SCORE LCA

STUDY N° 2020-02

CARBON NEUTRALITY

OF ORGANISATIONS

SUMMARY

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TABLE OF CONTENTS

ABBREVIATIONS

AACC - Association des Agences-Conseils en Communication, Association of Communication Agencies

LCA – Life cycle assessment

ADEME – French Agency for Ecological Transition

AFNOR - French Standardization Association

CORSIA - Carbon Offsetting and Reduction Scheme for International Aviation

DEFRA - Department for Environment, Food & Rural Affairs

ELCD - European Platform on Life Cycle Assessment

IPCC - Intergovernmental Panel on Climate Change

GS – Gold standard

QWP – Global Warming Potential

ICROA - International Carbon Reduction and Offset Alliance

IEA - International Energy Agency

IETA - International Emissions Trading Association

LUC – land use change

MRV - Measurement, Reporting and Verification

NZI – Net zero initiative

QES - Qualifying Explanatory Statements

SBTi - Science Based Targets initiative

UNFCCC - United Nations Framework Convention on Climate Change

UNGC - United Nations Global Compact

VERRA - Verified Carbon Standard

WRI - World Resources Institute

WWF - World Wildlife Fund

I. CONTEXT AND OBJECTIVES

1. Context of the study

Carbon neutrality on a global scale

Defined on a global scale by the **IPCC** in its special report 1.5°C published in 2019[1], **carbon neutrality** refers to the state of equilibrium between anthropogenic emissions and absorptions of CO2 over a given period. The notion of "**net zero emission**" is defined to refer to **all greenhouse gases (GHG)**. Achieving carbon neutrality by **2050** would make it possible to limit global warming to 1.5°C compared to pre-industrial levels (IPCC 1.5°C Report, C1), thus reducing the irreversible impacts of climate change such as the loss of certain ecosystems.

Achieving global carbon neutrality requires an energy system with no direct CO2 emissions, controlled energy demand, a transition of the agricultural model to enhance its sequestration capacity, and the development of negative emission technologies. This **concept needs to be operationalised** at the level of organisations and territories in order to recognise the dynamics of transition and reductions that are essential to achieve the global objective defined in 2015 in the **Paris Agreement**: "to limit global warming to well below 2° C or even 1.5° C" compared to pre-industrial levels.

European and French commitments

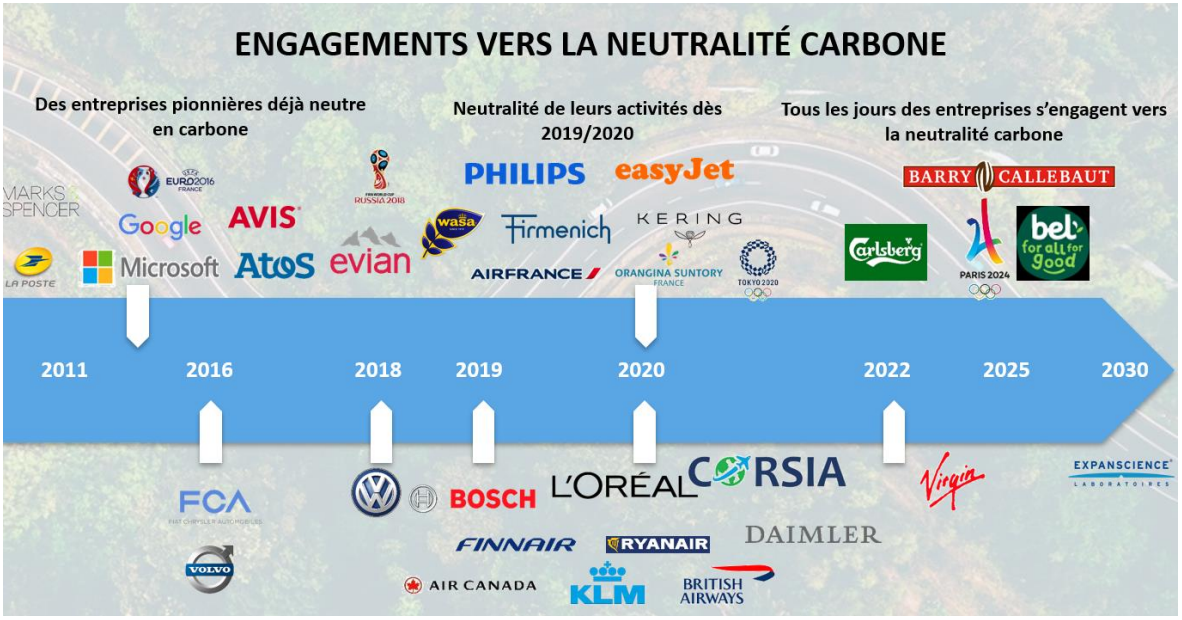
The European Union is strongly committed to climate change, **aiming for carbon neutrality by 2050**. In November 2018, the European Commission published its long-term climate strategy for the 28 Member States and set this neutrality objective. The 11th of December 2020, in the framework of the European summit, the reduction target adopted was -55% of greenhouse gas emissions between 2030 and 2050. Europe thus joins the nineteen countries around the world that have committed to achieve carbon neutrality by 2050 between 2015 and 2018 with a determination to act quickly and over the long term. According to the UN[2], there are now nearly 130 countries.

