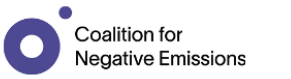
January 2022

NATURAL CAPITAL PARTNERS

The CarbonNeutral Protocol

The global standard for carbon neutral programmes

Natural Capital Partners works with and supports the following internationally recognised bodies:



Cover photo © Brian McFarland
Acre Amazonian Rainforest Conservation Portfolio, Brazil: The three projects work with communities and local groups to help protect ecosystem services while providing alternative models of economic development which avoid destruction of the forest.

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Sichuan Household Biodigester, China: Carbon finance improves the quality of rural homes by converting animal waste to clean energy source

Preface

The CarbonNeutral Protocol: A framework for high impact climate action

For two decades, The CarbonNeutral Protocol has played a critical role in enabling clients to confidently make clear and credible claims about their climate programmes and navigate the complicated and rapidly developing landscape of voluntary climate action.

This past year has seen a number of seismic shifts in voluntary action that are set to play out over the coming two to three years. This 2022 version of The CarbonNeutral Protocol continues our process of annual revisions that embrace and promote evolving best practice.

2021's inflection points

During 2021, despite the disruptions of Covid-19, we have witnessed step changes across five critical dimensions of climate action: science, ambition, quality, integrity, and impact.

1. Science

Against a backdrop of substantial evidence of our changing climate, this year saw the usual debate about the science replaced by a rising emphasis on an urgently required response. In August, the first instalment of the Intergovernmental Panel on Climate Change's (IPCC) Sixth Assessment Report (AR6) gave rise to calls of a "code red" for humanity. That same month, the IPCC's work prompted a press release headlined "Climate change widespread, rapid, and intensifying".

The scientific basis for strengthening climate action in line with a 1.5°C target is no longer in dispute. Pathways consistent with this goal have become the central blueprint for guiding individual and cooperative efforts, in order to avoid further uncontrolled climate change. While the 1.5°C target is clear and simple to understand, however, the latest IPCC modelling anticipates that this limit is likely to be breached in the early 2030s. Our best efforts to deliver a 1.5°C outcome will therefore require the intelligent deployment of all credible means to finance and deliver climate mitigation, to which voluntary action ahead of and beyond regulation will play an essential role.

2. Ambition

The unequivocal message from the IPCC piled pressure on COP26 to raise ambition across nations party to the UNFCCC's Paris Agreement. The Agreement, ratified in 2015, translates the 1.5°C target into a minimum requirement of net zero greenhouse gas (GHG) emissions by 2050. By the end of COP26 in mid-November, around 90% of world GDP was covered by Nationally Determined Contributions i.e., national emission reduction targets, that were committed to net zero – most by 2050, a few sooner and, for some quite significant countries, by 2060 or 2070.

The danger of long-term commitments is that there is little or no guarantee that they will be achieved. Under The Paris Agreement, there is no meaningful sanction or remedy for countries that do not deliver. Now, with the overwhelming dominance of net zero national targets, what was once climate leadership is being redefined as 'climate responsible'. Organisations anticipating and delivering on these targets today are acting responsibly ahead of policy and regulation, which will likely be put in place to deliver net zero. Our research into the climate commitments of the Fortune Global 500 companies[1] found that a majority of net zero targets have a target date in line with the national target for net zero where they are headquartered, or the Paris Agreement's 2050 target date.

[1] Natural Capital Partners, 2021, *Reality Check: The third annual study to assess how Fortune Global 500 companies have increased their climate actions and commitments*

Burn-Efficient Cookstoves, Kenya: Reducing global carbon emissions by providing families in Kenya with cleaner, more efficient cookstoves

However, recognising that regulation will continue to tighten under pressure from stakeholders (primarily investors, business-to-business customers, and civic society) climate leaders are raising their ambition beyond regulatory likelihood. They are doing so with carbon neutrality on the way to net zero to underpin commitments with ongoing action; by shifting the emphasis from 'net zero' to 'net positive' (e.g., by taking care of legacy emissions); by combining avoided and reduced emissions with removals; and by extending the focus on entities to include products and services in the circular economy.

3. Quality

Analysis by The Climate Tracker (an independent consortium of science and policy agencies) shows that the latest set of improved NDCs falls short of a credible 2030 interim target by 19-23 $GtCO_2e$ – more than half of global energy-related GHG emissions in 2021.[1] This shortfall calls into question the quality of national commitments, which are weak on targets in the near-term and possibly over-optimistic about the ability to deploy low-carbon technologies over the longer-term.

Responding to the needs for credibility in net zero commitments and claims, the Science Based Target initiative (SBTi) launched its Corporate Net-Zero Standard in October, focusing attention on the importance of science-informed abatement within Scopes 1, 2 and 3, as well as the requirement to neutralise unabated emissions only with removals. Along the way, however, the Standard recommends compensation for all unabated emissions, concluding that: "In the transition to net-zero, companies should take action to mitigate emissions beyond their value chains" and that "purchasing high-quality carbon credits in addition to reducing emissions along a science-based trajectory can play a critical role in accelerating the transition to net-zero emissions at the global level."

After six frustrating years of negotiations, COP26 also saw the finalisation of rules for Article 6 of the Paris Agreement. This is the section that defines modalities for global collaboration on climate mitigation and adaptation, including an international carbon market for the trading of emissions reductions. Work is still required to further define and embed those modalities, however, to ensure that the financing, measurement, accounting, and transfer of mitigation outcomes amongst nations and non-state actors is transparent, accurate and delivers real and meaningful climate impact. Until that work is complete, most likely around 2025, accounting mechanisms for voluntary action in the private sector will need to evolve and align with these yet to be defined developments.

Of course, as private sector climate action grows in scale and importance, the level of scrutiny grows in lockstep. However, what should no longer

[1] International Energy Agency, 2021, *Global Energy Review*

Rimba Raya Biodiversity Reserve REDD+, Indonesia:
The project has established a scholarship fund to enhance educational access and provide writing books

be in question is the continued evolution and strengthening of quality of the carbon credits and processes governing their trade and retirement, which are critical aspects of carbon neutrality. Recognised and respected voluntary carbon standards continue to adapt their methodologies in anticipation of future requirements and seek to provide solutions that give organisations adopting carbon neutrality the ability to make credible claims during this period of transition.

4. Integrity

The Carney Taskforce for Scaling the Voluntary Carbon Market (TSVCM) is a private sector led initiative launched in 2020 to build a scalable commoditised carbon market from the foundations laid by the voluntary carbon market. It completed its concept and design phases in early 2021 and is now in the process of establishing a marketplace under its new name – the Integrity Council for the Voluntary Carbon Market (ICVCM).

Integrity in this instance relates to the way in which carbon credits are established under recognised standards, traded to deliver funding to projects around the world, and retired to enable entities to demonstrate their voluntary and, in time, compliance-driven actions that compensate or neutralise unabated emissions. Their first task will be to agree to Core Carbon Principles that will underpin the integrity of traded and retired instruments.

A parallel initiative, the Voluntary Carbon Market Integrity Initiative (VCMI) is a multi-stakeholder civil society initiative, supported by environmental NGOs and non-profit foundations, with a wider integrity brief. In October, it published "Roadmap: Ensuring High-Integrity Voluntary Carbon Markets," a vision for aligning voluntary carbon markets (VCMs) with the 1.5C Paris Agreement ambition. The VCMI intends to focus its work in two critical areas – claims in support of voluntary action and the inter-dependence between voluntary action, national climate priorities and the Paris Agreement.

The two carbon standards that together cover the majority of carbon credits issued, sold and retired for voluntary purposes – VCS, run by Verra, and Gold Standard – have signalled slightly different approaches to ensuring continued integrity of the voluntary market within the new structure of the Paris Agreement. Over time, as countries put in place the processes for accounting for emission reduction projects and trading the credits that result, there will be some credits that have been 'correspondingly adjusted', i.e., the host country does not count the emission reduction towards its reporting to the UNFCCC, and others that have not. Depending on the standard, this may lead to different types of claims becoming available to private sector entities that purchase and retire credits. The VCMI is considering these differences.

5. Impact

Together, these initiatives will play a key role in shaping the rapidly changing nature of voluntary action and will make critically important contributions to the key foundations of ambition, quality and integrity.

Carbon finance is increasingly recognised as a vehicle not only for climate action, but for sustainable development more broadly. And as a major vehicle of that finance, carbon neutrality is a pragmatic and accessible tool for the growing number of companies that seek to match ambition with action today. It is deployed by organisations that wish to complement longer-term, science-based abatement targets with immediate emission reductions beyond their operational control, accelerating progress towards a net zero global economy.

In focusing on projects with attributes that deliver value to communities and ecosystems alike, corporate buyers are also choosing to do more than simply offset their emissions. A majority of the financing for emission reductions uses the voluntary carbon market to find and support mitigation projects, which also deliver against Sustainable Development Goals (SDGs). Initiatives such as The Science Based Targets Network (SBTN) intend to bring the quantification, measurement and reporting of these co-benefits up to the levels established by carbon market standards, to measure, report and verify climate mitigation outcomes.

Navigating the changing landscape for voluntary action

Change across these five dimensions of voluntary action is set to be wide-ranging and uncertain for the next year, if not more. As we navigate the 'rapids' of an evolving landscape, we intend to expand our normal consultation of users of The CarbonNeutral Protocol through a planned series of broader dialogues to ensure that the future changes enhance its relevance and value. The principles underpinning the Protocol (see below) will remain our 'North Star' and will ensure that the Protocol continues to provide pragmatic and accessible guidance.

Introducing The CarbonNeutral Protocol 2022

We are pleased to present this 2022 edition of The CarbonNeutral Protocol. First developed and published in 2002, the Protocol is revised and updated annually to reflect developments in climate science, international policy, standards and business practice. It is an open source standard and guide developed for business by business that draws together leading independent standards for greenhouse gas accounting into a practical guide to carbon neutrality.

It underpins CarbonNeutral® certifications awarded by Natural Capital Partners to recognise carbon neutral organisations, products and activities, and provides a detailed framework for the design and implementation of credible carbon neutral programmes.

Purpose

The CarbonNeutral Protocol is designed for:

- **Businesses and organisations** – To understand what is required to develop a credible carbon neutral programme and to achieve CarbonNeutral® certification
- **Technical partners** – To ensure Natural Capital Partners' technical partners (e.g. GHG assessors) understand what is required of them so that their services are consistent with the requirements of each CarbonNeutral® certification
- **The wider "Climate Action Community" –** To encourage partnerships amongst business, NGOs, policy-makers, regulators and civil society to promote high standards for carbon accounting and the offsetting of greenhouse gas emissions

The CarbonNeutral Protocol has been developed as a set of requirements to provide businesses with a single-source guide to make credible, transparent claims anywhere in the world. As third-party standards are developed, The CarbonNeutral Protocol aims to provide a framework which builds upon the best guidance in the market and offers a unifying process for making carbon neutral claims that are recognised internationally.

Principles

Three principles are the foundation for CarbonNeutral certifications:

1. Promote immediate action to support deeper and widespread transformation

Carbon neutrality is the action taken immediately by an entity to fully compensate for the global warming impact from its greenhouse gas emissions. Transformation to a sustainable and resilient net zero economy is accelerated by carbon neutrality as entities act ahead of and beyond regulation. Carbon neutral entities reduce emissions under their direct control and enable mitigation activities elsewhere that require finance to deliver mitigation in line with the UNFCCC's goals and contribute to the UN's Sustainable Development Goals.

2. Built on conservative estimation, best practice, transparency and continuous improvement

Entities use the CarbonNeutral® logo as a credible marker of best practice when communicating their voluntary climate action to key stakeholders. Entities commit to disclosing the basis of their claims – including the GHG emission inventories, management processes, methodologies, standards and protocols that deliver carbon neutrality in accordance with the requirements of The CarbonNeutral Protocol – and accept that these requirements may change to align with emerging best practice.

3. Committed to pragmatism and impact

Achieving carbon neutrality is an actionable, understandable and pragmatic response that can be adopted by any entity to meet its climate objectives and play a meaningful role in driving the transition to net zero across the global economy. The CarbonNeutral certification logo enables entities to communicate their commitment to carbon neutrality to key stakeholders so they may be recognised and rewarded for their progressive action.

These principles guide the development and application of the Protocol, particularly when the application of the Protocol's requirements to specific issues or situations is ambiguous or

unclear. When specific circumstances arise where the application of the Protocol's requirements would not align with the intent of the principles, Natural Capital Partners reserves the right to amend the requirements of the Protocol to ensure the integrity of the certification.

Structure of The CarbonNeutral Protocol

High-level requirements for achieving CarbonNeutral® certification are set out in the Core Requirements section of this document. More detailed requirements are set out in the Technical Specifications that follow it. Detailed advice and clarification on selected topics can be found in the subsequent Guidance.

The term "must" is used in this document to indicate a requirement of the Protocol. The term "must not" indicates prohibited actions. The term "should" is used to indicate a recommendation, but not a requirement.

Development of The CarbonNeutral Protocol

The CarbonNeutral Protocol undergoes an annual development cycle which involves input from multiple stakeholders.

Natural Capital Partners' Advisory Council[1] is consulted on development priorities within the annual revision cycle. In addition, we consult with certified companies, our assessment partners and other sustainability leaders and environmental NGOs. We will seek to further deepen this consultation ahead of the 2023 edition.

Natural Capital Partners also invites and encourages input from clients and others with an interest in carbon neutrality. Suggestions for development priorities for subsequent versions of The CarbonNeutral Protocol should be sent to Natural Capital Partners at info@naturalcapitalpartners.com.

Based upon our experience and understanding of changing client needs, developments in the market for climate solutions and guidance from our Advisory Council, material changes to The CarbonNeutral Protocol in this 2022 version include:

- **New** requirement for internal abatement strategies and/or targets for entities with annual footprints over 100,000 tCO_2e (**Core Requirement 3** and **Technical Specification 3.1**)
- **New** brand certification (**Table 3** and **Technical Specification 1.2**)
- **New** product (not including use) certification (**Table 3** and **Guidance 1.4**)
- **New** treatment of Energy Attribute Certificates (EACs) in Scope 3 emissions (**Guidance 2.4.2**)
- **New** guidance on corresponding adjustments under the Paris Agreement (**Guidance 4.8**)
- **Updated** guidance on quality assurance and verification to clarify how Assessment Partners, Assessment Providers and attestations are approved (**Guidance 2.3**)
- **Updated** "Target and Reduce Form" for gathering information about the abatement targets of certified clients (**Technical Specification 3.2**)
- **Updated** required emissions sources and guidance for CarbonNeutral product certification (**Table 3** and **Guidance 1.4**)
- **Updated** Approved Environmental Instrument Standards (**Technical Specification 4.1**)
- **Updated** guidance on net zero targets (**Guidance 3.4**)
- **Updated** guidance about communications of GHG inventory metrics (**Core Requirement 5**)

[1] www.carbonneutral.com/who-we-are/advisory-members

Relationship to other standards, protocols and broader context

The Protocol incorporates best practices in the areas of measurement and monitoring of GHG emissions and the design and certification of emission mitigation projects. Concerning GHG measurement, the Protocol is aligned with the GHG Protocol Corporate Standard (including the separate Guidance on Scope 2 and 3 accounting), the GHG Protocol Product Standard, ISO standards for Life Cycle Assessment and Carbon Footprinting and the principles of the BSI PAS 2050 standard for products and services.

The Protocol is both influenced by and contributes to the evolution of other relevant standards, including but not limited to: ICROA's Code of Best Practice; ISO's new project to define carbon neutrality; and the Science Based Targets initiative's (SBTi) Corporate Net-Zero Standard. These are critical to the Protocol's evolution and the Protocol's experience of being used as a framework for climate action around the world makes it a key point of reference. In 2022, we expect that the Voluntary Carbon Market Integrity Initiative (VCMI) and the Integrity Council for the Voluntary Carbon Market (also known as the Carney Taskforce for Scaling the Voluntary Carbon Market) will develop new guidance relevant to the application of The CarbonNeutral Protocol.

The Protocol recognises the importance of taking action that is appropriate and proportionate to the range and scale of a client's sustainability impacts. CarbonNeutral® certifications by definition are focused on climate impacts. However, clients should assess their material environmental, social, and economic impacts and take action appropriate to related impacts. Clients should use internationally recognised management standards, appropriate to the scale of their impacts, to identify and manage their key impacts. Such management standards include but are not limited to the ISO 14000 and ISO 9000 series.

About Natural Capital Partners

With more than 300 clients in over 30 countries, including Microsoft, MetLife, Logitech, PwC, Sky and Ørsted, Natural Capital Partners is harnessing the power of business to create a more sustainable world. Through a global network of projects, the company delivers the highest quality solutions which make real change possible: reducing carbon emissions, generating renewable energy, building resilience in supply chains, conserving and restoring forests and biodiversity, and improving health and livelihoods.

Natural Capital Partners was founded in 1997 and has offices in North and South America, Asia, and Europe. Since it began, the company has worked with more than 500 projects in 75 countries on behalf of its clients.

The CarbonNeutral Protocol is one of the services provided by Natural Capital Partners.

In May 2021, Natural Capital Partners merged with ClimateCare. The combined group will use its access to capital, global reach and longstanding industry and project development expertise to drive further innovative solutions and partner with its clients to deliver on their ambitious climate and net zero goals.

Acknowledgements

Natural Capital Partners is solely responsible for the development and deployment of The CarbonNeutral Protocol as an open access standard. However, we wish to acknowledge and thank our clients, members of our Advisory Council, and the many organisations and individuals that have encouraged, supported and shared their expertise with us during the development of the Protocol since it was first launched in 2002. We could not have done our work without their invaluable help.

Use, legal disclaimer and copyright

The CarbonNeutral Protocol should be applied in conjunction with relevant terms and conditions on the use of logos, marks and trademarks owned by Natural Capital Partners, as specified in contracts with Natural Capital Partners.

CarbonNeutral® certifications made in accordance with previous versions of The CarbonNeutral Protocol are not retroactively affected by subsequent changes to The CarbonNeutral Protocol. In practice, this means that the version of The CarbonNeutral Protocol applicable to a certification is the version as of the date when the contract for certification of the relevant subject is signed. The latest version of The CarbonNeutral Protocol should be used when Certifications are renewed.

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Awards

Natural Capital Partners was recognized by Environmental Finance as Best Offset Retailer from 2011-2020 and Best Advisory Service from 2017-2020.

2014 2015 2016 2017 2018

Environmental Finance Voluntary Carbon Market Rankings 2019 Winner

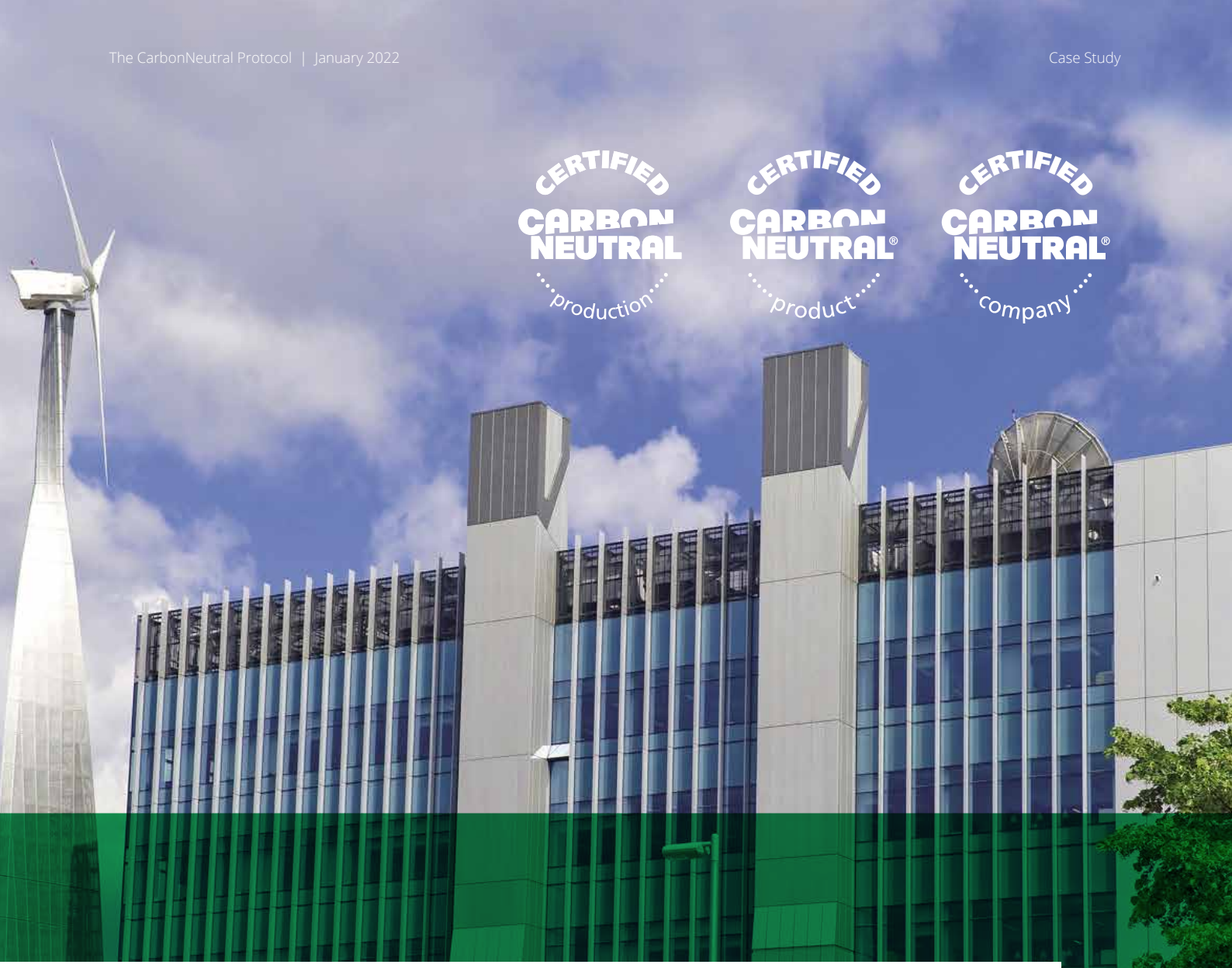
Environmental Finance Voluntary Carbon Market Rankings 2020 Winner

Best Offset Retailer VOLUNTARY CARBON MARKET SURVEY 2011 Environmental Finance PUBLICATIONS

Best Offset Retailer VOLUNTARY CARBON MARKET SURVEY 2012 Environmental Finance PUBLICATIONS

Best Offset Retailer VOLUNTARY CARBON MARKET SURVEY 2013 Environmental Finance PUBLICATIONS

Gyapa Efficient Cookstoves, Ghana:
Training local potters and metalworkers to create more efficient cookstoves that improve health and reduce emissions



Sky PLC Builds Business Reputation with CarbonNeutral® Company, Product and Production Certifications

Define: CarbonNeutral® company first certified in 2006, all its original productions CarbonNeutral® production in 2019, Sky Glass a CarbonNeutral® product in 2021

Measure: Emissions of its operations and business travel for company certification, total lifecycle emissions of its original productions from inception to broadcast for the production certification and the lifecycle emissions of Sky Glass ranging from its manufacture, energy consumed by viewers and end of life

Target: Certification is an integral part of Sky's growing reputation for leading environmental action, alongside its target to become net zero by 2030 and a Science-Based Target across its value chain by 2030

Reduce: Verified carbon projects used to offset remaining emissions following internal reduction efforts including investment in on-site renewables. Sky has financed more than 40 emissions reductions projects that build low carbon sustainable development around the world. These have included renewable energy in India and rainforest conservation in Brazil and Indonesia. In addition to offsetting its remaining footprint, Sky is also supporting a reforestation project in Scotland

Communicate: CarbonNeutral certification has formed an integral part of a range of campaigns to build Sky's reputation by being at the forefront of environmental issues, and reinforce its credentials as an industry leader

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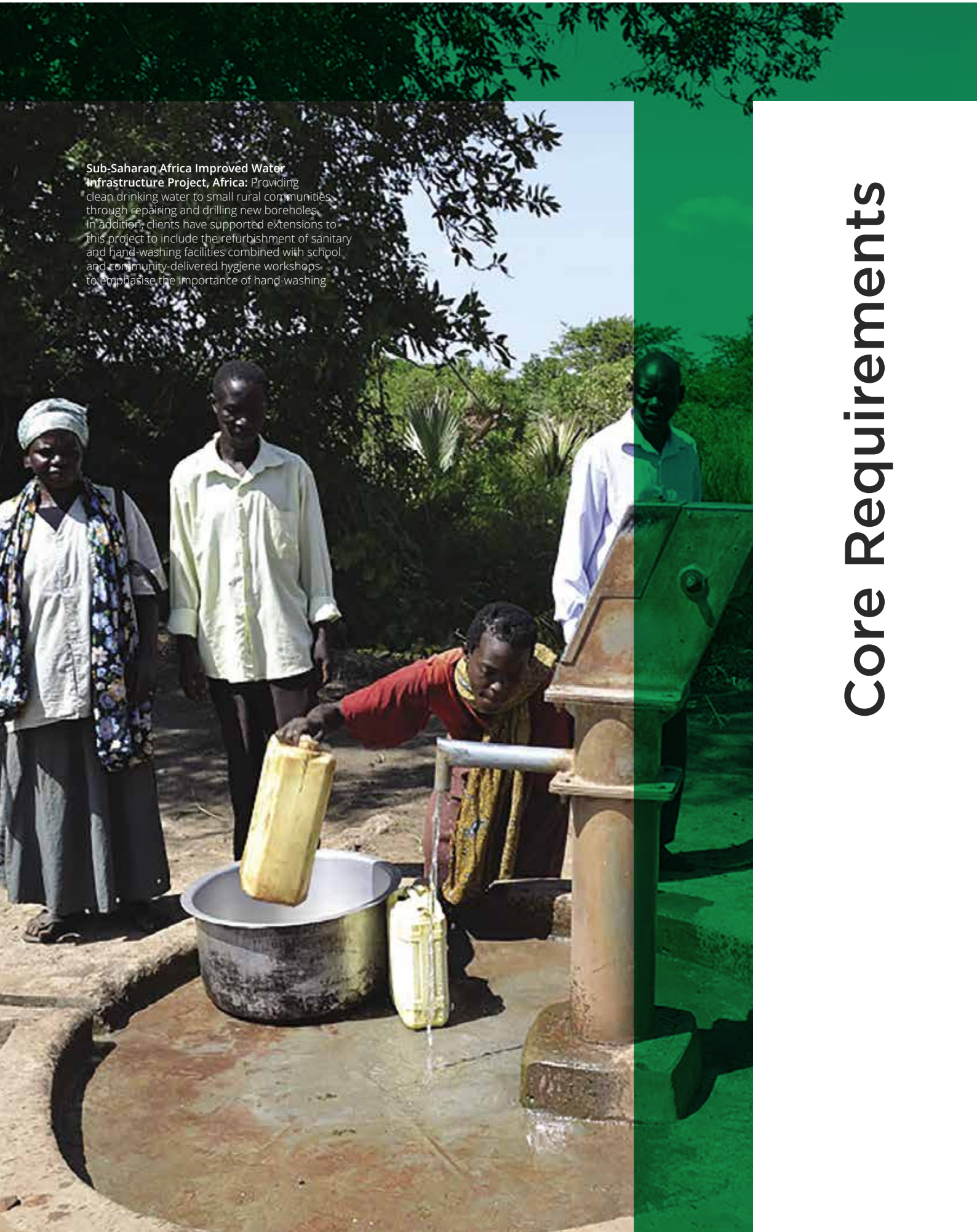


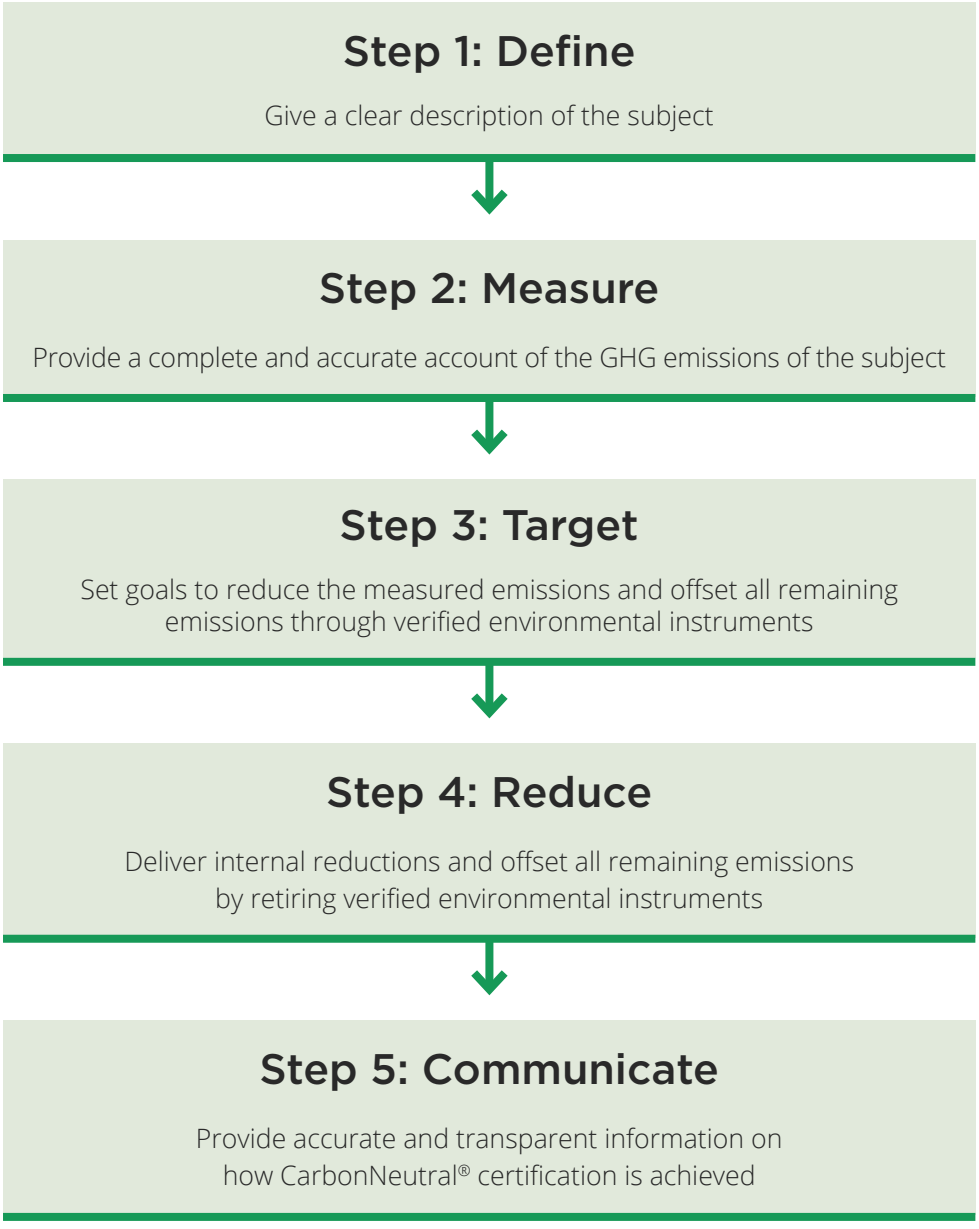
Sub-Saharan Africa Improved Water Infrastructure Project, Africa: Providing clean drinking water to small rural communities through repairing and drilling new boreholes. In addition, clients have supported extensions to this project to include the refurbishment of sanitary and hand-washing facilities combined with school and community-delivered hygiene workshops to emphasise the importance of hand-washing

Core Requirements

The Five Steps to Achieving CarbonNeutral® Certification

As illustrated in **Figure 1**, there are five steps to achieving CarbonNeutral® certification. These five steps are mandatory for all classes of certification. While these steps are set out sequentially, they may be carried out in parallel.

