutions

Just like we have a long way to go to scale up global carbon removal capacity, we're also collectively a long way off from the total amount of climate finance we'll need to ensure a 1.5°C future.

Workday is a founding member of the Business Alliance to Scale Climate Solutions (BASCS), which was created to increase the scale and impact of business investment in climate solutions — a critical component for meeting the ambition of the Paris Agreement. BASCS is working to raise awareness of funding opportunities for climate solutions, close surface gaps in knowledge and infrastructure, increase the scale and impact of corporate carbon credit purchases and other climate solutions funding, and accelerate the private sector's pivot from climate ambition to climate action.

Promote Sustainable Aviation Fuel (SAF)

When Workday announced our approved science-based targets (SBTs) in 2022, we also shared that in order to help us address our business-travel emissions reduction SBT, we joined the Sustainable Aviation Buyers Alliance (SABA), a buyer-led collaboration focused on accelerating the path to decarbonizing aviation and driving investment in and adoption of sustainable aviation fuel.

Workday is part of the largest ever collection of deals to purchase high-integrity SAF certificates (SAFc). Over the span of five years, close to 20 business aviation customers including Workday, four fuel providers, and three airlines, have committed to channel close to $200 million into purchasing SAFc — equal to about 500,000 tonnes of abated CO_2e. Similar to supporting the voluntary carbon market, this multi-year collection of deals demonstrates the power of corporate demand to scale up investments in promising sustainable fuels.

In addition, Workday entered into a five-year advance purchase of SAF via the SkyNRG Board Now program. By investing, we'll support the development of the first European SAF production facility, located in the Netherlands, which will produce 100,000 tonnes of SAF annually. As the only corporate SAF program that enables new production capacity, Board Now helps companies reduce business travel emissions and accelerate the energy transition in aviation.

Functioning as a substitute for fossil jet fuels, SAF is produced from sustainable resources instead of being refined from petroleum. SAF reduces lifecycle CO_2 emissions compared to fossil kerosene and is a drop-in fuel that can be blended with fossil jet fuel, which requires no additional infrastructure.

03

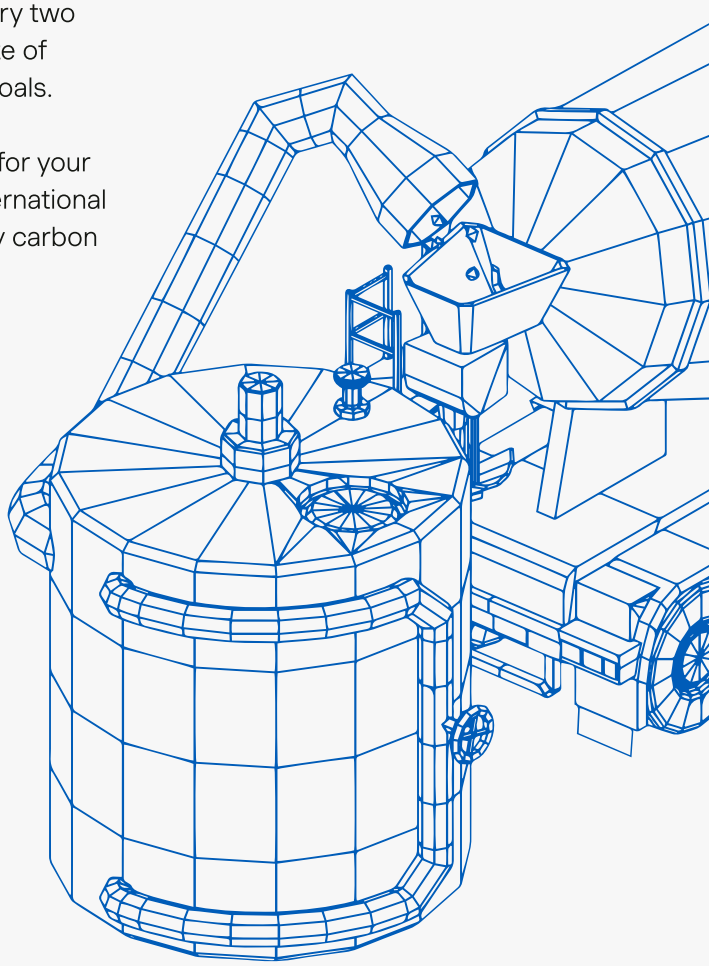
Policy and regulatory compliance

Policy and regulatory compliance

Policy plays a major role in incentivizing climate action. Among California's raft of climate disclosure laws, for example, are provisions on carbon credit purchase disclosures that cover every company doing business in the state — the world's fifth largest economy. The Biden Administration's three landmark investment bills represent $500 billion of funding for sustainability initiatives. But private companies have been heavily invested in climate solutions even before these recent laws — and there's no reason to think that would stop in their absence.

It's easy for CSOs to become over-indexed on or reactive to policy — especially because compliance is a major part of the job. But when it comes to carbon markets, waiting to be regulated is anti-strategic. Policy tends to take a long time to pass, and even longer to implement in the real world. And election cycles put those changes at risk as often as every two years. It sets a CSO up to be reactive rather than proactive. The state of policy should inform your sustainability decisions, not dictate your goals.

There's no way this guide can offer prescriptive compliance advice for your unique situation, but it can offer a quick breakdown of the major international policies CSOs should be aware of when engaging with the voluntary carbon market.



California AB 1305

Assembly Bill (AB) 1305 is a bill aimed at enhancing voluntary carbon market disclosures within the State of California. Following the state government's passage of SB 253 and SB 261 which aim to regulate California businesses' disclosure of their greenhouse gas emissions and their climate-related financial risks, respectively, this new law, which was passed in October 2023 and came into effect in January 2024, tackles both sides of the voluntary carbon market — sellers and buyers of carbon credits. As such, it's made up of two parts that address both cohorts:

01 Companies that market or sell voluntary carbon credits in the State of Californias are now required to disclose detailed information about the credits being sold on their websites.

02 Companies or entities that make claims like "net zero" or similar, as well as companies that buy or use carbon credits in support of those kinds of claims, will be required to disclose certain specified information about their climate claim and about the credits they've purchased on their websites.

The expansive language of the bill means more than just Californian companies will be affected. Any company that does business in the state could be subject to these rules. There's no definition of "operate" and no list of claims specified, and there's no minimum threshold for credit purchasing. The information must be disclosed on a public website, and include details on each specific project, accountability measures in the case the project is not completed or doesn't meet its targets, and "the pertinent data and calculation methods needed to independently reproduce and verify the number of emissions reduction or removal credits issued using the protocol." Workday has included this information within our annual Global Impact Report.

The new disclosure requirements should not be a cause for concern for buyers who already have strong due diligence and procurement processes in place, or who work with a reputable third-party provider like Patch. For those companies that haven't yet begun buying carbon credits, this bill should serve as a reminder to ensure you have a robust, defensible climate action strategy behind the climate claims you wish to make. Ultimately, the bill should facilitate easier buyer scrutiny in the voluntary carbon market, which is a positive outcome both for buyers and the planet.

EU claims and carbon removal policy

The European Union already has a number of climate policies on the books, with more in various stages of development.

