

Setting a Standard for GHG-Neutrality

How to improve the new ISO on carbon neutral organizations and products

1 Introduction

On November 30th 2023, the International Standard Organization (ISO) published a new standard on “carbon neutrality”¹ of organizations and products (ISO 2023). Against the background of an increasing number of GHG-neutrality or net zero claims² and a growing number of respective legal warnings, lawsuits and court decisions, some experts regard the new standard as a huge progress providing clarity to a complex issue, while others see them as a mere tool for green-washing.

This factsheet takes a look at this new ISO standard on “carbon neutrality”. First, however, it clarifies the different understandings of GHG neutrality, from the perspective of states and other territories on the one hand and of organizations and products on the other. Subsequently, it introduces the content of the new ISO standard, acknowledges its perception of corporate and product-related GHG neutrality and points out considerable shortcomings. Finally, it draws some conclusions. For a more comprehensive discussion of the standard and the issues connected, UBA plans a background paper on the issue.

2 Territorial and corporate/product-related GHG-neutrality

The Intergovernmental Panel on Climate Change defines GHG-neutrality as a condition in which the total amount of GHG emissions (sources) is balanced by the total amount of GHG removals (sinks) within a certain time period – usually a year (IPCC 2022). This definition - also referred to as net zero – primarily applies to states and other territorial entities. The method used to calculate national GHG inventories have to be in line with the UN Framework Convention on Climate Change (UNFCCC 1999) and according IPCC guidelines, they are based on the source and territory principle using official national statistics (see table 1).

Contrary to that, GHG-neutrality of an organization or a product addresses non- or sub-state entities³ and refers to a condition where the carbon footprint of the organization or a product (i.e. the difference of its GHG emissions and removals) is zero or offset by carbon credits on the voluntary carbon market. The method to quantify the carbon footprint is voluntary and based on private standards, such as ISO standards or the Greenhouse Gas Protocol. In principle, the carbon footprint includes indirect GHG emissions from the whole value chain and life cycle, i.e.

¹ While the standard uses “carbon neutrality”, this factsheet prefers the term “greenhouse gas-neutrality” or “greenhouse gas-neutral”. Both terms refer to the climate impact of anthropogenic emissions and removals of greenhouse gases (GHG), including those not based on carbon. However, it does not include other effects of human activities on the climate, such as changes in surface albedo.

² The term „net zero GHG emissions“ is also used by companies, However the IPCC refers this term to global and sub-global GHG emissions and removals within the direct control or territorial responsibility of the reporting entity (IPCC 2022).

³ Entities refers to organizations that are seeking to achieve GHG-neutrality for a subject.

upstream emissions from the supply chain and downstream emissions from the use of sold products. It is not restricted to a territory and based on private data. Including upstream and downstream emissions accepts an entity’s shared responsibility for GHG emissions of suppliers and customers, so a company can reduce their emissions according to its market position. On the other hand, indirect GHG emissions can neither be summed up to nor derived from a total GHG emission inventory of a state or a region.

As shown in Table 1, GHG-neutrality of states or other territories is very different from GHG-neutrality of organizations or products and, thus, should not be mixed up.

Table 1: Territorial and corporate/product-related GHG-neutrality

	GHG-neutrality of states and other territories	GHG-neutrality of organizations/products
Subject	Territories (e.g. state, region, municipality)	Organizations and products
Scope of the subject	Emissions and removals within a territory	Emissions and removals within the value chain (incl. up- and downstream process)
Definition	GHG emissions (sources) = GHG removals (sinks)	Carbon footprint – carbon credits = 0
Method	Mandatory (according to UNFCCC and IPCC guidelines)	Voluntary (according to private standards)
Principles	Territorial and source principle	Value chain and life cycle principle
Database	Official national statistics	Private data

3 The ISO Standard on “Carbon Neutrality”

3.1 Initial situation and process of the standard

It is no longer a trend, but a boom: more and more companies claim GHG-neutrality for their products and production processes. To date, legal regulation leaves a lot of leeway for companies to claim themselves and their product as GHG-neutral or equivalent climate related claims (for an overview of respective regulation in different countries see Kreibich et al. 2022). Some of these claims – e.g. by mineral oil companies, car manufacturers, airlines or food discounters – fuel the mistrust of environmental and consumer organizations, reflected by a growing number of legal warnings, lawsuits and respective court decisions. In fact, the many voluntary initiatives on GHG-neutrality use widely different terminology, definitions, approaches and criteria (Riedel et al. 2023). This leads to a great uncertainty among companies, consumers and courts how to measure and assess the integrity and credibility of such claims (UN High Level Expert Group 2022).