In July 2017, France also set " this new goal of carbon neutrality by 2050 " through its Climate Plan[3]. The path to achieve this goal is defined in the National Low Carbon Strategy (SNBC)[4], which sets "carbon budgets", i.e. emission quotas that must not be exceeded, for a period of five years. France's carbon neutrality is defined as the situation in which national greenhouse gas emissions would be less or equal to the quantities of gas absorbed by anthropogenic ecosystems and certain industrial processes, without having to purchase carbon credits abroad. This objective requires a division by 6 of GHG emissions by 2050 compared to 1990. In addition, the SNBC has set itself a cross-cutting objective of reducing France's carbon footprint (ie including its indirect GHG emissions).

At the scale of organisations

Many organisations, particularly companies, are mobilising and committing themselves to carbon neutrality or achieving net zero emissions. However, the lack of a common definition of the concept of carbon neutrality has led to multiple interpretations and definitions.

1 Source: https://www.ipcc.ch/site/assets/uploads/sites/2/2019/06/SR15_AnnexI_Glossary.pdf.
Carbon neutrality: Net zero carbon dioxide (CO2) emissions are achieved when anthropogenic CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period. Net zero CO2 emissions are also referred to as carbon neutrality.
Net zero emissions: Net zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of net zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).
2 https://news.un.org/fr/story/2020/11/1081882
3 https://www.gouvernement.fr/action/plan-climat
4 https://www.ecologie.gouv.fr/strategie-nationale-bas-carbone-snbc



To date, the **PAS 2060** developed by the British Standard Institute in 2014 is the main standard on which companies rely to claim carbon neutrality. Nevertheless, given the improvement in knowledge on the subject since its publication, an update of this standard would be timely. Achieving a universal approach, both in terms of the content of the approach and the "claim", is the challenge of the future **ISO 14 068**[5] standard, which is currently being drawn up and is due to be published in 2023.

2. Objectives of the study

While the global objective of carbon neutrality as defined by the IPCC is clear, its application to organisations is under **debate**. The **diversity** of approaches adopted by companies and expert firms illustrates the need for an in-depth analysis.

The objective of this study is therefore to shed light on the work and debates in progress based on clear, impartial and sourced information. To do so, the study has several sub-objectives:

1. **Identify** the different concepts of carbon neutrality.
2. **Describe** and **compare** in detail those referred to.
3. **Evaluate** a case of carbon neutrality in relation to these different documents.
4. **Make recommendations** to facilitate the implementation of carbon neutrality initiatives but also to reinforce the binding aspect of such a commitment to avoid greenwashing.

[5] https://norminfo.afnor.org/norme/iso-14068/greenhouse-gas-management-and-related-activities-carbon-neutrality/188700

II. METHODOLOGIES FOLLOWED

1. Approach and methodological details

The analysis was structured in five phases.

