



**2023**  
**August**

## Compliance and Voluntary Carbon Markets – What Are the Fault Lines?



Sustainability Research Paper

The Al-Attiyah Foundation



The Al-Attiyah Foundation is proudly supported by:



A carbon credit is a tradable unit that represents one metric tonne of real, additional, and permanent greenhouse gas emission reductions or removals issued by a carbon crediting programme and recorded in a carbon registry. Compliance and voluntary carbon credit markets can accelerate global climate efforts by mobilising finance for additional and ambitious climate action. Ensuring the integrity of carbon credits and their use is the key to unlocking the potential of these markets. What is the role of carbon credits in global climate efforts and how can they be used voluntarily and for compliance? What are the key fault lines or concerns relating to the integrity of carbon credits, their use, and related claims, and how can they be addressed?

## SUSTAINABILITY RESEARCH PAPER

This research paper is part of a 12-month series published by the Al-Attiyah Foundation every year. Each in-depth research paper focuses on a current sustainability topic that is of interest to the Foundation's members and partners. The 12 technical papers are distributed to members, partners, and universities, as well as made available on the Foundation's website.





- Compliance and voluntary carbon credit markets can accelerate global climate efforts by mobilising finance for additional and ambitious climate action. Ensuring the integrity of carbon credits and their use is the key to unlocking the potential of these markets.
- A carbon credit is a tradable unit that represents one metric tonne of real, additional, and permanent greenhouse gas emission reductions or removals issued by a carbon crediting programme and recorded in a carbon registry.
- Ensuring the integrity of carbon credits means that all carbon credits should meet well-established criteria relating to environmental integrity, designed to ensure additionality and accurate quantification of the mitigation benefit. Their generation should also not cause environmental or social harm. However, in practice, there are many carbon credits in the markets that do not fulfil all criteria.
- Ensuring the integrity of carbon credit use means that carbon credit use should, at the very least, not undermine ambition, and ideally, enable higher ambition. The use of carbon credits should not be an excuse to avoid reducing own emissions, but rather in a complimentary manner for unavoidable emissions.
- Efforts to promote the integrity of carbon credit markets have been ongoing throughout their existence. Such efforts range from the elaboration of carbon market rules under Article 6 of the Paris Agreement to frameworks for voluntary carbon markets on high-integrity carbon credits and related claims.
- Key initiatives for promoting the integrity of voluntary carbon markets include the Integrity Council for the Voluntary Carbon Market (ICVCM), Voluntary Carbon Markets Integrity initiative (VCMI) and Science-Based Targets initiative (SBTi).

