

# Carbon Offset Market Review



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## The world's leading independent climate actors

have warned that urgent and unprecedented changes are required to avoid a catastrophic environmental breakdown.

The UN Intergovernmental Panel on Climate Change (IPCC) report in 2018 [1] is unequivocal on the current issues faced by our planet:

« Global model pathways limiting global warming to 1.5°C are projected to involve the annual average investment needs in the energy system of around 2.4 trillion USD (2010) between 2016 and 2035, representing about 2.5% of the world GDP ».



While much of the burden continues to fall on the shoulders of individuals and governments, we believe that **the private sector will have an increasingly important role to play in the future.**

Allied to government policies, we expect to see greater mobilization from money managers like us, with the likes of institutional investors and investment banks, in addition to public funds playing an increasingly pivotal role.



# Our ESG Philosophy

At RAM AI, **we understand that our role as an asset manager is to have clear sustainable objective in mind for our stakeholders.** For several years, we have integrated Environment, Social and Governance elements across our different funds, recognizing both the wider escalating environmental issues in addition to the unique investment opportunities which can be created over the longer-term.

We have underlined a number of important elements in our latest piece on our ESG Investment approach in the research paper “RAM’s Systematic Equity - A leading approach to ESG Inte-

gration” (recently shortlisted as “Best Thought Leadership Paper on Sustainable Investing” by Investment Week).

## ESG DATA & MACHINE LEARNING INFRASTRUCTURE

In recent years, the proliferation of ESG data reported by companies has enabled our Quantitative Research Team to build their expertise in systematic ESG investing, allowing them to develop a deep understanding of the fundamental mechanics behind best practices.

We now target a **full ESG integration in our Strategies**; i.e. a systematic and explicit inclusion of ESG risks and opportunities across our quantitative engines thanks to our proprietary Machine Learning infrastructure.



## SUSTAINABLE ALPHA GENERATION

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For us, as an Asset Manager, just having a good ESG rating is not sufficient. For ESG data to be integrated in our engines we need the data to generate sustainable and meaningful alpha or reduced level of risks given a defined ESG objective.

RAM's Quantitative Research Team has invested its resources in to finding potential sustainable inefficiencies which add value. We discovered interesting elements concerning environmental factors, for example, we found that carbon efficiency may translate into reduced downside/tail risk for equity investors during periods of market stress. Based on this research, together with thousands of data points from company disclosures to alternative information sources, we will be launching a systematic global equity strategy with a (portfolio) carbon footprint four times lower than that of the wider market.

## BRINGING OUR COMMITMENT TO THE NEXT LEVEL

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Despite all our best efforts, our portfolios will continue to emit CO<sup>2</sup>, of course minimal compared to a number of peers. To offset the remaining theoretical CO<sup>2</sup> emitted by our ESG funds, we decided to buy the equivalent CO<sup>2</sup> emitted in Carbon Credit.

**We believe ESG investors need innovative solutions with clear and ambitious climate objectives** and RAM AI has explored ways in which to do it.







# What is a Carbon Credit?

Carbon Credit is a generic term for any tradable certificate representing a certain amount of carbon emissions.

A government, corporate or any individual wanting to offset a defined amount of carbon emitted by their activities, can buy credits for a specific amount of CO<sup>2</sup> to balance their emissions.

Generally, carbon credits are emitted by a counterpart (corporate or government entity) that have or will invest in a project that can reduce GHG emissions overall (renewable Energy) or can absorb more carbon dioxide than it releases (forest, carbon storage technologies).

The validity of such projects and the amount of CO<sup>2</sup> that can be considered is key and highly scrutinized by different schemes.

# Where did it all start?



Initially, carbon credit was put in place after the **Kyoto Protocol in 1997** where signatory countries committed to limiting their GHG emissions.

Given the challenging commitment to reduce emissions, the treaty allowed some flexibility in the way to decrease GHG emissions, permitting countries to reach targeted objectives

through carbon credits, it gave birth to CDM (Clean Development Mechanism) , the Joint Implementation Standards, and International Emissions Trading (IET).

CDM has been the most important scheme to date, gathering the majority of carbon credit globally, and acting as a standard for other schemes owing to its strict rules and controls.



