

What is the Best Carbon Credit to Buy? A Buyer's Guide on Different Types of Carbon Credits



A lot of people and organizations nowadays consider offsetting their emissions by buying carbon credits.

Unfortunately, it's quite hard to know which carbon credits are effective and which ones aren't. Also, the quality and price of the carbon reduction or removal processes involved may vary a lot.

Hence, we'd like to address the confusion about this concern through this guide article. It will help potential carbon credit buyers and other people interested in the space.

Why Do We Need to Buy Carbon Credits?

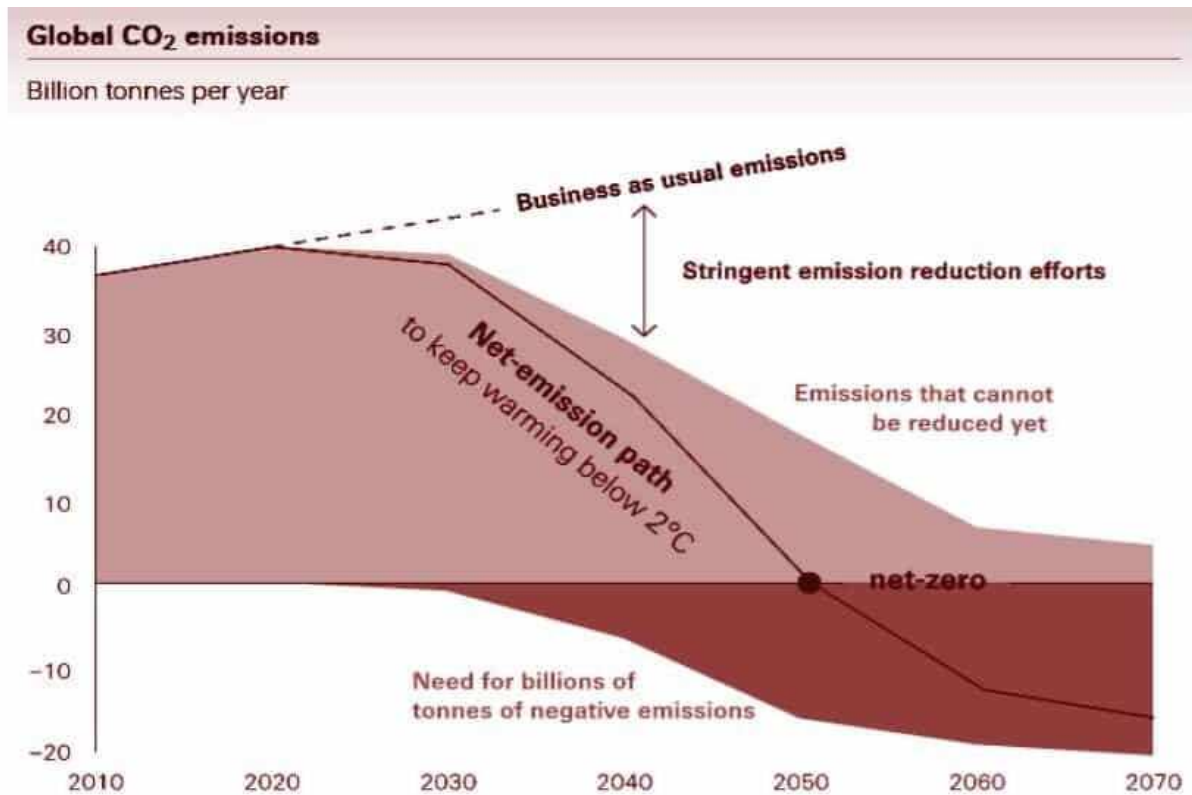
There are approximately 2.5 trillion tons of carbon equivalents released into the atmosphere since humans started emitting CO₂. And still, we continue to release 50 billion tons of CO₂eq each year, making global warming a dire concern.

So, individual leaders and companies around the world agreed to limit warming to a critical 1.5°C.

Massive GHG emissions reductions are vital so as not to exceed such a limit. Hence, people and businesses are taking drastic decarbonization measures to reduce emissions.