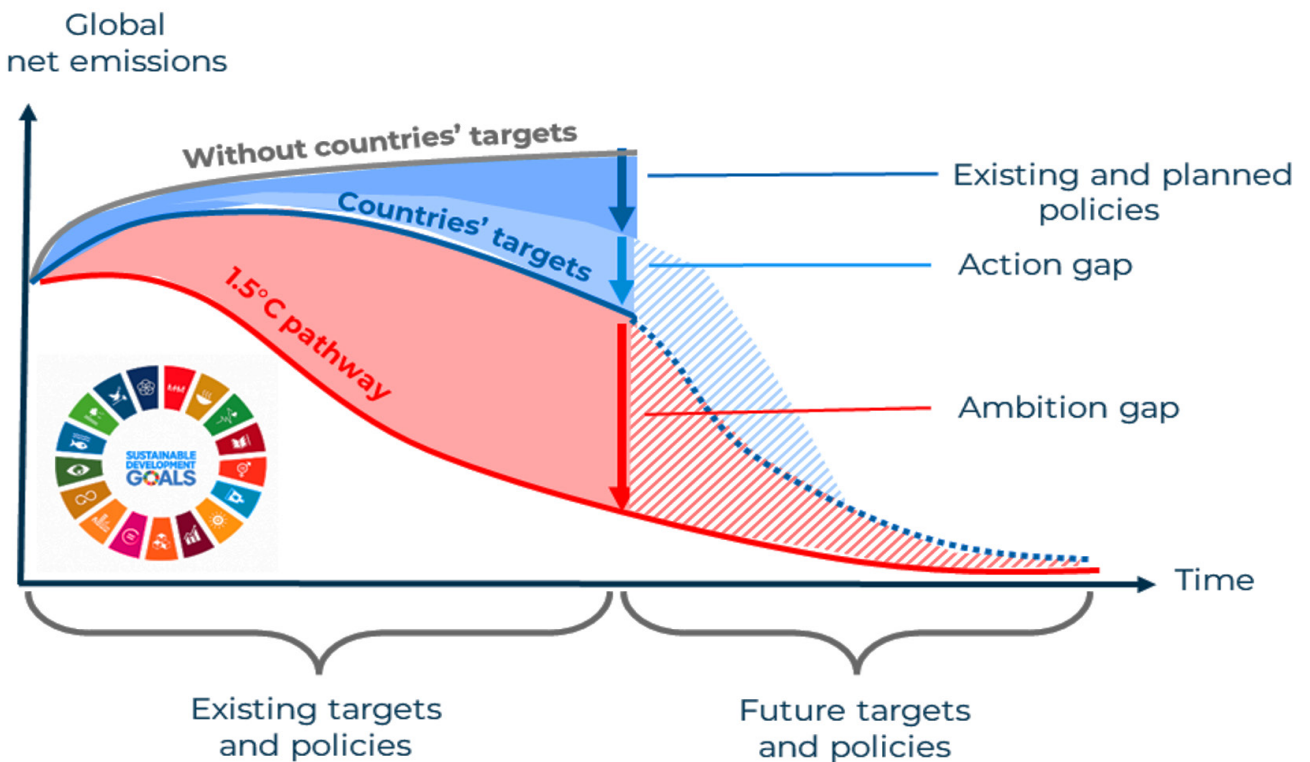


Under the Paris Agreement, countries set a collective goal to collectively limit warming to 1.5°C<sup>1</sup>. This requires halving global greenhouse gas emissions by 2030 and balancing emissions with removals around 2050. However, countries' current climate targets and policies are critically insufficient<sup>2</sup>. There is an urgent need to close the "ambition gap" between existing targets and the 1.5-degree pathway, as well as the "action gap" between existing policies and additional action needed to meet the targets (see Figure 1). Carbon markets can mobilise finance for additional mitigation action by countries and non-state actors across the world. Buying carbon credits is one way for public and private entities to support additional emissions reductions or removals (mitigation outcomes) that are implemented elsewhere by others. Using carbon credits can enhance the cost-effectiveness and flexibility of meeting targets and enable buyers to commit to supporting

more mitigation than would be possible with own action alone. Compliance buyers can use carbon credits to meet part of their mitigation targets while voluntary buyers can use carbon credits to voluntarily support mitigation beyond their value chains.

For carbon markets to truly contribute to global climate action, they must have high environmental and social integrity. This means that carbon credits should represent real and additional mitigation and be used responsibly to complement, rather than substitute, other mitigation efforts. Furthermore, their generation should also deliver sustainable development co-benefits, or at the very least, do no harm. Otherwise, carbon markets may make it harder, rather than easier, to meet our global climate and sustainable development goals<sup>4</sup>.

Figure 1: Action and ambition gaps. Source: Ahonen et al. 2023<sup>3</sup>





Throughout the existence of carbon credit markets, there have been concerns about the integrity of carbon credits and their use, as well as ongoing efforts to address these concerns. Key concerns include the inconsistent quality of carbon credits, negative environmental and social impacts associated with some carbon credits, and the use of carbon credits for greenwashing and avoiding own action. In the compliance space, international, regional, or national entities are responsible for ensuring environmental integrity and supervising the generation and use of carbon credits.

By contrast, the voluntary carbon markets are currently not supervised or regulated. Private programmes issue carbon credits in accordance with their own criteria and procedures, and non-state actors buy, and use carbon credits based on their voluntary goals and strategies.

This paper will explain how carbon credits are generated and how they may be used for compliance and voluntary purposes. It will identify the concerns and fault lines relating to carbon markets and discuss how these concerns may be addressed.



## What Is a Carbon Credit?

A carbon credit is a tradable unit that should represent one metric tonne of real, additional, and permanent greenhouse gas emission reductions or enhancement of removals ("mitigation outcomes")<sup>5</sup>. Carbon credits should meet well-established criteria to ensure their environmental integrity i.e., demonstrating additionality, robust baseline setting and monitoring and reporting of emissions, emission reductions and removals, addressing non-permanence and leakage, encouraging independent third-party verification, avoiding double counting and ensuring environmental and social safeguards are applied<sup>6</sup>.