Source: <http://climatechange.moe.gov.lb/cdm>





The CDM issues Certified Emission Reductions (CERs) under the supervision of the UNFCCC.

These CERs are obtained by projects of GHG emission reduction across developing countries and are tightly regulated by the UN's Climate Change secretariat and follow the strict CDM validation rules (governments and independent auditors).

To date, there have been more than 8100 registered projects in over 111 countries, with over 2 billion CERs issued, representing an investment of more than USD 300 bn. [2]

CDM Validation Process of a CER Project [2]:

— **DNA:** A designated national authority (DNA) is the organiza-

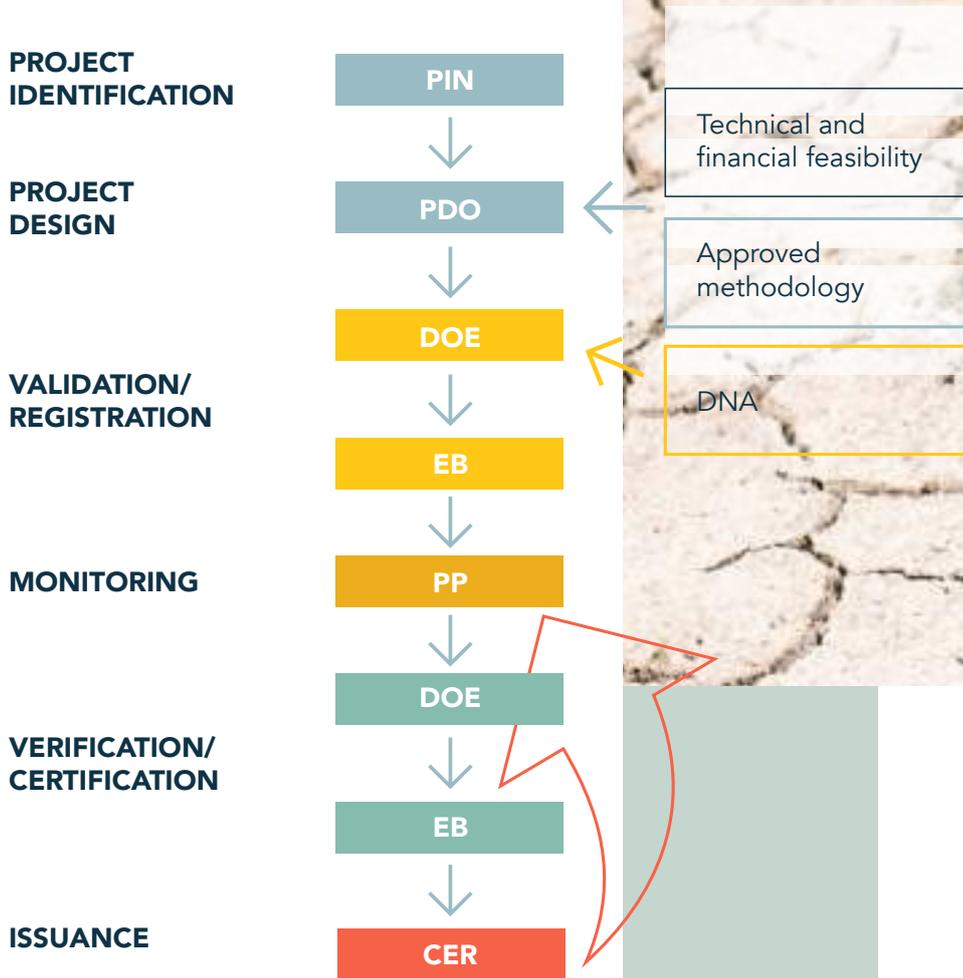
tion granted responsibility by a Party to authorize and approve participation in CDM projects.

— **DOE:** A designated operational entity (DOE) is an independent auditor accredited by the CDM Executive Board (CDM EB) to validate project proposals or verify whether implemented projects have achieved planned greenhouse gas emission reductions.

— **EB:** The CDM Executive Board (CDM EB) supervises the Kyoto Protocol's clean development mechanism under the authority and guidance of the Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol (CMP). The CDM EB is fully accountable to the CMP.