The Green Claims Directive

The Green Claims Directive tackles the use case for carbon credits —- in short how they can be used as part of a corporate net zero target, and how companies can talk about them. It is still going through the legislative process and we are unlikely to have a clear position until 2025. Encouragingly, the most recent position from the European Council endorses the use of carbon credits, but the details are yet to be worked out and we do not yet have clarity on the role of nature-based credits.

The Corporate Sustainability Reporting Directive (CSRD)

In July 2023, the European Commission adopted the European Sustainability Reporting Standards (ESRS) for use by all companies subject to the Corporate Sustainability Reporting Directive (CSRD). These standards are mandatory, and cover the full range of environmental, social, and governance issues — including climate change, biodiversity and human rights.

As part of the reporting standards, companies will have to share information on carbon credit purchases, including details on the type of credit and the verification standard. The reporting requirements will be phased in over time for different types / sizes of companies, with the first set of companies required to report for FY 2024.

The Carbon Removal and Carbon Farming Framework (CRCF)

The Carbon Removal and Carbon Farming Framework (CRCF) is a major regulatory undertaking to drive high integrity and consistency in the voluntary carbon market. It ultimately rubber stamps the voluntary carbon market as a credible route for investing in carbon removal. The framework currently categorizes carbon credits into three distinct groups:

- Permanent engineered storage
- Carbon farming (further broken down into emissions reduction and temporary emissions removal)
- Long term storage in products

The CRCF will approve methodologies for a suite of carbon removal pathways, starting with BECCS, DACCS, and carbon removal from biochar, as well as authorize registries to assess and issue CRCF credits on its behalf.

In parallel, the EU is committed to setting up a single registry to avoid double counting of carbon credits.

How Workday intersects with climate policy

At Workday, our sustainability and policy teams both sit within our larger Corporate Affairs department to support a close partnership in our climate strategy and advocacy. To help establish a foundation for our advocacy efforts, we developed a climate policy statement that continues to guide our policy engagements globally. As detailed in our statement, we are broadly supportive of science-based climate policies that increase the availability of and accelerate the transition to clean energy sources and believe achieving net-zero global emissions by 2050 to prevent a rise above 1.5°C should be the "North Star" of policy efforts.

In early 2024, Workday joined 45 other corporate clean energy buyers in a letter filed with the Federal Energy Regulatory Commission (FERC) asking the commissioners to finalize a forward-looking rule that can set the U.S. on the course to a more resilient, expanded electric grid capable of meeting the demands and opportunities in the coming years. The letter supports the FERC regional transmission planning rule — an opportunity to reform the planning and financing processes for transmission that would enable future economic and load growth, and increase customer access to clean, lower-cost, reliable electricity.

We continue to focus on global access to renewable energy to power decarbonization efforts and transition the globe to net-zero carbon emissions. In 2023 and early 2024, we met directly with U.S. policymakers to urge further action in the transition to a cleaner economy.

Altogether, the global carbon market policy can offer companies guardrails that may prevent certain abuses or greenwashing. But within those guardrails, CSOs still have a lot of latitude to make decisions; the rules themselves are not a roadmap. That's why corporate climate leaders are on the hook to develop their own carbon credit strategy.

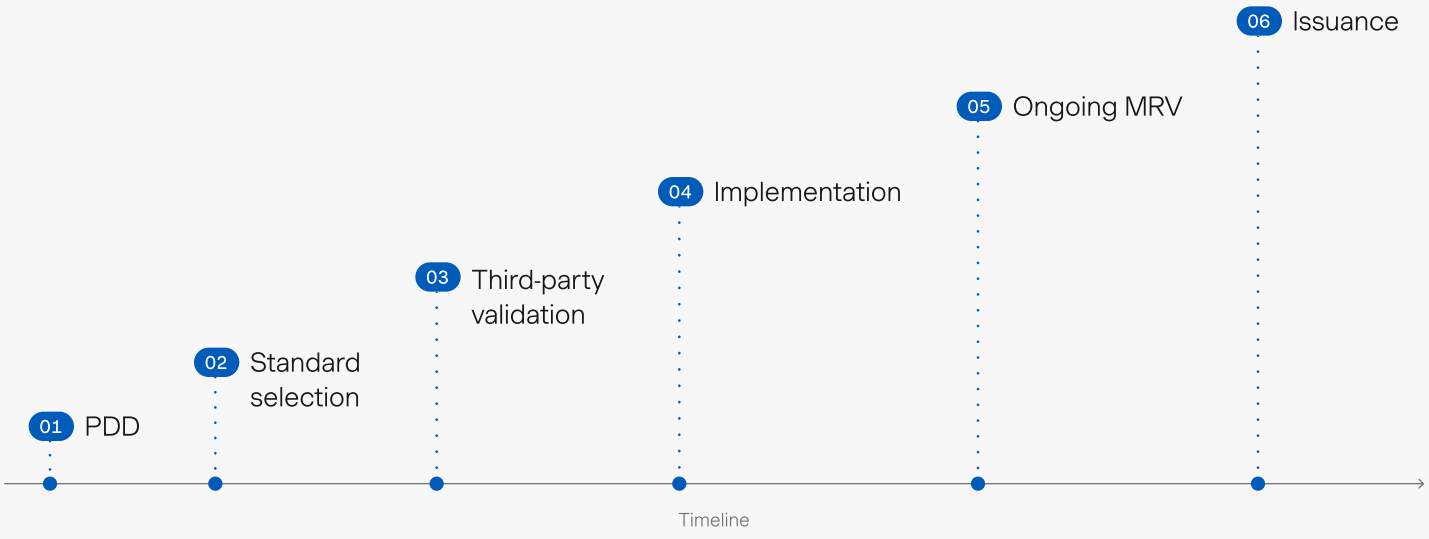
04

Carbon credit strategy

Carbon credit strategy

A carbon credit represents one tonne of carbon either removed from the atmosphere or avoided from being emitted. All projects follow a general process to generate verified carbon credits that encompasses the entire lifecycle of the credit. It starts with project conception and designing a Project Design Document (PDD) that outlines the project's methodology, baseline scenario, projected emission reductions, monitoring plan, and additionality criteria and includes standard selection and validation from an independent third-party Validation and Verification Body (VVB) that ensures the project meets the chosen standards criteria. During project implementation, ongoing monitoring, reporting, and verification (MRV) organizations will collect data and track performance against a project's PDD, so that once the verification report is approved, the chosen standard can issue carbon credits. These credits are often listed in a registry managed by the standard, e.g, ACR, CAR, Gold Standard, Isometric, Puro.earth, and Verra.

Of paramount importance to Patch — both as a platform for carbon credits as well as to carbon credit buyers like Workday — is integrity. Integrity is a concept that encapsulates the transparency, availability, and credibility of all the available information to demonstrate that a project is delivering on its projected outcomes. When a carbon credit project methodology demonstrates that its activities result in CO_2 reduced or removed from the atmosphere as verified by the best available science, it's said to have "high-integrity."