Figure 1: Five Steps to Achieving CarbonNeutral® Certification



Step 1: Define

The first step is to clearly define the subject that will be certified CarbonNeutral®. The subject is the entity, product or activity being certified CarbonNeutral® and may be distinct from the client.

Requirements/recommendations

The subject to which The CarbonNeutral Protocol is being applied must be clearly defined, by name and by description of the relevant legal and/or physical boundaries. The duration of a CarbonNeutral® certification must also be defined with a start and end date applicable to the award of the certification.

The CarbonNeutral® certification to be applied must also be defined and must be compatible with the subject. The definition of the subject and the certification must be recorded by the CarbonNeutral certifier and the information retained for the purpose of auditing.

CarbonNeutral® Certifications and their Emission Sources

To provide consistency across a wide range of possible situations, The Protocol provides for a number of different CarbonNeutral® certifications corresponding to different possible entities, products and activities.

These certifications are grouped into three classes:

Entities: Defined by legal status and spatial boundaries, covering all types of organisations, including companies and public sector bodies, households, individuals and sub-divisions of these.

Products: Defined as an article, substance, capital asset or combination of product and service produced, manufactured or refined for the purpose of onward sale. This class includes mass produced goods such as food and equipment; single use and custom built products such as buildings and urban developments; and, products-as-a-service, such as on-demand printing and personal transport.

Activities: Defined by the delivery of utility through a combination of mobile and stationary activities, including traditional transportation services (flights, car journeys, logistics, etc.), information provision such as hosting of data, or professional services, and one-off events that involve a combination of mobile and stationary activities (events, conferences etc.).

Technical Specification 1.1 includes tables, organised by certification class, that specify required and recommended emission sources to be included in a subject's GHG assessment and CarbonNeutral® certification.

Step 2: Measure

The second step is to measure the subject's GHG emissions and provide a complete and accurate GHG inventory over a relevant timescale.

Requirements/recommendations

The subject's GHG emissions must be assessed in accordance with the requirements set out for entities, products and activities in **Table 6**.

Guidance 2 provides additional information regarding the measurement of GHG emissions. CarbonNeutral certifiers and technical partners should also pay particular attention to the contents of **Technical Specification 1.2** which provides further guidance and clarification on defining the subject for certifications.

Solar Water Heating, India: Carbon finance enables the use of solar technology to meet the energy needs of a growing population while promoting low carbon development

Step 3: Target

The third step is to confirm a target of carbon neutral GHG emissions for the period of the certification to be delivered through internal abatement of GHG emissions and the retirement of environmental instruments to compensate for unabated emissions. The aim is to ensure clients get business value from clear, ambitious and immediate action on carbon emissions, and effective and efficient emissions reductions are stimulated by the presence of a carbon neutral target.

Requirements/recommendations

As illustrated by **Figure 2**, the client must commit to an overall target of carbon neutral GHG emissions for the subject during the certification period.

For all subjects, the client should set an internal abatement target to ensure the subject's gross or actual emissions decrease over time. The target may be expressed as an absolute GHG emission reduction or as a decrease in GHG intensity.

Absolute GHG reduction targets compare total GHG emissions in the target year to those in a base year (e.g. reduce CO_2e by 25 percent below 2015 levels by 2025). GHG intensity targets are expressed as a ratio of emissions relative to a business metric (e.g. reduce CO_2e by 25 percent per full-time employee by 2025). Absolute GHG reduction targets should be given preference over GHG intensity targets whenever possible.

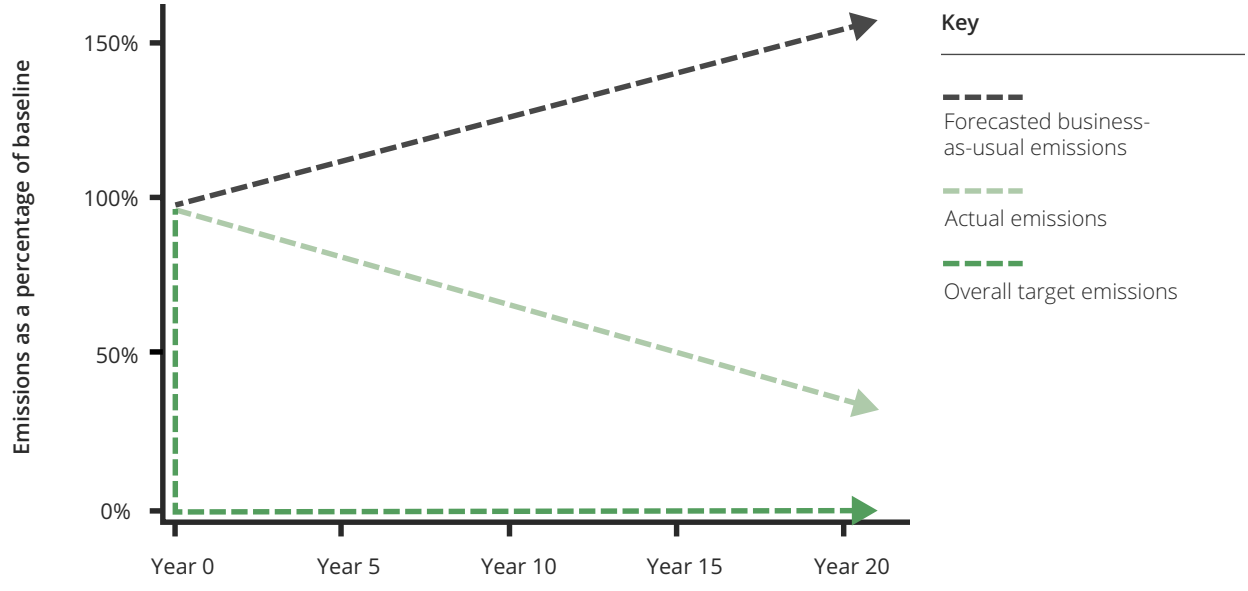
For more about approaches to setting abatement targets see **Guidance 3.3**.

Clients with an annual footprint above 100,000 tCO_2e1 must have set one of the internal abatement strategies and/or targets set out in **Technical Specification 3.1** in order to receive a CarbonNeutral® certification. This applies even if the subject of the certification is less than 100,000tCO_2e. This Technical Specification will be reviewed annually to ensure that it reflects best practice in target setting for internal abatement.

Any internal abatement targets must be specified in a client's CarbonNeutral® Certification Target and Reduce Form (see **Technical Specification 3.2**).

While targets may be extended to net zero (see **Guidance 3.4**), carbon (or climate, or net) positive (see **Guidance 3.5**), or to other impacts on the Sustainable Development Goals, CarbonNeutral certification applies only to neutrality as defined in The Protocol.

Figure 2: Emissions Profile for Subject of CarbonNeutral® Certification



[1] As defined by CarbonNeutral company certification.

Step 4: Reduce

The fourth step is to take actions that abate emissions within the subject and which fully compensate for unabated emissions to achieve carbon neutrality. Scope 1 emission reductions are delivered through cost effective energy and process efficiencies, and the introduction of low/zero-carbon technologies. Scope 2 reductions are delivered by switching to, or procuring renewable energy. Scope 3 reductions are achieved through partnerships with suppliers, changing to suppliers using low/zero-carbon technologies, and redesigning products and services so they use fewer emissions in use and disposal phases. Unabated Scope 1, 2 and 3 emissions are offset through the purchase and retirement of qualifying environmental instruments – specifically carbon credits.

Requirements/recommendations

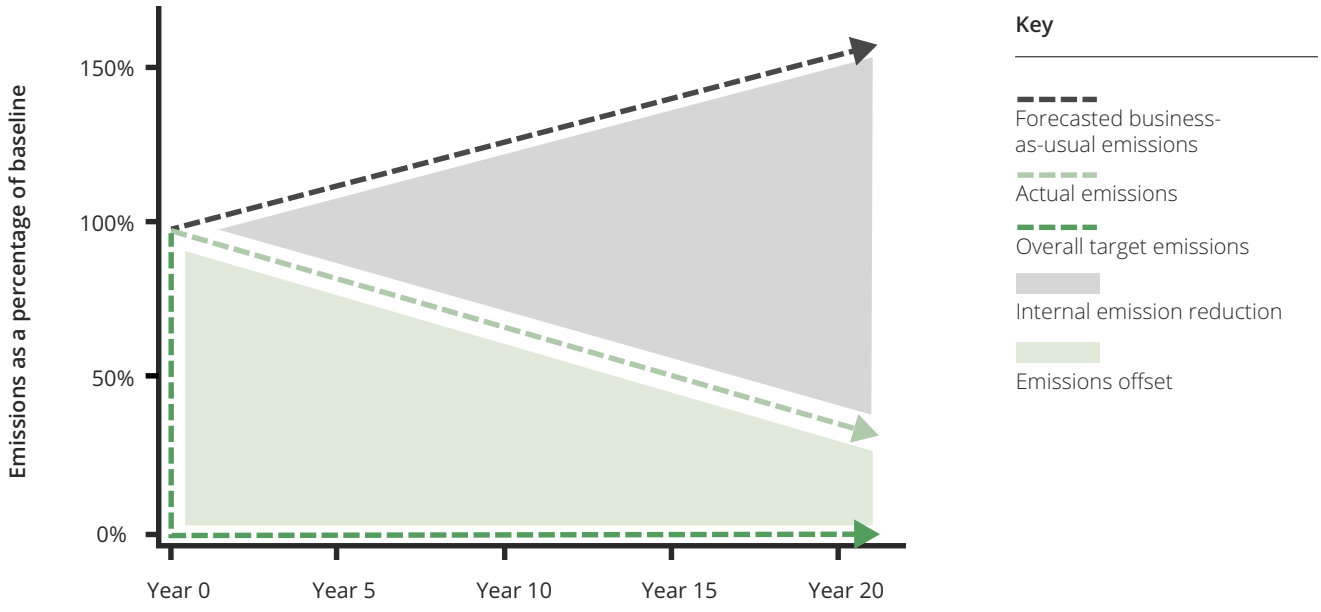
The subject's GHG emissions must be reduced to carbon neutral for the duration defined within the CarbonNeutral® certification. This may be achieved through a combination of internal abatement; switching energy consumption to low-carbon or renewable energy sources; and, the retirement of eligible carbon credits.

Requirements/recommendations covering internal emissions reductions

For all subjects, the client should action a GHG abatement plan to deliver internal emission reductions, taking into consideration the main sources of GHGs from the subject and the likely cost-effectiveness of alternative emission reduction actions. In the case of one-off subjects, such as events, this should entail consideration of emission-minimising measures during the planning phase.

GHG abatement plans should be reviewed for each new certification period to assess progress against planned actions and to assess the feasibility for further reductions, taking into account the availability of new technologies, enabling policies and incentives provided by government, and the overall business context. Where applicable, a director or senior manager should be given responsibility for overseeing the development and ensuring the implementation of emission abatement plans.

Figure 3: Reduction Measures to Achieve Carbon Neutrality



Requirements/recommendations covering renewable energy in Scope 2 emissions

Clients should reduce their (Scope 2) energy usage, and seek to access renewable energy to reduce Scope 2 emissions. When doing so, clients must follow the requirements set out in **Technical Specification 4.1.2** and should follow the guidance set out in **Guidance 2.4**, to ensure that such "green procurement" can be evidenced and meets agreed standards.

Requirements/recommendations covering the compensation and/or neutralisation of unabated emissions

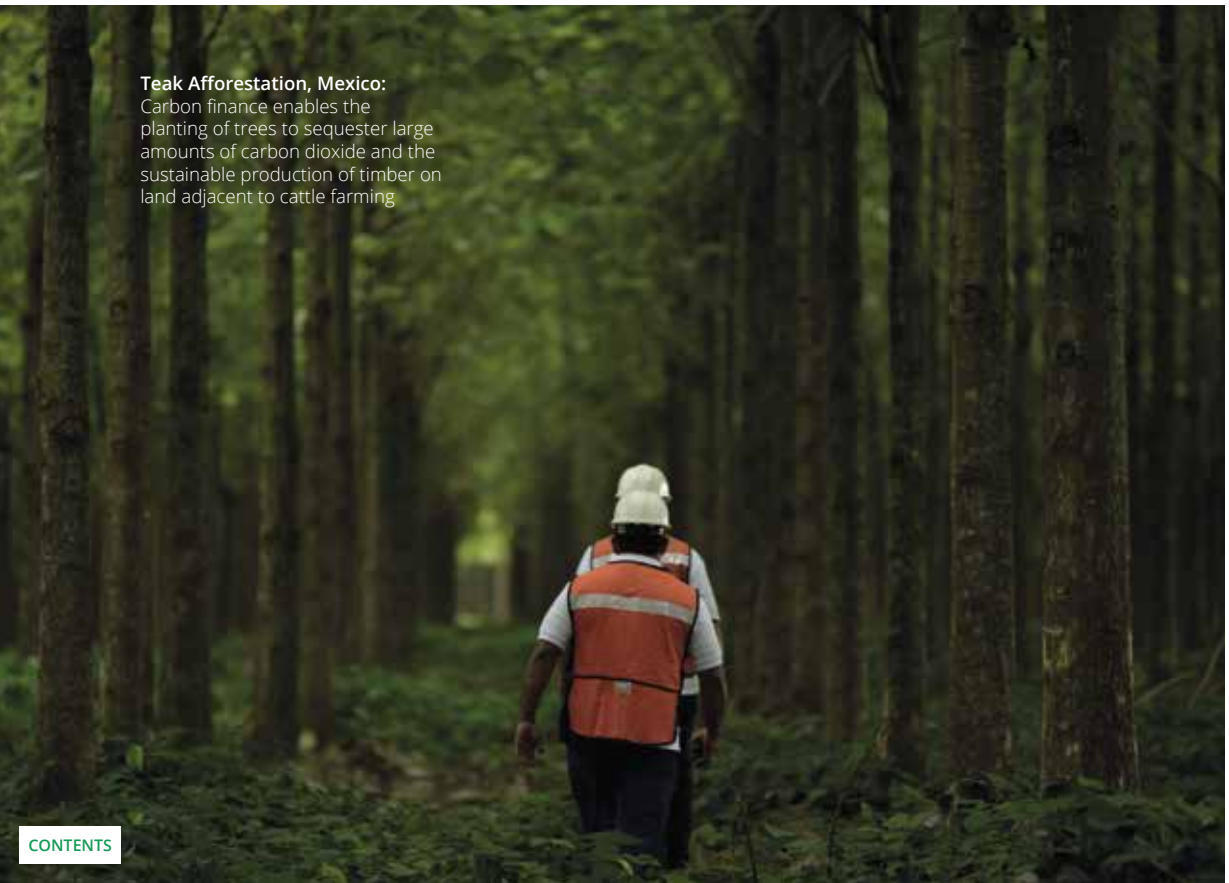
All carbon credits used towards the achievement of CarbonNeutral® certification must meet the requirements set out in **Technical Specification 4.1.1** and should follow the guidance set out in **Guidance 4**.

Carbon credits certified under the standards set out in **Technical Specification 4.1.1** have been determined to meet the requirements above and therefore are qualified to compensate for the subject's unabated GHG emissions. **Technical Specification 4.1.1** is reviewed annually to ensure it reflects developments in best practice and the performance of carbon credit standards.

When carbon credits are used towards the achievement of CarbonNeutral® certification in advance of their verification and issuance, the client must be provided with a contractual guarantee of delivery or replacement.

Carbon credits must be retired within 12 months from the delivery or purchase of the carbon credits, whichever is the latter event. The CarbonNeutral certifier must confirm that a sufficient number of carbon credits has or will be retired on behalf of the organisation seeking CarbonNeutral® certification or, the certifier must receive full assurances from the party implementing retirement that retired credits are being applied to the Subjects/time periods and cannot in any way be deemed to have been double counted.

Ex post carbon credits must be used for CarbonNeutral certifications.



Teak Afforestation, Mexico: Carbon finance enables the planting of trees to sequester large amounts of carbon dioxide and the sustainable production of timber on land adjacent to cattle farming

Figure 4: Example CarbonNeutral® Certification Logos

Step 5: Communicate

The fifth step is to provide accurate and transparent information on how CarbonNeutral® certification is achieved. As public pressure for action on climate change grows, so does scrutiny of companies' climate action, coming from a range of stakeholders including: individuals, campaigns, NGOs and other civil society organisations, and authorities that regulate consumer-facing advertising and marketing claims. This fifth part of certification is important to proactively address and respond to that increased scrutiny.

Requirements/recommendations

The CarbonNeutral® certification logo is the mechanism by which clients communicate the certification.

Clients should have a high-level understanding of all their major environmental, social, and economic impacts, and ensure that their CarbonNeutral® claims are an appropriate response and priority in relation to these major impacts. Clients may use internationally recognised management standards such as ISO 14001 to identify and manage their key impacts.

Once certified CarbonNeutral®, clients should communicate their action through use of the CarbonNeutral® certification logo.

All communications relating to a client's CarbonNeutral® certification must be factually based and should be clear and transparent so as to avoid confusion or misunderstanding. Communications must be consistent with the specific CarbonNeutral® certification achieved. Refer to **Table 1** for the full list of CarbonNeutral® certifications. The use of the CarbonNeutral® certification logo must conform to the requirements and guidance on the use of the CarbonNeutral certification logo (see **Technical Specification 5.1**).

All clients should publicly disclose GHG inventory metrics relating to their CarbonNeutral® certification, including but not limited to their total gross emissions, emission intensity metrics and emission reduction activities. Reporting options include: on product or packaging, a client's own communications and those to third-party reporting initiatives such as CDP, The Climate Registry or the Global Reporting Initiative's (GRI) Sustainability Reporting Standard.

Clients should also ensure that all claims are consistent with national or regional guidance or legislation that defines and controls environmental claims, such as the U.S. Federal Trade Commission's Green Guides, the UK Competition and Markets Authority's Green Claims Code, the Swedish Consumer Agency (Konsumentverket), and the International Chamber of Commerce's Framework for Responsible Environmental Marketing.

Logitech's Gaming Products are CarbonNeutral®

CarbonNeutral® certifications form a key pillar of Logitech's extensive sustainability programme and are reflective of Logitech's aim to be one of the most sustainable technology companies in the world.

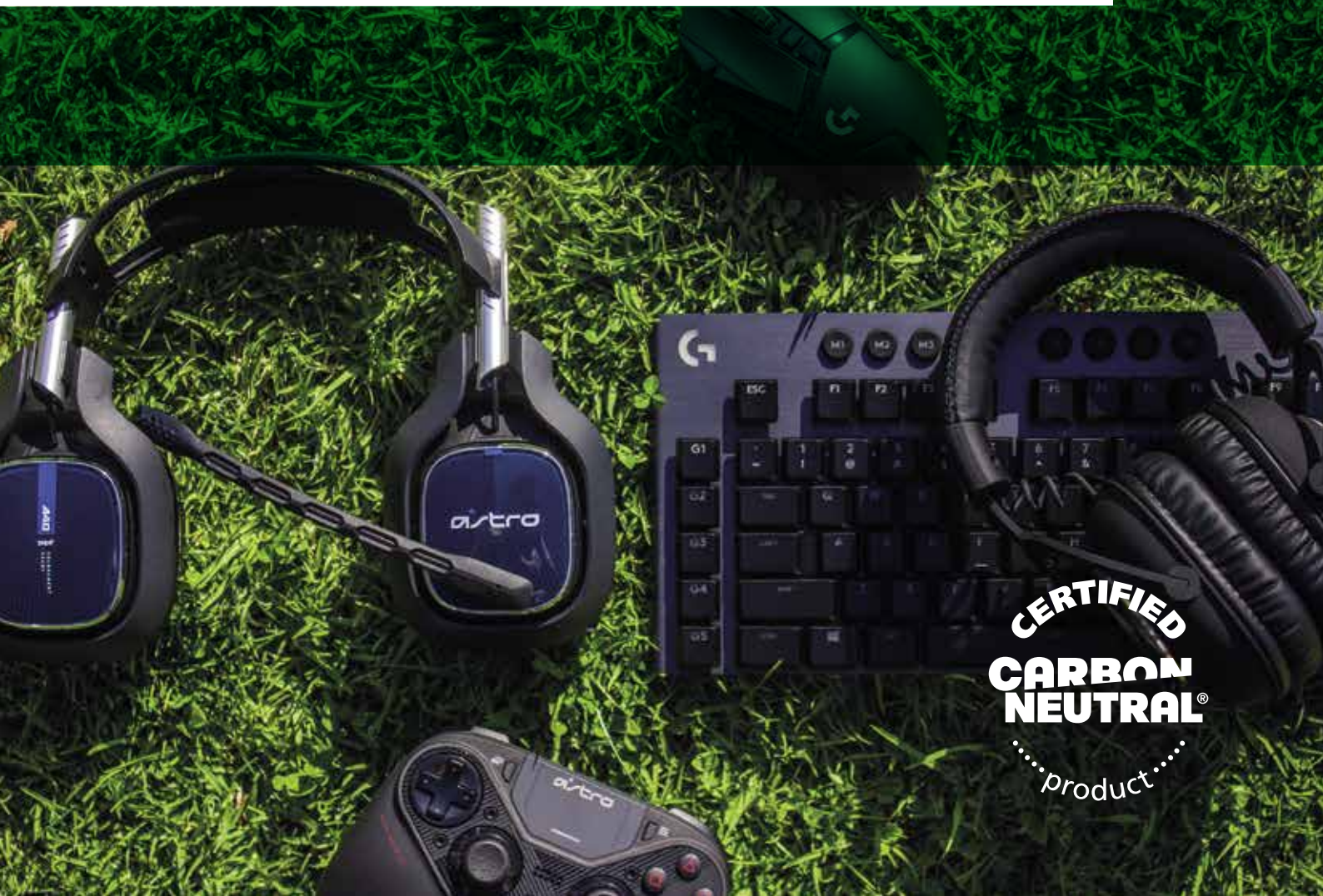
Define: Entire gaming product portfolio is CarbonNeutral®, first certified in 2019. All company business travel is CarbonNeutral®, first certified in 2019. Manufacturing site is a CarbonNeutral® building, first certified in 2018

Measure: Life-cycle assessment (LCA) of the greenhouse gas emissions of gaming products, primary manufacturing facility and business travel

Target: Logitech's CarbonNeutral® building, corporate travel and gaming products are part of a wider programme of Climate Action, which includes commitment to a Science-Based Target and 100% Renewable Electricity by 2030

Reduce: Logitech's commitment to reducing its carbon footprint extends from the early-stage innovation and sustainable design of lighter weight materials, better packaging, powering its manufacturing site and offices with renewable electricity, and purchasing verified emission reductions from renewable energy projects in China, a solar cooker project in China, and forestry protection projects in Brazil, Canada and Indonesia

Communicate: Logitech announced its carbon neutral gaming portfolio during COP25, alongside its Science-Based Target and RE100 commitment



NATURAL CAPITAL PARTNERS

Kitambar Renewable Biomass Fuel Switch Project, Brazil: Working with a local ceramics factory, the project has switched the fuel source from unmanaged forest wood to renewable biomass sources, delivering emissions reductions by reducing unsustainable harvesting of native vegetation

Technical Specification and Guidance

Step 1: Define
Technical Specification

1.1 Required GHG Emissions Sources

The certifications are grouped into three classes. Each certification logo can be translated to meet local language communication requirements. However, CarbonNeutral® cannot be translated and is only trademark protected in this format and language.

Table 1: CarbonNeutral® Certification Classes

Entity certifications	Product certifications**	Activity certifications
Company/Organisation/Manufacturer	Product	Service
Couriers	Brand	Delivery/Shipment*
Hotel*	Product (not including use)	Driving/Fleet
Department/Division/Office	Product-as-a-service*	Flights
Operations	Paper/Publication	Print production*
Data centres*	Packaging	Hotel stay
Building/Office space/Venue	Development/Fit-out*	Hosting/cloud services*
	Electricity	Event/Exhibitor
	Usage*	Business travel*
		Energy use*
		Electricity use
		Gas use/Gas supply
		Electricity supply
		Voyages
		Production* (media)

*See **Technical Specification 1.2**.
**Products or packaging may only carry a CarbonNeutral product or CarbonNeutral packaging logo respectively.

Improved Cookstoves, Bangladesh: Carbon finance increases fuel efficiency and reduces indoor air pollution using improved cookstoves

Table 2: CarbonNeutral® Entity Certifications – Required GHG Emissions Sources

GHG assessment emission sources						CarbonNeutral® entity certifications						
Category		Emission source category (Aligned to the GHG Protocol: Corporate Standard and Value Chain Standard – numbers refer to the emission source numbering within the Value Chain Standard in **Guidance 1.3**)				Company/ Organisation/ Manufacturer	Couriers	Hotel	Department/ Division/Office	Operations	Data centres	Building/Office space/Venue
GHG Protocol: Corporate Standard Scope 1 and 2 , Value Chain Standard Scope 3	Scope 1	Direct emissions arising from owned, leased or directly controlled stationary sources that use fossil fuels and/or emit fugitive emissions (e.g. refrigerant gases)				✓	✓	✓	✓	✓	✓	✓
		Direct emissions from owned, leased or directly controlled mobile sources				✓	✓	✓	✓	✓	n/a	n/a
	Scope 2	Emissions from the generation of purchased electricity, heat, steam or cooling				✓	✓	✓	✓	✓	✓	✓
	Scope 3 upstream	1	Purchased goods and services			●	●	●	●	●	●	●
		2	Capital goods			●	●	●	●	●	●	●
		3	Fuel- and energy-related activities (not included in Scope 1 or Scope 2)	3a	Upstream emissions of purchased fuels	●	●	●	●	●	●	●
				3b	Upstream emissions of purchased electricity	●	●	●	●	●	●	●
				3c	Transmission and distribution (T&D) losses[1]	✓	✓	✓	✓	✓	✓	✓
		4	Upstream transportation and distribution		Outbound courier deliveries of packages[2]	●	✓	●	●	●	●	●
					Third-party transportation and storage of inbound production-related goods[3]	●	●	●	●	●	n/a	n/a
		5	Waste generated in operations		Wastewater	●	●	●	●	●	●	●
					Other waste	✓	✓	✓	✓	✓	✓	✓
		6	Business travel		All transportation by air, public transport, rented/leased vehicle and taxi	✓	✓	✓	✓	●	●	n/a
					Emissions arising from hotel accommodation associated with business travel	●	●	●	●	●	●	n/a
		7	Employee commuting		Employee transport between home and places of work	●	●	●	●	●	●	n/a
					Emissions arising from employee homeworking and remote work[4]	✓	n/a	n/a	✓	✓	n/a	n/a
		As defined in the Value Chain Standard, Scope 3 upstream emission source category 8 is not currently required or recommended under any of the CarbonNeutral® entity certifications, for further details see **Guidance 1.3**										
	Scope 3 downstream	9	Downstream transportation and distribution[5]		Third-party transportation and storage of sold products[6]	✓	✓	✓	✓	✓	n/a	n/a
		11	Use of sold products			●	n/a	n/a	n/a	n/a	n/a	n/a
		As defined in the Value Chain Standard, Scope 3 downstream emission source categories 10 through 15 are not currently required or recommended under any of the CarbonNeutral® entity certifications, for further details see **Guidance 1.3**										
Certification specific requirements (See **Technical Specification 1.2**)						n/a	n/a	▲	n/a	▲	n/a	n/a

Legend: ✓ Required ● Recommended ▲ Guidance n/a Not applicable to the certification

[1] T&D losses must be included where relevant emissions factors are available (e.g. UK based assessments based upon DEFRA emissions factors). Where EACs are used to manage Scope 2 emissions EACs do not address Scope 3 T&D losses. T&D losses may be offset using carbon credits or EACs.

