

Quality over quantity: Lune's approach to evaluating carbon credits

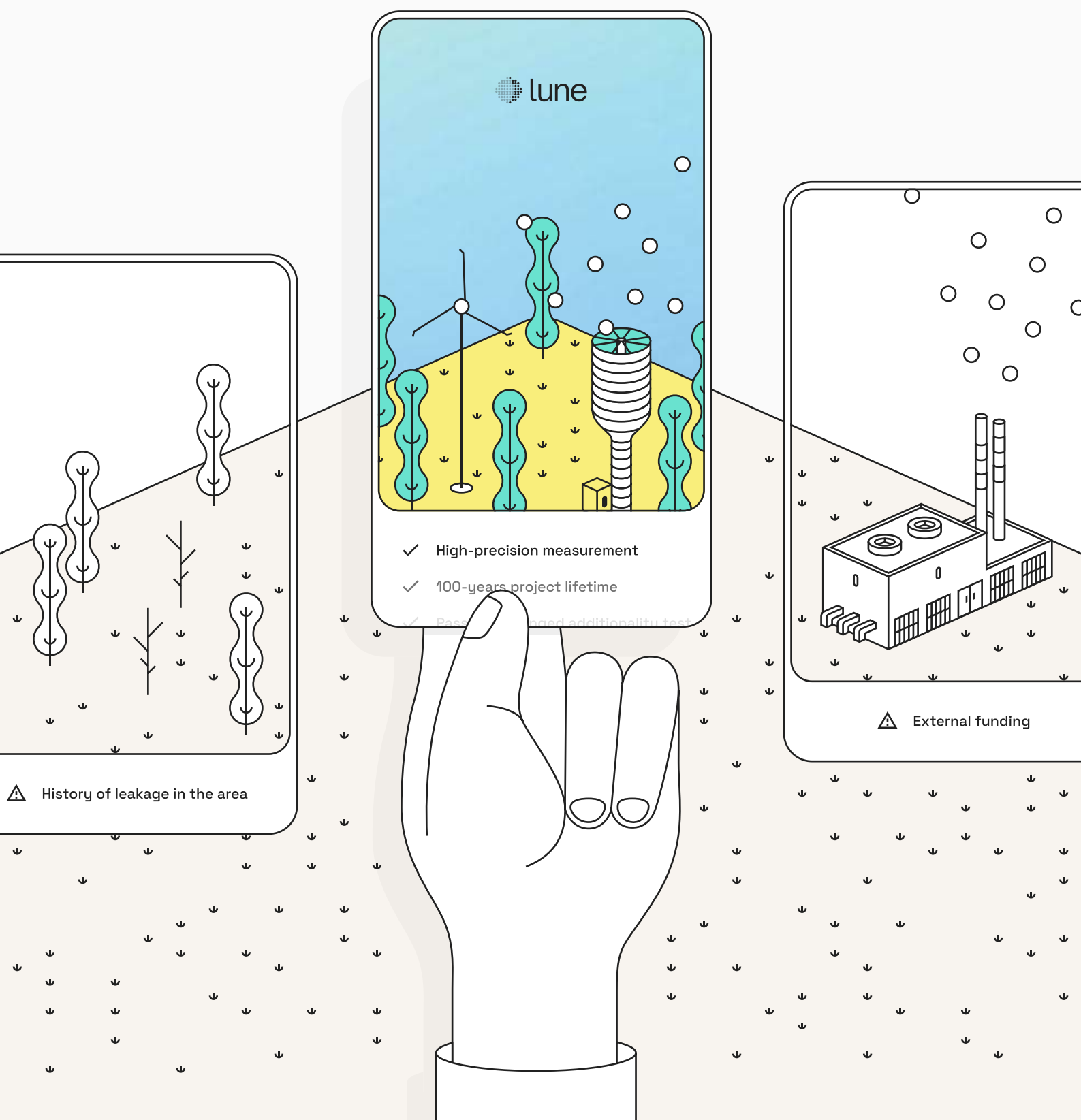


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Why climate leaders fund carbon removal

Between 20 to 26 gigatonnes of CO₂e. According to the latest climate science from the IPCC, this is the projected gap in 2030 between where emissions are heading vs. where they need to be. What's worse, is we're still investing \$7 trillion each year in activities that have a direct negative impact on nature.

Enough is enough. Consumers are demanding that businesses take a stand. They want ambitious net zero targets met. And research shows they're willing to pay a premium for it.

When done correctly, carbon credits are the single best mechanism to address climate change, biodiversity loss, and humanitarian crises. Climate leaders know this. And the proof? Voluntary carbon credit buyers are decarbonising twice as fast as their peers.

But the clock is ticking. McKinsey, estimates that the capacity of carbon removal will need between \$6 to \$16 trillion cumulative investment to meet net zero by 2050. Carbon credits must be integrated into climate strategies, now.

The Voluntary Carbon Market – at first glance – seems quite simple:

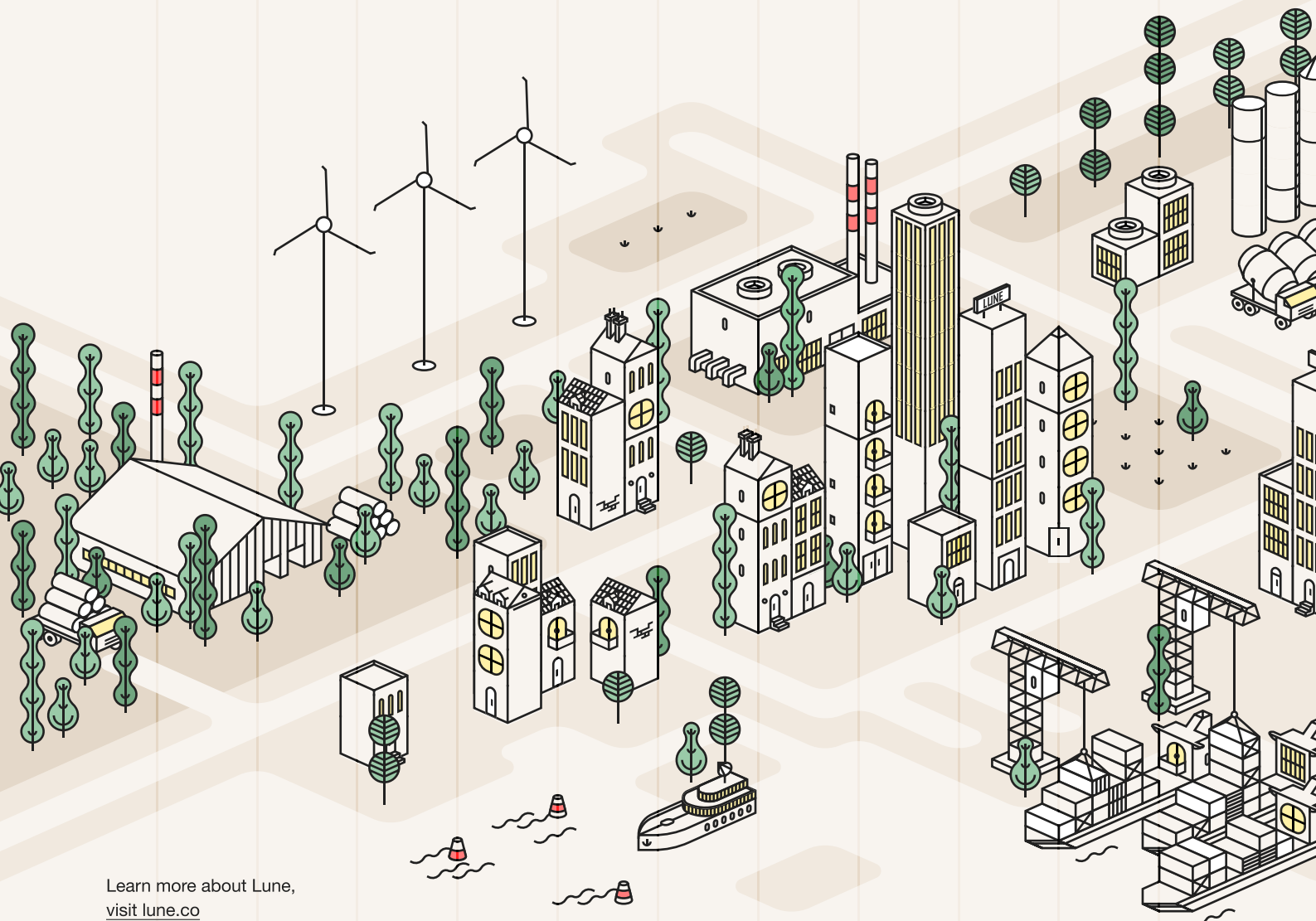
**1 carbon credit bought =
1 tonne of carbon emissions avoided or removed**

