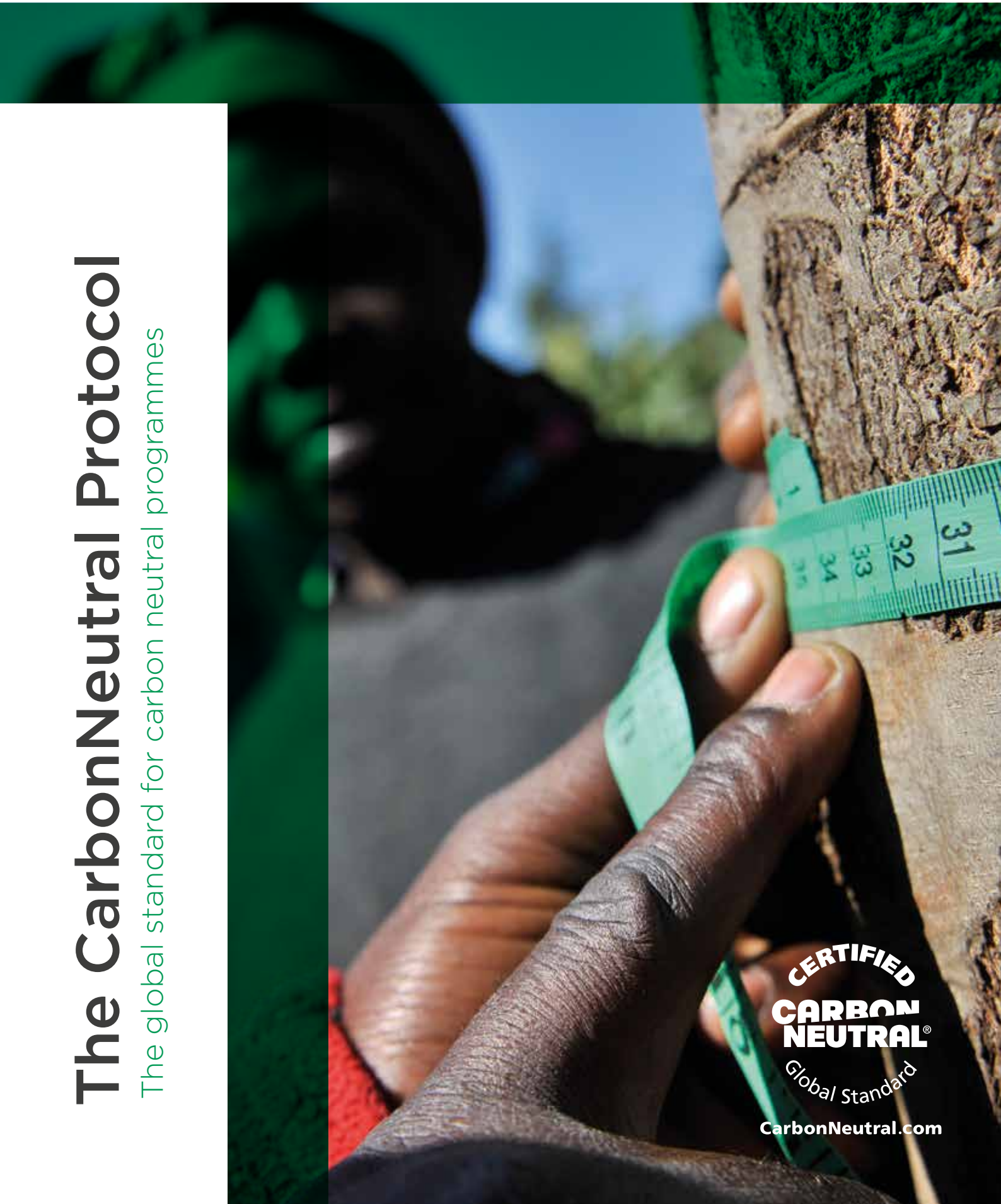
January 2020

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

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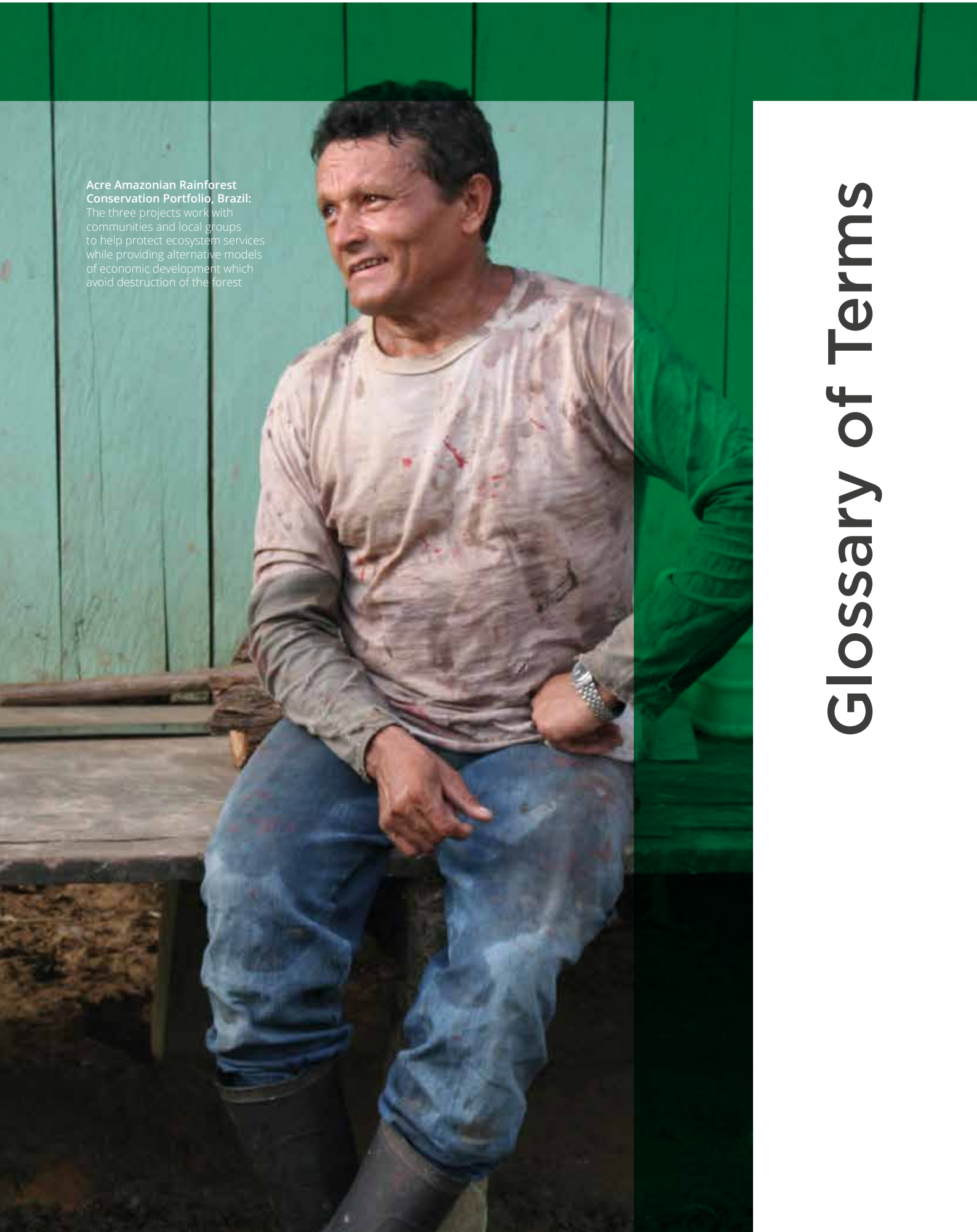


Acre Amazonian Rainforest Conservation Portfolio, Brazil: The three projects work with communities and local groups to help protect ecosystem services while providing alternative models of economic development which avoid destruction of the forest

Glossary of Terms

The term 'carbon neutral' and many of the concepts associated with it 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

Additional (also additionality): A criterion applied to 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 will be lower than without the project (Ref: 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 **Annex C**.

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

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

Available (referring to data): Applied to primary data, "available" means readily collectable, at reasonable cost. Applied to secondary data, "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 **Appendix 2.5** for further discussion of this topic.

B

Baseline (also Baseline scenario): 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 calculated 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 **Annex C**.

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

Boundary: The physical or spatial extent of the subject – the entity, product or activity – i.e. the sites (including mobile sites such as vehicles) involved. 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 **Step 1: Define** for further information of this topic with respect to CarbonNeutral® certifications.

C

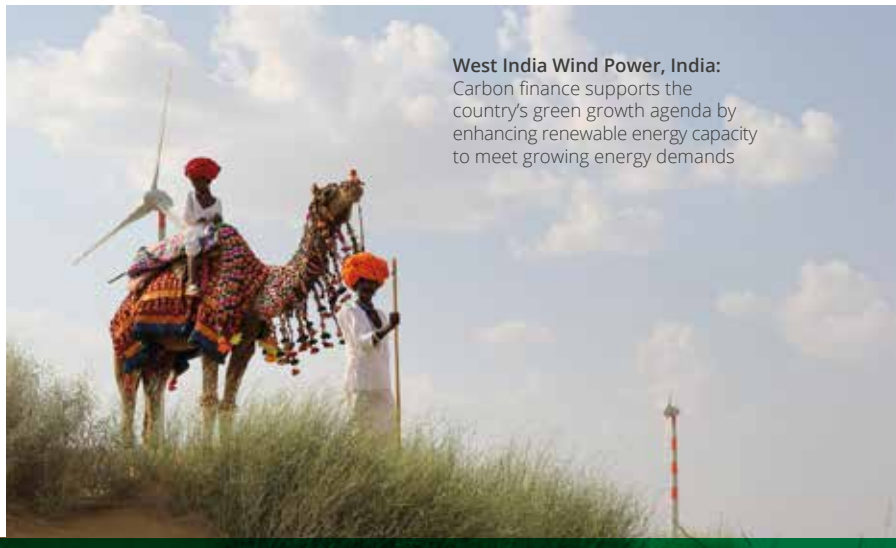
Carbon: Shorthand term for all greenhouse gases recognised under the United Nations Framework Convention on Climate Change.

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 counterbalance or compensate for unabated emissions occurring elsewhere.

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 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.



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

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

Carbon neutrality: The state achieved when the unabated GHG emissions within the boundary of the Subject (the GHG Inventory) are compensated or balanced by emission reductions established under recognised carbon standards of an equal amount outside the boundary to achieve a status of zero for a defined period of time.

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 emissions associated with the subject equal the exact amount of carbon credits retired/cancelled.

Carbon removals: GHG emission reductions that remove (sequester) GHGs from the atmosphere.

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 **Appendix 3.2**.

CarbonNeutral®: The registered trademark of Natural Capital Partners licensed 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 can only be awarded by a CarbonNeutral certifier.

CarbonNeutral® certifier: The organisation providing CarbonNeutral® certification in accordance with the requirements of The CarbonNeutral Protocol. Natural Capital Partners and its authorised channel partners may award the CarbonNeutral® mark to entities that are in compliance with the requirements of The Protocol.

CarbonNeutral® certification logo: A logo incorporating the CarbonNeutral® trademark that is licensed to a client upon the successful completion of a CarbonNeutral® certification. See **Annex B** for further information.

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

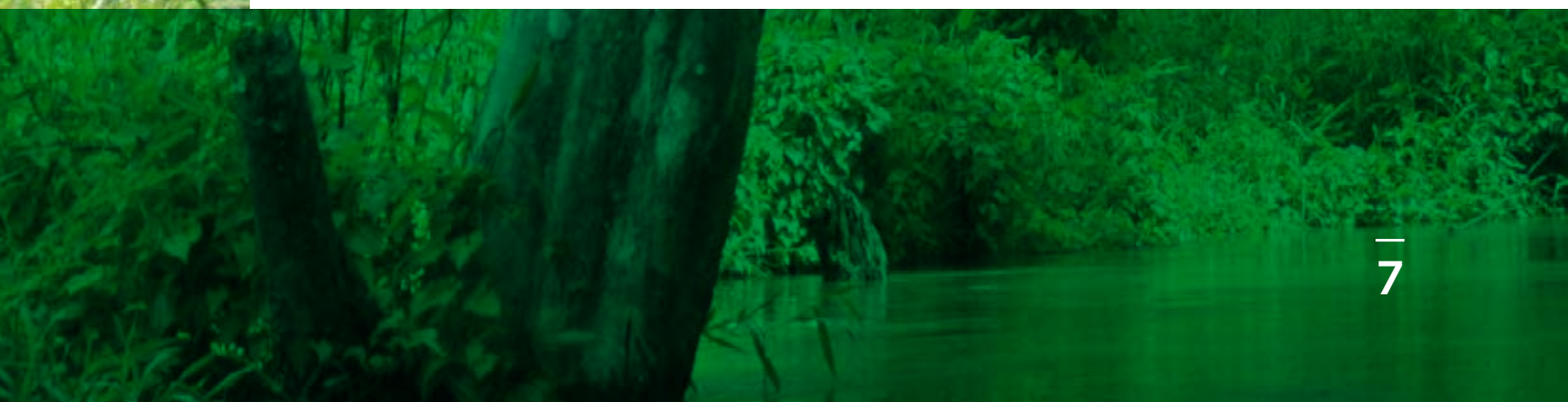
Certification period: The duration for which a CarbonNeutral® certification is applied to a subject (typically a year).