To provide clarity for relevant stakeholders from business, consumers, policy and academics, in 2020 ISO established an international working group⁴ to develop a standard on “carbon neutrality” until 2023. The standard should provide relevant definitions, principles, requirements and guidance on “carbon neutral” organizations and products. According to ISO rules, members of this working group are delegated by the respective mirror committees within the national standard bodies⁵, such as the DIN (Deutsches Institut für Normung) in Germany, which

⁴ ISO Working Group “Carbon Neutrality” (ISO/TC 207/SC 7/WG 15).

⁵ The German standard body DIN (Deutsche Institut für Normung) established the DIN-Arbeitskreis “Klimaneutralität” (NA 172-00-19-03 AK) as German mirror committee.

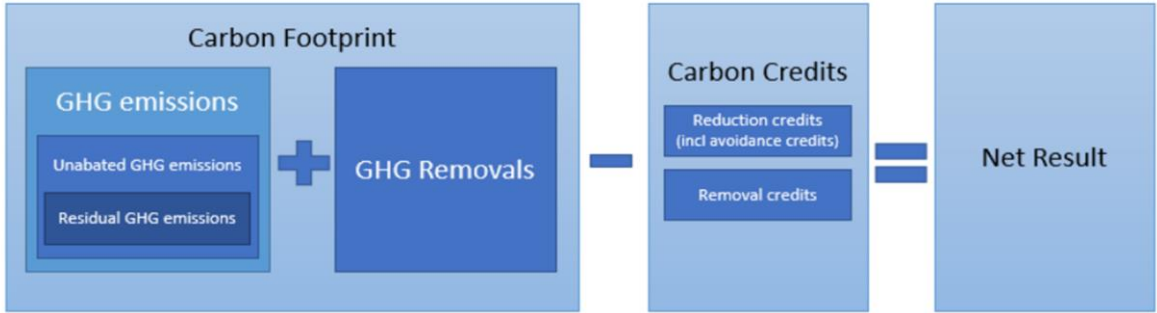
represent different stakeholder groups such as science, business and public authorities. More than 100 experts from 58 countries actively took part in one or several sessions of this working group, many more were involved in according national mirror committees. In summer 2023, they submitted a final draft (ISO 2023a) that was approved by national standard bodies according to ISO directives. The outcome of this process has been published on November 30th 2023 as the first international standard on “carbon neutrality” (ISO 2023). Only a few days earlier, the superior ISO committee decided to change the enumeration and title of the standard into ISO 14068-1: Climate Change Management – Transition to net zero - Part 1: Carbon Neutrality-1 (ISO 2023). This indicates that ISO plans further standards and guidelines on net zero.

3.2 Structure, approach and content of the standard

The introduction of ISO 14068-1 describes the standard’s relation to other standards and the “net zero” concept. Despite overlaps in content, the standard must not be confused with the ISO Net Zero Guidelines (ISO 2022), which do not have the status of an international standard and use different terms, definitions and principles. The scope (clause 1) states that “carbon” refers to all greenhouse gases, including those not based on carbon and clarifies that the standard “*is applicable to a wide range of subjects such as organizations (including companies, local authorities and financial institutions) and products (including services, events and buildings)*”, but explicitly not for states and other territories (such as regions or cities). The normative references (clause 2) state that the ISO standards on GHG quantification for organizations and products, e.g. ISO 14064-1, ISO 14064-3 and ISO 1467 (ISO 2019, 2019a, 2018), have to be met to comply.

Clause 3 provides relevant definitions and clause 4 basic principles. The standard’s approach described in clause 5 is that an entity that claims “carbon neutrality” for a subject – i.e. an organization or a product – first has to reduce the carbon footprint of this subject – i.e. the sum of its GHG emissions and GHG removals – and second offsets the remaining net emissions by carbon credits that meet certain criteria (see figure 1).