[2] Excludes letters sent by general mail service suppliers.

[3] This relates to product manufacturers or companies whose primary business is distribution of products manufactured by other entities. This is intended to capture significant emissions from the inbound transportation and storage of production-related goods. This is not intended to capture or include emissions from the day-to-day movement of non-core business consumables.

[4] This is intended to capture the additional emissions not included in Scope 1 and 2 that result from facilities outside of a company's control, either permanently or temporarily, on top of a baseline scenario that would occur regardless of whether the employee was at home.

[5] This is only a required source of emissions for product manufacturers and for companies whose primary business is distribution of products manufactured by other entities. This is intended to capture significant emissions from the outbound transportation and storage of final products manufactured and/or sold by the entity. This is not intended to capture or include emissions from the day-to-day movement of non-core business consumables.

[6] Where there are transportation and distribution emissions relating to a third-party site, e.g., a third-party warehouse, this must include Scope 1 and Scope 2 emissions of that site. Where assessors identify further emission sources that are material according to their professional judgment, these must also be calculated and included. Where emissions from transportation and storage are included, this must be accounted for until the first customer receives the product, regardless of which party is responsible for the associated expense.

Table 3: CarbonNeutral® Product Certifications - Required GHG Emissions Sources

Cradle-to-grave
Cradle-to-customer

Required assessment emission sources		CarbonNeutral® product certifications								
Category	Emissions source category	Product	Brand	Product (not including use)	Product-as-a-service	Paper/ Publication	Packaging	Development/ Fit-out	Electricity	Usage
Extraction and processing of raw materials and packaging	Cradle-to-grave or cradle-to-customer embodied emissions of raw materials[1], inputs to production[2] and packaging[3]	✓	✓	✓	✓	✓	✓	✓	✓	n/a
	Inbound deliveries of raw materials and inputs to production	✓	✓	✓	✓	✓	✓	✓	✓	n/a
Manufacturing and storage of product and packaging	Direct emissions from on-site fossil fuel use and fugitive emissions	✓	✓	✓	✓	✓	✓	✓	n/a	n/a
	On-site consumption of purchased electricity[2]	✓	✓	✓	✓	✓	✓	✓	✓	n/a
	Emissions from waste disposal[4]	✓	✓	✓	✓	✓	✓	✓	n/a	n/a
Distribution	Transportation of sold products to first customer[5]	✓	✓	✓	✓	✓	✓	n/a	n/a	n/a
Onward distribution	Onward storage and transportation	✓	✓	●	✓	●	●	n/a	n/a	n/a
Retail	Direct emissions from on-site fossil fuel use and fugitive emissions	✓	✓	●	✓	●	n/a	n/a	n/a	n/a
	On-site consumption of purchased electricity and/or steam	✓	✓	●	✓	●	n/a	n/a	n/a	n/a
Use	Use emissions, including maintenance	✓	✓	●	✓	n/a	n/a	n/a	n/a	✓
Disposal	Emissions from disposal of sold products at end of life	✓	✓	●	✓	●	●	●	n/a	n/a
Other	Construction worker travel to and from development site	n/a	n/a	n/a	n/a	n/a	n/a	✓	n/a	n/a
Certification specific requirements (See **Technical Specification 1.2**)		n/a	▲	n/a	▲	n/a	n/a	▲	n/a	▲

Legend: ✓ Required ● Recommended ▲ Guidance n/a Not applicable to the certification

The boundary for product level certifications must be consistent with the definition of the subject. For cradle-to-customer subjects, the boundary must extend from cradle to the point at which the client applying for CarbonNeutral® certification is no longer the owner or purchaser of the transportation/storage service. If using an EPD which meets the requirements specified in **Guidance 2.8**, the emission sources required for the EPD shall prevail over the emissions sources specified above. For further information regarding appropriate boundaries for cradle-to-customer certifications, see **Guidance 1.4**. For cradle-to-grave subjects, the boundary must extend to end-of-life disposal.

[1] Land use change (LUC) emissions are required for those product certifications that have a significant impact on LUC associated with agricultural and commodity supply chains. For agricultural and commodity supply chains, LUC emissions can be excluded if a sufficient farm-level certification was in place (e.g. Rainforest Alliance, UTZ). The Protocol accepts the guidance set out by Quantis (See Recommendation 9, Quantis, 2019, *Accounting for natural climate solutions* https://quantis-intl.com/report/accounting-for-natural-climate-solutions-guidance).
[2] Although we encourage clients to offset the wider scope of emissions, T&D losses are not a required emissions source in a CarbonNeutral product certification.
[3] Primary packaging must be included and secondary and tertiary is recommended. Any packaging that carries information about the brand and product, and which is included with the product when it is bought by the final customer is primary – all other packaging is secondary (e.g. for delivery to retailer or tertiary (e.g. for long-distance distribution)).
[4] Where data is available, it is recommended that emissions arising from water consumption and also wastewater treatment are included within these categories.
[5] Where emissions from transportation and storage are included, this must be accounted for until the first customer receives the product, regardless of which party is responsible for the associated expense.

Table 4: CarbonNeutral® Activity Certifications – Required GHG Emissions Sources

Required assessment emission sources	CarbonNeutral® activity certifications														
Emissions source category	Service	Delivery/Shipment	Driving/Fleet	Flights	Print production	Hotel stay	Hosting/Cloud services	Event/Exhibitor	Business travel	Energy use	Electricity use	Gas use/Gas supply	Electricity supply	Voyages	Production (media)
All direct emissions from on-site sources used to deliver the activity	✓	✓	n/a	n/a	✓	✓	✓	✓	n/a	✓	n/a	✓	✓	n/a	✓
All direct emissions from mobile sources used to deliver the activity	✓	✓	✓	✓	n/a	✓	n/a	n/a	✓	n/a	n/a	n/a	n/a	✓	✓
Emissions from the consumption of purchased electricity (including transmission and distribution) and/or steam used in the delivery of the activity	✓	✓	✓	n/a	✓	✓	✓	✓	✓	✓	✓	n/a	✓	✓	✓
Travel of employees/ contractors - by air, public transport, rented/leased vehicle and taxi - involved in the delivery of the activity	●	n/a	n/a	n/a	●	●	●	✓	n/a	n/a	n/a	n/a	n/a	n/a	✓
Travel of individuals to and from the activity - by air, public transport, rented/leased vehicle and taxi, and hotel accommodation	n/a	n/a	n/a	n/a	n/a	n/a	n/a	●	n/a	n/a	n/a	n/a	n/a	n/a	✓
Emissions from hotel accommodation due to business travel	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	n/a	n/a	n/a	n/a	n/a	n/a
Waste disposal[1]	●	n/a	n/a	n/a	✓	✓	✓	✓	n/a	n/a	n/a	n/a	n/a	✓	✓
Embodied emissions of consumables used in the delivery of the activity	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	✓	✓
Transportation of products associated with the activity to the first customer	n/a	n/a	n/a	n/a	✓	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Certification specific requirements (See Technical Specification 1.2)	n/a	▲	n/a	n/a	▲	n/a	▲	▲	▲	▲	n/a	n/a	n/a	n/a	▲

Legend: ✓ Required ● Recommended ▲ Guidance n/a Not applicable to the certification

[1] Where data is available, it is recommended that emissions arising from wastewater treatment are included within this category.

1.2 Certification specific requirements

This Technical Specification provides further details on the requirements of certification categories as set out in **Tables 2**, **3** and **4**.

CarbonNeutral® entity certification specific requirements

CarbonNeutral® hotel

Emissions from outsourced laundry services must be included.

CarbonNeutral® data centres

Includes refrigerant gas loss at the data centre; office emissions of specific account management staff (if they are not physically located in the data centre); business travel of any staff specifically assigned to manage the account/equipment of the company that is using the data centre.

CarbonNeutral® product certification specific requirements

CarbonNeutral® brand

This is listed as a product certification because the scope of a CarbonNeutral brand must include all products which fall under that brand name. In addition, the scope must include non-product-related emissions relating to the operation of the brand where those emissions are not already accounted for in the footprint or LCA of the products, in accordance with the CarbonNeutral division certification (see **Technical Specification 1.1** for the required GHG emissions sources for CarbonNeutral entity certifications). Individual products and product lines are not expected to have disaggregated footprint data.

CarbonNeutral® product-as-a-service

Includes all emissions arising from: a product, annualized for the length of the certified service or per unit of usage; and usage emissions from the entire service for which the product is certified.

CarbonNeutral® development

Emissions from the ongoing use of the development post construction are excluded.

CarbonNeutral® usage

All direct and indirect GHG emissions from the end-consumer use, for a period equivalent but not limited to the expected average lifetime of the product.

Aqua Clara Water Filters, Kenya:
Providing safe water to homes and schools while avoiding the emissions from the need to boil unsafe water

CarbonNeutral® activity certification specific requirements

CarbonNeutral® delivery/shipment

Includes intermediate emissions from static operations e.g. warehousing and storage.

When the CarbonNeutral® delivery certification logo is carried on a delivered product, the scope must include the entire distribution chain for the finished product from point of manufacture or ownership to the end user, or in the case of consumer products, to the point of retail to the end consumer.

When the CarbonNeutral® delivery certification logo is used by a logistics provider to differentiate their logistics service and the logo is not carried on a delivered product, the scope need only include the portion of the distribution chain over which the logistics provider is the provider/ purchaser of the service.

CarbonNeutral® print production

Boundaries must include emissions associated with the printing process and transport of printed material from printers to clients (specifically excluding emissions from the paper/other materials used).

CarbonNeutral® hosting/cloud services

Includes refrigerant gas loss at the data centre; office emissions of specific account management staff (if they are not physically located in the data centre); business travel of any staff specifically assigned to manage the account/equipment of the company that is being provided with the hosting service.

Emissions are calculated for the entity as a whole and allocated to the subject using a methodology that accurately apportions emissions to the service provided. Allocation methodologies could include the amount of: memory (RAM), storage space, processing power, bandwidth, and the level of managed service (labour), and need to be agreed on a case-by-case basis.

CarbonNeutral® event/exhibitor

Emissions from hotel accommodation should be included.

CarbonNeutral® business travel

Boundaries must include emissions arising from business travel - by air, public transport, rented/ leased/owned vehicles and taxis, and emissions from hotel accommodation due to business travel.

CarbonNeutral® energy use

Boundaries must include emissions arising from the use of electricity and natural gas use, and all fossil fuels used for space heating or on-site electricity generation.

CarbonNeutral® production (media)

Boundaries must include all emissions arising from production-financed activities directly related to the production of the entertainment media subject (i.e., motion picture, television episode, etc.), beginning with the commencement of pre-production and ending with the conclusion of post-production for the specific subject.
For the sake of clarity, emissions arising from the development (e.g., initial writing of a screenplay and other activities preceding "green light") and distribution (e.g., duplication, marketing, audience travel, and other activities succeeding the creation of the final master copy) of the subject are excluded, but hotel accommodation during the production must be included.

Orb Household Solar, India:
Bringing affordable, reliable solar-powered electricity and water heating to businesses and households in India

Step 1: Define Guidance

1.3 Corporate value chain (Scope 3) accounting and reporting

The GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard (also referred to as the Scope 3 Standard) developed by the WRI and the WBCSD provides requirements and guidance for companies preparing and publicly reporting GHG emission inventories that include indirect emissions resulting from value chain activities (i.e. Scope 3 emissions). The Scope 3 Standard complements and builds upon the GHG Protocol Corporate Accounting and Reporting Standard to promote additional completeness and consistency in the way companies account for and report on indirect emissions from value chain activities.

The Scope 3 Standard groups Scope 3 emissions into 15 distinct categories, as shown in **Table 5**. The categories are intended to provide companies with a systematic framework to organise, understand, and report on the diversity of Scope 3 activities within a corporate value chain.

The CarbonNeutral Protocol adopts this framework to identify which emission sources are required and recommended for its various CarbonNeutral® entity certifications. This is to ensure consistency of reporting between The CarbonNeutral Protocol and the Scope 3 Standard.

In line with emerging best practice for entity certifications, all applicable Scope 3 emissions sources should, as far as practicable, be included in the assessment of the subject's GHG emissions. However, in many cases it will not be practical to collect data for all Scope 3 sources (e.g. upstream emissions associated with purchased goods and services).

The Protocol requires the inclusion of certain Scope 3 emissions (waste generated in operations, business travel, etc) for certain certifications. The inclusion of any other Scope 3 emissions is at the discretion of the client.

Clients should consider the following issues when determining which additional Scope 3 emissions sources to include:

1. The influence that the company has over abatement opportunities

2. The likely contribution those emissions make to the subject's overall footprint – where an emission's source is judged likely to be material, it should be included

3. The availability of reliable data

For additional information about the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard and its 15 Scope 3 categories refer to: www.ghgprotocol.org/standards/scope-3-standard.

Meru and Nanyuki Community Reforestation, Kenya:
Carbon finance helps empower farmers to build sustainable livelihoods through community reforestation activity

Table 5: The GHG Protocol: Corporate Value Chain (Scope 3) Accounting and Reporting Standard[1]

Upstream or downstream	Scope 3 category	Category description
Upstream Scope 3 emissions	1. Purchased goods and services	Extraction, production, and transportation of goods and services purchased or acquired by the reporting company in the reporting year, not otherwise included in Categories 2 – 8.
	2. Capital goods	Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year.
	3. Fuel- and energy-related activities (not included in Scope 1 nor 2)	Extraction, production, and transportation of fuels and energy purchased or acquired by the reporting company in the reporting year, not already accounted for in Scope 1 nor 2.
	4. Upstream transportation and distribution	Transportation and distribution of products purchased by the reporting company in the reporting year between a company's tier one suppliers and its own operations (in vehicles and facilities not owned or controlled by the reporting company). Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g. of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by the reporting company).
	5. Waste generated in operations	Disposal and treatment of waste generated in the reporting company's operations in the reporting year (in facilities not owned or controlled by the reporting company).
	6. Business travel	Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company).
	7. Employee commuting	Transportation of employees between their homes and their places of work during the reporting year (in vehicles not owned or operated by the reporting company).
Upstream Scope 3 emissions	8. Upstream leased assets	Operation of assets leased by the reporting company (lessee) in the reporting year and not included in Scope 1 and Scope 2 – reported by lessee.
Downstream Scope 3 emissions	9. Downstream transportation and distribution	Transportation and distribution of products sold by the reporting company in the reporting year between the reporting company's operations and the end consumer (if not paid for by the reporting company), including retail and storage (in vehicles and facilities not owned or controlled by the reporting company).
	10. Processing of sold products	Processing of intermediate products sold in the reporting year by downstream companies (e.g. manufacturers).
	11. Use of sold products	End use of goods and services sold by the reporting company in the reporting year.
	12. End-of-life treatment of sold products	Waste disposal and treatment of products sold by the reporting company (in the reporting year) at the end of their life. Transportation and distribution services purchased by the reporting company in the reporting year, including inbound logistics, outbound logistics (e.g. of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned nor controlled by the reporting company).
	13. Downstream leased assets	Operation of assets owned by the reporting company (lessor) and leased to other entities in the reporting year, not included in Scope 1 and Scope 2 – reported by lessor.
	14. Franchises	Operation of franchises in the reporting year, not included in Scope 1 and Scope 2 – reported by franchisor.
	15. Investments	Operation of investments (including equity and debt investments and project finance) in the reporting year, not included in Scope 1 nor Scope 2.

[1] GHG Protocol, 2011, *Corporate Value Chain (Scope 3) Accounting and Reporting Standard*, https://ghgprotocol.org/standards/scope-3-standard

1.4 Product certifications

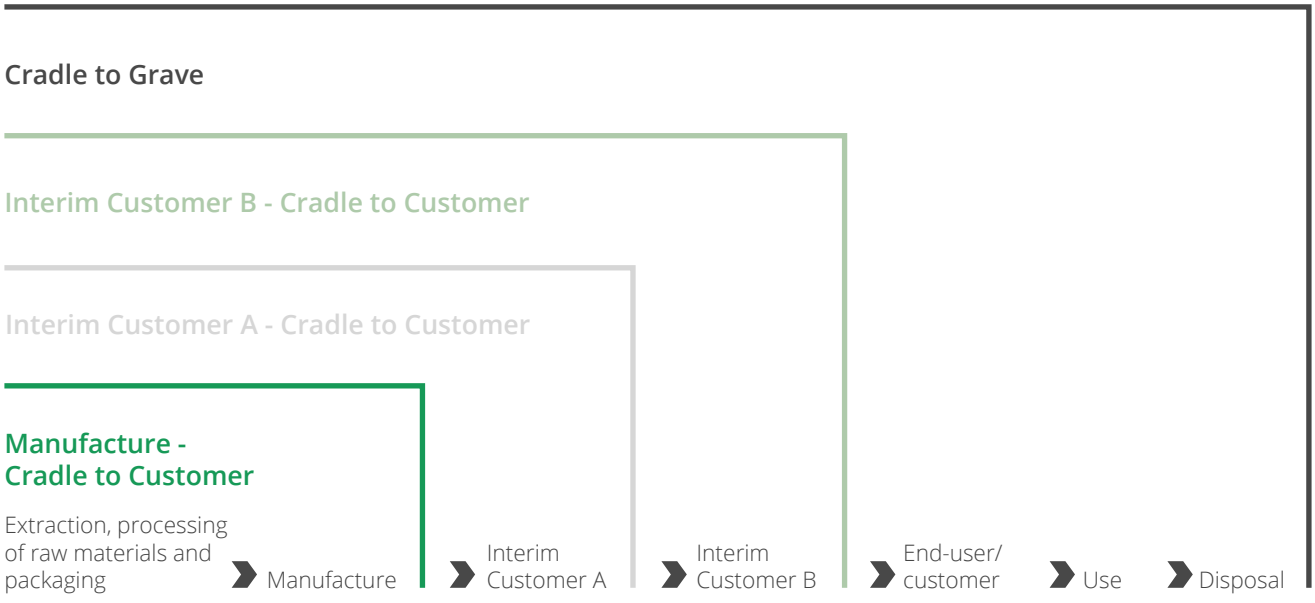
Figure 5 sets out the different boundaries for various life-cycle stages within a product supply chain.

The Greenhouse Gas Protocol Corporate Standard gives a clear list of the different emission sources, but does not give clarity about where the responsibility of companies begins and ends. Understanding responsibilities for Scope 1 and Scope 2 is relatively straightforward. A utility's Scope 1 is a power user's Scope 2, and those corporates taking climate action take responsibility for the power they use. Scope 3, however, is entirely different, and it can be a case of unpicking multiple responsibilities from a long value chain of many different actors, materials and activities. Things get particularly difficult for products that are a component part of a product or an intermediary product, and for products where consumer behaviour greatly affects the emissions during the use and disposal phases. Central to this topic is the question of whether companies should be responsible for cradle-to-customer or cradle-to-grave emissions. Cradle-to-grave includes the emissions from use and disposal phases, whereas cradle-to-customer does not.

For CarbonNeutral product certification, the boundary for required emissions sources is cradle-to-grave emissions, with one exception: when a product utilising an Environmental Product Declaration (EPD) to document its footprint has Product Category Rules underpinning the EPD that only require emissions from fewer life cycle stages, e.g. cradle-to-customer. Only in such an instance can CarbonNeutral product certification be achieved with fewer life cycle stages. More information on EPDs is set out in **Technical Specification 2.8** (Using EPDs for CarbonNeutral® products). All other products measuring less than cradle-to-grave emissions cannot use CarbonNeutral product certification, but may use CarbonNeutral product (not including use) certification.

The logic behind The Protocol's standardisation of CarbonNeutral product certification around cradle-to-grave emissions is to ensure the integrity of the communications around CarbonNeutral products to customers and/or consumers. For some products, certain emissions, for example those in the use or disposal phase, can be avoided by individual consumers' behaviours, and are therefore not intrinsic to the product. This can lead some to think that these use or disposal phase emissions need not be accounted for when undertaking a footprint of a product. However, the standardisation of CarbonNeutral product certification around cradle-to-grave emissions effectively says that the footprint must be calculated from the best *available* evidence of what, on aggregate, actual consumer behaviour is when using or disposing of the product, not on the basis of one low- or zero-emissions option available to the consumer. Where Product Category Rules underpinning the EPD require emissions from fewer life cycle stages, e.g. cradle-to-customer, we defer to those rules and deem them to have assessed that the stages not included are not material to the footprint for the specified type of product.

Figure 5: Boundaries for Life-Cycle Stages Within a Product Supply Chain



In summary, CarbonNeutral product certification is available for those entities able to take climate action on all the emissions associated with the product, and CarbonNeutral product (not including use) certification gives an option to entities that can only take climate action on the emissions associated with the creation and manufacture of the product but not (yet) the emissions of the use and disposal of the product. In a world where only a minority of companies are carbon neutral today and there is a need to ensure wider adoption, and where maintaining clear and credible claims to consumers is a must, we deem that this approach helps navigate the complexity of product value chains with a simple, pragmatic and flexible approach.

We anticipate that the scope of product certifications will be refined with time and application, and this guidance will be updated in subsequent revisions to the Protocol.

1.5 Treatment of assets rented or leased to customers of CarbonNeutral® entities

In line with Annex G to the GHG Protocol Corporate Standard, emissions arising from entity assets rented/leased to a third party can be treated as either Scope 1 or Scope 3 emissions. The correct treatment is dependent on whether the entity is taking an "equity share" or "operational control" approach to their GHG emissions, as defined by the GHG Protocol Corporate Standard. Most applications of The CarbonNeutral Protocol take an "operational control" approach to entity emissions, resulting in emissions from rented or leased assets being categorised as Scope 3 emissions for the entity providing the assets that are being rented/leased. Therefore, for consistency, The CarbonNeutral Protocol recommends this approach.

An example of an entity taking an "operational control" approach to their GHG emissions would be that of a car rental company. When their vehicles are leased to customers, the emissions arising from customer use are counted as Scope 3 by the company. The emissions count as a Scope 1 emission for the customer of the company, as they have operational control of the vehicle for the duration of the lease.

Chinese Afforestation Portfolio, China: Carbon finance helps restoring more than 30,000 hectares of degraded land in the provinces of Qinghai and Xinjiang, supporting a drive to create and conserve nature reserves

Lime's e-Scooters in Paris are CarbonNeutral® Products-as-a-Service as Part of its Efforts to Manage its Impact

Define: In 2020 Lime wanted to make its e-scooters CarbonNeutral in Paris – a city where it has provided more than 22 million rides as a clean, safe and affordable alternative to cars. This would cover the lifecycle emissions of all e-scooters used in Paris starting in 2020

Measure: This was calculated through a life-cycle assessment (LCA) of the environmental footprint of the e-scooters by a third-party expert

Target: Carbon neutrality is part of the company's mission to provide electric transport options to replace cars. The company also has a target to become carbon negative by 2025 and fully net zero following a Science-Based Target

Reduce: Verified carbon projects used to offset remaining emissions following reductions made through sourcing renewable electricity for charging the scooters and extensive repair and reuse programme to recycle materials used in e-scooters at their end-of-life. Emission reduction projects include an improved cookstove project in Bangladesh, a solar project in Rwanda and a wind power project in Turkey

Communicate: CarbonNeutral certification was communicated to the Paris media and riders

Step 2: Measure
Technical Specifications

2.1 GHG Emission Quantification Requirements

Table 6: GHG Emission Quantification Requirements for Different Classes of Certifications

Step	Entities	Products not using an EPD[1]	Activities
1. Select GHG accounting protocol	The GHG Protocol Corporate Standard, ISO 14064-1, the Climate Registry's General Reporting Protocol or similar consistent protocols must be used. Joint ventures must be treated as outlined in the GHG Protocol.[2]	The GHG Protocol Product Standard, PAS 2050, ISO/TS 14067, ISO 14025 Environmental Product Declaration following applicable Product Category Rules (PCR), ISO 14040-14044, ISO 21930 (for building products), EN 15804 or methods set out in steps 2-7 below must be applied unless the CarbonNeutral certifier identifies valid reasons for using other methods.	The GHG Protocol Product Standard, PAS 2050 or methods set out in steps 2-7 must be applied unless the CarbonNeutral certifier identifies valid reasons for using other methods.
2. Define boundary	The boundary must include all sites, plants and vehicles owned by or under operational control of the certifying entity.	The boundary must be consistent with the definition of the subject. For cradle-to-customer subjects, the boundary must extend to the point of customer delivery. For cradle-to-grave subjects, the boundary must extend to end-of-life disposal.	The boundary must be consistent with the definition of the subject and must include the sites and/or vehicles involved in the delivery of the activity.
3. Identify emissions sources	Assessments must include emissions sources as specified in **Tables 2, 3** and **4** for CarbonNeutral® certifications and their specific required assessment emissions sources.		
4. Identify GHGs to be measured	All GHGs recognised under the UN Framework Convention on Climate Change, which currently include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulphur-hexafluoride (SF_6) and nitrogen trifluoride (NF_3) must be measured in the assessment, insofar as they apply to the subject.		
5. Establish time period	Assessments must at a minimum be conducted annually and should relate to a 12-month data period. The start date of the CarbonNeutral certification period must be no later than nine months after the end of the assessment data period (e.g., the data period 1st January 2021 – 31st December 2021 may be used towards a certification period that starts no later than 30th September 2022).	For standard consumer products, assessments should relate to a 12-month data period. The start date of the certification period must be no later than 5 years after the end of the assessment data period (e.g., the data period 1st January 2016 – 31st December 2016 may be used towards a certification period that starts no later than 31st December 2021). Assessments may remain valid for up to 5 years. In intermediate years, where an existing assessment is in place, an annual declaration[3] must be made that the assessment remains an accurate assessment of the carbon footprint of the product. If there is a significant change to the product supply chain within that 5-year period, the footprint must be adjusted to reflect that change within 12 months.	For standard consumer activities, assessments must at a minimum be annual. For one-off or custom activities the timescale must relate to the production and delivery period.
6. Determine data validity	Primary data must be used in preference to estimates, where it is readily available, up to date and geographically relevant. Estimates, extrapolations, models and industry averages may be used where actual data is unavailable. When this is done, these assumptions must be recorded by the party carrying out the assessment. A qualitative and/or quantitative description of the uncertainty associated with the client-supplied data should be made. In cases where the quality of client supplied data is not known (e.g. in online calculators), the dependency of results on the quality of input data must be made clear.		
7. Measure GHG emissions	The subject's GHG emissions must either be directly measured or quantified using national, regional, international, or other relevant emission factors, with preference given to emission factors most closely associated with the emissions source. The assessment must be reported in units of CO_2e according to the 100 year warming potential of each gas. Preference should be given to the global warming potential (GWP) factors included within the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC). In instances where most relevant emission factors available use previous GWP factors, it is still acceptable to use these emission factors. GWP factors applied must be clearly stated in the assessment. Emission sources that are required to be assessed (see **Tables 2, 3** and **4**) but are estimated to represent less than 2% of the subject's total GHG emissions and collectively no more than 5% of the subject's GHG emissions must be included and may be calculated and reported using simplified estimation methods.		
8. Quality assurance	All GHG assessments must either be conducted or checked, and in the case of GHG tools and calculators, be approved, by an Assessment Partner or Assessment Provider approved by Natural Capital Partners to ensure they have met the requirements in this table. **Technical Specification 2.2** details requirements and recommendations for the presentation of GHG assessments; and, **Guidance 2.3** provides further guidance on quality assurance and verification.		

[1] If the subject is covered by an EPD which meets the requirements specified in **Guidance 2.8**, it shall fulfil the GHG emission quantification requirements for CarbonNeutral® product certification. Refer to **Guidance 2.8** for further guidance on EPDs.
[2] GHG Protocol, 2004, *Setting Organizational Boundaries*, http://pdf.wri.org/ghg_protocol_2004_chp003.pdf.
[3] A copy of the annual declaration to be completed by the company is available by request from assessments@naturalcapitalpartners.com.

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2.2 GHG emissions assessments

This Technical Specification provides requirements and guidance for the GHG emissions data required for assessments provided to support CarbonNeutral® certifications.