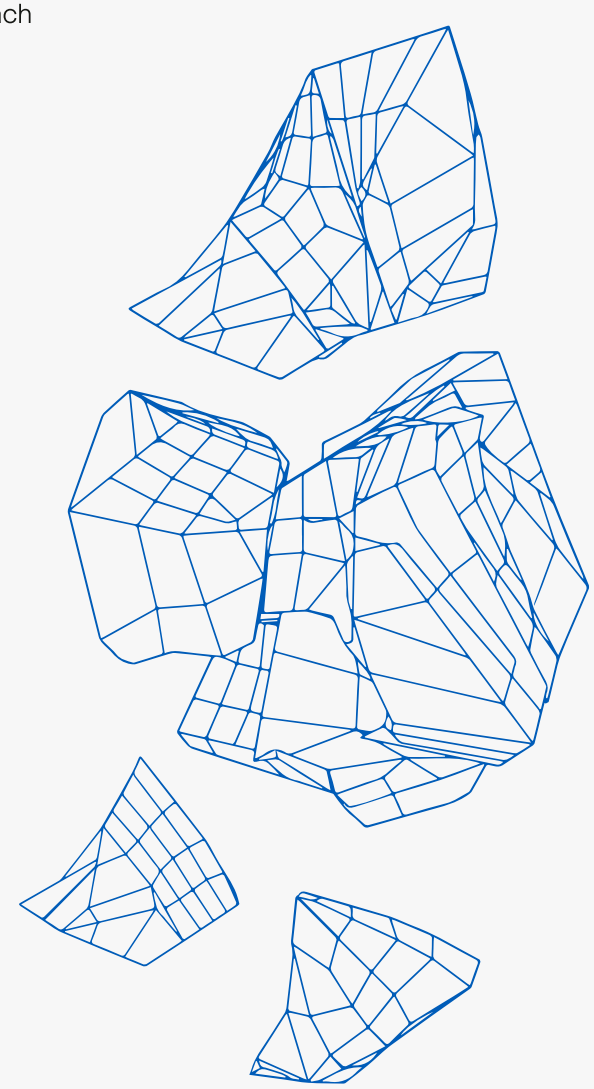


Reducing credit risk

Diversification is a tried and true investment method to optimize for returns and hedge against risk. Like any other asset, carbon credits have built-in risk — delivery risk that the project doesn't result in CO_2 reduction or removal, durability risk that the climate impact is reversed by natural or human forces, and in the case of ex-ante credits (credits issued before actual emission reductions or removals have occurred based on projected future project benefits), temporal risk that the project is delayed or doesn't happen. And then there's the reputational risk to the buyer in case any of these primary risks materialize.

Including a wide range of diversity within a carbon credit strategy is best-practice — both from a business perspective and a planetary perspective. Patch always recommends, and helps buyers design, a portfolio approach for their carbon credit purchases.

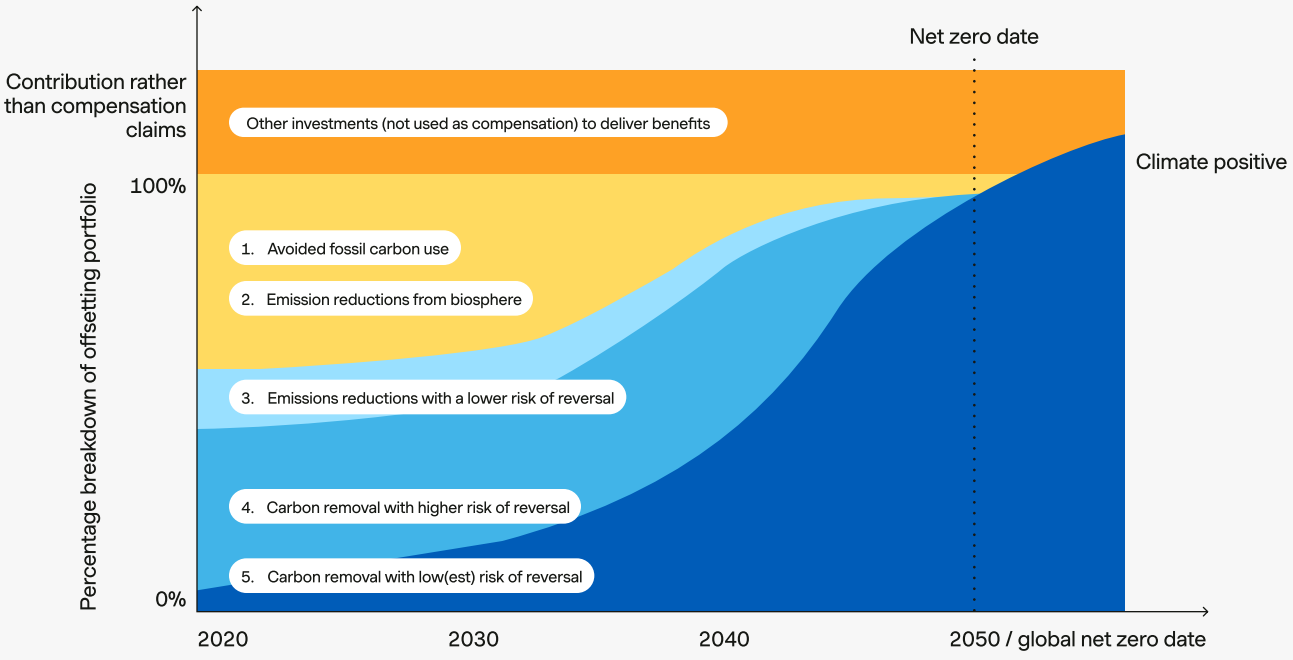
By diversifying your carbon credit portfolio, you create a hedge against those risks. But what about the upside?



Realizing climate benefit

We know that many methods will be necessary to rebalance the planet: Earth's forests will need to be protected and regrown. Our soil and ocean carbon sinks will need to be restored. We need to rapidly stop the emission of greenhouse gasses — especially those with the highest global warming potential, like methane, nitrogen dioxide, and HFCs. Atmospheric carbon will need to be removed and stored underground. All of these projects need funding. A diversified portfolio can spread funds to a wider variety of projects — both established projects that are sequestering carbon today, and projects that need catalytic capital to scale at the pace needed to combat irreversible harms of climate change.

This is the philosophy underpinning the Oxford Principles for Net Zero Aligned Carbon Offsetting. Recognizing that many methods of carbon removal and avoidance will play a role, and those roles will evolve over time, a best-practice portfolio according to these principles puts greater emphasis on avoided emissions projects and nature-based removals right now, and shifts toward permanent removal and storage methods visualized by this glide path:



Source: Oxford Principles for Net Zero Aligned Carbon Offsetting (revised 2024)

Categorizing carbon credit projects

Mechanism

Avoidance

Avoidance-type projects issue credits to disincentivize greenhouse gasses from being emitted. These emissions would have happened without the financial drivers the carbon credit provides. This includes CO_2, but also more potent gasses like methane, NO_2, and HFCs.

Example project types:

- Landfill gas capture
- Reducing Emissions from Deforestation and forest Degradation (REDD+)
- Regenerative agriculture
- Improved cookstoves
- Waste disposal
- Renewable energy

Removal

Removal-type projects are those that chemically remove CO_2 from the atmosphere, whether through photosynthesis or another engineered process. The second part of this process is storage — what happens to the CO_2 after removal — and includes geological storage, usage, and other systems.

Example project types:

- Enhanced rock weathering
- Direct air capture
- Biochar
- Reforestation
- Concrete injection
- Direct ocean capture

Methodology

Nature-based

Earth's natural systems are responsible for maintaining the balance of greenhouse gasses in the atmosphere. By protecting them from destruction, we can avoid the release of CO_2. By restoring, enhancing, and improving them, we can remove CO_2 from the atmosphere.

