The CarbonNeutral Protocol
The global standard for carbon neutral programmes

January 2018

Natural Capital Partners

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Global Standard
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CarbonNeutral Protocol Versions and Amendments
The CarbonNeutral Protocol was first launched in 2002 and is revised every year in accordance with the latest business, scientific and environmental standards.

Version 12 of the CarbonNeutral Protocol, published in January 2018, includes the following amendments:

Appendices
- New: Green Gas Certification, Insetting and Science Based Targets
- Updated: Appendix 1.1 Updated restrictions on large hydropower

Standards
- Added: Australian Carbon Farming Initiative and W+ by WOCAN
- Removed: VER+

Please contact Natural Capital Partners should you wish to view the amendments made to previous versions.
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Uchindile-Mapanda Reforestation Project, Tanzania: The project aims to reforest 10,814 hectares of degraded grassland. Through sustainable harvesting, carbon is sequestered at the two commercial forests.
**Additional (also additionality):** Refers to an external emission reduction project from which emissions reductions are verified as carbon credits under an applicable carbon accounting standard. An emission reduction project is said to be additional when it can be demonstrated that in the absence of the availability of carbon finance the project activity would not have occurred (the “baseline” scenario); and, such baseline scenario would have resulted in higher 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, please see Annex C.

**AIC:** Aircraft (or aviation) induced clouds which have a potential climate warming affect. See Appendix 2.4 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.

**Australian Carbon Farming Initiative (CFI):** An Australian Department for Environment emission reduction standard linked to the Australian Emissions Reduction Fund (ERF). It generates Australian Carbon Credit Units (ACCUs). Established under the Australian National Registry of Emissions Units Act 2011, the CFI has provisions that address additionality, permanence and double accounting.

**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 2.4 for further discussion of this topic.

**Baseline:** Refers to an external emission reduction project from which emissions reductions are verified as carbon credits under an applicable carbon accounting standard. The baseline for a project activity is the projected GHG emissions that are calculated to occur in the absence of the proposed project activity. For further discussion of this topic, please see Annex C.

**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 Annex B for further information of this topic with respect to CarbonNeutral® certifications.
Carbon credit: A transactable, non-tangible instrument representing a unit of carbon dioxide-equivalent (CO$_2$e) - typically one tonne – that is reduced, avoided or sequestered by a project and is certified/verified to an internationally recognised carbon accounting standard. Carbon credits are typically ultimately used to counterbalance or compensate for emissions occurring elsewhere.

Carbon neutral: Condition in which the net GHG emissions associated with an entity, product or activity is zero for a defined duration.

CarbonNeutral®: The registered trademark of Natural Capital Partners.

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: An organisation providing CarbonNeutral® certification through the application of The CarbonNeutral Protocol. There are two types of CarbonNeutral certifier: the primary certifier and secondary certifiers. The primary certifier, Natural Capital Partners, is responsible for the development and oversight of The Protocol. Secondary certifiers are entities, which have the relevant expertise and demonstrated experience, and which have been authorised by Natural Capital Partners to provide certifications in accordance with The CarbonNeutral Protocol. See Annex G for further information about the selection and management of secondary certifiers.

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 A for further information on this topic.

CarbonNeutral® certification logo guidelines: Natural Capital Partners’ requirements and guidelines governing the application of CarbonNeutral® certification logos.

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

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

Carbon dioxide equivalent (CO$_2$e): 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.

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 1.3 for further information on this topic.

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.
Department for Environment, Food and Rural Affairs (DEFRA): Part 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.

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 a boundary.

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.

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 1.4 for further discussion on this topic.

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): GHGs listed under the Kyoto Protocol and currently targeted for reduction are: carbon dioxide (CO$_2$), methane (CH$_4$), nitrous oxide (N$_2$O), 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 instrument defined in European legislation, issued per MWh, that labels and tracks electricity from renewable sources to provide information to electricity customers on the source of their energy.

Global Warming Potential (GWP): Gives an index of the activity of atmospheric constituents, 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).

Glossary of Terms
Independent qualified third party (referring to GHG assessment providers): An individual or organisation experienced in GHG accounting that has no conflict of interest or financial gain in the outcome of the assessment and is approved by the primary CarbonNeutral certifier.

Insetting: 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.

Internal emission reduction: A reduction 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 instrument defined by the International REC Standard that labels electricity from renewable sources to provide information to electricity customers on the source of their energy.

ISO 14025: Refers to the international standard on “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.

ISO 14040: Refers to the international standard on “Environmental management – life cycle assessment – principles and framework.” It describes the principles and framework for life cycle assessment (LCA) including: definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment phase (LCIA), the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, the relationship between the LCA phases, and conditions for use of value choices and optional elements.

ISO 14044: Refers to the international standard on “Environmental management – life cycle assessment – requirements and guidelines.” It specifies requirements and provides guidelines for LCA including: definition of the goal and scope of the LCA, the life cycle inventory analysis (LCI) phase, the life cycle impact assessment (LCIA) phase, the life cycle interpretation phase, reporting and critical review of the LCA, limitations of the LCA, relationship between the LCA phases, and conditions for use of value choices and optional elements.

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

ISO 14065: International Organisation for Standardisation’s requirements for the accreditation of entities that validate or verify resulting GHG emission assertions or claims. The aim of ISO 14065 is to give confidence to parties that rely upon a GHG assertion or claim, for example customers or investors, that the entities providing the declarations are competent to do so, and have systems in place to manage impartiality and to provide the required level of assurance on a consistent basis.

ISO/TS 14067: Refers to the technical specification on “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: Refers to the international standard on “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 on a registry.
Offsetting: The practice of compensating for GHG emissions by retiring (cancelling) carbon credits.

PAS 2050: BSI’s Publically 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: Publically Available Specification for the demonstration of carbon neutrality. It continues to provide a clear definition of carbon neutral and a credible means of determining and demonstrating carbon neutrality. The specification encourages entities to work towards reduced GHG emissions and to achieve genuine reductions in those emissions. This PAS 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 have 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 CO₂e emissions.
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 2.8 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.

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 instrument defined in North American regulations that labels electricity from renewable sources to provide information to electricity customers on the source of their energy.

Registry: A database of carbon credits and their transactions, where each credit has a unique identifier and where credits are retired (cancelled) upon being sold to offset an equivalent amount of GHG emissions.

Retire: 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-CO₂ warming effects of air travel. RFI is the ratio of total radiative forcing (RF) of all GHGs to RF from CO₂ emissions alone for aircraft emissions (IPCC, 1999). RFI does not account for the different residence times of different warming factors. See Appendix 2.4 for further discussion of this topic.
Science Based Targets (SBT): 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 target setting to encourage and support companies in the transition to a low-carbon economy.

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.
Tradable Instrument for Global Renewables (TIGR): A global instrument defined by APX that labels electricity from renewable sources to provide information to electricity customers on the source of their energy.

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 2.8 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.
One project aim is to improve small livestock production and reduce hunting pressures through initiatives such as the village chicken project.
The CarbonNeutral Protocol\(^1\) was first developed and published in 2002 and is revised and updated annually to reflect developments in climate science, international policy, standards and business practice. The Protocol is used by some to certify and communicate carbon neutral status, and by others as guidance to design and implement credible carbon neutral programmes.

As we finalise the 2018 version of the Protocol, the UN Framework Convention on Climate Change’s (UNFCCC) annual Climate Summit (COP) held in Bonn in November has drawn to a close. Slow and steady progress was made on the “operating manual” that must be complete by December 2018 to support the implementation of the Paris Agreement in 2021.

At the heart of the Paris Agreement are the Nationally Determined Contributions (NDCs) of every country that is a signatory to the Agreement. An NDC is a country’s self-determined target and plan to reduce emissions. The United Nations Environment Programme (UNEP) review of aggregated reductions across all NDCs released prior to the Bonn COP highlighted a clear gap between what the NDCs in their current form can achieve and the scientifically informed view of what is required to safely stabilise the global climate.

To close that gap, the UN work programme for 2018 will focus on accurate and transparent measurement and reporting of progress; the development of collaborative approaches to delivering emissions reductions through market-based mechanisms (cap, trade and offset); non-market approaches to finance climate mitigation, adaptation and sustainable development. A standout feature of the Bonn COP was the extent to which non-state actors (sub-national states, cities, business, and civic society organisations) were recognised as critical to demonstrating leadership, providing finance, and delivering technology innovation to scale and accelerate action.