- **Phase 0 - Pre-framing and framing**: The objective of this phase is to ensure a clear and shared vision of the mission by all stakeholders and to prepare for its implementation.

- **Phase 1 - State of the art**: The aim is to provide a detailed and comparative description of the **most relevant international work on carbon neutrality**. This phase includes a document-by-document analysis as well as a cross-analysis of the selected documents (hereafter referred to as "reference documents").

- **Phase 2 - Case study**: The objective of this second phase is to illustrate the converging points/differences of the main methodological documents by applying them to a case study and to analyse the coherence of each framework. This case study is not published in the reports.

- **Phase 3 - Workshop**: The objective of this workshop was to identify common recommendations based on the results of the first phases of the study and the experience of the ScoreLCA members.

- **Phase 4 - Recommendations**: Two main types of recommendations are addressed, those aiming to homogenise practices and those aiming to strengthen the robustness and justification of certain methodological choices. In parallel, an analysis of the main reference documents on environmental communication is carried out in order to highlight the requirements and recommendations applicable to the communication of carbon neutrality approaches. The recommendations are structured to provide a synthetic view of the issues/areas for improvement associated with carbon neutrality approaches for which LCA is likely to help improve practices.

2. List of validated documents

The list of documents selected by Score LCA members and reviewed by EcoAct is the following:

- PAS 2060: British Standards Institution, 2014
- Net Zero Initiative: Carbone 4, 2018
- ICROA: 2020
- Carbon Neutral Protocol: Natural Capital Partners, 2018
- Absolute Zero: Quantis, 2020
- The SBTi guidance on net zero: SBTi, 2020
- WWF proposition: WWF, 2019
- Compensation carbone volontaire - 5 règles de bonnes pratiques: ADEME, 2019
- Net Zero Concept: IETA, 2020
- Climate Neutral Now: UNFCCC, 2015
- A to Zero Initiative: EcoAct, 2020
- CORSIA (Carbon offsetting scheme for international aviation): OACI, 2016
- ISO 14021: ISO, 2016

- Initiative ACT: ADEME/CDP, 2015
- Zen 2050: EPE, 2019
- GHG Protocol: GHG Protocol Initiative, 2004
- ISO 14064: ISO, 2018
- Climate Positive: C40 Cities Climate, Leadership Group, 2009

3. Simplified matrix

The majority of the documents reviewed agree on the following steps in the carbon neutrality strategy. According to PAS 2060, the standard most used by companies to date, the following steps are followed:

a. **Measuring greenhouse gas emissions**

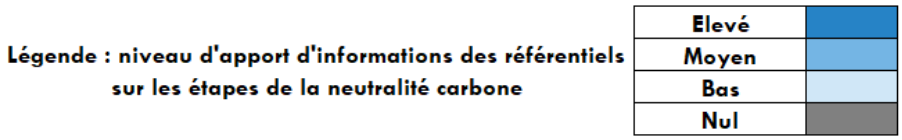
b. **Reduce greenhouse gas emissions** (including public commitment to carbon neutrality)

c. **Offset residual greenhouse gas emissions** through the purchase of high-quality certified carbon credits

d. Finally, **certification and communication** are often discussed.

The purpose of the matrix is to analyse the level of information available for the different stages of the carbon neutrality strategy for each analysed document. It should be noted that this simplified matrix does not in any way constitute a comparative analysis of the relevance of each study document to the definition of carbon neutrality.

Based on this matrix, a detailed analysis of the documents for which almost all the criteria are defined as "high" and "medium" has been carried out by phase of carbon neutrality.