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

Climate finance: Finance delivered to emission reduction projects derived from the sale of verified climate benefits (as opposed to carbon finance which is derived from the sale of transactable carbon credits).

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 **Appendix 1.2** for further information.

Cradle-to-grave: A particular boundary for CarbonNeutral® product class 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.



D

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

E

Emissions sinks: The specific activities or processes within a boundary which remove GHGs from the atmosphere.

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.

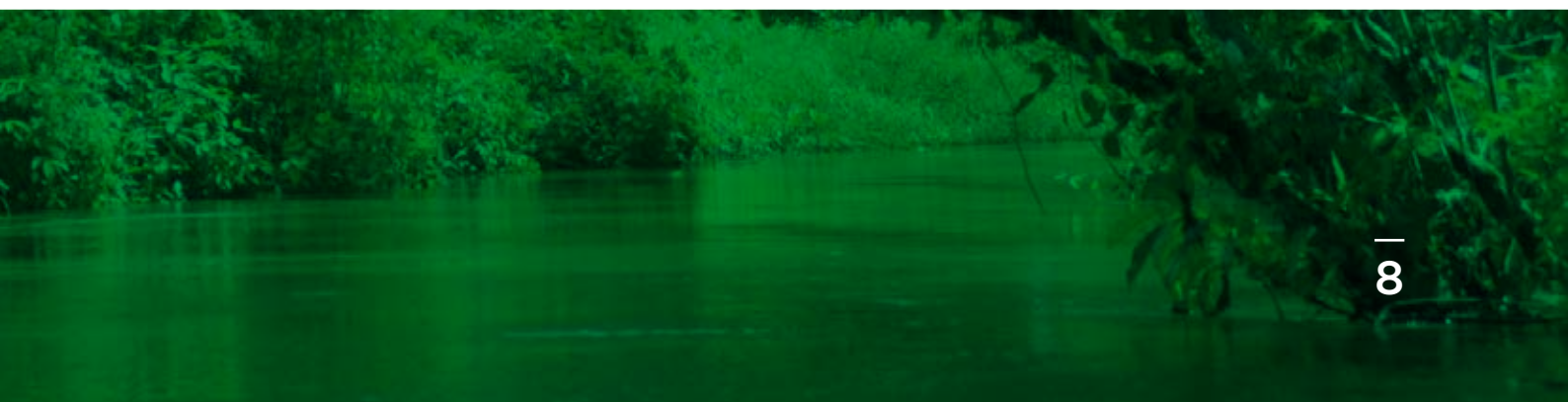
Energy Attribute Certificates (EACs): Transactable, energy tracking instruments representing proof that a unit (e.g. 1 megawatt-hour (MWh)) of energy was generated from an eligible renewable energy source and delivered through a shared power distribution system to serve power consumers. EACs provide 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 and in accordance with the international standard ISO 14025. See **Appendix 1.3** for further discussion on this topic.

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 are emission reductions which have been verified under an accepted standard and listed in the related registry, which means they can be retired to compensate for unabated emissions.



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

G

Geographically relevant: Pertaining to the specific location of the emissions-generating activity in question. In order of preference, emission factors and secondary data 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.

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.

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.

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).

I

ICROA: The International Carbon Reduction and Offset Alliance is a non-profit organisation within the International Emissions Trading Association (IETA). It's 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 and is approved by the CarbonNeutral certifier.

Insetting: A specific application of offsetting when emission reduction projects located within a corporate's supply chain and sphere of influence generate emission reductions 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.

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.

Colorado Grasslands, 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

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 "Greenhouse gases – carbon footprint of products – requirements and guidelines for quantification and communication." 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 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 carbon credits to be transferred and retired in that registry.

L

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

N

Net Zero: The balance of GHG emission sources and sinks within and across a nation or the global economy such that the global warming impact from anthropogenic activities is zero.

O

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

P

PAS 2050: British Standards Institution (BSI)'s 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 (BSI)'s 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 has not been subjected to processing or any other manipulation. Examples of primary data sources include direct measurement of the quantity of natural gas burnt in a heating system (Scope 1) or metered electricity (Scope 2) before the application of conversion factors used to determine CO_2e emissions.

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 **Appendix 2.9** 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.

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.

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 United Kingdom 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.

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.

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 **Appendix 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 to encourage and support companies in the transition to a low-carbon economy. See **Appendix 3.1** 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 direct 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.

Secondary data: Data collected or measured which has been subjected to processing or additional calculations to arrive at a usable output. Examples include applying emission factors to flight distances or fuel consumption to produce a value for GHG emissions.

Simplified Estimation Method (SEM): Rough, upper bound estimation developed and implemented as necessary and appropriate to a subject's GHG assessment. SEMs are intended to be used for GHG emissions sources that represent less than 2% of the subject's total GHG emissions. Collectively SEMs should total no more than 5% of the subject's GHG emissions.

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.

T

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.

V

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 or ISAE 3410) 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 **Appendix 2.9** 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.

Kanungu Run-of-River Hydro Power Project, Uganda: The project generates ~29GWh electricity each year, displacing diesel-powered generators that supply the Ugandan grid

NATURAL CAPITAL PARTNERS

Preface

Chocó-Darién Rainforest Conservation REDD+, Colombia: Carbon finance supports work with indigenous forest-dependent communities to build sustainable economic livelihoods and protect a global biodiversity hotspot

The Rising Prominence of Corporate Carbon Neutrality

Since its launch in 2002, The CarbonNeutral Protocol has promoted voluntary action across the private sector. This supports reducing carbon emissions to ensure we have a stable climate, conserving and restoring a thriving natural environment, and transforming our global economy to become net zero.

Businesses increasingly appreciate the economic imperative of strong climate action, and their customers around the world are more mobilised than ever to adjust their patterns of consumption accordingly. Against the backdrop of weakening political progress, we have witnessed rising climate action through carbon neutrality amongst the world's largest businesses.

In 2018 we conducted an extensive review of the application and impact of carbon neutrality in business through seven roundtable conversations with 61 corporates, with revenues totalling over US$1.3 trillion. We found that companies are increasingly using carbon neutrality to shift climate action from compliance or corporate responsibility responses, to underpinning business strategy through the management of business risk and opportunity. Carbon neutrality does this, in particular by establishing a price on carbon and by earning the reputational benefits from demonstrating clear action and impact. We also found that businesses are extending their attention from neutralising their carbon footprint (Scopes 1, 2 and 3) by complementing that action with four additional activities that link carbon neutrality to a net zero emission economy (See Figure 1).

Figure 1: Imprinting Net Zero[1]

HOW COMPANIES CAN HELP BUILD A NET ZERO ECONOMY

STEP ONE: TO CARBON NEUTRALITY...

1. FOOT-PRINT
Reduce emissions arising directly from company activities or from the purchase of energy and business travel Examples: Marks & Spencer, Microsoft

2. TAIL-PRINT
Reduce emissions from suppliers in the creation of goods and services used by your company (upstream) Examples: Bettys & Taylors, Interface

3. HAND-PRINT
Reduce emissions arising from customers using your company's goods and services (downstream) Examples: BP Target Neutral, Eden Springs, Elopak, Sky

STEP TWO: TO A NET ZERO ECONOMY...

4. BRAIN-PRINT
Put the transformation to a net zero economy at the heart of business strategy, and product and service innovation Examples: ING, Microsoft

5. BLUE-PRINT
Identify the investments, partnerships, governance and technology that underpin the plan to deliver against goals Example: Microsoft, Scania

6. FINGER-PRINT
Make the strategy personally relevant to all staff and management Example: LinkedIn

7. NEWS-PRINT
Communicate and advocate to set climate strategies free from the confines of sustainability reports Examples: Intuit, Sky

[1] Natural Capital Partners, 2018, Raising Ambition - The Role of Business in Getting to Net Zero, page 14, https://assets.naturalcapitalpartners.com/downloads/Raising_Ambition_-_The_Role_of_Business_in_Getting_to_Net_Zero.pdf

By also paying attention to the four 'prints', corporations adapt and extend their carbon neutral programmes to address the tougher requirements for internal abatement of emissions and a just transition. We are beginning to build evidence of the role that carbon neutrality is playing as a safe launchpad for these climate actions.

In 2019 we conducted research into the climate commitments of the Fortune Global 500. It found that 10% have carbon neutral commitments, and that this has doubled since the Paris Agreement was signed at the end of 2015.

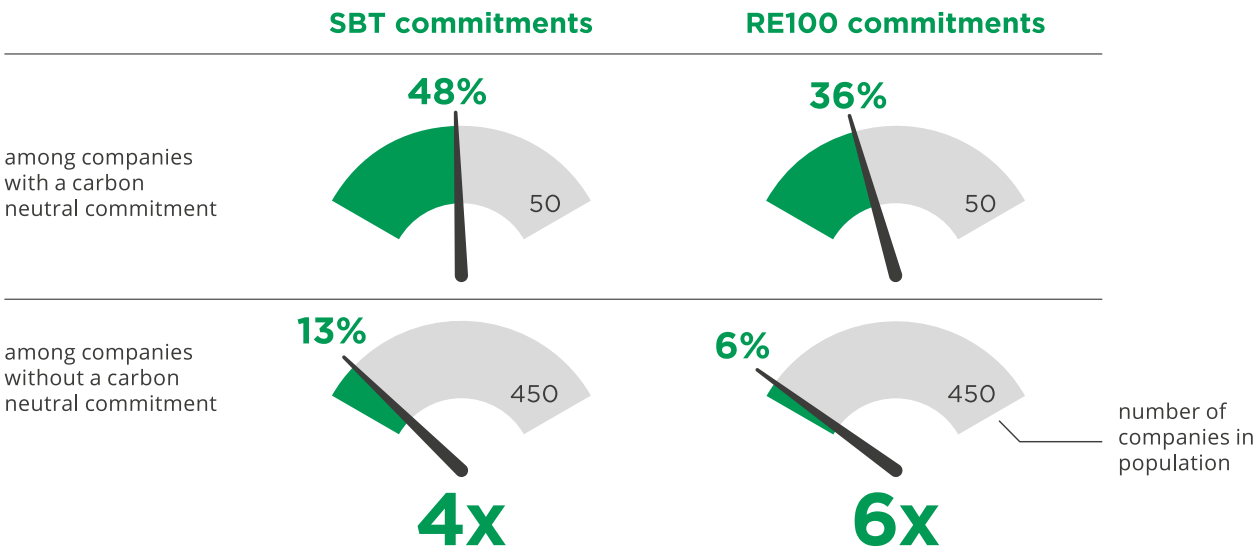
For many, carbon neutrality is a stepping stone towards deep transformation within businesses. The research indicated that corporations with carbon neutrality goals are four times more likely to have a Science Based Target (SBT) to guide their internal abatement activities; and, six times more likely to have a RE100 commitment to 100% renewable power. See Figure 2. This evidences a strong correlation, and we know that carbon neutrality sets a clear, simple target to drive focus on internal abatement activities.

The purchase and retirement of carbon credits also creates a clear price signal to drive internal abatement action, which in turn reduces the need for offsetting. This version of the CarbonNeutral Protocol places greater emphasis on improving the evidence base of how carbon neutrality programmes drive this emissions abatement within companies.

Microsoft is a leading example. This year it certified 825,000 Xbox consoles as CarbonNeutral® products as a first step on the journey towards making its products carbon neutral – including emissions from the supply chain and use phase – having had all of its own operations carbon neutral since 2012. Microsoft imposes a 'carbon fee' on all business units to cover the costs of carbon neutrality and other sustainability initiatives. The fee is in part informed by the price of carbon credits used for offsetting. This fee drives action towards its Science Based Target of abating operational carbon emissions by 75% by 2030, and value chain emissions by 30% by 2030.