But the reality is much more complex.

The voluntary carbon markets are like the wild west. Unregulated, and awash with carbon cowboys pushing low quality climate projects. Projects that have questionable real-world climate impact. And in worst case scenario, cause more harm than good.

Too often, good intentions fall short.

Only high quality climate projects deliver a positive climate impact. Which is why you need a trusted partner to help you navigate carbon credits with ease and expertise.




Finding a needle in a haystack

Out of the hundreds we vet, only 10 to 20% of climate projects make the cut. Why? Because we always prioritise quality over quantity at Lune.

Our experts leverage a strict and rigorous vetting process and comprehensive six-point evaluation criteria to connect you with climate projects that deliver measurable impact and peace of mind.

In doing so, these projects comply and go beyond the [The Core Carbon Principles and Assessment Framework](#) set out by the Integrity Council for the Voluntary Carbon Market (ICVCM). The very framework which has now been recognised by the Science-based Target initiative (SBTi), CDP, and Greenhouse Gas Protocol (GHG Protocol), as the standard for carbon offsetting.

Only climate projects of the highest quality can support your business in making confident and credible claims. It's the climate action consumers are demanding. And for those who want to "*do it properly*", Lune is the right partner.



Climate project spotlight: Charm Industrial generates fully traceable credits by turning otherwise waste biomass into CO₂-rich bio-oil ready to be stored underground.

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Between 80–90% of projects we evaluate fail to meet our criteria, even if they have been third-party certified by Verra or Gold Standard.

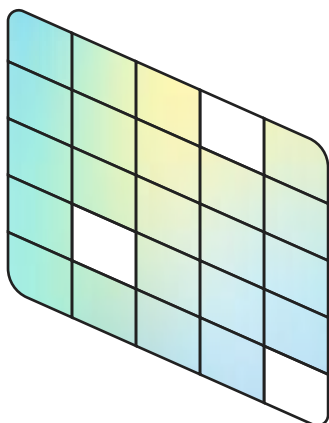
We handpick projects with a laser-focus on quality and real impact.



Erik Stadigh
CEO and Co-founder of Lune

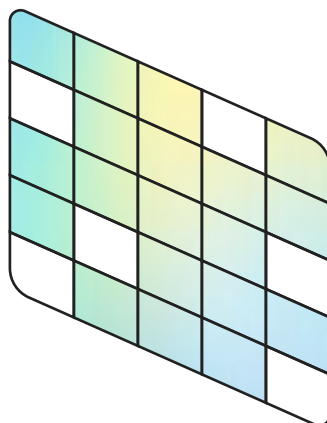
The vetting process

Every project featured in our curated library must pass a rigorous vetting process. The process can take several months, and involves many different parties — especially the project developers. The purpose of it is to benchmark project performance against our comprehensive six-point evaluation criteria. Through this, we can decipher if a carbon credit will deliver measurable impact and peace of mind.



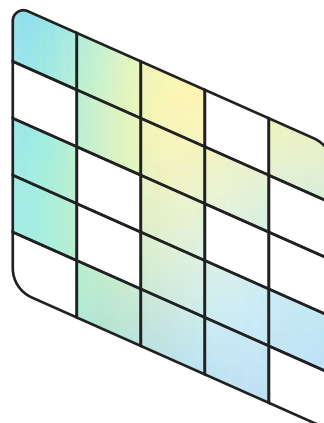
1. Certification check

Projects are verified and certified by standards like [Verra](#) or [Gold Standard](#), with extra scrutiny for innovative, uncertified methodologies.



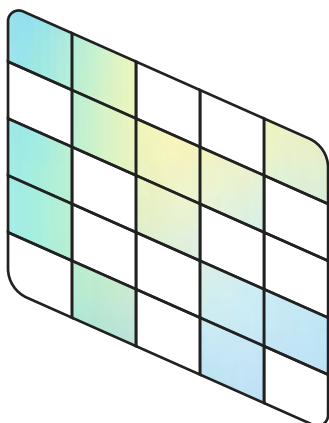
2. Documentation review

Analysing the project's approach, methodology, and verification reports to identify evidence of quality against our criteria – including any gaps that we'd need further information and reassurance on.



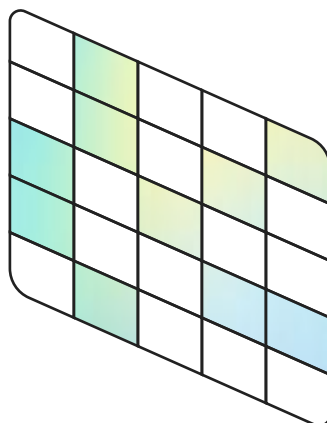
3. Desk research

Analysing the latest scientific research about methodology, recent news reports, local government sentiment, the performance of similar projects and more.



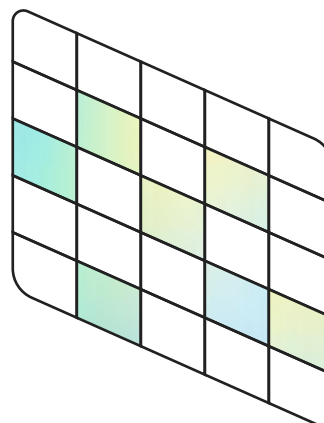
4. Developer engagement

Building long-lasting relationships with project developers is critical to ensuring long-term climate impact. We speak directly with the project developer to understand their approach, and how they mitigate risks. By gauging the integrity of their team, we can better determine their capacity to deliver the expected impact.



