Built to fail?

WORLD'S LARGEST CARBON OFFSET PROJECTS

UNLIKELY TO DELIVER PROMISED EMISSIONS REDUCTIONS DESPITE REFORMS

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MORE THAN **47.7 MILLION PROBLEMATIC OFFSETS CREDITS** WERE RETIRED THROUGH 43 OF THE WORLD'S LARGEST OFFSET PROJECTS IN 2024, REPRESENTING NEARLY ONE-QUARTER OF THE ENTIRE VCM.

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1. Introduction: Climate action must match the scale of the crisis it must solve

Scientific experts are concerned that global temperature could rise by more than 3 degrees Celsius from pre-industrial levels —more than twice the maximum threshold of 1.5 degrees Celsius world governments promised to keep temperature rise "well below" in the Paris Agreement. Already, billions of people, especially across the Global South, are enduring immeasurable loss of life and livelihood, despite a relative handful of Global North countries and corporations fueling climate change in the pursuit of expansion and profit. Now, increasingly, the impacts of the climate crisis are being felt by communities across the Global South and Global North, even if not equally experienced.

Climate action must not fail. There must be absolute certainty that the solutions posed to solve the most pressing global crisis are guaranteed to work at the scale and in the timeframe needed, and that they align with—rather than further erode—justice. Should we fail, the consequence will be millions and millions of lives,[3, 4] and tens of trillions of dollars, annually.[5]

Against this backdrop, this research assesses the most recent performance of the voluntary carbon market (VCM) to help determine if it is setting the world up for galvanized climate action or exacerbating climate action failure. To do this, it analyses 47 of the largest carbon offset projects in 2024 and explores whether recent attempts to fix repeated failures of the VCM are leading to global emissions reductions.

1.1 The Voluntary Carbon Market: Decades of failing to rise to the challenge

For decades, the VCM has been consistently promoted and utilized by world policymakers and the private sector as a central pillar of climate action. At this point, some form of a carbon market has existed for nearly as long as global discourse on climate change has been taking place.[6] The VCM is deeply embedded within the global climate action agenda. For example, Article 6 of the Paris Agreement has paved the way for a global carbon market to play a central role in meeting climate pledges.[7, 8, 9]

Decades of data exist to help us understand what role the VCM has played in climate action up until now, what role it is fit to play moving forward, and whether the VCM is a sound policy framework and climate investment in a moment of paramount import.

Over recent years, investigations and research by academics, civil society, media and other experts have utilized this vast evidence base to understand if the VCM is making contributions to decreasing greenhouse gas (GHG) emissions globally and whether it is working as intended (see Box 1). In the last five years, dozens of robust, independent and globally recognized studies have exposed the repeatedly unfulfilled promises of the VCM, from market-wide assessments[10, 11, 12] to assessments of different types of projects promoted within the VCM—including rainforest[13] and REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects,[14, 15] cookstoves projects,[16] wind projects,[17] and renewables projects.[18] Box 1 includes a non-exhaustive list of some of these studies.

Overall, these combined findings demonstrate broad consensus that after decades of trial and error, the VCM appears to be grossly ineffective—meaning that the bulk of carbon credits retired are not meaningfully reducing emissions (Box 1). Purchasing ineffective offsets in lieu of

actually reducing GHG emissions not only delays emissions-reducing activities but likely leads to higher global carbon emissions, exacerbating climate change. [19, 20] In addition, more and more carbon offset projects are being linked to claims of direct harm to local communities, Indigenous Peoples, and forest and other ecosystems.[21, 22, 23]

Despite decades of trying to "fix" the VCM, it appears to repeatedly fail to deliver, all while spurring harm and distracting from a just transition off fossil fuels and continuing to correlate with record high GHG emissions.[24, 25] Against this backdrop, the United Nations Secretary General has queried the role carbon offsets should be allowed to play in the global response to climate change.[26] And even investors have become more skeptical, reflected in a reported 61% drop in the value of the VCM in the aftermath of all that came to light.[27, 28]

One of the most frequent criticisms of the VCM is even more basic than its technical failures. By design, it inherently makes emissions reductions a 'tradable commodity' of sorts, one that can then be purchased by some of the world's most polluting corporations to evade the necessity to actually reduce emissions at source, aligned with the scale and urgency required.[29, 30, 31, 32, 33, 34] In effect, it offers a get-out-of-jail-free card to the worlds' most polluting corporations, rather than serving as a catalyst for the full scope of action needed.

1.2 Going 'all-in' on a VCM 2.0: Is it any safer a bet?

Despite the inability of the VCM to contribute to a global decrease in emissions up until now,[35] and despite its alleged record of enabling or spurring harm,[36] policymakers and the private sector continue to rely on the VCM to deliver the reductions in global emissions we know are needed to keep temperature rise to below 1.5 degrees Celsius. The VCM is predicted to reach values of up to US$27 billion by 2035,[37] signaling the clear intent to go 'all in.'

Yet leading scientists have put the VCM on notice—insisting it must "reform or go out of business."[38] The United Nations Secretary-General has warned actors to "steer clear of the dubious carbon offsets that erode public trust while doing little or nothing to help the climate"[39] and established a global task force to help protect against these dangers.[40] In response to the public exposure of its weaknesses and ongoing criticism, one way the VCM industry is trying to defend its legitimacy is through a coordinated reformation strategy—the "VCM 2.0."[41, 42, 43, 44, 45] New industry-led initiatives have been launched to rescue the VCM and ensure its integrity,[46] and announcements have promised new principles to promote reliability.[47, 48] Verra—the worlds' largest carbon offset registry—developed new methodologies[49] presumably to assure investors that loopholes are being closed after significant criticism.[50, 51, 52, 53, 54, 55]

Going 'all in' on the VCM means betting our futures, massive resources, and the ability of the planet to sustain human life on a mechanism that has failed to prove its competence for decades. How risky this bet is, and how likely it is to succeed after having failed so many times before, is a paramount question. How deep is the VCM reform going, or is it a surface level PR strategy? Is the VCM fit for purpose, or does it remain fundamentally flawed in a moment when people and the planet simply cannot afford failure? This research seeks to help answer these questions, by analyzing industry data to understand how the VCM 2.0 is performing so far.

This research looks at 47 of the top 100 global carbon offset projects by credits retired for 2024, a snapshot that alone accounts for over a quarter of the entire VCM in 2024. It uses project specific data from AlliedOffsets Database (AOD)[56] and publicly available industry ratings plus risks assessments from BeZero,[57] a prominent VCM industry ratings agency. The risks inherent in these projects through a VCM industry lens are assessed, as well as the likelihood of these projects' success in decreasing emissions. **The findings suggest that so far, the VCM 2.0 remains fundamentally flawed in ways that indicate it still cannot be relied on to deliver the promised (and urgently needed) global emissions reductions.**

1.3 Summary of methodology

For a detailed breakdown of this research and analysis, please see the complete Methodology at the end of the report.

This research deploys a mixed methods approach that combines three types of information: 1) quantitative carbon offset project data from the AlliedOffsets Database (AOD), 2) publicly available ratings and detailed project risk assessments by the carbon credit ratings agency BeZero, and 3) publicly available evidence.

Part 1: Determining the top 100 VCM projects for 2024
Data from AOD was accessed to determine the largest 100 VCM projects for 2024, by credits retired. All available project data for these projects was combined, along with the ratings from VCM ratings agencies BeZero, Sylvera, and Renoster.

Part 2: Creating a database of BeZero-rated projects in the top 100
Next, the researchers then matched the top 100 project data from AOD with BeZero rated projects, leading to a focused database of 47 projects. To help understand the VCM industry's own assessment of performance consistently from one industry actor, these 47 projects were the focus of this analysis. BeZero's ratings were used in part because BeZero has historically provided mostly publicly available ratings and detailed project risk assessments, is considered a reputable ratings agency across the VCM industry, and claims to take steps to protect its independence.

BeZero project ratings follow the S&P Moody scale, which is AAA-D. A project rated AAA means that the credits issued by the project have the highest likelihood of achieving 1 tonne of CO2 equivalent avoidance or removal, while a project rated with a D indicates that its credits have the lowest likelihood.

Part 3: General assessment of BeZero-rated projects to determine "problematic" projects
This analysis treats BeZero ratings of BBB or lower (or "moderate" to "lowest" likelihood of "achieving 1 tonne of CO_2e avoidance or removal") as problematic. This is because the BeZero rating indicates that they have unreliable integrity, and such uncertainty means the project cannot be counted on to serve its core purpose of emissions compensation.

Part 4: Granular assessment of fundamental failures within BeZero-rated projects
In addition to its letter rating, BeZero also provides detailed risks assessments for each project, some of which are made public. These assessments consider the four core risks that largely define integrity (or lack thereof) across carbon offset projects: 1) non-additionality, 2) non-permanence, 3) leakage, and 4) over-crediting. Because the presence of one of these core risks significantly hinders the ability of that project to deliver emissions reductions consistently, these core risks are called "fundamental failures."

While not all of BeZero's rated projects have publicly available detailed risk assessments, the 37 that did were manually retrieved from the public BeZero portal, and integrated into a new consolidated database, or the 'VCM 2.0 database'.

In order to give a more detailed understanding of project performance for problematic projects, the four fundamental failures associated with these projects based on the BeZero risk assessments were analyzed. To do this, a custom coding system was developed that standardized the varying terms used across each project's assessment. A 0 – 5 scale was used, with 5 being the greatest severity or likelihood of risk. This scale captures the gradient of risk implied by BeZero's evaluative language,

based on how that language is used across the assessments as well as the Oxford English Dictionary definitions of these terms. Projects were not 'scored,' per se, but the resulting numerical values for each fundamental failure was then integrated into the VCM 2.0 database for further analysis of themes across projects and risks. A numerical value of 0 signals "no" identified risk, 1 – 2 "low," 3 "moderate," and 4 – 5 "high" likelihood that a fundamental failure is compromising the project's integrity.

Part 5: Qualitative case assessment of VCM projects
Finally, a subset of projects was reviewed for short qualitative case studies using open-source research such as NGO reports, media reports, and registry filings, also considering diversity by geography, registry, and project type in the sampling. These deeper reviews provided a more comprehensive understanding of the scope and breadth of fundamental failures within these projects.

Part 6: Peer research review
Finally, the research was independently reviewed by two external experts and one internal expert, who each have extensive experience and expertise in the study's research topic. Feedback was carefully considered and integrated.

Overall, the use of a conservative approach to ensure high confidence in the results; reliance on AOD and BeZero evaluations; the market's general opacity, making access to reliable data inconsistent at best; and the exclusion of 43 of the largest offset projects because they lacked BeZero ratings at the time of data collection, all indicate that the study likely understates the prevalence and severity of problematic projects and fundamental failures in 2024's top 100 carbon offset projects.

A detailed Methodology is available at the end of this report.

Overview of results from AOD and BeZero data.

All	
2024 all projects	207.8 million credits retired
Top 100 projects	101.2 million credits retired

Analysis—Problematic Projects	
# projects rated by BeZero in Top 100	47 (59.1 million credits)
# problematic BeZero-rated projects (rated BBB or less)	43 (47.7 million credits)
# problematic BeZero-rated projects particularly unlikely to deliver (rated BB or less)	35 (38.1 million credits)

Analysis—Fundamental Failure	
# problematic + BeZero-rated projects with detailed project risk assessment publicly available	37 (40 million credits)
# problematic + BeZero-rated projects with detailed project risk assessment publicly available + legitimate to high likelihood of one fundamental failure	37 (40 million credits)

Source: Corporate Accountability analysis based on data from AlliedOffsets Database and BeZero ratings.

2. Key Findings: VCM 2.0 still a major liability to climate action

In 2024, approximately 207.8 million offsets credits were retired through the voluntary carbon market (VCM), according to data available on the AlliedOffsets Database (AOD), the "most comprehensive dataset on carbon offsetting activity globally."[58] For the purposes of this research, AOD was assessed to be the most significant and up to date overview of the VCM, and therefore the cumulative total offsets from all of the nearly 3,000 projects in this database were considered to be nearly representative of the entire VCM in 2024.

The largest 100 offset projects retired about half of VCM volume in 2024—or 101.2 million credits. Forty-seven of these, including 16 of the 25 largest projects globally, also had a publicly available BeZero rating at the time of research that assesses the project's performance (see Methodology and Glossary). These 47 projects were the focus of this research, as they provided the opportunity to assess a version of the industry's own perspective of the effectiveness of the VCM 2.0 more closely.

Key findings

This research reveals that in 2024, the VCM 2.0 appeared to be saturated with a vast volume of projects and offsets that could not be reliably counted on to deliver the promised emissions reductions. We refer to these types of projects and offsets as "problematic." Specifically, the research finds that:

- More than 47.7 million problematic offsets credits were retired through 43 of the world's largest projects in 2024.
- From the 47 projects included in this analysis (all of which are in the top 100 projects globally for 2024), 80% of the offsets credits retired were problematic. These problematic offsets credits were issued by 43 problematic projects, which alone account for nearly a quarter of all credits retired in the VCM in 2024.
- From the 43 problematic projects, 35 projects retired credits that are particularly unlikely to deliver the promised emission reductions, including 14 of the 25 largest offset projects globally.
- Nearly all, or 93%, of the projects retiring problematic offsets credits are located in the Global South, countries that have historically contributed the least to climate change and that are already experiencing the greatest impacts. This includes five projects that are located in Brazil, the upcoming host of the U.N. climate talks (COP30) in November 2025. Only 3 out of 43 projects were based in the Global North—one in South Korea and two in the United States.
- Verra appears to host the greatest number of problematic projects. Over 90% (43.6 million) of the problematic credits retired from these 43 projects in 2024 were issued by Verra, suggesting that its updated methodologies and measures taken to assure investors may not rectify the core flaws and failures within its registry.
- Verra is not the only registry promoting and benefiting from problematic offsets. Other registries are as well, including the Gold Standard Impact Registry (3 projects), Climate Action Reserve (1

project), and ACR (1 project). Together they retired over 4.1 million problematic credits from these problematic projects in 2024.