## How is a Carbon Credit Created?

The first step in creating a carbon credit is designing an activity that aims to reduce emissions or enhance removals, for example by generating renewable energy, managing waste, planting, or protection forests, or promoting more efficient appliances, in line with the criteria of a carbon crediting programme. There are various carbon crediting programmes that register activities and issue carbon credits for realised, monitored, and verified mitigation outcomes. Each carbon credit is uniquely serialised and recorded in a carbon registry. Carbon crediting programmes apply similar criteria but differ in their approaches, geographic and technological scope, and governance. Programmes may be governed by an international body (e.g., the Kyoto Protocol's Clean Development Mechanism (CDM) and the Paris Agreement's Article 6.4 Mechanism (A6.4M)), a national entity (e.g., Japan's Joint Crediting Mechanism and Thailand's Voluntary Emission Reduction Programme), or a non-state entity (e.g., the Verified Carbon Standard (VCS), Gold Standard for Global Goals (GS4GG),

and the Global Carbon Council). In general, internationally governed programmes cater for compliance markets while programmes governed by non-state actors issue carbon credits mainly for voluntary markets. Carbon credits issued by different programmes have different names. For example, carbon credits issued under the CDM are called Certified Emission Reductions (CERs) while carbon credits issued under the Verified Carbon Standard are called Verified Carbon Units (VCUs).

## Are There Differences Between Carbon Credits?

While all carbon credits should each represent one additional tonne of mitigation, they can differ in terms of other attributes, such as the crediting programme used, host country, activity type, year of generation, sustainable development co-benefits, whether they represent emission reductions or removals, and whether they are authorised by the host country under Article 6 of the Paris Agreement. These attributes can influence the perceived integrity of carbon credits as well as their eligibility for compliance uses, which, in turn, have an impact on their price and demand. The criteria for compliance use are decided by the regulator of the compliance scheme in question, often limiting eligibility to specific host countries, activity types and crediting programmes.

## What Are the Provisions in the Paris Agreement for Carbon Credits?

The Paris Agreement's Article 6 establishes an international carbon crediting programme (A6.4M) as well as international rules for cooperation based on Internationally Transferred Mitigation Outcomes (ITMOs).



Once operational, the A6.4M will issue carbon credits, called Article 6.4 Emission Reductions (A6.4ERs), for mitigation outcomes that meet its criteria. The mechanism's criteria and procedures are currently being developed by its international supervisory body, drawing on the experiences from the CDM and other carbon crediting programmes. A6.4ERs and other types of carbon credits can be used for international compliance if they are authorised by the host country as ITMOs under Article 6.2. The host country is responsible for ensuring the environmental integrity of these ITMOs and avoid their double counting by applying corresponding adjustments to its emissions balance, in accordance with Article 6.2 rules. A corresponding adjustment means that the host country does not count the mitigation towards its own NDC, thus making it available for unique use by the buyer. Participating countries must set up national criteria and procedures to ensure environmental integrity and track, record, and report ITMO-related information, such as authorisations, transfers, corresponding adjustments, and use.

## How Can Carbon Credits Be Used?

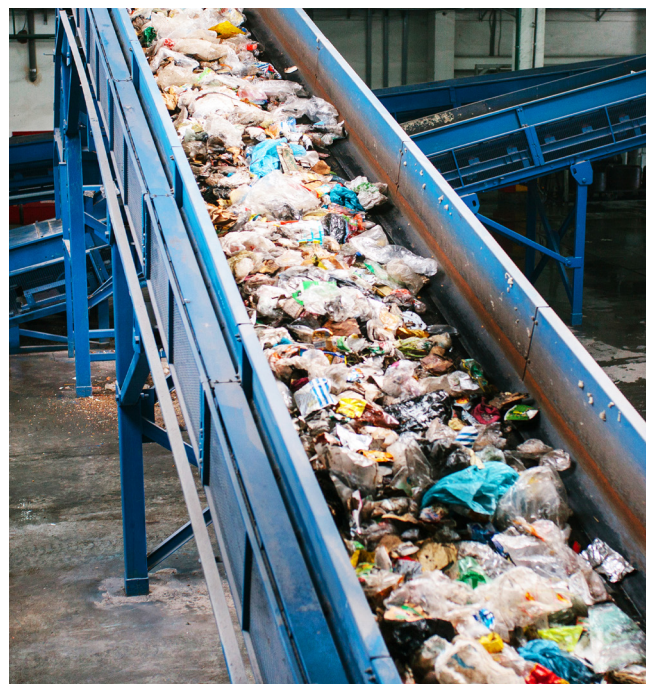
### Compliance Markets

Compliance markets refer to the trading of carbon credits that are used for compliance, for example by (non-host) countries towards their NDC, by airlines under the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) or by non-state entities to comply with domestic emissions trading systems or carbon taxes. Only carbon credits that meet eligibility criteria, set by the regulator, can be used for compliance. Domestic schemes often accept only domestic carbon credits. One exception is the legal

obligation of Swiss motor fuel importers to offset part of the Swiss transport sector emissions with ITMOs from other countries<sup>7</sup>.