Nom du document analysé	Type	Organisme auteur du document	Date de publication	Portée du document	Définir	Mesurer	Réduire	Compenser	Communiquer	Certifier
Ressources principales liées à la démarche globale de neutralité carbone										
PAS 2060 2014	Norme / Référentiel	British Standards Institution	2014	Internationale						
Net Zero Initiative	Norme / Référentiel	Carbone 4	2018	Nationale						
Natural Capital Partners (Carbon	International Agreement	Natural Capital Partners	2018	Internationale						
A to Zero Initiative (EcoAct)	Guide	EcoAct	2020	Internationale						
Absolute Zero (Quantis)	Guide	Quantis	2020	Internationale						
ICROA (position CDP / ICROA)	Note de positionnement	ICROA	2020	Internationale						
The SBTi guidance on net zero	Note de positionnement	iSBT	2020	Internationale						
WWF proposition	Note de positionnement	WWF	2019	Internationale						
Net Zero Concept (IETA)	Note de positionnement	IETA	2020	Internationale						
UNFCCC - Climate Neutral Now	Note de positionnement	ONU	2015	Internationale						
Climate positive	Note de positionnement	C40 Cities Climate Leadership Group	2009	Internationale						
Ressources complémentaires alimentant les démarches de neutralité carbone										
GHG Protocol	Norme / Référentiel	GHG Protocol Initiative	2004	Internationale						
ISO 14064-1	Norme / Référentiel	ISO	2018	Internationale						
Initiative ACT (ADEME/CDP)	Norme / Référentiel	ADEME & CDP	2015	Internationale						
ADEME - Compensation carbone volontaire, 5 règles de bonnes pratiques	Note de positionnement	ADEME	2019	Nationale						
CORSIA (Carbon offsetting scheme for international aviation)	Programme de compensation carbone	OACI	2016	Internationale						
ISO 14021	Norme / Référentiel	ISO	2016	Internationale						

4. Full matrix

The complete matrix is structured in an Excel format, addressing specific questions and issues around the following pillars

- Define
- Measure
- Reduce
- Offset
- Certify
- Communicate

III. SYNTHESIS OF THE ANALYSIS OF THE SELECTED DOCUMENTS

1. Define

Carbon neutrality is the **balance** between anthropogenic greenhouse gas **emissions** and **absorptions**. Different **nuances** concerning the scope (scale of neutrality at the level of products, organisations or the planet), the time horizon (neutrality achievable today or in the long term), the perimeter (neutrality on which scope(s) 1, 2, 3), compensation (preferences for avoided/sequestered emissions) are at the centre of attention.

To achieve carbon neutrality, various levers must be applied. Most of the documents studied focus on the triptych of **measure, reduce and offset**. Some documents emphasise **international cooperation** (IETA), the **commitment of organisations** (Climate Positive, ICROA) or the **sequestration of carbon dioxide** (ICROA, NZI), but all of them seek to rally around a **credible and global definition of neutrality**.

It should be noticed that the documents selected, in their respective singularities, share nevertheless the **same objective of climate stability** although they may be based on different scenarios (1.5°C, 2°C...) and time horizons. Each definition of the carbon neutrality of organisations carries a vision by seeking to reduce and store GHG emissions, promote collective efforts to encourage organisations to commit and highlight early, ambitious and voluntary actions.

In conclusion, although there are strong similarities between the documents studied, the concept of carbon neutrality requires **standardisation**, a **framework** for greater universality and clarity on the ambition of the statements and the implementation of the strategy.

2. Measure

The **measurement** of GHG emissions is the first step that determines the entire carbon neutrality strategy. It is now a solid **basis** with a **shared** foundation. Reference standards are used in almost all documents: GHG Protocol and ISO 14064-1. The **GWP100** accounting standards are unanimously used to calculate CO2eq. Moreover, the GHGs to be accounted for in the measurement of a carbon footprint are those defined by the Kyoto Protocol.

The PAS 2060 stipulates that **direct and indirect emissions (scopes 1, 2 and 3)** must all be taken into account if they represent more than 1% of the total carbon footprint (unless it is proven that this quantification would not be technically feasible, practicable or cost-effective).

The documents seem all to move in this direction without imposing a precise **perimeter** (functional, geographical or temporal). The **PAS 2060** summarises it as follows: the scope should accurately reflect the company's GHG emissions. The Carbon Neutral Protocol adds: the scope should include all sites, plants and vehicles owned or under the direct control of the subject. However, **ISO 14064-1** specifies that the organisation is supposed to adopt a control approach (accounting for GHG emissions from facilities over which it has financial or operational control) or an equity approach (accounting for its share of emissions from the respective facilities).