During the past year, leadership has been shown in many different but related areas. Non-state actors in the US have formed powerful partnerships among businesses, cities and sub-national states - such as the “We Are Still In” and “America’s Pledge” initiatives - to show and track commitments to action despite the current US administration’s position on global climate action.

The Science Based Targets initiative of NGOs CDP, World Resources Institute, WWF and the UN Global Compact is helping businesses develop their individual emission reduction targets in line with the Paris Agreement.

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1 Sometimes referred to as The Protocol in this document.

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Acre Amazonian Rainforest Conservation Portfolio, Brazil: As part of its programme, the three projects have built local health centres and dental clinics, providing improved local community access to medical facilities and services.
with climate science. Carbon offset standards and renewable energy (both electricity and gas) attribute standards are evolving rapidly to serve organisations committed to the Sustainable Development Goals (SDGs) or renewable energy initiatives such as RE100 and EV100. New concepts such as “Insetting” are being developed and deployed by companies - specifically in the food, beverages and apparel sectors - to target their Scope 3 emission reduction efforts directly in their upstream supply chains. Non-profit associations, like RECS International, are developing guidance for businesses seeking to access renewable energy wherever they may be operating around the world, no matter how big or small their requirements.

The past year has seen carbon neutral businesses extend their climate leadership programmes to include these market innovations. Companies continue to use carbon neutrality to price in carbon; to shift climate action from a compliance or corporate responsibility response to the management of business risk and opportunity; and, to earn the reputational benefits from delivering action and impact.

Exemplar strategies focus on:

- Reducing emissions from all sources through investments in internal efficiency measures that reduce cost and respect science based targets
- Decarbonising consumed electricity and gas (Scope 1 and 2 emissions) by direct production or purchase of renewable energy and the retirement of Energy Attribute Certificates (EACs)
- Delivering finance to external projects that immediately reduce emissions, compensating for unavoidable emissions across all three Scopes and aligning with specific business objectives of the company, and deliver verified contributions to the SDGs

This approach, which has at its core market-based carbon pricing, gives a high degree of flexibility in finding cost effective solutions which deliver immediate impact. It ensures that the price of carbon paid by a company goes to projects that make a direct contribution to reducing emissions.

This expansion and diversification of carbon neutral programmes makes it even more crucial that claims made about environmental impact are reliable and standardised. The CarbonNeutral Protocol continues our efforts to provide an internationally recognised framework through which carbon reduction and environmental action can be measured, reported and communicated to key audiences. The Protocol includes requirements for GHG assessments, emission reduction planning, eligibility of carbon credits and other environmental instruments including Renewable Energy Certificates and Guarantees of Origin, management of other environmental instruments through registration and retirement, and communication of CarbonNeutral programmes.

**Target audience**

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.

- **CarbonNeutral certifiers** – To ensure the same high levels of quality and integrity are applied by organisations which have been approved as licensed resellers of Natural Capital Partners’ services.

- **GHG community** – To promote the highest standards for carbon accounting and reductions among NGOs, governments, regulators and other stakeholders.
About Natural Capital Partners

Natural Capital Partners, formerly The CarbonNeutral Company, works with clients to combine business success with positive impact on the environment and society. Through collaboration with global project partners, the development of innovative solutions, and understanding the specific goals of its clients, the company delivers a broad range of products and services for carbon, energy, water, biodiversity and communities in direct operations, consumer markets and supply chains – the world's natural capital. The company was founded in 1997 and has more than 300 clients in 33 countries.

Natural Capital Partners has contracted more than 28 million tonnes of carbon credits from 368 projects in 49 countries on behalf of its clients, and over the past two years has contracted 9.9 million MWh of energy attribute certificates from 36 countries and six continents. In addition, the company has received the Environmental Finance Best Offset Retailer award for the past seven years.

CarbonNeutral® certification is one of the services provided by Natural Capital Partners, enabling its clients to make clear, credible and transparent claims of achieving net zero carbon emissions.

Acknowledgements

Natural Capital Partners is solely responsible for the development and deployment of The CarbonNeutral Protocol as a proprietary, open standard. However, we wish to acknowledge and thank our clients, members of our Advisory Forum, 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.

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Danjiang River Solar Cooker Project, China:
The project aims to provide solar cookers to 100,000 households, reducing fuel consumption and indoor air pollution associated with traditional cooking methods.
Purpose
The CarbonNeutral Protocol describes the requirements for achieving CarbonNeutral® certification. By following The CarbonNeutral Protocol, organisations have a credible, transparent and practical framework for achieving CarbonNeutral® certification that can be consistently applied across a broad range of entities, products and activities.

The CarbonNeutral Protocol has been developed as a set of requirements to provide clients 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 is recognised internationally.

Approach and principles
The requirements of The CarbonNeutral Protocol are underpinned by the following principles:

1. Transparency: Disclose the data, methodologies and assumptions used in GHG calculations and reduction efforts within the bounds of commercial confidentiality.

2. Accuracy: Ensure that the data, methodologies and assumptions used for GHG calculations and reduction efforts are accurate and time-relevant, and that the claims made in connection with such efforts are factual and credible.

3. Conservative estimation: Be conservative when making estimations to ensure that they do not understate GHG impacts nor overstate emissions reductions.


5. Wider context: Ensure that CarbonNeutral® programmes and claims are an appropriate response to the wider environmental, social and economic impacts of the subject or organisation, based upon a high-level understanding of all major impacts.

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.
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 Scope 2 Guidance), GHG Protocol Product Standard, Environmental Product Declarations and the principles of the PAS 2050 for products and services.

The Protocol is also suitable as a platform for compliance with a number of related standards for carbon neutrality, such as the British Standards Institute’s specification for the demonstration of carbon neutrality, and Australia’s National Carbon Offset Standard Carbon Neutral Program. Guidance is provided in the form of a cross-compliance table for those who seek to comply with these standards (see Annex E).

The Protocol recognises the importance of taking action that is appropriate and proportionate. Clients should have a high-level understanding of all their major environmental, social, and economic impacts. Clients may use internationally recognised management standards, including but not limited to ISO 14000 and ISO 9000, to identify and manage their key impacts.

Structure of The CarbonNeutral Protocol
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 (a complete list of certifications is provided in Annex A):

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 remainder of this document sets out the requirements for achieving CarbonNeutral® certification in each of the classes mentioned above. These requirements are set forth 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 Forum is consulted on development priorities within the annual revision cycle. The development of the subsequent version takes place over the following year, including rounds of consultation with stakeholders. While all opinions and ideas cannot be included within the Protocol, they will be considered. Suggestions for improvement raised too late to be included within the next version of the Protocol will be put on the list for consideration in subsequent versions.

Natural Capital Partners also accepts input from clients and members of the public. Suggestions for development priorities for subsequent versions of The CarbonNeutral Protocol should be sent to Natural Capital Partners using the contact details at: www.naturalcapitalpartners.com/contact-us.
Sub-Saharan Africa Improved Water Infrastructure Project, Africa: Providing clean drinking water to small rural communities through repairing and drilling new boreholes.
CHEP’s CarbonNeutral Pallet Offering Drives Customer Value

**Certification:** CarbonNeutral® product

**First certified:** 2012

**Driver:** Offer customers a CarbonNeutral pallet, and in some countries a full CarbonNeutral product portfolio

**Measure:** Lifecycle of ¼ pallet

**Reduce:** Global supply-chain solutions company CHEP has demonstrated that customers sharing and reusing CHEP’s pallets and reusable plastic containers saved 1.6 million trees, more than 4,600 megalitres of water, 1.4 million tonnes of waste and 2.5 million tonnes of CO₂ when compared to one-way packaging and non-pooled pallets. In addition, CHEP’s ¼ pallet is fabricated from 100% recycled plastic and the company minimises emissions from transportation by collaborating with other companies to eliminate empty truck miles. Verified carbon projects are used to offset remaining emissions

**Offset project type:** CHEP’s customers can choose the carbon project they invest in when selecting CarbonNeutral® pallets to ensure it aligns with their own sustainability strategy. As an example: REDD+ Rainforest Conservation - Brazil

**Standards:** VCS

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

**Figure 1: Five Steps to Achieving CarbonNeutral® Certification**

1. **Step 1: Define the Subject**
   - Give a clear description of the subject

2. **Step 2: Measure the Subject’s Emissions**
   - Provide a complete and accurate account of the GHG emissions of the subject

3. **Step 3: Set Target**
   - Set a target to achieve net zero emissions

4. **Step 4: Reduce Emissions**
   - Achieve the target through a combination of internal reductions and environmental instruments

5. **Step 5: Communicate**
   - Provide accurate and transparent information on how CarbonNeutral® certification is achieved
Sopra Steria Enhances Customer Value Proposition with CarbonNeutral® Data Centres

**Certification:** CarbonNeutral® data centres

**First certified:** 2013

**Driver:** Enhance customer value proposition

**Measure:** Total GHG emissions from 43 customer data centres and set net zero target

**Reduce:** Verified carbon projects selected from strategic operational area (India) to offset remaining emissions following internal reduction efforts including server virtualisation

**Offset project type:** Renewable energy, wind and solar – India, Improved cookstoves - Kenya

**Standards:** VCS, CDM, Gold Standard, I-REC, Green Gas Certification Scheme (GGCS)

**Communicate:** First CarbonNeutral® data centre
Step 1: Define the Subject

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 Annexes B and F, and Appendix 1 for further guidance and clarification.