Example project types:

- REDD+
- ARR (afforestation, reforestation, and revegetation)
- IFM (improved forest management)
- Biomass sinking

Engineered

Also called "tech-based" or "novel" methodologies, these projects are engineering new ways to rebalance the planet. They do this by replacing systems that exploit natural carbon for energy or products and by devising new ways to extract and store CO_2 in the atmosphere.

Example project types:

- Direct air capture
- Concrete injection
- Renewable energy
- Enhanced rock weathering
- Direct ocean capture

Inside Workday's carbon credit portfolio

Let's look back at Workday's strategic goals for their carbon credit purchasing:

01 Accelerate the development of engineered carbon removal

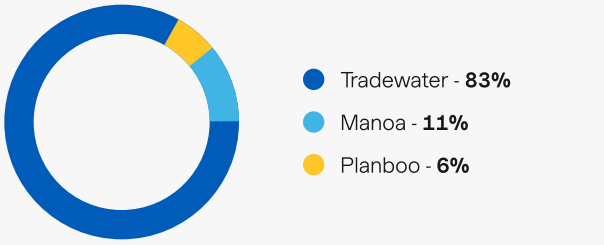
02 Maximize environmental and social impacts

03 Scale private sector climate finance

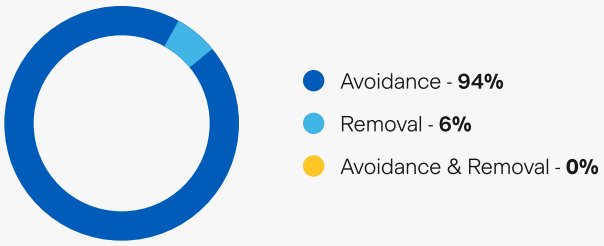
With an eight-year advance commitment to purchase credits for engineered removal projects through Frontier, Workday was able to attack their first strategic goal. For the second strategic goal, Workday and Patch built a diversified portfolio of carbon credits that spanned both avoidance and removal mechanisms and both nature-based and engineered methodologies. And for the third, Workday turned to our BASCS alliance as well as Patch Offtakes.

With this broad approach, Workday was able to spread the benefits to a variety of planetary needs, locations, and types of projects, thereby maximizing the environmental and social impacts of our spend.

Breakdown by project



Breakdown by mechanism



Project details

Name	Certifier	Vintage	Geography
Tradewater US Plugging Orphaned Oil & Gas Wells	ACR	2023	USA
Manoa REDD+ Forest Protection	Verra	2019	Brazil
Planboo Biochar	Carbon Standards Int'l	2024	Namibia

Inside Workday's carbon credit portfolio (cont.)

Tradewater US Plugging Orphaned Oil & Gas Wells

Over a 20-year period, methane has a global warming potential that is 80 times greater than CO_2. Since the Industrial Revolution, methane has caused 30% of planetary warming.

In Tradewater's first methane reduction projects, they have plugged several high-emitting orphaned gas wells in Greene, Dubois, and Daviess Counties in Indiana. These wells are located on farms, and in one case, in the landowner's backyard. In addition to leaking methane, they emit toxic gasses like hydrogen sulfide and the known carcinogen benzene.

Tradewater directly measured methane releases and coordinated with landowners and state agencies to plan plugging activities. Tradewater then hired qualified local contractors and worked hand in hand with them to remove surface equipment, meet and exceed state plugging regulations, and remediate the land. They were able to permanently stop current and future methane leaks, halt groundwater contamination around the plugged wells, and return the land to its rightful state.

Tradewater is one of the first project developers anywhere in the world doing this work.

Manoa REDD+ Forest Protection

The Southern Brazilian state of Rondônia, where this project is located, has experienced one of the highest rates of deforestation in the Amazon due to large-scale operations to clear huge tracts of forests for beef and soy commodities. Manoa Farm has been under threat of this agricultural conversion and timber theft. In 2013, Manoa was established as a REDD+ carbon project with a 30-year crediting period in order to preserve the forest. Some of the primary project activities include sustainable forest management practices, satellite and on-the-ground monitoring to patrol and contain invasions, environmental education for local communities at Manoa farm's on-site training center, and partnerships with research institutions to monitor forest management impacts and study endemic species.

Manoa farm's first sustainable management plan was established in 1997. They've spent years improving low-impact harvesting techniques, ultimately becoming a global model for other projects. The rotation is divided into intervals called "cutting cycles" of 30 years to ensure maintenance of mature species, allow the forest to regenerate, and allow species diversity to perpetuate.

Planboo Biochar

Namibia faces a significant environmental challenge as 45 million hectares of savannah grassland are being encroached upon and dominated by several species of invasive Acacia. These plants and others contribute to bush encroachment, desertification, and environmental degradation, which is hindering the unique savannah ecosystem from thriving.

Therefore, the government and landowners have begun efforts to manage the encroaching bush. Harvesting is permitted and managed by the Forestry Stewardship Council, to ensure safe and sustainable practices.

Planboo is supporting the charcoal industry to turn this regional problem into a valuable resource through the production and application of biochar. This project is tackling critical issues like encroachment of bush, reduced ground water reserves and soil degradation in Namibia — and ultimately removing thousands of tonnes of carbon dioxide from the atmosphere.

05

Market acceleration

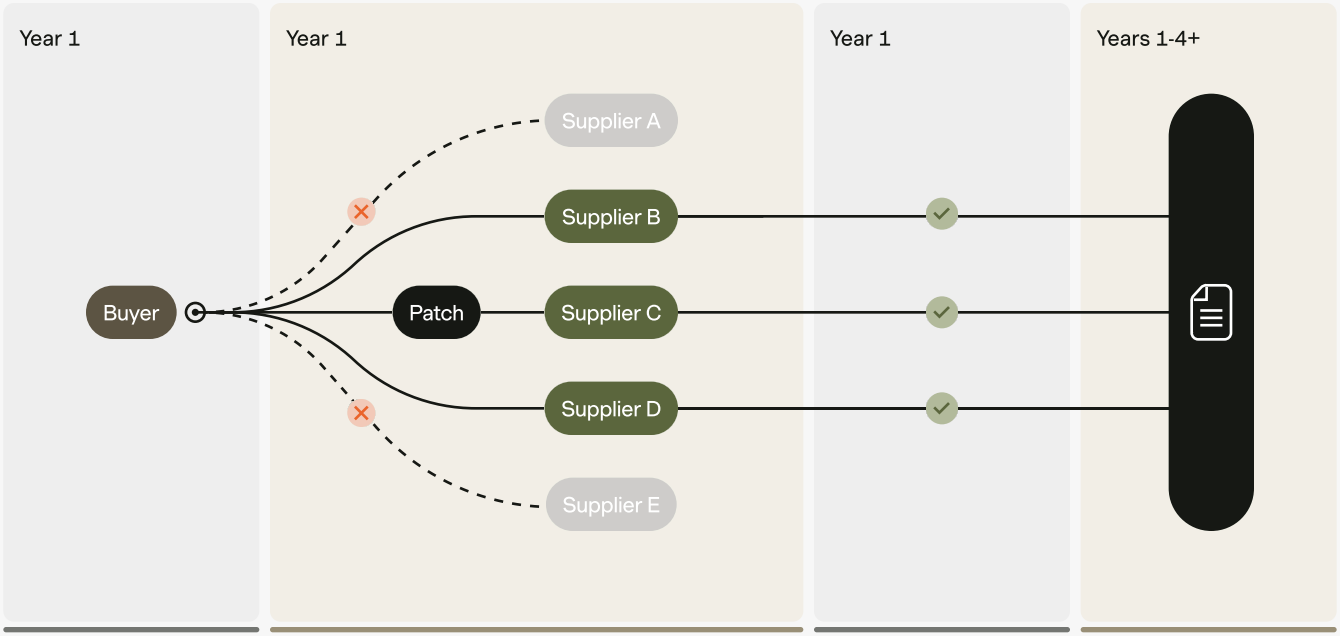
Market acceleration

Another of Workday's strategic goals is to scale private sector climate finance. With year-to-year spot purchasing, it can be difficult for the market to achieve the kind of acceleration it will take to scale. Workday's solution? Patch Offtake.