Figure 1: Concept of “Carbon Neutrality” according ISO 14068-1



Quelle: ISO 2023

The standard acknowledges a systematic approach with several steps the entity – e.g. a company – has to follow (see Figure 2). For each step, the standard provides a clause with specific requirements and recommendations. It starts with a commitment of an entity that it wants to become GHG-neutral or produce its products GHG-neutral (clause 6). The next step is that the entity selects the subject and its boundary in detail (clause 7).

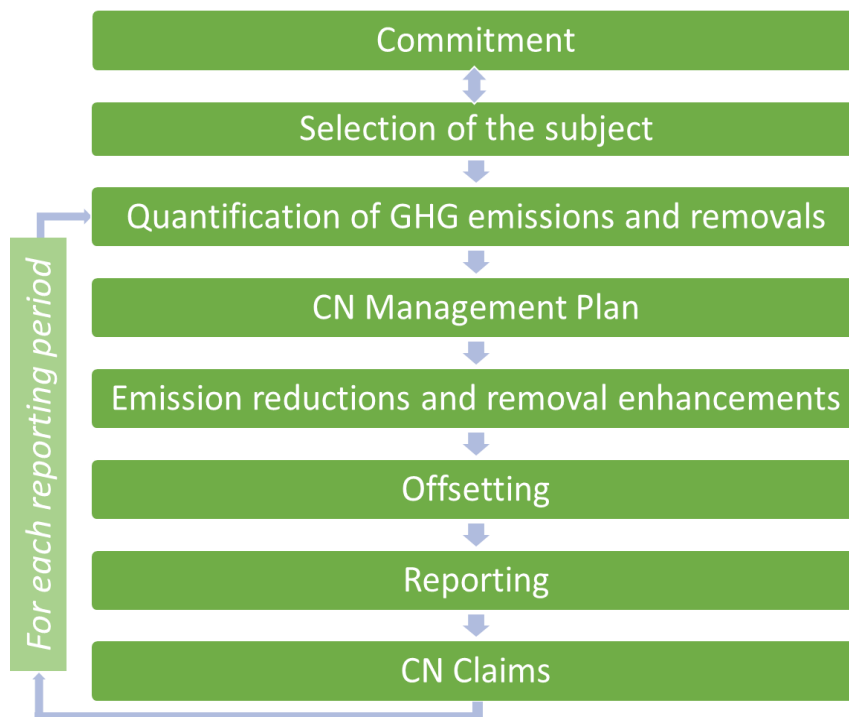
Further steps have to be done for each reporting period separately. It starts with the quantification of the subject’s GHG emissions and removals (clause 8) according ISO 14064-1 for organizations and ISO 14067 for products. Consistent standards – e.g. the corporate or product standard

of the Greenhouse Gas Protocol (WRI/WBCSD 2011, 2011a) – can be used, however the consistency of the chosen standard has to be explained and justified.

A core element is the need of a “carbon neutrality management plan” (clause 9) that determines operational and organizational conditions, the time scale, the pathway including short- and long-term targets, activities for emission reduction and removal enhancements, the quantity of each type of carbon credits used for offsetting, the financial and human resources as well as indicators for monitoring and evaluating progress towards GHG-neutrality. In accordance with this management plan, the entity has to reduce the GHG emissions and, if applicable, enhance the GHG removals of the subject (clause 10). Though the standard expresses a preference of GHG emission reductions, it allows counterbalancing GHG emissions by GHG removals within the boundary of the subject.

For offsetting (clause 11), the standard defines general requirements as well as requirements for carbon credits and for carbon crediting programmes. Offsetting requires the purchase and retirement of “ex-post” carbon credits and shall avoid double counting. Furthermore, the underlying emission reduction or GHG removal of the carbon credits used for offsetting have to be real, additional, measurable, permanent and certified, and the carbon credits must be retired within 12 months after the end of the reporting period. Requirements for carbon crediting programmes strive for transparency, integrity and credibility, e.g. by safeguards, traceability, stakeholder consultation, independent verification and measures to minimize environmental risks.