Step 2: Measure the Subject’s GHG Emissions

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 1 on page 27.

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.
**Tata Steel** Demonstrates Industry Leadership with First CarbonNeutral® Building Envelope

**Certification:** CarbonNeutral® product

**First certified:** 2007

**Driver:** Demonstrate industry leadership

**Measure:** Total GHG emissions produced over the lifecycle of the Confidex Sustain® building envelope and set net zero target

**Reduce:** Verified carbon projects used to offset remaining emissions following internal manufacturing improvements including transition to 100% recyclable materials

**Offset project type:** Renewable energy, wind - India

**Standards:** VCS

**Communicate:** First CarbonNeutral® building envelope
### Table 1: GHG Emission Quantification Requirements for Different Classes of Certifications

<table>
<thead>
<tr>
<th>Step</th>
<th>Entities</th>
<th>Products</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select GHG accounting protocol</td>
<td>The GHG Protocol Corporate Standard, or ISO 14064-1, or the Climate Registry's General Reporting Protocol or similar consistent protocols must be used.</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>2. Define boundary</td>
<td>The boundary must include all sites, plants and vehicles owned by or under the direct management control of the subject.</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>3. Identify emissions sources</td>
<td>Assessments must include emissions sources as specified in Annex B – CarbonNeutral® certifications and their specific required assessment emissions sources.</td>
<td>For standard consumer products, assessments must at a minimum be annual. For one-off or custom activities the timescale must relate to the production and delivery period.</td>
<td>For standard consumer activities, 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.</td>
</tr>
<tr>
<td>4. Identify GHGs to be measured</td>
<td>All Kyoto Protocol GHGs, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons, perfluorocarbons, sulphur-hexafluoride (SF₆) and nitrogen trifluoride (NF₃) must be measured in the assessment, insofar as they apply to the subject.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Establish time period</td>
<td>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).</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>6. Determine data validity</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Measure GHG emissions</td>
<td>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).</td>
<td>The assessment must be reported in units of CO₂e according to the 100 year potential of each gas. Preference should be given to the GWP factors included within the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC) (currently 5th). 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.</td>
<td>The assessment must be reported in units of CO₂e according to the 100 year potential of each gas. Preference should be given to the GWP factors included within the latest assessment report of the Intergovernmental Panel on Climate Change (IPCC) (currently 5th). 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.</td>
</tr>
<tr>
<td>8. Quality assurance</td>
<td>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 above requirements in this table. Annex F details requirements and recommendations for the presentation of GHG assessments; and, Appendix 2.8 provides further guidance on quality assurance and verification.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1If the subject is covered by an EPD which meets the requirements specified in Appendix 1.4, it shall fulfil the GHG emission quantification requirements for CarbonNeutral® product certification. Please refer to Appendix 1.4 for further guidance on EPDs.
**Tresmontes Lucchetti** Strengthens Environmental Commitment with CarbonNeutral® Instant Drink

**Certification:** CarbonNeutral® product

**First certified:** 2013

**Driver:** Strengthen environmental commitment

**Measure:** Total GHG emissions produced over the lifecycle of the Livean instant drink including the final disposal of its packaging, and set net zero target. From 2014, this commitment encompassed a second drink product, Zuko. Livean and Zuko are leading brands in the Chilean market

**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

**Offset project type:** Renewable energy, wind – India, China and Chile. Rainforest conservation – Brazil and Chile. Improved cookstoves and water filtration – Guatemala

**Standards:** VCS, The Gold Standard, CCB

**Communicate:** First Chilean CarbonNeutral® instant drink
The third step is to commit to a target of net zero GHG emissions. The aim is to ensure clients get business value from a strong statement on carbon emissions reductions, and effective and efficient emissions reductions are stimulated by the presence of a carbon neutral target.

Requirements/recommendations

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

For all subjects, the client should set an internal reduction 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$_2$ by 25 percent below 2005 levels by 2020). GHG intensity targets are expressed as a ratio of emissions relative to a business metric (e.g. reduce CO$_2$ by 25 percent per full-time employee by 2020). Absolute GHG reduction targets should be given preference over GHG intensity targets whenever possible.

Figure 2: Emissions Profile for Subject of CarbonNeutral® Certification
Step 4: Reduce Emissions

The fourth step is to take actions to reduce GHG emissions to net zero 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 net zero for the duration defined within the CarbonNeutral® certification. As illustrated by Figure 3, this may be achieved through a combination of internal emissions reductions and external environmental instruments.

Requirements/recommendations covering internal emissions reductions

For all subjects, the client should develop a GHG reduction 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 reductions should be the same as that used to quantify the subject’s original GHG emissions.

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, 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 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, please see Annex C.

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

Measureable: Emissions reductions are quantified relative to a transparent and robust baseline scenario using recognised, peer reviewed, published methods and project specific data.

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 will be updated from time to time to reflect 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 (this is commonly referred to as 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. CarbonNeutral certifiers must retire external emissions reductions on behalf of organisations achieving CarbonNeutral® certification. Alternatively, certifiers must receive full assurances from the party implementing retirement that retired credits are not being applied to multiple subjects/time periods and could not in any way be deemed to have been double counted.

Additional considerations
Emission reduction projects have effects additional 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 1.1, 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 standard1.

■ HFC-23 destruction projects and N₂O destruction projects where N₂O 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.

1For example, in 2017, VCS 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 http://www.v-c-s.org/call-for-public-input-hydropower-sustainability-assessments/).
Sky PLC Builds Business Reputation with CarbonNeutral® Company Certification

Certification: CarbonNeutral® company

First certified: 2006

Driver: Build business reputation

Measure: Total company GHG emissions and set net zero target

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

Offset project type: Renewable energy, wind - India. Rainforest conservation - Brazil

Standards: VCS, CCB

Communicate: CarbonNeutral® company
Step 5: Communicate

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

Requirements/recommendations
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.

The use of the CarbonNeutral® certification logo must conform to Natural Capital Partners’ CarbonNeutral® certification logo guidelines, which are provided to clients upon achievement of their CarbonNeutral® certification. 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.

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 US Federal Trade Commission’s Green Guides. Refer to Annex A for the full list of CarbonNeutral® certifications.
Fetzer Vineyards
Reinforcing Brand Ethos of Environmentally Responsible Wine

**Certification:** CarbonNeutral® company

**First certified:** 2016

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

**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

**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 type:** Landfill – North America, Reforestation – North America, Renewable energy, wind – India

**Standards:** ACR

**Communicate:** First certified CarbonNeutral U.S. wine company
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
List of CarbonNeutral® Certifications

Table 2: CarbonNeutral® Certification Types

<table>
<thead>
<tr>
<th>Entity certifications</th>
<th>Product certifications</th>
<th>Activity certifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building</td>
<td>Development</td>
<td>Business travel</td>
</tr>
<tr>
<td>Company</td>
<td>Electricity</td>
<td>Cloud services</td>
</tr>
<tr>
<td>Couriers</td>
<td>Fit-out</td>
<td>Delivery</td>
</tr>
<tr>
<td>Data centres</td>
<td>Packaging</td>
<td>Driving</td>
</tr>
<tr>
<td>Department</td>
<td>Paper</td>
<td>Electricity supply</td>
</tr>
<tr>
<td>Hotel</td>
<td>Product</td>
<td>Electricity use</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Publication</td>
<td>Energy use</td>
</tr>
<tr>
<td>Office</td>
<td>Usage</td>
<td>Event</td>
</tr>
<tr>
<td>Office space</td>
<td></td>
<td>Expositor</td>
</tr>
<tr>
<td>Operations</td>
<td></td>
<td>Fleet</td>
</tr>
<tr>
<td>Organisation</td>
<td></td>
<td>Flights</td>
</tr>
<tr>
<td>Venue</td>
<td></td>
<td>Gas supply</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gas use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hosting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Hotel stay</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Print production</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Service</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Shipment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Voyages</td>
</tr>
</tbody>
</table>

Please note that each certification mark can be translated to meet local language communication requirements. However CarbonNeutral® cannot be translated and is only trademark protected in this format and language.