# 04

## CDM Validation Process of a CER Project [2]:



CER - Certified Emission Reduction  
DNA - Designated National Authority  
DPE - Designated Operational Entity  
EB - Executive Board of the CDM  
PDD - Project Design Document  
PIN - Project Identification Note  
PP - Project Proponent

# Over the years,

a number of national schemes have been developed across the globe (Australia, Canada, US, Spain, Switzerland) to develop their own standards and principles and to meet their Kyoto Protocol commitments.

All of those domestic credit schemes have been strongly influenced by the CDM protocol. They often differ in the type of projects that can be onboarded, some countries focusing on a specific sector, or limiting the eligibility of the project's location.

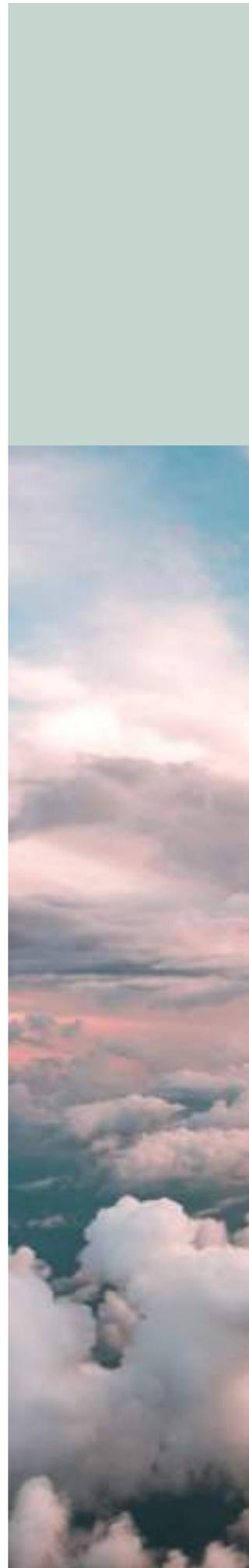
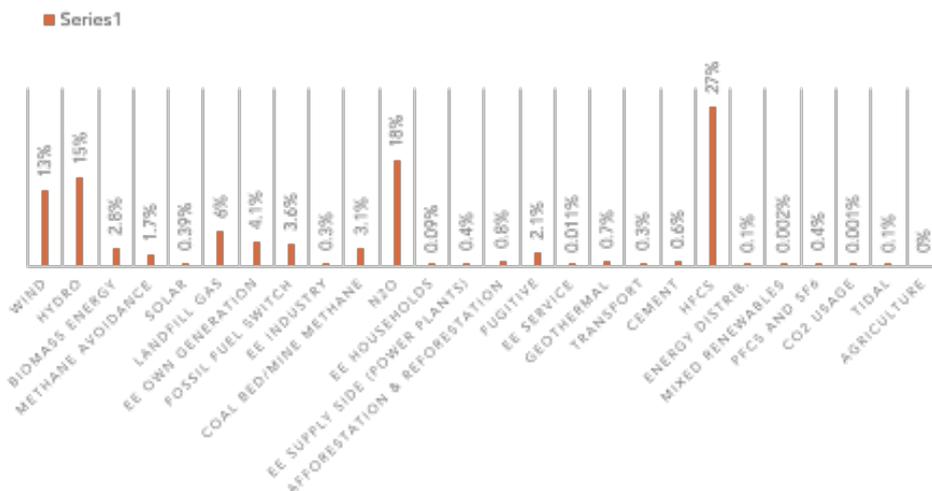
In conjunction with government's efforts to reduce emis-

sions, corporates and individuals with strong individual social responsibility objectives have created the demand for a voluntary carbon market. 3 standards emerged from this demand: the Gold Standard (GS), Verra (VCS), American Carbon Registry (USA).

Voluntary carbon markets differ mostly from other schemes as they often focus on credit based projects with social co-benefits.

Number of them are today working on finding projects able to meet the Agenda 2030 for Sustainable Development (SDGs).