The **calculation of scope 3 emissions** is optional for some benchmarks (eg GHG Protocol) and mandatory for others (eg ISO 14064-1 for significant indirect emissions). The choice of emission factors isn't mandatory. In all cases, the objective of transparency and accuracy is crucial. The GHG Protocol and EcoAct encourage the use of supplier data and LCAs to improve the measurement of scope 3 and anticipate the actual measurement of reduction.

Avoided emissions within the organisation's value chain (through the sale of products or services) must always be accounted separately from Scopes 1, 2 and 3 emissions (Climate Positive, Absolute Zero, A to Zero Initiative, ACT Initiative, GHG Protocol, ISO 14 064-1, NZI).

Finally, the analysed documents generally encourage **validation of results** with verification and/or certification by an independent third party or validation by another party (without requiring either). The level of obligation and the nature of the third party vary between the reference documents.

3. Reduce

Reducing emissions is a key step in the transition to carbon neutrality. It is the step that gives the carbon strategy its **credibility**. The documents are in relatively good agreement on this subject. The point of division concerns the reduction requirements for the declaration of carbon neutrality.

The **SBTi** is widely recommended for setting reduction targets. The scope to be considered is the same as for measurement (scopes 1, 2 and 3) and concerns all Kyoto GHGs. The reference year (**base year**) must be the most recent and exhaustive. In terms of **target year**, SBTi sets 5 to 15 years from the base year. As for ADEME's ACT initiative, 2050 is set as the time horizon for achieving carbon neutrality. Wherever possible, absolute GHG reduction targets should be given priority over intensity targets.

To measure actual reductions, the documents use the same tools as for measurement (GHG and ISO). Their accounting must always be done separately (Climate Positive, Absolute Zero, A to Zero Initiative, ACT Initiative, GHG Protocol, NZI, ISO 14 064-1).

Regarding **scope 3**, the approaches are more or less restrictive. For SBTi, a company must commit to its scope 3 if it represents at least 40% of its total emissions, with one or more targets covering two-thirds of scope 3. In this context, the company must set one or more scope 3 emissions reduction targets and/or one or more supplier or customer commitment targets that collectively cover at least 2/3 of its total scope 3 emissions. However, in the context of a carbon neutrality strategy, the new SBTi guideline towards net zero speaks of the entire value chain being taken into account in the context of a 1.5°C reduction strategy (4.2% annual linear reduction in absolute terms, for example) towards neutrality.

It should be noticed that if **changes** occur in the organisation's operations and/or value chain, it is necessary to **recalculate** the original carbon footprint in order to compare the items.

Finally, in order to achieve **carbon neutrality**, organisations are encouraged to use established management tools to determine the appropriate **balance** between **internal reductions** and the use of **offsets** (the UNFCCC refers to these as unavoidable emissions) to achieve carbon neutrality in a cost-effective and strategic manner. Overall, the reference documents emphasize the importance of reducing emissions before embarking on an offset strategy. Keeping the pace of decarbonization of **SBTi** is encouraged (NZI, ICROA, A to Zero).

4. Offset

The third key step is **voluntary carbon offsetting** of residual GHG emissions, i.e. those that cannot be reduced in the first instance. The analysed documents are all clear on the idea of a hierarchy of actions between reducing first GHG emissions and offsetting after.

Another point of convergence is the need to prioritise the most **robust** frameworks that meet the requirements of **international standards**. These are frameworks that guarantee principles such as permanence (durability over time), uniqueness of credits, registry, third party audit of data and project, additionality, reality through MRV system (Measurement, Reporting and Verification) and sector-specific methodologies.

Some documents (SBTi or Climate Positive) insist that the carbon credits needed to achieve Net Zero are "**carbon removals**", i.e. the removal of carbon from the atmosphere to sinks (organic carbon in soils, biomass, geological storage), in opposition to another type of compensation: "avoided emissions". In this respect, the « Net Zero Emission » vision of **A to Zero** and the **SBTi** argue for a distinction between carbon credits (avoided, reduced, neutralized) and targets (direct reduction, avoided or sequestered offsets).