Annex B
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.
### B1. Table 3: CarbonNeutral® Entity Certifications – Required GHG Emissions Sources

<table>
<thead>
<tr>
<th>GHG assessment emission sources</th>
<th>CarbonNeutral® entity certification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category</strong></td>
<td><strong>Company</strong></td>
</tr>
<tr>
<td><strong>Scope 1</strong></td>
<td>Direct emissions arising from owned, leased or directly controlled stationary sources that use fossil fuels and/or emit fugitive emissions (e.g. refrigerant gases)</td>
</tr>
<tr>
<td></td>
<td>Direct emissions from owned, leased or directly controlled mobile sources</td>
</tr>
<tr>
<td><strong>Scope 2</strong></td>
<td>Emissions from the generation of purchased electricity, heat, steam or cooling</td>
</tr>
<tr>
<td><strong>Scope 3 upstream</strong></td>
<td>Purchased goods and services</td>
</tr>
<tr>
<td></td>
<td>Fuel- and energy-related activities (not included in Scope 1 or Scope 2)</td>
</tr>
<tr>
<td>3</td>
<td>Transmission and distribution losses(1)</td>
</tr>
<tr>
<td></td>
<td>All other fuel- and energy-related activities</td>
</tr>
<tr>
<td><strong>Scope 4</strong></td>
<td>Upstream transportation and distribution</td>
</tr>
<tr>
<td></td>
<td>Third-party transportation and storage of production-related goods(3)</td>
</tr>
<tr>
<td>4</td>
<td>Third-party transportation and storage of sold products(4)</td>
</tr>
<tr>
<td></td>
<td>All other upstream transportation and distribution</td>
</tr>
<tr>
<td><strong>Scope 5</strong></td>
<td>Waste generated in operations</td>
</tr>
<tr>
<td></td>
<td>Other waste</td>
</tr>
<tr>
<td><strong>Scope 6</strong></td>
<td>Business travel</td>
</tr>
<tr>
<td></td>
<td>Emissions arising from hotel accommodation associated with business travel</td>
</tr>
<tr>
<td><strong>Scope 3 Downstream</strong></td>
<td>Employee commuting</td>
</tr>
</tbody>
</table>

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

Legend: ✓ Required  ● Recommended  ▲ Guidance

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1 T&D losses must be included where relevant emissions factors are available (e.g. UK based assessments based upon DEFRA emissions factors). 2 Excludes letters sent by general mail service suppliers (for example Royal Mail in the United Kingdom). 3 This relates to product manufacturers only and is intended to capture significant emissions from the transportation and storage of production-related goods (aka inputs into products manufactured and sold by the entity), when the entity takes ownership of the goods at the supplier’s gate. This is not intended to capture or include emissions from the day-to-day movement of non-core business consumables. 4 This relates to product manufacturers only and must extend to the point at which the manufacturer is no longer the purchaser of the transportation/storage service. This is intended to capture significant emissions from the transportation and storage of products manufactured and sold by the entity. This is not intended to capture or include emissions from the day-to-day movement of non-core business consumables.
B2. Table 4: CarbonNeutral® Product Certifications - Required GHG Emissions Sources

<table>
<thead>
<tr>
<th>Category</th>
<th>Emissions source category</th>
<th>CarbonNeutral® product certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extraction and processing of raw materials and packaging</td>
<td>Cradle-to-grave or cradle-to-customer embodied emissions of raw materials and inputs to production</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ●</td>
</tr>
<tr>
<td></td>
<td>Inbound deliveries of raw materials and inputs to production</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ●</td>
</tr>
<tr>
<td>Manufacturing and storage of product and packaging</td>
<td>Direct emissions from on-site fossil fuel use and fugitive emissions</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>On-site consumption of purchased electricity</td>
<td>✓ ✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Distribution</td>
<td>Emissions from waste disposal</td>
<td>✓ ✓ ✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td></td>
<td>Transportation of sold products to first customer</td>
<td>✓ ✓ ✓ ✓</td>
</tr>
<tr>
<td>Onward distribution</td>
<td>Onward storage and transportation</td>
<td>● ● ● ●</td>
</tr>
<tr>
<td>Retail</td>
<td>Direct emissions from on-site fossil fuel use and fugitive emissions</td>
<td>● ● ●</td>
</tr>
<tr>
<td></td>
<td>On-site consumption of purchased electricity and/or steam</td>
<td>● ● ●</td>
</tr>
<tr>
<td>Use</td>
<td>Use emissions, including maintenance</td>
<td>●</td>
</tr>
<tr>
<td>Use</td>
<td>Emissions from disposal of sold products at end of life</td>
<td>● ● ● ● ● ● ●</td>
</tr>
<tr>
<td>Disposal</td>
<td>Construction worker travel to and from development site</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Certification specific guidance (See Annex B4 Endnotes)</td>
<td></td>
<td>▲ ▲ ▲</td>
</tr>
</tbody>
</table>

Legend: ✓ Required  ● Recommended  ▲ Guidance

Please note 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 1.4, 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, please see Appendix 1.3. For cradle-to-grave subjects, the boundary must extend to end-of-life disposal.

Where data is available, it is recommended that emissions arising from water consumption and also wastewater treatment are included within these categories.
### B3. Table 5: CarbonNeutral® Activity Certifications – Required GHG Emissions Sources

<table>
<thead>
<tr>
<th>Emissions source category</th>
<th>Service</th>
<th>Delivery</th>
<th>Shipment</th>
<th>Driving</th>
<th>Fleet</th>
<th>Flights</th>
<th>Print production</th>
<th>Hotel stay</th>
<th>Hosting</th>
<th>Cloud services</th>
<th>Event</th>
<th>Exhibitor</th>
<th>Business travel</th>
<th>Energy use</th>
<th>Electricity use</th>
<th>Gas use</th>
<th>Gas supply</th>
<th>Voyages</th>
</tr>
</thead>
<tbody>
<tr>
<td>All direct emissions from on-site sources used to deliver the activity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>All direct emissions from mobile sources used to deliver the activity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Emissions from the consumption of purchased electricity (including transmission and distribution) and/or steam used in the delivery of the activity</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Travel of employees/ contractors - by air, public transport, rented/leased vehicle and taxi - involved in the delivery of the activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Travel of individuals to and from the activity - by air, public transport, rented/leased vehicle and taxi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Waste disposal[^1^]</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Embodied emissions of consumables used in the delivery of the activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Transportation of products associated with the activity to the first customer</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>Certification specific guidance (See Annex B4 Endnotes)</td>
<td>▲ ▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
<td>▲</td>
</tr>
</tbody>
</table>

**Legend:** ✓ Required  ● Recommended  ▲ Guidance

[^1^] Where data is available, it is recommended that emissions arising from wastewater treatment are included within this category.
B4. Endnotes

**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® 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.
Annex C
Approved Carbon Credit Standards

Carbon credits under the standards set forth in Table 6 below have been determined to be legally attributable, measureable, 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 will be updated from time to time to reflect developments in best practice and the performance of carbon credit standards.

Table 6: Approved Carbon Accounting Standards

<table>
<thead>
<tr>
<th>Approved standard</th>
<th>Type of carbon credits generated</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Carbon Registry</td>
<td>Emission Reduction Tonnes (ERTs)</td>
</tr>
<tr>
<td>Australian Carbon Farming Initiative (CFI)</td>
<td>Australian Carbon Credit Unit (ACCU)</td>
</tr>
<tr>
<td>Climate Action Reserve</td>
<td>Climate Reserve Tonnes (CRTs)</td>
</tr>
<tr>
<td>Gold Standard</td>
<td>Gold Standard Voluntary Emission Reduction (VER) credits</td>
</tr>
<tr>
<td>Kyoto Protocol’s Clean Development Mechanism (CDM)</td>
<td>Certified Emission Reductions (CERs)</td>
</tr>
<tr>
<td>Kyoto Protocol’s Joint Implementation (JI)</td>
<td>Emission Reduction Units (ERUs)</td>
</tr>
<tr>
<td>Verified Carbon Standard (VCS)</td>
<td>Verified Carbon Units (VCUs)</td>
</tr>
</tbody>
</table>

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.