- In addition to the registries, at least 17 verifiers were also involved in approving these problematic projects for VCM trading, signifying that the certification and promotion of problematic offsets within the VCM extends far beyond a few actors. It also suggests that the existing 'checks and balances' within the VCM that are meant to ensure high integrity are not proving stringent enough to keep vast volumes of problematic credits from entering the market.

- Forestry and land use projects (23) and renewable energy projects (15) were among the most utilized problematic projects in 2024, but household device projects (4) and chemical processes/ industrial manufacturing projects (1) were also problematic.

- While none of the 47 projects assessed had the highest possible rating from BeZero (AAA, or "highest" likelihood of achieving 1 tonne of CO_2e avoidance or removal,) only four had a higher than "moderate" likelihood of achieving 1 tonne of CO_2e avoidance or removal. Yet even these projects are not risk free—as further analysis of BeZero's detailed project risks assessments revealed the legitimate risk of one or more fundamental failings in at least 2 out of the four projects.

- All 37 problematic projects assessed in more detail had a legitimate risk of having at least one fundamental failing present that rendered the projects unlikely to deliver—totaling nearly 40 million credits in 2024. Over half of these projects (19) had a legitimate risk of having two or more fundamental failings, suggesting there may be compounding failures. These include projects like Pacajai REDD+ Project in Brazil (7th largest project globally in 2024), Southern Cardamom REDD+ project in Cambodia, and the Alkumru Hydroelectric Power Plant in Turkey.

- Out of the 37 projects assessed for specific fundamental failings using BeZero project risk assessments, 23 had a legitimate or high risk of being non-additional (4 and 19 respectively); 14 projects had a legitimate or high risk of non-permanence (1 and 13 respectively); 17 projects had a legitimate or high risk of leakage (2 and 15 respectively); and 19 projects had a legitimate or high risk of over-crediting (1 and 18 respectively).

- This research only provides one snapshot of worrying trends of problematic projects, problematic offsets, and fundamental failures that are likely to be even more prevalent across the VCM as a whole. For example, while only 47 of the top 100 offset projects in 2024 had BeZero ratings that meant they were included in this research, at least nine other projects in the top 100 have ratings from other ratings agencies (Sylvera and Renoster) indicating they also likely have problematic or poor performance. This immediately highlights an additional 6.2 million credits retired in 2024 and suggests they may also be problematic.

- In the top 100 projects, 43 projects were not assessed by either BeZero, Renoster, or Sylvera at the time of research, making it unclear how likely the associated 34.7 million credits retired from these projects were to deliver the promised emissions reductions.

This research suggests that despite ongoing reforms, the VCM 2.0 continues to largely fail, enhancing the likelihood of global climate action failure. If there are advances through VCM reforms, they appear to be limited in scope and potential thus far. It poses the critical question of why something that remains so problematic and fundamentally flawed as the VCM 2.0 continues to be counted on to make a meaningful contribution to decreasing global GHG emissions urgently and permanently. In addition, this research also clearly illustrates the need to reflect on why VCM supporters and investors continue to take on the liability of such great risk, and it necessitates consideration of who is responsible for the repeated failures of the 'checks and balances' of the VCM.

3. Problematic projects still the norm: More than 47.7 million problematic offsets retired by 43 of the world's largest projects in 2024, accounting for almost a quarter of the VCM

Of the 47 BeZero rated projects that were in the top 100 offset projects globally in 2024, all but four (43) had BeZero scores of BBB or less, suggesting they have a "moderate," "moderately low," "low," "very low," or "lowest" likelihood of "achieving 1 tonne of CO_2e avoidance or removal.[59] Because of their limited likelihood of emissions reduction delivery, for the purposes of this research they are termed problematic projects, and the offsets retired through them are logically considered problematic (see Glossary). Table 1 provides an overview of these projects. **Together, these 43 problematic projects retired 47.7 million problematic credits in 2024 and account for nearly a quarter of the entire VCM in 2024 (23%). This equates to 52 billion pounds of coal burned.[60]**

Over 80% of these problematic projects—or a total of 35 of these projects—were rated by BeZero as having "moderately low" to "lowest" likelihood of delivering (or BB or less), making them particularly unlikely to deliver (see Glossary, Methodology, and Figure 1). These 35 projects include 20 out of 50 of the largest projects globally in 2024 by number of credits retired—including the world's largest carbon offset project, DRC-based Mai Ndombe REDD+, which retired over 9 million problematic credits in 2024 and was rated by BeZero as having a "moderately low" likelihood of achieving 1 tonne of CO_2e avoidance or removal.

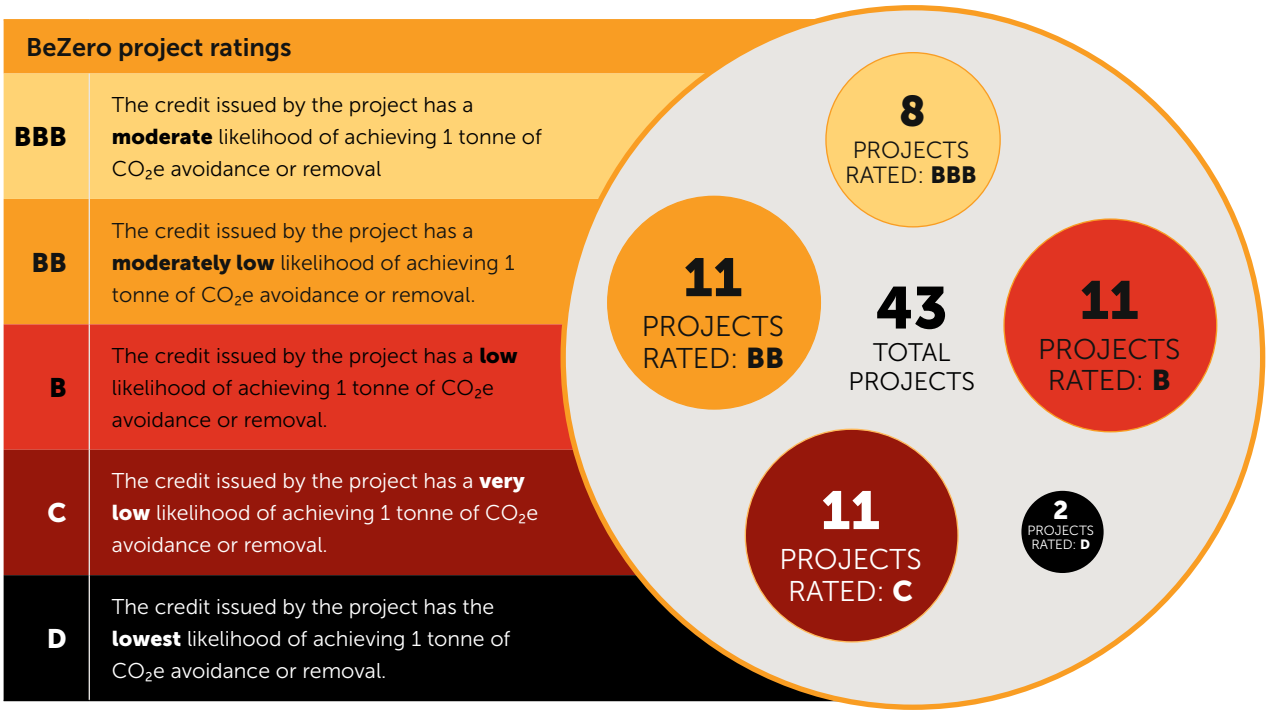
In reality, the percentage of problematic credits that flooded the VCM 2.0 in 2024 is probably much higher, given that this research only focused on projects that had publicly available BeZero ratings information in the top 100; industry ratings are inherently limited in scope and this research did not incorporate other expert analyses of these projects; and the amount of studies evidencing the comprehensive flaws and failures of the VCM more generally (See Box 1).

Table 1: Overview of 47 offsets projects assessed, including 43 of the world's largest offset projects that retired 47.7 million problematic offsets in 2024

Project rank in VCM (by no. retired credits 2024)	Project Name	Credits Retired 2024	Registry	Project Sector	Project Country	BeZero Rating (as of April 15, 2025)
1	The Mai Ndombe REDD+ Project	9,150,386	Verra	Forestry and Land Use	Congo, Dem. Rep	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
2	Katingan Peatland Restoration and Conservation Project	8,854,608	Verra	Forestry and Land Use	Indonesia	**AA**- very high likelihood of achieving 1 tonne of CO_2e avoidance or removal
4	The Envira Amazonia Project - A Tropical Forest Conservation Project in Acre, Brazil	2,665,252	Verra	Forestry and Land Use	Brazil	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
6	Installation of high efficiency wood burning cookstoves in Malawi - Project 2	2,147,935	Verra	Household Devices	Malawi	"**D**- lowest likelihood of achieving 1 tonne of CO_2e avoidance or removal"
7	Pacajai REDD+ Project	2,035,670	Verra	Forestry and Land Use	Brazil	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
8	Phlogiston Phase I	2,026,762	Climate Action Reserve	Chemical Processes/Industrial Manufacturing	United States	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
12	REDD+ Project for Caribbean Guatemala: The Conservation Coast	1,626,361	Verra	Forestry and Land Use	Guatemala	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
14	Bundled Solar Photovoltaic Project by ACME	1,505,191	Verra	Renewable Energy	India	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
15	Hydroelectric Project in Kinnaur District in Himachal Pradesh	1,473,262	Verra	Renewable Energy	India	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
17	Renewable Solar Power Project by ReNew Solar Power Private Limited	1,367,687	Verra	Renewable Energy	India	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
18	Chyulu Hills REDD+ Project	1,354,132	Verra	Forestry and Land Use	Kenya	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
19	Rimba Raya Biodiversity Reserve Project	1,296,759	Verra	Forestry and Land Use	Indonesia	"**AA**- very high likelihood of achieving 1 tonne of CO_2e avoidance or removal
21	Delta Blue Carbon – 1	1,245,803	Verra	Forestry and Land Use	Pakistan	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
22	Reduced Emissions from Deforestation and Degradation in Keo Seima Wildlife Sanctuary	1,241,793	Verra	Forestry and Land Use	Cambodia	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
23	Installation of high efficiency wood burning cookstoves in Malawi	1,232,137	Verra	Household Devices	Malawi	"**D**- lowest likelihood of achieving 1 tonne of CO_2e avoidance or removal"
25	BAESA Project	979,080	Verra	Renewable Energy	Brazil	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
28	'Guanaré' Forest Plantations on degraded grasslands under extensive grazing	916,064	Verra	Forestry and Land Use	Uruguay	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
32	210 MW Musi Hydro Power Plant, Bengkulu	854,811	Verra	Renewable Energy	Indonesia	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
39	Kulera Landscape REDD+ Program for Co-Managed Protected Areas, Malawi	796,510	Verra	Forestry and Land Use	Malawi	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
40	Alto Mayo Conservation Initiative	766,198	Verra	Forestry and Land Use	Peru	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
41	Reduction of deforestation and degradation in Tambopata National Reserve and Bahuaja-Sonene National Park within the area of Madre de Dios region –Peru	759,047	Verra	Forestry and Land Use	Peru	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
43	Forest Management to reduce deforestation and degradation in Shipibo Conibo and Cacataibo Indigenous communities of Ucayali region	746,195	Verra	Forestry and Land Use	Peru	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
44	The Kasigau Corridor REDD Project - Phase II The Community Ranches	745,114	Verra	Forestry and Land Use	Kenya	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
45	Ntakata Mountains REDD	742,323	Verra	Forestry and Land Use	Tanzania	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
46	Solar Energy Project(s) by SB Energy Private Limited	733,390	Verra	Renewable Energy	India	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
47	Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility	718,699	Verra	Renewable Energy	South Africa	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
48	300 MW Wind Energy Project by Green Infra Wind Energy Limited	694,474	Gold Standard Impact Registry	Renewable Energy	India	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
50	Alkumru Hydroelectric Power Plant	672,899	Verra	Renewable Energy	Turkey	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
51	REDD project in Brazil nut concessions in Madre de Dios, Peru	647,166	Verra	Forestry and Land Use	Peru	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
53	Reducing Gas Leakages within the Titas Gas Distribution Network in Bangladesh - CER Conversion	645,123	Verra	Chemical Processes/Industrial Manufacturing	Bangladesh	"**A**- high likelihood of achieving 1 tonne of CO_2e avoidance or removal."
54	Guoluo Grassland Sustainable Management Project	632,078	Verra	Forestry and Land Use	China	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
56	BRAZILIAN AMAZON APD GROUPED PROJECT	612,055	Verra	Forestry and Land Use	Brazil	"**A**- high likelihood of achieving 1 tonne of CO_2e avoidance or removal."
57	300MW Hydropower project by JHPL	606,315	Verra	Renewable Energy	India	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
61	Ghani Solar Renewable Power Project by Greenko Group	579,985	Verra	Renewable Energy	India	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
63	Burn Stoves Project in Kenya	559,745	Gold Standard Impact Registry	Household Devices	Kenya	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
68	REDD+ Project Resguardo Indigena Unificado Selva de Mataven (RIU SM)	524,837	Verra	Forestry and Land Use	Colombia	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
70	The Hyundai Waste Energy Recovery CO-Generation Project Phase II	517,735	Verra	Renewable Energy	South Korea	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
73	Madre de Dios Amazon REDD+ Project	504,285	Verra	Forestry and Land Use	Peru	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
75	UNITOR REDD+ PROJECT	494,031	Verra	Forestry and Land Use	Brazil	"**BBB**-moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
80	Southern Cardamom REDD+ Project	467,133	Verra	Forestry and Land Use	Cambodia	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
81	Longyuan Mulilo De Aar 2 North Wind Energy Facility	466,305	Verra	Renewable Energy	South Africa	"**C**- very low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
83	Gyapa Cook Stoves Project in Ghana	437,281	Gold Standard Impact Registry	Household Devices	Ghana	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
84	Guinan Afforestation Project	434,134	Verra	Forestry and Land Use	China	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
85	Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Ltd.(JPVL)	432,559	Verra	Renewable Energy	India	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
92	Manoa REDD+ Project	416,204	Verra	Forestry and Land Use	Brazil	"**BBB**- moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal"
94	GreenTrees ACRE (Advanced Carbon Restored Ecosystem)	413,387	ACR	Forestry and Land Use	United States	"**BB**- moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
99	Renewable Wind Power Project by Adani	399,135	Verra	Renewable Energy	India	"**B**- low likelihood of achieving 1 tonne of CO_2e avoidance or removal"
	Toatal credits retired 2024	**59,138,035**				

Source: Project data from AlliedOffsets Database, with Be Zero ratings.