Presentation of data

When preparing assessment results for a subject for CarbonNeutral® certification, the following data must be made available to the CarbonNeutral certifier:

- Full and unambiguous definition of the subject
- Time period that data collected pertains to
- Methodology applied
- Full details of GHG emissions sources included within scope of assessment
- Full list of any GHG emissions sources omitted, including reason for omission
- Full details of all calculations undertaken – including source data, emissions factors applied, calculated results, any additional factors applied (e.g. uplift factors)
- Full list of emissions factors applied with dated, referenced sources
- Full details of estimates, extrapolations, models and industry models applied
- Full results of calculations (including without limitation, total emissions per unit, organised by subject)
- Volume of carbon credits or other environmental instruments to be offset in order for subject to achieve CarbonNeutral® certification
- Percentage of the total GHG emissions inventory that is from primary data vs. the percentage that is calculated based on upon estimates (the exact percentage is recommended)
- Provide recommendations to improve the accuracy of the calculations or methodology for future assessments to align with best practice

As many product certifications will initially be based on estimated sales, a reconciliation based on actual sales data must be submitted via an attestation once data becomes available. Attestation templates for annual sales data may be obtained at www.carbonneutral.com/attestation-form.

Presentation of results for subject for CarbonNeutral® certification

Assessment results for a subject for CarbonNeutral® certification should be clear and unambiguous:

- GHG emissions sources included within the assessment should be categorised by "Emissions source category" as defined within **Tables 2, 3** and **4**
- Each relevant "Emissions source category" as defined within **Tables 2, 3** and **4** for the relevant certification should be listed and include either:
  - The calculated result (including both location- and market-based Scope 2 emissions)
  - A zero result
  - A clear indication of exclusion from the subject's CarbonNeutral® certification
- The total volume to be offset must be included (for Scope 2, the market-based total must be used)

Where multiple subjects are included within a single assessment, any "overlap" or potential double counting between the subjects must be clearly calculated and presented.

For example, a single assessment may cover the GHG footprint of an organisation and the products manufactured by the organisation. The emissions categories for CarbonNeutral® company and CarbonNeutral® product should be listed and presented separately. Emissions sources which relate to both certifications should be listed, with the value of the overlap stated.

Uganda Community Reforestation Project, Africa: A key focus of the project is to empower women through a rotating leadership structure for community groups which join the programme

Table 7: Illustrative Table of Results for CarbonNeutral® Company Certification

GHG assessment emissions sources						Required or recommended	Included in assessment	tCO_2e (in kt)
Category		Emission source category (Aligned to the GHG Protocol: Corporate Standard and Value Chain Standard)						
GHG Protocol Standards: Corporate Scope - 1 and 2, Value Chain - Scope 3	Scope 1	Direct emissions arising from owned, leased or directly controlled stationary sources that use fossil fuels and/or emit fugitive emissions				Required	✓	100
		Direct emissions from owned, leased or directly controlled mobile sources				Required	✓	35
	Scope 2	Location-based emissions from the generation of purchased electricity, heat, steam or cooling				Required	✓	200
		Market-based emissions from the generation of purchased electricity, heat, steam or cooling				Required	✓	0
	Scope 3 – Upstream	1	Purchased goods and services			Recommended	✖	–
		2	Capital goods			Recommended	✖	–
		3	Fuel- and energy- related activities (not included in Scope 1 or Scope 2)	3a	Upstream emissions of purchased fuels	Recommended	✖	–
				3b	Upstream emissions of purchased electricity	Recommended	✖	20
				3c	Transmission and distribution (T&D) losses	Required	✓	10
		4	Upstream transportation and distribution		Outbound courier deliveries of packages	Recommended	✖	–
					Third-party transportation and storage of inbound production-related goods	Recommended	✓	100
		5	Waste generated in operations		Wastewater	Recommended	✖	–
					Other waste	Required	✓	10
		6	Business travel		All transportation by air, public transport, rented/leased vehicle and taxi	Required	✓	80
					Emissions arising from hotel accommodation associated with business travel	Recommended	✖	–
		7	Employee commuting		Employee transport between home and places of work	Recommended	✓	20
					Emissions arising from employee homeworking and remote work	Required	✓	65
	Scope 3 – Downstream	9	Downstream transportation and distribution		Third-party transportation and storage of sold products	n/a	n/a	–
		11	Use of sold products			n/a	n/a	–
					Total for offset (tCO_2e) – Location-based Scope 2			**640**
					Total for offset (tCO_2e) – Market-based Scope 2			**440**

Step 2: Measure Guidance

2.3 Quality assurance and verification

Purpose of this guidance

The foundation of a CarbonNeutral® certification is the GHG assessment of the defined subject. The CarbonNeutral Protocol places strong emphasis on quality assurance to support the integrity of CarbonNeutral® certifications. This guidance explains how quality assurance is conducted and the roles and responsibilities of the CarbonNeutral Certifier; the client applying for and using CarbonNeutral certifications; and independent third-party consultants.

Quality assurance roles and responsibilities

The CarbonNeutral Certifier's primary responsibility is to ensure that the requirements of the Protocol are met for the award of the specified certification. The client is responsible for completing a Protocol-compliant GHG assessment that is the foundation of all certifications.

The CarbonNeutral Certifier requires that assessments are undertaken or reviewed by a qualified independent third-party which has the responsibility for attesting that GHG assessments meet the requirements of the Protocol and are in line with the approach and principles of The CarbonNeutral Protocol.

To this end, the CarbonNeutral Certifier recognises two types of assessors:

1. Assessment Partner: third-party assessor with a formal agreement with the CarbonNeutral Certifier to conduct GHG assessments on behalf of clients in accordance with The CarbonNeutral Protocol.

Assessments conducted by Assessment Partners are accepted as CarbonNeutral Protocol compliant without additional review.

2. Assessment Provider: a qualified third-party assessor with no formal agreement with the CarbonNeutral Certifier, contracted by the client to conduct its GHG assessment in accordance with the requirements of The CarbonNeutral Protocol

Where an assessment is conducted by an Assessment Provider, the Assessment Provider must complete and provide an attestation that the underlying assessment meets the requirements of The CarbonNeutral Protocol and was undertaken based upon complete, accurate and correct data.

Assessment Partners

The appointment of Assessment Partners is conditional on evidence of the following competencies and experience specific to the relevant type of assignment (assessment or assessment review) and type of certification (entity, product or activity):

- Organisations qualified and experienced in GHG accounting, Life Cycle Assessments and / or EPDs having performed at least three assessments following one or more of the referenced product standards;
- Experienced individuals having performed at least three GHG assessments, LCA or EPD critical reviews following one or more of the referenced standards

The work products, qualifications and expertise of Assessment Partners are reviewed periodically to ensure that qualifications are maintained, and that Partners maintain satisfactory performance.

Verification, quality control and quality assurance requirements

Verification is an independent evaluation conducted by an expert third party to the requirements of an recognised verification standard (such as ISO 14064:3 or ISAE 3410) to confirm that the quality of input data, a GHG assessment, or that the use of a CarbonNeutral® certification logo meets the requirements of CarbonNeutral® certification and is in line with the approach and principles of The CarbonNeutral Protocol.

The CarbonNeutral Certifier reserves the right to review and approve/ not approve the Assessment Provider and the completed attestation, to determine whether the Assessment Provider has sufficient and appropriate experience and expertise to undertake a high quality, compliant review, and to determine whether the attestation has been completed satisfactorily. Attestation templates may be obtained at www.carbonneutral.com/attestation-form.

Table 8: Quality Assurance and Verification Requirements for the Five Steps to Achieving CarbonNeutral® Certification

Protocol step	Quality assurance requirements	Verification requirements
1. Define the subject	The definition of the subject and the certification must be recorded by the CarbonNeutral certifier and the information retained for the purposes of auditing.	Third-party verification is at the discretion of the client.
2. Measure subject's emissions	All GHG assessments must either be conducted or checked, and in the case of GHG tools and calculators, be approved by an Assessment Partner or Assessment Provider approved or recognised by the CarbonNeutral certifier to ensure they have met the requirements for GHG emission assessments as stipulated in **Technical Specification 2.2**.	Third-party verification of input data and GHG emission calculations is at the discretion of the client. The CarbonNeutral certifier can request third-party verification of the input data should the quality assurance review surface concerns about whether the data is correct, complete and accurate.
3. Set target	The client must commit to an overall target of carbon neutral GHG emissions for the subject during the certification period.	Not applicable.
4. Reduce emissions	The defined subject's net GHG emissions must be zero for the duration defined within the CarbonNeutral® certification.	The quality of carbon credits accepted by The CarbonNeutral Protocol is always verified against the requirements of the third-party standards under which they are established. The CarbonNeutral certifier is subject to an annual third-party verification to assure the carbon neutral status of CarbonNeutral certifications under the Protocol.[1]
5. Communicate	Use of the CarbonNeutral® certification must conform to the CarbonNeutral® certification logo guidelines. All communications relating to a client's CarbonNeutral® certification must be factually based, and consistent with the CarbonNeutral® certification achieved.	Third-party verification of the correct application of the CarbonNeutral® certification logo and communications is at the discretion of the client. It can be requested by the CarbonNeutral certifier should there be evidence of incorrect application of the logo.

[1] As a member of ICROA, Natural Capital Partners is subject to an annual third-party audit against the requirements of the ICROA Code of Best Practice: https://www.icroa.org/code

Verification of input data, calculations and CarbonNeutral communications is at the discretion of the client. The CarbonNeutral Certifier may request third-party review or verification of all or any of these aspects should its quality assurance review surface concerns about whether these are correct, complete and accurate.

Clients should consider third-party review of the management systems supporting certifications and third-party verification of the data, calculations, carbon credit retirements, carbon neutrality and communication of CarbonNeutral® certifications when:

1. The subject's GHG emissions are material or in excess of 100,000 tCO_2e/yr

2. Certifications are publicly reported or presented to audiences which may use CarbonNeutral® certifications to make commercially material decisions

3. Certifications are used in support of mandatory reporting requirements or submissions to regulatory authorities

The additional costs of verification should be weighed against the value derived from third-party review. The value of third-party review comes from increased rigour and integrity, and from the identification of management system improvements which increase cost-effectiveness and improve management of climate risks.

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Routes to increased rigour and integrity of certifications include, but are not limited to:

1. Maintaining on file the data, assumptions, models and supporting calculations to a recognised standard such as ISO 14064-1 or the GHG Protocol

2. Ensuring that staff and management involved in the CarbonNeutral® certification have the requisite qualifications, competencies and experience

3. Subjecting the accuracy of the input data, assessments, and carbon neutral claims to third-party verification against a recognised verification standard such as ISO 14064 or ISA E3410

4. Independent confirmation of the accuracy of the CarbonNeutral® communications and claims

The quality assurance and verification requirements across the 5 steps to certification are summarised in **Table 8**.

2.4 Energy use (gas and electricity)

2.4.1 Treatment of renewable electricity in Scope 2 emissions

This guidance details how the carbon attributes of renewable energy in the form of energy attribute certificates (EACs) are accounted for in Scope 2 of the GHG inventories that underpin CarbonNeutral® certifications.

A number of countries have adopted policies requiring or encouraging electricity suppliers to offer renewable electricity to consumers. This may be done through a range of different electricity products such as tariff-based programmes and power purchase agreements. All credible renewable electricity products involve the cancellation of EACs such as Renewable Energy Certificates (RECs), International Renewable Energy Certificates (I-RECs) or Guarantees of Origin (GOs) in order to support the renewable electricity claim.

Prior to 2015, detailed guidance on how to report the carbon attributes of renewable electricity was absent from the GHG inventory standards accepted under The CarbonNeutral Protocol. However, in 2015, the WRI, author of the widely used GHG Protocol Corporate Standard, published its "Scope 2 Guidance" as an amendment to the GHG Protocol to clarify the accounting treatment of low-carbon grid-delivered energy in Scope 2 GHG inventories. The amendment, published after four years of development and industry consultation, provides guidance for how corporations should measure emissions from electricity and energy purchases, including renewable energy, and covers:

- Requirements: Accounting and reporting requirements which entities must meet to be in conformance with the GHG Protocol Corporate Standard
- Quality Criteria: A list of Scope 2 quality criteria that all electricity purchasing instruments, termed "contractual instruments," need to meet in order to be used in market-based method accounting
- Recommendations: Additional features entities are recommended to disclose include their electricity purchases, as well as other metrics such as total electricity, steam, heating, and cooling consumed and what percentage of a corporates' operations have market-based method data available

From the date of publication of the GHG Protocol Scope 2 amendment, entities using the GHG Corporate Protocol to meet the GHG inventory requirements of The CarbonNeutral Protocol are required to meet its Scope 2 Guidance, as officially amended from time to time by the WRI.

Entities using any other GHG inventory standard recognised under The CarbonNeutral Protocol are subject to The CarbonNeutral Protocol's original requirements that:

1. Zero emissions may only be claimed when double-counting is avoided. Evidence should be available to establish either that the renewable electricity is not supplied to the national grid in the country concerned; or, that the benefit of the renewable energy is not included within national average grid factors or any other reporting factors

2. Emissions from energy supplied as "green," "clean," or "low-carbon" can be treated as zero where the energy consumed has been fully offset by the supplier or a third party using carbon credits that meet the requirements of The CarbonNeutral Protocol

For more information see: RECS International, 2020, *Maximising the reliability and impact of buying renewables: guidance for market participants*, https://recs.org/app/uploads/documents/Maximising-reliability-and-impact-guidance_FINAL.pdf&file_type=documents.

Table 9: Illustrative Market-Based Scope 2 Reporting Declaration in Support of CarbonNeutral® Certification

To ensure that our Assessment Partners are fully informed regarding EAC purchases, and for purchases to be accurately integrated into assessment reports, this declaration is a requirement for CarbonNeutral® certifications involving a market-based Scope 2 claim. Add a column to the table for each contractual instrument claim. For example, each renewable electricity contract, REC or GO purchase would require a separate row of information disclosure.

Reporting Requirements	GHG Protocol Scope 2 Guidance Disclosure	CarbonNeutral Protocol	Consumption country or countries covered by contractual instrument claim	
			(Illustrative) United States	(Illustrative) France
Consumption covered by contractual instruments (MWh)	Recommended	**Required**	10,000	500
Contractual instrument emission factor (gCO_2/MWh)	N/A	**Required**	0.000	0.000
Category of contractual instrument	**Required**	**Required**	Energy attribute certificates	Electricity contracts
Type of contractual instruments	**Required**	**Required**	Renewable Energy Certificates (RECs)	Electricity Contracts that convey attributes without certificates
Supplier	N/A	**Required**	Renewables Team	EDF
Disclosure of the type of supporting evidence	N/A	**Required**	Attestation record	Evidence limited to tariff description
Contractual instrument disclosures (e.g. location, technology, commissioning year)	N/A	**Required**	Texan wind, commissioning year not known	Not known
Meets all the relevant Scope 2 Quality Criteria for the contractual instrument	**Required**	**Required**	Yes	Yes
To ensure unique claims, has an adjusted residual mix factor been estimated to reflect the contractual claims disclosed here?	**Required**	**Required**	Residual mix is not available which may result in double counting between electricity consumers	Residual mix is not available which may result in double counting between electricity consumers
Did contractual instruments substantively contribute to implementation of new low carbon projects?	Recommended	**Required**	No	No

I warrant that all the information provided here is up to date and accurate and that the primary CarbonNeutral certifier can rely on this information as a true and fair summary.

Signature: Name: Date:

2.4.2 Treatment of Energy Attribute Certificates (EAC) in Scope 3 emissions

This guidance details how EACs may be applied to emissions resulting from:

- Electricity consumption in the use phase of CarbonNeutral® product and product-as-a-service certifications
- Electricity consumption from employee homeworking and remote work
- Transmission & Distribution (T&D) losses

This guidance – first published in January 2022 – is the result of market guidance and is expected to be reviewed and updated once new guidance becomes available from the GHG Protocol and/or other recognised standards.

Use phase of CarbonNeutral product and product-as-a-service

The following requirements must be met when EACs are applied to use-phase emissions:

- The emissions to which EACs are applied as part of CarbonNeutral product or CarbonNeutral product-as-a-service certifications must be those from electricity consumption in the use phase

  Use-phase emissions must be reduced to zero for the entirety of the product lifespan through the application of EACs and/or carbon credits to ensure a valid CarbonNeutral claim.

  - The GHG Protocol Scope 2 Guidance recommends matching the consumption period of electricity to the generation period. Therefore, vintage of EACs must match the period of electricity consumption as closely as possible. If EACs cannot be applied for the entirety of the product lifespan, entities must ensure that emissions from the entire use phase are reduced to zero, either via EACs and/or carbon credits.

  - For example, in the case of a product whose lifespan is seven years, if EACs are procured for years 1 and 2 but are unavailable for years 3-7, then carbon credits equivalent to the estimated electricity emissions for years 3-7 must be held in inventory until EACs are purchased and retired. At the end of the certification period, upon reconciliation of the actual product use, a sufficient quantity of EACs and/or carbon credits must be retired.

- CarbonNeutral products and products-as-a-service (PaaS) must calculate emissions for a defined function, as well as the duration and level of the service provided by the product, referred to as the use phase, as defined in the GHG Protocol Product Life Cycle Accounting and Reporting Standard
- EACs must be retired/cancelled as appropriate for a specific market. The retirement shall be made on behalf of end users of the product or product-as-a-service where practical and possible
- Methodologies and assumptions for determining electricity consumption for the use phase must be provided as described in **Technical Specification 2.2**
- Use-phase emissions must be reported using both a location-based and market-based method (i.e., with and without the application of EACs)

Use phase emissions shall be determined according to the following requirements:

- Primary data must be used where available
- Use data must be attributable to the country/region where the electricity is being consumed by the product or product-as-a-service. Where actual location is not available, a reasonable estimate of the country or region must be made
- Disclosure in the product or product-as-a-service terms and conditions must be made referencing the retirement of EACs on end users' behalf

Employee homeworking

The following requirement must be met when EACs are applied to electricity consumption from employee homeworking and remote work:

- The location of the electricity consumption must match the location of the EAC, e.g., US employees must utilise North American RECs

Table 10: Illustrative Table of Results for CarbonNeutral® Product Certification

GHG assessment emissions sources		Required or recommended	Included in assessment	tCO_2e (in kt)	Total tCO_2e (for estimated # of units)
Category	Emissions source category				
Extraction and processing of raw materials and packaging	Cradle-to-grave or cradle-to-customer embodied emissions of raw materials,[1] inputs to production and packaging	Required	✓	0.1	100
	Inbound deliveries of raw materials and inputs to production	Required	✓	0.05	50
Manufacturing and storage of product and packaging	Direct emissions from on-site fossil fuel use and fugitive emissions	Required	✓	0.1	100
	On-site consumption of purchased electricity	Required	✓	0.2	200
	Emissions from waste disposal	Required	✓	0.02	20
Distribution	Transportation of sold products to first customer	Required	✓	0.01	10
Onward distribution	Onward storage and transportation	Required	✓	0.01	10
Retail	Direct emissions from on-site fossil fuel use and fugitive emissions	Required	✓	0.01	10
	On-site consumption of purchased electricity and/or steam	Required	✓	0.01	10
Use	Use emissions, including maintenance	Required	✓	5	5000
Disposal	Emissions from disposal of sold products at end of life	Required	✓	0.1	100
			Total footprint	5.61	5610

2.4.3 Market-based Scope 2 reporting declaration to support CarbonNeutral® certification

This guidance details the disclosure requirements for businesses seeking to make a market-based Scope 2 reporting declaration in support of CarbonNeutral® certification. The disclosure only needs to be made when the party supplying the contractual instrument is not the primary CarbonNeutral certifier. For example, when an entity sources renewable electricity directly from an electric utility to support a Scope 2 reporting claim, it should provide details of the contractual instrument within the disclosure table (**Table 9**).

The disclosure table will be provided by the certifier upon request. A column should be added to the table to account for each contractual instrument claim made within a corporate GHG inventory. Often this will involve engaging the contractual instrument supplier to determine the appropriate form of evidence that can be supplied to substantiate a market-based claim. The disclosure table should be completed at the time of preparing the GHG inventory and should be signed by a company representative to warrant that the information provided is up to date, accurate and that the CarbonNeutral certifier can rely on the information.

When an entity's location is neither consuming renewable energy nor applying EACs to reduce their Scope 2 emissions, and a published residual mix emissions factor is available, then the residual emissions factor(s) must be applied, resulting in a market-based total for Scope 2 emissions.

2.4.4 Energy Attribute Certificate (EAC) Application Protocol for third-party assessment partners

To ensure Assessment Partners and Providers are fully informed regarding EAC purchases, and so they can be accurately integrated into assessment reports, entities should follow the agreed upon EAC Application Protocol. The EAC Application Protocol is a document for use by Assessment Partners and Providers to clarify the process and division of responsibilities to ensure accurate integration of EACs into GHG emissions assessments. For example, the document helps deal with the application of EACs to multiple sites, and EAC deficits and surpluses. Please contact your Client Engagement Manager for further details.

2.4.5 How to report GHG emissions from green gas certificates

Green gas certificates are relatively new products that are being adopted by businesses to manage their Scope 1 GHG emissions.

Green gas, known also as biogas, refers to calorific gas produced by the breakdown of organic matter, through anaerobic digestion or fermentation. Feed stocks include biodegradable materials such as manure, sewage, municipal water, green waste and plant material.

Before biogas can be introduced to the gas grid it needs to be upgraded to pipeline quality natural gas standards. This upgraded gas becomes biomethane, which can be used for any purpose currently satisfied by conventional natural gas.

Injecting biomethane into the natural gas grid displaces the need for a unit of conventional natural gas. Therefore, certificates and contracts are the only practical means of tracking the green gas from production to end use. Projects such as the Green Gas Certification Scheme[1] aim to provide a certified means of tracking green gas injected into the grid through to end user consumption claims, similar to renewable electricity tracking schemes such as I-REC (International REC standard) and EECS-GO (European Energy Certificate System – Guarantee of Origin).

Clear guidance on extending market-based reporting approaches to renewable gas is still forthcoming. In their 2020 Technical Note: Accounting of Scope 2 emissions, the CDP recommends referring to the GHG Protocol's Scope 2 Guidance when using green gas certificates. Appendix A of the Scope 2 Guidance states:

Companies may have contracts to receive heat or steam from providers that specify the fuel source and emission rate associated with their received energy. In addition, "green heat" certificates generated from biogenic fuel sources may be issued and traded independently from the energy flows and injection into the distribution grid. Companies shall report emissions from the purchase and use of these energy products the same as for electricity: according to a location-based and market-based method, if the contractual instruments used meet the Scope 2 Quality Criteria as appropriate for gas transactions.

Section 6.12 of the Scope 2 Guidance goes on to say:

While biomass can produce fewer GHG emissions than fossil fuels and may be grown and used on a shorter time horizon, it still produces GHG emissions and should not be treated with a "zero" emission factor. Based on the Corporate Standard, any CH_4 (methane) or N_2O (nitrous oxide) emissions from biogenic energy sources use shall be reported in Scope 2, while the CO_2 portion of the biofuel combustion shall be reported outside the scopes. In practice, this means that any market-based method data that includes biofuels should report the CO_2 portion of the biofuel combustion separately from the scopes.

Table 11a: Reporting 10,000 MWh of Natural Gas Consumption

Market-based corporate GHG Inventory (tCO_2e)	CO_2 Carbon Dioxide	CH_4 Methane	N_20 Nitrous Oxide	Total CO_2e Carbon Dioxide Equivalent
Scope 1 Emissions				
Natural gas consumption – 10,000 MWh	1,838.08	2.59	0.96	**1,841.64**

[1] Green Gas Certification Scheme. Available at: https://www.greengas.org.uk/

Table 11b: Reporting 10,000 MWh of Biomethane Consumption Evidenced by Green Gas Certificates

Market-based corporate GHG Inventory (tCO_2e)	Biogenic CO_2 Carbon Dioxide	CH_4 Methane	N_20 Nitrous Oxide	Total CO_2e Carbon Dioxide Equivalent
Scope 2 Emissions				
Biomethane consumption* – 10,000 MWh	0.00		3.95	**3.95**
Biogenic Emissions				
Biomethane consumption* – 10,000 MWh	1,990.08	0.00	0.00	**1,990.08**

*The GHG Protocol requires fugitive CH_4 (methane) and N_2O (nitrous oxide) emissions from biomethane combustion to be reported under Scope 2 as these fugitive emissions were not captured during the growth of the biomass. The biogenic CO_2 emissions that were captured during the growth phase of the biomass have been reported separately to Scopes 1, 2 or 3.

Applying this to the use of biomethane delivered through the gas pipeline, we anticipate the following impacts on a company's GHG report:

- Scope 1 CO_2 emissions can be reported as zero for biomethane consumption, i.e., for each thermal unit matched to a green gas certificate. This biogenic CO_2 represents the carbon sequestered during the growth of the biomass
- Biogenic CO_2 emissions must be reported outside of Scopes 1, 2 or 3, as an addendum to the company's GHG inventory
- To fully account for a site's GHG impact, fugitive CH_4 and N_2O emissions from biomethane combustion must be reported under Scope 2. Unlike CO_2, these fugitive emissions are not captured during the growth of the biomass and therefore need to be reported as a Scope 2 emission

Table 11b illustrates how this would apply to a site in London, using the UK relevant factors published by BEIS[1]. For biomethane, these factors combine the CH_4 and N_2O emissions into a single factor, which is marginally higher than the fugitive CH_4 and N_2O emissions associated with natural gas combustion.

Additional guidance from the 2020 CDP Technical Note on the use of green gas certificates include:

- Green gas certificates should be a legitimate and legally enforceable means of transacting property rights and claims to biogenic or renewable fuel attributes of gas production in a specific market
- Use of gas certificates should be limited to users on the same pipeline network who can physically receive gas from gas plants on that network

2.5 Aviation

2.5.1 Calculating the climate impact of aviation

The purpose of this guidance is to set out how The CarbonNeutral Protocol accounts for the global warming impact of aviation, and to clarify the accounting method to be applied to the emerging use of Sustainable Aviation Fuels (SAFs).

How The CarbonNeutral Protocol addresses climate impacts from aviation

The CarbonNeutral Protocol recognises the strengthening scientific consensus that high altitude climate impacts from aviation are greater than the impact of recognised GHG emissions alone. It deploys an Aviation Impact Factor (AIF) as a multiplier applied to the GHG emissions from aviation in order to take account of the wider impacts of aviation on climate. This includes but is not limited to: short and long-term impacts from GHGs alone and others with global warming influence (including for example, soot particles and aviation induced clouds); and, direct and indirect impacts (for example, the interaction of NOx with methane gases and ozone at high altitudes).

[1] UK Government Department for Business, Energy and Industrial Strategy, 2021, *Greenhouse Gas Reporting: Conversion Factors*, https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2018

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Table 12: The Evolution of Recommended and Mandated AIF Factors as Applied to CarbonNeutral Certifications

Year		Aviation Impact Factor (AIF)		Explanation
2002 - 2013		1		Throughout this period, no consideration was given to non-GHG impacts from aviation.
2014 - 2019		1.0 as default. 2.0 advised, at client's discretion.		During this period, the default AIF was 1, and clients were invited to consider a precautionary factor greater than 1, with 2 a recommended value to more fully reflect non-GHG contributions to global warming.
2020 - 2030	2020	1.0	Default of 1.0 in 2020 rising incrementally by 0.2 per year from 2021 to 2.0 in 2025 and 3.0 in 2030. Option to exceed the default is at client's discretion.	During this period, the default AIF will rise incrementally by 0.2 per year starting in 2021 through 2030 to reach 3.0 in 2030. Clients may opt for a factor greater than the default throughout this period, with 3.0 a recommended value to more fully reflect non-GHG contributions to global warming.
	2021	1.2		
	2022	1.4		
	2023	1.6		
	2024	1.8		
	2025	2.0		
	2026	2.2		
	2027	2.4		
	2028	2.6		
	2029	2.8		
	2030	3.0		

Guidance on calculating the global warming impact of emissions from aviation

Table 12 above sets out an historic record and forward schedule of rising AIF values to be applied to aviation from the period 2021 to 2030. This is based on independent guidance[1] provided by John Murlis, scientific advisor and Advisory Council member to The CarbonNeutral Protocol, and reflects the strengthening scientific evidence that the climatic impact of aviation needs to consider secondary impacts of aircraft on global warming. The Murlis guidance developed in December 2020 concludes that the case for applying an AIF (Aviation Impact Factor) to carbon emissions to account for secondary effects is now strong enough to revise the approach in the Protocol. It proposes an AIF of 3 as an emerging best estimate and recommends that this should be considered as a target value.

In response to the revised Guidance, clients should consider the evidence for secondary aviation impact, following which they may elect to adopt a value higher than the default AIF. Additionally, clients should be aware that the default AIF value will be increased in equal annual increments of 0.2 over the next ten years, from a starting value of 1.0 in 2020 to 3.0 in 2030, and should allow for progressive adaptation to the higher value.

This will ensure that by 2030 all clients must apply an AIF of 3 to reflect the direct engine emissions of carbon, the climate forcing impacts of non-carbon engine emissions and other secondary impacts due to flight operation (for example, contrail formation).