Figure 2: Steps for “carbon neutrality” according ISO 14068-1



Quelle: ISO 2023 (illustration by UBA)

The “carbon neutrality report” (clause 12) is intended to provide transparency on all relevant elements including the subject, the management plan, the carbon footprint including its components, quantification methods and development, GHG emission reductions and removal enhancements within the reporting period as well as the projects and credits used for offsetting. Finally, clause 13 states that an entity can only make a “carbon neutrality claim”, when it meets all requirements of the standard, an executive summary of the “carbon neutrality report” for each reporting period has been published and the correctness and integrity of the information

has been verified. Object of this verification is only the entity that claims GHG-neutrality. Carbon programmes and carbon credits purchased for offsetting are not verified in this process. The whole process and its steps are summarized in figure 2.

In addition to its main body, the standard contains several annexes. Annex A provides guidance on the concept and pathway of “carbon neutrality”. Annex B contains additional requirements for specific cases, i.e. for organisations, products, financial institutions and market-based approaches. Due to the major use of the Greenhouse Gas Protocol, Annex C includes a detailed comparison between the relevant ISO standards (ISO 14064-1 for organizations and ISO 14067 for products) and the corresponding GHG Protocol standards. Finally, annex D gives some general information on and examples of the level of ambition.

4 Evaluation of the standard in the climate policy context

4.1 Merits of the ISO standard

The ISO standard on “carbon neutrality” improves clarity about the widely arbitrary approaches and concepts and can streamline the confusing variety of terminology connected with GHG-neutrality by definitions of relevant terms. This represents an advancement over the previous lack of internationally agreed terms and definitions on GHG-neutral organizations and products.

The standard introduces important principles such as the *hierarchy approach* (stating that “carbon neutrality” is primarily achieved through emission reduction), *supporting transition, avoiding adverse impacts* and the *value chain and life cycle approach*. Furthermore, it requires a systematic and transparent process with different steps on the path to GHG-neutrality (credible elements of a path to GHG-neutrality are described in Huckestein 2021). For each step, an own clause specifies the requirements, including those on documented information. This does not only provide clear guidance for the users of the standard, but can also serve as a checklist for verifiers during a certification process.

A strategic role for planning, controlling, monitoring and offsetting GHG emissions and – if applicable – removals plays the CN Management Plan. It substantiates the content and ambition of a GHG-neutrality commitment and contains core elements of a climate management system (for this, see Glatzner/Loew 2022). For organizations that do not have a climate management system yet, it is a rather small step to establish one on the basis of a management plan as required by the standard.

4.2 Key shortcomings of the ISO standard

Nevertheless, the ISO standard on “carbon neutrality” contains significant shortcomings. It allows “carbon neutrality claims” with high unabated GHG emissions and shows an inadequate treatment of GHG removals and double counting

“Carbon neutrality claims” despite high GHG emissions

A general shortcoming of the standard is, that – in principle – even companies with high GHG emissions and whose business model is based on fossil fuels can comply and claim “carbon neutrality” for their organizations or products. Thus, the standard falls short in operationalizing the hierarchy approach. This refers not only to the early phase of “carbon neutrality”, in which an entity just fulfils the requirements of the standard and starts to implement its CN management plan. It also refers to advanced phases with only residual emissions left.

The main reason for this is the standard’s definition of residual GHG emissions. According the standard, these are “*unabated emissions remaining after implementing all technically and economically feasible GHG emission reductions*”. Despite “*supporting transition*” and “*ambition*” are

set as principles (clause 4.5 and 4.6), the reference to economic feasibility can be misused as a loophole for very unambitious emission reductions. In fact, the standard does not contain any verifiable requirements for ambitious and effective GHG emission reduction in line with the goals of the Paris Agreement. Neither does it require a phase out of fossil fuels or a transformation of unsustainable business models. The informal Annex D on “Ambition” merely mentions a rapidly reducing reliance on fossil fuels as an example of high ambitions.

A stricter definition of residual emissions with a focus on best available technology and a strict ban of using fossil energy and resources would have been much more substantial and credible. It could have included technical solutions for the decarbonization of industries such as concrete and cement, steel and non-ferrous metals.