The NZI stands out for its demand for **separate accounting of carbon credits from sequestration projects** and carbon credits from GHG reduction projects outside its value chain or from avoided emissions in a Net Zero corporate accounting perspective.

Climate Positive and SBTi[6] insist on the need to move progressively to offsetting exclusively from sequestration projects in order to ensure that Net Zero is achieved on an organisational scale by 2050, while using carbon offsetting to avoid emissions in the meantime (the AtoZero approach is aligned with this).

The **calculation methodologies** are left to the voluntary offset standards (GS, VERRA, etc.), which are free to create their own methodologies.

Finally, concerning avoided emissions, almost all the documents studied refer to the methodologies of the standards (PAS 2060, NZI, ICROA, Natural Capital Partners, Absolute zero, SBTi, WWF, UNFCCC, AtoZero).

5. Communicate & certify

Communicating on the carbon neutrality approach

There is no consensus on the terminology 'carbon neutral'. While accepted by Absolute Zero and PAS 2060, it is rejected by NZI at an organisational scale. Other terms such as 'decarbonisation' are preferred by SBTi or 'contribution to neutrality' by NZI.

The increasingly accepted definition of carbon neutrality is the one requiring direct transformation, all scopes combined, aligned with a 1.5°C trajectory and completed with the purchase of carbon credits from recognised good practices. The "declaration" (or claim), on the other hand, is more subject to debate, with some documents recognising carbon neutrality (or even codifying it within the framework of the PAS 2060), others encouraging the use of other vocabulary (decarbonisation, carbon neutrality trajectory or Net Zero), such as WWF or SBTi, and finally a rejection of the claim of neutrality by NZI (at the scale of an organisation).

Finally, a logic of **transparency** and **quality** is necessary to guarantee the integrity of the organisation in its approach to carbon neutrality and thus avoid any greenwashing.

Certifying the carbon neutrality process

Certification of an organisation's carbon neutrality is based on the compliance assessment process, which is designed to validate the organisation's adherence to the reference framework or standard in achieving carbon neutrality. Few documents detail the entire process. A distinction must be made between certification by an independent third-party certification organisation, validation by another party (e.g. customer, suppliers, etc.) or self-validation (more or less robust).

The state of the art tells us that to date only two approaches - PAS 2060 and the Carbon Neutral Protocol - offer a detailed procedure for certification of **the entire carbon neutrality process**. The future ISO 14068 standard, expected to be published in spring 2023, should also allow organisations to request a certification organisation to assess compliance with the standard.

Most of the other documents analysed[7] recommend and/or require certification of carbon projects and programmes funded by the organisation. However, this only concerns one part of the process - the carbon offset component - and not the whole process (measurement, reduction and communication).

Ultimately, the certification process, whether for PAS2060 or the Carbon Neutral Protocol, is in line with a philosophy of **transparency** and **quality** to guarantee the integrity of the organisation in its approach to carbon neutrality and thus avoid any greenwashing.

Expected qualifications of the certification organisation

[6] Nota bene: the SBTi has included this point in its latest publication

[7] Net Zero Initiative, Absolute Zero, ICROA, The SBTi guidance on net zero, Net Zero Concept et Carbon Neutral Now.

It should be reminded that the independent third-party certification organisation must be able to demonstrate that it has (or has access to) the necessary **knowledge** and **expertise** to provide an assessment and certification of the approach. The certification organisation must also demonstrate its ability to apply appropriate assessment methodologies as described in the framework and/or standard applied by the organisation. The certification organisation may be **accredited**. It is not mandatory, but it is an additional guarantee of confidence.