Figure 1: Number of problematic projects with "moderate" to "lowest" likelihood of reducing emissions, according to BeZero ratings



Source: Project data from AlliedOffsets Database, with BeZero ratings

The 1,091 MW *Hydroelectric Project in Kinnaur District in Himachal Pradesh (India)*, also known as the Karcham Wangtoo hydropower station, was rated as "low likelihood of achieving" its promised emissions reductions by BeZero, despite retiring nearly 1.5 million credits in 2024. Image by Sumit Mahar.

3.1 Global South flooded with problematic offsets while Global North actors benefit

Problematic projects are located almost exclusively in the Global South (see Figure 2). Only three projects are in the Global North[61] —one in South Korea and two in the United States.

Figure 2: Countries where problematic offsets projects are located

Source: Corporate Accountability analysis based on data from AlliedOffsets Database and BeZero ratings.
**The number of projects only indicate the 47 projects from the top 100 that met the criteria for inclusion in this analysis. There are likely more projects in these countries that are selling problematic credits.*

While almost all of the problematic projects are located in the Global South, all four of the project registries hosting and selling credits from these projects are based in the Global North—three in the United States, one in Switzerland (Table 2). Registries have self-established standards (e.g. Verra has the Verified Certifying Standard, or VCS) that set the rules and methodologies that carbon offset projects must follow in order to supposedly ensure that emissions reductions are real and measurable.[62] They are intended to review and approve projects, issue carbon credits, and often maintain public ledgers to track credits. They both regulate and financially benefit from the system they oversee (including usually charging levees and fees per each project and credit issuance).[63] So they have a built-in financial interest in expanding the voluntary carbon market, as their model is built around charging for creating new credits, even if many of them are established as non-profits.

3.2 Verra continues to lead in the promotion of problematic offsets

Verra hosts 38 of the 43 problematic projects. Verra has come under intense scrutiny over multiple years for its repeated integrity concerns. Allegations include weak methodologies and accounting loopholes such as the China rice cultivation scandal.[64, 65] Following an investigation that exposed that that accounting tricks, such as breaking plots into smaller pieces, were being used to avoid stricter regulations, Verra had to suspend activities with four auditors and the associated 37 "worthless" projects.[66, 67] Other examples of reported lack of integrity in Verra's accounting included the REDD+ project scandal, which claimed that over 90% of Verra's forest offsets credits were likely to be "phantom credits."[68] Concerns were also raised about Verra's intention to fast-track project review.[69] Though Verra often denies these claims, concerns continue to come to light.

Verra brands itself as the "world's leading greenhouse gas crediting program."[70] Yet while Verra's methods and projects continue to be systematically critiqued,[71, 72, 73, 74] even leading to the stepping down of its former CEO,[75] **over 90% (43.6 million) of the problematic credits retired from these 43 problematic projects were issued by Verra. This suggests that its updating of methodologies and measures taken to assure investors may still be far from rectifying the systematic flaws and failures within its registry and the VCM more broadly.** The Verra case studies below illustrate some of Verra's problematic projects featured in this analysis and most utilized by VCM buyers, as well as some of these projects' fundamental flaws.

Verra case studies: Examples of Verra's largest problematic projects in 2024

The Mai Ndombe REDD+ Project (VCS934) (Congo, Dem. Rep)

Credits retired 2024: 9,150,386
Type of project: REDD
BeZero project rating: BB moderately low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Previous investigations have found little evidence of reducing deforestation—with indications that deforestation may have even worsened in some areas.
- According to local communities, the project was established without their Free, Prior, and Informed Consent (FPIC), with "shockingly low" levels of inclusion and ownership—especially of women—in planning or decision-making.
- The promised benefits had not been delivered or were poorly implemented, while local committees meant to represent communities lacked legitimate community representation, capacity, and understanding of REDD+.
- The project has been accused of disrupting traditional land use, contributing to food insecurity, and leaving communities vulnerable by failing to address land tenure security.

Sources[76, 77]

Pacajai REDD+ Project (formerly ADPML Portel Pará) (VCS981) (Brazil)

Credits retired 2024: 2,035,670
Type of project: REDD
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- According to the Public Defender's Office of Pará, the project was established partly on public lands that were claimed to be private to sell credits without state authorization, triggering lawsuits from Pará's government.
- FPIC was delayed and incomplete, with less than 10% of villagers engaged prior to project setup despite the project affecting large plots of public lands which they have customary rights to. Communities also reported a lack of useful benefits from the project.
- The project is owned by a Guernsey-based company with controversial land holdings. Its proponent is Michael Greene, a businessman who is at the heart of the *Carbon Cowboys* investigation by the Washington Post.
- Despite Verra putting the project "on hold" in September 2023 in order to investigate stakeholder complaints, VCM buyers continue to purchase credits from the project.

Sources [78, 79, 80, 81, 82, 83, 84, 85, 86, 87]

Bundled Solar Photovoltaic Project by ACME (VCS1753) (India)

Credits retired 2024: 1,505,191
Type of project: Solar
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- The project is likely not additional as India's large-scale grid-connected solar PV projects are already highly incentivized. This implies that any emissions reductions would have happened anyway and are not 'new.'
- As India is not a least-developed country,[88] these types of renewable energy projects are as feasible in economic terms (and often more so) than fossil fuel-based energy, and thus any offsets are not additional.
- The project's methodology was rejected for CCP approval, demonstrating clear integrity concerns even by major VCM industry actors.

Sources[89, 90, 91, 92]

Hydroelectric Project in Kinnaur District in Himachal Pradesh (VCS1742) (India)

Credits retired 2024: 1,473,262
Type of project: Hydro
BeZero project rating: B low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- At over 1000 MW, this project, also known as the Karcham Wangtoo, is India's largest private hydropower project. The project is non-additional because it had a guaranteed development path ensuring its profitability regardless of carbon offset schemes.
- There was strong opposition from local communities and environmentalists due to harmful impacts on Himalayan river ecosystems and biodiversity.

Sources[93, 94, 95, 96, 97, 98]

Renewable Solar Power Project by ReNew Solar Power Private Limited (VCS1851) (India)

Credits retired 2024: 1,367,687
Type of project: Solar
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Project is not additional as India's large-scale grid-connected solar PV projects are already highly incentivized and the industry is driven by national policy, meaning that the project was already economically feasible under regular national conditions and thus emissions are not additional.
- As India is not a least-developed country,[99] these types of renewable energy projects are as feasible in economic terms (and often more so) than fossil fuel-based energy, and thus any offsets are not additional.
- The project's methodology was rejected for CCP approval due to low likelihood of additionality, suggesting major VCM industry actors have assessed it as unreliable.

Sources[100, 101, 102, 103]

BAESA Project (VCS10) (Brazil)

Credits retired 2024: 979,080
Type of project: Hydro
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- The project was originally registered in 2008 under the CDM. Its construction flooded over 8,000 ha of primary Mata Atlântica forest despite Brazilian constitutional protections.
- Environmental license reportedly based on a fraudulent environmental impact assessment, violating the OECD Guidelines for Multinational Enterprises.
- Large grid-connected hydropower projects are historically known for not leading to any additional emissions reductions as they would have been built without the financial support of carbon markets.
- The project's methodology was rejected by CCP, and it is rated "C" by both Sylvera and BeZero, due to its high risk of failing to deliver genuine emissions reductions.

Sources[104, 105, 106, 107, 108, 109]

'Guanaré' Forest Plantations on degraded grasslands under extensive grazing (VCS959) (Uruguay)

Credits retired 2024: 916,064
Type of project: ARR
BeZero project rating: B low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- The project consists of monoculture eucalyptus/pine plantations that are non-native and short-rotation, undergoing clear-cut harvesting every 22 years. This severely hinders project permanence.
- This industrial project focuses on timber products for the paper and pulp industry, the process for which is largely energy-intensive and releases carbon back into the atmosphere.
- Monoculture plantations require sterile habitats and can create cumulatively worsening conditions for local ecosystems and biodiversity. In addition to its low environmental integrity, large scale plantations in Uruguay like this one have been specifically denounced for their negative environmental impact.

Sources[110, 111, 112, 113, 114, 115]

REDD project in Brazil nut concessions in Madre de Dios, Peru (VCS868) (Peru)

Credits retired 2024: 647,166
Type of project: REDD
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- According to BeZero, the project has a "very low likelihood" of leading to real emissions reductions.
- Illegal gold mining reportedly occurred inside concession boundaries, largely undermining integrity.
- Local communities received less than 0.005% of the project's revenue, with middlemen capturing the majority of financial benefits.

Sources[116, 117, 118, 119, 120]

REDD+ Project Resguardo Indígena Unificado Selva de Matavén (RIU SM) (VCS1566) (Colombia)

Credits retired 2024: 524,837
Type of project: REDD
BeZero project rating: B low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- The project area is under the legal and territorial protection of Indigenous Peoples, which is regulated by national measures, thereby undermining any additionality claims, as Indigenous territories already contain safeguards for preserving forests.
- Investigations show that the project uses inflated baselines and deforestation rates, leading to major over-crediting.
- Furthermore, the project has a history of selling 'hot air' credits that were used by companies to avoid the Colombian carbon tax, estimated to cost Colombia nearly $19M in lost tax revenue in just one year (2016 – 2017).

Sources[121, 122, 123, 124, 125, 126]

Madre de Dios Amazon REDD+ Project (VCS844) (Peru)

Credits retired 2024: 504,285
Type of project: REDD
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Considered to have "low" and "very low" likelihood of achieving real emissions reductions by Sylvera and BeZero, respectively, with the former singling the project out as a notably bad REDD+ project. It was also rated by Renoster as "suspect."
- Project is part of the West et al. study indicating it used inappropriate reference areas and failed to show evidence of significant reductions in deforestation.
- In addition, the project is run by logging companies that actively undermined the expansion of Indigenous neighboring territories, claiming that logging was a more effective conservation model than Indigenous territory safeguards.

Sources[127, 128, 129, 130, 131]

Southern Cardamom REDD+ Project (VCS1748) (Cambodia)

Credits retired 2024: 467,133
Type of project: REDD
BeZero project rating: C very low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Major human rights abuses have been reported by Human Rights Watch, including forced evictions, destruction of property, and violence against Indigenous communities, undermining project permanence.
- The project failed to prevent deforestation from the construction of a large hydropower dam inside the project zone.
- Despite Verra reinstating the project in September 2024 following its review, experts claim the review fails to comply with provisions on grievance mechanisms. As of March 2025, evidence suggests the project continues to threaten Indigenous communities.
- The project has "very low" to "low" likelihood of achieving real emissions reductions per BeZero and Sylvera respectively and is rated "poor" by Renoster.

Sources[132, 133, 134, 135, 136, 137, 138, 139]

Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Ltd. (JPVL) (VCS173) (India)

Credits retired 2024: 432,559
Type of project: Hydro
BeZero project rating: B low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Categorized as large grid-connected hydropower (400 MW), which are non-additional as these projects are guaranteed a development path ensuring their profitability regardless of carbon offset schemes.
- Rated "low" likelihood of achieving any real emissions reductions by BeZero, and its methodology was CCP-rejected.
- The dam is in a seismically active region leading to an increased risk of flooding, landslides, and ecological instability, causing repeated intermittent interruptions in its operations and undermining permanence.
- The dam has also been criticized for heightening risks for local communities in the region.