### Voluntary Markets

Voluntary markets cater for voluntary buyers of carbon credits. Voluntary buyers are interested in various types of carbon credits, including but not limited to those eligible for compliance. Buyers "use" carbon credits by voluntarily cancelling them in a registry, which prevents them from being used more than once. Traditionally, voluntary buyers have used carbon credits to offset (counterbalance) emissions related to their operations, products, or services, and make related claims about carbon neutrality. In the Paris era, offsetting and carbon neutrality claims are being increasingly criticised, and alternative uses and claims have emerged. One option that is gaining traction is the voluntary purchase and use of carbon credits to support mitigation beyond the buyer's own value chain, without claiming that the buyer's emissions are offset as a result.





### Box 1: Evolution of Carbon Markets

Carbon markets developed over 20 years ago with the emergence of the Kyoto Protocol and its two carbon crediting mechanisms: CDM for mitigation activities in (developing) countries without targets and Joint Implementation (JI) for mitigation in countries with targets. Credits from both mechanisms could be used by countries to comply with their Kyoto targets. They were also accepted for compliance under the emissions trading systems of the European Union and New Zealand. CDM credits are also accepted for compliance under the Korean emission trading system and the first phase of CORSIA, while domestic CDM credits are eligible under the South African and Colombian carbon tax schemes.

Voluntary markets emerged in parallel with the Kyoto compliance markets. Before the Paris Agreement, voluntary markets focused on carbon credits generated in countries without internationally agreed climate targets and buyers that were not obliged to reduce emissions. These carbon credits represented mitigation beyond national targets and were typically used for offsetting carbon footprints and making related carbon neutrality claims. Double claiming with national targets was avoided by focusing on countries without targets.

Over time, some carbon crediting programmes that were originally established to cater for voluntary carbon markets (e.g., VCS, GS4GG) have become eligible to generate carbon credits for compliance purposes. For example, credits issued under VCS and GS4GG are eligible under the first phase of CORSIA and, in case of domestic projects, also under the South African and Colombian carbon tax schemes. Furthermore, CDM credits that were originally designed for compliance use have been increasingly used also by voluntary buyers.

The Kyoto mechanisms have now been replaced by the Paris Agreement's A6.4M, and ITMOs authorised under Article 6.2 have become the new unit for international compliance. Like Kyoto credits, ITMOs can be used for also voluntary purposes.



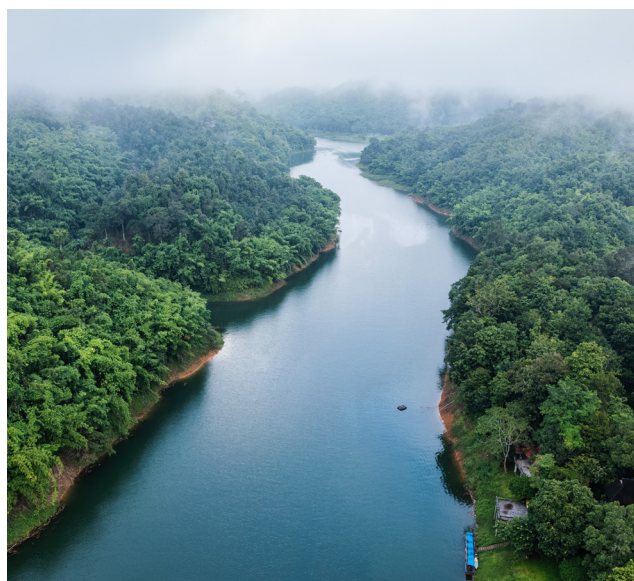
Throughout the existence of carbon markets, stakeholders and media have raised concerns over the integrity of carbon markets. In this section, we look at fault lines relating to the integrity of carbon credits, their use and voluntary claims based on carbon credits, as well as efforts to address these concerns.