5. Third-party cross validation

Comparing our expert, granular evaluation with independent ratings from leading entities like [BeZero](#) and [CarbonPlan](#).



6. Alignment with the [Oxford Offsetting Principles](#)

Ensuring project selection is science-backed. This supports the scaling and integrity of the voluntary carbon market in the long-term, while balancing immediate cost and impact.



“

**Lune’s focus on sourcing
high-impact carbon credits,
combined with the automation
their API provides,
makes them an ideal partner for
Salesforce’s Net Zero Marketplace.**

Nina Schoen

Director of Product Management



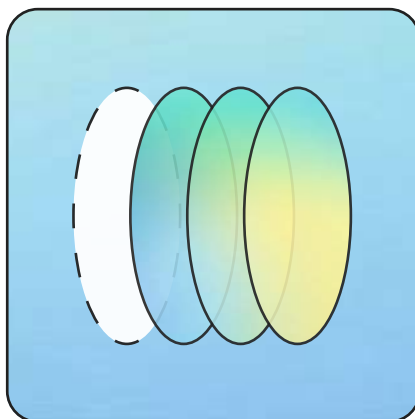
The 6 non-negotiable criteria for evaluating carbon credits



1. Is it durable?

How long lasting will the carbon benefit produced by a project be?

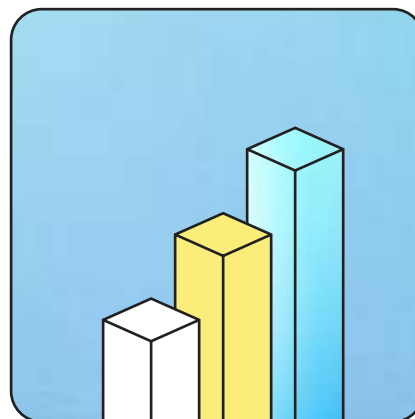
The longer the better!



2. Is it additional?

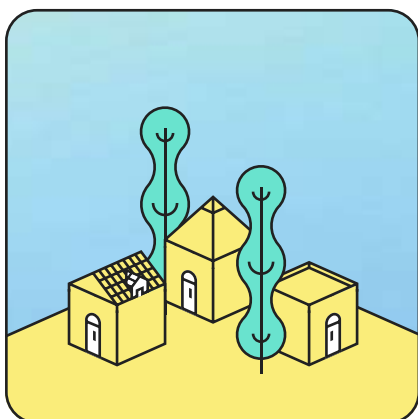
Does a project result in carbon benefit beyond the business-as-usual scenario that would have occurred without it existing?

If not, there's no impact made by buying their carbon credits.



3. Is it measurable?

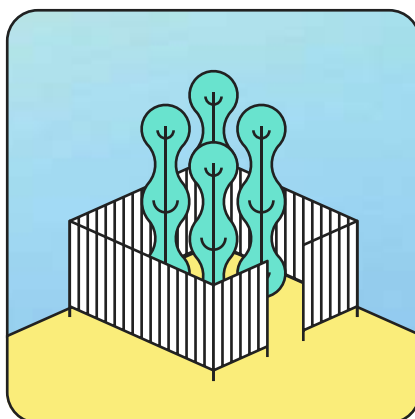
How confident are we that a project has accurately estimated and quantified their impact (i.e. the amount of emissions they avoid or carbon they remove)?



4. Does it provide co-benefits?

Has the project been designed to deliver benefits beyond carbon within and around the project area?

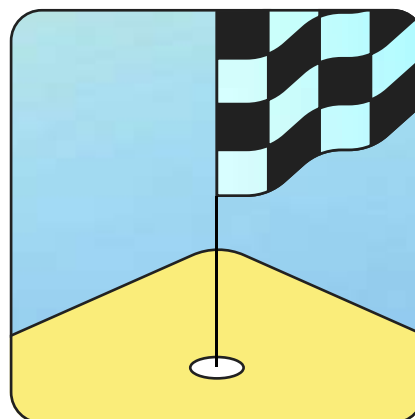
This includes how the project interacts with local communities and the wider environment.



5. How well are risks mitigated?

Every climate project has risks. These differ based on the project methodology.

Are there robust risk mitigations in place to counteract these risks?



6. Can the developer deliver?

Are we confident the project developer can deliver the promised impact?

This is especially important where developers are making big, bold claims for innovative methodologies still in development.

Is it durable?

How long lasting will the carbon benefit produced by a project be?

Is carbon stored? For short or long-term?

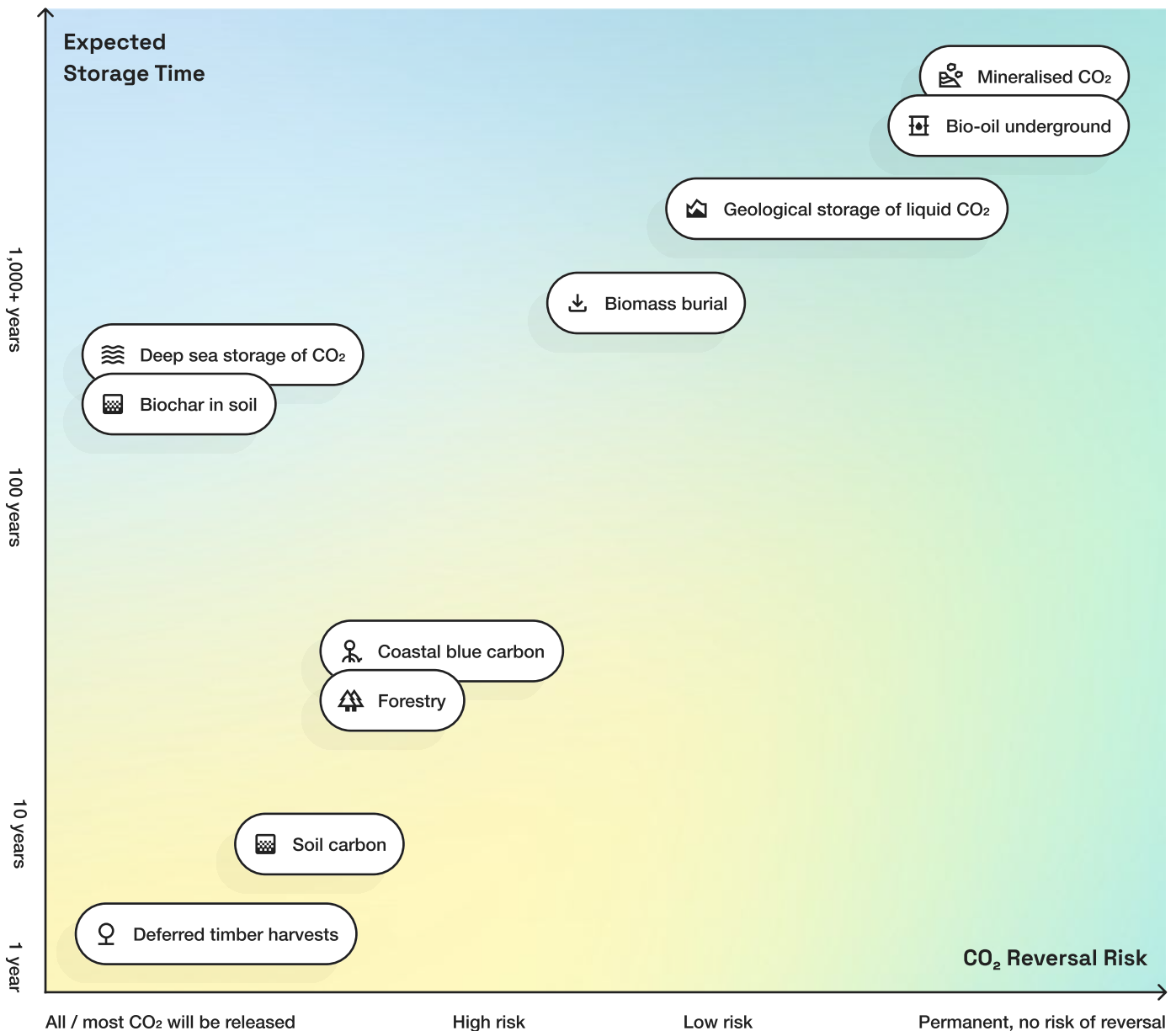
There are many ways projects can store the CO₂ they remove or reduce to prevent it re-entering the atmosphere – some for longer periods of time than others. As CO₂ stays in the atmosphere for up to 1,000 years once emitted, it's important that it's stored for as long as possible.