Sources[140, 141, 142, 143, 144, 145]

Renewable Wind Power Project by Adani (VCS2042) (India)

Credits retired 2024: 399,135
Type of project: Wind
BeZero project rating: B low likelihood of achieving 1 tonne of CO_2e avoidance or removal

Problematic case findings:

- Large-scale grid-connected renewable energy projects like this are generally understood to be non-additional and of little to no value added, inflating credits and undermining integrity.
- The project was rated as having "low" to "lowest" likelihood of achieving real emissions reductions by BeZero and Sylvera respectively, and its methodology was CCP rejected.
- Part of the CDM's broader systemic failures. The CDM has been estimated to increase global emissions by 6.1 billion tonnes of carbon dioxide through its approval of empty offsets. This is the equivalent of operating roughly 20 one-gigawatt coal plants for their entire 50-year lifespan.
- The project's parent company Adani Group's senior executives are at the center of a major renewable energy scandal facing bribery allegations of up to $265 million, undermining governance integrity.
- Experts found that the U.N. CDM Board had a 98% approval rate for Indian wind projects generally, including nearly 200 approved proposals that could not be linked to any real or actual infrastructure/projects, largely undermining claims of integrity in the approval process.

Sources[146, 147, 148, 149, 150]

3.3 Not just one 'bad apple': Many actors involved in promoting millions of problematic credits

Verra continues to lead the VCM (and appears to sell the largest quantity of problematic credits from the world's top offset projects), despite being so consistently exposed for its lack of integrity. **Yet it's equally noteworthy that many other VCM industry actors benefit, promote, and profit off of problematic credits flooding the carbon market. Three of the 43 problematic projects are hosted by the Gold Standard Impact Registry,[151] with Climate Action Reserve[152] and American Carbon Registry (ACR)[153] each hosting one project** (see Table 2).

Though these registries don't operate at the size and scale of Verra, each of these projects were rated by BeZero as having "moderate," "moderately low," or "low" likelihood of delivering on the 4.1 million credits retired from these projects in 2024. This signifies that the flaws and shortcomings of the VCM are not limited to 'one bad apple,' but are instead more systematic and fundamental. The case studies below summarizes a few of the non-Verra projects selling problematic credits. It also includes information on a few other projects hosted by other registries that did not have BeZero ratings (and thus were not included in this analysis), but for which publicly available information was found that brings these projects into question.

Table 2: Four VCM registries responsible for more than 47 million problematic credits in top offsets projects (2024)

Registry	No. projects selling problematic credits	No. credits retired from these projects- 2024
Verra (VCS), USA	38	43,597,841
Climate Action Reserve (CAR), USA	1	2,026,762
Gold Standard Impact Registry (GS), Switzerland	3	1,691,500
American Carbon Registry (ACR), USA	1	413,387
Total Projects	**43**	**47,729,490**

A primary forest in Madre de Dios, Peru where deforestation continued despite REDD+ carbon credits. One of these projects, the *REDD project in Brazil nut concessions in Madre de Dios (Peru)*, was rated by BeZero as having "very low likelihood of achieving" its promised emissions reductions. The project retired nearly 650,000 credits in 2024. Image by Angela Ponce for The Washington Post via Getty Images

Case studies: Examples of non-Verra problematic projects in 2024

The case studies below provide examples of problematic projects and the claims of wrongdoing or lack of integrity that have been made about these specific projects.

Source: Corporate Accountability analysis, project data from AlliedOffsets Database

Proyecto Agrupado YAAWI IIPANA REDD+ (CCA-102) (Colombia)

Credits retired 2024: 1,556,436
Type of project: REDD

Problematic case findings:

- Over 400,000 hectares of the project area overlap with national reserves, which share jurisdiction with numerous Indigenous territories. Carbon projects in existing protected areas cannot meet additionality requirements as the area is already protected (and thus its environmental benefits locked in). As this land is co-managed by the state and Indigenous groups, it was also technically off-limits in Colombia to voluntary offsetting as these are jointly owned by the Colombian state.
- The project is rated "Poor" by Renoster, a ratings-agency that specializes in assessing REDD projects, presumably due to governance and land tenure issues.
- The project developer, Biofix Consultoria, is linked to other projects accused of setting artificially high baselines, over-crediting, and excluding local communities from project development.

Sources[154, 155, 156, 157, 158]

Proyecto Nuestro Aire de Vida "Kai KOMUYA JAG+Y+" REDD+ Puerto Zábalo y Los Monos (BCR-BCR-CO-259-14-004) (Colombia)

Credits retired 2024: 964,383
Type of project: REDD

Problematic case findings:

- Over 97% of the project area overlaps with protected Indigenous lands, undermining additionality claims as Indigenous territories already contain safeguards for preserving forests.
- Project owners were at the center of an investigation in a similar neighboring project, for violating principles of Free, Prior, and Informed Consent (FPIC) and equitable benefit-sharing, and excluding Indigenous communities.
- One of the project owner's co-founders is also the legal representative of a gold mining company which has been under investigation by the Environment Ministry, bringing into question the overall integrity of the project owner.

Sources [159, 160, 161,]

Sichuan Erdaoqiao Hydropower Project (CDM2105) (China)

Credits retired 2024: 415,915
Type of project: Hydro

Problematic case findings:

- Categorized as large grid-connected hydropower, which is not additional, as it is provided a guaranteed development path ensuring its profitability regardless of a carbon offset scheme.
- The project reflects broader issues with legacy CDM hydro projects continuing to generate credits without clear climate benefit.
- CCP has rejected its methodology, reflecting VCM industry concerns about the integrity of its offsets, despite continued retirements.

Sources[162, 163, 164, 165, 166]

GreenTrees ACRE (Advanced Carbon Restored Ecosystem) (ACR114) (USA)

Credits retired 2024: 413,387
Type of project: ARR

Problematic case findings:

- Bloomberg investigation found that landowners counted existing trees, not new plantings, inflating climate benefits and weakening claims of additionality.
- Contractual commitments are limited to 40 years, and GreenTrees assumes future regulatory regimes will ensure ongoing carbon storage. This is largely speculative and indicates no long-term requirements for forest permanence.
- Project deemed to have "poor" likelihood of achieving real emissions reductions according to Renoster.

Sources[167, 168]

Sogamoso Hydroelectric Project (CDM10236) (Colombia)

Credits retired 2024: 935,821
Type of project: Hydro

Problematic case findings:

- Its 820 MW capacity classifies it as large hydro, which means the project doesn't lead to additional emissions reductions.
- Over 16,000 people have been affected by the project, with reports of forced relocations, threats, disappearances, and violence against communities. The project has faced long-standing social and environmental controversy.
- This project's methodology is also rejected by CCP and falls within a broader category of CDM renewable projects that have been shown to lack real, measurable, and additional emissions reductions. The project reflects systemic problems with CDM-era large hydro offsets continuing despite serious harm and questionable climate benefit.

Sources[169, 170, 171, 172, 173]

300 MW Wind Energy Project by Green Infra Wind Energy Limited (GSR7468) (India)

Credits retired 2024: 694,474
Type of project: Wind

Problematic case findings:

- This is a CDM/GS large-scale grid-connected renewable energy project, which was deemed to have low likelihood of achieving real emissions reductions by BeZero due to lack of additionality, and its methodology was CCP rejected.
- Part of the CDM's broader systemic failures. The CDM has been estimated to increase global emissions by 6.1 billion tonnes of carbon dioxide through its approval of empty offsets. This is the equivalent of operating roughly 20 one-gigawatt coal plants for their entire 50-year lifespan.
- The project is owned by Sembcorp Industries, a Singapore-based corporation which has been active since 1973. In 2015, Sembcorp also built a 660 MW coal-fired power facility in India, over double the capacity of its Green Infra wind energy project.
- Experts found that the UN CDM Board had a 98% approval rate for Indian wind projects generally, including nearly 200 approved proposals that could not be linked to any real or actual infrastructure/ projects, largely undermining claims of integrity in the approval process.

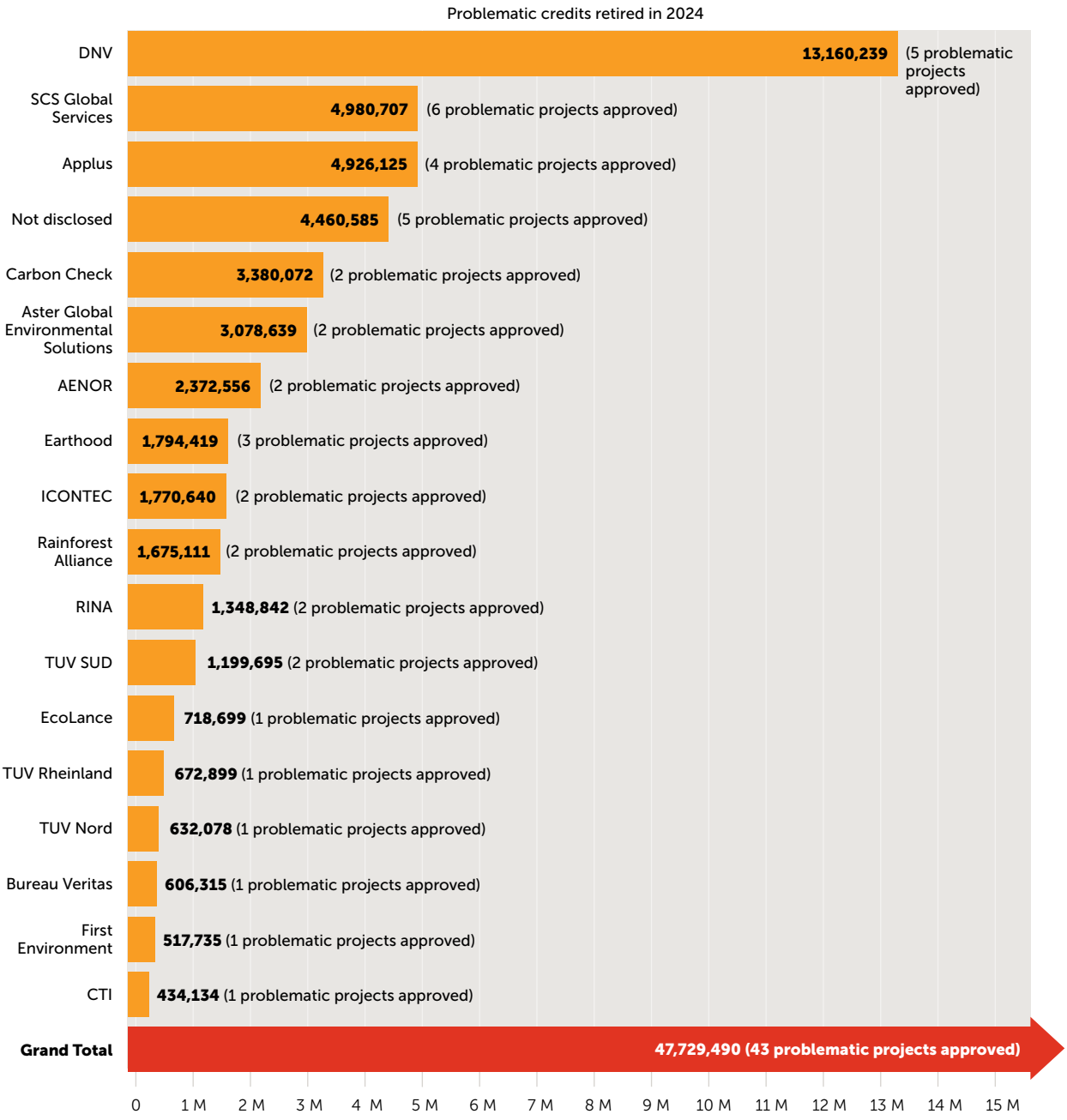
Sources[174, 175, 176, 177, 178, 179, 180]

Harvested eucalyptus logs in Paysandú, Uruguay. The *Guanaré Forest Plantations on degraded grasslands under extensive grazing (Uruguay)* project, a similar eucalyptus plantation in Uruguay with 22-year clear-cut harvesting cycles, was rated a "low likelihood of achieving" its promised emissions reductions. The project retired over 900,000 credits in 2024. Image by Dahian Cifuentes

3.4 More than standards and registries: Handfuls of other actors play a role in approving problematic projects

In total, at least 17 third-party project verifiers were involved in approving these problematic projects (see Figure 3). Project verifiers are auditors that assess whether carbon offset projects meet registry standards and deliver real emissions reductions—they validate project plans before implementation and verify reported outcomes afterward through reviews.[181, 182, 183] In addition, other types of actors are involved at some point in facilitating these problematic projects through the VCM—including project owners, developers, and project proponents (see Glossary).[184]

Figure 3: 17 verifiers also involved in approving problematic offsets projects



Source: Corporate Accountability analysis based on data from AlliedOffsets Database and BeZero ratings.

3.5 Forestry and land use projects and renewable energy projects among the most utilized problematic projects, though other sectors involved

The 43 problematic projects selling the most problematic offsets in 2024 are primarily forestry and land use projects (23) or renewable energy projects (15), but four household device projects and one chemical processes/industrial manufacturing project were also problematic. While in some cases, there may be other types of benefits associated with these projects (e.g., there is a need to justly transition to renewable energy systems, or there may be public health benefits of cookstoves projects), the research sought to understand if the stated emission reductions promised through the sale of these offsets credits were reliable. In most cases, information included in the BeZero project risk assessments suggest the emissions reductions benefits are unreliable.