Elaboration on additionality and baselines

It is essential for any carbon neutral programme to be robust and reduce emissions of the defined subject to net zero. This requires that any carbon credits used must have passed a test of additionality during their development process. The carbon accounting standards which are eligible under The CarbonNeutral Protocol require each project to undergo such a test, which is then checked by an independent third-party auditor during the validation process.

The carbon accounting standards referenced in this Annex define best practice in calculating the additionality of emission reduction projects. It is important that the additionality of a project is robustly tested and audited.

Without well-defined baseline scenarios and additionality tests, any claims of net emissions reductions may be inaccurate. Any statement by an organisation based upon these claimed “reductions” could be misleading or false.

When conducting a test for additionality on a proposed project, the first step is to determine the baseline scenario – i.e. the scenario and resulting quantity of GHG emissions that are most likely to occur in the absence of the proposed project activity. Once a suitable baseline has been set 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.
Once 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, please see the following resources:

cdm.unfccc.int/Reference/Guidclarif/glos_CDM.pdf
The UNFCCC Clean Development Mechanism Glossary database.v-c-s.org/program-documents/find-a-guidance-document

ghginstitute.org - search “additionality”
Articles on the challenges of defining and measuring additionality

co2offsetresearch.org/policy/AdditionalityBaselines.html
Further information on methodologies for determining additionality

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**Annex D**

**Recognised Non-carbon Accounting Standards**

The non-carbon accounting standards in Table 7 below have been 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 will be updated from time to time to reflect developments in best practice.

**Table 7: Recognised Non-Accounting Standards**

<table>
<thead>
<tr>
<th>Recognised non-accounting standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate, Community and Biodiversity Alliance (CCBA)</td>
</tr>
<tr>
<td>The SOCIALCARBON® Standard</td>
</tr>
<tr>
<td>Forest Stewardship Council certification</td>
</tr>
<tr>
<td>W+ Standard by Women Organizing for Change in Agriculture and Natural Resource Management (WOCAN)</td>
</tr>
</tbody>
</table>
Annex E
Cross-compliance Tables

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

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

  - Published April 2014
- Australia’s National Carbon Offset Standard Carbon Neutral Program
  - Published May 2012, v5 - Nov 2015

### E1. Cross-compliance relative to PAS 2060:2014 specification for the demonstration of carbon neutrality

This Publically Available Specification 2060 for the demonstration of carbon neutrality was first published in 2010 and revised in 2014, supported by the sponsorship of the Environmental Protection Administration, Executive Yuan, R.O.C. (Taiwan). PAS 2060 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.

Table 8: Cross-compliance Relative to PAS 2060:2014 Specification for the Demonstration of Carbon Neutrality

<table>
<thead>
<tr>
<th>Additional requirements of The Protocol relative to PAS 2060</th>
<th>Protocol Step</th>
<th>Additional requirements of PAS 2060 relative to The Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>• None</td>
<td>Define the subject</td>
<td>• The client must describe purpose, objectives and functions of the subject</td>
</tr>
<tr>
<td>• None</td>
<td>Quantify GHG emissions</td>
<td>• Product and service assessment boundaries must be cradle-to-grave</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Any Scope 1, 2 or 3 emission source estimated to be greater than 1% of the total carbon footprint shall be taken into account unless not technically feasible nor cost-effective</td>
</tr>
<tr>
<td>• None</td>
<td>Set target</td>
<td>• Set specific targets for internal GHG reductions for the defined subject appropriate to the timescale for carbon neutrality</td>
</tr>
<tr>
<td>• Carbon credits limited to those listed in Technical Annex C</td>
<td>Reduce emissions</td>
<td>• Must monitor the subject’s emissions intensity to a baseline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Must implement an ongoing plan to reduce the subject’s emissions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Emissions reductions must be achieved and identified as overall, activity-based or intensity-based</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Carbon credits must be retired within 12 months of declaration of neutrality, apart from events which can be retired within 36 months</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Eligible offset schemes include: EU allowances and domestic schemes including the UK Woodland Carbon Code</td>
</tr>
<tr>
<td>• Self-validation not permitted</td>
<td>Communicate</td>
<td>• Public declarations must conform to BS EN ISO/IEC 17050-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Public declarations must be in accordance with the BS EN ISO/IEC 17000 conformity assessments</td>
</tr>
</tbody>
</table>

PAS 2060 may be considered for further development as a British Standard, or constitute part of the UK input to the development of a European or International Standard. To read PAS 2060 visit: www.bsigroup.com/en-GB/PAS-2060-Carbon-Neutrality/.
E2. Cross-compliance relative to Australia’s National Carbon Offset Standard Carbon Neutral Program

The Carbon Neutral Program is a voluntary scheme which certifies products, business operations or events as carbon neutral against the Australian Government’s National Carbon Offset Standard (NCOS). This standard builds upon existing standards through its guidance on voluntary offsets and its minimum requirements for calculating, auditing and offsetting a carbon footprint to achieve carbon neutrality. To achieve carbon neutral certification under the NCOS Carbon Neutral Program, you must measure, reduce and then offset any remaining GHG emissions. Once certified, you are able to use the NCOS Carbon Neutral Certified logo under license for promotional and marketing purposes.

Table 9: Cross-Compliance Relative to Australia’s National Carbon Offset Standard Carbon Neutral Program

<table>
<thead>
<tr>
<th>Additional requirements of The Protocol relative to the National Carbon Offset Standard Carbon Neutral Program</th>
<th>Protocol step</th>
<th>Additional requirements of the National Carbon Offset Standard Carbon Neutral Program relative to The Protocol</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Subject must be defined</td>
<td>Define the subject</td>
<td>• None</td>
</tr>
</tbody>
</table>
| • Third-party deliveries of company goods must be included for organisations  
• For entities, assessments must be annual and relate to a 12-month period | Quantify GHG emissions | • Under Scope 3, paper use must be included  
• The uncertainty of Scope 1 emissions estimates should be assessed  
• For products, the full life-cycle should be assessed, though elements may be left out as long as this is communicated and a justification provided |
| • None | Set target | • None |
| • Offsets limited to those listed in Technical Annex C | Reduce emissions | • May not use long-term or temporary CERs |
| • None | Communicate | • Publicly available reports should detail progress against an emissions management plan, the quantity and type of offsets purchased and the register where they were retired. Where Australian offsets are used, full information must be publicly available and credits tracked on a public registry  
• Proponent must complete an agreement to use the National Carbon Offset Standard logo |

Annex F
Requirements and Guidance for GHG Emissions Assessments

While The CarbonNeutral Protocol does not require that GHG emissions data be made publicly available, it is vital that CarbonNeutral certifiers are 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 Annex B
- Each relevant “Emissions source category” as defined within Annex B 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 should 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
F1. Figure 5: Example GHG Assessment Validation Report Format

CarbonNeutral® certification validation report for:
Company XYZ

Report Overview

Subject of CarbonNeutral® certification:
The entire directly owned and controlled operations globally for Company XYZ

CarbonNeutral® certification:
CarbonNeutral® company

CarbonNeutral® certification period:
Calendar year 2018

CarbonNeutral® certification scope and emissions to be reduced through environmental instruments:
Please see the results table on the following page

Title of report/data or calculations checked:
Company XYZ global carbon footprint 2018.xls

Assessment data period:
Calendar year 2018

Measurement standards:
GHG Protocol Corporate Standard

Quality assurance statement:
On the basis of the review activities undertaken, nothing has come to our attention that causes us to believe that the calculations in the supporting documentation referenced herein are not compliant with The CarbonNeutral Protocol’s requirements for CarbonNeutral® company. Please note only the GHG calculations have been quality assured and not the underlying activity data.