Carbon neutrality is also being used by companies to address the just transition to a stable climate. The risks and impacts of climate change and its remedies are spread unevenly across the global work-force, communities, and natural ecosystems. Care and safeguards are required to ensure we do not solve one major problem with intent, while creating many others through unintended consequences. For example, a shift from fossil fuels to renewable energy that leaves workers in

Figure 2: Comparison of SBT and RE100 commitments between Fortune Global 500 companies with and without a carbon neutral commitment[2]



[2] Natural Capital Partners, 2019, Deeds Not Words: The Growth of Climate Action in the Corporate World, page 8, http://info.naturalcapitalpartners.com/500

[3] ibid, page 9

the former sector without access to employment is not a just transition. Neither is a global climate agreement that fails to provide developing economies with the access to finance they need to drive low-carbon technologies and protect and enhance ecosystems that act as natural carbon sinks.

In responding to these challenges, leading companies are increasing the proportion of their carbon credits portfolios that come from mitigation projects that deliver other positive impacts against the Sustainable Development Goals.

Bettys & Taylors, home to the UK's top selling tea and fresh ground coffee brands, has made all its tea and coffee CarbonNeutral through a programme that uses carbon finance to support emission reduction projects across its supply chain in Kenya, Uganda and Malawi. Working with community reforestation and improved cookstove projects, the company is making the climate impact of its products from farm to retail shelf carbon neutral. Its programme is financing mitigation activities among smallholder farmer communities that face their own sustainable development challenges in some of the countries most impacted by the effects of climate change.

The latest UN Climate Summit COP25 in Madrid has ended with precious little progress on translating ambition into action. The Summit failed to get all countries to deliver on prior intentions to submit a new round of more ambitious national targets next year to close the widening gap between what is committed and what is required for a stable climate. Further, for the second year in a row, governments failed to agree the rules for international carbon trading, a key remaining piece of the rulebook for implementing the Paris Agreement. Strong and clear rules are critical to the growth and environmental integrity of carbon markets, which can help drive investment required for mitigation and adaptation, lower the cost of delivering deep reductions – and in doing so, enable countries to accelerate and strengthen their mitigation targets.

Despite the disappointment of the global process, the rising interest in carbon neutrality is evidence that business wants meaningful, immediate and practical action. There is growing recognition that to reach net zero emissions by 2050, the global economy's component parts, specifically businesses, must all pull their weight. Companies need to know that their individual action makes a positive and directionally aligned contribution to the global system even though the terms of global action are not yet clear. While carbon neutrality is neither a perfect nor complete solution, it is a pragmatic, impactful approach that business can deploy today in response to the urgent need for progress. We are encouraged that the use of The Protocol stimulates its users to proactively join the dots between the tactical and the transformational dimensions of the climate challenge.

[4] Taylors of Harrogate, 2019, Carbon Neutral Tea and Coffee, https://www.taylorsofharrogate.co.uk/carbon-neutral-tea-and-coffee/

Reforestation programme, Kenya: Tea farmers in Kenya that supply Taylors are supported to plant trees, share best practice, add new crops to their plots, and implement conservation farming methods

NATURAL CAPITAL PARTNERS

Introduction

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

Introducing The CarbonNeutral Protocol 2020

We are pleased to present this 2020 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 to ensure 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 which 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 a voluntary 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

Public claims of carbon neutrality account for greenhouse gas emissions and the compensating emission reductions in accordance with best-in-class third-party standards to ensure that claims have integrity and the same meaning throughout the global economy. Entities making public claims of carbon neutrality commit to conservative approaches and to disclosing the basis (methodologies, standards, protocols) that underpin their claims.

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 carbon emission reductions across the global economy. The CarbonNeutral mark enables entities to communicate their commitment to carbon neutrality to key stakeholders so they may be recognised and rewarded for their progressive action.

The primary function of the principles above is to guide the implementation of the Protocol, particularly when the application of the Protocol to specific issues or situations is ambiguous.

Structure of The CarbonNeutral Protocol

The following chapter of this document sets out the requirements for achieving CarbonNeutral® certification. These requirements are set out in the body of this document as well as in the accompanying Technical Annexes. Detailed guidance and clarification on selected topics can be found in the Appendices.

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 is consulted on development priorities within the annual revision cycle. The development of the subsequent version takes place over the following year.

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 2020 version include:

- **New:** Requirement for a CarbonNeutral® Certification Form (**Annex F**);
- **New:** CarbonNeutral production certification (**Table 4** and **Annex A**);
- **Updated:** Requirements for the treatment of aviation's impact on global warming (**Appendix 2.5)**;
- **Updated:** Detailed requirements for product certifications including accepted data periods for footprint assessments, and treatment of land use change and packaging emissions (**Tables 3** and **5**);
- **Updated:** Approved carbon credit standards now includes certain Domestic standards (**Annex C**)

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 reduction projects. Concerning GHG measurement, the Protocol is aligned with the GHG Protocol Corporate Standard (including the separate Guidance on Scope 2 and 3 accounting), GHG Protocol Product Standard, Environmental Product Declarations and the principles of the BSI PAS 2050 standard for products and services.

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 34 countries, including Microsoft, MetLife, Logitech, HP, PwC, Sky, Ørsted and Nordic Leisure Group, Natural Capital Partners is harnessing the power of business to create a more sustainable world. Through a global network of projects we deliver the highest quality solutions which make real change possible: reduce carbon emissions, generate renewable energy, build resilience in supply chains, conserve forests and biodiversity, and improve health and livelihoods.

Natural Capital Partners was founded in 1997 and has offices in the US and Europe. Since it began, the company has contracted more than 43 million tonnes of carbon credits from 489 projects in 64 countries on behalf of its clients. Over the past four years it has contracted 19 million MWh of energy attribute certificates from 43 countries. In addition, the company has received the Environmental Finance Best Offset Retailer award for the past nine years.

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

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 Group, 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.

CarbonNeutral® is the registered trademark of Natural Capital Partners. The copyright notice displayed in this document indicates when the document was last issued.

Awards

2014 2015 2016 2017 2018

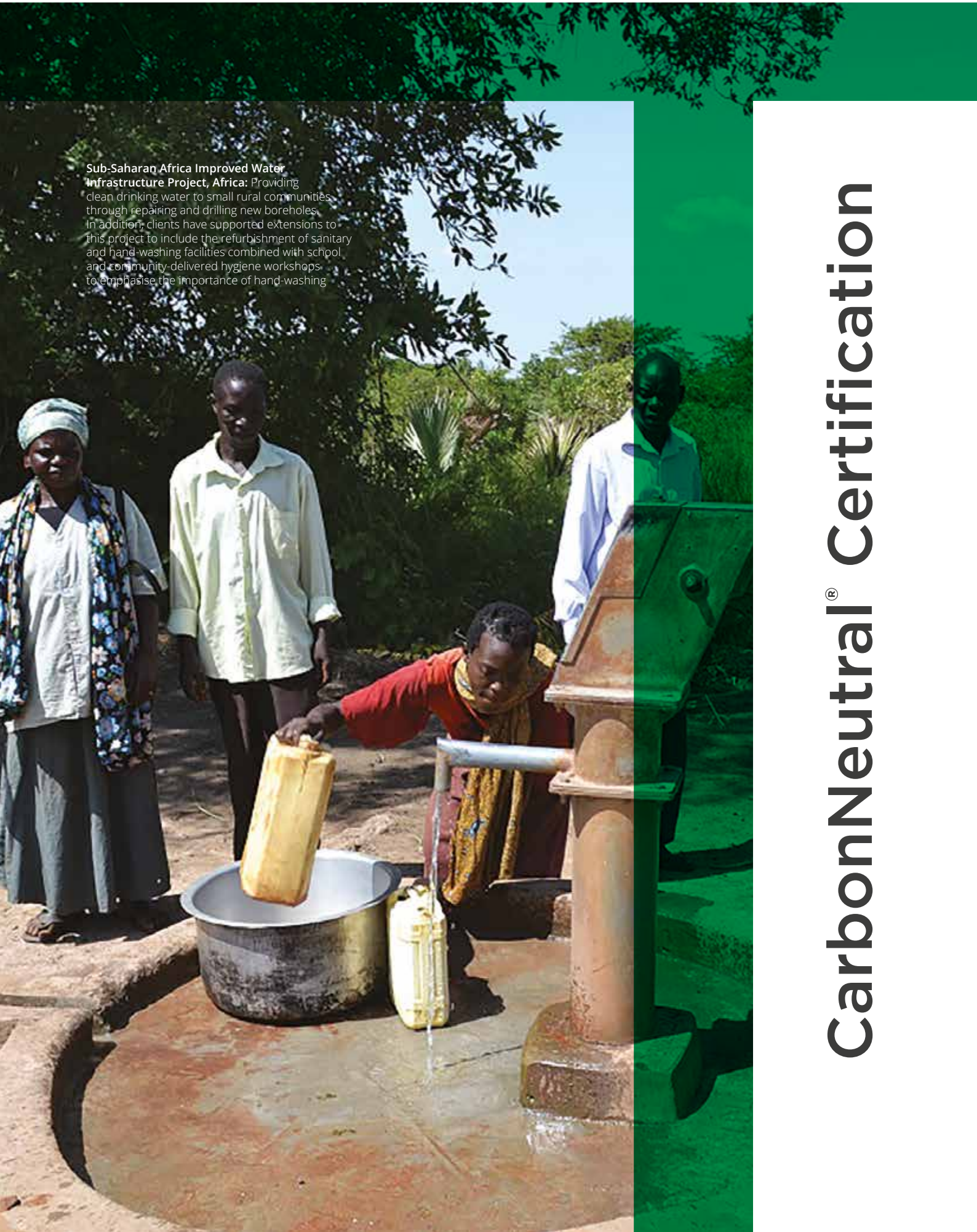
Environmental Finance Voluntary Carbon Market Rankings 2019 Winner

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

NATURAL CAPITAL PARTNERS



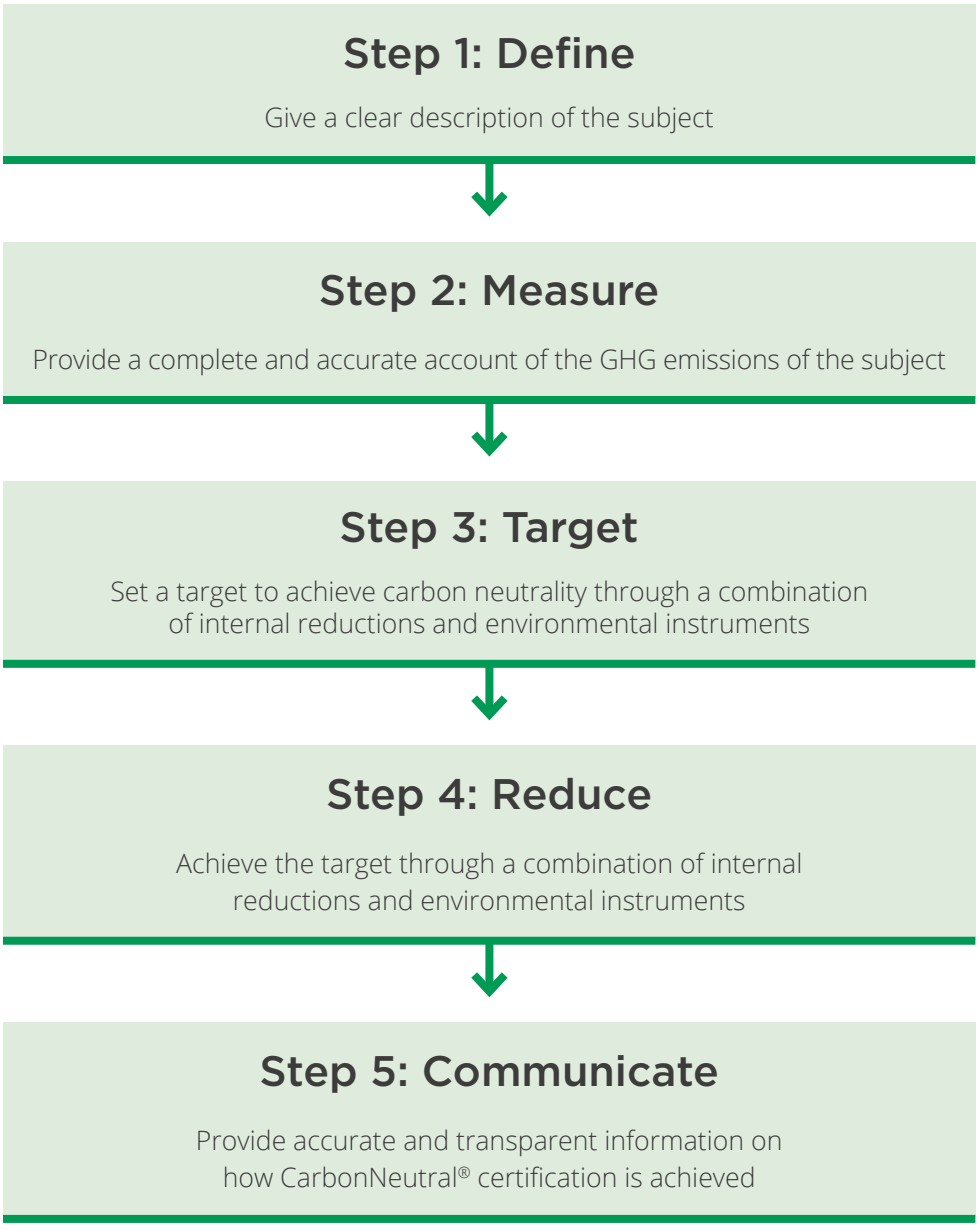
Sub-Saharan Africa Improved Water Infrastructure Project, Africa: Providing clean drinking water to small rural communities through repairing and drilling new boreholes. In addition, clients have supported extensions to this project to include the refurbishment of sanitary and hand-washing facilities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

CarbonNeutral® Certification

The Five Steps to Achieving CarbonNeutral® Certification

As illustrated in Figure 3, 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 3: Five Steps to Achieving CarbonNeutral® Certification



Step 1: Define
List of CarbonNeutral® Certifications

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. 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.