What's the risk of reversal?

With some storage methods, such as forestry or soil carbon, most or all of the CO₂ will eventually be re-released into the atmosphere, so there is high risk of reversal. With other methods, such as mineralising the CO₂ or injecting it deep underground, it will never be re-released, so there's a low risk of reversal.

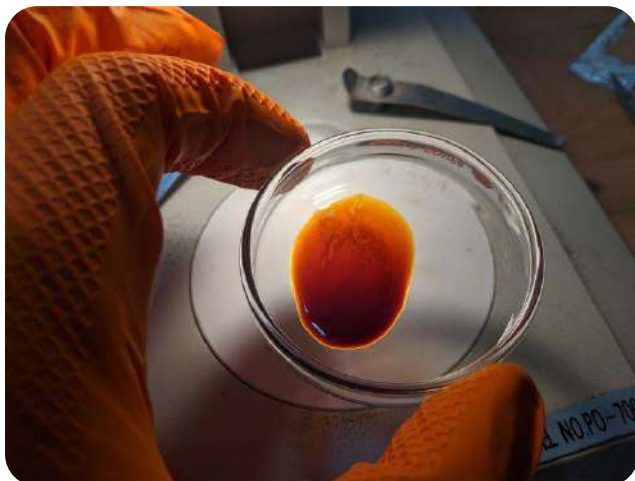
What's the project lifetime?

Project lifetime plays a particularly important role in projects using more temporary storage methods. The longer the duration of the project and the commitment to storing CO₂, the higher the durability of the solution.



Our criteria: is it durable?

Durability in practice



**Charm Industrial
Bio-oil Sequestration**

100,000+ years, permanent

Bio-oil is produced and injected deep underground using EPA-regulated wells. The bio-oil turns to rock, storing carbon safely for millennia.



**Wakefield Biochar
Biochar**

100–1,000 years, temporary

Biochar is created by burning waste products from a pulp and paper mill using a pyrolysis process. The end product is almost pure carbon, storing CO₂ safely for hundreds of years.

Common red flags

1. Short-term carbon storage methodology

leading to the benefit being reversed

2. Short project lifetime

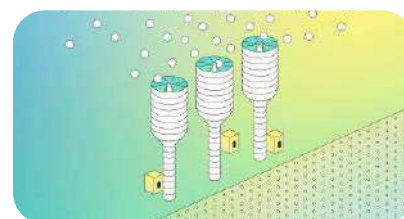
indicating a high risk of reversal

3. Limited proof

of the reversal risk being mitigated

4. Country-specific policy changes

that affect certain project types and can lead to reversal



Permanence in carbon removal, explained

Permanence is a key marker of quality in climate projects. What does permanence mean? And why is it so important? Let's find out.

[Read more on Lune's blog](#)

Our criteria

Is it additional?

Does a project result in carbon benefit beyond the business-as-usual scenario that would have occurred without it existing?

Financial additionality

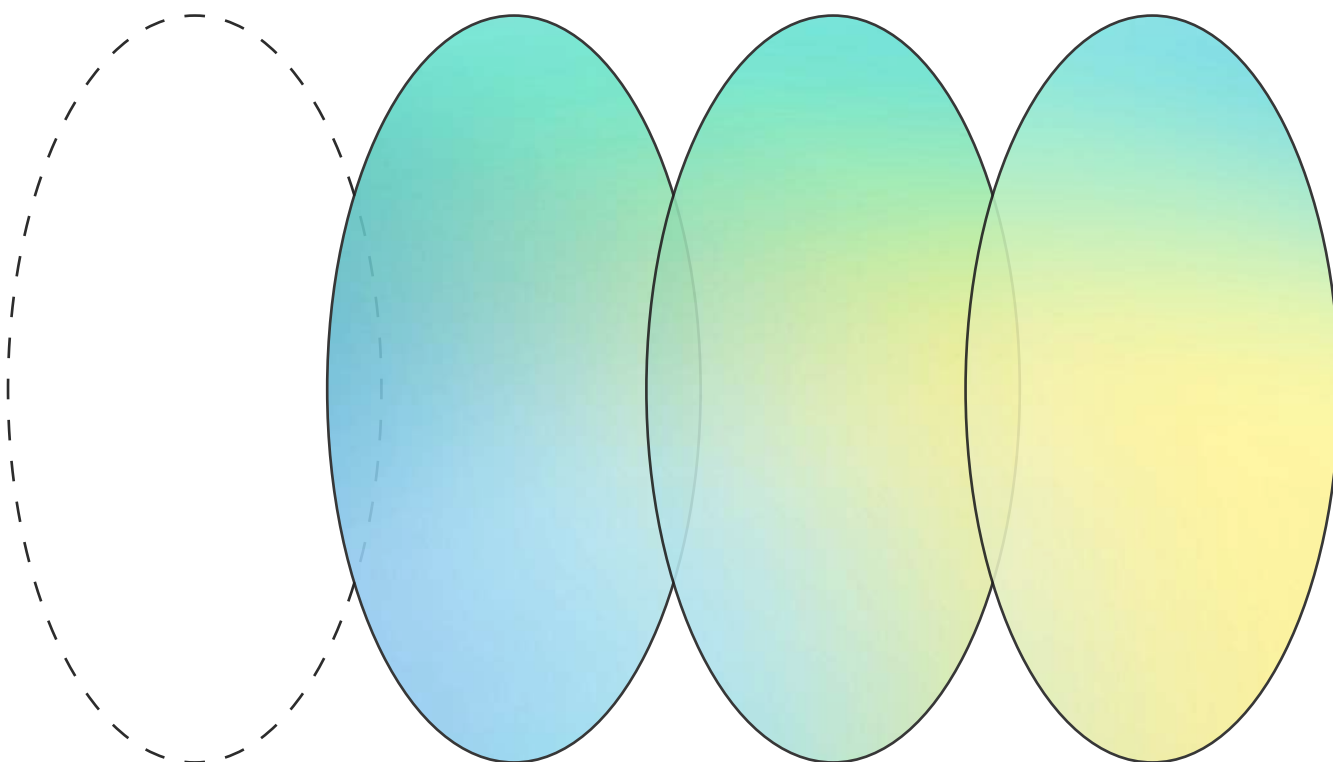
This is the most common measure of additionality – to provide additional benefit, a project should only be financially viable by selling carbon credits.