Common to the commodities sector (and mining in particular), offtake agreements are project financing schemes (or methods that unlock project financing) that allow buyers to pre-purchase goods that haven't been produced yet. For instance, prior to the construction of a new mine or semiconductor factory, a buyer could agree in advance to purchase a set quantity of minerals or microchips upon completion for years into the future.

The purpose of an offtake agreement is to provide a guaranteed market for the producer's output and ensure stability and predictability in the sales and revenue streams. In turn, the buyer is able to secure a reliable source of supply for the climate impact they need.

Patch Offtake



Buyer engages Patch to determine carbon credit needs according to climate goals, budget and attributes

Patch sources projects from across the market, performs due diligence, provides portfolio recommedations and streamlines contracting

Buyer is presented with offtake aggrements

Patch facilitates annual credit delivery, issuance trackiong and other key milestones.

Market acceleration (cont.)

Offtake agreements have benefits for buyers you don't get by negotiating spot purchases directly with suppliers:

01

Support for innovative solutions, no matter the size:

By committing to multi-year purchases, buyers help project developers to demonstrate commercial viability sooner in order to accelerate expanded production of innovative carbon removal and storage projects. Unlike other forward purchase mechanisms, there's no minimum investment level or volume commitment required for a buyer to participate.

02

Getting off the "hamster wheel" of annual purchases:

Negotiating spot purchases year after year can be an inefficient use of limited resources. In this rapidly evolving space, repeat purchases with the same supplier or set of suppliers may require you to duplicate work — work that only needs to be done once for the duration of a multi-year offtake.

03

Secured inventory:

Offtake buyers can lock in inventory over multiple years, even in the context of a diversified portfolio representing different project types. Carbon credit supply can fluctuate — even for any given project from year to year. Unlike spot-purchase carbon credit agreements, an offtake portfolio unlocks long-term possibilities for your portfolio and ensures buyers get the credits they need to fulfill their long-term climate commitments.

04

Stable pricing:

Businesses secure impactful carbon removal and storage credit inventory at pre-negotiated set rates — hedging future price volatility from the start and ensure more predictable budget planning as they model out their future spending on climate action.

Recognizing that to scale the necessary solutions, many carbon credit project developers require future demand commitments, Workday worked with Patch to preorder credits through Patch's multi-year offtake agreement construct. Through this offtake, Workday will procure 225,000 metric tonnes of high-quality carbon credits with delivery over the next six years from three separate projects. This approach offers strategic value for Workday to ensure access to high-integrity carbon credits over time. It helps maximize our climate impact and it sends a clear signal of demand to the market.

06

Budgeting

Budgeting

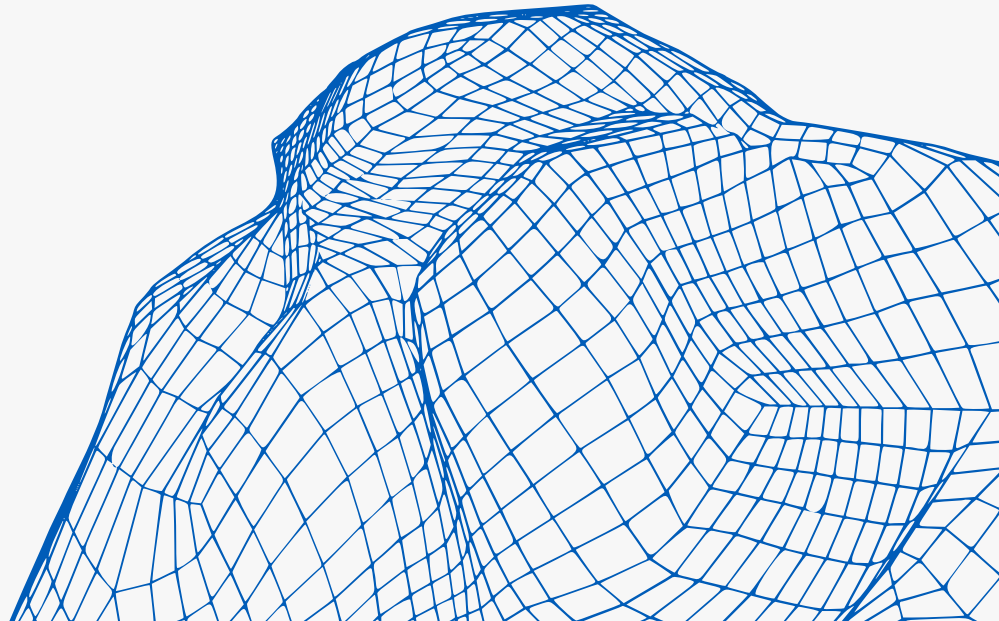
The final step of planning a carbon credit strategy is budget-setting. All that's left afterward is to execute. Unfortunately, too many CSOs start with budget and compliance, and their strategic options are significantly curtailed. What factors go into securing the right budget necessary to accomplish your company's goals? Let's look at four key considerations:

01. Setting an internal carbon price

02. Benchmarking against industry peers

03. Aligning strategic goals to budget realities

04. Determining a compensation or contribution approach



Setting an internal carbon price

Costs drive behavior. Kicking the cost of emitting greenhouse gasses down the road to future generations is what's put us in the middle of a global climate crisis to begin with. With fossil fuels, for example, we pay for the cost of the energy, but not the cost of the damage it does to the livability of the planet. That's why many companies — including Workday — have begun to set an internal price on the carbon they emit.