See **Annex E**, and **Appendix 1** for further guidance and clarification.

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: Physical goods produced for sale. Products include standard consumer goods such as milk, paper or computers, or single-use or custom-built products such as buildings or urban developments.

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.

The following tables, organised by certification class, specify required and recommended emission sources to be included in a subject's GHG assessment and CarbonNeutral® certification.

Table 1: CarbonNeutral® Certification Types

Entity certifications	Product certifications**	Activity certifications
Building/Office space/Venue	Development/Fit-out*	Business travel*
Company/Organisation/Manufacturer	Electricity	Cloud services/Hosting*
Couriers	Packaging	Delivery/Shipment*
Data centres*	Paper/Publication	Driving/Fleet
Department/Division/Office	Product	Electricity supply
Hotel*	Usage*	Electricity use
Operations		Energy use*
		Event/Exhibitor
		Exhibitor
		Fleet
		Flights
		Gas supply/Gas use
		Gas use
		Hotel stay
		Print production*
		Production*
		Service
		Voyages

*See **Annex A**.
**Products or packaging may only carry a CarbonNeutral product or CarbonNeutral packaging logo respectively. Note that 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.

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

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

GHG assessment emission sources						CarbonNeutral® entity certification						
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 **Appendix 1.1**)				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				✓	✓	✓	✓	✓		
	Scope 2	Emissions from the generation of purchased electricity, heat, steam or cooling				✓	✓	✓	✓	✓	✓	✓
	Scope 3 upstream	1	Purchased goods and services	1a	Water supplied to subject	●	●	●	●	●	●	●
		3	Fuel- and energy-related activities (not included in Scope 1 or Scope 2)	3a	Upstream emissions of purchased electricity and fuels	●	●	●	●	●	●	●
				3b	Transmission and distribution (T&D) losses[1]	✓	✓	✓	✓	✓	✓	✓
				3c	All other fuel- and energy-related activities							
		4	Upstream transportation and distribution	4a	Outbound courier deliveries of packages[2]	●	✓	●	●	●	●	●
				4b	Third-party transportation and storage of inbound production-related goods[3]	●	●	●	●	●		
				4c	Third-party transportation and storage of outbound final products[4]	✓	✓	✓	✓	✓		
				4d	All other upstream transportation and distribution							
		5	Waste generated in operations	5a	Wastewater	●	●	●	●	●	●	●
				5b	Other waste	✓	✓	✓	✓	✓	✓	✓
		6	Business travel	6a	All transportation by air, public transport, rented/leased vehicle and taxi	✓	✓	✓	✓	●	●	
				6b	Emissions arising from hotel accommodation associated with business travel	●	●	●	●	●	●	
		7	Employee commuting			●	●	●	●	●	●	
		As defined in the Value Chain Standard, Scope 3 upstream emission source categories 2 and 8 are not currently required or recommended under any of the CarbonNeutral® entity certifications, for further details see **Appendix 1.1**										
	Scope 3 Downstream	As defined in the Value Chain Standard, Scope 3 downstream emission source categories 9 through 15 are not currently required or recommended under any of the CarbonNeutral® entity certifications, for further details see **Appendix 1.1**										
Certification specific requirements (See **Annex A**)								▲		▲		

Legend: ✓ Required ● Recommended ▲ Guidance

[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 must be offset using carbon credits. [2] Excludes letters sent by general mail service suppliers (for example Royal Mail in the United Kingdom). [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 only a required source of emissions for product manufacturers, and is a recommended source of emissions 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.

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

Cradle-to-grave

Cradle-to-customer

Required assessment emission sources		CarbonNeutral® product certification						
Category	Emissions source category	Product	Paper/ Publication	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]	✓	✓	✓	✓	✓	●	
	Inbound deliveries of raw materials and inputs to production	✓	✓	✓	✓	✓	●	
Manufacturing and storage of product and packaging	Direct emissions from on-site fossil fuel use and fugitive emissions	✓	✓	✓	✓	✓		
	On-site consumption of purchased electricity[2]	✓	✓	✓	✓	✓	✓	
	Emissions from waste disposal[4]	✓	✓	✓	✓	✓		
Distribution	Transportation of sold products to first customer	✓	✓	✓	✓			
Onward distribution	Onward storage and transportation	●	●	●	●			
Retail	Direct emissions from on-site fossil fuel use and fugitive emissions	●	●	●				
	On-site consumption of purchased electricity and/or steam	●	●	●				
Use	Use emissions, including maintenance	●						✓
Disposal	Emissions from disposal of sold products at end of life	●	●	●	●	●		
Other	Construction worker travel to and from development site					✓		
Certification specific requirements (See **Annex A**)						▲		▲

Legend: ✓ Required ● Recommended ▲ Guidance

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 **Appendix 1.3**, 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 **Appendix 1.2**. 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.sharefile.com/share/view/s39a9c9faa1446f19).

[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 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.

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

Required assessment emission sources / Emissions source category	CarbonNeutral® activity certification														
	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
All direct emissions from on-site sources used to deliver the activity	✓	✓			✓	✓	✓	✓		✓		✓	✓		✓
All direct emissions from mobile sources used to deliver the activity	✓	✓	✓	✓		✓			✓					✓	✓
Emissions from the consumption of purchased electricity (including transmission and distribution) and/or steam used in the delivery of the activity	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Travel of employees/ contractors - by air, public transport, rented/ leased vehicle and taxi - involved in the delivery of the activity	●				●	●	●	✓							✓
Travel of individuals to and from the activity - by air, public transport, rented/leased vehicle and taxi								●							✓
Waste disposal[1]	●				✓	✓	✓	✓						✓	✓
Embodied emissions of consumables used in the delivery of the activity														✓	✓
Transportation of products associated with the activity to the first customer					✓										
Certification specific requirements (See **Annex A**)		▲			▲		▲	▲	▲	▲					▲

Legend: ✓ Required ● Recommended ▲ Guidance

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

Tresmontes Lucchetti Strengthens Environmental Commitment with CarbonNeutral® Instant Drink

Define: Livean instant drink becoming a CarbonNeutral® product, first certified in 2013. From 2014, this commitment encompassed a second drink product, Zuko. Livean and Zuko are leading brands in the Chilean market

Measure: Total GHG emissions produced over the lifecycle of the drink including the final disposal of its packaging

Target: Carbon neutrality was part of a wider programme to strengthen the company's environmental commitment

Reduce: Verified carbon projects used to offset remaining emissions following improvements to the production process including packaging reduction. This measure is aligned with the sustainable development strategy of the company and its interest in improving the environmental performance of its operations and products. Emission reduction projects included wind power projects in India, China and Chile, rainforest conservation in Brazil and Chile and improved cookstoves and water filtration in Guatemala

Communicate: First Chilean CarbonNeutral instant drink

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 5**.

Appendix 2 provides additional information regarding the measurement of GHG emissions. CarbonNeutral certifiers and technical partners should also pay particular attention to the contents of **Appendix 1** which provides further guidance and clarification on defining the subject for certifications. The Appendices may include new guidance and clarifications as new versions of The CarbonNeutral Protocol are released.

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

Table 5: GHG Emission Quantification Requirements for Different Classes of Certifications

Step	Entities	Products[1]	Activities
1. Select GHG accounting protocol	The GHG Protocol Corporate Standard, or ISO 14064-1, or the Climate Registry's General Reporting Protocol or similar consistent protocols must be used.	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 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 the direct management control of the subject.	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** – 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 final date of an assessment data period must not be earlier than nine months prior to start of CarbonNeutral® certification period (i.e. data more than 21 months old is not permitted).	For standard consumer products, assessments should relate to a 12-month data period. Assessments must be conducted at a minimum of every 36 months. If there is a significant change to the product supply chain within that 36 months, the footprint must be adjusted to reflect that change within 12 months. The final date of an assessment's 12-month data period must not be earlier than 48 months prior to start of certification period.	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 secondary data, where it is readily 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.		
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 (e.g. DEFRA emission factors for UK-based assessments). The assessment must be reported in units of CO_2e according to the 100 year 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, 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.		
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 independent, expert third party approved by Natural Capital Partners to ensure they have met the requirements in this table. **Annex E** details requirements and recommendations for the presentation of GHG assessments; and, **Appendix 2.9** provides further guidance on quality assurance and verification.		

[1]If the subject is covered by an EPD which meets the requirements specified in **Appendix 1.3**, it shall fulfil the GHG emission quantification requirements for CarbonNeutral® product certification. Refer to **Appendix 1.3** for further guidance on EPDs.

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.

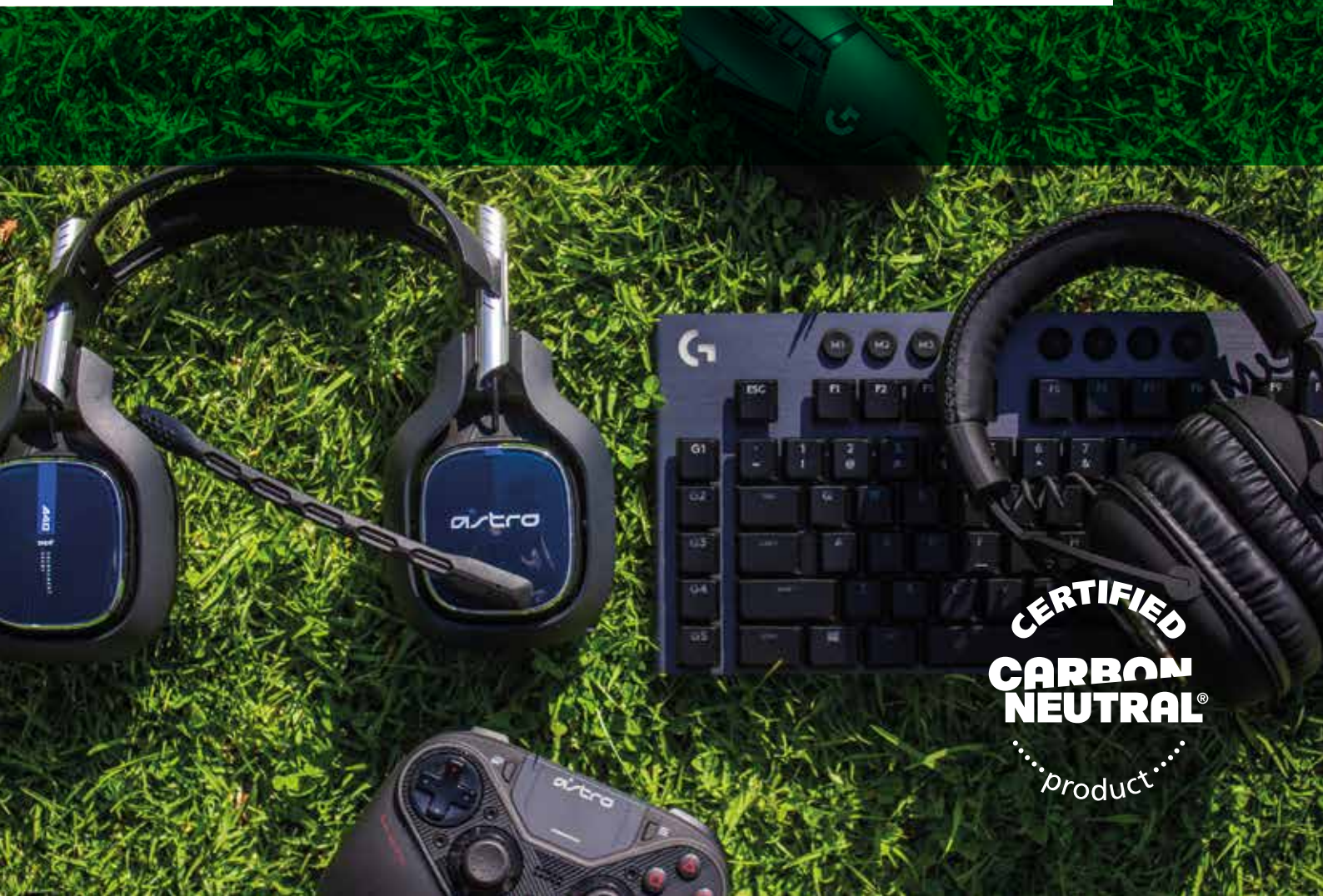
Define: Entire gaming product portfolio is CarbonNeutral®, first certified 2019. All company business travel is CarbonNeutral®, first certified 2019. Manufacturing site is a CarbonNeutral® building, first certified 2018.