A table presenting results follows on the next page. Results are separated by emissions source category, in accordance with The CarbonNeutral Protocol.
F2. Table 10: Illustrative Table of Results for CarbonNeutral® Certification

<table>
<thead>
<tr>
<th>Category</th>
<th>Emission source category (Aligned to the GHG Protocol: Corporate Value Chain Standard. Numbering aligns to standard)</th>
<th>Required or recommended</th>
<th>Included in assessment</th>
<th>tCO₂e</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct emissions arising from owned or controlled stationary sources that use fossil fuels and/or emit fugitive emissions</td>
<td>Required</td>
<td>✓</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>Direct emissions from owned or controlled mobile sources</td>
<td>Required</td>
<td>✓</td>
<td>35</td>
</tr>
<tr>
<td><strong>Scope 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Location-based emissions from the generation of purchased electricity, heat, steam or cooling</td>
<td>Required</td>
<td>✓</td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Market-based emissions from the generation of purchased electricity, heat, steam or cooling</td>
<td>Required</td>
<td>✓</td>
<td>0</td>
</tr>
<tr>
<td><strong>Scope 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Upstream</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Purchased goods</td>
<td>1a Water supplied to subject and paper purchased by subject</td>
<td>Recommended</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td>Fuel- and energy-related activities</td>
<td>3a Upstream emissions of purchased electricity</td>
<td>Recommended</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3b Transmission and distribution losses</td>
<td>Required</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3c All other fuel- and energy-related activities</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>Upstream transportation and distribution</td>
<td>4a Outbound courier deliveries of packages</td>
<td>Recommended</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4b Third-party transportation and storage of production-related goods</td>
<td>Required</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4c Third-party transportation and storage of sold products</td>
<td>Required</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4d All other upstream transportation and distribution</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Operational</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Waste generated in operations</td>
<td>5a Wastewater</td>
<td>Recommended</td>
<td>•</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5b Other waste</td>
<td>Required</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Business</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>travel</td>
<td>6a All transportation by air, public transport, rented/leased vehicle and taxi</td>
<td>Required</td>
<td>✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6b Emissions arising from hotel accommodation associated with business travel</td>
<td>Recommended</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Employee</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>commuting</td>
<td>7</td>
<td>Recommended</td>
<td>✓</td>
</tr>
</tbody>
</table>

Total for offset (tCO₂e) – Location-based Scope 2: 615
Total for offset (tCO₂e) – Market-based Scope 2: 415
Annex G
Selection and Management of Secondary Certifiers

Natural Capital Partners, at its sole discretion, may appoint entities as secondary certifiers authorised to provide certifications in accordance with the CarbonNeutral Protocol. This Annex explains how Natural Capital Partners selects and manages secondary certifiers to ensure the integrity of CarbonNeutral® certifications.

Establishing the competence of entities applying for secondary certifier status
Natural Capital Partners uses a due diligence process to establish the competence of potential secondary certifiers. The scope of that due diligence covers but is not limited to:

- A review of the status and standing of any relevant third-party certifications, for example ISO 14064 or ISO 14065
- An assessment of the entity’s track record, experience, expertise, and areas of competence
- An assessment of the entity’s independence and the potential for conflicts of interest
- An assessment of the entity’s management systems and processes to ensure it operates to the requirements of the CarbonNeutral Protocol – to cover independence, contracting, resourcing, tools and methodologies, quality control and assurance of work-products and outputs

The process is applied when an entity makes a formal request for secondary certifier status. The due diligence exercise is predominantly executed through interviews and a questionnaire, which must be signed by a senior officer to warrant its accuracy.

Ensuring the integrity and quality of certification work by appointed secondary certifiers
Natural Capital Partners is responsible for ensuring the competence, quality of work, and adherence to requirements and principles of the CarbonNeutral Protocol by secondary certifiers.

The aspects covered in the initial due diligence are re-assessed periodically. The primary control mechanisms include review of secondary certifier work products supporting the award of CarbonNeutral certifications and questionnaires to check the ongoing adequacy of management systems that underpin certification work. The secondary certifier is required to warrant that responses are a true and fair representation of the entity’s systems, and that they are in compliance with both the principles and requirements of the CarbonNeutral Protocol.

Auditing secondary certifier competence and performance
Natural Capital Partners has the right to appoint an independent, qualified auditor to review the performance of secondary certifiers, and will give fair notice of its intent to do so. Secondary certifier status will be withdrawn if material concerns identified by the auditor are not remedied within a reasonable period of time.

Selection, appointment and continuance of secondary certifiers
The selection, appointment and continuance of secondary certifiers are at the sole discretion of Natural Capital Partners. Terms and Conditions that apply to the arrangements are mutually agreed by both parties at commencement. Those Terms and Conditions may be amended from time to time to reflect best practice, the evolution of the CarbonNeutral Protocol, and changing market conditions.
Selco Solar Energy Access Project, India: Enhancing energy access for hundreds of thousands of rural households by providing solar lighting and renewable energy.
Appendix 1
Guidance and Clarification Pertaining to “Defining the Subject”

Appendix 1.1
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 N₂O 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.

N₂O
N₂O 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 N₂O 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 CO₂e.

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: N₂O 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 N₂O formation because it is more lucrative for project developers to maximise N₂O production so that it can then be destroyed to earn credits. The EU has banned N₂O credits from use in the EU-ETS starting from April 2013.

The CarbonNeutral Protocol recognises the concerns associated with HFC-23 and N₂O 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 additiency 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.

Appendix 1.2 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 11. 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 please 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 Orangutan.
### Table 11: The Scope 3 Standard

<table>
<thead>
<tr>
<th>Upstream or downstream</th>
<th>Scope 3 category</th>
<th>Category description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upstream Scope 3 emissions</strong></td>
<td>1. Purchased goods and services</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>2. Capital goods</td>
<td>Extraction, production, and transportation of capital goods purchased or acquired by the reporting company in the reporting year.</td>
</tr>
<tr>
<td></td>
<td>3. Fuel- and energy-related activities (not included in Scope 1 nor 2)</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>4. Upstream transportation and distribution</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>5. Waste generated in operations</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>6. Business travel</td>
<td>Transportation of employees for business-related activities during the reporting year (in vehicles not owned or operated by the reporting company).</td>
</tr>
<tr>
<td></td>
<td>7. Employee commuting</td>
<td>Transportation of employees between their homes and their worksites during the reporting year (in vehicles not owned or operated by the reporting company).</td>
</tr>
<tr>
<td><strong>Upstream Scope 3 emissions</strong></td>
<td>8. Upstream leased assets</td>
<td>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.</td>
</tr>
<tr>
<td><strong>Downstream Scope 3 emissions</strong></td>
<td>9. Downstream transportation and distribution</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>10. Processing of sold products</td>
<td>Processing of intermediate products sold in the reporting year by downstream companies (e.g. manufacturers).</td>
</tr>
<tr>
<td></td>
<td>11. Use of sold products</td>
<td>End use of goods and services sold by the reporting company in the reporting year.</td>
</tr>
<tr>
<td></td>
<td>12. End-of-life treatment of sold products</td>
<td>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).</td>
</tr>
<tr>
<td></td>
<td>13. Downstream leased assets</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>14. Franchises</td>
<td>Operation of franchises in the reporting year, not included in Scope 1 and Scope 2 – reported by franchisor.</td>
</tr>
<tr>
<td></td>
<td>15. Investments</td>
<td>Operation of investments (including equity and debt investments and project finance) in the reporting year, not included in Scope 1 nor Scope 2.</td>
</tr>
</tbody>
</table>
Appendix 1.3
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 6: Minimum CarbonNeutral® Product Boundaries for Various Organisations Within a Product Supply Chain
Appendix 1.4

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 7: Establishing the Integrity of EPDs

<table>
<thead>
<tr>
<th>ISO 14025</th>
<th>ISO 21930</th>
<th>EN 15804</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCR</td>
<td>LCA</td>
<td>EPD</td>
</tr>
</tbody>
</table>

Legislates the principles and procedures for developing EPDs

Establishes the “recipe” for manufacturers to follow in creating the EPD

Measures a product’s impact on the environment throughout its life, complying with ISO 14040, ISO 14044

Discloses a product’s impact through its life cycle

Measures a product’s impact on the environment throughout its life, complying with ISO 14040, ISO 14044

Communicates EPDs with consumers

EPD used to support a CarbonNeutral® product certification

The figure above 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 12 explores some of these requirements in more detail.
### Table 12: Comparison of Requirements Between The CarbonNeutral Protocol and EPDs for CarbonNeutral® Product Certification

#### Step 1: Define the subject

<table>
<thead>
<tr>
<th>Protocol step</th>
<th>The CarbonNeutral protocol requirements</th>
<th>EPD requirements¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Requirements</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