Inadequate requirements for GHG Removals

While the standard deals with GHG emissions and emission reductions in a rather differentiated way – including definitions of “direct”, “indirect”, “unabated” and “residual GHG emissions” – the standard shows an insufficient perception and understanding of GHG removals and removal enhancements. GHG removals can cause serious conflicts with biodiversity and land use and have negative impacts on the environment, e.g. on deterioration of soil and humus or the use of natural resources (German Environment Agency 2023). None of these conflicts are addressed in the standard.

GHG removals are relevant for “carbon neutrality” either within the boundary of the subject (see clause 10.2 on “*GHG removal enhancement*”) or within projects that generate carbon credits for offsetting unabated emissions, i.e. removal credits. Clause 10.2 vaguely recommends that “*the entity should take appropriate measures to minimize significant adverse impacts to the environment or society*”. However, the clause does not specify any criteria for these measures; it does not have any consequences for its GHG-neutrality claim, if a company does not take any measure to reduce negative effects of removals.

For removal projects that generate carbon credits for offsetting, clause 11.3 at least states that carbon crediting programmes shall “*provide safeguards with regards to impacts on ecosystems, biodiversity, communities, human well-being, human rights and local economies, to avoid adverse impacts where applicable*”. In principle, this requirement is applicable to removals and requires activities to reduce negative effects of removal projects. However, it does not specify any requirements or give guidance to identify, evaluate and reduce possible harms and risks of removal projects. Thus, even small efforts to reduce some effects of removal projects are sufficient to comply with this requirement. All in all, the standard does not treat GHG removals appropriately and carries high risk for the environmental integrity of “carbon neutrality claims” based on removals.

Insufficient provisions against double counting

The ISO Standard states that entities that claim “carbon neutrality” by using carbon credits shall avoid double counting. The standard points out that this also applies between entities and governments. The Paris Agreement and the corresponding adjustment are addressed in a note, but not as a requirement. Further requirements to avoid double counting are left open, such as the exclusive use of credits that are authorized by the host country of the crediting projects.

Another unclear aspect is the use of GHG-emission reductions and removal enhancements within the carbon footprint of an organization or a product. Such mitigation activities carry the risk of double counting when internally summed up because the country where the GHG emission reduction or GHG removal enhancement take place include this mitigation in its national inventory.

5 Conclusions

The ISO standard on carbon neutrality provides internationally agreed terminology, principles and criteria for GHG-neutral organizations and products. However, it contains significant shortcomings as it allows GHG-neutrality claims with high fossil based GHG emissions, inadequate integrity of GHG removals as well as insufficient provisions against double counting. Credible GHG-neutrality claims are not simply content to comply with the standard, but minimize their GHG emissions based on Paris-aligned pathways, actively avoid negative impacts of GHG removals and enable a just transition.

Courts that have to decide on lawsuits and respective GHG-neutrality claims should base their judgement not only on verified compliance to the standard, but on additional requirements: firstly, an ambitious and effective reduction of GHG emissions according to best available technology and a phase-out of fossil resources; secondly, an active implementation of safeguards to ensure the environmental and social integrity of GHG removals, including removal credits used for offsetting.

In addition to the standard, signature states of the Paris Agreement, especially the EU and its member states, should introduce legal regulations to ban misleading GHG-neutrality claims, foster corporate climate and environmental management schemes and ensure that companies take appropriate measures against negative environmental and social impacts of their GHG-neutrality strategy. The EU's coming "Empowering Consumers for the Green Transition Directive" will severely restrict GHG-neutrality claims, and for products claims based on offsetting will be banned. The planned "Green Claims Directive" could then define the legal framework for GHG-neutrality claims in detail.⁶

Finally, and in light of the relevance of GHG neutrality claims in global markets, ISO should take the chance to revise the standard as soon as possible and significantly improve the standard in a way that overcomes the shortcomings mentioned above. The revision process can start immediately, the earliest possible date for a revised standard is the end of 2026. A basis for the revision must be more advanced expertise, e.g. on residual emissions and GHG removals, progress in international climate agreements and national regulation as well as best practice of credible GHG-neutrality claims.

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⁶ A broader analysis of fundamental and specific problems of offsetting GHG emissions by carbon credits will be subject of another UBA background paper to come.

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