Policy additionality

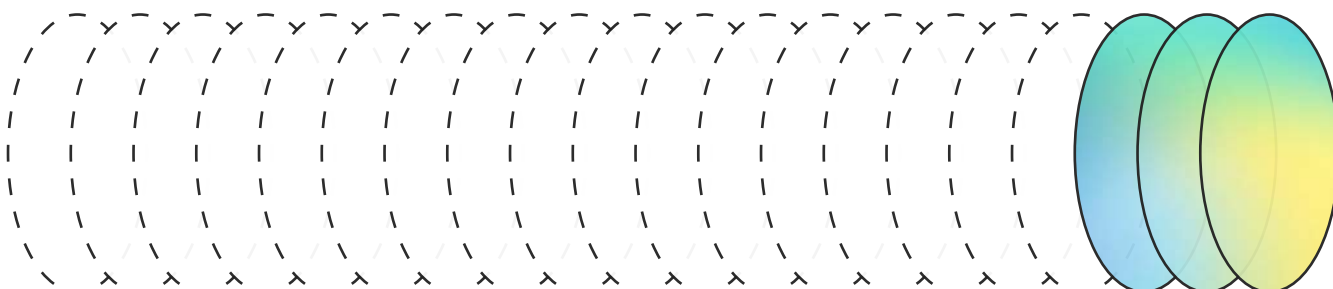
If a project goes above and beyond the existing climate mitigation policies in the country it operates within, it is providing additional carbon benefits.

Tech additionality

A project that creates new technology or adopts emerging technology could be supporting methods that will boost climate mitigation in the future, thereby creating additional benefit.



Berkeley University, Oxford University, and Carbon Plan
found that 85% of carbon credits sold today are not additional.



Our criteria: is it additional?

Additionality in practice



UNDO Enhanced Weathering

Financial, policy & technological additionality

Waste basalt rock from quarrying and mining, which would otherwise simply be disposed of, is spread on agricultural land to accelerate natural carbon removal via rock weathering – funded entirely by the sale of carbon credits.



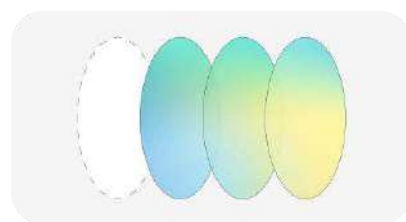
Living Carbon Biotech-enhanced Reforestation

Financial, policy & technological additionality

Growing trees on degraded land which would otherwise have no use, whilst also developing new techniques for increased CO₂ removal such as photosynthesis-enhanced trees – funded entirely by the sale of carbon credits.

Common red flags

- 1. Unrealistic baseline estimates of impact**
- 2. Insufficient additionality testing**
such as reliance on only a simple cost analysis
- 3. Income streams aside from the sale of carbon credits**
either commercial revenue or government grants
- 4. Use of well-established and commonly used technology**
- 5. Project activities are already required by law**
e.g. deforestation restrictions set by government



Additionality in carbon credits, explained

Additionality is a key marker of quality in climate projects. What does additionality mean? And why is it so important? Let's find out.

[Read more on Lune's blog](#)

“

Additionality is a long-standing principle of carbon markets, to ensure that mitigation activities supported by carbon finance would not have taken place in the absence of this revenue stream.



Gold Standard



Our criteria

Is it measurable?

How confident are we that a project has accurately estimated and quantified their impact?

Robust baseline estimation

The baseline is the amount of emissions avoided or carbon removed in the scenario that the project doesn't exist. This is the reference point to calculate impact against, so it must be measured accurately. It's pretty common that baselines are overestimated, which means carbon credits have less impact in reality than the project claims.

Measurement, monitoring, management

A project should have strict measurement and monitoring processes in place throughout the project's lifetime to check that those initial estimates of impact line up with the reality once the project is underway – with adjustments and improvements made by the project developer if there is underperformance.

Independent verification

Methodologies used should be checked and verified by third-party reviewers to ensure they're robust and inline with industry standards. For established methods, this is part of certification by carbon standards like Verra. For new methods, subject matter experts should be working closely with the project developer.

Use of technology

Traditional, manual methods of measuring carbon benefit are typically not very accurate, which has led to systematic overestimations of impact – notably within forestry projects. New technological methods such as satellites and sensors are being employed by quality projects to improve measurement accuracy.



A visualisation of satellite-tracked reforestation.

Our criteria: is it measurable?

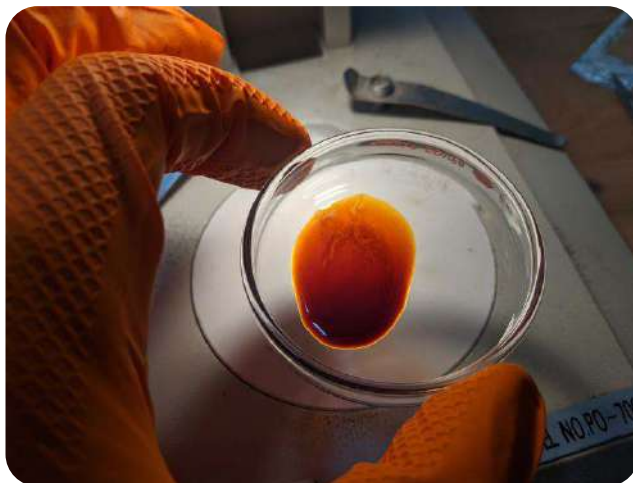
Measurability in practice



**Ackron Mixed with Treeconomy
Reforestation**

Precision measurement

Incorporating technology – satellite imagery and remote sensing – into reforestation projects to increase the accuracy of measurements and improve ongoing monitoring practices, improving confidence in the carbon benefit produced.