Interpreting guidance on impacts on climate from aviation into The CarbonNeutral Protocol

Natural Capital Partners first reviewed the science underpinning the climatic impact of aviation in 2009, when it commissioned Professor John Murlis to provide guidance on the issue. The 2009 review highlighted that complex atmospheric chemistry associated with high altitude emissions of GHGs, other gases and effects, such as short- lived contrails and cloud formation, supported the view that the impact of aviation on climate may be greater than from recognised GHGs. To take account of these additional warming impacts, it was recommended that The CarbonNeutral Protocol introduced an "Aviation Impact Factor" (AIF) as a multiplier of the direct carbon emission impacts." However, the science was not well enough understood to provide clear guidance as to how such additional effects should be calculated. Therefore, The CarbonNeutral Protocol calculated carbon footprints for aviation directly from aviation GHG emissions. Clients were free to apply an AIF of greater than one.

[1] Natural Capital Partners, 2021, *Guidance to Natural Capital Partners on the Treatment of Offsetting for Air Travel in The CarbonNeutral Protocol*, www.carbonneutral.com/aviation-guidance-in-full

In 2014, John Murlis updated the 2009 guidance. The updated guidance recognised strengthening scientific evidence indicating that the full impact of aviation on climate may be greater, by a factor of two, than from recognised GHGs alone. However, the scientific understanding of the higher factor was still poor to fair, and the evidence for quantifying the effect of contrails, which are a large part of the added impact, was particularly poor. Therefore, for the purposes of CarbonNeutral certifications, The CarbonNeutral Protocol required that clients specify whether or not they elected to apply an AIF of 2 (or any other factor >1) based upon their review of the evidence.

In 2019, John Murlis updated the 2014 guidance, concluding that: "It is now recommended, taking a precautionary view in response to the strengthened evidence and the urgent need to reduce impacts of all kinds of economic activity on the climate system, particularly those showing high growth, that the AIF multiplier of 2 should be considered as a target multiplier, to be adopted over a period to 2025. Clients should be encouraged to continue to take regard of the evidence and to elect to apply higher multipliers in the longer term if in their view the evidence warranted it. The current evidence suggests this would extend to a multiplier of approximately 2.5 to take account of the best estimate of total impact, including currently highly uncertain impacts on cloud processes."

In 2021, John Murlis updated the 2019 guidance, concluding that: "The new assessment suggests that, mainly following the re-evaluation of contrail-induced cirrus, non-CO_2 warming should now be considered as a more significant factor in overall estimates of aviation impact on the climate system, approximately twice the value of the CO_2 term. This would imply that the overall impact of flight is equivalent to approximately 3 times the CO_2 emission. Although this is not accepted as current practice, it may become so in future….".[1]

The CarbonNeutral Protocol does not immediately mandate an AIF of 3 for three main reasons:

1. The scientific evidence, although strengthening, is still associated with some uncertainty in its ability to take accurate account of the wider impacts of aviation on climate.

Although knowledge of the processes at play is strengthening, the scale of impacts remains in some important cases, subject to wide confidence limits. This is particularly the case for impacts of contrail induced cirrus clouds.

2. There is no publicly accessible record of climate regulations or compliance regimes applying an AIF greater than one for emissions from aviation.

The EU's Emission Trading Scheme for aviation considers only emissions of carbon dioxide. DEFRA, the UK Government ministry responsible for environmental affairs, has provided internationally recognised guidance in support of a multiplier factor of 1.9. This factor is not actively applied within UK regulatory programmes, nor to any voluntary action on climate mitigation by the UK Government and its ministries. The aviation sector's plans for a global carbon offset scheme to ensure carbon neutral growth from 2027 – the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) – also considers only carbon dioxide emissions.

3. The CarbonNeutral Protocol's provision that clients may elect to apply an AIF greater than the default in **Table 12** recognises the voluntary nature of the CarbonNeutral certification, while also encouraging clients to take account of the strengthening case for different accounting for aviation emissions in their carbon management strategies and plans.

Natural Capital Partners continues to keep this issue under review. Specifically, the plans by the International Standards Organisation (ISO) to develop internationally applicable guidance entitled "Radiative Forcing Management— Guidance for the quantification and reporting of radiative forcing-based climate footprints and mitigation efforts".

Accounting for the use of Sustainable Aviation Fuels

The guidance above is based on the use of the conventional liquid hydrocarbon fuels (LHF) available widely for aviation. However, in light of the Paris Agreement's 1.5ºC warming target, the aviation industry, in partnership with the International Civil Aviation Organisation (ICAO), has now adopted a set of goals to reduce aviation's climate impact.

The measures required to reach these goals include operational changes to achieve more fuel-efficient routing of flights, more fuel-efficient aerodynamic aircraft design and changes to the aviation fuels in use. Of these, it is expected that changes to aircraft fuel will produce the greatest contribution to reduction targets, with the progressive reduction of the proportion of conventional LHF used through the introduction of Sustainable Aviation Fuels (SAF).

SAFs come in many forms, including hydrocarbons produced from renewable or waste feedstocks and a range of alternative fuels including hydrogen or electricity. Although both hydrogen and electricity are seen as potentially important fuels for the future, considerable further development is required to engines and airframes before they can be widely used. In the short term, SAFs most commonly take the form of blends of conventional LHF and chemically equivalent fuels processed from waste oils, agricultural wastes and biomass feedstocks that can immediately replace LHF.

SAF displaces conventional LHF, replacing the fossil carbon with renewable carbon so that the direct impacts of flights are reduced proportionally to the amount of SAF in the blend. However, the secondary effects of aircraft flights, including impacts of non-CO_2 engine emissions and of the flight itself (contrails and induced cirrus), are currently recognised as of a similar order to their direct impacts — emerging evidence suggests that future assessment may put them on an order of twice the direct impacts of total engine CO_2 emissions. This dilutes the direct benefits of SAF by factor of approximately 2 today, but possibly more in future. There are, then, direct scope 1 gains from the use of SAF, but at current blending levels, they are relatively modest.

While the development and deployment of SAFs is currently limited, its use in commercial flights is growing and expected to increase over time. Clients able to access SAF fuelled flights can account for their impact under the guidance provided in **Guidance 2.7**, subject to availability of reliable use data and appropriately adjusted AIFs.

Clients pursuing increased deployment of SAFs to reduce emissions from their air travel should make themselves aware of the wider sustainability issues associated with the production of SAFs (see Murlis 2021 guidance – www.carbonneutral.com/aviation-guidance-in-full) and seek assurances about the adequacy of environmental safeguards applied to the production of SAF feedstocks.

2.5.2 Determining aviation emissions from flight distances

Where exact fuel consumption data is not available for GHG emission calculations, passenger kilometres travelled should be used as a basis for calculation instead. Depending on flight distances, different emissions factors are applicable and are often classified as domestic, short haul, medium haul or long haul. Due to the extreme variability in country sizes, the use of "domestic" classification can be counter-productive when applied to flights within a particular country, using emissions factors provided for use within a different country.

This applies particularly when using DEFRA emission factors for air passenger transport conversion figures in countries other than the United Kingdom.

Therefore, for the purposes of consistency, the following classifications should apply:

- Short haul: Flight distance of less than 785km (DEFRA emission factors for "domestic" should be applied)
- Medium haul: Flight distance between 785km and 3,699km inclusive (DEFRA emission factors for "short-haul international" should be applied)
- Long haul: Flight distances of 3,700km or greater (DEFRA emissions for "long-haul" should apply)

For clarity, these distance classifications should be applied when calculating emissions arising from passenger flights (passenger km) and/or air freight transportation (tonne km). These distance categories must be applied internationally, in the absence of robust, country-specific factors.

2.6 Materials consumption and waste

2.6.1 Treatment of recycled waste – substitution within GHG assessments

An organisational – or entity-level – GHG assessment is typically an inventory of actual emissions and removals from the atmosphere. The leading guidance for organisational footprinting, the GHG Protocol Corporate Standard, advocates such an approach, known as attributional analysis.

The emission factors used for organisational - or entity - GHG assessments should relate to actual physical emissions or actual physical removals. However, some emission factors include a "crediting" effect for avoided emissions, and are therefore inconsistent with the principle of only counting actual physical emissions and actual physical removals.

Certain national GHG reporting guidelines (e.g. the U.S. Waste Reduction Model), include a substitution effect in the emission factors for recycled waste. The factors include a credit for the avoidance of embodied emissions that would have occurred had the waste not been recycled - i.e. they provide credit for emissions that do not happen. This approach leads to negative emission factors for certain recycled waste streams. The result of including such factors within an entity-level inventory is that the calculated emissions are no longer a true assessment of actual physical emissions and actual physical removals.

GHG emissions associated with recycled waste should be quantified using national, regional, international, or other relevant emission factors, with preference given to national emission factors when they are available. If national emission factors are not available for recycled waste, the next most relevant source of factors must be used.

If the most geographically relevant emission factors take a substitutional approach within their waste stream methodologies, then recycled waste streams can be assumed to produce zero emissions for accounting purposes. "Zero rating" recycled waste is considered appropriate, as an organisation is rewarded with a lower footprint for sending less waste to landfill, whilst maintaining the attributional integrity of their GHG assessment.

2.6.2 Water consumption and waste water treatment

The 2013 revision of the Protocol introduced the inclusion of water consumption and waste water treatment as recommended emission sources for entity level CarbonNeutral® certifications. While the carbon footprint of water consumption and waste water treatment will be a relatively small emission source for most organisations (the water industry typically contributes around 1% of GHG emissions in developed economies), the water industry and its customers have an important part to play in reducing GHG emissions.

For corporates, water should not simply feature within a carbon management plan. Water warrants its own water management plan. A mature plan considers water volume in the context of both water stress and water quality to understand the full impact of corporate water use at the water basin level.

Including water as a recommended emission source in CarbonNeutral® certifications will encourage users of The Protocol to collect volume data and evaluate water use within their carbon management plan. In creating this awareness and disclosure we hope it will encourage corporates to explore more sophisticated water management plans.

2.7 How to report GHG emissions from carbon neutral services within a corporate GHG inventory

Businesses are increasingly considering the environmental performance of suppliers as part of their procurement process. If a business has selected a supplier because they provide a carbon neutral service, this guidance sets out best practice with regards to reporting the GHG emissions from the service within the business' annual GHG inventory. Services that are frequently supplied as carbon neutral services include taxis, flights, logistics services, electricity or gas supply. This approach would apply equally to the GHG inventory of a product where components of the product are sourced as carbon neutral products. Given carbon neutral services are more widely available in the market, this guidance focuses on services in the context of an annual corporate GHG inventory.

This guidance aligns with the GHG Protocol's Scope 3 Standard[1] and UK DEFRA's Environmental Reporting Guidelines.[2] This guidance recommends the following steps:

1. Request suppliers provide a breakdown of the GHG emissions associated with the services consumed

The total gross carbon footprint for a specific time period (e.g. financial year) plus an intensity measure relevant to how the service is consumed. For example, if document storage is outsourced to a cloud-based service, request the figure for CO_2e emitted per gigabyte per year. The carbon intensity metric is useful for forecasting how GHG emissions will vary based on the level of consumption

2. Confirm if the service purchased is carbon neutral

To deliver a carbon neutral service the provider will need to offset (retire) a volume of carbon credits equivalent to the emissions created by the provision of the service. For example, if the gross footprint of the service equals 10 tCO_2e, then 10 tCO_2e of carbon credits need to be purchased and retired, and once retired the net footprint equals 0 tCO_2e, i.e. the service is carbon neutral. To ensure the service provider is using high quality carbon credits which guarantee emissions reductions from credible project types, you should request that they work with a carbon credit supplier that complies with the requirements set out in **Technical Guidance 4.1.1**. If a supplier is not using credits in compliance with the ICROA Code, then those credits cannot be included in support of a CarbonNeutral® certification

3. When preparing a corporate GHG inventory, categorise the carbon neutral service according to requirements of the GHG Protocol standards. To maintain the integrity of the GHG inventory, total GHG emissions should be reported, before reporting a lower figure for net emissions that has been reduced by the retirement of carbon credits by the product or service provider

Table 13 illustrates how this guidance can be applied to a corporate GHG inventory in order to transparently account for the GHG emissions of carbon neutral services consumed within a reporting period. In this example, the reporting company has sourced three services; electricity, logistics and data hosting, that are offset by their respective suppliers. The GHG emissions of all three services are counted in the total annual GHG emissions figure, and the GHG reduction from the purchase and retirement of carbon credits is then subtracted from this figure. The reporting company then purchases and retires a sufficient number of carbon credits to reduce its remaining net GHG emissions to zero to support a carbon neutrality claim

Table 13: Illustrative Corporate GHG Inventory for 2019 and 2020

Corporate GHG inventory (tCO_2e)	2019	2020
Total annual GHG emissions	10,000	9,000
GHG emissions offset by electricity supplier	(3,000)	(2,500)
GHG emissions offset by logistics provider	(600)	(500)
GHG emissions offset by data hosting provider	(200)	(300)
GHG emissions offset by direct carbon credit retirement	(6,200)	(5,700)
Total annual GHG emissions net of carbon offsets	0	0

[1] Greenhouse Gas Protocol, 2011, Corporate Value Chain (Scope 3) Standard, https://ghgprotocol.org/standards/scope-3-standard.
[2] Environmental Reporting Guidelines: including mandatory greenhouse gas emissions reporting guidance.

2.8 Using environmental product declarations (EPDs) for CarbonNeutral® products

The 2014 revision of The CarbonNeutral Protocol introduced Environmental Product Declarations (EPDs) as an alternative way to demonstrate achievement of Steps 1 and 2 of the CarbonNeutral® certification process for products. Step 1 covers the definition of the subject and Step 2 covers measurement of the subject's GHG emissions.

An EPD is a type III environmental label declaring the environmental impacts of a product over its expected life. EPDs can be thought of as the environmental equivalent to nutrition labels for food products, stating a product's carbon footprint and other environmental impacts such as resource depletion, acidification, and eutrophication. It is a comprehensive, voluntary, internationally recognised report that compiles and standardises technical LCA information, eliminating the need to contend with numerous individual documents.

Figure 6 demonstrates how the integrity of EPDs is established by the application of a variety of third-party standards and processes:

- The ISO 14025 standard establishes the principles and specifies the procedures for developing type III environmental declaration programmes and type III environmental declarations, specifically EPDs
- The ISO 21930 standard establishes the principles and requirements for type III EPDs of building products
- The EN 15804 is a European standard that provides core Product Category Rules (PCRs) for type III EPDs for any construction product and construction service
- PCRs describe the harmonised LCA-rules for data collection, methodology, calculations and presentation of the results for a specific product category such as pre-fabricated buildings or leather footwear. PCRs are developed in accordance with ISO 14025, and additionally with ISO 21930 and/or EN 15804 for construction products
- LCAs are based upon the parameters set out in ISO 14025, ISO 21930 and EN 51804, and should also be compliant with the ISO 14040 series of standards. The measurement of the carbon footprint should follow the ISO/TS 14067 (the Technical specification for GHGs — carbon footprint of products — requirements and guidelines for quantification and communication)
- Transparency is a key component of EPDs, and upon completion, all EPDs should be publically registered with an EPD programme operator, in addition to being independently verified
- Programme operators are responsible for maintaining type III EPD programmes, and establishing procedures for the development of Product Category Rules and EPDs

Given the rigour applied to the development of PCRs, the strict requirements of ISO LCA methodologies and the need for independent third-party verification, The CarbonNeutral Protocol recognises that EPDs provide robust, high quality GHG measurement outputs.

There may be minor differences in requirements of The CarbonNeutral Protocol relative to an EPD. EPD product category rules for any given subject will by definition be more relevant to the subject than the general requirements of The CarbonNeutral product certification. Therefore, where there are differences, the EPD prevails and is deemed to have met the requirements of The CarbonNeutral Protocol. **Table 14** explores some of these requirements in more detail.

Figure 6: Establishing the Integrity of EPDs

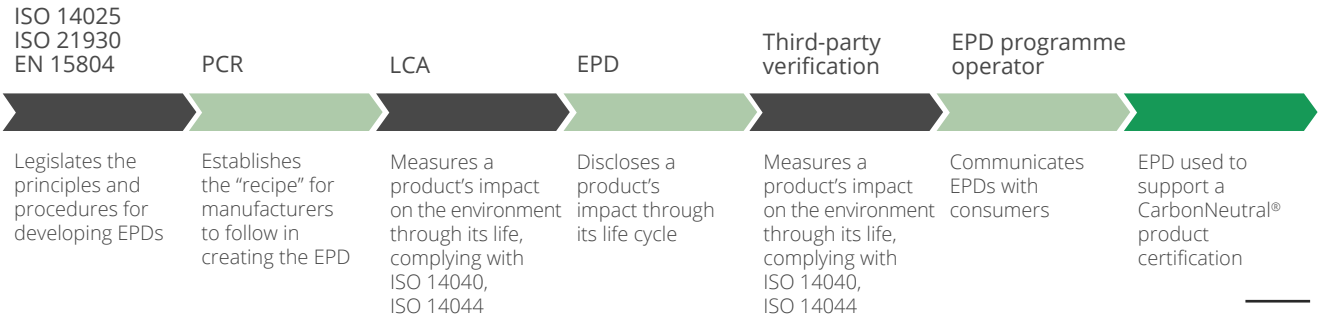

Table 14: Comparison of Requirements Between The CarbonNeutral Protocol and EPDs for CarbonNeutral® Product Certification

Step 1: Define the subject		
	The CarbonNeutral Protocol requirements	EPD requirements[1]
Requirements	The subject to which The CarbonNeutral Protocol is being applied must be clearly defined, by name and by description of the relevant legal and/or physical boundaries. The duration of a CarbonNeutral® certification must also be defined. Where applicable, a start date should be defined. The CarbonNeutral® certification to be applied must also be defined and must be compatible with the subject. The definition of the subject and the certification must be recorded by the CarbonNeutral certifier and the information retained for the purpose of auditing.	Covers The CarbonNeutral Protocol requirements, and goes beyond by requiring, for example, an in-depth description of the functions of the product system, and a description of the cut-off criteria for initial inclusion of inputs and outputs.

Step 2: Measure the subject's GHG emissions		
Stage	The CarbonNeutral Protocol requirements	EPD requirements[1]
1. Select GHG accounting protocol	The GHG Protocol Product Standard, PAS 2050, ISO/TS 14067 or methods set out in steps 2-7 below must be applied unless the CarbonNeutral certifier identifies valid reasons for using other methods.	The carbon footprint of the product should be based on the ISO 14040 series of standards (or ISO 21930 for building products), and measurement should follow the ISO/TS 14067. EPDs are deemed to match the requirements of The CarbonNeutral Protocol.
2. Define boundary	The boundary must be consistent with the definition of the subject. For cradle-to-customer subjects the boundary must extend to the point of delivery to the first customer. For cradle-to-grave subjects the boundary must extend to end-of-life disposal.	The boundary covered by Product Category Rules (PCRs) extends from cradle-to-grave" and is designed to capture material impacts. In some cases it only covers extraction, processing of raw materials and packaging and manufacture (cradle-to-customer, but excluding the distribution to the first customer).
3. Identify emissions sources	Assessments must include emissions sources as specified in **Tables 2**, **3** and **4** for CarbonNeutral® certifications and their specific required assessment emissions sources.	PCRs define the emission sources which are required for the EPD. These emissions sources are determined by industry and LCA experts, and represent best industry practice. The requirements of EPDs go beyond the detail in **Tables 2**, **3** and **4** of The CarbonNeutral Protocol, therefore they are deemed to meet and exceed The CarbonNeutral Protocol requirements.
4. Identify GHGs to be measured	All GHGs recognised under the UN Framework Convention on Climate Change must be measured in the assessment, insofar as they apply to the subject.	The measurement of all GHG emissions and removals that provide a significant contribution to the carbon footprint of the product system. EPDs are deemed to meet the requirements of The CarbonNeutral Protocol.
5. Establish time periods	For standard consumer products, assessments must at a minimum be every five years, unless a significant change to the product supply chain has occurred, in which case another assessment must be undertaken. For one-off or custom-produced products the timescale must relate to the production and delivery period.	The validity of the EPD is set at a minimum of five years after which the declaration must necessarily be revised and reissued. EPDs are deemed to meet the requirements of The CarbonNeutral Protocol.

[1] As recommended by ISO/TS 14067.

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Step 2: Measure the subject's GHG emissions (continued)		
Stage	**The CarbonNeutral Protocol requirements**	**EPD requirements[1]**
6. Determine data validity	Primary data must be used in preference to estimates, where it is available, up-to-date and geographically relevant. Estimates, extrapolations, models and industry averages may be used where primary data is unavailable. When this is done, these assumptions must be recorded by the party carrying out the assessment. A qualitative and/or quantitative description of the uncertainty associated with the client-supplied data should be made. In cases where the quality of client supplied data is not known (e.g. in online calculators), the dependency of results on the quality of input data should be made clear.	Site-specific data shall be collected for individual processes under the financial or operational control of the organisation, and shall be representative of the processes for which they are collected. Site-specific data should also be used where practicable for those unit processes that contribute significantly, but are not under the financial or operational control of the organisation. Data that is not site-specific data, based on global or regional averages, collected by regional or international organisations and which have undergone third-party verification should be used when the collection of site-specific data is not practicable. EPDs are deemed to meet the requirements of The CarbonNeutral Protocol.
7. Measure GHG emissions	The subject's GHG emissions must either be directly measured or quantified using national, regional, international, or other relevant emission factors, with preference given to emission factors most closely associated with the emissions source. The assessment must be reported in units of CO_2e according to the 100 year potential of each gas. GWP factors applied must be clearly stated in the assessment. Emission sources that are required to be assessed (see **Tables 2**, **3** and **4**) but are estimated to represent less than 2% of the subject's total GHG emissions, but collectively no more than 5% of the subject's GHG emissions must be included, but may be calculated and reported using simplified estimation methods.	Data that are not site-specific data may include literature data, such as default emission factors, calculated data, estimates or other representative data. The potential climate change impact of each GHG emitted and removed by the product system shall be calculated by the 100-year GWP given by the IPCC in units of "kg CO_2e per kg emission." Include all GHG emissions and removals that provide a significant contribution to the carbon footprint of the product system being measured. EPDs are deemed to meet the requirements of The CarbonNeutral Protocol.
8. Quality assurance	All GHG assessments must either be conducted or checked, and in the case of GHG tools and calculators, be approved, by an Assessment Partner or Provider to ensure they have met the above requirements in this table. Input data (or activity data) used in assessments should also be checked by Assessment Partners and Providers. **Technical Specification 2.2** details requirements and recommendations for the presentation of GHG assessments.	Requires third-party verification. A critical review which ensures consistency between an LCA and the principles and requirements of the international standards on LCA can also be conducted. EPDs are deemed to meet the requirements of The CarbonNeutral Protocol.

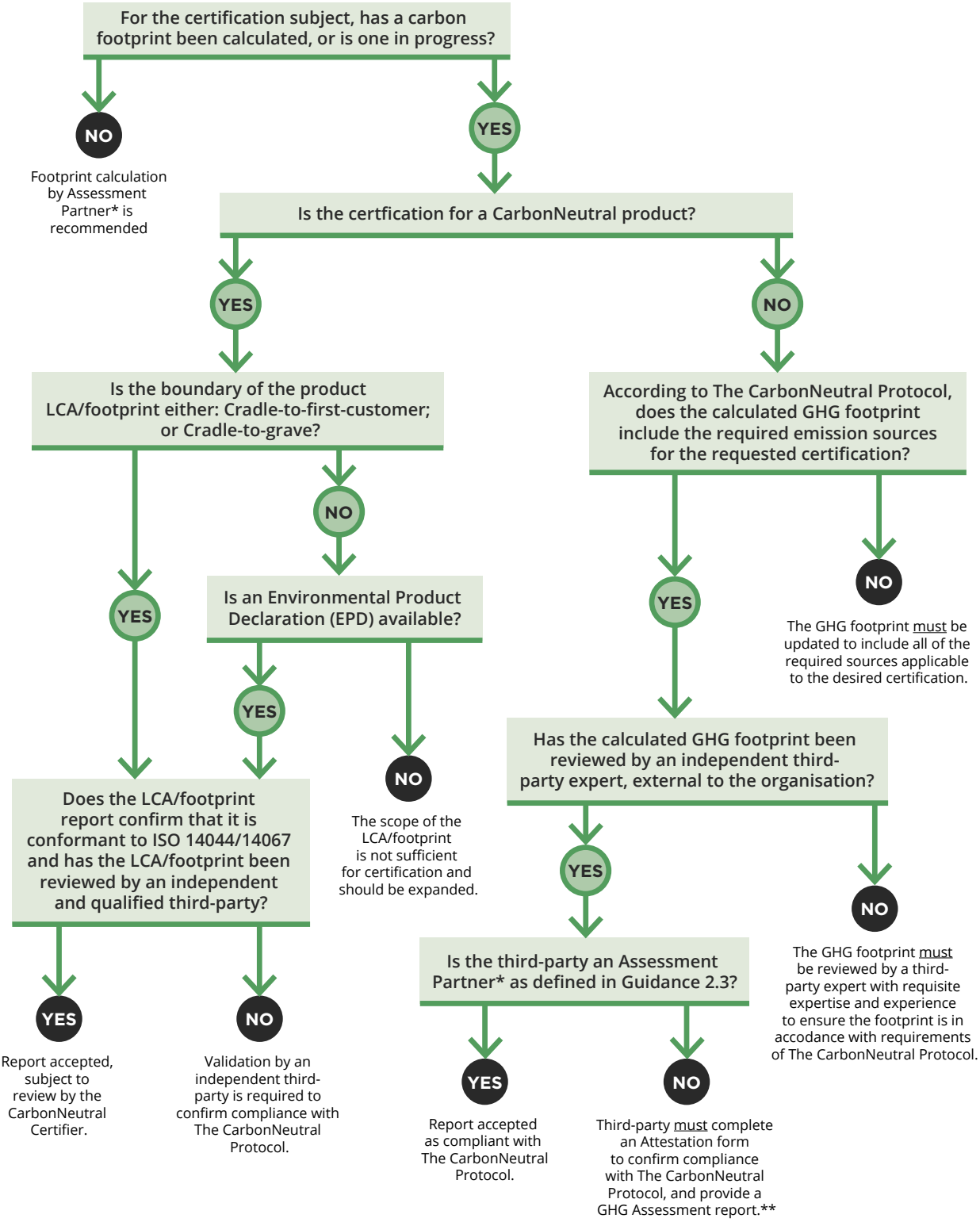
[1] As recommended by ISO/TS 14067.

Requirements for a CarbonNeutral® compliant EPD

1. The EPD must be developed using a suitable PCR which follows ISO 14025 guidelines, and additionally with ISO 21930 and/or EN 15804 if used for construction products
2. The LCA must conform to the ISO 14040 series of standards
3. The EPD must be validated by an independent, qualified third party to ensure it has met the necessary requirements

Figure 7: Determining if GHG Emissions Assessments Meet the Requirements of The CarbonNeutral Protocol

This flow-chart sets out some of the procedural elements to evaluate conformance of GHG Emissions Assessments to the requirements of The CarbonNeutral Protocol.



* Assessment Partner: third-party with a formal agreement with the CarbonNeutral Certifier to conduct GHG assessments on behalf of clients in accordance with the requirements of The CarbonNeutral Protocol. Assessments conducted by Assessment Partners are accepted as CarbonNeutral Protocol compliant without additional review. Assessment Partners include: RSK, Ecometrica, Turley.

** Attestations will be accepted from Assessment Partners, subject to review and approval by the CarbonNeutral Certifier, where Assessment Providers are deemed to have sufficient and appropriate experience and expertise to undertake a high quality, compliant review and the attestation has been completed satisfactorily.

Bulldog's Top-selling Product is CarbonNeutral®

CarbonNeutral® certification forms a key pillar of an extensive environmental programme for a popular personal care product.

Define: The Original Moisturiser is a CarbonNeutral® product, first certified in 2019

Measure: Life-cycle assessment (LCA) of the greenhouse gas emissions of the product, including its manufacture and distribution

Target: CarbonNeutral® product certification targeted alongside a commitment to continually review and minimise its impact on the environment

Reduce: Emissions reductions through replacing plastic packaging with sugarcane plastic and minimising energy intensive processes such as heating and cooling water in manufacturing. Certified emission reductions from a rainforest conservation project located in Acre State, Brazil

Communicate: CarbonNeutral® certification has been a key pillar in Bulldog's UK-based cross-channel advertising campaign to reinforce the company's commitment to minimise its environmental impact

Step 3: Target
Technical Specification

3.1 Approved emission reduction strategies and/or targets

Purpose

This section specifies which internal abatement strategies and/or targets must be in place for entities with annual footprints over 100,000 tCO_2e.[1]

In order to receive a CarbonNeutral® certification (including entity, product or activity certifications), clients with annual footprints over 100,000 tCO_2e must have set one of the approved emission reduction strategies and/or targets set out in **Table 15**. This applies even if the subject of the certification is less than 100,000tCO_2e.

These strategies and/or targets must be specified in the client's CarbonNeutral® Certification Target and Reduce Form (see **Technical Specification 3.2**).