**CERS ISSUED**

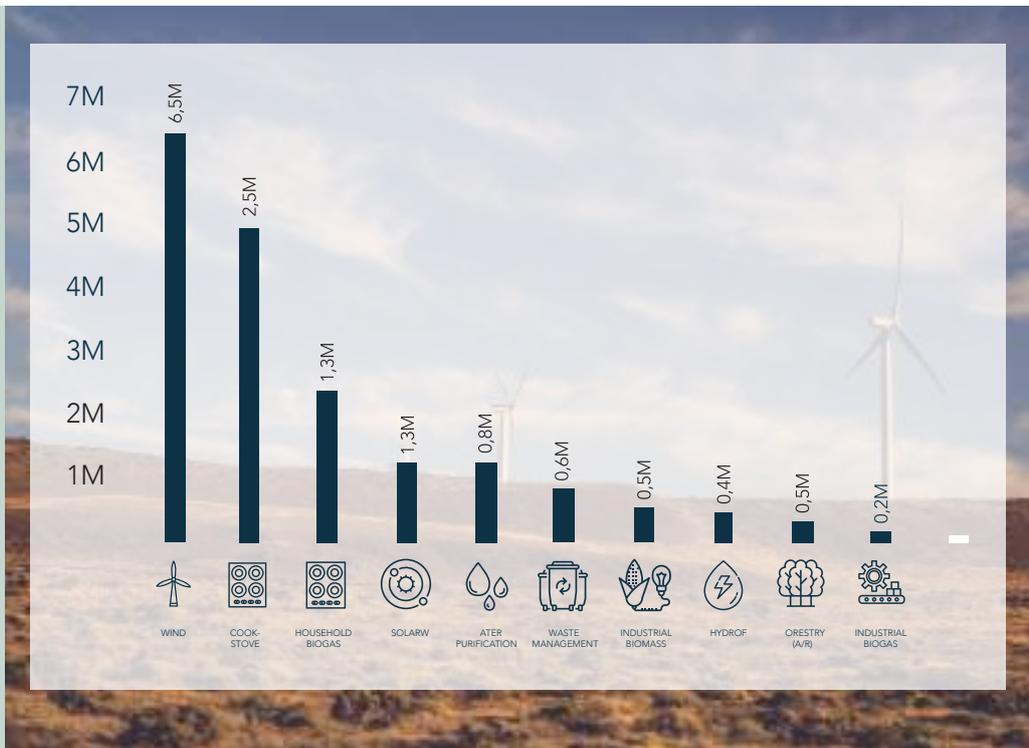


Schemes	Governance	Public vs Private	Supervision of activity cycle	Verification	Geographical eligibility	Sectoral eligibility	Sustainable Development/SDGs
ACR	International	Private	Winrock Board of Directors	Third party verification by ACR-approved validation and verification bodies	Worldwide, some sectors only United States	Fuel combustion, industrial processes, land use, land use change and forestry, carbon capture and storage, livestock, waste handling and disposal	Projects may disclose positive contributions to SDGs, but no particular tool or protocol
AU CFI	National	Public	Australian Government; Clean Energy Regulator	Mandatory audit report, by registered GHG energy auditor Conducted by the Clean Energy Regulator	Australia	Land and waste sector (CFI), the ERF is expanding the scope across the economy.	No specific sustainability objective
British Columbia	Subnational	Public	Ministry of Environment	Independent validators and verifiers. Ministry of Environment	British Columbia	All sectors, as long as it drives clean economic opportunities while cutting emissions	Mentions the programme as part of their sustainability targets
California	Subnational	Public	California Air Resources Board	ARB accredited verification bodies	California and Quebec	Sectors not covered under California's ETS	No specific sustainability objective
CDM	International	Public	CDM EB	Third-party verification done by DOE	Developing countries (KP non-Annex B)	All except nuclear, some limits on forestry projects (only A/R allowed)	Mentions the programme as part of their sustainability targets
China	National	Public	NDRC	Third party verification / NDRC	Seven piloting regions allowing use of CCER. Most pilots restrict eligible credits to credits issued in the region	Varying between the seven piloting regions allowing use of CCER. Regulation allows trading activities of GHG emissions from CO <sub>2</sub> , CH <sub>4</sub> , N <sub>2</sub> O, HFCs, PFCs, and SF <sub>6</sub> . All pilots exclude credits from large hydropower projects	Contribution to SD is an approval criterion
GIS	Bilateral	Public		None	Developed countries (KP Annex B)	No explicit exclusions	N/A
GS	International	Private	Gold Standard Foundation Board	DOE and GS Secretaria	Global	RE; EE; Industrial Waste handling and LULUCF	Sustainability is a core requirement
JCM	Bilateral	Public	Joint Committee with representatives from both governments	Third Party Entity / Joint Committee	International JCM partner countries	No explicit exclusions	Part of the JCM's concept
JI	International	Public	JISC (Track 2)	Third-party verification by A/E	Developed countries (KP Annex B)	All except nuclear	Requirements set by the host party
Ontario	Subnational	Public	Ministry of Environment and climate change	Ministry of Environment and climate change	Ontario	Sectors not covered under Ontario's ETS	Recognizes the value of ecosystem services and environmental co-benefits
Quebec	Subnational	Public	Ministry of Environment (MDE)	Accredited Verification Body /MDE staff	Quebec and California	Sectors not covered under Quebec's ETS	No specific sustainability objective
Spain	National	Public	Consejo Rector and Comisión Ejecutiva, Climate Change Spanish Office (OECC)	Consejo Rector FESCO2	Mainly Spain, but open to international credits	For the National Territory (sectors outside the EUETS). For International Territory EE, RE and waste management projects will be prioritized	No specific sustainability objective
Switzerland	National	Public	Steering committee with members from FOEN and the Swiss Federal Office of energy	DOE / Governmental agency	Switzerland	All except fossil nuclear; CCS; R&D activities; Biofuels; Fuel switch to natural gas in transport and building sector	No specific sustainability objective
US (CAR)	International	Private	Board of Directors and Climate Action Reserve Staff	Accredited Verification Body / Climate Action Reserve Staff	U.S. and Mexico	Sectors and Projects eligible under California's OP + Landfill gas, Livestock, Nitrogen and Organic waste in the US and Mexico	Programme manual establishes the avoidance negative social and environmental outcomes
VCS	International	Private	VCS Board	VCS approved auditor and staff	Global	All CDM sectoral scopes	No specific sustainability objective