**Charm Industrial
Bio-oil Sequestration**

Transparent LCA

Rigorous life-cycle analysis and third-party monitoring ensure estimates are accurate. As a new carbon removal technique, findings are also being used to develop a protocol for credible measuring, reporting, and verifying (MRV) in bio-oil.

Common red flags

1. No information available about the project's methodology
2. Unsubstantial measurement, reporting, and verification (MRV)
3. No evidence of independent, third-party verification of MRV processes
4. Unrealistic baseline estimates of impact
5. Over-reliance on manual measurement processes
when technology is available which would increase accuracy



Avoiding overestimation in carbon credits, explained

Avoiding overestimation is a key marker of quality in climate projects – ensuring that the estimated impact is accurate. When do overestimation issues arise in carbon offset projects? And how do high-quality projects approach avoiding overestimation? Let's find out.

[Read more on Lune's blog](#)

Our criteria

Is it providing co-benefits?

Has the project been designed to deliver benefits beyond carbon within and around the project area?

Improve biodiversity

Climate projects can boost biodiversity, e.g. restoring vital ecosystems such as rainforests and coastal mangroves, or improving soil health through restorative agricultural practices. But, if designed badly, projects can cause more harm than good e.g. single-species forestry projects can be tempting as they're easier to manage, but are not ecologically diverse and are susceptible to pests and disease.

Support local communities

The people living in a project area should be involved in designing and developing climate projects – especially in nature-based projects where communities are reliant on the nature (e.g. a forest) for income and sustenance. Designed well, communities can also directly benefit from the sale of carbon credits, through new jobs and income streams or even funding for community projects.

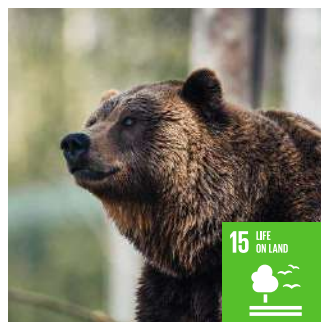
Protect endangered species

Habitat destruction is a huge threat to endangered species, and it often has the same root cause as threats to carbon stocks – such as the deforestation and illegal logging in Borneo which is leaving endangered species such as rhinos and orangutans without homes or food. Climate projects which protect, restore, or create ecosystems are also vital for saving wildlife from extinction.



1 billion+ people depend on nature for income and to meet their basic needs for housing, water, and fuel.

Science Direct, 2021



Our criteria: is it providing co-benefits?

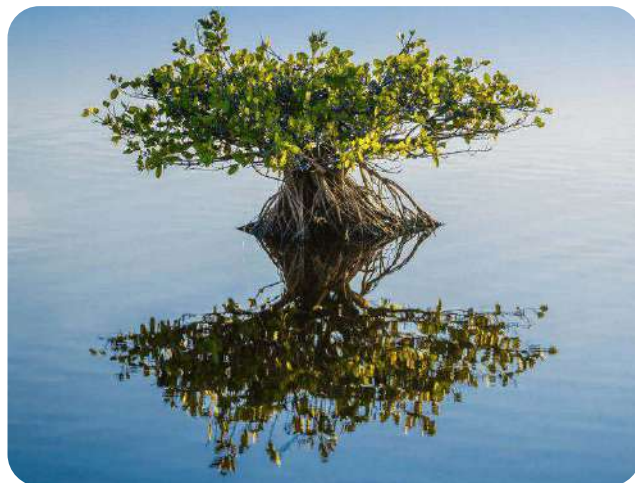
Co-benefits in practice



Rimba Raya REDD+
Forest conservation

Verra CCB Triple Gold label

Home to over 300 species of birds, 180 species of trees and plants, and 122 species of mammals, such as the endangered Bornean Orangutan. The project contributes to all 17 UN SDGs.



Delta Blue Carbon
Restoring coastal wetlands

Verra CCB Triple Gold label

The value of non-carbon benefits to the local communities is estimated at \$130/tCO₂. The area is home to 11 globally threatened species. Mangroves are essential protection against storms and rising sea levels.

Common red flags

- 1. Lack of evidence of community consultation**
and involvement with the project design and development
- 2. No information provided about the ecosystem**
within a project area: wildlife species, flora and fauna etc
- 3. No evidence of lifecycle or env. impact assessments**
or other alternative mechanisms for avoiding unintentional harm
- 4. Any suggestion the developer may be involved in land-grabbing**
i.e. acquiring land and displacing its residents
- 5. No alignment with the UN Sustainable Development Goals**
commonly used in to indicate contribution to wider global issues



How to cut emissions, reduce poverty, and protect biodiversity at the same time – the co-benefits of climate projects

Climate change isn't just an environmental issue. It's also exacerbating existing issues such as poverty, food insecurity, and biodiversity loss. How can carbon off-setting provide a climate solution which also addresses these broader problems?

[Read more on Lune's blog](#)

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From the start, we treated the community as our shareholders, not just stakeholders, with a focus on collaboration, transparency, and accountability.



Dharsono Hartono
CEO of PT Rimba Makmur Utama

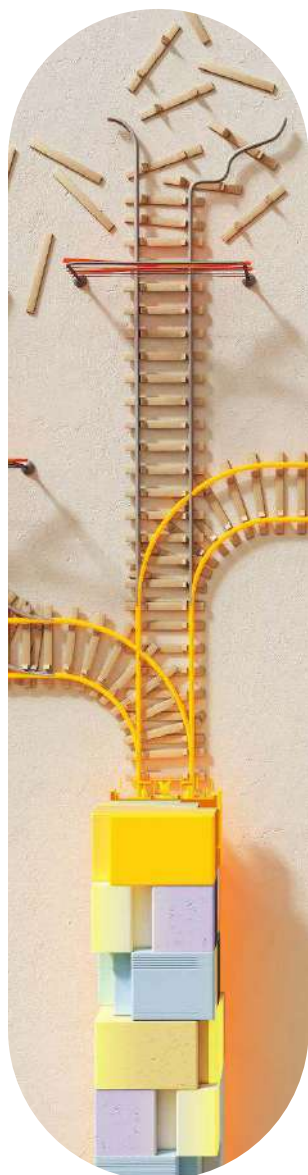


How well are risks mitigated?

Every climate project has risks. These differ based on the project methodology.

Uncertainty is accounted for

Some uncertainty is inevitable because many factors can affect the ability to deliver on estimated impact e.g. wildfires in a reforestation project or new research being published for newer methods such as seaweed sequestration. Quality projects include risk and uncertainty in their calculations, giving conservative estimates of impact.



Buffers are in place

Projects need to have adequate buffers as a failsafe in case they underdeliver against expected impact. A percentage of their carbon credits are put aside in a 'buffer pool' and can be retired if underperformance occurs to ensure the total number of credits issued does align with actual impact by the end of the project.

Monitoring and management processes

Regular, rigorous monitoring and management processes put in place by the project developer help to mitigate risk – identifying any risks or indications of underperformance occurring, and enabling the team to put actions in place to prevent this.