This Technical Specification is reviewed annually to ensure it reflects developments in best practice and the performance of internal abatement initiatives.

Table 15: Approved Emission Reduction Strategies and/or Targets

Approved emission reduction strategies and/or targets	Status	Organisation
CDP Climate Change Score	D or above	CDP
Science-Based Target	Target Set or Committed	Science-Based Target initiative (SBTi)
Net Zero	Target Approved under Net-Zero Corporate Standard	Science-Based Target initiative (SBTi)
Race to Zero	Member	United Nations Framework Convention on Climate Change (UNFCCC) official Race to Zero partners. These are: The Climate Pledge, Business Ambition for 1.5 (SBTi), Business Declares, Exponential Roadmap Initiative, Planet Mark, SME Climate Hub*, B Corp Climate Collective**

* Small and medium sized businesses only ** B Corporations only

[1] As defined by CarbonNeutral company certification

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3.2 CarbonNeutral® Certification – Target and Reduce Form

This Target and Reduce Form may be revised from time to time within the annual Protocol publication cycle. Visit www.carbonneutral.com/target-and-reduce-form for the most up to date version.

Target and Reduce Form

As set out in Core Requirements: Step 3: Target of The Protocol:

- All certifying entities must specify any internal abatement targets they have for the emissions covered by their certification
- All certifying entities with an annual footprint (as defined by CarbonNeutral company certification) above 100,000 tCO_2e must have set one of the third-party internal abatement strategies and/or targets set out in **Technical Specification 3.1**.

This Target and Reduce Form serves to ensure that Natural Capital Partners obtains the required information necessary to license a CarbonNeutral® certification logo under the provisions of The CarbonNeutral Protocol.

If the information requested in this section is documented elsewhere (in whole or in part, e.g. a CDP submission), you may attach such document(s) in lieu of completing this form or the applicable portion(s) thereof:

Name: _____

Job title: _____

Company: _____

CarbonNeutral® certification type: _____

Does your company have an annual footprint above 100,000 tCO_2e (as defined by CarbonNeutral company certification)?

If "Yes", please indicate which of the following internal abatement strategies and/or targets you have set or achieved:

- ☐ CDP Climate Change Score D or above
- ☐ Science-Based Target (Set or Committed)
- ☐ Net Zero Target (Set or Committed)
- ☐ Race to Zero Membership*

CERTIFIED CARBON NEUTRAL® Global Standard
CarbonNeutral.com

If "No", please answer the following questions:

Is there a longer-term abatement / reduction target (or targets) for the GHG emissions covered by your certification?**

Yes/No
If "Yes", please specify Scopes and change targeted
_____

Is the target approved by any particular initiative/ programme and/or independently verified on a regular basis?

Yes/No
If "Yes", please specify _____

* Through one of the official partners approved by the United Nations Framework Convention on Climate Change (UNFCCC): The Climate Pledge, Business Ambition for 1.5 (SBTi), Business Declares, Exponential Roadmap Initiative, Planet Mark, SME Climate Hub, B Corp Climate Collective

** For all companies with an annual footprint below 100,000 tCO_2e, we require that you specify internal reduction targets relating to the footprint covered by your CarbonNeutral certification. This information is required. If you do not have any targets, please put "no target". Internal reduction targets may cover a wider scope of your footprint that that covered by your certification.

Step 3: Target Guidance

3.3 Setting internal reduction targets

The CarbonNeutral Protocol does not mandate what level of internal reduction target should be set to achieve CarbonNeutral® status. As outlined in **Guidance 4.3**, organisations are encouraged to use established management tools to identify the appropriate balance between internal reductions and the use of offsets to achieve carbon neutrality cost-efficiently and in ways that deliver strategic value.

While the MAC curve approach (see **Guidance 4.3**) helps an organisation prioritise its reductions options, it does not necessarily align the organisation's internal reduction efforts with the UNFCCC Paris Agreement's call for global emissions reductions to limit average global temperature rise to well below 2°C above pre-industrial levels, in order to significantly reduce the risks and the impacts of global climate change.

Therefore, organisations should consider the option of establishing internal reduction targets that align with scientifically established emission reduction trajectories that can deliver a stable climate. For example, the Science Based Target (SBT) initiative, a collaborative initiative by CDP, World Resources Institute (WRI), the World Wide Fund for Nature (WWF) and the United Nations Global Compact (UNGC), provides guidance on science-based target setting to encourage and support companies in the transition to a low-carbon economy.

3.4 Net zero targets

Purpose of this Guidance

Historically the terms carbon neutral and net zero have been interchangeable, but recently greater clarification on what net zero could and should mean has been published. This guidance provides an overview of the concept of net zero, and sets out three different ways in which CarbonNeutral® certifications support net zero objectives.

Net zero concept

Net zero is still a relatively new concept with approaches and definitions being published frequently (See **Net zero** in the Glossary for some of the latest definitions). We anticipate that definitions of net zero will be refined with time and application, and this guidance will be updated in subsequent revisions to the Protocol.

The rising prominence of net zero targets was initiated by The Intergovernmental Panel on Climate Change's (IPCC) Special Report on Global Warming of 1.5˚C, which advised of the critical importance of achieving net-zero emissions as soon as possible to improve the probability of limiting warming to 1.5˚C. Adoption of net zero by the private sector is driven in large part by the desire to align with the ambition set out in the Paris Agreement of net zero emissions by or before 2050, and the growing number of nations which have refined their national climate plans to target the same.

Research by Natural Capital Partners into the Fortune Global 500 found that 25% (127) of companies have a net zero target, up from 8% (38) a year ago. Most targets are set for between 2031 and 2050 (22% of all companies), whereas only 4% have set a net zero target to be achieved earlier. This compares to 8% (38) that are carbon neutral today, a further 9% (44) that have a target to be carbon neutral by 2030, and a further 13% (65) that have a target to be carbon neutral by 2050.

How CarbonNeutral certifications support net zero ambitions

There are three main ways in which CarbonNeutral certifications support net zero ambitions:

1. Annual carbon accounting and action on all unabated emissions. Defining and measuring carbon footprints on an annual basis and taking action on unabated emissions are processes that are common in carbon neutral programmes and will be necessary for corporates achieving net zero. Carbon neutrality's requirement to compensate for all unabated emissions through offsetting provides a reference price for GHG emissions that helps entities identify opportunities for deeper internal reductions. In addition to helping an individual organization become carbon neutral, offsetting unabated emissions to achieve a CarbonNeutral certification finances emission reductions and transformation in the wider economy. According to The Science-Based Targets Initiative's (SBTi) latest work on net zero published in October 2021, "purchasing high-quality carbon credits in addition to reducing emissions along a science-based trajectory can play a critical role in accelerating the transition to net-zero emissions at the global level".[2] 2020 was the first time that

[1] Natural Capital Partners, 2021, *Reality Check*, https://www.naturalcapitalpartners.com/insights/reality-check
[2] Science Based Targets initiative, 2021, *Beyond Value Chain Mitigation FAQ*, https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf, page 3

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this particular coalition of respected environmental NGOs (CDP, WWF, WRI) has positively acknowledged the role of offsetting in a major publication.

2. Increasing removals. For an organisation to achieve a net zero target, unabated emissions are offset through removal projects, e.g. natural climate solutions such as forests that remove carbon from the atmosphere ("neutralisation measures" in SBTi language). To align CarbonNeutral certifications with a net zero target, organisations must increase the proportion of removals in their offset portfolio until all unabated emissions are offset only with removal projects. Boston Consulting Group exemplifies this approach, with its commitment to steadily increase its portfolio of removal projects while achieving carbon neutrality, on the path to its net zero by 2030 target.[1] (see **Figure 8**).

During the transition to net zero, financing reductions and avoided emissions projects ("compensation measures in SBTi language) continues to play a "critical role in accelerating the transition to net-zero emissions at the global level"4. In addition, businesses are also increasingly looking for approaches that integrate climate action with other SDG impacts. Many avoidance and reduction projects deliver quantified impacts for sustainable development such as health and livelihoods, biodiversity conservation, and education. As a result, mixed portfolios of these projects, alongside removal projects which may not have the same level of SDG impact, can offer an optimal solution.

3. Increasing climate action on value chain emissions. When an organisation reaches net zero, it must cover all material sources of GHG emissions within its value chain. Through CarbonNeutral product and service certifications, organisations are moving towards taking responsibility for all sources of emissions. CarbonNeutral product certification for 825,000 Microsoft Xboxes helped the company begin to expand its carbon neutrality from operations towards a broader scope as part of its target to be net zero by 2030 (see **Figure 9**).

Further information can be found at:
Science Based Targets Initiative (SBTi), 2021, *SBTi Corporate Net-Zero Standard*, https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf

Science Based Targets Initiative (SBTi), 2021, *Beyond Value Chain Mitigation FAQ*, https://sciencebasedtargets.org/resources/files/Beyond-Value-Chain-Mitigation-FAQ.pdf

Figure 8: How CarbonNeutral Certifications Support Net Zero Ambitions: Increasing Removals

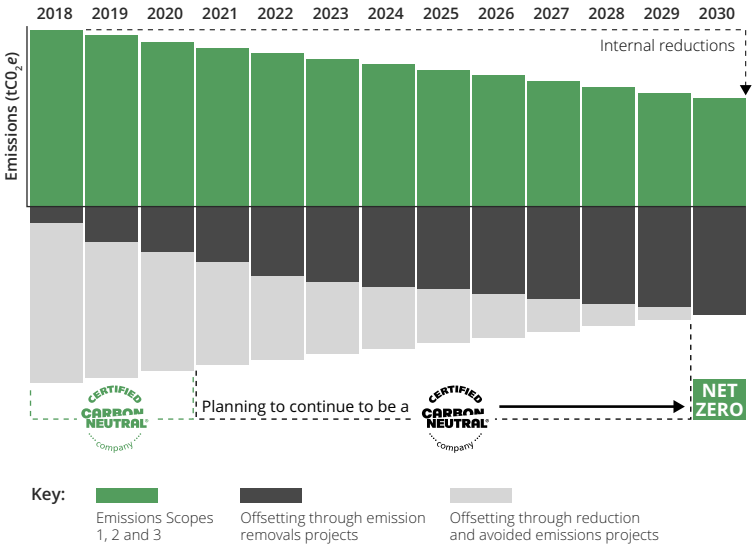
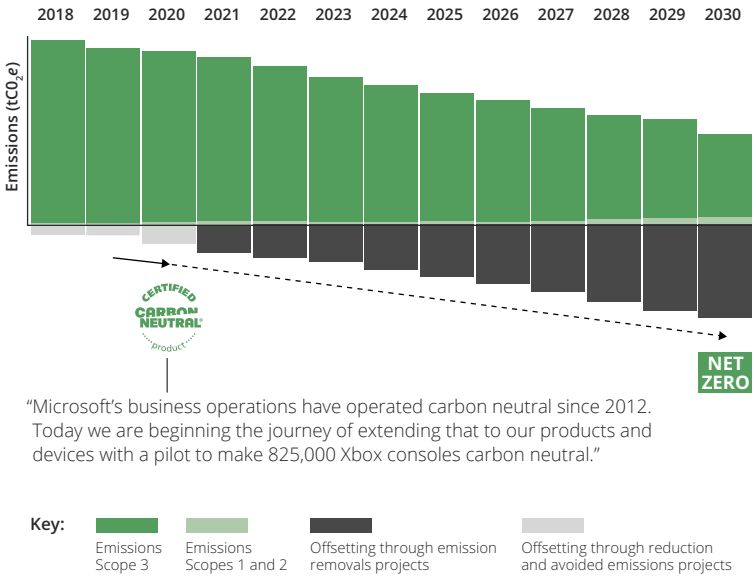


Figure 9: How CarbonNeutral Certifications Support Net Zero Ambitions: Using CarbonNeutral Product Certification to Start Taking Climate Action on Entire Value Chain Emissions



Adapted from Microsoft, 2020, Microsoft will be carbon negative by 2030, https://blogs.microsoft.com/blog/2020/01/16/microsoft-will-be-carbon-negative-by-2030/

[1] BCG, 2021, *BCG's Net-Zero Pledge, One Year Later*, www.bcg.com/publications/2021/net-zero-pledge-one-year-later
[2] Microsoft, 2019, *Ambition is good; action is better*, https://blogs.microsoft.com/on-the-issues/2019/09/22/ambition-is-good-action-is-better-making-progress-on-our-climate-commitments/

3.5 Climate (or carbon, or net) positive

A growing number of corporates are exploring terms and concepts that address the perceived limitations of neutrality, which can imply no net gain for the climate. The most common terms in this space include 'carbon positive', 'carbon negative' and 'climate positive'. 'Carbon positive' and 'carbon negative' are used to indicate a net removal or reduction of carbon dioxide from the atmosphere. This is a source of potential confusion. 'Carbon positive' can be read as numerically positive emissions (bad for the climate); and, 'carbon negative' is limited because it defines a good action in the negative. To limit confusion, we refer to all concepts that seek to convey net gain with the generic term 'climate positive'.

In 2021, we conducted our third annual study into the climate commitments of the Fortune Global 500, finding that carbon neutrality targets outnumbered climate positive targets 31:1.[1]

Many climate positive actions and targets lack the structural integrity of other actions such as CarbonNeutral® certification. Some have complex or ill-defined goals. Of the organisations with climate positive actions/targets in the Fortune Global 500, 40% did not provide a clearly defined or transparent climate positive goal.

Our working definition of 'climate positive' is 'a term indicating that an entity is taking or causing action beyond carbon neutrality by removing GHGs from the atmosphere or reducing emissions to the atmosphere such that the aggregated reductions and removals exceed the unabated emissions from the subject'.

The certification class we use for CarbonNeutral® certifications (Entity, Product, Activity) is also helpful here because some 'climate positive' targets apply to individual products not the whole business.

Natural Capital Partners' research currently defines three main 'climate positive' archetypes for entities, products and activities to go beyond neutral greenhouse gas emissions (GHG). These are as follows:

1. 'Over-offsetting' the subject's footprint by a given percentage

2. Deploying technology or solutions within the value chain that reduce GHG emissions e.g. producing and distributing more renewable energy than is consumed by the providing entity

3. Deploying technology or solutions within the value chain to sequester GHG emissions

Some businesses choose to focus on only one of the above archetypal methods, while others pick a range of actions to become positive. There is also variability as to how much the actions to become positive are integrated into the organisation's wider sustainability plan.

The concept of net gain is attracting interest and with wider use is becoming better defined and understood. However, there is no working definition as yet that meets all the Principles that underpin The CarbonNeutral Protocol (see **Introduction**), especially the second principle of claims built on conservative estimation, best practice, transparency and continuous improvement.

For that reason, caution is advised in making public claims around climate positive.

[1] Natural Capital Partners, 2021, *Reality Check* https://www.naturalcapitalpartners.com/insights/reality-check.

VMware Achieves Major Milestone on Journey to Net Positive Global Impact

Define: CarbonNeutral® company first certified in 2018 after making its data centres CarbonNeutral in 2017

Measure: Total GHG emissions for global operations arising from owned, leased or directly controlled stationary and mobile sources that use fossil fuels and/or emit fugitive emissions from the generation of purchased electricity, heat and cooling; and emissions from waste and business travel

Target: Carbon neutrality is part of VMware 2020 is the company's global impact vision to serve as a force for good. The company has commitments to long-term sustainability, accountability and transparency in the management of its environmental footprint

Reduce: CarbonNeutral company certification was achieved two years ahead of schedule through a combination of internal energy efficiency initiatives, purchases of renewable energy including through high quality energy attribute certificates (EACs), and financing high impact emission reduction projects which deliver significant co-benefits to sustainable development. The projects included a water filtration and improved cookstoves project in Guatemala, and an improved cookstoves project in India

Communicate: Certifying as a CarbonNeutral company is one of five key goals related to VMware 2020. The company has communicated its commitments and achievements through a variety of channels: its blog, its global customer conference, lunchtime presentations to staff, and webinars

Step 4: Reduce
Technical Specification

4.1 Approved Environmental Instrument Standards

Purpose
This section specifies the criteria for use of environmental instruments in CarbonNeutral certifications and which instruments meet the criteria.

4.1.1 Carbon credits

Criteria
All carbon credits used towards the achievement of CarbonNeutral® certification must meet the following criteria:

Additional: Refers to an external emission reduction project from which emissions reductions are verified as carbon credits under an applicable carbon accounting standard. An emission reduction project is said to be additional when it can be demonstrated that in the absence of the availability of carbon finance the project activity would not have occurred (the "baseline" scenario); and, such baseline scenario would have resulted in higher GHG emissions.

Each eligible carbon accounting standard under The CarbonNeutral Protocol provides tools for how additionality at a project level is tested and demonstrated. For further discussion of this topic, see **Guidance 4.4**.

Legally attributable: Carbon credits must have a clear record of ownership from project owner and thereafter.

Measurable: Emissions reductions are quantified relative to a transparent and robust baseline scenario using recognised, peer reviewed, published methods and project-specific data; or, using recognised performance standard procedures.

Permanent: Emissions reductions are permanent. Where reductions are generated by projects that carry risk of reversal, adequate safeguards must be in place to ensure that the risk of reversal is minimised and that, if any reversal occurs, a mechanism is in place that guarantees the reductions will be replaced.

Unique: Emissions reductions are held and retired on a registry to ensure that no more than one carbon credit can be associated with a single emission reduction.

Independently verified: Emissions reductions are verified by an expert third party qualified to verify carbon credits to ensure the criteria above have been met.

Carbon credits verified under the standards set out in **Table 16** have been determined to meet the requirements above and therefore are qualified to compensate for the subject's unabated GHG emissions. This Technical Specification is reviewed annually to ensure it reflects developments in best practice and the performance of carbon credit standards.

Further considerations
Emission reduction projects have effects in addition to GHG emission reductions. While many projects have positive co-benefits, some may have negative impacts. Carbon credit standards accepted by The CarbonNeutral Protocol have requirements that material negative impacts should not arise from emission reduction projects.

Approved carbon credit standards and project types
Carbon credits verified under the standards set forth in **Table 16** have been determined to be additional, legally attributable, measurable, permanent, unique and independently verified, and therefore are qualified for use as external environmental instruments to reduce a subject's GHG emissions. This list of standards is reviewed annually and updated from time to time to reflect developments in best practice and the performance of carbon credit standards.

In general, any mitigation project recognised under the standards is accepted under the Protocol, and carbon credits are treated equally across standards and project types. There are exceptions to this general approach, as set out below which identifies projects types that are not accepted under the Protocol and the reasons for the exclusions.

Table 16: Approved Carbon Accounting Standards

Approved standard	Type of carbon credits generated
American Carbon Registry	Emission Reduction Tonnes (ERTs)
ART Trees	TREES Emission Reductions (ERs)
Australian Emissions Reduction Fund (ERF)[1]	Australian Carbon Credit Unit (ACCU)
Climate Action Reserve	Climate Reserve Tonnes (CRTs)
Global Carbon Council	Approved Carbon Credits (ACCs)
Gold Standard for the Global Goals[2]	Gold Standard Voluntary Emission Reduction (VER) credits
Japanese Credit Scheme[3]	J-Credits
Kyoto Protocol's Clean Development Mechanism (CDM)	Certified Emission Reductions (CERs)
Kyoto Protocol's Joint Implementation (JI)	Emission Reduction Units (ERUs)
UK Peatland Code[3]	Peatland Carbon Units (PCUs)
UK Woodland Carbon Code[3]	Woodland Carbon Units
Verified Carbon Standard (VCS)	Verified Carbon Units (VCUs)

[1] This was previously known as Australian Carbon Farming Initiative
[2] Only credits issued for reductions up to 31st December 2020 can be used. See **Guidance on Corresponding Adjustments** for more information
[3] These are domestic standards and are only acceptable for domestic footprints

Exceptions

If the carbon credits from these standards are not in accordance with all of the criteria covering carbon credits - legally attributable, measurable, permanent, unique and independently verified – they must not be used for offsetting. As a consequence Forward Mitigation Units from CAR, ex-ante forestry credits under GS, Pending Issuance Units (PIUs) under the UK Woodland and Peatland code and t-CERs and l-CERs under the CDM are not acceptable.

Removal carbon credits

The Protocol treats mitigation projects that avoid and reduce emissions and those that remove GHGs from the atmosphere as equal. The logic underpinning this approach is the "over-flowing bath-tub" analogy. With the taps on, a balance is achieved either by turning down the taps (avoid or reduce emissions) or by draining an equal amount down the plug (removing emissions from the atmosphere and capturing them in carbon sinks). Both approaches have a critical role to play in mitigating climate change. However, as we get closer and closer to the safe limit of GHG concentrations in the atmosphere, clients should consider an increasing role for removal projects.

Excluded project types

For reasons laid out in **Guidance 4.7**, the following project types must not be used towards the achievement of CarbonNeutral® certification, although they are recognised under some carbon credit standards in **Table 16**:

- Conventional (i.e. dammed/non run-of-river) hydro-electric power projects with an installed capacity greater than 20MW, unless a qualified independent third party assures compliance with the World Commission on Dams (WCD) sustainability criteria or equivalent assessment introduced by the underlying carbon standard
- HFC-23 destruction projects and N_2O destruction projects where N_2O is the by-product of the industrial processes to produce adipic acid or nitric acid

4.1.2 Approved Energy Attribute Certificate (EAC) standards

Under the provisions of the GHG Protocol Scope 2 Guidance, entities may purchase and retire EACs to support a zero-emission grid factor for Scope 2 emissions. For non-owned renewable energy consumption, EACs are the most credible evidence, and claims without EACs in geographies where they are available are questionable / potentially problematic.[1] However, as the GHG Protocol is a respected third-party carbon accounting standard, its Scope 2 guidance is accepted under The CarbonNeutral Protocol.

[1] For a critical review of accounting approaches for renewable energy, refer to: Brander, Gillenwater, and Ascui, 2018, *Creative accounting: A critical perspective on the market-based method for reporting purchased electricity (scope 2) emissions*, https://www.sciencedirect.com/science/article/pii/S0301421517306213?via%3Dihub

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Table 17 lists the EAC standards that are acceptable for a Scope 2 or Scope 1 claim within a CarbonNeutral® programme that follows the market-based GHG accounting approach defined by the GHG Protocol Scope 2 Guidance. It is not an exhaustive list, rather it details those EACs in most common use within CarbonNeutral® programmes.

EAC programmes generally prescribe applicable validity periods. In cases where validity periods are not prescribed, EACs issued within 1 year of the period covered by the CarbonNeutral certification must be used.

Third-party certification and labelling of EACs

In some markets, a third party may also certify EACs based on an established standard that specifies a set of criteria which can be applied to determine which certificates can receive the label. The criteria used to define a subset of eligible EACs are typically based on technology or the commissioning date of the renewable energy facility.

Aligning procurement decisions with these criteria demonstrates impact that goes beyond the least-cost EAC solution. Examples of voluntary certification programmes commonly used within CarbonNeutral® programmes include Green-e Energy in North America and EKOenergy, which is a global EAC label.

4.2 Recognised non-carbon accounting standards

The non-carbon accounting standards listed in **Table 18** are those designed to complement carbon credit standards to provide measurable and independently verified assessment of the positive environmental, social, and economic benefits of carbon reduction projects (also known as "co-benefits"). These standards should be used to evaluate and communicate the co-benefits of emission reduction projects.

Table 17: Approved Energy Attribute Certificate (EAC) Standards

Approved Standard / Governing Body	Type of EAC Generated	Geographical Area Covered	Scope Covered
North American State and Regional level certificate tracking systems	Renewable Energy Certificates (RECs)	North America (U.S. and Canadian territories)	2
International REC (I-REC) Standard	I-RECs	46 countries across Asia, Latin America, Middle East and Africa[1]	2
Natural Capital Partners	PowerPlus™	India, Japan, South Korea	2
APX	Tradable Instruments for Global Renewables (TIGRs)	10 countries across Asia and Latin America	2
European Energy Certificate System (EECS)	Guarantee of Origin (GO)	27 countries in Europe	2
Ofgem (Office of Gas and Electricity Markets)	Renewable Energy Guarantee of Origin (REGO)	United Kingdom (UK)	2
The Renewable Energy Act 2000 – Federal Law Australia	Small-scale Technology Certificates (STCs)	Australia	2
Green Power Certification, administered by the Green Energy Certification Center, Japan	Green Power Certificates	Japan	2
Green Gas Certificate Standard (GGCS)	Renewable Gas Guarantee of Origin (RGGO)	United Kingdom (UK)	1

[1] I-REC Standard, accessed January 2022

Table 18: Recognised Non-carbon Accounting Standards

Recognised non-carbon accounting standards
Climate, Community and Biodiversity Alliance (CCBA)
The SOCIALCARBON® Standard
Forest Stewardship Council certification
Forest Stewardship Council Ecosystem Services
W+ Standard by Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN)
SD Vista

Step 4: Reduce Guidance

Purpose

This section provides more detailed advice and clarification on selected topics relating to internal reductions and the use of environmental instruments.

4.3 Evaluating internal GHG reduction projects

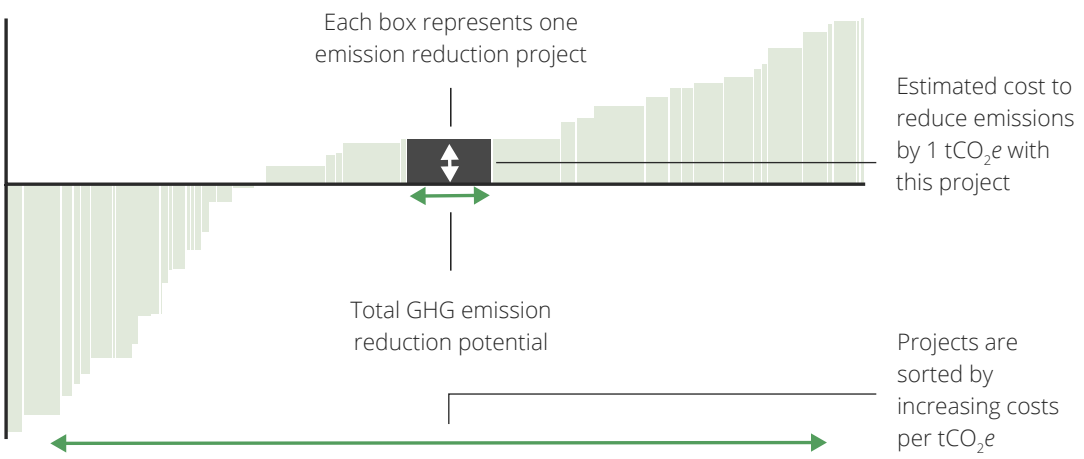
CarbonNeutral® certification is an action that represents immediate positive impact on GHG emissions. Clearly over time the goal of each organisation should be to reduce GHG emissions to zero, through the application of energy efficiency, switching to renewable energy and through technological innovation. It is our experience that leading organisations use external environmental instruments in parallel with internal reductions as part of the transformation journey and to bridge the gap towards stretching and impactful reduction targets.

The CarbonNeutral Protocol recommends that for all subjects the client should develop a GHG reduction plan to deliver internal emissions reductions, taking into consideration the main sources of GHGs from the subject and the likely cost-effectiveness of alternative emission reduction projects. With time, technological innovation has the ability to make low carbon projects viable. Understanding this project landscape and how much an organisation can invest in low-carbon transformation without impacting competitive performance are important inputs to an effective carbon reduction plan.

An excellent framework to assist organisations in evaluating a range of internal GHG reduction projects is marginal abatement cost analysis, an economic concept that measures the cost of reducing one more unit of GHG emissions. Marginal abatement costs are presented on a marginal abatement cost curve or MAC curve, a graphical representation of the cost and scale of GHG reduction projects. While there are many more aspects to consider beyond scale and cost, they are useful tools to guide corporate decision making among a variety of GHG reduction projects.

Figure 10 illustrates a MAC curve. Each rectangle on the MAC curve represents a different project to reduce GHG emissions. The width of each box represents the emission reduction potential a project can deliver compared to business-as-usual, and the height of each box represents the average cost of reducing one tonne of GHGs through that project. The MAC curve is ordered left to right on a per tonne basis from the lowest cost to the highest cost projects. Projects that appear below the horizontal axis have a negative cost, meaning the low carbon project saves more money than it costs. Projects that appear above the horizontal axis have a positive cost. Corporate MAC curves often rise steeply as more GHGs are reduced.

Figure 10: Illustrative MAC Curve



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To plot a project on a MAC curve you need to perform a calculation that considers the lifetime costs and GHG reductions of the project. **Table 19** illustrates the calculation for a project to replace desktops with laptops. For this project the marginal abatement cost is $50 per tonne, which would be the height of the box on the MAC curve. The width of the box illustrates the scale of the reduction, which in this case is determined by the number of desktops replaced. Each laptop saves 0.4 tonnes of CO_2, so a business replacing 2,000 desktops would save 800 tonnes of CO_2. This reduction in GHG emissions is measured relative to the business-as-usual baseline of running desktops for the next four years.

For most subjects, the client will have a number of projects with a negative cost of carbon. The more reduction projects a client has implemented the greater the marginal cost of further reduction becomes. Optimising heating and cooling temperatures is a project with a negative cost of carbon: simply questioning if the heating needs to be so high, or if the air-conditioning needs to be so low, can yield savings and setting temperature policies can then lock in these savings without incurring significant costs.