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.



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 and strong 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 4, 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.

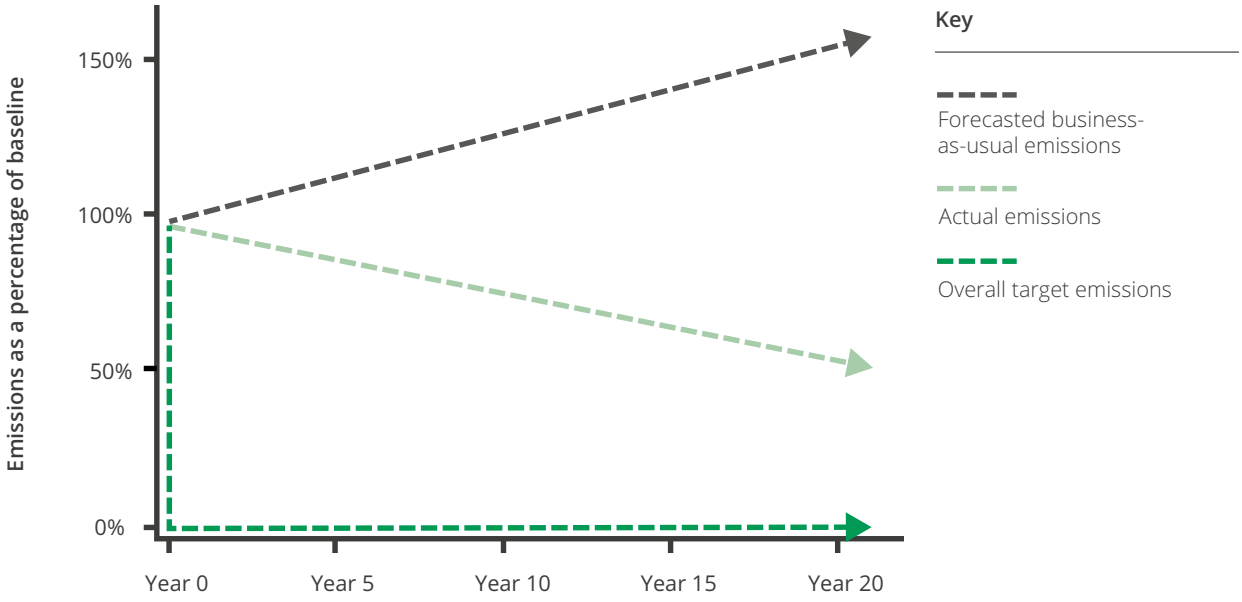
Absolute GHG reduction targets compare total GHG emissions in the target year to those in a base year (e.g. reduce CO_2e by 25 percent below 2015 levels by 2025). GHG intensity targets are expressed as a ratio of emissions relative to a business metric (e.g. reduce CO_2e by 25 percent per full-time employee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

Approaches to setting abatement targets include Science-Based Targets (see **Appendix 3.1**).

The client must specify any internal abatement targets in its CarbonNeutral® Certification Form (see **Annex F**).

While targets may be extended to carbon (or climate, or net) positive (see **Appendix 3.2**) and other impacts on Sustainable Development Goals, CarbonNeutral certification applies only to neutrality as defined in The Protocol.

Figure 4: Emissions Profile for Subject of CarbonNeutral® Certification



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 status targeted alongside a commitment to continually review and minimise its impact on the environment.

Reduce: Emissions reductions through replacing and 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 4: Reduce

The fourth step is to take actions to achieve carbon neutrality through a cost-effective combination of internal emissions reductions and the use of external environmental instruments.

Requirements/recommendations

The subject's GHG emissions must be reduced to carbon neutral for the duration defined within the CarbonNeutral® certification. As illustrated by Figure 5, this may be achieved through a combination of internal abatement measures and external environmental instruments.

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.

In all cases, the methodology used to quantify internal GHG abatement should be the same as that used to quantify the subject's original GHG emissions.

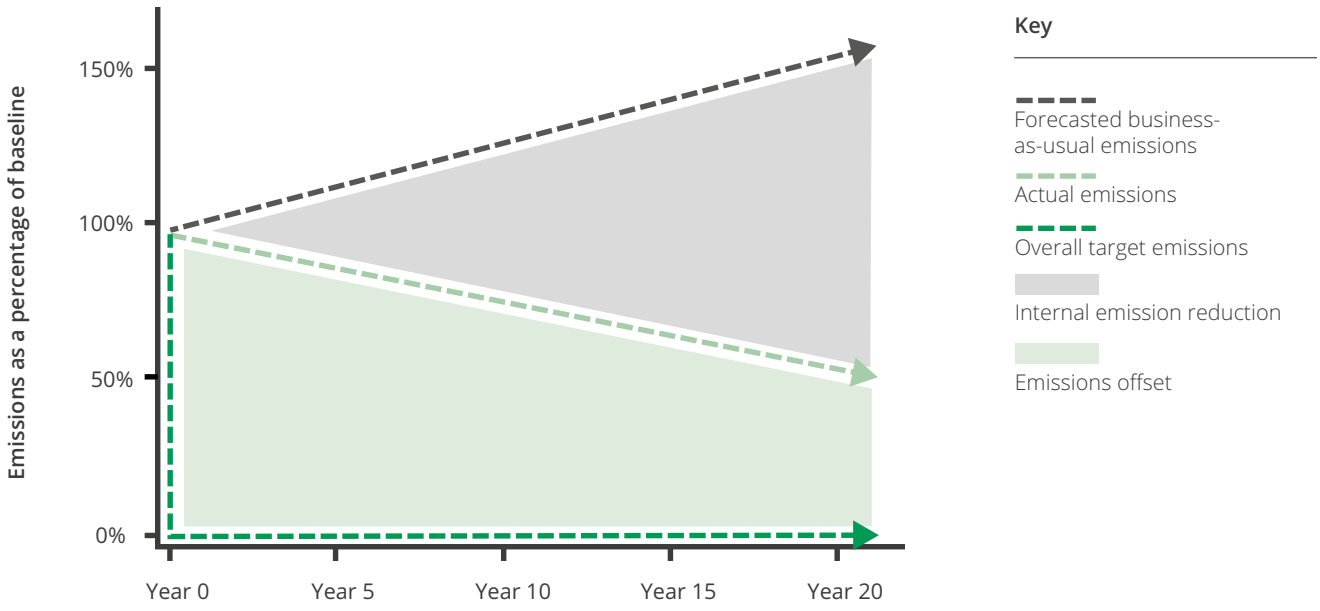
GHG abatement plans should be reviewed periodically to assess progress against planned actions and to assess the feasibility for further reductions, taking into account the availability of new technologies, enabling policies and incentives provided by government, and the overall business context. Where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

Requirements/recommendations covering carbon credits

Any carbon credit 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

Figure 5: Reduction Measures to Achieve Carbon Neutrality



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 **Annex C**.

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 certified under the standards set out in **Annex C** have been determined to meet the requirements above and therefore are qualified for use as an external environmental instrument to reduce a subject's GHG emissions. **Annex C** 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 (forward crediting), 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 retire sufficient carbon credits on behalf of organisations to achieve CarbonNeutral® certification. Alternatively, the certifier must receive full assurances from the party implementing retirement that retired credits are being applied to the Subjects/time periods and could not in any way be deemed to have been double counted.

Ex post carbon credits must be used for CarbonNeutral certifications. *Ex ante* credits which do not meet the requirements for forward crediting are not permitted for certifications.

Further considerations

Emission reduction projects have effects in addition to GHG emission reductions. Carbon credit standards accepted by The CarbonNeutral Protocol (**Annex C**) have requirements that material negative impacts should not arise from emission reduction projects.

For reasons laid out in **Appendix 4.1**, the following project types must not be used towards the achievement of CarbonNeutral® certification, although they are recognised under some carbon credit standards in **Annex C**:

- 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[1]
- 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

The non-carbon accounting standards listed in **Annex D** 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.

[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-hydropower-sustainability-assessments/).

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, investments in 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: it blog, its global customer conference, lunchtime presentations to staff, and webinars

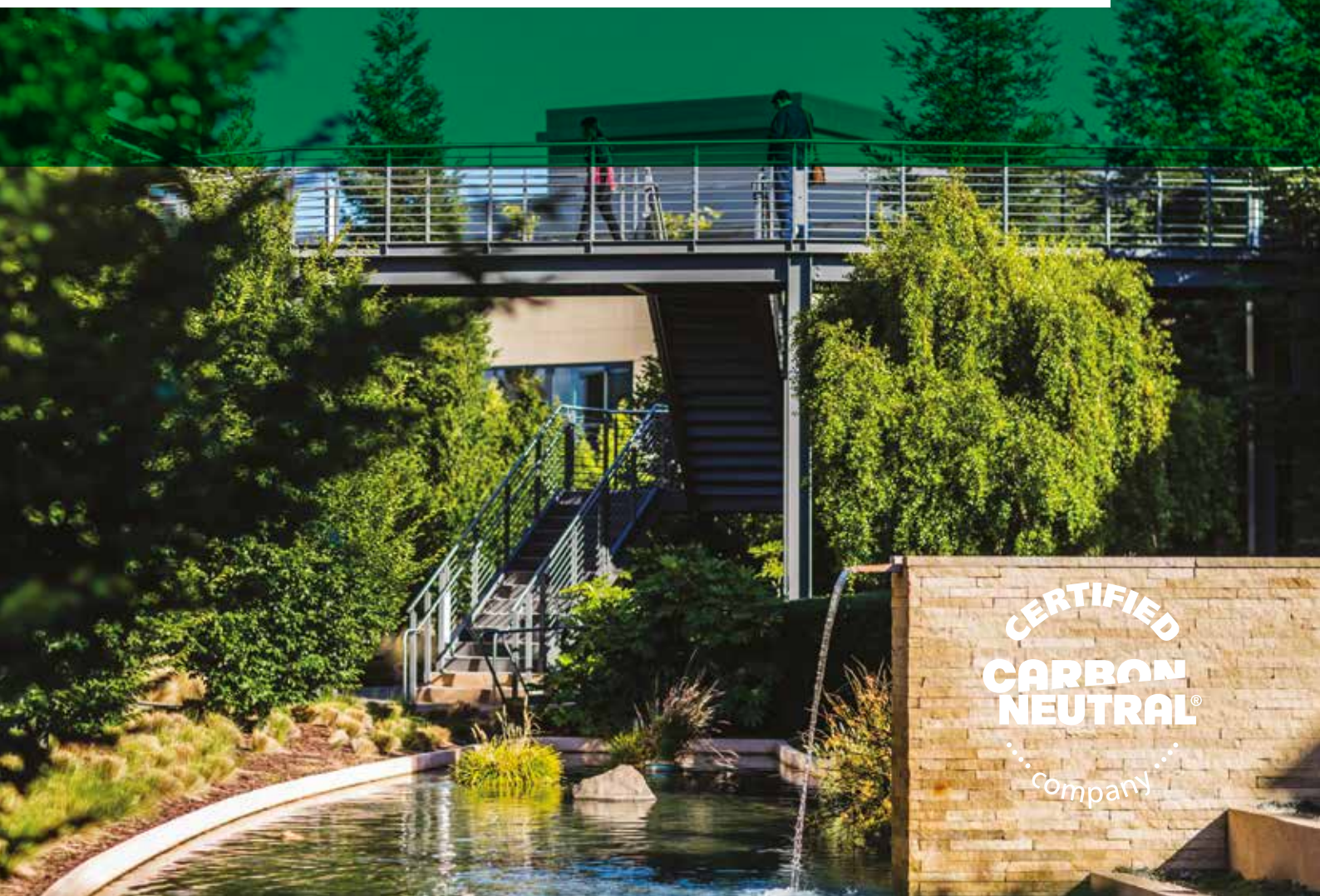


Figure 6: Example CarbonNeutral® Certification Logos

Step 5: Communicate

The fifth step is to provide accurate and transparent information on how CarbonNeutral® certification is achieved.