# 05 Types of Projects

Not many schemes have a specific exclusion on the type of project that can be accepted, with a clear consensus in excluding Nuclear energy from carbon offset schemes. In general, most projects are linked to renewable energy (wind, hydro, biomass)

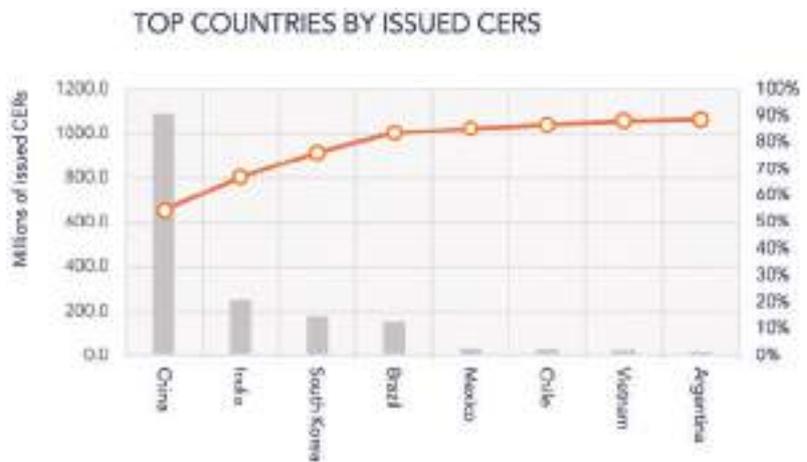


and Industrial gas projects such as a reduction of adipic, nitric acid, representing 77% of total CERs issued last year.

With the rise of voluntary carbon offset from individuals and corporates, a number of smaller-scale schemes have risen with the help of VCS and GS that strongly focus on offsetting programs focus on sustainable co-benefit.

In terms of project types, the large majority of supply stems from industrial gas projects (HFC, N2O) representing 45% of Cers issued, followed by hydro (15%) and wind (13%) projects. The breakdown differs importantly from Voluntary schemes (as shown herein) that generally avoid industrial gas projects that, despite offering interesting addionality, have little co-benefit to offer. [6]

China being the largest carbon emitter in the world, there is no surprise to see that China is the main provider of CDMs, representing almost two thirds of the potential CERs supply. This of course does not represent the breakdown of voluntary scheme that usually look for smaller scale projects, diversifying the countries where projects selected are based.