A closer look at these projects reveals an array of types of projects within each sector, all of which appear to be selling problematic offsets. For example, 18 REDD, or forest conservation and deforestation, projects across Brazil, Cambodia, Democratic Republic of Congo, Guatemala, Kenya, Malawi, Peru, Tanzania, and elsewhere continue to be vastly utilized, despite extensively documented concerns around REDD/REDD+,[185, 186, 187, 188] not to mention broader claims of harm from local communities and Indigenous Peoples.[189, 190, 191, 192] Six large hydrodam projects across India, Turkey, Indonesia, and Brazil continue to appeal to VCM investors, despite evidence that their emissions reductions would have happened even without the presence of a carbon offset scheme and thus are not leading to new emissions reductions.[193, 194, 195, 196, 197] There were four cookstove projects across Ghana, Kenya, and Malawi. Cookstove projects in general have come under increasing scrutiny in the last few years due to increased over-crediting risks.[198] Four large-scale wind projects were located in India, all of which have "very low likelihood" of achieving real emissions reductions due to their lack of additionality, according to BeZero. An external assessment has reaffirmed this flaw amongst these projects, indicating that the majority of India's carbon offset wind projects were not additional, and therefore likely would have happened anyway.

A full breakdown of the types of projects within each sector is included in Figure 4 below.

Figure 4: Breakdown of problematic projects by sector

Forestry and Land Use: 23	**Renewable Energy: 15**	**Household Devices: 4**	**Chemical Processes/ Industrial Manufacturing: 1**
REDD - 18	Hydro - 6	Cookstove - 4	
ARR - 4	Wind - 4		
WRC, ARR - 1	Solar - 4		
	Waste to Energy - 1		

Total: 43

3.6 Even highly rated projects have risk and some evidence of fundamental failures

No project had BeZero's highest rating of AAA—or "highest" likelihood of achieving 1 tonne of CO_2e avoidance or removal." Of the 47 projects with BeZero ratings, four did not meet the criteria to be labeled as problematic because they were rated as having a higher than "moderate" likelihood of achieving 1 tonne of CO_2e avoidance or removal (see Table 1). Two projects were rated AA and two A, with a "very high" and "high" likelihood of achieving 1 tonne of CO_2e avoidance or removal respectively.

Yet even according to BeZero's own assessment of these projects, they were not risk free. Only two of these projects had public risk assessments that we could access. Verra's Brazilian Amazon APD Grouped Project had a "notable" leakage risk, a concern reinforced by several external studies that concluded that the methodology associated with this project had an overestimated baseline.[200, 201, 202] BeZero assessed Verra's Rimba Raya Biodiversity Reserve Project to have "some" non-permanence risk and "notable" leakage risk. Rimba Raya has been a contested ground that has involved multiple legal battles between various actors involved in the project. In January 2024, Verra suspended the methodology.[203, 204] Verra also suspended the project proponent, putting the project's permanence at risk due to legal and operational uncertainties and disagreements.[205]

The other two projects did not have public project risk assessments so potential risks could not be assessed.

The Alto Mayo Conservation Initiative (Peru) has been at the root of violent forced evictions of local community members from the Alto Mayo protected forest. The project was rated by BeZero as having "moderately low likelihood of achieving" its promised emissions reductions, citing high risks of over-crediting and risk of non-permanence. Alto Mayo retired over 750,000 credits in 2024. Image by Angela Ponce/The Guardian

4. Fundamentally Failing: Top offset projects in 2024 riddled with fundamental failings and shrinking emissions-reducing potential

In addition to wanting to understand how many of the world's largest offset projects in 2024 were likely failing to deliver the promised emissions cuts, this research sought to understand the most common reasons why so many problematic credits are being utilized through certified problematic projects.

For an offset to deliver lasting and real emissions reductions or removals, at an absolute minimum it must come with a guarantee that any associated emissions reductions are permanent, additional, have no leakage, and not over-credited (see Glossary). A project's performance is likely to be poor when there is legitimate to high risk of the below fundamental failures:

- **Non-additionality:** the project may not be linked to new, additional emissions reductions, that would have likely happened anyway without the offset project;
- **Non-permanence:** the associated emissions reductions may not be lasting and permanent, or are subject to be reversible or at risk of being temporary;
- **Leakage:** emissions are at risk of simply being shifted from one place to another, rather than being reduced or avoided;
- **Over-crediting:** credits may not be adequately and transparently accounted for, or are at risk of over-crediting or double counting, leading to 'hot air' in the carbon market.

Logically, a project's host must be able to transparently provide evidence to demonstrate that there is a proven track record of each offset credit purchased consistently equating to 1 tonne of permanent, additional CO_2e avoidance or removal without risk of leakage or over-crediting. Furthermore, if there is evidence of non-additionality, non-permanence, leakage, and/or over-crediting, there is no way for a buyer to know that every offset credit they are purchasing and counting towards their respective emissions reductions is having the necessary and intended impact.

If there is evidence to suggest that a project has a legitimate to high risk of being non-additional, non-permanent, over-crediting, or having leakage (see Glossary), then it follows that the project is very unlikely to deliver the promised emissions reductions. Thus, these elements—non-additionality, non-permanence, leakage, over-crediting—are termed "fundamental failures" for the purposes of this research (see Methodology and Glossary). Continued use and trading of offsets from a project with fundamental failures at best hinders or at worst harms the global response to climate change. If the VCM is saturated with projects that are both fundamentally flawed and heavily utilized, this in turn has significant implications for whether and to what extent the VCM can be relied on to contribute meaningful emissions reductions.

To clarify what specifically about these 43 problematic projects makes them more likely to fail, project profiles by BeZero,[206] where publicly available, were assessed to understand which potential

fundamental failings were leading to risk of failure, and how likely these failings were to be present. Terminology used throughout the available BeZero project risk assessments were assessed by evaluating how strong the risk of a fundamental failing was. These descriptive terms were then coded to help quantify which fundamental failings were showing up most often in these problematic projects, and how likely these fundamental failings were to lead to failure. For example, a project with a "significant" risk to the project's additionality was given a numerical value of 5, or the greatest severity (on a 0 – 5 scale), whereas a project with "strong" additionality was given a score of 1, or lesser severity (see Methodology).

BeZero ratings were used to help assess the risks of 37 projects from a VCM industry perspective. These 37 projects retired nearly 40 million credits in 2024 from many of the largest offset projects in the world (see Table 3).

4.1 All assessed projects unlikely to deliver due to legitimate to high risk of one or more fundamental failing

The research found that all 37 assessed projects are unlikely to deliver the promised emissions reductions due to legitimate or high risk of at least one or more fundamental failings in the project—either non-additionality, non-permanence, over-crediting, or leakage (see Glossary and Methodology).

Some of the projects with the greatest number of fundamental failings include Verra's Pacajai REDD+ Project in Brazil, just outside of Belém, where the U.N. climate talks will be hosted in 2025. This project was the seventh-largest offset project in 2024 by credits retired, yet despite being placed "on hold" by Verra since September 2023 for further review of allegations made against the project, it is still allowed to sell previously issued credits (see Verra case studies). Pacajai REDD+ had the greatest presence of fundamental failings of all projects; BeZero assessed it has a "significant" risk both of over-crediting and leakage as well as "notable" non-permanence risk and "weak" additionality. Another project with a high risk of failure was the Southern Cardamom REDD+ project in Cambodia, which according to Human Rights Watch has led to multiple violations of Indigenous Peoples' rights.[207] According to BeZero, this project has a "significant" non-permanence and over-crediting risk, as well as "notable" leakage risks. The Alkumru Hydroelectric Power Plant Turkey, which retired over 670,000 credits in 2024, was also rated poorly due to "some" leakage risk and over-crediting risks, and a "low likelihood" of additionality. Table 3 provides an overview of these 37 problematic projects and their fundamental failures.

Windmills in Gujurat, India. A 2021 LSE study found that half of Indian wind farm carbon offsets went to projects that would have been built anyway. The 300MW Green Infra Wind (India) project, which was rated with a "low likelihood of achieving" promised emissions reductions by BeZero, retired nearly 700,000 credits in 2024. Image by Arshit Vaghasiya / Unsplash

Table 3: Overview of problematic projects and their fundamental failures

Credits Retired in 2024	Project Name	# of fundamental failures with legitimate to high risk	# of fundamental failures with high risk	Risk of Non-Permanence	Risk of Over-Crediting	Risk of Leakage	Risk of Non-Additionality
9,150,386	The Mai Ndombe REDD+ Project	● ● ●	●	3	4	3	1
2,665,252	The Envira Amazonia Project - A Tropical Forest Conservation Project in Acre, Brazil	●	●	2	2	4	1
2,035,670	Pacajai REDD+ Project	● ● ● ●	● ● ● ●	4	5	5	5
1,626,361	REDD+ Project for Caribbean Guatemala: The Conservation Coast	● ●	●	2	5	2	3
1,505,191	Bundled Solar Photovoltaic Project by ACME	●	●	0	2	2	5
1,367,687	Renewable Solar Power Project by ReNew Solar Power Private Limited	●	●	0	2	2	5
1,354,132	Chyulu Hills REDD+ Project	● ● ● ●	● ● ●	4	4	4	3
1,296,759	Rimba Raya Biodiversity Reserve Project	● ●	● ●	4	2	4	1
1,241,793	Reduced Emissions from Deforestation and Degradation in Keo Seima Wildlife Sanctuary	● ●	● ●	5	2	4	1
979,080	BAESA Project	●	●	2	2	2	5
916,064	'Guanaré' Forest Plantations on degraded grasslands under extensive grazing	●	●	2	5	2	0
854,811	210 MW Musi Hydro Power Plant, Bengkulu	● ●	●	2	2	4	3
796,510	Kulera Landscape REDD+ Program for Co-Managed Protected Areas, Malawi	● ●	● ●	4	4	2	2
766,198	Alto Mayo Conservation Initiative	● ● ●	● ●	4	5	3	1
759,047	Reduction of deforestation and degradation in Tambopata National Reserve and Bahuaja-Sonene National Park within the area of Madre de Dios region –Peru	● ● ●	● ● ●	4	4	4	1
746,195	Forest Management to reduce deforestation and degradation in Shipibo Conibo and Cacataibo Indigenous communities of Ucayali region	● ● ● ●	● ● ● ●	4	4	4	4
745,114	The Kasigau Corridor REDD Project - Phase II The Community Ranches	● ● ●	● ● ●	4	4	4	1
742,323	Ntakata Mountains REDD	●	●	2	4	2	1
733,390	Solar Energy Project(s) by SB Energy Private Limited	●	●	0	2	2	5
718,699	Longyuan Mulilo De Aar Maanhaarberg Wind Energy Facility	● ●	● ●	4	2	1	1
694,474	300 MW Wind Energy Project by Green Infra Wind Energy Limited	●	●	2	2	1	5
672,899	Alkumru Hydroelectric Power Plant	● ● ●	● ● ●	2	4	4	5
647,166	REDD project in Brazil nut concessions in Madre de Dios, Peru	● ● ●	● ● ●	2	5	4	5
632,078	Guoluo Grassland Sustainable Management Project	● ●	● ●	2	4	2	4
612,055	BRAZILIAN AMAZON APD GROUPED PROJECT	●	●	2	2	4	2
606,315	300MW Hydropower project by JHPL	●	●	2	2	2	5
579,985	Ghani Solar Renewable Power Project by Greenko Group	●	●	0	2	2	5
524,837	REDD+ Project Resguardo Indigena Unificado Selva de Mataven (RIU SM)	● ● ●	●	2	5	2	3
504,285	Madre de Dios Amazon REDD+ Project	● ●	● ●	1	5	2	5
494,031	UNITOR REDD+ PROJECT	● ●	● ●	4	2	5	2
467,133	Southern Cardamom REDD+ Project	● ● ●	● ● ●	5	5	4	1
466,305	Longyuan Mulilo De Aar 2 North Wind Energy Facility	● ●	● ●	4	0	1	5
434,134	Guinan Afforestation Project	● ●	● ●	2	4	2	5
432,559	Vishnuprayag Hydro-electric Project (VHEP) by Jaiprakash Power Ventures Ltd.(JPVL)	●	●	2	2	2	5
416,204	Manoa REDD+ Project	● ●	● ●	2	2	4	4
413,387	GreenTrees ACRE (Advanced Carbon Restored Ecosystem)	● ● ●	● ●	2	3	2	4
399,135	Renewable Wind Power Project by Adani	●	●	0	2	1	5

Source: Corporate Accountability Analysis based on BeZero project assessments, project specific data from AlliedOffsets Database.
**See Methodology for approach and coding framework*

In total, the findings show that 24 out of 37 projects had a legitimate or high risk of being non-additional (4 and 20 respectively); 14 projects had a legitimate or high risk of non-permanence (1 and 13 respectively); 17 projects had a legitimate or high risk of leakage (2 and 15 respectively); and 19 projects had a legitimate or high risk of over-crediting (1 and 18 respectively).

All 37 of the projects assessed in this analysis had a high risk of at least one fundamental failing. Over half of these projects (19) had a high risk of *two or more* fundamental failings, suggesting there are compounding failures that mean these projects absolutely cannot be relied upon to perform.

Table 4: All 37 assessed projects have high risk of one or more fundamental failing

No. of publicly available projects & assessed for fundamental failings	**37**
No. of projects with legitimate to high risk of 1+ fundamental failings	100% (37)
No. projects with high risk of 1+ fundamental failings	100% (37)
No. projects with legitimate to high risk of 2+ fundamental failings	65% (24)
No. projects with high risk of 2+ fundamental failings	51% (19)

Source: CorporateAccountability Analysis, based on BeZero project assessments.
**See Methodology for approach and coding framework*

In various human rights reports, the *Southern Cardamom REDD+ Project (Cambodia)* has been accused of physical abuse, threats, violence and a failure to meet best practice standards towards local communities. The project was rated as having a "very low likelihood of achieving" promised emissions reductions, though retired over 450,000 credits in 2024. Image by Gerald Flynn / Mongabay.