Using a portfolio approach to carbon removal

Buying credits from a portfolio of climate projects reduces the impact lost if an individual project underperforms. Risks can be mitigated through Lune's Project Bundles or by building a portfolio of different project types. You can build your own portfolio, according to your goals, or simply buy from one of Lune's pre-built portfolios.

Our criteria: how well are risks mitigated?

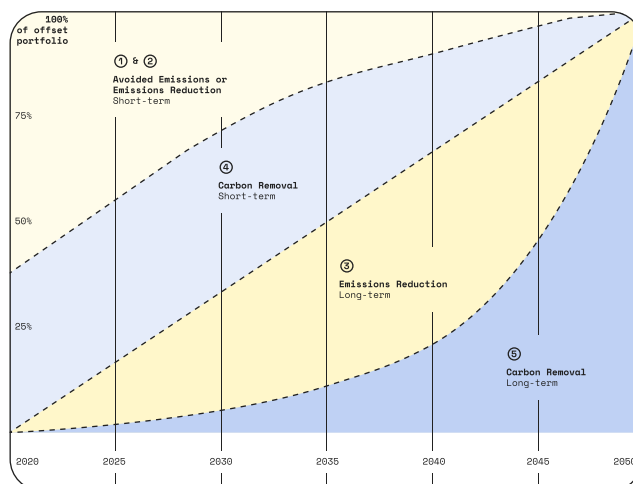
Risk mitigation in practice



UNDO Enhanced weathering

Underperformance buffer

Robust methodology includes a full life-cycle assessment, a rigorous measurement and monitoring using the latest peer-reviewed science, and a 'carbon reserve' buffer to account for any shortfalls due to unexpected underperformance.



Oxford Offsetting Principles Portfolio

Portfolio framework

A framework devised by researchers at Oxford University to maximise the impact of business carbon offsetting through advocating building a portfolio of several projects to buy credits from – balancing future innovation and impact today.

Common red flags

1. Unrealistic estimates of carbon benefit
with no room for uncertainty and risk
2. Unsubstantial measurement, reporting, and verification (MRV)
3. Lack of information regarding risk mitigation processes
4. No or limited buffer in place for underperformance
5. No or limited monitoring and accounting for leakage
both from project activities and general market leakage



The Oxford Offsetting Principles: how to to maximise carbon offsetting impact

Want to make sure your business carbon offsetting is maximising on impact? Then you need to know about The Oxford Principles for Net Zero Aligned Carbon Offsetting – a framework for credible, impactful offsetting.

[Read more on Lune's blog](#)

“

Lune is our preferred partner due to the emphasis on quality, real impact, and transparency – something that is generally lacking in the carbon markets. We are committed to credible offsetting and, going forward, aim to increase our spend on permanent carbon removal projects in line with the Oxford Offsetting Principles.



Derek Robson
CEO at IDEO

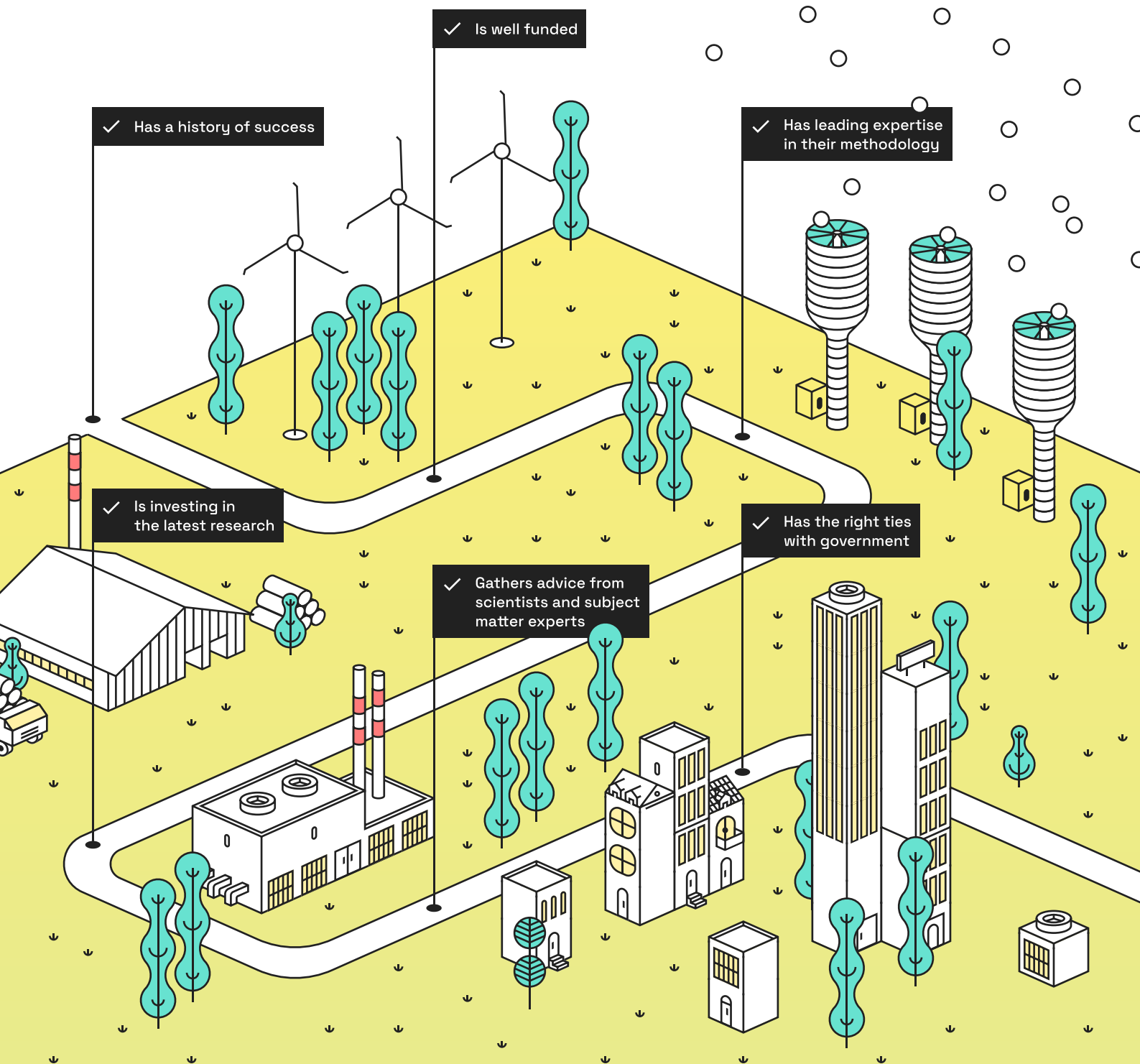


Can the developer deliver?

This is especially important where developers are making big, bold claims for innovative, methodologies still in development.

Even with a perfectly designed methodology a project could easily still not deliver impact, because so much comes down to whether the developer can deliver on their promises – especially with new, innovative project types where developers are making big, bold claims for brand new, still-developing methodologies.