Requirements/recommendations

The CarbonNeutral® certification logo is the mechanism by which clients communicate the certification. Rights to use the logo are subject to clients completing a CarbonNeutral Certification Form (See **Annex F**).

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 **Annex B**).

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 a client's own communications and 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 any national or regional guidance or legislations on green claims, such as the UK Department for Environmental, Food and Rural Affairs (DEFRA) Green Claims Guidance or the U.S. Federal Trade Commission's Green Guides.

Fetzer Vineyards

Reinforcing Brand Ethos of Environmentally Responsible Wine

Define: CarbonNeutral® company first certified in 2016

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

Target: Driver: Working towards becoming a net positive company by 2030

Reduce: Fetzer Vineyards was the first winery in California to operate on 100% renewable energy and the first winery in the world to achieve TRUE Zero Waste certification. In 2017, the company was among 19 global recipients of a United Nations "Momentum for Change Award" for its climate-smart practices. As one of the largest organic wine grape growers in North America, the company pursues regenerative practices in its vineyards and winery, and has invested in verified carbon projects to offset remaining emissions following internal efficiency measures. Offset project include landfill gas capture and reforestation projects in North America and wind power project in India

Communicate: First certified CarbonNeutral U.S. wine company

NATURAL CAPITAL PARTNERS

Technical Annexes

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

Annex A
Certification Specific Requirements

This Annex 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® 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.

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
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.

Annex B
Use of the CarbonNeutral Certification Logo

Companies with a current CarbonNeutral® certification are permitted and encouraged to make use of the appropriate CarbonNeutral logo in their communications, which is licensed to clients upon the successful completion of a CarbonNeutral certification.

The logo was 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 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 all types of certification 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 license and request the removal of the CarbonNeutral logo

Annex C
Approved Environmental Instrument Standards

Approved carbon credit standards

Carbon credits under the standards set forth in Table 6 have been determined to be legally attributable, measurable, permanent, additional, independently verified and unique, 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 to time to reflect developments in best practice and the performance of carbon credit standards.

Table 6: Approved Carbon Accounting Standards

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

[1] This was previously known as Australian Carbon Farming Initiative
[2] These are domestic standards and are only acceptable for domestic footprints

While these standards are accepted, carbon credits used within CarbonNeutral® programmes are bound by the additional requirements stated within the section "Requirements/recommendations covering carbon credits" under Step 4 of the five steps to achieve CarbonNeutral® Certification.

However, 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 (see **Step 4: Reduce**) – they must not be used for offsetting; as a consequence Forward Mitigation Units from CAR, ex-ante forestry credits under GS, and t-CERs and l-CERs under the CDM are not acceptable.

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 Annex 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"
Articles on the challenges of defining and measuring additionality

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

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. This carbon accounting approach is not universally supported. See 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 for the arguments against this accounting approach. However, as the GHG Protocol is a respected third-party carbon accounting standard, its Scope 2 guidance is accepted under the CarbonNeutral Protocol.

Table 7 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.

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.

Table 7: 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	30 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)	31 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 2020

Annex D
Recognised Non-carbon Accounting Standards

The non-carbon accounting standards in Table 8 are recognised for adding measurable and independently verified value to emission reduction projects certified to the carbon accounting standards in Table 6. This list of standards is reviewed annually and updated to reflect developments in best practice.

Table 8: 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)

Annex E
GHG Emissions Assessments

While The CarbonNeutral Protocol does not require that GHG emissions data be made publicly available, it is vital that the CarbonNeutral certifier is able to easily determine compliance. To this end, this annex provides requirements and guidance for assessments used in support of CarbonNeutral® certification.

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 factor applied, calculated result, any additional factors applied (e.g. uplift factors)
- Full list of emissions factors applied with dated, referenced source
- 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

Presentation of results for subject for CarbonNeutral® certification

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

- 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
  - A zero result
  - A clear indication of exclusion from the subject's CarbonNeutral® certification
- The total volume to be offset must be included

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 9: Illustrative Table of Results for CarbonNeutral® 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 Value Chain Standard. Numbering aligns to standard)						
GHG Protocol Standards: Corporate Scope - 1 and 2, Value Chain - Scope 3	Scope 1	Direct emissions arising from owned or controlled stationary sources that use fossil fuels and/or emit fugitive emissions				Required	✓	100
		Direct emissions from owned or 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	1a	Water supplied to subject and paper purchased by subject	Recommended	●	–
		3	Fuel- and energy-related activities	3a	Upstream emissions of purchased electricity	Recommended	●	–
				3b	Transmission and distribution losses	Required	✓	20
				3c	All other fuel- and energy-related activities	N/A	N/A	–
		4	Upstream transportation and distribution	4a	Outbound courier deliveries of packages	Recommended	●	–
				4b	Third-party transportation and storage of production-related goods	Required	✓	100
				4c	Third-party transportation and storage of sold products	Required	✓	50
				4d	All other upstream transportation and distribution	N/A	N/A	–
		5	Waste generated in operations	5a	Wastewater	Recommended	●	–
				5b	Other waste	Required	✓	10
		6	Business travel	6a	All transportation by air, public transport, rented/leased vehicle and taxi	Required	✓	80
				6b	Emissions arising from hotel accommodation associated with business travel	Recommended	✓	–
		7	Employee commuting			Recommended	✓	20
						Total for offset (tCO_2e) – Location-based Scope 2		**615**
						Total for offset (tCO_2e) – Market-based Scope 2		**415**

Annex F
CarbonNeutral® Certification Form

This Certification Form may be revised from time to time within the annual Protocol publication cycle. Visit www.carbonneutral.com/certification-form for the most up to date version.

This Certification Form serves to ensure that Natural Capital Partners has obtained the required information necessary to license a CarbonNeutral® certification logo under the provisions of The CarbonNeutral Protocol.

There are three parties to this Certification Form:

- 'Natural Capital Partners' is the recipient of the completed and signed Certification Form.
- The 'Licensee' is responsible for the completion of the Certification Form and its submission to Natural Capital Partners.
- The 'GHG Emissions Assessor' is a qualified consultant contracted by the Licensee or Natural Capital Partners to attest that the measurement of greenhouse gas emissions ('GHG Emissions') for the certification subject has been executed in conformance with the requirements of The CarbonNeutral Protocol.

Define

1. **Certification subject:** Name of company
2. **Certification type:** Company
3. **Certification period:** From DD/MM/YYYY to DD/MM/YYYY
4. **Year of first certification: DD/MM/YYYY**

TO BE COMPLETED BY THE GHG EMISSIONS ASSESSOR

Measure

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

5. **Date of completion of greenhouse gas emissions assessment ('GHG Emissions Assessment"):** DD/MM/YYYY

6. **Data period used for the GHG Emissions Assessment:** From: DD/MM/YYYY To: DD/MM/YYYY

7. **Date of previous GHG Emissions Assessment (if applicable):** DD/MM/YYYY

8. **Total inventory of GHG Emissions (tonnes CO_2e):**

Data completeness
Select the percentage representing the closest approximation of the total GHG Emissions inventory, or state the exact percentage.

9. **Primary data (not estimation):** 0% / 25% / 50% / 75% / 100% **or exact percentage:** 64%

TO BE COMPLETED BY THE GHG EMISSIONS ASSESSOR

Attestation

10. I attest that the GHG Emissions Assessment is in conformance with the requirements set out in the 'Define' and 'Measure' sections of The CarbonNeutral Protocol. State any GHG Emissions accounting standards that have been applied to the GHG Emissions Assessment:

_____

11. ☐ I confirm that the input data and calculations that inform this attestation are attached to the submission of this Certification Form.

12. Organization conducting the GHG Emissions Assessment:

13. Authorized signatory of the organization conducting the GHG Emissions Assessment:

14. Signature: _____

15. Date: _____

Data quality

Quality control

16. Select one that applies to the majority of data before the data is provided to the GHG Emissions Assessor: All done by one person, unchecked by others / Data collected and checked by separate functions / Data collected and checked within an internal quality control system / Data collected and checked in accordance with a third party data management standard (e.g. an ISO standard), if so specify standard _____

Quality assurance

17. Select one that applies to the majority of data before the data is provided to the GHG Emissions Assessor: Data management processes are unchecked / Data management processes are checked by qualified third-party

Product certifications

18. (only applicable to product type certifications)

☐ If the subject of this Certification Form is a product certification license and the related GHG Emissions inventory incorporates a life-cycle assessment undertaken more than one (1) year preceding the date of this Certification Form, check this box to confirm the absence of any changes that would materially affect the GHG Emissions measurement referenced hereunder or that the GHG Emissions inventory has been updated based on such material changes. (A change to a product supply chain is considered 'material' when GHG Emissions are affected, either positively or negatively, by more than 5%. For product type certifications, The CarbonNeutral Protocol requires an independent GHG Emissions Assessment every three years).

Target & Reduce

Internal Emissions: Targets and Reductions

19. Specify internal GHG Emissions reduction targets if any have been adopted:

This specification should be limited to a reasonable summary of any internal GHG Emissions reduction targets representing (a) the most significant targets and/or (b) the targets addressing the majority of GHG Emissions to be reduced by internal measures

Target If relevant, specify a high-level description of the targeted reduction, including the related GHG Emissions Scope.	Reduce Progress to date
Changing all lightbulbs to LED by 2022, to address Scope 2 emissions	5,000 installed
Reduce emissions from business travel (Scope 3) by 30% by 2025, based on 2015 baseline	5% reduction achieved to date
Science-Based Target to reduce Scope 1 and 2 emissions by 40% by 2030, based on 2015 baseline	10% reduction achieved to date

Internal Emissions: Carbon Pricing

20. Specify any of the following price oriented internal GHG Emissions reduction methods used by your company:

☐ Shadow price (your business adds a hypothetical surcharge on GHG Emissions for decision analysis (e.g. when analyzing the business/investment case for new products)

☐ Carbon fee (your business charges internal business units according to their GHG emissions inventories to motivate them to reduce)

State and describe the price/fee _____

Confirmation

☐ I confirm that the information set forth under this Certification Form is a true and accurate reflection of the facts to the best of my knowledge.

☐ I confirm that I am authorised to attest to this on behalf of my company.

Signature: _____

Print name:

Job title:

Company:

Date:

CERTIFIED CARBON NEUTRAL® Company

CarbonNeutral.com

Sky PLC Builds Business Reputation with CarbonNeutral® Company Certification

Define: CarbonNeutral® company first certified in 2006

Measure: Total company GHG emissions

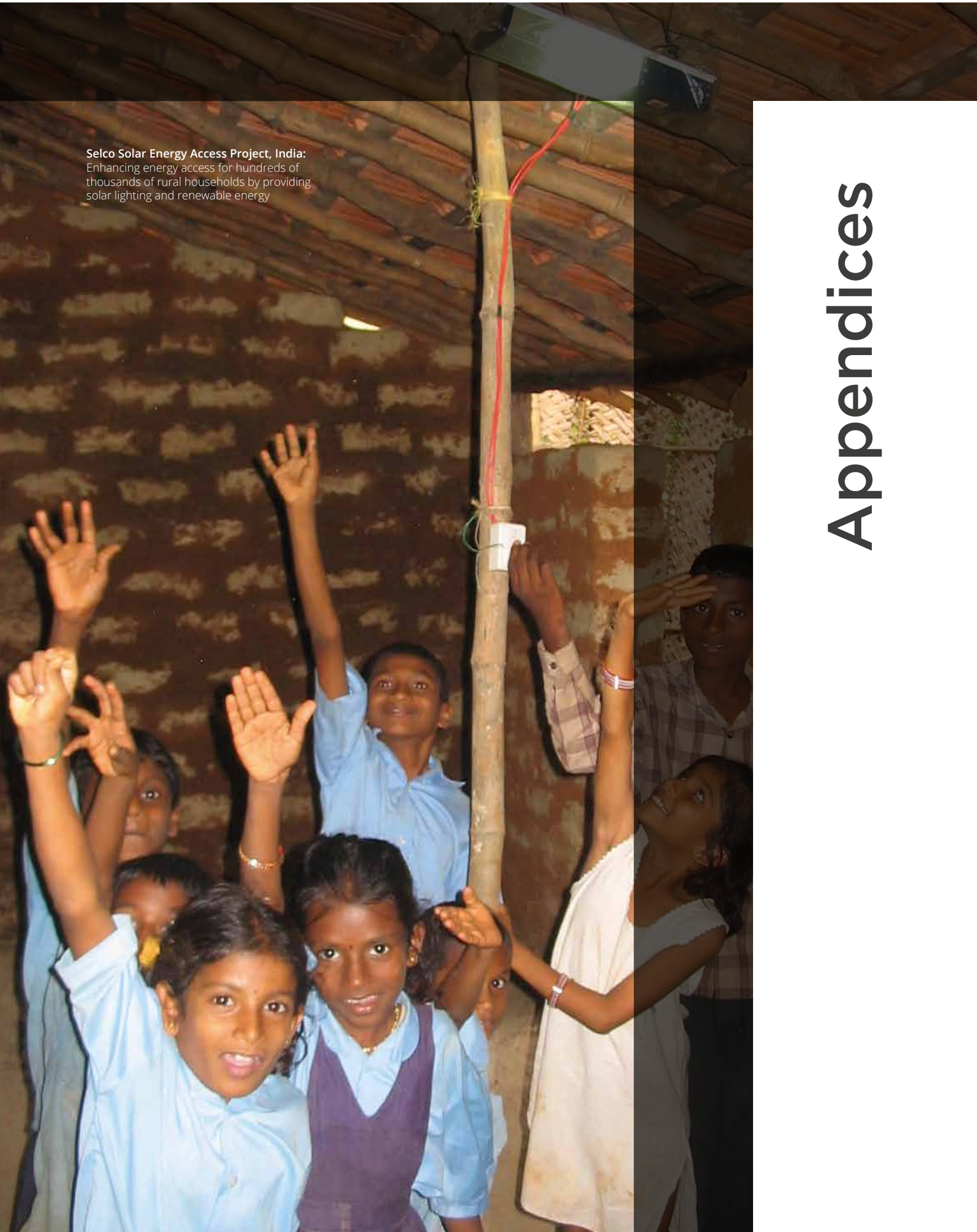
Target: Certification integral part of Sky's growing reputation for leading environmental action

Reduce: Verified carbon projects used to offset remaining emissions following internal reduction efforts including investment in on-site renewables.

Sky has also financed more than 30 emissions reductions projects that build low carbon sustainable development around the world. These have included renewable energy in India, rainforest conservation in Brazil and Indonesia

Communicate: CarbonNeutral certification has formed a part of a range of campaigns to build Sky's reputation by being at the forefront of environmental issues

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

Appendices

Appendix 1
Guidance: Define

Appendix 1.1
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) was developed by the WRI and the WBCSD and 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 10. 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.

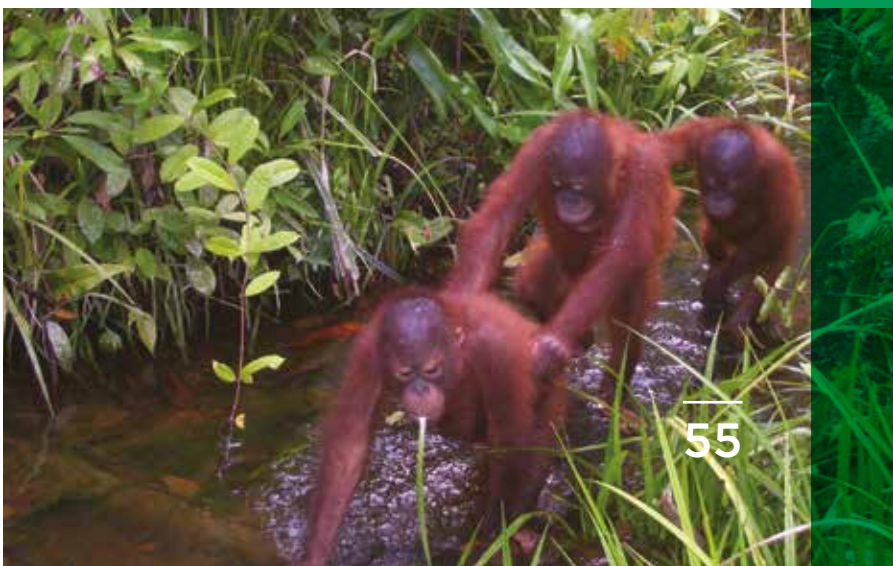
The CarbonNeutral Protocol has adopted this framework to identify which emission sources are required and recommended for its various CarbonNeutral® entity certifications. This is to ensure consistency of reporting between The CarbonNeutral Protocol and the Scope 3 Standard.

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 may find it helpful to consider the following issues when determining which additional Scope 3 emissions sources to include:

1. The influence that the company has over reductions
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 could 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.



Rimba Raya REDD+ Biodiversity Reserve, Borneo, Asia: The project focuses on both community development - encompassing 2,000 households living within the project area - and biodiversity conservation, particularly the protection of the endangered Borneo Orang-utan. In addition, a new plastic pollution clearance project supported by Sky aims to reduce up to 8,000kg of plastic waste entering the Seruyan River

Table 10: The Scope 3 Standard

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 worksites 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.

Appendix 1.2
Selecting boundaries for "cradle-to-customer" CarbonNeutral® products

The boundary of a cradle-to-customer product certification is dependent on the client/organisation applying for the certification and their position in the supply chain.

It is important that CarbonNeutral® claims are both robust and do not overstate the emissions covered by the certification. With this in mind, the client certifying a product CarbonNeutral® must include:

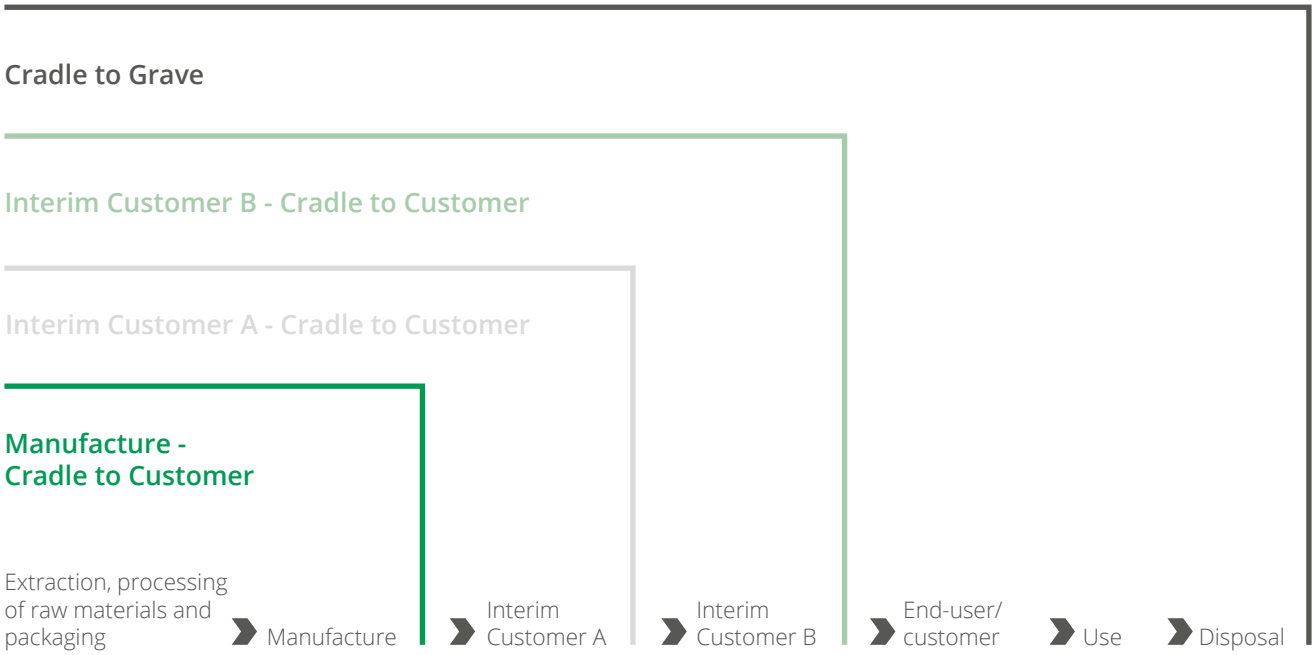
- All emissions upstream
- Emissions within their control, until the point at which their customer takes control of (or purchases) the transportation, storage or use of the product

If the organisation applying for the CarbonNeutral® certification is neither a member of (nor has a stake in) the product supply chain, the minimum boundary applied must extend to the point at which the customer of the manufacturer takes control of (or purchases) the transportation, storage or use of the product.

Where the CarbonNeutral® product certification logo is used on the product itself, it is strongly recommended that the boundary of the certification is extended to the point of purchase by the end-user or as close as is reasonably possible in the following scenarios:

- Where the end user is a member of the general public
- Where transportation of the product includes air freight, long-haul journeys or temperature controlled storage

Figure 7: Minimum CarbonNeutral® Product Boundaries for Various Organisations Within a Product Supply Chain



Appendix 1.3
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 8 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 Product Category Rules, 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 11** explores some of these requirements in more detail.

Figure 8: Establishing the Integrity of EPDs

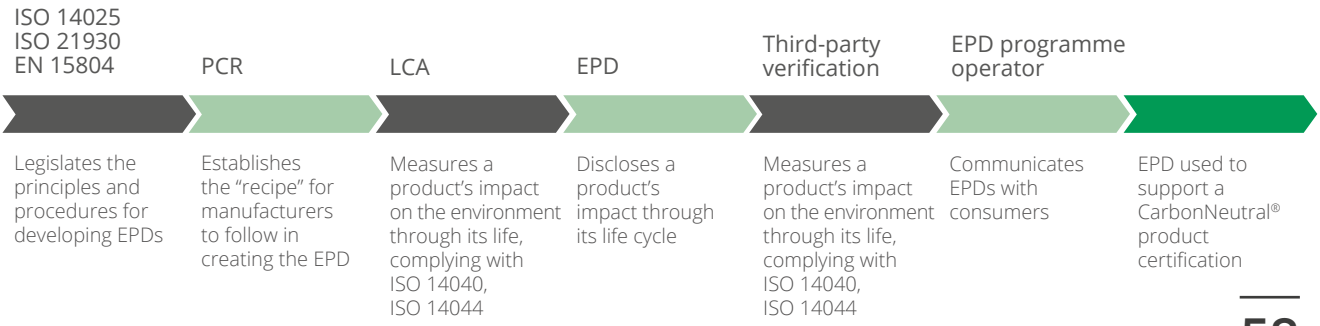


Table 11: Comparison of Requirements Between The CarbonNeutral Protocol and EPDs for CarbonNeutral® Product Certification

Step 1: Define the subject		
Protocol step	**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, and measurement should follow the ISO/TS 14067. EPDs are deemed to match the requirements of the 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 customer delivery. For cradle-to-grave subjects the boundary must extend to end-of-life disposal.	The boundary covered by PCRs extends from cradle to grave. Any omissions and decisions on which inputs and outputs are included must be clearly stated within the scope of the LCA. EPD requirements are deemed to be equivalent to or exceed The CarbonNeutral Protocol requirements.
3. Identify emissions sources	Assessments must include emissions sources as specified in **Tables 2, 3** and **4** – 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 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 deemed to meet the requirements of the The CarbonNeutral Protocol.
5. Establish time periods	For standard consumer products, assessments must at a minimum be every three 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 three years after which the declaration must necessarily be revised and reissued. EPDs deemed to meet the requirements of the The CarbonNeutral Protocol.

[1] As recommended by ISO/TS 14067.

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 secondary data, where it is available, up-to-date and geographically relevant. Secondary data in the form of 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 deemed to meet the requirements of the 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.	Secondary data and primary 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 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 independent, qualified third party approved by Natural Capital Partners to ensure they have met the above requirements in this table. Input data (or activity data) used in assessments should also be checked by an independent, qualified third party for quality purposes. **Annex E** details requirements and recommendations for the presentation of GHG assessments.	Requires third-party verification and registration with an ISO 14025 programme operator. 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 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 approved by Natural Capital Partners to ensure it has met the necessary requirements

4. The EPD is registered with a programme operator approved by Natural Capital Partners

Appendix 1.4
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 "control" approach to their GHG emissions, as defined by the GHG Protocol Corporate Standard. Most applications of The CarbonNeutral Protocol take a "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 or leasing 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.

Appendix 2
Guidance: Measure

Appendix 2.1
Treatment of renewable electricity in Scope 2 emissions

This Appendix 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. It is important to note that EACs address the Scope 2 component of electricity emissions. Transmissions and distribution (T&D) losses from the electricity grid, the Scope 3 component of Scope 2 emissions, are not addressed by EACs and need to be mitigated using carbon credits.