Source: <https://unepdpu.org/>

Furthermore, it is interesting to note that around 0.8 billion already issued CERs are currently available (unused), equivalent to emissions reductions of 0.8 GtCO<sub>2</sub>e, representing more than the estimated demand of CERs for 2020. Those reserves of CERs, mainly concentrated in the above-mentioned countries, raise a number of questions regarding the upcoming transition to a carbon market in line with the Paris Agreement pledge.

# COP 25, 26... what's next: CDM vs SDM?

Soon, a new international climate regime will take effect under the 2015 Paris Agreement. One of the key pledges concerns the new international carbon market, for the trading of emissions reductions created in the world by the public or private sector.

This new market is sometimes referred to as the "Sustainable Development Mechanism" (SDM). It would replace the Clean Development Mechanism (CDM), which operated under the Kyoto Protocol. Unfortunately, the implementation of such a new pledge has not yet been fully tackled and we expect intense discussions at the COP 26 to decide how best to promote "sustainable development and environmental integrity" with this potential new mechanism.

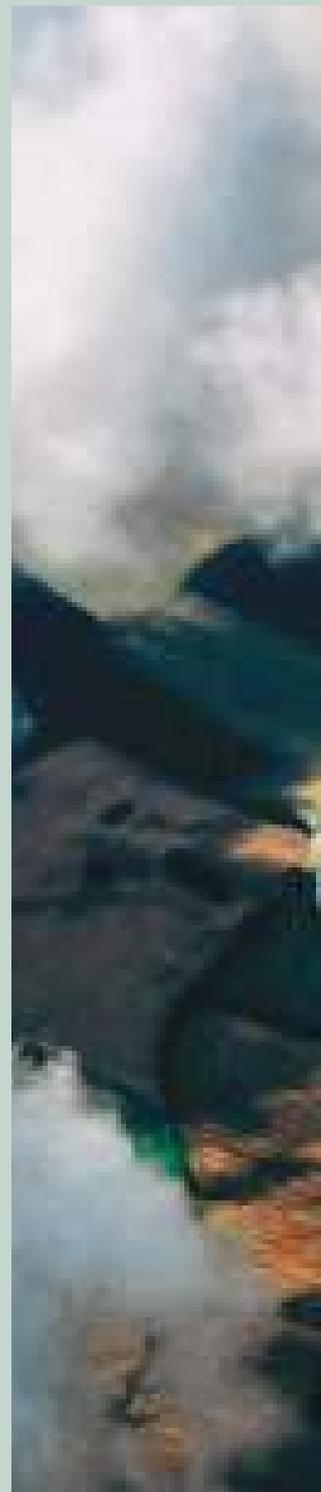
A number of questions are also being considered on how to treat on-going CDM projects. Those questions have strong echoes in influential countries like Brazil

and India that would be significantly impacted if some of their existing projects would need a reclassification.

Also, the new SDM will need to make sure countries have ambitious targets and avoid emissions reductions under the CDM that would have happened anyway.

Given the number of parties interests at stake (India, China, Brazil amongst key actors), it is doubtful we will have a defined agreement on what will be the solution to preserve the coherence of the carbon market. Hopefully, the UK's diplomatic skills might be key at the COP 26 in Glasgow this year. RAM AI will follow closely any further developments there to remain involved in the best practices in terms of carbon offsets.

Looking also at initiatives set by countries with ambitious objectives such as the one of the San Jose Principles.





### **Chinese Wind Power Controversy**

In 2010, CDMs were impacted by a controversy over offsets from Chinese wind power plants. The CDM EB suspected that the Chinese government used CDM projects to subsidize its domestic wind development using CERs issued. The issue raised a number of questions to the CDM mechanism and is highly scrutinized by CDM EB.



# Is Carbon Offset a solution?

Carbon offsetting has often seen criticism by some environmental actors, and largely we agree with them. But most of this criticism originates from issues related to the way governments use them abundantly, forgetting the initial pledge to reduce carbon emissions.