But reductions alone are not enough. We still need to remove a lot of carbon from the air to prevent catastrophic climate change. This entails stopping emissions and removing at least 6 billion tonnes of CO₂eq per year by 2050.

The following chart shows how the world can reach net-zero by 2050.



Source: IPCC Climate Change Report

How to Buy Carbon Credits: Compliance vs. Voluntary Carbon Markets

It's clear that for the world to continue doing business, offsetting emissions either by reduction or removal is a must.

How do you buy carbon offsets for your personal or organizational emissions?

There are two major means to do that. You can buy carbon credits through the compliance/regulated market or the voluntary carbon market (VCM).

Compliance or regulated carbon market

This carbon market is born out of the laws mandating reductions. It's managed by emission trading systems (ETS) such as the EU ETS.

The compliance carbon market is also called the cap and trade system that dwarfs the size of the VCM. For 2021, the compliance market value hit \$851 billion while the VCM reached its target value of \$1 billion.

The cap and trade system is well regulated and seems to be more stable than the VCM.

Voluntary carbon market

The VCM has been operating for many years now but it grew so fast due to the Paris Agreement, calling on drastic corporate net-zero pledges.

In fact, governments and corporations had committed over USD 14 trillion in carbon credit sales.

Entities need to do various decarbonization actions to net their emissions to zero. The most common way is to buy carbon credits that correspond to the amount of CO₂ emissions reduction allowed.

For the purposes of this guide, we focus on the VCM due to its rapid growth but lack of transparency and confusion in buying carbon offsets in this market.

Purchasing Carbon Credits in the VCM

Issuance of carbon offsets in the VCM is either through the carbon reduction or CO₂ removal pathway. Here are the most common pathways for both options of buying carbon credits.

Carbon Reduction Pathway:

Carbon credits issued via this pathway mean the emitted CO₂ is still hanging in the air. This is because the carbon offsets include an emission avoidance relative to an entity's baseline emission. The amount of reduction needed is based on the current total emissions.

There are different types of carbon reduction credits available right now. But here are the three major ones worth considering.

- ***Community-based energy efficiency:*** bio-based energy sources like biogas and clean cooking solutions.
- ***Renewable energy:*** replacement for fossil fuel energy sources (hydro, solar, wind, and geothermal).
- ***Forestry-based avoidance (REDD+):*** management and conservation of forests to cut emissions.

Carbon Removal Pathway:

Unlike carbon credits that reduce emissions through green projects, carbon removal is different. It sucks in CO₂ from the air using different processes and stores it underground for good. Hence, the net effect is zero or even negative.

The following are the three common carbon removal types and their corresponding technologies:

Types of Carbon Removal	Available Technologies/Projects
<u>Nature-based removal and storage/use</u>	<ul style="list-style-type: none"> • <i>Afforestation and reforestation</i> • <i>Soil carbon sequestration</i> • <i>Blue carbon habitat restoration</i> <ul style="list-style-type: none"> • <i>Seaweed and algae cultivation and burial</i>
<u>Technological removal and storage/use</u>	<ul style="list-style-type: none"> • <i><u>Direct air capture (DAC)</u> and storage/use</i> • <i>Enhanced weathering</i> • <i>Concrete building materials</i> • <i>Hydro-carbon fuels</i> • <i>CO₂-enhanced oil recovery (EOR)</i>
<u>Hybrid removal and storage/use</u>	<ul style="list-style-type: none"> • <i>Biochar</i> • <i>Bioenergy with carbon capture and storage (BECCS)</i> • <i>Building with biomass</i>

Now that the major carbon reduction and removal pathways have been identified, it's time to learn how to assess them using a set of criteria.

Criteria for Evaluating Different Carbon Credits

There are four evaluation criteria that carbon credit buyers can use to guide their purchasing decision. These are additionality, permanence, measurability, and sustainability.

Let's break down each criterion and discuss it in detail to guide you well.

Additionality: likelihood to sell the credits

A carbon reduction or removal is "additional" if it would not have happened without the carbon credit market.

This criterion is crucial when evaluating which carbon offsets to buy. It affects the quality of a particular carbon credit. This is because buying credits to offset an entity's own emissions may only worsen the climate if the reductions are not additional.