5. Conservative results: The failures of the VCM 2.0 are more extensive than this research reveals

This research only provides one snapshot of problematic projects and fundamental failures that are likely to be even more prevalent across the VCM as a whole. This research only uses publicly available information from one VCM industry ratings agency, introducing an inherent industry bias (see Methodology for rationale). This bias is intentional, as the purpose of this research was to better understand the industry's own assessment of VCM success. Yet there exists a multitude of independent assessments that further underscore the extent, depth, and seriousness of the systematic failures of specific projects or the VCM more broadly (See Box 1) that were not incorporated into this assessment.

Adding to this, the VCM is inherently very opaque and untransparent, and thus it is nigh-impossible to reach a complete picture of just how deep and vast these fundamental flaws may extend across the VCM system.

For these reasons, **the number of problematic projects riddled with the likely presence of problematic offsets and fundamental failures within the top 100 projects, and even across all offset projects that are part of the VCM, is likely to be significantly greater. For example, while only 47 of the top 100 offset projects in 2024 had BeZero ratings that meant they were included in this research, at least nine other projects in the top 100 did not have ratings from BeZero but did have ratings from other ratings agencies Renoster or Sylvera which indicate they also likely have problematic or poor performance (see Table 5). This immediately brings 6.2 million additional credits retired in 2024 into question.**

In the top 100 projects, there remain 43 projects that were not assessed by either BeZero, Renoster, or Sylvera at the time of research, making it unclear how likely the associated 34.7 million credits retired from these projects were to deliver.

Part of the *Bundled Solar Photovoltaic Project by ACME (India)* in Rajasthan. The project has "very low likelihood of achieving" its promised emissions reductions despite retiring over 1.5 million credits in 2024. Image from 2025 Maxar Technologies, Google Earth (Map data 2025 Google), captured in June 2025.

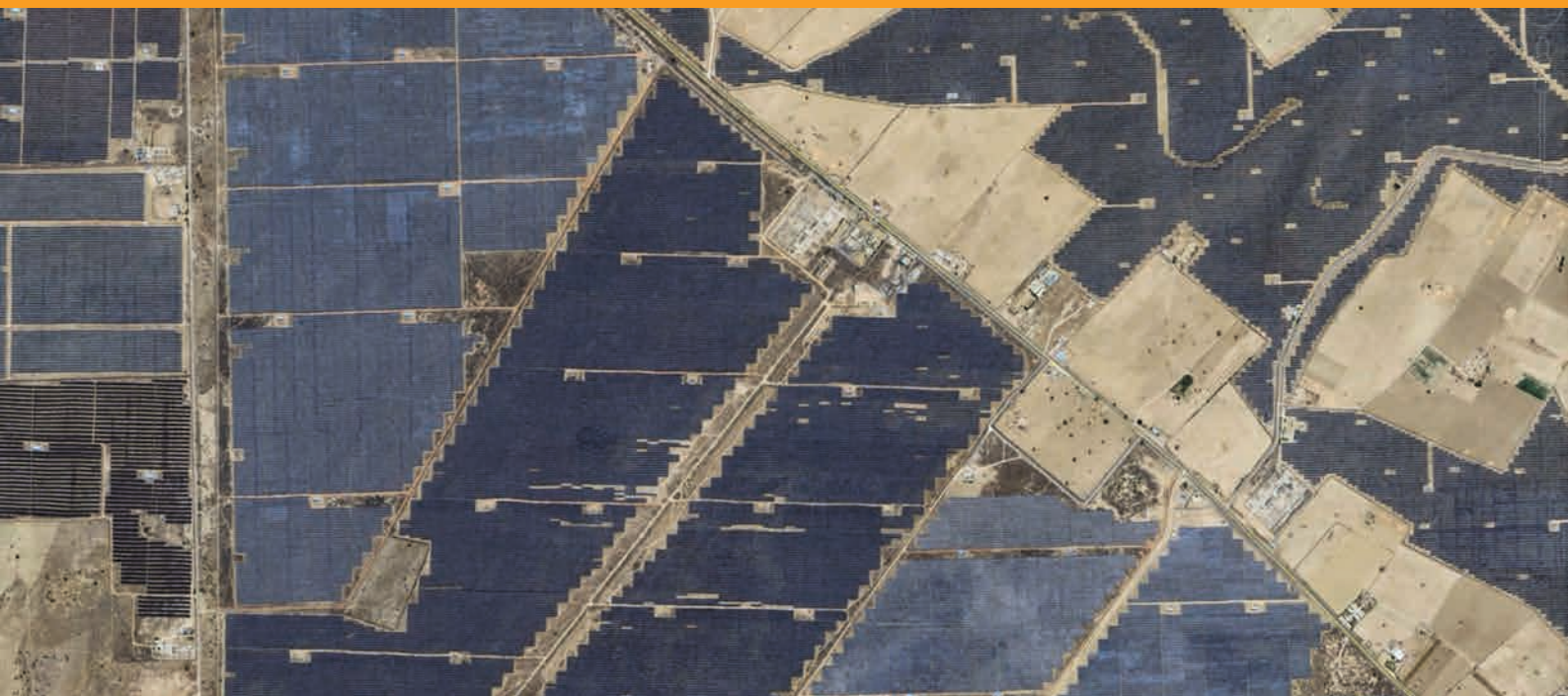


Table 5: Examples of top 100 projects in 2024 that have been rated by ratings agencies other than BeZero and are potentially problematic

Project ranking in top 100 (by no. credits retired 2024)	Project Name	No. credits retired 2024	Country	Registry	Type of project	Renoster rating	Sylverra rating
13	**Proyecto Agrupado YAAWI IIPANA REDD+**	1,556,436	Colombia	Cercarbono (listed on EcoRegistry)	Forestry and Land use	**Poor** (qualitative likelihood of achieving 1 tCO2e avoided or sequestered per credit.)	
34	**Improved Cookstoves for Social Impact in Ugandan Communities**	815,501	Uganda	Gold Standard Impact Registry	Household Devices		**B** (low likelihood of achieving 1 tonne of CO2e avoidance or removal)
36	**TAHUAMANU AMAZON REDD PROJECT**	813,403	Peru	Verra	Forestry and Land use	**Poor** (qualitative likelihood of achieving 1 tCO2e avoided or sequestered per credit.)	**B** (low likelihood of achieving 1 tonne of CO2e avoidance or removal)
49	**Proyecto de Conservación UNU-MAI REDD+**	693,814	Colombia	Cercarbono (listed on EcoRegistry)	Forestry and Land use	**Poor** (qualitative likelihood of achieving 1 tCO2e avoided or sequestered per credit.)	
72	**Willits Woods IFM**	509,465	United States	Climate Action Reserve	Forestry and Land use		**BB** (moderately low likelihood of achieving 1 tonne of CO2e avoidance or removal)
78	**DelAgua Clean Cooking Grouped Project**	480,399	Rwanda	Verra	Energy Efficiency/ Fuel Switching		**BB** (moderately low likelihood of achieving 1 tonne of CO2e avoidance or removal)
82	**TASC Clean Cooking PoA – VPA 3 (Zambia)**	446,134	Zambia	Gold Standard Impact Registry	Household Devices		B (low likelihood of achieving 1 tonne of CO2e avoidance or removal)
87	**82 MW Lau Renun Hydro Power Plant, North Sumatra**	429,212	Indonesia	Verra	Renewable Energy		**D** (lowest likelihood of achieving 1 tonne of CO:e avoidance or removal)
89	**Saint Nikola Wind Farm**	428,120	Bulgaria	Verra	Renewable Energy		**D** (lowest likelihood of achieving 1 tonne of CO:e avoidance or removal)
	Total credits retired 2024	**6,172,484**					

Source: Project data from AlliedOffsets Database and ratings from Sylvera, and Renoster.

In the top 100 projects, there remain 43 projects that were not assessed by either BeZero, Renoster, or Sylvera at the time of research, making it unclear how likely the associated 34.7 million credits retired from these projects were to deliver.

6. Discussion: Critical questions supporters of a failing VCM must reckon with

This analysis uses VCM industry ratings to help understand the industry's own assessment of VCM performance and finds concerning evidence that the VCM 2.0 is currently not realistically more likely to lead to lasting emissions reductions. Investors, policymakers, and governments are left to grapple with whether the continued use of such vast political might and technical and financial resources are warranted.

Reflections on these findings pose some critical questions that VCM investors and supporters need to reckon with in order to find the way forward through the climate crisis. These include:

Why are so many projects that even VCM industry actors assess as unlikely to deliver emissions reductions still so popular?

This research used publicly available information to assess the likelihood of a project's success in delivering emissions reductions. Despite this information being publicly available, these 43 problematic projects alone accounted for nearly a quarter of the VCM 2.0 in 2024 in terms of credits retired. Why are projects with legitimate to high risks of underperformance so heavily utilized by actors using the VCM to supposedly compensate for their emissions? And how effective are the safeguards and checks in balance in place at this point, if a minimum of 47.7 million problematic offsets from 43 of the largest projects flooded the market in 2024?

Why are VCM buyers and policymakers taking on such liability to participate in the VCM?

This research provides a clear illustration of just how much liability and uncertainty VCM investors are taking on when they purchase a credit to presumably offset their emissions, or when a political actor promotes the VCM as a gold standard solution to climate change. Although each of the questions here warrant their own dedicated debate and attention, a fundament question is why—why the massive investment when there has been no adequate success to date, and why are VCM supporters and investors embracing such extremes of liability?

Who is responsible for the repeated failure of 'checks and balances' within the VCM?

This research indicates that the responsibility for the failures of the current VCM 2.0 extend across varied actors in the system. Given the number of actors involved in approving, selling, promoting, or politicizing problematic offsets fromproblematic projects—and directly or indirectly benefiting from their vast utilization—the failings of the VCM continue to stretch far beyond a few minor issues, actors, or intervention points. Current reforms to 'fix' the VCM, if it can be fixed, cannot be achieved through isolated, industry-driven self-regulatory measures or initiatives—especially by entities with vested interests in its growth.

The inherent vested interests of VCM industry actors also cannot be ignored in the context of such a vastly needly overhaul. In the case of the VCM, the same actors that set the rules and standards, issue verifications, and conduct monitoring are the same actors directly benefiting from the VCM—financially and otherwise—from ensuring that as many credits are issued, sold, and retired as possible. Quality and integrity are perhaps one way to ensure maximum investment, but clearly this research shows it is not the only way. Why is an industry being relied on to largely fix itself, when that industry has, for decades, apparently not prioritized ensuring that the VCM leads to lasting, permanent, reliable emissions reductions? The offsetting industry has a fundamental conflict of interest that means it cannot be relied upon to ensure maximal integrity, and must be held accountable, rather than left to its own devices.

What do these trends indicate about the integrity of the VCM 2.0 more broadly?

This research only provides a snapshot of what is likely a much deeper and broader pattern of failure that is continuing despite the supposed transition of the VCM to the VCM 2.0. The limited focus of this research through a VCM industry lens, combined with the inherent opaqueness of a disjointed and loosely regulated system, makes it essentially impossible to fully understand how extensive the faults of the VCM, 2.0 or otherwise, are. How does one regulate a system that is not set up to be transparently regulated in a binding way, and how does one ensure integrity in a mechanism that has a decades-long track record of unreliability?

This cannot be done with the flipping of a few switches; we must assess whether the VCM is even fit for purpose in the context of the climate crisis we live in today.

Even if the VCM 2.0 is still 'a work in progress,' or even if there are some limited benefits to specific projects, is this enough to bet our futures on?

It was outside the scope of this research to assess whether there was independent evidence of consistent improvements to projects through the VCM 2.0 to date. Perhaps there are specific examples where focused action has been taken that has led to a documented improvement that may, with time, lead to lasting benefit in certain instances. Yet, any improvements need to be understood as isolated and limited in relation to the full scope of the system-wide problem, and they need to be tallied and balanced against the tremendous weight of the failure of the VCM as a whole.

The VCM has undergone more than 20 years of various reforms—each with its own tinkering and experimentation by the VCM industry and policymakers in the pursuit of fixing it. Yet it *still* cannot consistently produce high-quality credits that perform with great certainty of reducing emissions at scale. And it *still* correlates with record-breaking emissions globally. How can the VCM credibly claim to be helping to solve the climate crisis when evidence consistently points towards it exacerbating it?

Can today's VCM guarantee projects that consistently deliver emission reductions at scale? This research suggests the answer at present remains resoundingly no. Interestingly, many of the largest problematic projects were not approved by some of the initiatives that are part of the reform, (such as the Integrity Council for the Voluntary Carbon Market's Core Carbon Principles).[208] Yet they are still vastly utilized by VCM buyers nonetheless, begging the question of what the ultimate value of such 'stamps of approval' are (even before assessing if the benchmarks for this approval are high and comprehensive enough to begin with).

Though it can be claimed that the VCM 2.0 reform is still underway, and that the industry as a whole has not yet been brought into full adherence to any new standards and methodologies (regardless of whether these are adequate), the problems with the VCM remain structural and foundational, given the number of reforms it has currently undergone.

Why try to solve a global crisis with a framework that inflicts further inequity and harm?