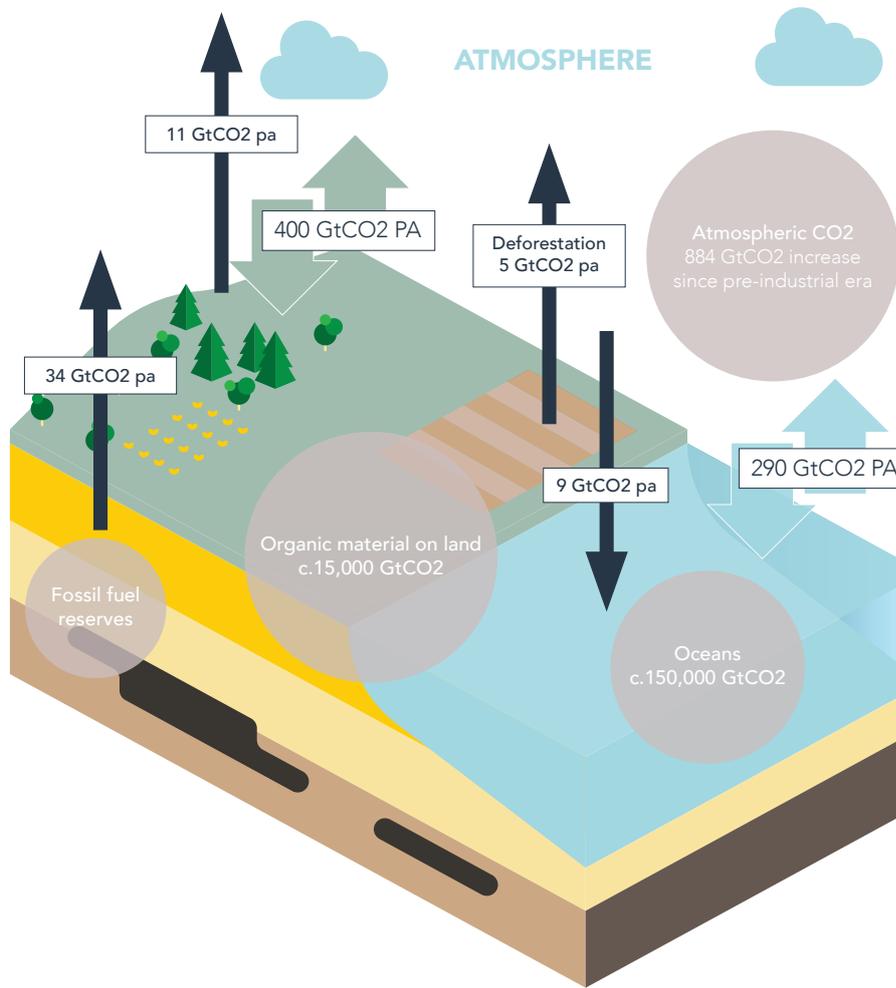
Actors of the voluntary market like us, have little benefit in using Carbon offset without parallel efforts to reduce our climate impact first. Carbon Offset is a tool that should be utilized carefully to tackle the urgent nature of the climate change emergency, helping to select projects of CERs.

Offsetting carbon emissions can create the illusion that high-carbon emitting activities can continue, relying on others (i.e. emerging countries), to clean up the pollution emitted from their developed peers.

According to recent studies [6]: 73% of the potential 2013-2020 Certified Emissions Reduction (CER) supply has a low likelihood that emission reductions are additional (should not have occurred in the absence of the project) and are not over-estimated.

Therefore, project selection is vital when offsetting the carbon emission of a portfolio. Project efficiency in carbon reduction is highly dependent on the type of projects selected. Indeed, projects in specific renewable energies (i.e. Wind Power) too often lack integrity. Conversely, projects in the industrial gas sector, biomass show interesting additionality.

Considering all these elements, RAM AI's SRI Committee has analyzed CERs available to offset the portfolio's carbon emission, ensuring that the purchase of CERs does not undermine the ability of host countries to achieve their mitigation pledges. But first and foremost, carbon offset should not make us deviate from our primary objective as an asset manager; delivering sustainable value and a low risk to our investors.



# Case study: Selection of Biomass Power Projects



We believe that among all relevant types of projects available through CDM, Biomass power projects are interesting to contemplate considering the likelihood of additionality and the remaining CERs available to match our portfolio's needs (tons of CO<sup>2</sup> to offset).



According to several reports and despite future challenges, biomass will play an essential role in the decarbonization of the economy.

Organic biomass reduces overall carbon emissions as organic material, and land absorbs and retains CO<sup>2</sup> during their lifetime.