#### Step 2: Measure the subject’s GHG emissions

<table>
<thead>
<tr>
<th>Stage</th>
<th>The CarbonNeutral protocol requirements</th>
<th>EPD requirements¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select GHG accounting protocol</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>2. Define boundary</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>3. Identify emissions sources</td>
<td>Assessments must include emissions sources as specified in Annex B – CarbonNeutral® certifications and their specific required assessment emissions sources.</td>
<td>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 Annex B of the The CarbonNeutral Protocol, therefore they are deemed to meet and exceed The CarbonNeutral Protocol requirements.</td>
</tr>
<tr>
<td>4. Identify GHGs to be measured</td>
<td>All Kyoto Protocol GHGs must be measured in the assessment, insofar as they apply to the subject.</td>
<td>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.</td>
</tr>
<tr>
<td>5. Establish time periods</td>
<td>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.</td>
<td>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.</td>
</tr>
</tbody>
</table>

¹ As recommended by ISO/TS 14067.
### Step 2: Measure the subject’s GHG emissions (continued)

<table>
<thead>
<tr>
<th>Stage</th>
<th>The CarbonNeutral protocol requirements</th>
<th>EPD requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Determine data validity</td>
<td>Primary data <strong>must</strong> 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 <strong>must</strong> 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.</td>
<td>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.</td>
</tr>
<tr>
<td>7. Measure GHG emissions</td>
<td>The subject’s GHG emissions <strong>must</strong> 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 <strong>must</strong> be reported in units of CO₂e according to the 100 year potential of each gas. GWP factors applied <strong>must</strong> be clearly stated in the assessment. Emission sources that are required to be assessed (see Annex B) 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, 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 CO₂e 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.</td>
<td></td>
</tr>
<tr>
<td>8. Quality assurance</td>
<td>All GHG assessments <strong>must</strong> 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. <strong>Annex F</strong> 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.</td>
<td></td>
</tr>
</tbody>
</table>

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

In line with Annex E 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, Natural Capital Partners 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 and Clarification Pertaining to “Measure the Subject’s GHG Emissions”

Appendix 2.1
Treatment of renewable (“green”) electricity in Scope 2 emissions

This Appendix details how the carbon reduction attributes of renewable (sometimes described as “green,” “clean,” or “low-carbon”) energy are accounted for in Scope 2 of the GHG inventories that underpin CarbonNeutral® certifications.

Approximately 40 percent of global GHG emissions come from energy generation, and about half of that energy is consumed by industrial or commercial users. A number of countries have adopted policies requiring or encouraging electricity suppliers to offer renewable electricity to energy consumers. This may be done through tariff-based programmes and power purchase agreements or through the retirement of renewable energy instruments such as Renewable Energy Certificates (RECs), International Renewable Energy Certificates (I-RECs), Tradable Instruments for Global Renewables (TIGRs) or Guarantees of Origin (GOs).

Rapid developments in renewable energy markets have left corporations uncertain about how to report their Scope 2 emissions and how to measure emissions from their renewable energy purchases. This is because the reporting of renewable energy is complicated by issues of double counting and additionality – both of which can be difficult to interpret consistently across national jurisdictions.

Double counting can occur when more than one party claims a benefit or attribute of the same product or service. To qualify as zero emissions, the carbon benefit of renewable electricity should be counted only once – for example, by being allocated to the end consumer and not to the supplier or the national grid mix. In practice, this means that the renewable electricity must be supplied from a decentralised or off-grid source, or the grid electricity supply must be specifically structured to allow disaggregated carbon accounting. The principle of additionality requires that when environmental attributes of renewable energy are recognised in the GHG inventory of a renewable energy consumer, the generation activities that underpin the renewable energy should be over and above regulatory requirements.

Prior to 2015, guidance on how to apply these principles in Scope 2 accounting was absent from the GHG inventory standards accepted under The CarbonNeutral Protocol. However, on the 21st January 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:
Appendices

Requirements: Accounting and reporting requirements which entities must meet to be in conformance with the GHG Corporate Standard

Quality Criteria: A list of Scope 2 quality criteria that all electricity purchasing instruments, termed “contractual instruments,” need to meet in order to be used in market-based method accounting

Recommendations: Additional features entities are recommended to disclose include their electricity purchases, as well as other metrics such as total electricity, steam, heating, and cooling consumed and what percentage of a corporates' operations have market-based method data available

From the date of publication of the GHG Protocol Scope 2 amendment, entities using the GHG Corporate Protocol to meet the GHG inventory requirements of The CarbonNeutral Protocol are required to meet its Scope 2 Guidance, as officially amended from time to time by the WRI. Entities using any other GHG inventory standard recognised under The CarbonNeutral Protocol are subject to The CarbonNeutral Protocol’s original requirements that:

1. Zero emissions may only be 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 13) 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
Guidance on how to report GHG emissions from green gas certificates

Green gas certificates are a relatively new product 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.
Table 13: 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.

<table>
<thead>
<tr>
<th>Consumption country or countries covered by contractual instrument claim</th>
<th>GHGP Scope 2 Guidance Disclosure Requirement:</th>
<th>CarbonNeutral Protocol Requirement:</th>
<th>United States</th>
<th>France</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumption covered by contractual instruments (MWh)</td>
<td>Recommended</td>
<td>Required</td>
<td>10,000</td>
<td>500</td>
</tr>
<tr>
<td>Contractual instrument emission factor (gCO₂/MWh)</td>
<td>N/A</td>
<td>Required</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Category of contractual instrument</td>
<td>Required</td>
<td>Required</td>
<td>Energy attribute certificates</td>
<td>Electricity contracts</td>
</tr>
<tr>
<td>Type of contractual instruments</td>
<td>Required</td>
<td>Required</td>
<td>Renewable Energy Certificates (RECs)</td>
<td>Electricity Contracts that convey attributes without certificates</td>
</tr>
<tr>
<td>Supplier</td>
<td>N/A</td>
<td>Required</td>
<td>Renewables Team</td>
<td>EDF</td>
</tr>
<tr>
<td>Disclosure of the type of supporting evidence</td>
<td>N/A</td>
<td>Required</td>
<td>Attestation record</td>
<td>Evidence limited to tariff description</td>
</tr>
<tr>
<td>Contractual instrument disclosures (e.g. location, technology, commissioning year)</td>
<td>N/A</td>
<td>Required</td>
<td>Texan wind, commissioning year not known</td>
<td>Not known</td>
</tr>
<tr>
<td>Meets all the relevant Scope 2 Quality Criteria for the contractual instrument</td>
<td>Required</td>
<td>Required</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>To ensure unique claims, has an adjusted residual mix factor been estimated to reflect the contractual claims disclosed here?</td>
<td>Required</td>
<td>Required</td>
<td>Residual mix is not available which may result in double counting between electricity consumers</td>
<td>Residual mix is not available which may result in double counting between electricity consumers</td>
</tr>
<tr>
<td>Did contractual instruments substantively contribute to implementation of new low carbon projects?</td>
<td>Recommended</td>
<td>Required</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

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:
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).

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\(_2\)O (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\(_2\)O 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\(_2\)O emissions from biomethane combustion must be reported under Scope 1. The table below 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\(_2\)O emissions into a single factor, which is marginally higher than the fugitive CH\(_4\) and N\(_2\)O emissions associated with natural gas combustion.

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\(^1\) Green Gas Certification Scheme. Available at: https://www.greengas.org.uk/.

Appendix 2.4
Measuring climate impacts from aviation

From 2014, the requirement of The CarbonNeutral Protocol is that for CarbonNeutral® certification clients must consider the evidence regarding the overall effect of aviation on climate.

Having considered the evidence, clients may elect to calculate their aviation carbon footprints by considering only GHG emissions. Alternatively, clients may elect to address the wider effects of aviation on climate by applying an Aviation Impact Factor (AIF) of two to its GHG emissions from aviation. Please note, certain calculation tools use a default AIF higher than one.

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 requested 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.


The updated guidance recognises strengthening scientific evidence which indicates 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 is 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 requires that clients specify whether or not they elect to apply an AIF of two based upon their review of the evidence.