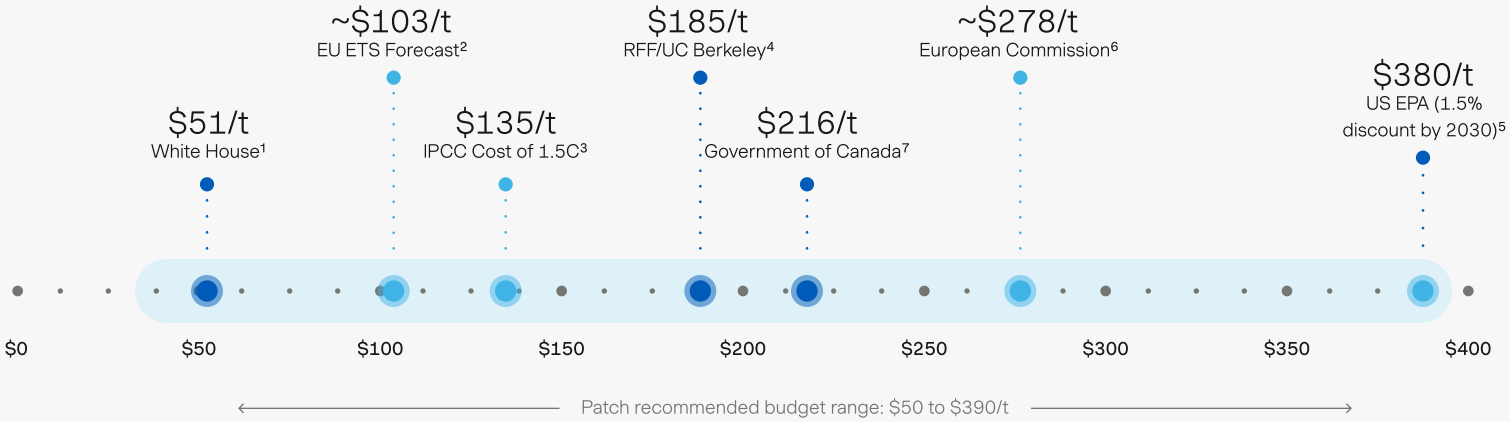
At a global level, this sort of accounting is usually referred to as the "social cost of carbon." There are many ways to calculate it — from estimating the total cumulative financial damages each additional tonne of carbon creates to working backwards from the total cost of achieving a 1.5°C future.

Businesses also have multiple ways to approach setting an internal carbon price (ICP). They can work backwards from the estimated cost of decarbonizing their value chain divided by their total carbon footprint. Other organizations choose to match external scientific estimates of the social cost of carbon.

What's critical is that your ICP drives company behavior in a more sustainable direction. Workday allocates costs across centers so that different areas of our business — for example, our data centers or offices — are accountable for their emissions footprint. We use those funds to procure renewable energy and finance carbon credits to maintain our commitment to net-zero carbon emissions across our offices, data centers and public cloud, and business travel. Each year, we evaluate our ICP to ensure it's optimized to help us meet our goals while allowing us to focus on improving quality and impact. Over the next few years, we will steadily increase our ICP to maintain our quality and impact objectives and align our investments to accelerate the transition to a zero-carbon future.

What are the scientific ranges for pricing a tonne of carbon?

- **Social cost of carbon (pegged to 2020 figures)**
  The cost of doing nothing
  The total calculated economic damages of one tonne of CO_2
- **Carbon cost of 1.5°C by 2030**
  The cost of doing something
  The total economic cost of the global effort to achieve 1.5°C per tonne of CO_2



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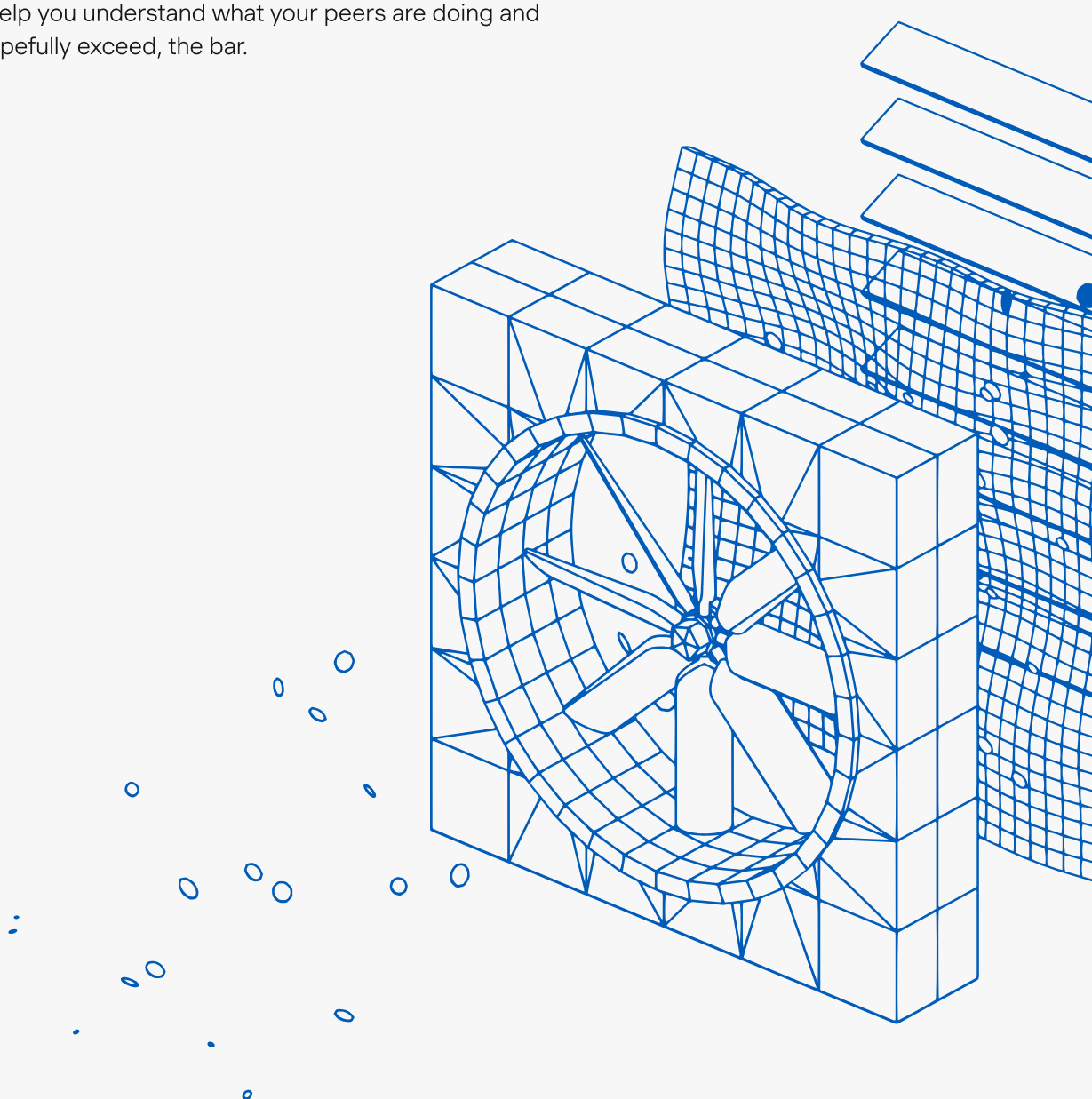
Benchmarking against industry peers

Companies commonly look at peer-group comparisons when making spending decisions. Sometimes this can result in a race to the bottom, but it can also create a virtuous circle. When it comes to climate action, it's often clear who the leaders are. Their best practices can not only encourage more holistic action and help close the gap in climate finance, but also accelerate adoption of hard-won lessons their peers can take advantage of.

When defining your peer group, we recommend considering industry, geography, and company size. While data availability won't be perfect, a platform like Patch can help you understand what your peers are doing and guide you to meet, or hopefully exceed, the bar.



Aligning strategic goals to budget realities

While your peer signals can be helpful to know if you're behind the peloton, it doesn't account for whether the critical mass of businesses in your industry are doing as much as they can for the climate crisis. After all, sustainability action is a cost at the end of the day, and all companies are incentivized to minimize their costs.