IV. CONCLUSIONS OF THE STUDY: 5 KEY STEPS TO A SUCCESSFUL CARBON NEUTRAL APPROACH FOR AN ORGANISATION AND ASSOCIATED RECOMMENDATIONS

It is essential that organisations commit to carbon neutrality now, considering:

- The **climate emergency**: moving to a net zero carbon society is vital. Achieving this means massively reducing the greenhouse gas (GHG) emissions we produce, removing the remaining emissions from the atmosphere by increasing natural carbon sinks and developing innovative technologies. Organisations have an important role to play.

- **Risks for the organisation**: inaction will affect the sustainability of the organisation.

- **Opportunities for the organisation**: solutions to climate change exist and are a source of opportunities for organisations acting now.

Based on the findings of the analysed documents and the discussions with the participants in the study, it appears that a **successful carbon neutrality approach for an organisation** should be based on **5 key steps**, **prerequisites** and **good practices** to actively contribute to the fight against global warming. Any significant deviation from these guidelines could jeopardise the robustness of the organisation's commitment.

Step 1 - Measure and identify the challenges for the organisation

The first step is to understand the organisation's carbon impact on the climate and to define the scope of its ambition.

To do this, **several methodologies** exist, including two internationally recognised ones: the **GHG Protocol** and **ISO 14064-1**. The **GWP100** accounting standards are unanimously used to calculate CO2eq. Also, the GHGs to be accounted for in the measurement of a carbon footprint are those defined by the **Kyoto Protocol**. It is therefore not a question of limiting oneself to "simple" CO2 emissions, but rather of considering all the GHG emissions generated by the organisation's activities.

Rigour, **transparency** and **exhaustiveness** are needed. This means that scopes 1, 2 and 3 must be considered. Exclusions may be allowed, as long as they are minimal and justified (e.g. maximum 5% on scopes 1 and 2 according to the SBT). The assessment of Scope 3 GHG emissions is more complex but is essential to understand the organisation's impacts across its value chain and then to reduce them.

To go further:

- **Use specific emission factors**: this involves going beyond existing databases for certain specific sectors of activity and in particular for scope 3 calculations.

- **Certify the assessment** by an independent third party.

- **Take into account avoided, sequestered and biogenic emissions**: this allows the development of a global measurement work. These emissions should be accounted for within a separate reporting system and the methodology should be clearly explained.

- **Carry out and publish a multi-criteria assessment** (see specific section on the possible contributions of LCA).

- **Communicate the results of the greenhouse gas emissions balance separately** where time shifting of greenhouse gas emissions or direct land use change are considered.

Step 2 - Planning with ambition

The organisation's commitment is placed in a **wider framework** (sectoral, national and international). A **carbon budget allocated to the organisation** should be defined and set over time with the aim of limiting the rise in average global temperature to well below 2°C. Several organisations can serve as a reference, such as the IPCC and the IEA.

Once the target has been set, the organisation must determine the steps to be taken to achieve ambitious objectives. These must be aligned with climate science ("science-based targets") covering all of scopes 1, 2 and 3, while preserving and strengthening carbon sequestration capacity.

To go further:

- **Reduce as ambitiously** as possible: commit to reaching a maximum of +1.5°C.
- **Communicate as widely as possible internally**: the appropriation of the strategy by all is the key to success.
- **Implement incentive measures** towards its employees, suppliers and customers.
- **Carry out a consequential life cycle analysis** if the actions envisaged may lead to changes in industrial or economic activities linked to the organisation.

Step 3 - Act now: reduce GHG emissions, enhance carbon sequestration capacity, offset residual GHG emissions

Firstly, **the reduction of emissions is planned over time** with a dedicated budget and actions that enable the SBTi objectives to be achieved both within the organisation and throughout its value chain. Also, this approach is in line with the company's development (development strategy and R&D).

Secondly, while emissions reduction is the keystone of a net-zero strategy, the **financing of voluntary carbon offset projects** plays a complementary role. Offsetting is done through the **purchase of carbon credits** (or reduction units) to strengthen climate solidarity in areas where cooperation makes "sense" for the organisation. To do this, **international standards** exist on the voluntary market.

The aim is to **gradually reduce dependence** on offsetting in favour of the intrinsic reductions of the organization.