### Table 14: Reporting 10,000 MWh of Natural Gas Consumption

<table>
<thead>
<tr>
<th>Market based corporate GHG Inventory (tCO₂e)</th>
<th>CO₂ Carbon Dioxide</th>
<th>CH₄ Methane</th>
<th>N₂O Nitrous Oxide</th>
<th>Total CO₂e Carbon Dioxide Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1 Emissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Natural gas consumption – 10,000 MWh</td>
<td>1,838.08</td>
<td>2.59</td>
<td>0.96</td>
<td>1,841.64</td>
</tr>
</tbody>
</table>

### Table 15: Reporting 10,000 MWh of Biomethane Consumption Evidenced by Green Gas Certificates

<table>
<thead>
<tr>
<th>Market based corporate GHG Inventory (tCO₂e)</th>
<th>Biogenic Emissions of CO₂ Carbon Dioxide</th>
<th>CH₄ Methane</th>
<th>N₂O Nitrous Oxide</th>
<th>Total CO₂e Carbon Dioxide Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope 1 Emissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomethane consumption* – 10,000 MWh</td>
<td>0.00</td>
<td>3.95</td>
<td></td>
<td>3.95</td>
</tr>
<tr>
<td>Biogenic Emissions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biomethane consumption* – 10,000 MWh</td>
<td>1990.08</td>
<td>0.00</td>
<td>0.00</td>
<td>1990.08</td>
</tr>
</tbody>
</table>

*The GHG Protocol requires fugitive CH₄ (methane) and N₂O (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 CO₂ emissions that were captured during the growth phase of the biomass have been reported separately to Scopes 1, 2 or 3.
Specifically, the requirements are that:

- The climate impact from aviation must be based on the direct emissions carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) and any other GHGs recognised by the UNFCCC.

- The additional climate impacts that may arise from aviation as laid out in the guidance from Professor John Murlis must be considered.

- Clients may elect to consider the additional climate impacts from aviation by applying an AIF of two.

The CarbonNeutral Protocol does not yet mandate an AIF of two 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 on 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, although there are advisory notes from official sources that suggest a factor greater than one.²

3. It is known that emissions from sources other than aviation (for example from internal combustion engines in ground transport), also have impacts on climate that are wider than those from their recognised GHG emissions. The CarbonNeutral Protocol favours carbon footprint accounting that is standardised across all sources, and therefore does not mandate a different treatment for aviation.

The CarbonNeutral Protocol’s provision that clients may elect to apply an AIF of two to aviation GHG emissions respects the voluntary nature of CarbonNeutral⁶ 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.

Appendix 2.5 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.

¹ Prior versions of The CarbonNeutral Protocol used the term Radiative Forcing Index or RFI. We now replace RFI with Aviation Impact Factor or AIF which is the multiplier applied to the GHG emissions from aviation in order to take account of the wider impacts of aviation on climate, including but not limited to, short or long-term impacts; 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 on methane gases and ozone at high altitudes).

² Few regulations exist to cover climate impacts from aviation, with the notable exception of the EU ETS for aviation, which considers only emissions of carbon dioxide, and applies a factor of 1. DEFRA, the UK Government ministry responsible for environment, has provided guidance in support of a multiplier factor of 1.9. This factor is not actively applied within any UK regulatory programme, or 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 2024 – the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) – also considers only carbon dioxide emissions.
Appendix 2.6
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 US 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 2.7
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 2.8
Guidance on 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 certifiers (i.e. those entities authorised by Natural Capital Partners to provide certifications in accordance with The CarbonNeutral Protocol). 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. See Annex G for more detailed information about the quality assurance processes required of CarbonNeutral certifiers.

Entities seeking CarbonNeutral® certification are encouraged to maintain their own internal quality assurance and quality control processes 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
## F2. Table 16: Illustrative Table of Results for CarbonNeutral® Certification

<table>
<thead>
<tr>
<th>Protocol step</th>
<th>Quality assurance requirements</th>
<th>Verification requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Define the subject</td>
<td>The definition of the subject and the certification must be recorded by the CarbonNeutral certifier and the information retained for the purposes of auditing.</td>
<td>Third-party verification is at the discretion of the client.</td>
</tr>
<tr>
<td>2. Measure subject's emissions</td>
<td>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 F.</td>
<td>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.</td>
</tr>
<tr>
<td>3. Set target</td>
<td>The client must commit to an overall target of net zero GHG emissions for the subject during the certification period.</td>
<td>Not applicable.</td>
</tr>
<tr>
<td>4. Reduce emissions</td>
<td>The subject’s GHG emissions must be reduced to net zero for the duration defined within the CarbonNeutral® certification.</td>
<td>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. CarbonNeutral certifiers are subjected to an annual third-party verification to ensure the net zero status of awarded CarbonNeutral® certifications.</td>
</tr>
<tr>
<td>5. Communicate</td>
<td>Use of the CarbonNeutral® certification must conform to Natural Capital Partners’ CarbonNeutral® certification guidelines. All communications relating to a client’s CarbonNeutral® certification must be factually based, and consistent with the CarbonNeutral® certification achieved.</td>
<td>Third-party verification of the correct application of the CarbonNeutral® certification marks and communications is at the discretion of the client, and may be requested by the CarbonNeutral certifier.</td>
</tr>
</tbody>
</table>

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.

Quality assurance and verification requirements for the five steps to achieving CarbonNeutral® certification are summarised in the table above.

Third-party review of the management systems supporting certifications; and, third-party verification of the data, calculations, carbon credit retirements, net zero status and communication of CarbonNeutral® certifications should be considered when:

1. The subject’s GHG emissions are material or in excess of 100,000 tCO₂e/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
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 2.9
Guidance on 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 Standard1 and UK DEFRA’s Environmental Reporting Guidelines2. 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 CO₂e 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 tCO₂e, then 10 tCO₂e of carbon credits need to be purchased and retired, and once retired the net footprint equals 0 tCO₂e, 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 Practice3. 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

The table below 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 GHG emissions to net zero to support a carbon neutrality claim.

Table 17: Illustrative Corporate GHG Inventory for 2018 and 2019

<table>
<thead>
<tr>
<th>Corporate GHG inventory (tCO₂e)</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total annual GHG emissions</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GHG emissions offset by electricity supplier</td>
<td>(3,000)</td>
<td>(2,500)</td>
</tr>
<tr>
<td>GHG emissions offset by logistics provider</td>
<td>(600)</td>
<td>(500)</td>
</tr>
<tr>
<td>GHG emissions offset by data hosting provider</td>
<td>(200)</td>
<td>(300)</td>
</tr>
<tr>
<td>GHG emissions offset by direct carbon credit retirement</td>
<td>(6,200)</td>
<td>(5,700)</td>
</tr>
<tr>
<td><strong>Total annual GHG emissions net of carbon offsets</strong></td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

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 and Clarification Pertaining to “Reduce Emissions”

Appendix 3.1
Guidance on evaluating internal GHG reduction projects

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

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

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

Figure 8 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 CO₂, so a business replacing 2,000 desktops would save 800 tonnes of CO₂. 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.

Figure 8: Illustrative MAC Curve

Each box represents one emission reduction project

Estimated cost to reduce emissions by 1 tCO₂e with this project

Total GHG emission reduction potential

Projects are sorted by increasing costs per tCO₂e

Table 18: Illustrative MAC Calculation
Replacing a desktop PC with a laptop PC has a MAC of ~£50 / tCO₂e.

<table>
<thead>
<tr>
<th>Value</th>
<th>Unit</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Investment</td>
<td>£</td>
<td>additional cost of a laptop over desktop</td>
</tr>
<tr>
<td>Lifetime of laptop</td>
<td>4 Years</td>
<td>average lifetime of a laptop</td>
</tr>
<tr>
<td>Annual energy saving</td>
<td>200 kWh</td>
<td>typical office use</td>
</tr>
<tr>
<td>Annual energy cost saving</td>
<td>£</td>
<td>£0.10 per kWh x 200kWh</td>
</tr>
<tr>
<td>Lifetime energy cost saving</td>
<td>£</td>
<td>£20 x 4 years</td>
</tr>
<tr>
<td>Annual carbon saving</td>
<td>100 kg CO₂e</td>
<td>200kWh x 0.537 UK grid factor</td>
</tr>
<tr>
<td>Lifetime carbon saving</td>
<td>400 kg CO₂e</td>
<td>100 kg CO₂e x 4 years</td>
</tr>
<tr>
<td>Cost of carbon saving</td>
<td>£</td>
<td>£100 outlay - £80 energy saving</td>
</tr>
<tr>
<td>MAC</td>
<td>£/tCO₂e</td>
<td>(1000/400) x 20</td>
</tr>
</tbody>
</table>
Appendix 3.2
Guidance on 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 3.1, organisations are encouraged to use established management tools to identify the appropriate balance between internal reductions and the use of offsets to achieve net zero emissions cost-efficiently and in ways that deliver strategic value.

While the MAC curve approach 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 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 3.3
Guidance on 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.