VCM ratings industries appear to rate projects on a carbon-integrity basis, rather than the overall, holistic integrity of the project. This means that environmental harm, social abuses, human rights impacts, or project-related wrongdoing have a high chance of being overlooked. Though surely whether a project inflicts harm is directly linked to how successful it is.

Furthermore, despite the frequent promotion of social benefits as one of the positive aspects of offset projects, many offset projects have been accused of harming local communities or Indigenous Peoples through their implementation and management.[209, 210, 211, 212, 213, 214, 215, 216]

How much more problematic would these projects become if potential harm spurred by the project were taken into account in project assessments? And how many more problematic projects would come to light? Why do industry frameworks to assess the VCM seemingly entirely overlook the principle of 'do no harm,' and what does this inherently imply about the structure of the VCM as a whole? Can a mechanism with such high evidence of inflicting or enabling harm for so many years be adequately safeguarded?

Why are we relying on a system that is inherently unjust to fix a crisis with inequity at its core?

Nearly all the 43 problematic projects featured in this research are located in the Global South, a trend that is generally characteristic of the VCM more broadly, according to data in the AlliedOffsets database. Global South countries have historically contributed the least to global greenhouse gas emissions,[217] yet it is these countries and communities that are already experiencing disproportionately greater impacts of the climate crisis. In addition to these impacts, they are now also shouldering the negative impacts associated with the bulk of these problematic projects—both localized impacts to communities or natural ecosystems that may be linked directly to the project, and also further indirect climate impacts that may be exacerbated by the lack of emissions reductions (or even increased emissions) the problematic projects correlate with.

Conversely, nearly all of the registries and standards and many of the verifiers are based in the Global North, which is consistent with a VCM industry whose headquarters are firmly situated in the Global North. These Global North-based actors of the VCM are benefitting off these problematic projects largely based in the Global South in a variety of ways.[218, 219, 220, 221, 222, 223] Though it is often suggested by VCM actors that these projects are good for these communities, previous research by Carbon Market Watch found that there is no evidence to suggest that "despite being headquartered in affluent countries, companies are passing on an appropriate share of revenues to the projects to finance implementation and generate local benefits."[224] How can a mechanism be considered a solution to the climate crisis if it deepens these inequities rather than addresses them?

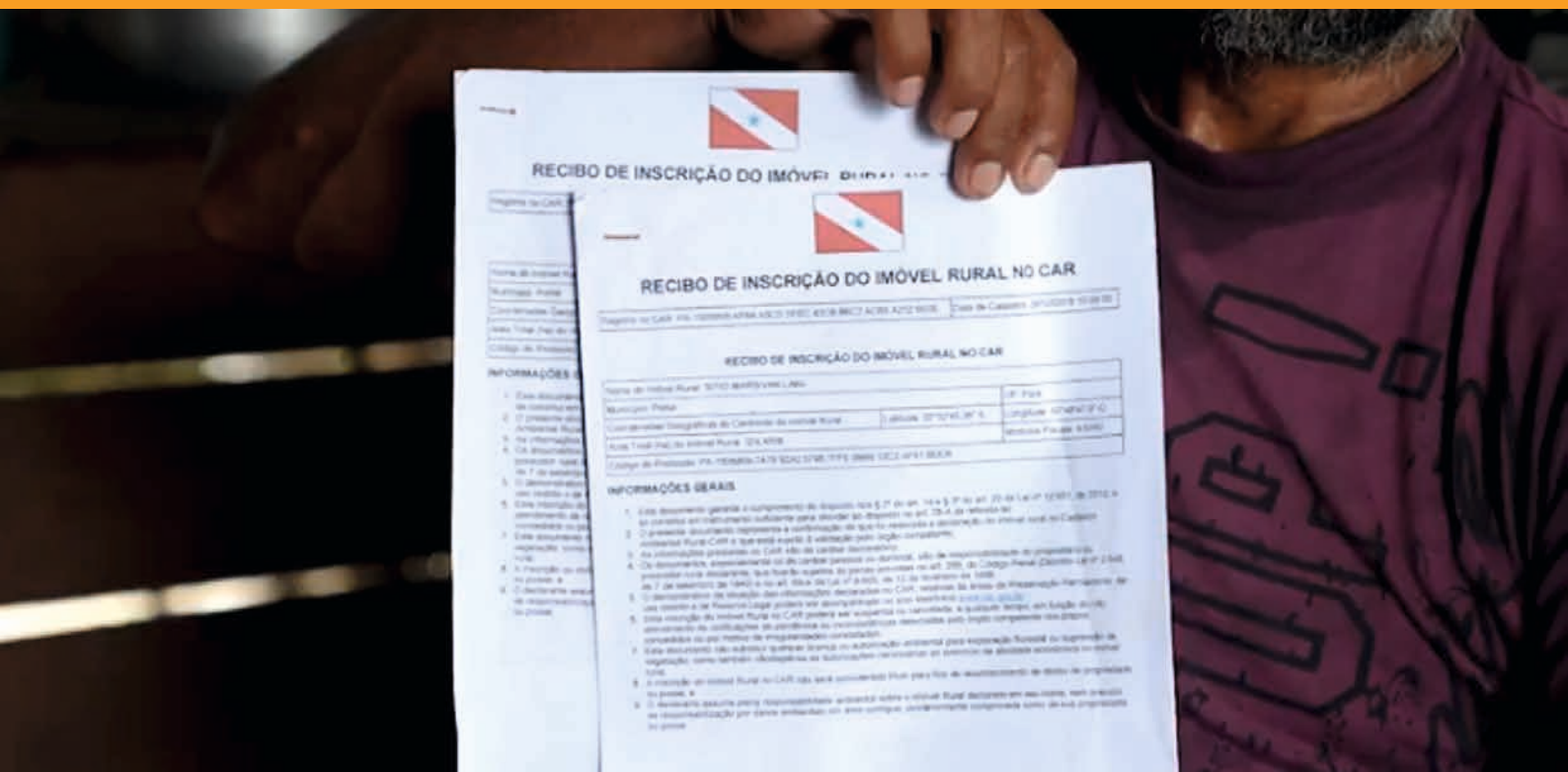
7. Conclusion: VCM 2.0 remains a liability frequented by problematic projects, problematic offsets and fundamental failures

More than 47.7 million problematic offsets, representing nearly a quarter of the entire VCM, were retired by 43 of the world's largest offset projects in 2024. All 37 of the problematic projects assessed on a deeper level have a legitimate to high risk of one or more fundamental failures that means they are not likely to deliver (see Glossary and Methodology). In sum, the problematic projects included in this analysis, which is based on industry assessments of these projects, cannot realistically be counted on to deliver the promised emissions reductions.

These findings—which apply a framework to VCM industry actors' own assessment of the top offset projects globally to help us understand how effective these projects are—shed a very worrisome light on how little may be changing in the VCM despite various reforms, updates to methodologies, and promised new standards or initiatives. The findings of this research suggest that the VCM continues to be much more likely to be contributing to climate action delay, rather than galvanizing and spurring it.

Perhaps the questions being asked are not fit for purpose in this moment. Instead, there should be a reckoning with the critical questions above. Perhaps the fundamental question isn't really how to fix something that has failed for as long as it has existed. Perhaps what we must be asking is why we are not diverting our political will, immense resources, and global resolve away from something that has failed for decades to deliver meaningful emissions reductions, and instead invest our collective commitment into real, just solutions that are more promising and proven, and that rise to the level of action so urgently needed in this moment.

Documentation from the "Fraud In the Amazon: companies use public lands as if they were private to sell carbon credits to multinational giants" investigation by G1. The investigation includes the *Pacajaj REDD project (Brazil)*, which was considered to have "very low likelihood of achieving" promised emissions reductions by BeZero, despite retiring over 2 million credits in 2024. Image by G1 (Taymã Carneiro, Isabel Seta, Giaccomo Voccio)



Annex 1: Glossary of key terms

Terms developed and applied to this research (in order of appearance):

- **Problematic project:** Projects that are assessed to have a limited likelihood of delivering the promised emission reductions. These projects have a BeZero rating of BBB-D, indicating a "moderate," "moderately low," "low," "very low," or "lowest" likelihood of "achieving 1 tonne of CO_2e avoidance or removal".
- **Problematic offset:** Offsets retired via problematic projects in 2024. Offsets retired through problematic projects cannot be relied upon to consistently lead to the promised emissions reductions.
- **Particularly unlikely to deliver:** A problematic project assessed to be highly risky and overall unlikely to deliver the promised emissions reductions. These projects have BeZero ratings indicating a "moderately low," "low," "very low," or "lowest" likelihood of "achieving 1 tonne of CO_2e avoidance or removal."
- **Fundamental failure:** a characteristic whose presence in a project significantly undermines the project's ability and likelihood of delivering the promised emissions reductions. Four fundamental failures were assessed in this research—non-additionality, non-permanence, leakage, and over-crediting (see definitions below).
- **Legitimate risk of a fundamental failure:** A fundamental failure that was given a score of 3-5 out of 5, indicating it was on the upper range of severity and likelihood of that failure both being present and undermining project delivery.
- **High risk of a fundamental failure:** A fundamental failure that was given a score of 4-5 out of 5, indicating it was on the outer extreme of severity and likelihood of that failure both being present and undermining project delivery.

General terms for reference (in alphabetical order):

Additionality / Non-additionality: A test of whether an offset project leads to new and additional GHG emissions reductions that would not have happened in its absence. For example, if the emissions reductions would have likely happened anyway, the credits are deemed "non-additional" and therefore lack environmental integrity or quality.

American Carbon Registry (ACR): A U.S.–based carbon-credit registry that develops project methodologies, approves projects, issues offset credits, and maintains a public ledger in the voluntary carbon market.

BeZero: A UK-based ratings agency that scores carbon offset projects using an AAA–D scale. Publicly available BeZero ratings, and detailed project risks assessments, were used as the primary reference point for this research to help understand VCM industry perspective on the effectiveness of the VCM.

Calyx Global: A US-based carbon credit ratings firm. Although this research does not cite specific ratings from Calyx Global, the report does cite its research regarding VCM-wide quality.

Carbon credit: A transferable certificate representing one metric tonne of verified CO_2 equivalent emissions avoided or removed. Credits are bought by companies, actors, or entities to "offset" their own emissions.

Carbon offset / offsetting: The practice of selling, purchasing, and retiring carbon credits with the aim of compensating or claiming the associated emissions reductions against an actors' own carbon footprint, rather than (or in addition to) directly reducing or avoiding emissions.

Clean Development Mechanism (CDM): A U.N. program under the Kyoto Protocol that allowed emission-reduction projects in developing countries to earn certified emission reductions tradable on international markets.

Climate Action Reserve (CAR): A US-based carbon offset registry that sets protocols, verifies projects, and issues credits for the voluntary market.

Credits retired / Retirement: The act of cancelling a carbon credit in a registry ledger so it cannot be re-sold; buyers retire credits to claim the associated emissions reducing benefit.

Gold Standard (GSR): A Switzerland-based standard that sets methodologies, verifies projects, issues credits for the voluntary market, and hosts the Gold Standard Impact registry.

Leakage: When emissions are at risk of simply being shifted from one place to another, rather than being reduced or avoided. In the case of leakage, emissions reductions achieved within an offset project boundary are negatively impacted or made redundant by an increase in emissions elsewhere, (e.g. logging activity shifting to another forest nearby).

Over-crediting: Issuing more carbon credits than the project actually delivers in real, additional, and permanent GHG emissions reductions, often due to incorrect baselines or methodological flaws.

Permanence / Non-permanence: The degree to which the emission reduction or removal is irreversible. For example, a forest offset lacks permanence if the forest might later burn or be cleared for logging.

Project proponent: The individual or entity that creates and manages a carbon-offset project, often preparing the paperwork for validation and verification, and applying to the standard body for credit issuance on the project's behalf. Proponents are often accountable for the project's integrity, monitoring and reporting.

Project verifier: An accredited auditor that checks whether a project meets the standard's methodology and criteria for effectiveness, both at the design and monitoring stages.

Reducing Emissions from Deforestation and Forest Degradation (REDD / REDD+): A mechanism aimed at creating financial value for the carbon stored in forests to incentivize conservation and sustainable management. Many REDD+ projects issue voluntary-market carbon credits.

Registry: The platform which hosts the data for the standard that sets offset methodologies, approves projects, issues unique serial-numbered credits, and records issuance, transfers, and retirements (e.g., Verra, ACR, CAR, Gold Standard).

Renoster: A US-based ratings agency that grades carbon-offset projects using a five-tier scale (Excellent to Poor) to indicate estimated environmental integrity.

Standard: The benchmark that determines the criteria for carbon offset projects. Standards (e.g. Voluntary Carbon Standard) are generally established by VCM non-profit organizations such as Verra, which also host a registry platform for projects accredited under their standard.

Sylvera: A UK-based carbon-credit ratings firm that provides letter grades (AAA–D) and analytics on project quality for investors and corporate buyers.

Voluntary Carbon Market (VCM): The marketplace where companies and individuals voluntarily buy and sell carbon credits outside mandatory compliance schemes to offset their emissions.

VCM industry: The network of actors, organizations, agencies, corporations, and other entities that collectively promote and advance the VCM, directly or indirectly enable the VCM, and/or are involved in the daily functioning of the VCM's various projects, standards, initiatives, or components.

VCM 2.0: Industry shorthand for the current, self-declared "reform" phase of the voluntary carbon market, marked by new integrity initiatives and higher-profile scrutiny following widespread criticism.

VCM 2.0 database- A database compiled by the researchers that served as basis for this analysis.