When it comes to selecting projects to implement, aspects beyond the scale of the reduction and cost per tonne should be considered, and each project will have a unique set of considerations.

Keeping with the laptop example, the ability to work remotely and the impact on data security policies should feature within decision making and may impact the cost if data security resources need to be increased. The administrative burden of implementing a project is another important dimension to consider and such costs can be factored into MAC data. The scale of reductions from introducing laptops is determined by the number of employees that receive new laptops, which is a function of the number of employees, while the administrative burden of adapting policies to facilitate remote working and data security is relatively constant. On this basis, the project might only make sense for a company with a large number of desktop computers to replace where the aggregate reductions are sufficient to justify the administrative burden of implementing the project.

It stands to reason that projects with a negative cost of carbon should be implemented as they improve the bottom line. As clients implement the low-hanging fruit and progress towards their emission reduction target, it becomes increasingly expensive to achieve incremental reductions and there is a point on the MAC curve where it becomes more cost effective to look externally for emissions reductions. The use of environmental instruments, including carbon credits, is the mechanism for implementing external emissions reductions, where an organisation sources and retires credits from verified emission reduction projects.

Table 19: Illustrative MAC Calculation

Replacing a desktop PC with a laptop PC has a MAC of ~$50 / tCO_2e.

	Value	Unit	Notes
Investment	100	$	Additional cost of a laptop over desktop
Lifetime of laptop	4	Years	Average lifetime of a laptop
Annual energy saving	200	kWh	Typical office use
Annual energy cost saving	20	$	$0.10 per kWh x 200kWh
Lifetime energy cost saving	80	$	$20 x 4 years
Annual carbon saving	100	kg CO_2e	200kWh x 0.537 local grid factor
Lifetime carbon saving	400	kg CO_2e	100 kg CO_2e x 4 years
Cost of carbon saving	20	$	$100 outlay - $80 energy saving
MAC	**50**	**$/$tCO_2e$**	(1000/400) x 20

An impactful carbon reduction plan is a plan that meets a GHG reduction target in the most cost effective way through a combination of internal and external reductions. Marginal abatement cost analysis is a tool to support decision making as part of that planning process. GHG reduction plans should be reviewed periodically to assess progress against planned actions and to assess the feasibility for further reductions, taking into account the availability of new technologies and enabling policies and incentives. GHG reduction plans should be reviewed periodically and, where applicable, a director or senior manager should be given responsibility for overseeing their development and ensuring their implementation.

4.4 Elaboration on additionality and baselines

It is essential for any carbon neutral programme to be robust and to offset emissions of the defined subject to zero. This requires that any carbon credits used must have credibly demonstrated additionality during their development process.

The carbon accounting standards which are eligible under The CarbonNeutral Protocol require each project to undergo tests for additionality, which is then checked by an independent third-party auditor during the validation process.

Without well-defined baseline scenarios and additionality tests, any claims of net emissions reductions would lack environmental integrity (i.e. they would not be reductions in the first place). Any statement by an organisation based upon these claimed "reductions" could be misleading or false.

Therefore, it is important that the additionality of a project is robustly tested and audited. The carbon accounting standards referenced in this guidance define best practice in assessing and determining the additionality of emission reduction projects.

When testing for additionality on a proposed project, the first step is to determine the baseline scenario – i.e. the hypothetical description of what would have most likely occurred in the absence of any intervention to mitigate the impact of GHG emissions. The baseline for a project activity is the projected GHG emissions that are calculated to occur in the absence of the proposed project activity. Once a suitable baseline has been determined it must be validated. Validation requires a third-party audit by a qualified auditor to ensure the baseline meets the requirements of the given carbon accounting standard and methodology.

When the project activity is in progress, GHG emissions from within the project area can be monitored and verified. Any reduction of emissions as compared to the baseline of the project are therefore additional and can be verified and issued as carbon credits (CERs, VCUs, GS VERs, CRTs, ERTs) in accordance with the rules of the applicable carbon accounting standard.

For a more detailed, technical discussion of the methods for calculating additionality or how best to define additionality, see the following resources:

cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf
The UNFCCC Clean Development Mechanism Glossary

https://verra.org/wp-content/uploads/2018/03/VCS-Guidance-Standardized-Methods-v3.3_0.pdf
See section 4.6 of the Verra guidance document: "*Guidance for Standardized Methods*" (8 October 2013, v3.3) for methods for determining additionality within a CarbonNeutral Protocol eligible carbon accounting standard

ghginstitute.org
Search "additionality" for articles on the challenges of defining and measuring additionality

https://www.offsetguide.org/high-quality-offsets/additionality/high-quality-offsets-additionality-how-carbon-offset-programs-address-additionality/
Further information on methodologies for determining additionality

4.5 The use of carbon credits generated by projects which avoid, reduce and remove GHGs

The CarbonNeutral Protocol accepts the use of carbon credits from any type of mitigation project validated under the accepted carbon standards listed in **Technical Specification 4.1.1** (noting specific restrictions as set out there). There are three general types of mitigation projects:

Avoid: Includes projects which eliminate emissions – examples include renewable energy projects which avoid emissions from the fossil sources they replace; and, REDD+ projects which address emissions from deforestation.

Reduce: Includes projects which reduce emissions – examples include energy efficiency projects such as low-carbon cookstoves which use less fuel through improved combustion; and, manufacturing process improvements which reduce the use of non-renewable energy.

Remove: Includes projects which remove GHGs from the atmosphere – examples include afforestation; agricultural practices that sequester carbon in soils, bio-energy with carbon capture and storage, enhanced weathering, and direct air capture when combined with long-term storage.

The math of carbon neutrality treats interventions that avoid and reduce emissions as equal to those that remove GHGs from the atmosphere. Using the analogy of a bath with the taps on, a balance is achieved either by turning down the taps (avoid or reduce emissions) or by draining an equal amount down the plug (removing emissions from the atmosphere and capturing them in carbon sinks). However, as we get closer and closer to the safe limit of GHG concentrations in the atmosphere, there will be a shift in emphasis from emission reductions and avoidance to removals to ensure we have all mitigation approaches working in concert to achieve a stable climate.

In guidance published in 2019 and 2020, the SBTi signalled the rising importance of removal projects in the mix of mitigation approaches aligned with net zero, while also acknowledging the "critical role" of projects that avoid or reduce emissions. In October 2021, the SBTi released its Corporate Net-Zero Standard[1] under which unabated emissions must be "counterbalanced through the permanent removal and storage of carbon from the atmosphere". In September 2020, Oxford University published its "The Oxford Principles for Net Zero Aligned Carbon Offsetting",[2] which strengthened the case for a transition to offsetting based increasingly upon removals.

Given the recognised need for all credible mitigation approaches to address the increasing need for urgency and scale, and the rising importance of increasing capacity for removals, clients should consider a portfolio approach to selecting a mix of project types which over time has an increasing proportion of removals.

4.6 Insetting

Insetting is a specific application of offsetting when emission reduction projects are sited within a corporate's supply chain and sphere of influence. The focus on location-specific mitigation actions enables the corporate to gain multiple benefits, often delivering against both commercial and sustainability objectives. Carbon credits generated from insetting projects may be used for CarbonNeutral certifications only when they are generated in accordance with the Approved Carbon Credit Standards recognised in The CarbonNeutral Protocol (**Technical Specification 4.1.1**), and are retired in publicly accessible registries.

4.7 Excluded emission reduction project types

Introduction

As **Technical Specification 4.1** sets out, The CarbonNeutral Protocol supports carbon credits that meet the highest quality standards available in the market and excludes carbon credits that may fail to meet these standards. This guidance elaborates on those project types that are excluded.

Destruction of HFC-23 and N_2O industrial gases

HFC-23

HFC-23 is an unwanted by-product in the manufacture of HCFC-22, a refrigerant and temporary substitute for CFCs. The destruction of HFC-23 in HCFC-22 plants

[1] The Science Based Targets Initiative, 2021, *SBTi Corporate Net-Zero Standard*, https://sciencebasedtargets.org/resources/files/Net-Zero-Standard.pdf

[2] University of Oxford, 2020, *The Oxford Principles for Net Zero Aligned Carbon Offsetting*, https://www.smithschool.ox.ac.uk/publications/reports/Oxford-Offsetting-Principles-2020.pdf

in developing countries is eligible under the Clean Development Mechanism (CDM) and leads to the issuance of a large amount of credits due to the high Global Warming Potential (GWP) of such gases. As it is relatively cheap to install a destruction facility, HFC-23 destruction CDM projects may in some cases have created a perverse incentive structure to increase the production of HCFC-22 to earn money from destroying the resulting HFC-23. This perverse incentive undermines the Montreal Protocol on Substances that Deplete the Ozone Layer, an international treaty designed to protect the ozone layer by phasing out the production of numerous substances believed to be responsible for ozone depletion.

CDM crediting rules for HFC-23 projects were suspended in 2010 and made more stringent in 2011. The revised rules do not apply until projects have to renew their crediting period. This means that from 2012 until the end of the first crediting periods (seven years after a project started), over 240 million credits are estimated to be issued under the old rules. The European Union (EU) banned HFC-23 credits from use in the EU-ETS starting from April 2013.

N_2O

N_2O is also an unwanted by-product in two different industrial processes; the production of:

- Adipic acid, usually turned into nylon
- Nitric acid, usually turned into fertiliser

In 2010, an independent study commissioned by CDM Watch provided evidence that the high profits from CDM N_2O destruction projects at adipic acid facilities had led to carbon leakage. It was found that these projects had such high profit margins that a shift in production from non-CDM plants to CDM plants occurred. This carbon leakage caused an estimated increase in emissions of 13 million tonnes of CO_2e.

This research has shown that nitric acid CDM projects do not generally cause carbon leakage. However, this project type is problematic for other reasons: N_2O is normally an unwanted by-product of nitric acid production.

Evidence suggests the existing CDM methodologies (AM0028 and AM0034) cause a perverse incentive not to adopt an already widely available technology that would minimise N_2O formation because it is more lucrative for project developers to maximise N_2O production so that it can then be destroyed to earn credits. The EU has banned N_2O credits from use in the EU-ETS starting from April 2013.

The CarbonNeutral Protocol recognises the concerns associated with HFC-23 and N_2O industrial gas destruction projects, and excludes credits from these project types.

Large hydro

Hydropower is the largest source of renewable electricity globally. This has been made possible, in large part, by the cost-competitiveness of large hydro plants, which often represent lucrative well-established investments. Despite their attractive economics, large hydro projects can have severe negative social and environmental impacts such as displacement of local populations, loss of livelihoods and cultural heritage, and degraded ecosystem services.

Concerns over the additionality and potential social and environmental impacts of large hydropower projects under the CDM have led to calls for reform, including restrictions on credits from such projects under the EU ETS and the potential elimination of large hydro from the CDM altogether (alongside industrial gas projects).

The CarbonNeutral Protocol defines large hydro projects as those with generating capacities greater than or equal to 20MW. This is consistent with the requirements imposed under the EU ETS.

The CarbonNeutral Protocol recognises the concerns associated with large hydropower, and excludes credits from this project type, unless a qualified independent third party assures that a specific large hydropower project fulfils the World Commission on Dams (WCD) sustainability criteria or equivalent assessment introduced by the underlying carbon standard.[1]

[1] For example, in 2017, VCS (now Verra) consulted on the use of the Hydropower Sustainability Assessment Protocol as an alternative assessment tool with a view to setting guidance on the issue (see https://verra.org/call-for-public-input-hydropowersustainability-assessments/).

CONTENTS

4.8 Corresponding Adjustments (CAs)

Article 6(2) of the Paris Agreement, agreed in November 2021, sets out the requirement for nation states to apply corresponding adjustments (CAs) to carbon credits that are used for trading between nation states. This is to ensure that one single emission reduction is not counted as a reduction by two different countries towards their Paris pledges.

Although it provides a welcome blueprint for future carbon markets, the Article does not explicitly provide the rules for using carbon credits in the voluntary carbon market. To fill this gap, stakeholders across the market and civil society are in the process of updating the framework for best practice in future voluntary corporate action. This process is likely to continue through 2022. One central issue is whether carbon credits used for voluntary purposes will, at some point in the future, require a CA or not.

This is not an immediate issue. Any carbon offset credits with a vintage of 2020 or earlier are not subject to the debate around CAs, as those emission reductions occurred before the start of the Paris Agreement period. To date, a very small number of vintage 2021 credits have been issued, and numbers will remain small until the second half of 2022. Most buyers will therefore be unaffected by the CA issue in the medium term.

Furthermore, only a handful of countries currently have an accounting mechanism for issuing CAs, and it is likely to be 3-4 years before most 'Paris-ready' national accounting systems are operational. It is therefore unlikely that any significant volume of carbon credits backed by CAs will be issued before 2023-24.

In the longer term, one possible outcome of the new framework for voluntary action best practice is the differentiation between emission reductions without a CA that help the host country achieve its Paris Agreement pledge, and those with a CA which reduce emissions over and above the national pledge. Both have equal importance and merit in tackling climate change and companies may choose to act in either, or both, causes.

How to communicate these actions forms part of the ongoing process to determine future best practice, and future editions of the Protocol will provide updated guidance as this emerges.

In summary, the issue of the use of CAs in voluntary action is still lacking clarity and will not materially affect the purchase and communication of offsets through 2022.

amazon

CLIMATE PLEDGE FRIENDLY

CarbonNeutral® product certification is now part of Amazon's Climate Pledge Friendly

Amazon's programme helps customers shop for more sustainable products by working with trusted certifiers like CarbonNeutral.

Find out more at:

info.naturalcapitalpartners.com/amazon-climate-pledge-friendly

CERTIFIED CARBON NEUTRAL® product
CarbonNeutral.com

a service of
NATURAL CAPITAL PARTNERS

Step 5: Communicate
Technical Specification

5.1 Use of the CarbonNeutral Certification logo

Since The Protocol was first published in 2002, Natural Capital Partners has worked with clients of all sizes and across all sectors to advise and support them on best practice for communications of carbon neutrality. In addition to ensuring accuracy of claims, we encourage clients to ensure compliance with any regulations regarding marketing claims, and to make full use of The CarbonNeutral Certification Logo Guidelines and support we provide to leverage and amplify their climate action in communications to stakeholders.

Upon successful completion of a CarbonNeutral certification, clients are licenced and encouraged to make use of the appropriate CarbonNeutral logo in their communications.

The logo is designed to enable companies with a CarbonNeutral certification to make a clear, transparent statement about their achievement. The accuracy and transparency of claims is important to protect and enhance the reputation of the certified business. Displaying the CarbonNeutral certification logo clearly demonstrates that a business has set and met a target for carbon neutrality. Such action is used to show leadership, differentiate from competitors, meet customer demand and engage stakeholders.

Logos are available for a variety of certifications including CarbonNeutral company, product, business travel, event, fleet, data centres and more, and in various languages upon request. Certification types are detailed in **Table 1**.

The CarbonNeutral Certification Logo Guidelines, which are sent to a client upon successful certification, govern the application of certification logos, providing clarity on how and where logos can be used as well as the statements that a certified company can make.

Key requirements:

- To ensure no ambiguity about which company has achieved CarbonNeutral® certification, the certification logo can only be used by the licensee in their own communications and not those of their customers
- The logo must match the certification achieved
- Products or packaging may only carry a CarbonNeutral product or CarbonNeutral packaging logo respectively
- As part of our quality assurance programme and to ensure consistent and accurate use of CarbonNeutral certification by all clients, all usage of the CarbonNeutral certification logo needs to be approved along with any written comments relating to a company's CarbonNeutral claim or referring to Natural Capital Partners
- The certification logo must not be edited or copied. If the certification logo is edited or changed in any way it will be invalid
- If a certification logo is not used in accordance with these guidelines, Natural Capital Partners has the right to withdraw the logo licence and request the removal of the CarbonNeutral logo
- Entities must be aware that there are regulations governing marketing claims relating to environmental actions and third-party certifications in countries (for example, the U.S. Federal Trade Commission's Green Guides and the UK's Advertising Standards Agency or DEFRA's Green Claims Guidance) and it is the responsibility of entities to ensure that their marketing and communications – including those relating to CarbonNeutral certification – are compliant with those regulations

Step 5: Communicate
Guidance

5.2 Communicating CarbonNeutral certification

Guidance to businesses about how to give consistent, clear and accurate communications about CarbonNeutral programmes and how to maximise business value are licenced and provided to clients upon successful completion of a CarbonNeutral certification. Guidance comprises The CarbonNeutral Certification Logo Guidelines, additional materials and advice. For support in accessing these, certified clients should contact their Client Engagement Manager.

5.3 Communicating 100% renewable electricity

This guidance aims to clarify how CarbonNeutral certification relates to claims of 100% renewable electricity.

Claims of 100% renewable electricity are not within the scope of The CarbonNeutral Protocol and CarbonNeutral certifications.

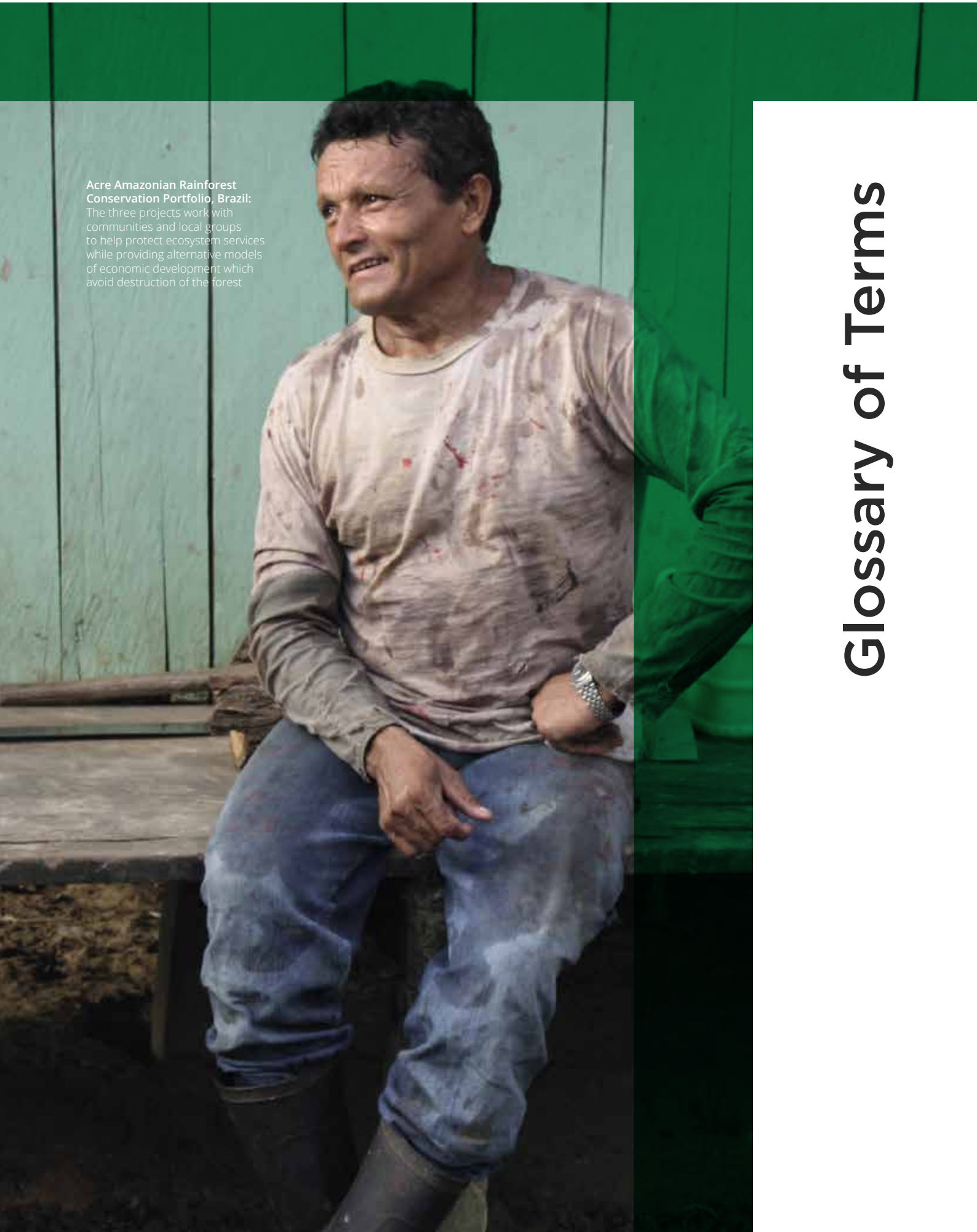
However, as set out in **Technical Specification 4.1.2** entities can purchase and retire EACs to zero-rate their market-based Scope 2 emissions under the provisions of GHG Protocol Scope 2 Guidance. This approach to linking energy consumed to renewable sources may support claims of 100% renewable electricity. Clients seeking to make such claims are encouraged to consult RE100 and RECS International guidance.

We anticipate that definitions of 100% renewable electricity will be refined with time and application, and this guidance will be updated in subsequent revisions to the Protocol.

Further information can be found at:

- RE100, 2020, *2020 Target Year Communications – Making Transparent Claims*, https://www.there100.org/sites/re100/files/2020-10/Making%20transparent%20RE100%20claims.pdf
- RECS International, 2020, *Maximising the reliability and impact of buying renewables: guidance for market participants*, https://recs.org/app/uploads/2020/09/guidance-for-market-participants.pdf

NATURAL CAPITAL PARTNERS



Acre Amazonian Rainforest Conservation Portfolio, Brazil: The three projects work with communities and local groups to help protect ecosystem services while providing alternative models of economic development which avoid destruction of the forest

Glossary of Terms

The term 'carbon neutral' and the related concepts associated with voluntary climate action have been in common usage for over 20 years. However, they may still mean different things to different audiences.

This Glossary sets out the definitions of key terms and concepts as they apply to The CarbonNeutral Protocol to support the award of the CarbonNeutral® certifications and the use of the associated CarbonNeutral® certification logo. Over time, we seek to reference definitions that are brought into common usage by respected independent third-party standards and by recognised scientific, academic and civil society organisations and coalitions.

A

Abatement: See **Internal emission reductions**.

Additional (also additionality): A criterion applied to greenhouse gas (GHG) emission reduction projects, stipulating that project-based GHG reductions should only be quantified if the project activity "would not have happened anyway". I.e., the project activity (or the same technologies or practices it employs) would not have been implemented and that, with the project, emissions would be lower than without the project (See The GHG Protocol for Project Accounting). An Emission Reduction Project is said to be additional when it can be demonstrated that in the absence of the availability of **Carbon finance**, the project activity would not have occurred (the "baseline" scenario) and; such a baseline scenario would have resulted in higher greenhouse gas (GHG) emissions. Each eligible carbon accounting standard under The CarbonNeutral Protocol provides tools for how additionality at a project level is tested and demonstrated. For further discussion of this topic, see **Guidance 4.4**.

AIC: Aircraft (or aviation) induced clouds which have a potential climate warming affect. See **Guidance 2.5** for further discussion of this topic.

Article 6(2): The section of the **Paris Agreement** that sets out the rules and accounting framework for the international transfer of mitigation outcomes between countries. It provides the basis for the use of carbon markets to play an important role in international efforts to deliver the Paris Agreement objectives.

Article 6(4): The section of the **Paris Agreement** that establishes a new, centralised UN body to manage the process of certifying and issuing carbon credits from emission reduction projects. The new body will be the successor to the Clean Development Mechanism (CDM) that was set up by the UN as part of the Kyoto Protocol, which expired in December 2020**.**

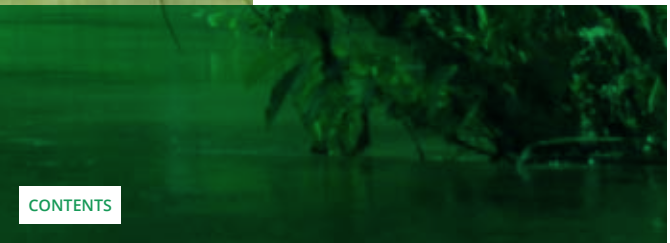
Assessment: The process of quantifying the GHG emissions for a given subject, using robust and transparent methods that can be replicated.

Attestation: A written declaration for the purpose of demonstrating compliance with the Protocol.

Available (referring to data): Applied to primary data, "available" means readily collectable, at reasonable cost from within a given subject. Applied to estimated emissions, "available" means readily found in reputable, published sources such as those issued by government departments, academic institutions, specialist research bodies and the secretariats of leading GHG standards and protocols.

Aviation Impact Factor (AIF): A term used in The CarbonNeutral Protocol for the multiplier applied to the GHG emissions from aviation in order to take account of the wider impacts of aviation on climate. This includes, but is not limited to, short or long-term impacts, from; GHGs alone and others with global warming influence (for example, soot particles and aviation induced clouds) and: direct and indirect impacts (for example, the interaction of NOx with methane gases and ozone at high altitudes). See **Guidance 2.5** for further discussion of this topic.

Avoided emissions: The impact, measured in tCO_2e, of specific mitigation actions or projects that avoid GHG emissions to the atmosphere calculated against a reference baseline (See **Mitigation** and **Mitigation outcomes** and **Guidance 4.5**).



B

Baseline (also Baseline scenario – as applied to mitigation projects): A hypothetical description of what would have most likely occurred in the absence of any intervention to mitigate the impact of GHG emissions. The baseline for a project activity is the projected GHG emissions that are expected to occur in the absence of the intervention. Baselines are established to determine Additionality, and to calculate emission reductions associated with emission reduction projects. For further discussion of this topic, see **Guidance 4.4**.

Baseline (also Baseline scenario – as applied to GHG accounting and reporting): A reference level of GHG emissions that have occurred, or which are expected to occur, prior to the introduction of any interventions that reduce emissions, to predict or determine the abatement achieved by the interventions.

Baseline procedures: Methods used to estimate baseline emissions. The GHG Protocol for Project Accounting presents two optional procedures: the project-specific procedure and the performance standard procedure (See: The GHG Protocol for Project Accounting).

Boundary: The physical or spatial extent of the subject – the entity, product or activity – i.e., the sites involved (including mobile sites such as vehicles). By way of example, the boundary might encompass the office and vehicles of an entity, or the sites used for the manufacture, storage, and transportation of a product. See **Technical Specification 1.1** for further information of this topic with respect to CarbonNeutral® certifications.

C

Carbon: Shorthand term for all greenhouse gases recognised under the United Nations Framework Convention on Climate Change (e.g. the carbon emissions associated with a Subject cover all recognised GHG emissions from the Subject).

Carbon credit: A transactable, intangible environmental instrument representing a unit of carbon dioxide-equivalent (CO_2e) – typically one metric tonne – created either by regulatory schemes promoted by governments (e.g., cap & trade schemes) or by projects which are validated to a recognised carbon standard. Carbon credits are typically ultimately used to compensate for or neutralise unabated emissions occurring elsewhere by retiring or cancelling them in a registry.

Carbon dioxide equivalent (CO_2e): A unit of measurement that describes for a GHG the amount of CO_2 in tonnes that would have the same global warming potential, when measured over a 100-year timescale.

Carbon finance: Finance delivered to emission reduction projects derived from the sale of carbon credits from the project.

Carbon footprint: See **GHG inventory**.

Carbon markets: Carbon markets are used for voluntary or compliance purposes. Voluntary carbon markets refer to the collective transactions of carbon credits used by non-state entities to achieve voluntary climate goals. Compliance carbon markets refer to the governmental or sectoral schemes to reduce greenhouse gas emissions which enable regulated entities to obtain and surrender emission permits (allowances) or eligible carbon credits to meet compliance targets.

Carbon neutral: A current state which is achieved when the GHG emissions associated with an entity, product or activity are reduced and offset to zero for a defined duration.

Carbon neutrality: Carbon neutral and carbon neutrality are used interchangeably.

Carbon offsetting: The act of purchasing a carbon credit and retiring or cancelling the unit to compensate for one tonne of GHG emissions released to the atmosphere elsewhere. When the subject is said to be offset, the unabated emissions associated with the subject are equal to the amount of carbon credits retired or cancelled.

Carbon removals: See **Removals**.

Carbon (or climate, or net) positive: A term indicating that an entity is taking action beyond carbon neutrality by removing GHGs from the atmosphere or reducing emissions to the atmosphere such that the aggregated reductions and removals exceed the unabated emissions from the subject. Read more about the various definitions in **Guidance 3.5**.

CarbonNeutral®: The registered trademark of Natural Capital Partners licenced for use by entities which have achieved CarbonNeutral® certification.

CarbonNeutral® certification: The process by which a client receives recognition that it has met the provisions of The CarbonNeutral Protocol for a specific subject. CarbonNeutral® certifications are awarded by Natural Capital Partners as the CarbonNeutral® Certifier.

CarbonNeutral® certifier: The organisation providing CarbonNeutral® certification in accordance with the requirements of The CarbonNeutral Protocol. Natural Capital Partners awards the CarbonNeutral® certification logo to clients that are in compliance with the requirements of The Protocol and under contractual provisions established between Natural Capital Partners and the client.