However, minimizing corporate sustainability spending at a global scale leads to a world where critical climate solutions can't reach gigatonne scale. Therefore each company ultimately bears a higher cost in the long run due to physical climate hazards.

With that in mind, CSOs have a responsibility to look at their company's "budget reality." The governing logic is simple:

01 Assume any given company could commit ~1-3% of profits to climate spending

02 Divide a company's profits by its emissions to yield a dollar (profit) / tonne (emissions) figure

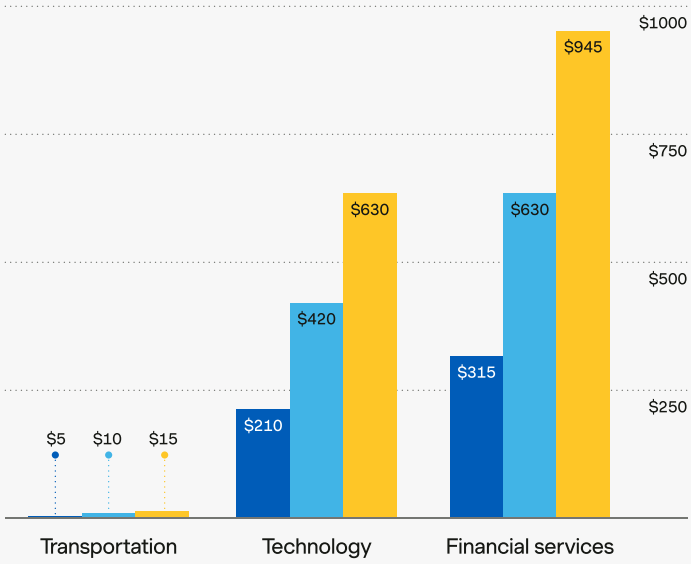
03 Multiply that figure by 1-3% to understand the company's "ability to pay"

Why 1-3%? We've based that on a mix of observed heuristics cross-referenced with expected costs for combating climate change at a global GDP level.

Applying this simple logic across the Fortune 1000 company set produces fascinating results, with some industry segments being able to afford north of $500/tonne, and others less than $10/tonne.

Which industries have the highest ability to pay for carbon credits?

Based on: PACC (Pragmatic Abatement Cost Curve) by sector, price per tonne of emissions (since 2018)



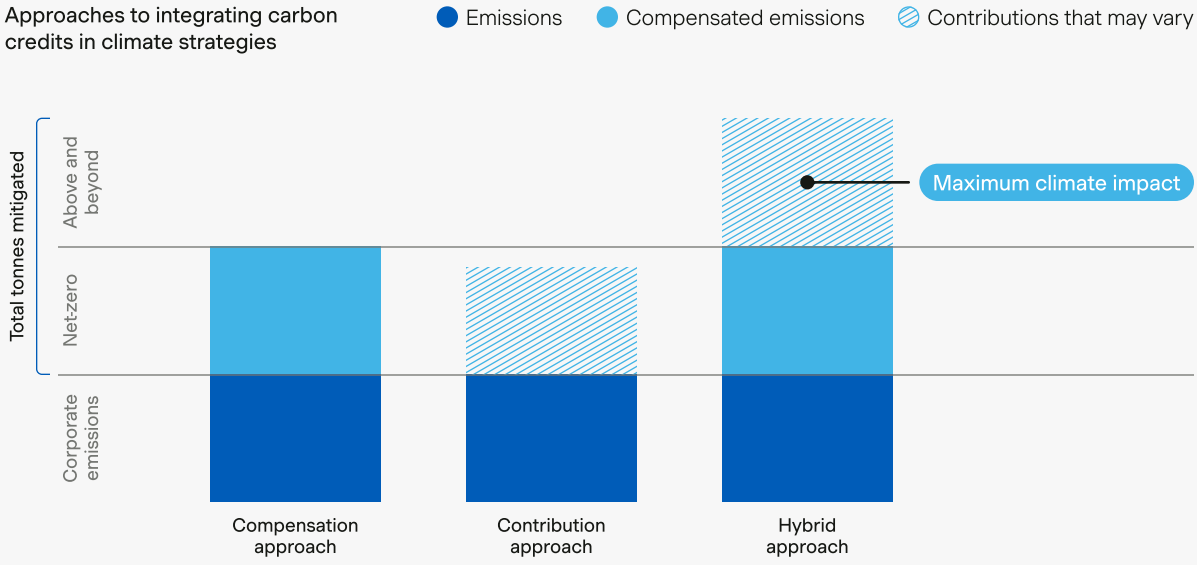
Determining a compensation or contribution approach

Many climate commitments, like net-zero, leverage carbon credits as part of a "compensation model." Credits are purchased as a means to compensate for the remaining portion of your company's carbon footprint that has not been abated. This approach offers a clear outcome for your company as a result of those purchases: achieving net-zero. However, if you're beholden to compensating for your footprint, your carbon credit purchase may be restricted by 1) the type of credit your standard setter allows and 2) the price point of credits you're able to purchase in order to achieve 1:1 compensation within your budget.

That's why more and more sustainability leaders are considering "contribution models" instead of or in addition to commitments that revolve around compensation based on a total footprint. Contribution simply means investing your climate budget where you've determined it can make the greatest impact by contributing to climate projects. With this approach, organizations are able to proactively invest in cutting-edge, nascent technologies to help these projects achieve commercial scale.

Workday takes a hybrid approach, leveraging carbon credits through both a compensation and contribution model. We use our larger Patch portfolio of carbon credits as well as some carbon removal credits from Frontier as "compensation" to help meet our commitment of net-zero carbon emissions across our offices, data centers and public cloud, and business travel. However, our $25M commitment to Frontier is our "contribution" to an advance market commitment that's accelerating the development of carbon removal technologies.

Approaches to integrating carbon credits in climate strategies



Sample

Carbon credit program overview

Let's look at how a CSO at a hypothetical enterprise tech company — "Company X" — could apply these principles into a carbon credit program.

01 **Decarbonization context**

In the context of the company's decarbonization efforts and SBTi net zero targets, Company X has decided to make a VCMI Silver Integrity Claim.

A company with a VCMI Carbon Integrity Silver Claim must purchase and retire high-quality carbon credits in an amount equal to or greater than 10% and less than 50% of a company's remaining emissions once it has demonstrated progress towards its near-term emission reduction targets.

- Scope 1: 10,000 tonnes CO_2e
- Scope 2: 50,000 tonnes CO_2e
- Scope 3: 200,000 tonnes CO_2e

Assuming 20% compensation of residual emissions across Scopes 1, 2, 3, Company X must procure 52,000 carbon credits.

02 **Strategic goals for carbon credits**

Through the purchase of carbon credits, Company X is intending to achieve the following goals:

- Support progress towards net-zero targets
- Secure long-term access and favorable pricing ahead of forecasted projected demand increases
- Support UN Sustainable Development Goals (SDGs)
- Build a sustainable brand
- Foster technological innovation
- Fund projects with local co-benefits

03 **Policy and regulatory compliance**

Company X is headquartered in the EU and also does business in the U.S., which means the following compliance and regulations will be applicable to their credit purchases:

- ☐ **Corporate Sustainability Reporting Directive (CSRD)**
  Some companies may need to disclose certain elements related to their carbon credit purchase. Reporting requirements will be phased in over time for different types and sizes of companies, beginning in January 2025.
- ☐ **California AB 1305**
  This legislation requires any companies with a presence in California that are using offsets to make a climate claim, such as being carbon neutral, to publicly disclose details about the credits they have purchased towards this claim, beginning in January 2025.