So, we need to be confident that the project team can deliver.



Our criteria: can the developer deliver?

Successful delivery in practice



CarbonCure
Concrete Mineralisation

History of success

Award-winning leaders in concrete innovation (\$20M Carbon XPRIZE, NA Cleantech Company 2020) that have delivered 200,000+ tCO₂ in emissions reductions.



Biofilica
REDD+ and AR projects

Subject-matter experts

An experienced team committed to improving integrity in project development. The team has close ties to the Nature-Based Solutions Brazil Alliance, the NGO Instituto Escolhas, and the Brazilian Rural Society, and works closely with external partners such as Verra and the Institute of Ecological Research.

Common red flags

1. A newly formed team

with little project development experience

2. Project methodology is unverified

3. No internal science and research team

or external subject matter advisors

4. Lack of evidence of partnerships

or collaborations with governmental bodies or related organisations

5. Limited proof points of how to de-risk

and scale a novel methodology



Accelerating natural processes for increased carbon removal – a deep dive on enhanced rock weathering

What is enhanced rock weathering? How does it work as a climate project? And what indicators of quality should you be looking for when evaluating enhanced rock weathering projects for business carbon removal?

[Read more on Lune's blog](#)

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We aim to be the first company to permanently remove 1 million tCO₂. We have invested heavily in cutting-edge research to ensure our uniquely scalable technology is safe, and our removals are accurately measured.



Jim Mann
CEO at UNDO



Example projects that didn't make the cut

Lune's rigorous vetting process means that out of the hundreds we vet, only 10–20% of climate projects make the cut. With consumers demanding credible climate action, and our climate growing increasingly volatile by the day, we must flush capital towards the projects that have the most impact. It's quality over quantity. Below we share four projects promising carbon credits with questionable impact.



Selva de Mataven REDD+ project in Colombia



One of the largest carbon projects in the world. Lune did not feature this project due to issuing too many credits and lacking additionality. Its baseline, inaccurately set by comparing faster-deforested reference areas, led to overestimated deforestation risks and subsequent overcrediting. In addition, much of the project area was already an indigenous reserve, which had pre-existing conservation efforts.



Gyapa Cookstoves project in Ghana



The clean cookstoves project was excluded due to unreliable emissions reduction calculations and questionable additionality. Monitoring is based on household surveys, a methodology which can overestimate usage by up to 50% vs. direct measurements. Further, it failed to verify whether the replaced cookstoves were 'dirtier' than the new ones, questioning its true additionality.



Guanaré Reforestation project in Uruguay



A large reforestation project, operated by a timber company, where Lune found limited additionality and co-benefits. It develops commercial eucalyptus and pine plantations, with trees harvested regularly, leading to no CO₂ sequestration after year 10. Additionally, its focus on mono-culture species for commercial gains greatly limits biodiversity and other ecological benefits.



Novel European Direct Air Capture project



Company developing novel DAC technology was not selected because of concerns around the developer's ability to deliver. The technology is still under development and will have high capex requirements to reach commercial scale. Thus, more proof points around developer's ability to access long term capital is needed.

Maximise climate impact with project portfolios

Even with our careful evaluation process to identify the highest-quality projects out there, there are inevitably still trade-offs to be made – no project is going to get a perfect score in all 6 of the criteria we've outlined.

A forest conservation project may be carefully designed to deliver the ultimate programme of co-benefits for environments and local people – but even with the best methodology and project developer in the world, there will always be a risk of the benefit being reversed.

On the other hand, a Direct Air Capture project offers the promise of permanent carbon removal with practically no risk of reversal – but the technology is not yet proven at scale and will not provide co-benefits beyond offering new job opportunities.

But, there's still huge value in both of these project scenarios.

50% Abating Industrial Emissions

- ① Oxford Offsetting
- ☁ Emissions Reduction
- 🔒 No carbon storage

Installation and operation significantly reduce Nitrogen emissions from industrial processes. N₂O has 265x more warming potential than CO₂.

Add to portfolio

Buy now

40% Restoring Coastal Wetlands

- ④ Oxford Offsetting type 4
- ☁ Carbon Removal
- 🔒 Short-lived carbon storage

Large-scale projects restoring coastal wetlands with mangrove forests that sequester up to 4x more CO₂ than rainforest, while contributing to important community and biodiversity co-benefits.

Add to portfolio

Buy now

5% Concrete Mineralisation

- ③ Oxford Offsetting
- ☁ Emissions Reduction
- 🔒 Long-lived carbon storage

Carbon removal technology captures CO₂ and permeates concrete. Avoids carbon footprint of other industries in the world.

Add to portfolio

Buy now

5% Concrete Mineralisation

- ③ Oxford Offsetting
- ☁ Emissions Reduction
- 🔒 Long-lived carbon storage

Carbon removal technology captures CO₂ and permeates concrete. Avoids carbon footprint of other industries in the world.

Add to portfolio

Buy now

5% Enhanced Weathering

- ⑤ Oxford Offsetting type 5
- ☁ Carbon Removal
- 🔒 Long-lived carbon storage

Enhanced Weathering is a nature based solution, permanently removing CO₂ from the atmosphere. When it rains, carbon from the rain is locked in rocks through mineralisation.

Add to portfolio

Buy now

That's where a portfolio approach comes in.

Just like building an investment portfolio, creating a portfolio of climate projects to de-risk and diversify your carbon removal strategy. For example, if you include one project that has strong co-benefits, it can balance another project with less co-benefits but is more durable.










That's why we've designed the Lune platform to enable companies to navigate carbon credits with ease and expertise.


Navigate carbon credits with ease and expertise

Consumers are demanding businesses take climate action. Properly.

Only authentic and credible climate strategies are built at the golden intersection where climate positive decisions align with your company's values and vision. If every path to net zero is unique, so is every carbon removal strategy.

Take control of your climate legacy with Lune.

	High quality and peace of mind Fund climate projects rigorously vetted by experts.		
See where your contributions go We prioritise transparency at every level. Right down to our fees. Dig deeper with climate project impact summaries, while getting the latest project updates delivered to your inbox.		Science-backed portfolios In just a few clicks fund ready-made project bundles built by experts.	
	Make credible claims Meet standards set by the SBTi by funding high quality climate projects that comply with the The Core Carbon Principles set by the ICVCM.		Shareable climate impact Get stakeholder buy-in and elevate reporting with Lune's impact summaries, official retirement certificates, and dedicated sustainability page.
Easy-to-use platform Whether your focus is innovation or tradition, Europe or Australia, our portfolio curator matches climate projects with your requirements.			Plug in and go Accelerate your clients net zero goals via a seamless API integration which takes less than two weeks.



Lune is on a mission to make every product and service climate positive by default

Consumers are demanding businesses take climate action. With Lune, companies are delivering by calculating scope 3 emissions and purchasing carbon credits with peace of mind. It provides the only API that combines emission calculations with high quality climate contributions. Lune is trusted by leading companies worldwide such as Visa, Salesforce, and IDEO.

[Request a demo](#)