Verra: A US based and the world's largest carbon-credit standard and registry, administrator of the Verified Carbon Standard (VCS).

Annex 2: Methodology

This research deployed a mixed methods approach—combining qualitative content analysis with quantitative coding using quantitative Voluntary Carbon Market (VCM) data, descriptive textual assessments of VCM projects by ratings agencies, and qualitative case study information into comparable data so trends and themes could then be assessed. In addition to quantitative analysis of already existing data, this study used a combination of content analysis[225] and semi-quantitative risk assessment[226] to establish an ordinal severity scale. Similar methods have been applied across diverse scientific disciplines to help assess situational risk and to help compare qualitative data quantitatively. Arenas where such an approach has been applied range from public health research[227, 228] to environmental and natural disaster management[229, 230] as well as ESG and corporate environmental responsibility.[231, 232]

Part 1: Determining the top 100 VCM projects for 2024

First, all available data for the top 100 carbon offset projects in the VCM—by number of credits retired from January 1, 2024-December 31, 2024—was downloaded via a subscription to AlliedOffsets Database (AOD).[233] The AOD data used for this analysis was downloaded in February 2025. Because AOD is described as "the most comprehensive dataset on carbon offsetting activity globally,[234] it was treated as a nigh-exhaustive overview of the VCM for these research purposes.

Using AOD, all of the projects that had been rated by BeZero[235] Sylvera,[236] or Renoster[237] ratings agencies were filtered for and then downloaded and matched with the top 100 projects list. This led to the creation of a new database – titled the 'VCM 2.0 database' – that formed the basis for this research. Ratings for BeZero and Sylvera follow the scale used by S&P[238] and Moody's,[239] which is AAA-D (*AAA, AA, A, BBB, BB, B, C, D*), an *eight-point scale where* projects rated AAA have the "highest likelihood of achieving 1 tonne of CO_2e avoidance or removal", projects rated BBB have a "moderate likelihood", and projects rated D have the "lowest likelihood." Renoster's rating is tiered by *Poor, Suspect, Neutral, Good and Excellent* ratings.[240] In all three cases, no further details on project quality were provided in AOD beyond the industry ratings.

Part 2: Creating a database of BeZero-rated projects in the top 100

For the purposes of this assessment, projects with BeZero ratings were the focus of the quantitative analysis. This helped understand the VCM industry's own assessment of performance consistently from one industry actor. BeZero's ratings were used for multiple reasons: 1) at the time of research, they provided mostly publicly available ratings and detailed project risk assessments for the majority of their ratings, which most other ratings agencies do not do; 2) they are considered across the VCM as one of the most reputable ratings agencies;[241, 242] 3) they have rated over 500 projects which, at the time of research, appeared to be more than what Renoster or Sylvera had rated; 4) they claim to take steps to protect their independence and minimize vested interests;[243] and 5) they provided a focused assessment point through which it was possible to assess VCM industry perspectives, helping to minimizing bias.

VCM industry claims around VCM reform and the "VCM 2.0" reinforced the need to look at these projects and their likelihood of success specifically through the lens of a VCM industry actor like BeZero, which promotes and supports VCM growth while assessing its current performance.[244, 245, 246, 247, 248] That said, the use of BeZero's ratings for the purposes of this research is in not an endorsement of its platform, methodology, or approach. In addition, there are limitations inherent in any existing VCM industry ratings agencies (see Discussion).[249]

In total, 47 of the top 100 projects had BeZero ratings in AOD. Using the free and publicly available BeZero platform, each BeZero-rated project in the top 100 per AOD was manually searched for by project ID. BeZero's assessment for these projects were then downloaded from the BeZero portal between February 15 and April 15, 2025, and matched with the AOD top 100 projects.

While all 47 projects included in Part 2 of the research contained a BeZero letter project rating (ranging from AAA-D), only 37 projects also contained publicly available detailed risk assessments sharing BeZero's findings that justified the rating. These project risk assessments were added to the VCM 2.0 database. Ratings on the project description were also cross-checked with what was downloaded from AOD to ensure all ratings were accurate.

Part 3: General assessment of BeZero-rated projects to determine "problematic" projects

According to BeZero's methodology, projects with a BeZero rating of BBB had a "moderate" likelihood of achieving 1 tonne of CO_2e avoidance or removal, BB "moderately low," B "low," C "very low," and D "lowest" likelihoods. Full details of the BeZero rating scale and methodology can be found online at BeZero's website.[250]

A fundamental purpose of the VCM is to ensure that compensation of emissions happens. If a project cannot ensure this, it is unable to confidently achieve 1 tonne of CO_2e avoidance or removal per credit. Therefore, there needs to be at the very minimum a good or strong likelihood of certainty that the project can fulfil its purpose, for it not to be considered problematic. A problematic project is ultimately a project that is not certain to be successful.

A project with "moderate likelihood of achieving 1 tonne of CO_2e avoidance or removal" is not necessarily clearly good nor bad, but such a lack of certainty towards success is enough to qualify it as problematic. For this reason, this research qualifies projects with a BeZero rating of BBB or below ("moderate likelihood" or "moderately low", "low", "very low", or "lowest" likelihood of "achieving 1 tonne of CO_2e avoidance or removal"), to be problematic projects. Projects with these ratings are unable to ensure that compensation of emissions actually happens. Offsets retired through problematic projects are logically also considered problematic offsets.

Part 4: Granular assessment of fundamental failures within BeZero-rated projects

Out of the 47 BeZero-rated projects from the top 100 projects in 2024 by credits retired, 37 of these contained BeZero's publicly available detailed risk assessment. These assessments were analyzed to better understand which characteristics determined project performance. This descriptive text focuses on four of the core risks that largely define integrity (or lack thereof) across carbon offset projects: *non-additionality, non-permanence, over-crediting, and leakage.*[251, 252] A carbon offset project with integrity needs to avoid all four of these risks with high certainty. Consequently, a project which contains just one of these risks cannot ensure it can achieve 1 tonne of CO_2e avoidance or removal per credit. For the purposes of this research, such failure is called a "fundamental failure." This is on the basis that a project cannot realistically be guaranteed to deliver 1 tonne of CO_2e avoidance or removal per credit if there is one or more of these risks likely present.

Each of the 37 BeZero detailed project risk assessments were analyzed to identify evaluative statements relating to the risk or presence of these four fundamental failures (e.g., "high risk of non-additionality," "minor concern for leakage," "notable permanence," etc.). In total, 24 evaluative terms ranging from "high", "strong", and "significant" to "notable", "moderate", and "minor" were found across the BeZero descriptive assessments for the 37 projects included in this phase (a full list of these terms is included below).

BeZero's descriptive text contains two distinct types of evaluative terminology:

Type 1: The first were evaluative terms used to describe the *likelihood of a particular fundamental failure* (e.g. project "has *major* additionality *risks*", or "*minimal* over-crediting *risk*"). This type was categorized as the "risk of fundamental failures" type. This type contained 18 evaluative terms across the 37 project risk assessments.

Type 2: The second were evaluative terms used to describe the *level of certainty of a positive characteristic* (e.g. "project B *has strong additionality*," or "*low* likelihood of over-crediting"). This type was categorized as the "presence of fundamental elements type." This type contained 6 evaluative terms across the project risk assessments.

Once the two types of evaluative terms were established, (risk of vs. presence of), the terms were organized into a hierarchy of severity within each group. This order captures the gradient of risk implied by BeZero's language, based on how that language is consistently used across the BeZero assessments as well as the Oxford English Dictionary definitions of these terms.

Multiple criteria were used to determine the range of a numerical scale which each term would then be mapped to. This included a belief that the numerical scale should: 1) adequately encompass the diversity of 24 terms across the two distinct types; 2) be differentiated enough to capture the nuances, granularity and differences of terms used; and 3) be focused enough so that terms that had similar meanings or levels of severity were grouped together. An iterative process led to the establishment of a 0-5-point scale, which each term for both distinct categories was mapped to.

In cases where multiple variations of an evaluative term was used, these terms were sequenced in the coding in order of low to high severity or strength to help assign the best numerical value. For example, "very low risk of permanence," "low risk of permanence", "lower risk of permanence" are all used to assess the level of risk of a fundamental failing. Based on the premise that a project with a "significant non-permanence risk" qualifies as a 5, "*risk* of non-permanence" qualifies as a 4, "lower risk of permanence" a score of 3, "low risk of permanence" a score of 2, and a "very low risk of permanence" was given the lower score of 1. Despite the interpretative nature of this phase, various separate and iterative mapping processes for each evaluative term were conducted in order to land on a common framework for the study. The following words below are an exhaustive list of all the evaluative terms across both type 1 and type 2 used to describe project performance within BeZero's detailed risk assessments. For both types 1 and 2, a higher number indicates a higher risk of a fundamental failure.

Coding- Type 1: Risk of Fundamental Failures

Ranking (Risk of...non-additionality, leakage, over-crediting, etc.)						**# Assigned**	**Risk likelihood**
High	*Major*	*Significant*				**5**	**High**
Risk	*Notable*	*Some*				**4**	**High**
Potential	*May*	*Lower*	*Hindering*			**3**	**Moderate**
Little	*Minimal*	*Limited*	*Limit*	*Minor*	*Low*	**2**	**Low**
Very low						**1**	**Low**
No						**0**	**None**

Coding- Type 2: Presence of Fundamental Elements

Ranking (Presence of... permanence, additionality, etc.)			**# Assigned**	**Risk likelihood**
Weak	*Low*	*Non-(additional)*	**5**	**High**
			4	**High**
Moderate			**3**	**Moderate**
			2	**Low**
High	*Strong*		**1**	**Low**
			0	**No**

Once BeZero's terminology was coded, each project containing detailed project risk assessments was assigned various numerical values for each of the four fundamental failings/elements in the VCM 2.0 Database. These values were then analyzed comparatively, not to determine absolute "scores" but rather to help assess the presence of and patterns of fundamental failures across the projects.

As a secondary step in this process, fundamental failures that had a numerical value of 0 were categorized as "no" likelihood of risk; 1-2 were categorized as "low" likelihood; 3 was categorized as "moderate" likelihood, and values of 4-5 were categorized as "high" likelihood. This allowed for quantitative analysis of trends of not only the number and types of fundamental failures that were likely to be present across projects, but also the severity of their presence.

Part 5: Qualitative case assessment of VCM projects

Finally, qualitative case assessments were then conducted for 19 projects, using both publicly available information such as existing investigations or reports, or assessing project documentation from registry websites. Given the complexity of verifying integrity claims in the VCM, sampling priority for these case assessments was given to projects with existing publicly available information or reports. Whenever possible, the projects were selected across a range of geographies, registries, and project types/sectors to ensure diversity and thorough presentation of qualitative findings.

Part 6: External peer research review

Prior to publication, the research was independently reviewed by two external experts and one internal expert who have extensive experience and expertise in the study's research topic. Feedback was carefully considered and integrated.

Assumptions & Limitations

The main assumptions made in this research are 1) that AOD data is up to date and accurate, including in terms of credits retired and projects rated by ratings agencies (though BeZero ratings were cross-checked with the BeZero database); 2) that BeZero has applied rating terms consistently in its descriptive text and in line with broader carbon market research; 3) that the publicly available descriptive texts sufficiently capture BeZero's reasoning and risk assessment; 4) that BeZero's assessments are not influenced by financial, political, or institutional interest which may skew evaluations in favor of particular project types, geographies, or stakeholders, and 5) the methodology used by BeZero and AOD are consistent.

In terms of limitations, analyzing and interpreting BeZero descriptive text requires a level of individual interpretation. The researchers have minimized potential bias through the coding system described above, consulting dictionary definitions of terminology to ensure objective interpretations, and by aiming to be conservative in our approach to assessing risk. In addition, VCM data is particularly opaque and frequently only accessed through restricted means. In this case, the research was focused on information in the public domain.

Furthermore, it is likely that this research largely underestimates the number of problematic projects present in the top 100 offset projects in 2024, as well as the presence of fundamental failures. This is for multiple reasons, including:

- A conservative approach was deployed to ensure a high level of confidence in the results.
- Only BeZero rated projects were used for the quantitative analysis, for consistency and for reasons explained above. This automatically excluded 43 of the top 100 projects from the quantitative analysis. For the fundamental failings analysis, BeZero has also increasingly transitioned to making less of the project descriptions publicly available, meaning that only 37 of the 43 problematic projects had publicly accessible descriptive project assessments at the time of research, further limiting the findings.
- Publicly available information about the voluntary carbon market and offset projects are generally limited. The voluntary carbon market is generally very opaque and sparse, making it difficult to access the data that would allow for even deeper analysis and understanding.

Communicating directly with the actors listed in this publication was outside the scope of this research and, in our experience working with a multitude of civil society allies, is not common, standardized practice for civil society writ-large, though we do encourage any press covering this research to do so. We also welcome those listed in this publication to share with us any information or evidence that can clarify exactly how the efficacy and environmental integrity of these voluntary carbon market offsets are assured; or to provide verifiable information that sheds light on the questions and concerns posed in this research. The data and methodology to this study will be made public within this report and available online at Corporate Accountability's website.

Annex 3: Examples of independent studies and investigations by academics, experts, civil society and media exposing concerns about the VCM

**This list is non-exhaustive and mostly limited to research in English.*

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Built to fail?

WORLD'S LARGEST CARBON OFFSET PROJECTS
UNLIKELY TO DELIVER PROMISED EMISSIONS REDUCTIONS
DESPITE REFORMS

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