04 **The CSO maps out the strategy used in order for Company X to achieve each of its strategic goals:**

- Support progress towards net-zero targets → diversified portfolio of high-quality carbon credit projects
- Secure long-term access and favorable pricing ahead of forecasted demand increases → offtake agreement
- Support UN Sustainable Development Goals (SDGs) → carbon credit portfolio of projects support SDGs #1 No Poverty, #5 Gender Equality, #8 Decent Work and Economic Growth
- Foster technological innovation → include novel projects like enhanced rock weathering and concrete mineralization
- Create social impact in strategic geographies of interest → 50% of projects located in the Global South

See Sample Buyer Specification for further details

05 **Market acceleration**

With the goal of securing long-term access ahead of demand increases, the CSO has opted for a 3-year offtake agreement. Offtakes not only facilitate early-stage project finance crucial for catalyzing climate impact, but also foster long-term relationships between buyers and suppliers. Deeper insights and transparency in carbon project development are crucial for scaling impactful solutions and the broader voluntary carbon market.

06 **Budgeting**

Company X has set an internal carbon price of $108 based on the U.S. EPA Social Cost of Carbon and internal shadow price. Company X will blend their portfolio's price-per-tonne to meet this target.

Sample

Buyer specifications

Specific criteria can be set to operationalize and execute Company X's carbon credit program according to their program objectives. The below criteria set the standard for the quality, mechanisms, risk mitigation, climate impact, and co-benefits of the carbon credit portfolio. We refer to these criteria as "buyer specifications" — illustrated in the following sample:

Footprint (tonnage):

52,000t

across scopes 1, 2, 3 residual emissions targeting a VCMI Silver Claim

Budget ($):

$5.6M

Target blended price per tonne ($ PPT):

$108/t

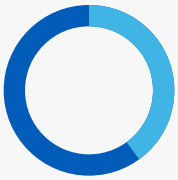
Mechanism and methodology preferences:

- ☐ Nature-based avoidance
  - *e.g. protecting ecosystem, soil and vegetation from damage or degradation*
- ☐ Technology-based avoidance
  - *e.g. deploying renewable energy to replace fossil fuel use, or through landfill gas and home fuel switching projects*
- ☐ Nature-based removal
  - *e.g. restoring healthy ecosystems through afforestation or enhancing soil carbon on agricultural land*
- ☐ Technology-based removal
  - *e.g. direct air capture with geological storage*

Durability:

- ☐ Short duration
- ☐ Long duration i.e. >100 years durability

Avoidance/removal ratio:



- Avoidance - **60%**
- Removal - **40%**

Project type preferences:

Renewable energy, afforestation, reforestation & revegetation (ARR), enhanced rock weathering (ERW), concrete mineralization

Ratings requirements

BBB or higher for Sylvera, BeZero

Vintage requirements

T-5

Preferred geographies:

Global South and co-located with office footprint where possible

Co-benefits:

Climate justice, job creation

UN SDGs:

#1 No Poverty
#5 Gender Equality
#8 Decent Work and Economic Growth

Additional criteria:

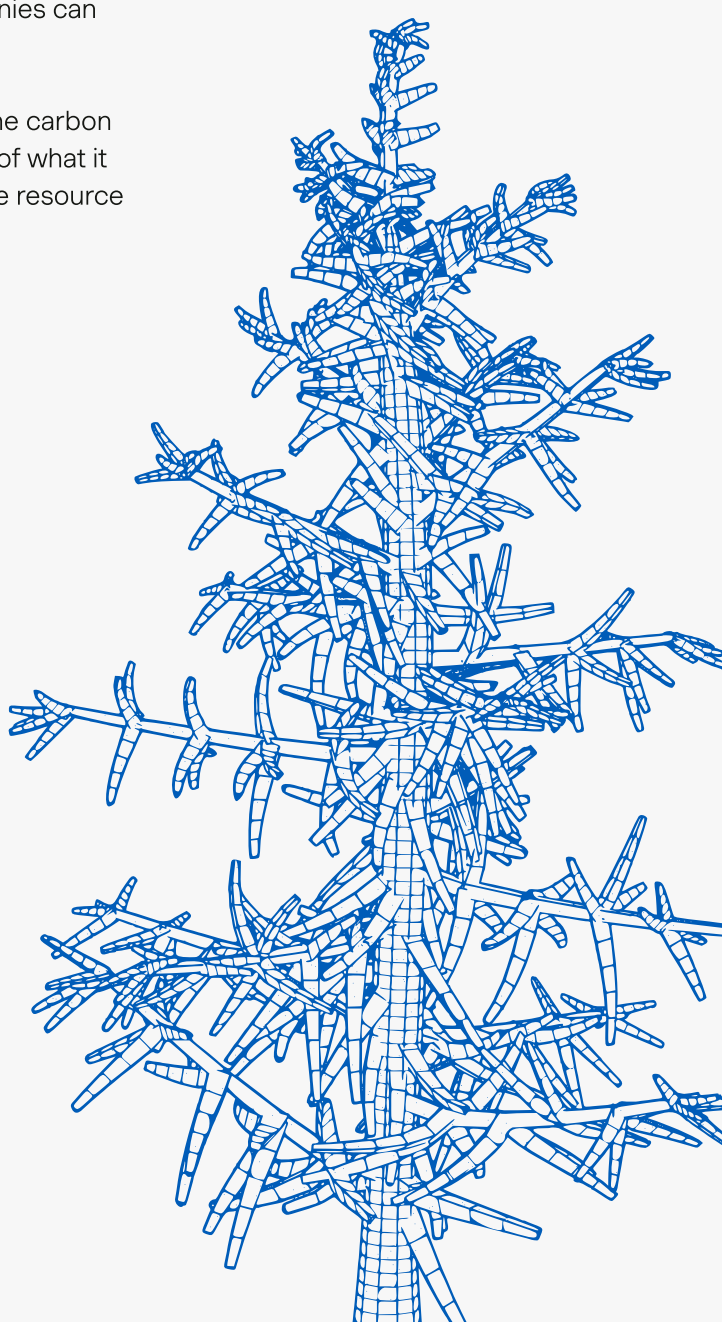
ICVCM CCP-aligned, ABACUS label where applicable

Conclusion

Chief Sustainability Officers occupy a role unlike any other in business. They live at the nexus of many company needs — complying with laws and regulations, balancing limited budget and resources while demonstrating clear returns on investments, delivering outputs that translate into compelling marketing for company stakeholders — all while trailblazing new mechanisms that truly enable companies to help put our planet back into balance.

The voluntary carbon market is undoubtedly a solution that companies can and will soon be expected to use to deliver that climate impact.

The educational journey, decision-making process and ultimately the carbon credit strategy Workday developed with Patch is an early example of what it looks like to forge this new path, and one we hope will be a valuable resource as other CSOs embark on similar journeys.



Carbon credit playbook for Chief Sustainability Officers

A step-by-step guide to help CSOs connect their sustainability strategy to impactful carbon credit purchasing at the project and portfolio levels.

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