### Integrity of Carbon Credits

The integrity of carbon credits is an overarching concern across compliance and voluntary markets, including concerns that carbon credits are issued based on mitigation outcomes that are overestimated, not additional or later reversed. Although the integrity criteria are well-established, it is challenging to consistently ensure their adherence in practice across a wide range of activity types that are implemented at different points in time in diverse national and local contexts. Key criteria, such as additionality and robust baselines, are notoriously difficult to demonstrate with full certainty, due to their complex, context-specific and counterfactual nature. Many nature-based activities, such as planting or protecting forests, have an inherent risk of reversal of mitigation outcomes, for example through illegal logging or forest fires. Land-based activities can also lead to conflicts with local communities, for example regarding land rights. Hence, there is a risk that carbon credits are of inconsistent quality and that a significant share of carbon credits does not fully meet the relevant minimum criteria. This erodes public trust in carbon markets and its ability to contribute to global mitigation efforts.

These concerns have been recognised since the early days of carbon markets, and there have been continuous efforts to address them.

Carbon crediting programmes regularly revise and develop new methodologies and guidance. Drawing on past experience, the A6.4M will elaborate international criteria and methodologies that can serve as a global benchmark and promote consistency across the compliance, and also voluntary, markets. The CORSIA eligibility criteria and assessment process can also promote consistency across carbon crediting programmes that seek to cater for CORSIA. In 2023, the Integrity Council for the Voluntary Carbon Market (ICVCM, see Box 2) raised the bar by launching a global threshold standard for high-integrity carbon credits, consisting of CORSIA requirements as well as additional ICVCM requirements. The Carbon Credit Quality Initiative (CCQI) has developed a free tool for scoring carbon credit integrity<sup>8</sup>. It is worth noting, however, that CORSIA, ICVCM and CCQI do not assess the integrity of carbon credits at the level of individual activities. Instead, their assessment is conducted at the level of carbon crediting programmes and activity type categories or methodologies. Activity-level assessment is done by carbon crediting programmes and specialised carbon rating agencies.







### Integrity of Carbon Credit Use

Another overarching fault line is the use of carbon credits in ways that undermine ambition. There are concerns that carbon credit buyers use credits to outsource mitigation to other countries instead of reducing their own emissions. Another concern is that ITMO sales could undermine the host country's ability to achieve its NDC and raise ambition over time.

In the Kyoto context, these concerns were at least partly addressed by requiring that the use of carbon credits was "supplemental" to domestic efforts<sup>9</sup>. The Paris Agreement does not refer to "supplementarity" but requires countries to enhance the ambition of their NDCs over time and explain how their NDC can be considered fair and ambitious. Although the Paris Agreement does not explicitly require carbon markets to be supplemental to domestic action, main buyers have made it clear that they will achieve their targets mainly through domestic actions<sup>10</sup>.

This is how the use of carbon market mechanisms allows them to set a more ambitious target that wouldn't be possible with domestic action alone. Host countries can safeguard the achievement of their NDCs by authorising ITMOs only for mitigation that is truly additional, not needed to achieve the NDC, fully reflected in the national greenhouse gas inventory, and within the scope of the NDC. They can also retain part of the mitigation from ITMO-generating activities, for example through limited crediting periods or stringent baselines, to support NDC achievement and enhancement<sup>11</sup>.

In the voluntary context, companies can address this concern by showing that they are reducing their value chain emissions and using carbon credits only to complement their internal efforts, for example by committing to a net zero target under the Science-Based Targets initiative (SBTi).



The SBTi's Corporate Net-Zero Standard provides a framework for setting near- and long-term targets in line with the 1.5-degree goal of the Paris Agreement. It requires companies to reduce their value chain emissions in line with science, without carbon credits. This said, the SBTi strongly encourages companies to go above and beyond their science-based targets by supporting mitigation also beyond their value chains, including through carbon credits. The SBTi plans to publish guidance on beyond value chain mitigation by the end of 2023.

### **Integrity of Voluntary Climate Claims**

Last but not least is the risk of greenwashing. This issue is specific to the voluntary carbon markets, as it relates to the integrity of claims that companies make based on their voluntary use of carbon credits. Greenwashing means misleading consumers by giving false impressions about environmental impacts or benefits of, for example, an organisation or product. Some stakeholders have a general fear that carbon neutrality claims create a misconception that the organisation or product does not cause emissions, even when this is not the case and prevent consumers to make informed choices based on the company's or product's compatibility with a transition to net zero emissions. Others have identified specific issues that make carbon neutrality claims misleading: when made by a company that is not reducing its own emissions sufficiently, when covering only limited parts of the carbon footprint (e.g., excluding indirect emissions), when based on low-quality (e.g., non-additional) carbon credits, and/or when based on mitigation that is also counted towards the host country's target (i.e., double claiming).