CarbonNeutral® certification logo: A logo incorporating the CarbonNeutral® trademark that is licenced to a client upon the successful completion of a CarbonNeutral® certification. See **Technical Specification 5.1** for further information.

CarbonNeutral® certification logo guidelines: Natural Capital Partners' requirements and guidelines governing the application of CarbonNeutral® certification logos. See **Technical Specification 5.1** for further information.

Certification period: See **Duration**.

Client: The entity, organisation, individual or group of individuals entering into a contract with a CarbonNeutral certifier for the purposes of a CarbonNeutral® certification.

Climate finance: A source of funding to mitigate or adapt to climate impacts. Includes terms such as: carbon finance, green finance, green bonds.

Compensation (in relation to offsetting): A term used to specify the retirement of carbon credits from mitigation projects that avoid or reduce the emission of GHGs (see **Avoided emissions** and **Reduced emissions**) when redressing the impact of unabated emissions.

Corresponding Adjustment: An accounting adjustment made at country level to ensure that an emission reduction is not double counted by two countries towards their commitments under the Paris Agreement. Making a corresponding adjustmen means that when a country transfers a mitigation outcome (ITMO) internationally to be counted toward another country's mitigation pledge, this ITMO must be 'un-counted' in the greenhouse gas inventory of the country that hosts the mitigation project that provides the emission reduction.

Cradle-to-customer: A particular boundary for product subjects. The cradle-to-customer boundary includes the extraction and processing of raw materials (including any packaging materials), manufacture, storage, and distribution to first customer. See **Guidance 1.4** for further information.

Cradle-to-grave: A particular boundary for CarbonNeutral® product subjects. The cradle-to-grave boundary includes extraction and processing of raw materials (including any packaging materials), manufacture, storage, distribution to first customer, further distribution and storage, retail, use and end-of-life disposal.

Guatemala Water Filtration and Improved Cookstoves: The Ecofiltro water filter removes 99% of pathogens from non-potable water, making it safer for local communities to drink in a country where water-borne disease has been identified as a national priority

D

De minimis threshold: A source or quantity of emissions that a company may exclude from its inventory. The GHG Protocol Corporate Standard recommends against the use of a de minimis threshold, on the grounds that it conflicts with the principle of completeness. The Corporate Standard advises instead to estimate emissions for small sources, record how each estimate was calculated, and transparently record and justify estimates that may be of lower quality and/or higher uncertainty. Despite this recommendation, a number of companies and GHG programs have still found it useful to define a de minimis threshold. In such instances, the entity must justify the selection to the Assessment Partner or Provider who must confirm that the threshold is in line with the conservative estimation, best practice, transparency and continuous improvement principle of the Protocol.

Department for Environment, Food and Rural Affairs (DEFRA): Ministry of the United Kingdom Government, which has provided GHG measurement guidance that is referenced and applied internationally.

Delivery (referring to carbon credits): Refers to the receipt of legal title and ownership of verified and issued carbon credits by the provider of such reductions. Delivery can occur on a third-party external registry, or through written agreement.

Duration: The period of time during which a CarbonNeutral® certification is valid. For entities this is commonly a specified twelve-month period; for products, a specified twelve-month period during which the product is produced for sale; and, for activities, the period during which the utility of the activity is delivered – including preparation and post event activities.

E

Embodied carbon: The sum of the GHG emissions associated, directly or indirectly, with a material. For example, the embodied carbon in building materials when calculating the carbon footprint of a building.

Emission factor: An emission factor is a coefficient which enables the conversion of activity data into GHG emissions expressed as tonnes of CO_2 equivalent (e.g., MWh consumed into tCO_2e emitted). CarbonNeutral® certifications require emission factors published by reputable and independent sources that are up-to-date and which are most relevant to the subject's location and activities.

Emissions sinks: See **Removals**.

Emissions sources: The specific GHG-emitting activities or processes within the boundary of a Subject.

EN 15804: Refers to the European standard on "Sustainability of construction works – Environmental Product Declarations – core rules for the product category of construction products." It provides core product category rules for type III Environmental Product Declarations (EPDs) for any construction product and construction service.

Energy Attribute Certificates (EACs): Transactable, energy tracking instruments representing proof that a unit (e.g. 1 megawatt-hour (MWh)) of energy was generated from an eligible renewable energy source and delivered through a shared power distribution system to serve power consumers. EACs provide a mechanism for power consumers to associate their purchased power with renewable energy delivered to the distribution system. Examples include Guarantees of Origin (GOs), Renewable Energy Certificates (RECs), International Renewable Energy Certificate (I-RECs) and Tradable Instruments for Global Renewables (TIGRs), which are recognised in The Greenhouse Gas Protocol Scope 2 Guidance as eligible instruments for documenting and tracking electricity consumed from renewable sources.

Environmental instruments: The broad category of transactable instruments that includes carbon credits, energy attribute certificates, and all other instruments designed to track the environmental attributes of project-based activities.

Environmental Product Declaration (EPD): An independently verified document that reports environmental data of products based on life cycle assessment and other relevant information in accordance with the international standard ISO 14025. See **Guidance 2.8** for further discussion on this topic.

EPD Type III declaration: A specific type of Environmental Product Declaration (EPD) to enable comparisons between products fulfilling the same function, as defined by Product Category Rules (PCR).

Estimated emissions: An emissions value for a particular emissions source which has been calculated based upon a reasonable estimate, extrapolation, model or benchmark, rather than based upon primary data collected. For example, water consumption of a site based upon floor area. This also includes emission sources which have been calculated based on collected data which needs to be converted using estimates before application of conversion factors. For example, emissions arising from business travel where data collected consisted of spend on aeroplane flights, which required conversion to flight distance using an assumption of flight cost per mile travelled.

Ex ante: As applied to carbon credits are emission reductions which are planned but which have not been verified under an accepted standard and listed in the related registry, which means they cannot be retired to compensate for unabated emissions.

Ex post: As applied to carbon credits when emission reductions have been verified under an accepted standard and listed in the related registry, which means they can be retired to compensate for unabated emissions.

G

Geographically relevant: Pertaining to the specific location of the emissions-generating activity in question. In order of preference, emission factors and estimated emissions should be applied first from local, sub-national datasets; then from national datasets; and then from regional datasets. In the absence of available data from these datasets, available global factors and data may be applied.

Greenhouse gas (GHG): Gases identified in Protocols and Agreements established under the United Nations Framework Convention on Climate Change which when emitted to the atmosphere cause global warming and which are targeted for reduction. Recognised GHGs include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons, perfluorocarbons, sulphur-hexafluoride (SF_6), and nitrogen trifluoride (NF_3).

Green gas (or biogas): A generic term for calorific gas produced by the breakdown of organic matter, through anaerobic digestion or fermentation. Feed stocks include biodegradable materials such as manure, sewage, municipal water, green waste, and plant material. Biogas is primarily methane and carbon dioxide and may have small amounts of hydrogen sulphide, siloxanes and moisture which make it corrosive. Before biogas is introduced to a gas distribution grid it is dried and the hydrogen sulphide and carbon dioxide is removed, and the upgraded gas is known as biomethane.

GHG inventory: An accounting of the amount of GHGs discharged into the atmosphere from sources and removed from the atmosphere by sinks within a specified boundary. Also commonly referred to as **Carbon footprint**.

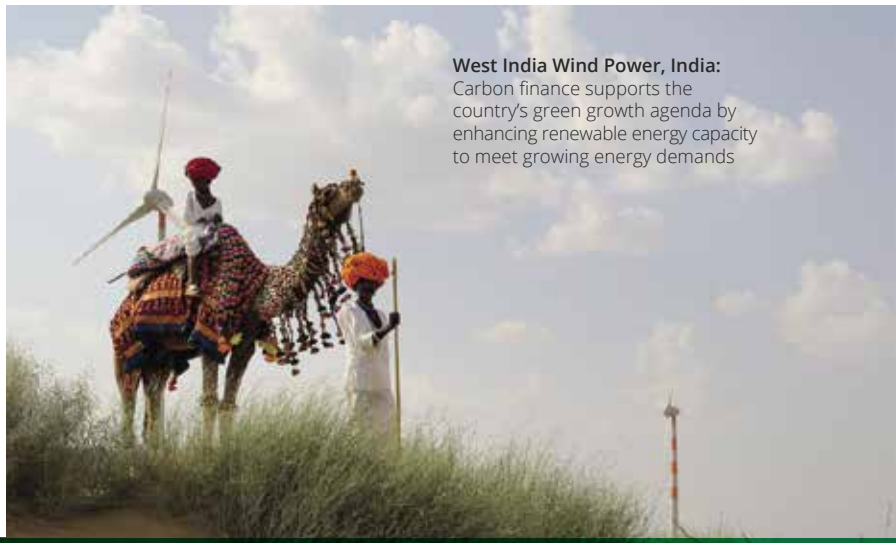
GHG Protocol Corporate Standard: The World Business Council for Sustainable Development (WBCSD) and World Resources Institute's (WRI) Corporate Accounting and Reporting Standard (Corporate Standard). The GHG Protocol Corporate Standard is the most commonly used organisational GHG accounting methodology. It defines emissions reporting under three key scopes, ensuring comprehensive reporting.

GHG Protocol Product Standard: The WBCSD and WRI's Product Life Cycle Accounting and Reporting Standard (Product Standard). This document allows an entity to measure the GHG associated with the full life cycle of products including raw materials, manufacturing, transportation, storage, use and disposal.

GHG Protocol Scope 2 and 3 Guidance: Guidance published by the World Resources Institute as an complement to the GHG Protocol's Corporate Standard, providing updated requirements and best practices on Scope 2 and Scope 3 accounting and reporting. Scope 2 guidance introduces the concepts of 'location-based' and 'market-based' accounting for Scope 2 emissions from purchased energy.

Global Warming Potential (GWP): An index of the potency of a GHG, referenced to carbon dioxide (which therefore has a GWP of 1) over a given time horizon. As an illustration of this, over a 100-year horizon, methane has a GWP of 34 (Ref: IPCC Fifth Assessment Report (AR5), 2013, p714).

Guarantee of Origin (GO): An Energy Attribute Certificate (EAC) defined in Article 15 of the European Directive 2009/28/EC issued per MWh of energy generated from eligible renewable sources.



West India Wind Power, India: Carbon finance supports the country's green growth agenda by enhancing renewable energy capacity to meet growing energy demands

ICROA: The International Carbon Reduction and Offset Alliance is a non-profit organisation within the International Emissions Trading Association (IETA). Its primary aim is to deliver quality assurance in carbon management and offsetting through adherence to its Code of Best Practice.

Independent qualified third party (referring to GHG assessment providers): An individual or organisation expert and experienced in GHG accounting that has no conflict of interest or financial gain in the outcome of the assessment used in CarbonNeutral® certifications.

Insetting: A specific application of offsetting when mitigation projects located within an entity's value chain and sphere of influence generate mitigation outcomes under recognised carbon standards which are used by the corporate to compensate for its unabated emissions. The focus on location-specific mitigation actions enables the corporate to gain multiple benefits, often delivering against both commercial and sustainability objectives.

Internal emission reduction: A reduction or abatement of GHG emissions made within the boundary of a subject (through for example, undertaking energy efficiency projects, on-site renewable energy, or fuel substitution) which is accounted for in the subject's GHG inventory.

International Renewable Energy Certificate (I-REC): An Energy Attribute Certificate (EAC) defined by the International REC Standard issued per MWh of energy generated from eligible renewable sources.

Internationally Transferred Mitigation Outcome (ITMO): A unit representing one metric tonne of CO_2e reduced or removed from the atmosphere for international emissions trading between signatory countries of the Paris Agreement. The process for producing ITMOs and their uses are defined in Article 6(2) and Article 6(4) of the Paris Agreement.

ISO 14025: International Organisation for Standardisation's specification for "Environmental labels and declarations – type III environmental declarations – principles and procedures." It establishes the principles and specifies the procedures for developing type III environmental declaration programmes and type III environmental declarations. It specifically establishes the use of the ISO 14040 series of standards in the development of type III environmental declaration programmes and type III environmental declarations.

ISO14040: International Organisation for Standardisation's specification for "Environmental management – life cycle assessment – principles and framework." It describes the principles and framework for life cycle assessment (LCA).

ISO 14064-1: International Organisation for Standardisation's specification for quantification and reporting of GHG emissions and removals at the organisation level. Its approach is similar to the GHG Protocol Corporate Standard.

ISO 14064-2: International Organisation for Standardisation's specification guidance at the project level for the quantification, monitoring and reporting of activities intended to cause GHG emission reductions or removal enhancements.

ISO 14065: International Organisation for Standardisation's requirements for the accreditation of entities that validate or verify resulting GHG emission assertions or claims.

ISO/TS 14067: International Organisation for Standardisation's specification for the quantification and reporting of the GHG inventory of a product. It specifies principles, requirements and guidelines for the quantification and communication of the carbon footprint of a product, based on international standards on LCA (ISO 14040 and ISO 14044) for quantification, and on environmental labels and declarations (including ISO 14025) for communication.

ISO 14068 (in development): International Organisation for Standardisation's specification for the requirements and principles to be met when seeking to pursue, demonstrate or potentially exceed greenhouse gas, carbon or climate neutrality through the quantification, management, avoidance, reduction, substitution, compensation and sequestration of GHG emissions.

ISO 21930: International Organisation for Standardisation's specification for "Sustainability in building construction – environmental declaration of building products." It provides a framework and the basic requirements for product category rules as defined in ISO 14025 for type III environmental declarations of building products. Where this international standard contains more specific requirements, it complements ISO 14025 for the EPD of building products.

Issuance: The delivery of a specified quantity of carbon credits into a specified account on a registry. Issuance allows the title to carbon credits to be transferred and retired in that registry.

L

Licensee: Entity awarded the right to use the CarbonNeutral® certification logo.

Life Cycle Assessment (LCA): The systematic analysis using internationally accepted standards (e.g. ISO 14040) of the potential environmental impacts of products or services across their supply-chain and during their lifecycle (typically, from cradle to grave).

Location-based: An accounting concept introduced in the GHG Protocol Scope 2 Guidance. It is a method to quantify the Scope 2 GHG emissions of an entity based on the average energy generation emission factor for defined geographic locations, including local, subnational, or national boundaries.

M

Market-based: An accounting concept introduced in the GHG Protocol Scope 2 Guidance. It is a method to quantify the Scope 2 GHG emissions of an entity based on GHG emissions emitted by the generators from which the entity contractually purchases electricity bundled with Energy Attribute Certificates (EACs), or EACs on their own.

Materiality: A materiality threshold is used to determine whether the aggregated error in, or omission from, an inventory constitutes a material discrepancy – that is, whether the error or omission results in a reported quantity of emissions that is sufficiently different from the true quantity of emissions (as determined by the verifier) that it will influence decisions made by the inventory's users.

The GHG Protocol Corporate Standard recommends 5% as a rule of thumb for a materiality threshold; however, it notes that a verifier should assess whether an error or omission of a smaller size may still be misleading given the purpose and context of the report. Errors or emissions must be corrected before the verification is complete unless they fall under the de minimis threshold. The concept of materiality therefore involves a professional judgment in the context of the information presented. While materiality thresholds should be applied according to the judgment of the verifier, we recommend alignment with the GHG Protocol by benchmarking materiality at 5% of the total inventory for the part of the organisation being verified.

Mitigation: Actions that reduce emissions of GHGs to the atmosphere; that reduce the global warming potential of other constituents in the atmosphere; or, which remove or stabilize heat trapping GHGs or other constituents from the atmosphere.

Mitigation outcomes: Impact of mitigation activities, measured in CO_2e, including those that avoid and reduce greenhouse gas emissions to the atmosphere and those that remove greenhouse gases from the atmosphere. Transactable mitigation outcomes (see **Carbon credit**) are generated by mitigation projects established under recognized third-party standards. Retirement of carbon credits (see **Carbon offsetting**) enables entities to compensate or neutralize unabated emissions.

Grasslands Portfolio, United States: Carbon finance helps preserve the short grass prairie of the Great Plains using grazing animals such as native bison to naturally maintain the health of the rangeland

N

Net zero: The Paris Agreement introduced the concept of net zero at a global level as: "a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases."

For net zero at a company level, we refer to the UNFCCC's Race to Zero initiative, which defines net zero as: "An actor reduces its emissions following science-based pathways, with any remaining GHGs attributable to that actor being fully neutralized by like-for-like removals (e.g., permanent removals for fossil carbon emissions) exclusively claimed by that actor, either within the value chain or through purchase of valid offset credits."

The SBTi's Corporate Net-Zero Standard, launched in October 2021, defines corporate net-zero as: "Reducing scope 1, 2, and 3 emissions to zero or to a residual level that is consistent with reaching net-zero emissions at the global or sector level in eligible 1.5°C-aligned pathways; and neutralizing any residual emissions at the net-zero target year and any GHG emissions released into the atmosphere thereafter." Its Standard includes the guidance, criteria and recommendations to deliver emissions reductions for a net zero targets consistent with limiting global temperature rise to 1.5°C. However, it does not include guidance or criteria about neutralising residual emissions.

For more on net zero at a company level refer to **Guidance 3.4**.

Neutralization: A term used by the Science Based Targets Initiative to specify the retirement of carbon credits from mitigation projects that remove GHGs from the atmosphere (see Removals) when redressing the impact of unabated emissions once entities reach their science-based target.

O

Offsetting / offset: The act of compensating for unabated GHG emissions by retiring (cancelling) carbon credits.

P

Paris Agreement: A legally binding international treaty on climate change under the UN Framework Convention on Climate Change (UNFCC). It was negotiated and agreed by 196 countries at the UN Conference of the Parties (COP) meeting in Paris in December 2015 and came into force on 1st January 2021. The goal of the Paris Agreement is to limit global warming to well below 2°C, and preferably to 1.5°C, compared to pre-industrial levels.

PAS 2050: British Standards Institution's (BSI) Publicly Available Specification for the assessment of the life cycle GHG emissions of goods and services. The general principles of PAS 2050 are similar to the GHG Protocol Product Standard, both of which are appropriate for use within The CarbonNeutral Protocol.

PAS 2060: British Standards Institution's (BSI) Publicly Available Specification for the demonstration of carbon neutrality. It specifies requirements to be met by any entity seeking to demonstrate carbon neutrality through the quantification, reduction, and offsetting of GHG emissions from a uniquely identified subject.

Product Category Rule (PCR): Documents that define the rules and requirements for EPDs from a certain product category. They are vital for the concept of environmental declarations as they enable transparency and comparability between different EPDs based on the same PCR.

Primary data: Data collected or directly measured which can be converted to CO_2e emissions through the application of conversion factors, without the need to first apply estimates, extrapolations, models, or industry averages. For example the quantity of electricity consumed on site, as recorded from an electricity meter, or from utility invoices.

Q

Quality assurance: Independent review conducted by an expert third party to check that: the input data for GHG inventories; or use of a CarbonNeutral® certification logo meets the requirements of a CarbonNeutral® certification and is in line with the approach and principles of The CarbonNeutral Protocol. See **Guidance 2.3** for further guidance on quality assurance and verification.

Quality assurance statement: A written statement by an expert third party with demonstrated experience declaring the results of a quality assurance exercise. A quality assurance statement as referred to here should not be confused with an assurance report, which is a report issued by an independent assurance provider or auditor under a standard such as International Standard on Assurance Engagements (ISAE) 3000 or 3402.

Quality control: A management process used by an entity to ensure its data management provides a true and fair representation of the GHG emissions associated with the subject of the certification.

R

RE100: A global collaborative initiative led by The Climate Group that brings together influential and multinational businesses that are committed to sourcing 100% renewable electricity (See **Guidance 5.3** for further information about communicating 100% renewable electricity).

Reduced emissions: The impact, measured in tCO_2e, of specific mitigation actions to avoid GHG emissions to the atmosphere calculated against a reference baseline (See Mitigation and Mitigation outcomes and **Guidance 4.5**).

Registry: A database of carbon credits and their transactions used to assign legal title through a unique identifier, and where credits are retired (cancelled) upon being sold to offset an equivalent amount of GHG emissions.

Removals: The impact, measured in tCO_2e, of specific mitigation actions that remove GHG emissions from the atmosphere (See **Mitigation** and **Mitigation outcomes** and **Guidance 4.5**).

Renewable Energy Certificate (REC): An Energy Attribute Certificate (EAC) defined in North American regulations issued per MWh generated from eligible renewable energy sources.

Renewable Energy Guarantees of Origin (REGO): An Energy Attribute Certificate (EAC) administered by the UK regulatory agency OFGEM, issued per MWh of energy generated from eligible renewable sources.

Renewable Gas Guarantees of Origin (RGGO): An Energy Attribute Certificate (EAC) administered by the Renewable Energy Association in the UK, issued per kWh of energy generated from eligible biogas sources.

Retire (Retirement): Refers to the permanent cancellation of carbon credits from future use in a third-party registry.

Radiative Forcing Index (RFI): A factor used to quantify non-CO_2 warming effects of air travel. RFI is the ratio of total radiative forcing (RF) of all GHGs to RF from CO_2 emissions alone for aircraft emissions (IPCC, 1999). RFI does not account for the different residence times of different warming factors. See **Guidance 2.5** for further discussion of this topic.

S

Science Based Targets initiative (SBTi): A collaborative initiative by CDP, World Resources Institute (WRI), the World Wide Fund for Nature (WWF) and the United Nations Global Compact (UNGC) that champions science-based internal abatement target setting and the adoption of net zero strategies to encourage and support companies in the transition to a low-carbon economy. See **Guidance 3.3** for further guidance.

Scopes: The three "classes" of emissions sources identified in the GHG Protocol Corporate Standard, relevant to assessing and reporting the GHG emissions of entities.

Scope 1 emissions: Those GHG emissions directly attributable to the subject that occur from sources that are owned, leased or controlled by the entity seeking CarbonNeutral® certification, principally from the following types of activities: the combustion of fuels for the generation of electricity, heat, or steam; processing and/or manufacturing of materials or chemicals; transportation in company owned/controlled mobile combustion sources; and fugitive emissions from intentional or unintentional releases (e.g. equipment leaks and hydrofluorocarbon (HFC) emissions from refrigeration and air conditioning equipment).

Scope 2 emissions: Those emissions indirectly attributable to the subject from the generation of electricity, heat, steam or cooling that is acquired and consumed in owned, leased, or controlled equipment or operations.

Scope 3 emissions: All non-Scope 2 indirect emissions from upstream and downstream sources. The most common examples are emissions from: transport-related activities; transportation of purchased materials, goods, or fuels; employee business travel; employee commuting to and from work; transportation of sold products in third-party owned vehicles; and the transportation and disposal of waste and sold products at the end of their life.

Short Lived Climate Forcers (SLCF): Emissions with a short atmospheric residence time which have the potential to affect climate.

Subject: The entity, product or activity to which CarbonNeutral® certification is applied.

Gola Rainforest Protection REDD+, Sierra Leone:
Protecting one of West Africa's last biodiversity hotspots while creating cocoa farmer cooperatives in the Upper Guinean Forest.

T

Taskforce for Scaling the Voluntary Carbon Market: A private sector-led initiative established in 2020 working to scale an effective and efficient voluntary carbon market to help meet the goals of the Paris Agreement , renamed in 2021 to the Integrity Council for the Voluntary Carbon Market (ICVCM) to mark the implementation phase of the initiative.

Tradable Instrument for Global Renewables (TIGR): A global Energy Attribute Certificate (EAC) administered by APX in the US issued per MWh generated from eligible renewable energy sources.

U

Unabated emissions: Remaining GHG emissions associated with a subject after internal emission reduction activities have been implemented.

V

Voluntary Carbon Market (VCM): The market for tradable carbon credits that facilitates international cooperation between private actors in developing and developed countries. It enables non-state actors to drive climate benefits beyond their own operations and supply chains.

Voluntary Carbon Market Integrity Initiative (VCMI): A multi-stakeholder platform established in 2021 to drive credible, net-zero aligned participation in voluntary carbon markets.

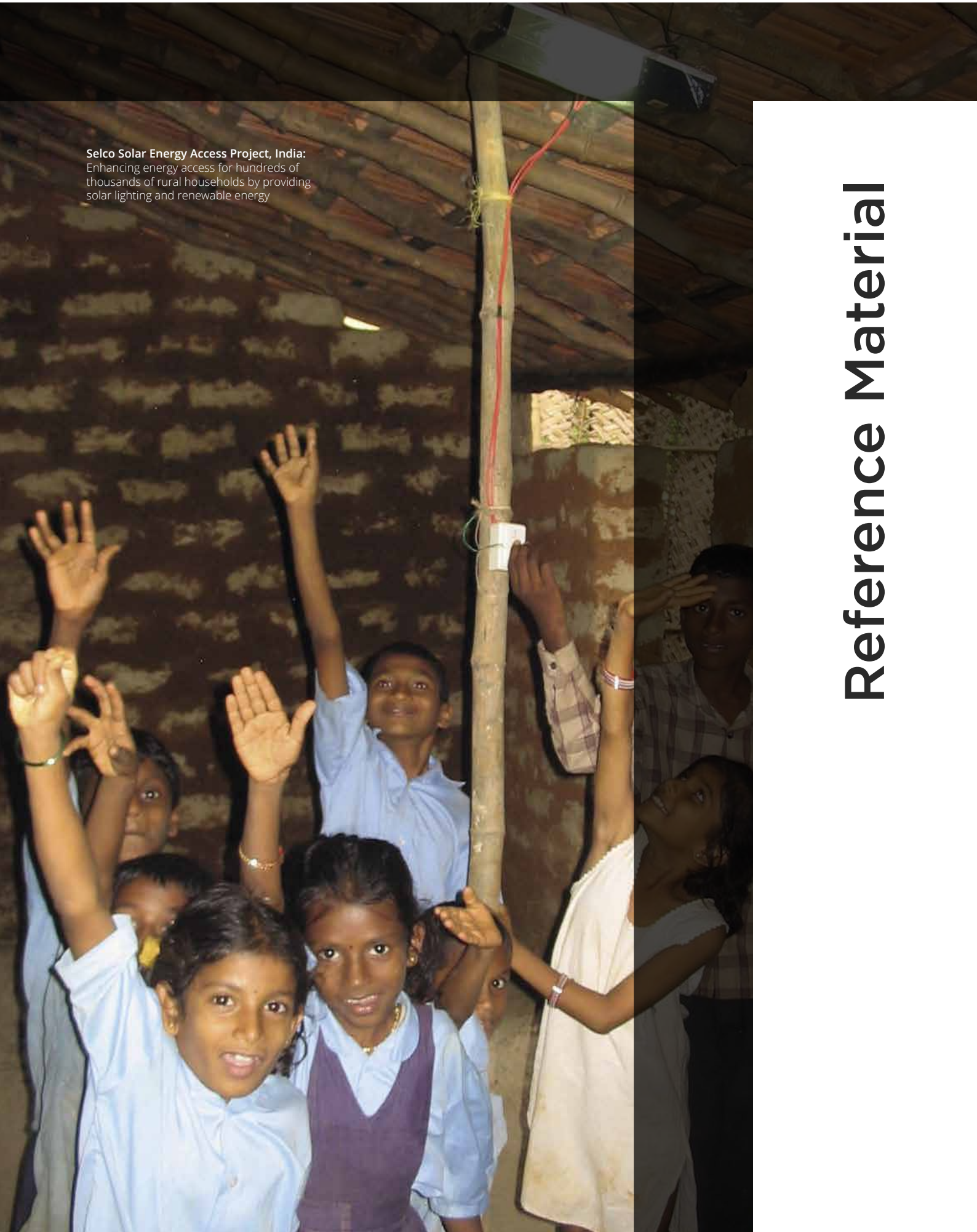
Verification: Independent evaluation conducted by an expert third party with demonstrated experience to the requirements of an independent verification standard (such as ISO 14064:3) to check that the quality of input data, a GHG assessment, or that the use of a CarbonNeutral® certification logo meets the requirements of a CarbonNeutral® certification and is in line with the approach and principles of The CarbonNeutral Protocol. See **Guidance 2.3** for further guidance on quality assurance and verification.

Verification statement: A written statement by an expert third party with demonstrated experience declaring the results of a verification exercise.

Z

Zero emissions: Applies to the state of a subject when GHG emissions are fully abated and there are zero GHG emissions to the atmosphere.

NATURAL CAPITAL PARTNERS



Selco Solar Energy Access Project, India:
Enhancing energy access for hundreds of thousands of rural households by providing solar lighting and renewable energy

Reference Material

Reference Material
Cross-compliance Tables

Cross-compliance tables summarise the major differences between The CarbonNeutral Protocol and other related national standards and guidelines for carbon neutrality, in the form of additional requirements of The Protocol relative to the other standards, and the additional requirements of the other standards relative to The Protocol. The documentation on the respective standards should be referred to for detailed information about the way in which requirements must be fulfilled, documented and verified.

The requirements of the following standards and guidelines are considered from a cross-compliance perspective:

- PAS 2060:2014 Publicly Available Specification for the demonstration of carbon neutrality – Published April 2014
- Australia's National Carbon Offset Standard Carbon Neutral Program – Published May 2012, v5 - Nov 2017

To access the cross-compliance tables visit:
www.carbonneutral.com/cross-compliance-tables

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