An essential concept when considering the additionality of carbon credits is the "likelihood to sell the credits". It plays a decisive role in implementing the reduction/removal.

There is a catch, however, when determining the additionality of carbon credits. It's subjective and its determination uses educated predictions only, not solid facts.

As such, deciding on this criterion is uncertain but it's possible by considering the risk.

How likely is a specific project to be additional?

A project has no additionality if it would have occurred even in the absence of carbon credit. Conversely, it has high additionality likelihood if it will not probably be realized without the carbon credit.

By definition, most carbon removals today have high additionality as they rely on carbon credits to work.

Permanence: duration and risk of leakage

This criterion considers the fact that most CO₂ emitted today will not be 100% removed later. About 25% of it stays in the air for over a hundred years.

Thus, buying carbon credits to offset emissions has one major challenge – its effects are very lasting. And so, high-quality credits are the ones that go with reductions/removals that are permanent.

For example, a carbon project that uses a forest to cut down emissions may not be permanent but temporary. This is because when a fire burns down the protected trees, the CO₂ will be emitted back into the atmosphere.

In this case, a reversal of the bought carbon credits occurs and no net reduction really happens.

Thus, duration and risk level of leakage are the key concepts when considering the permanence of the carbon reduction/removal pathway.

Projects that have no or low leakage risk and last for over a century are highly permanent. But the ones that have a high risk of leakage and effects that stay less than 100 years are temporary.

Measurability: data availability and verification

This third criterion is also important in knowing the quality of carbon credits to buy. The reported reductions must be accurate and verifiable.

In particular, overestimation of GHG reductions should not occur. Otherwise, the measurability of the data won't be reliable.

When evaluating a project's measurability, here are the red flags to watch out for:

- Overestimation of baseline emissions (reference against which reductions are measured)
- Underestimation of actual emissions (results in overestimation of reductions)
- Failure to account for projects' indirect effects or unintended increases (leakage) in emissions
- Forward crediting (credits issued for future reductions; may cause over-issuance of carbon credits)

To avoid those undesirable scenarios, it's critical that project developers track and verify their data. This calls for scientific measurement and data collection verification through standardized processes.

Projects that have no data to verify have poor measurability while those with high-quality and verified data have good measurability.

Scalability: short term vs. long term

Lastly, a carbon reduction or removal project's scalability depends on several factors. These include CO₂ removal capacity, level of readiness for deployment, and cost-effectiveness.

Take for instance the case of direct air capture, a technological carbon removal.

DAC has the capacity to offer a more permanent CO₂ storage than an afforestation project. Land availability is also not an issue with DAC but it's energy-intensive and is not yet ready for scale-up.

On the contrary, afforestation is both ready to scale and capable of removing CO₂ right now. But land availability might be a problem later on. So, evaluating a project's scalability involves the aspects of short-run and long-run terms.

Projects have high scalability score if they are scalable both in the short-term and long-term. The ones that are scalable only in the short term have poor scalability.

The Price

One more crucial evaluation criterion when buying carbon credits is the price.

Unfortunately, there's no single price per ton of CO₂eq reduced or removed in the VCM like in the compliance market.

There are various factors that affect the price of credits in the VCM. The two major ones are project costs and the pathway's value chain. The value chain aspect includes project developers, verification agencies, and the buyer.

Other key price influencers are the demand and supply dynamics. If demand exceeds supply, prices for high-quality carbon credits tend to be high.

Here is our [live carbon pricing](#) for the major compliance markets as well as for the big voluntary markets.

The Bottom Line

In summary, this guide focuses on the four quality criteria and the price of carbon credits for reduction and removal projects. These factors are very useful in evaluating which carbon credits to buy.

Yet, other considerations are to make when investing in carbon offsets. Here are some of them:

- **Credit availability** – demand for high-quality credits is more than supply in the VCM right now
- **Own emission reduction goals** – internal net-zero pathways
- **Other social and environmental impacts** – nature protection and community livelihood creation

So obviously, there's no single way to build a carbon reduction/removal portfolio. There's a multitude of considerations to think about how and where to buy carbon credits.

But one thing to remember is that the pathways identified are all relevant for the world to be at net-zero.

It's up to the emitter which ones are the best to invest in and be carbon guilt-free.