There is ongoing debate on whether double claiming should be avoided between host country NDCs and voluntary claims. Proponents argue that avoiding double claiming is important for the credibility and clarity of claims. They note that voluntary offsetting has always been based on mitigation beyond national targets. In the pre-Paris era, voluntary markets avoided double claiming by focusing on carbon credits from countries without targets, which could be uniquely claimed for voluntary offsetting by the buyer. In the Paris era, all countries have targets and thus, an increasing share of carbon credits represent mitigation that counts towards the host country's NDC, unless the host country grants an ITMO authorisation and makes a corresponding adjustment.

From 2021 onwards, double claiming can be avoided by using carbon credits that represent mitigation beyond NDCs (e.g., ITMOs) for voluntary offsetting (and related carbon neutrality claims), and carbon credits associated with mitigation that counts towards NDCs for contribution claims. Contribution claims mean that the company has contributed to global mitigation efforts by supporting additional mitigation, but the company does not claim that emissions have been counterbalanced as a result<sup>12</sup>.

Claims are regulated under national consumer protection laws. At the regional level, the European Union is debating carbon neutrality claims as part of the ongoing revision of its anti-greenwashing legislation. In many countries, carbon neutrality claims are being scrutinised and guidance developed. For example, the Finnish guide on good practices for voluntary carbon markets and

the Nordic Code of Best Practice for the Voluntary Use of Carbon Credits provide recommendations for credible claims, including avoiding double claiming. Some countries, such as Peru, Thailand, and Australia, have developed domestic labelling schemes for carbon neutrality. In the Kyoto era, New Zealand had a national procedure to avoid double claiming between the national target and voluntary offsetting based on domestic carbon credits. A key independent initiative relating to voluntary claims is the Voluntary Carbon Market Integrity Initiative (VCMI)' which launched its Claims Code in June 2023. It provides guidance for companies for making credible claims based on carbon credits. Criteria for VCMI claims relate to greenhouse gas inventories, net-zero targets, the use of high-integrity carbon credits that meet ICVCM requirements and reporting. The VCMI claim represents a contribution claim. Meanwhile, the International Standard Organization (ISO) is developing a standard for carbon neutrality (ISO 14068)<sup>13</sup>.

### **Box 2: The Example of the ICVCM**

The ICVCM is an independent governance body established in 2021 to develop and enforce a global threshold standard for high-integrity carbon credits that can efficiently mobilise finance towards urgent mitigation. In 2023, the ICVCM launched the Core Carbon Principles (CCPs), which define a 'high integrity' carbon credit, as well as a framework with detailed requirements for assessing carbon crediting programmes and categories of carbon credits (i.e., activity types) against the CCPs<sup>14</sup>. Each requirement includes areas for improvement for the next iteration of the Assessment

Framework, which will be published in 2025 and implemented the following year. Meanwhile, the ICVCM will work together with the VCMI to consider whether double counting with host country NDCs should be avoided.

The ICVCM requirements are based on those developed for CORSIA but include also additional criteria. There will be fast tracks for programmes that are already deemed eligible under CORSIA and for categories that have high likelihood of CCP-eligibility. The ICVCM has already deemed certain categories, such as unabated coal-fired electricity generation, incompatible with a global transition to net zero and thus ineligible for CCP-approval.

The ICVCM plans to issue the first CCP labels by the end of 2023. It is worth noting that ICVCM does not assess individual projects. Carbon credits receive a CCP label if they are issued by a CCP-eligible programme for a CCP-eligible category. Carbon credits can also be tagged for additional attributes, such as authorisation under Article 6 and verified sustainable development co-benefits. Existing carbon credits may also be assessed and labelled. However, since the majority of current methodologies do not fully meet CCP criteria, only a small share of existing credits is likely to be CCP eligible.

Although the ICVCM requirements leave room for interpretation and the actual level of stringency remains to be seen, they are a powerful tool for promoting consistency across carbon crediting programmes and enhance trust in the integrity of carbon credits.