To go further:

- **Combine offsetting and insetting**[8]: the combination of these two mechanisms makes it possible to multiply the actions taken in response to climate change.
- **Prefer sequestered emissions**: in the medium and long term, because avoided emissions can result in an increase in absolute emissions compared to a reference scenario.
- **Rely on expertise in avoided emissions**: to gain credibility.
- **Fund more reduction/sequestration** that its only residual emissions: to maximise the organisation's positive impact

Step 4 - Monitor and evaluate the trajectory

Each carbon neutrality strategy is supported by a **precise monitoring system**. Carrying out the carbon **footprint** calculation exercise and **monitoring the implementation of reduction actions**

[8] Insetting concerns voluntary carbon offsetting within its value chain.

over a **short period of time** is essential. This makes it possible to quickly implement adjustment actions.

Finally, the **strategy should be evaluated periodically**. The recurrence of the evaluation is to be defined by the organisation. It should be carried out at least every three years.

Step 5 - Certify and communicate about the carbon neutrality approach

Certifying the carbon neutrality process is a real asset. In order to gain credibility, it is recommended to certify the measurement, reduction, carbon offsetting and claim, based on a recognised methodology by an independent third party.

At the same time, **communicating internally** and **externally** about the organisation's carbon neutrality strategy increases the likelihood of success while benefiting the organisations (reputation, image, competitive advantage). The honesty of the approach is nevertheless fundamental.

If a life cycle analysis is undertaken, a critical review must be carried out to reinforce the credibility of the results and the related communication actions.

Ultimately, carbon neutrality is achieved when the organisation commits to this integral approach. That is, a drastic reduction in its GHG emissions, in line with the latest climate science, and an annual offset of all GHG emissions that the organisation has not yet reduced. Carbon neutrality plays a key role in moving towards net zero emissions. However, voluntary carbon offsetting alone, i.e. without drastically reducing its GHG emissions, is not enough to make a commitment to the climate.

V. GOING FURTHER - CARBON NEUTRALITY: POTENTIAL CONTRIBUTIONS OF LIFE CYCLE ASSESSMENT

Life cycle assessment is a useful tool for the deployment of a carbon neutrality approach. It enables the monitoring and justification of the effective reduction of GHG emissions, the prioritisation of reduction actions and the communication of verifiable and non-misleading information on environmental aspects. In addition, the multi-criteria approach enabled by the life cycle assessment allows the identification of possible pollution transfers linked to the identified reduction actions.

Furthermore, in the context of a carbon neutrality strategy, the recommendations on the use of LCA and on communication are the following:

[Recommendation 1] The publication of multi-criteria environmental claims, such as Type III claims under ISO 14025, in support of carbon neutrality approaches would enhance the probity of associated communications. This recommendation is valid regardless of the scope of the approach: product, service, organisation.

[Recommendation 2] In accordance with the recommendations of ISO 14021, the communication should be explicit about what the carbon neutrality claim covers: no unspecified "carbon neutral" claims should be made. "Carbon neutral" claims must include a clear statement of which elements of the product's life cycle have been offset.

[Recommendation 3] It is recognised that LCA does not provide the solutions for reduction, but in order to monitor the evolution of the environmental footprint, including greenhouse gas emissions, "at equivalent perimeter", it is recommended to apply the same methodology when updating the footprint.

[Recommendation 4] The majority of the methodological frameworks analysed in this study for greenhouse gas emissions accounting tend towards a very high level of transparency in the communication of the types of emissions considered. In particular, the distinction between fossil and biogenic carbon emissions, land-use related emissions and the time lag of emissions is a recurrent requirement.

[Recommendation 5] The consequential approach should be considered as soon as the consequences of the change caused by the decision lead, for example, to a variation of more than 5% of the background processes.

[Recommendation 6] The use of claims implying a complete absence of a product's contribution to climate change and, more broadly, an absence of environmental impacts of a service or an organisation appears to be prohibited. In order to help develop clear and precise communication, specific guidelines with examples of good practices could be a useful support (e.g. how to communicate according to the scope chosen, according to the organisation vs. product approach, etc.).