A key aspect of biomass projects selected should be directed as much as possible towards those with a closed carbon cycle (absorbing and releasing carbon).

Amongst hundreds of projects available, the Angkor Bio Cogen Rise Husk Power Project [9] is an interesting case to assess. It is the first renewable energy project to utilize rice husks as biomass fuel for electricity generation in Cambodia's, Kandal province.

#### IT ACHIEVES GHG EMISSIONS REDUCTION IN THREE WAYS

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1. The GHG reduction is achieved through the use of rice husk, which was previously left to decay in the open space, resulting in methane emissions;
2. The generated power is exported to the rice mill, which partially replaces power generated by their captive diesel power generator, contributing to GHG emissions associated with the diesel power plant;
3. The surplus generated power is supplied to the local power utility, providing electricity to the community living outside of the project's premises.

We like the fact that the project is located in Cambodia, a relatively stable country in a developing market. The country has still a relatively immature equity market, unable yet to tackle alone climate issues and therefore we believe CDMs can have more additionally potential there. We also appreciate that the plant will have a positive environmental and economic impact on the surrounding areas and communities.



# “Carbon offset solutions should be temporary and not considered as a right to pollute”

Carbon offsetting is an excellent tool for a committed asset manager like us, as it represents a short term solution to help minimize our impact.

However, our primary goal is to decarbonize our Portfolio as much as possible, using the vast potential of our Machine Learning Infrastructure and the volume of data available.

As mentioned in one of our research papers on ESG integration, the environmental score can have a positive impact on stock performance and risk.

By combining our Fundamental Alpha with our Sustainable Alpha factors, we can find attractive companies that outperform the market while simultaneously selecting the lowest carbon emitters (sector relative).

Furthermore, we are convinced of the positive long-term performance of companies preparing for the 2° transition pathway.



## Difference between Scope 1, 2, 3 Emissions

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**Scope 1** emissions are direct emissions under control of the company.

**Scope 2** emissions are indirect emissions from the energy purchased.

**Scope 3** emissions are all indirect emissions (not included in scope 2) that the company cannot control (often a large portion of a company carbon footprint).



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# RAM Portfolio Carbon Offset Mechanism

Being an **UNPRI signatory based in Geneva where the UN is headquartered**, we think that it was a logical commitment to select the CDM mechanism (via the UNFCCC climate now platform) for our carbon offset, given CDM being a recognized standard to onboard projects, while admitting the excellent quality of other schemes like GS, VCS, etc.

**RAM's SRI Committee is responsible for shortlisting the selection of projects that will be used to offset the portfolio's carbon emissions**, ensuring that each project selected is well analyzed with pre-defining KPIs:

- Project Type
- Determination of baseline emissions
- Likely Additionality
- Consideration of domestic policies
- Other potential issues (length of crediting period, leakage effects, perverse incentives, double counting, non-permanence, monitoring provisions and third-party validation and verification)

On a quarterly basis, we will be evaluating our Portfolio's Carbon Footprint, using TCFD Methodology, CDP collected data or CDP estimates if not available, looking at scope 1 & 2 emissions, recognizing the limitation of such approach given the difficulty to estimate Scope 3 emissions for most of companies in our investment universe.

Disclosure of scope 3 emissions is one of our key objectives when engaging with companies, and when participating to the annual CDP Non-Disclosure Campaign.

We can only encourage companies to demonstrate increasing corporate transparency around climate change and increase collaboration [11].



Hence, carbon emissions calculated, RAM AI will cancel CERs of the equivalent of CO<sup>2</sup> emitted via CDMs in the name of the Fund.

A report will be publicly disclosed with all references to CERs cancelations in the name of the Fund, so that investors will have full transparency of the execution.

The RAM Stable Climate strategy (soon to be launched) will be the first fund to benefit from this offset mechanism with no impact on performance for the investor.

As we are fully committed to embracing the 2° transition pathway, RAM AI will finance these costs, using income generated by the Fund's management fees thus there will be no impact on the fund performance.

This is an on-ongoing effort, and to tackle the emergency of the issue we strongly believe that **carbon offsetting can have a positive impact on the environment when projects are correctly chosen.**



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[Map Data Carbon Pricing Dashboard](#)

## — PHOTOGRAPHY CREDITS

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