Figure 2. The Core Carbon Principles. Source: ICVCM<sup>15</sup>

The compliance and voluntary markets for carbon credits can mobilise much-needed finance for accelerating climate action and supporting sustainable development. Trust is the key to unlocking their full potential. This includes ensuring that carbon credits represent real mitigation and are used responsibly. In practice, this is a challenging task, but there are many efforts ongoing to promote the integrity of carbon credits and prevent their use for greenwashing. If well-coordinated and ambitiously implemented, these efforts could result in the consistently high quality of carbon credits across voluntary and compliance markets, and a common set of credible and informative climate claims.

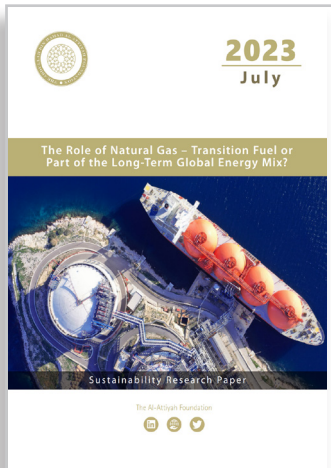


- 01- UNEP (2022): Emissions Gap Report (EGR) 2022: The Closing Window – Climate crisis calls for rapid transformation of societies, <https://www.unep.org/resources/emissions-gap-report-2022> (accessed August 21, 2023)
- 02- Climate Action Tracker (2022): CAT Emissions Gap. <https://climateactiontracker.org/global/cat-emissions-gaps/> (accessed 23.8.2023)
- 03- Ahonen, Hanna-Mari; Inclan, Carolina; Kessler, Juliana; Singh, Aayushi (2023): Raising climate ambition with carbon credits: Exploring the roles and interplay of the voluntary carbon markets and Article 6 in contributing to the implementation of national climate targets and raising global ambition, [https://www.perspectives.cc/public/fileadmin/user\\_upload/SEA\\_Art6\\_VCM\\_interplay\\_DP\\_final\\_21.06.pdf](https://www.perspectives.cc/public/fileadmin/user_upload/SEA_Art6_VCM_interplay_DP_final_21.06.pdf) (accessed 21.08.2023).
- 04- Ahonen, Hanna-Mari; Inclan, Carolina; Kessler, Juliana; Singh, Aayushi (2023): Raising climate ambition with carbon credits: Exploring the roles and interplay of the voluntary carbon markets and Article 6 in contributing to the implementation of national climate targets and raising global ambition, [https://www.perspectives.cc/public/fileadmin/user\\_upload/SEA\\_Art6\\_VCM\\_interplay\\_DP\\_final\\_21.06.pdf](https://www.perspectives.cc/public/fileadmin/user_upload/SEA_Art6_VCM_interplay_DP_final_21.06.pdf) (accessed 21.08.2023).
- 05- ICVCM (2023): The Core Carbon Principles, Assessment Framework and Assessment Procedure, <https://icvcm.org/wp-content/uploads/2023/07/CCP-Book-R2-FINAL-26Jul23.pdf> (accessed 21.08.2023)
- 06- ICVCM (2023): The Core Carbon Principles, Assessment Framework and Assessment Procedure, <https://icvcm.org/wp-content/uploads/2023/07/CCP-Book-R2-FINAL-26Jul23.pdf> (accessed 21.08.2023)
- 07- KliK (n.d.): The KliK Foundation Programme, <https://www.international.klik.ch/en/programme?opened=1937> (accessed 23.8.2023)
- 08- CCQI (n.d.): The Carbon Credit Quality Initiative, <https://carboncreditquality.org/> (accessed 23.8.2023)
- 09- UNFCCC (2006): CDM Decisions, CMP.1, [https://cdm.unfccc.int/Reference/COPMOP/08a01\\_abbr.pdf](https://cdm.unfccc.int/Reference/COPMOP/08a01_abbr.pdf), (accessed 23.08.2023)
- 10- Government of New Zealand (2022): New Zealand's Nationally Determined Contribution, Ministry of the Environment, <https://environment.govt.nz/what-government-is-doing/areas-of-work/climate-change/nationally-determined-contribution/>, (accessed 24.8.2023)
- UNFCCC (2023) Initial report referred to in decision 2/CMA.3, annex, chapter IV.A (Initial report), [https://unfccc.int/sites/default/files/resource/230517\\_InitialReport\\_Switzerland.pdf](https://unfccc.int/sites/default/files/resource/230517_InitialReport_Switzerland.pdf) (accessed 24.08.2023)
- 11- Ahonen, Hanna-Mari; Inclan, Carolina; Kessler, Juliana; Singh, Aayushi (2023): Raising climate ambition with carbon credits: Exploring the roles and interplay of the voluntary carbon markets and Article 6 in contributing to the implementation of national climate targets and raising global ambition, [https://www.perspectives.cc/public/fileadmin/user\\_upload/SEA\\_Art6\\_VCM\\_interplay\\_DP\\_final\\_21.06.pdf](https://www.perspectives.cc/public/fileadmin/user_upload/SEA_Art6_VCM_interplay_DP_final_21.06.pdf) (accessed 21.08.2023).
- 12- Laine, Anna; Ahonen, Hanna-Mari; Pakkala, Anna; Laininen, Jenni; Kulovesi, Kati; Mäntylä, Iris (2023): Guide to good practices for voluntary carbon markets : Supporting voluntary mitigation action with carbon credits, <https://julkaisut.valtioneuvosto.fi/handle/10024/164732> (accessed 24.08.2023).
- 13- Bsi (n.d.): BS ISO 14068 Greenhouse gas management and related activities. Carbon neutrality, <https://standardsdevelopment.bsigroup.com/projects/2020-00508#/section> (accessed 21.08.2023).
- ICVCM (2023): CORE CARBON PRINCIPLES, ASSESSMENT FRAMEWORK AND ASSESSMENT PROCEDURE <https://icvcm.org/wp-content/uploads/2023/07/CCP-Book-R2-FINAL-26Jul23.pdf>
- 14- ICVCM (n.d.): The Core Carbon Principles, <https://icvcm.org/the-core-carbon-principles/> (accessed 23.08.2023)
- 15- ICVCM (n.d.): The Core Carbon Principles, <https://icvcm.org/the-core-carbon-principles/> (accessed 23.08.2023)