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 awarded 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

Appendix 2.2
Market-based Scope 2 reporting declaration to support CarbonNeutral® certification

This appendix 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 12) overleaf. 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.

Appendix 2.3
Energy Attribute Certificate (EAC) application protocol for third-party assessment partners

To ensure that our assessment partners are fully informed regarding EAC purchases, and so they can be accurately integrated into assessment reports, we ask that you follow the agreed upon EAC Application Protocol.

Appendix 2.4
How to report GHG emissions from green gas certificates

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

The widespread adoption of green gas certificates has been facilitated by CDP's 2017 guidance, which encourages companies to extend the market-based reporting approach from renewable electricity to renewable gas.

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. Biogas is primarily methane and carbon dioxide and may have small amounts of hydrogen sulphide, siloxanes and moisture, which make it corrosive.

Before biogas can be introduced to a gas grid it needs to be upgraded to pipeline quality natural gas standards. The upgrading process consists of drying the gas and removing hydrogen sulphide and carbon dioxide. This upgraded gas becomes biomethane.

The costs for upgrading biogas to biomethane and the requirement for agreements to inject biomethane into gas grids, makes on site biogas plants more common than biomethane plants that inject gas into gas grids. Biomethane can be used for any purpose currently satisfied by conventional natural gas including heat generation, cogeneration heat/power and natural gas vehicles.

Injecting biomethane into the natural gas grid allows the use of renewable gas in areas located away from where the biomethane is generated. Each unit of green gas injected into the 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 gas injected into the gas grid through to end user consumption claims. This scheme is similar to many renewable electricity tracking schemes such as I-REC (International REC standard) and EECS-GO (European Energy Certificate System – Guarantee of Origin).

Table 12: Illustrative - Market-Based Scope 2 Reporting Declaration in Support of CarbonNeutral® Certification

Completing this declaration is a requirement for CarbonNeutral® certifications involving a market-based Scope 2 claim. Add a row 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.

Consumption country or countries covered by contractual instrument claim	GHGP Scope 2 Guidance Disclosure Requirement:	CarbonNeutral Protocol Requirement:	United States	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:

While the focus of the GHG Protocol Scope 2 Guidance is on electricity, the guidance does anticipate the application of the market-based reporting approach for green gas products. Appendix A to the GHG Protocol Scope 2 Guidance states:

If a company has a contractual instrument specifying its gas supply as "biogas" or "biogenic," the company should report using the market-based method and refer to the Scope 2 Quality Criteria to evaluate whether its gas use should be reported as Scope 1 natural gas using a standard emission factor, or as biogenic CO_2 emissions reported separately from the Scopes. This evaluation requires some interpretation since the Scope 2 Quality Criteria are specific to electricity and their guidance must be translated for use with gas. For instance, criterion 1 in relation to GHG emission rate claims should be also interpreted to include the emission rate specific to the biogenic fuel origin.

Section 6.12 of the GHG Protocol Scope 2 Guidance provides the following guidance on the treatment of biofuel emissions:

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 1, 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.

The application of this guidance to the use of biomethane delivered through the gas grid has 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 MWh 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 1. Unlike CO_2, these fugitive emissions are not captured during the growth of the biomass and therefore need to be reported as a Scope 1 emission

The CDP's 2017 reporting guidance builds on this direction from the GHG Protocol and recommends that a company report their gas/certified biogas as follows:

- Fossil gas and non-certified biogas need to be accounted for and reported as Scope 1. The formula is the usual Activity data multiplied by Emissions factor, where the factor is emissions at the point of generation;
- Certified biogas will be reported under question CC8.9a; and
- In question CC11.3 companies shall report total MWh of energy, including certified biogas
- Therefore, the use of certified biogas will be considered to be equivalent to "zero" Scope 1 emissions for the purpose of reporting to CDP

In allowing "zero" Scope 1 emissions, CDP is ignoring the GHG Protocol's recommendation to account for fugitive emissions from biomethane combustion as Scope 1. This is a pragmatic approach that reflects the minimal amount of fugitive emissions as they represent less than half of one percent of the biogenic emissions. The CDP guidance goes on to recommend:

- Green gas certificates need to 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
- The use of gas certificates is limited to users on the same pipeline network who can physically receive gas from biomethane gas plants on that network

For the purposes of CarbonNeutral certification, the minimal fugitive CH_4 and N_2O emissions from biomethane combustion must be reported under Scope 1. Table 14 illustrates how this would play out for a site in London, using the UK relevant 2017 factors published by BEIS[2]. 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.

[1] Green Gas Certification Scheme. Available at: https://www.greengas.org.uk/.
[2] UK Government Department for Business, Energy and Industrial Strategy. Greenhouse Gas Reporting: Conversion Factors 2018.

Table 13: 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**

Table 14: 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 1 Emissions				
Biomethane consumption* – 10,000 MWh	0.00		3.95	**3.95**
Biogenic Emissions				
Biomethane consumption* – 10,000 MWh	1990.08	0.00	0.00	**1990.08**

*The GHG Protocol requires fugitive CH_4 (methane) and N_2O (nitrous oxide) emissions from biomethane combustion to be reported under Scope 1 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.

Appendix 2.5
Calculating the climate impact of aviation

How the CarbonNeutral Protocol addresses climate impacts from aviation

As scientific understanding of global warming has evolved it is important that CarbonNeutral certifications remain robust and follow the latest best-practice to ensure businesses compensate fully for emissions in order to be credible.

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).

Guidance on calculating the global warming impacts emissions from aviation

The requirements of The CarbonNeutral Protocol are that clients must consider the evidence regarding the overall effect of aviation on climate. Having considered the evidence, clients may elect to adopt a value that is higher than the default to take a more cautionary response to climate impacts from aviation accepting that reliably accurate AIFs are not yet available.

When AIF values greater than the default are not applied, the default values of the year in which the assessment is completed must be applied. Product footprints which can apply over multiple years must be adjusted to reflect applicable defaults.

Clients should be alert to the fact that some carbon footprint calculators and algorithms may use a default AIF that is greater than 1.0.

Table 15: 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 - 2025	Default of 1.0 in 2020 rising incrementally by 0.2 per year from 2021 to 2.0 in 2025. 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 2025 to reach 2.0 in 2025. Clients may opt for a factor greater than the default throughout this period, with 2.5 a recommended value to more fully reflect non-GHG contributions to global warming.

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

Natural Capital Partners first reviewed the science underpinning the impact on climate from 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 alone. 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.

In 2014, John Murlis, in his capacity as scientific advisor to the Protocol, 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, is 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. 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."

The CarbonNeutral Protocol does not immediately mandate an AIF of 2 or 2.5 for three main reasons:

1. The scientific evidence, although strengthening, is still poor to fair in its ability to take accurate account of the wider impacts of aviation on climate to cover short or long-term impacts; impacts from GHGs alone and others with a global warming potential (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).

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 environment, has provided internationally recognised guidance in support of a multiplier factor of 1.9. This factor is not actively applied within UK regulatory programme, 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 15** 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 on "Radiative Forcing Management— Guidance for the quantification and reporting of radiative forcing-based climate footprints and mitigation efforts".

The 2019 updated guidance in full is available at www.carbonneutral.com/protocol/aviation-guidance-in-full

Appendix 2.6
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.

Appendix 2.7
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.

Appendix 2.8
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 and consider water use in the context of water stress and water quality.

Appendix 2.9
Quality assurance and verification

The CarbonNeutral Protocol places strong emphasis on quality assurance requirements to support the integrity of CarbonNeutral® certifications.

Quality assurance is conducted by the CarbonNeutral certifier. It is an independent evaluation to check that the quality of input data, a GHG assessment, 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.

Entities seeking CarbonNeutral® certification are encouraged to maintain their own internal quality control and third-party quality assurance covering the measurement of GHG emissions.

Verification of input data, calculations, reductions, and CarbonNeutral communications is at the discretion of the client, or may be requested by the CarbonNeutral certifier should their quality assurance review surface concerns about whether these are correct, complete and accurate. Verification means an independent evaluation conducted by an expert third party to the requirements of an independent 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.

Table 16: 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 independent, expert third-party approved by Natural Capital Partners to ensure they have met the requirements for GHG emission assessments as stipulated in **Annex E**.	Third-party verification of input data and GHG emission calculations is at the discretion of the client, and can be requested by the CarbonNeutral certifier should their 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 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 sujected 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 Natural Capital Partners' 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, and may be requested by the CarbonNeutral certifier.

[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/The-ICROA-Code-of-Best-Practice

Quality assurance and verification requirements for the five steps to achieving CarbonNeutral® certification are summarised in Table 16. The CarbonNeutral Certification Form (see **Annex F**) requests information about the quality assurance and verification procedures underpinning the GHG emissions assessment. Rights to use the CarbonNeutral certification logo are subject to the successful completion of this Certification Form.

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 should be considered 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.

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. 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

Table 17: 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

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

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

Appendix 2.10
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 ICROA Code of Best Practice[3]. 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 17 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.

[1] The Corporate Value Chain (Scope 3) Accounting and Reporting Standard.
[2] Environmental Reporting Guidelines: including mandatory greenhouse gas emissions reporting guidance.
[3] International Carbon Reduction and Offset Alliance Code of Best Practice.

Appendix 3
Guidance: Target

Appendix 3.1
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 **Appendix 4.2**, 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 **Appendix 4.2**) 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.

Appendix 3.2
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 2019, we studied the climate commitments of the Fortune Global 500. 'Carbon neutral' action and targets outnumbered 'climate positive' 17:1, with three companies referring to 'positive' targets.[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 three with climate positive actions/targets in the Fortune Global 500, just one provided a clearly defined and 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 type 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

[1] Natural Capital Partners, 2019, Deeds not Words, http://info.naturalcapitalpartners.com/500, page 26

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 that states:

"claims... account for greenhouse gas emissions and the compensating emission reductions in accordance with best-in-class third-party standards to ensure that claims have integrity and the same meaning throughout the global economy. Entities making public claims... commit to conservative approaches and to disclosing the basis (methodologies, standards, protocols) that underpin their claims". For that reason, caution is advised in making public claims around climate positive.

Appendix 4
Guidance: Reduce

Appendix 4.1
Emission reduction project types excluded under The CarbonNeutral Protocol

Introduction

The CarbonNeutral Protocol supports carbon credits that meet the highest quality standards available in the market and avoids or excludes carbon credits that may fail to meet these standards.

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 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 GWP of such gases. As it is relatively cheap to install a destruction facility, HFC-23 destruction CDM projects 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.

CDM Watch 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].

Appendix 4.2
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.

[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/).

Figure 9: Illustrative MAC Curve

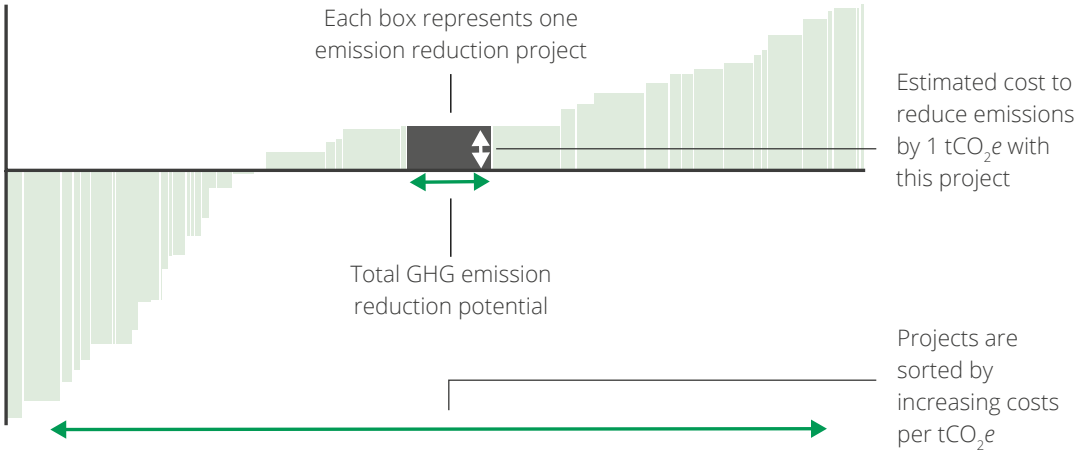


Table 18: Illustrative MAC Calculation

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

Figure 9 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.

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 18 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.

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 the development and ensuring the implementation of the plan for reducing emissions.

Appendix 4.3
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 (**Annex C**), and are retired in publicly accessible registries.

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