### Contributing Authors:

- Hanna-Mari Ahonen
- Lena Gründel
- Olivia Wallis
- Beatrice King

Have you missed a previous issue? All past issues of the Al-Attiyah Foundation's Research Series, both Energy and Sustainability Development, can be found on the Foundation's website at [www.abhafoundation.org/publications](http://www.abhafoundation.org/publications)



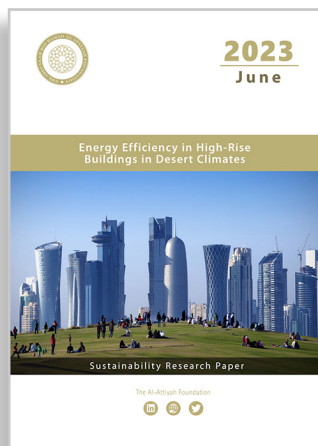
July – 2023

**The Role of Natural Gas – Transition Fuel or Part of the Long-Term Global Energy Mix?**

Natural gas has seen a rapid expansion since the 1970s as it has many attractive characteristics, including a low direct greenhouse gas emissions intensity. Many analysts have therefore seen it as a key “bridge fuel” to cushion the energy transition from coal and oil to renewables over the next decades.



(ORCO.DE)



June – 2023

**Energy Efficiency in High-Rise Buildings in Desert Climates**

The Gulf region has witnessed a significant increase in its number of skyscrapers over the past few decades. This trend of high-rise buildings in the Middle East can be mainly divided into two distinct phases.



(ORCO.DE)



May – 2023

**Green Hydrogen Opportunities for the Gulf Region**

Green hydrogen can help decarbonise hard-to-abate sectors like refinery, steel and heavy duty transport and the chemical industry. The Gulf region is well positioned to establish itself as a hydrogen hub as it has cheap and abundant renewable energy resources and is located in the vicinity of major hydrogen consumption centres like Europe and Asia.



(ORCO.DE)



Our partners collaborate with The Al-Attiyah Foundation on various projects and research within the themes of energy and sustainable development.









## The Al-Attiyah Foundation

 Tel: +(974) 4042 8000,  
Fax: +(974) 4042 8099  
 [www.abhafoundation.org](http://www.abhafoundation.org)

 Barzan Tower, 4th Floor,  
West Bay.  
 PO Box 1916 Doha, Qatar

 [AlAttiyahFndn](#)  
 [The Al-Attiyah Foundation](#)  
 [Al-Attiyah Foundation](#)