NET ZERO TECH SERVICES PROTOCOL

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A netzeronow INITIATIVE

SUPPORTED BY

TECH NATION techUK BIMA Good Business Charter

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1 Introduction.

The Purpose of the Net Zero Tech Services Protocol is to create consensus across the Tech industry as to what Net Zero means for businesses in the sector and to provide an industry standard against which business claiming to be Net Zero can be assessed.

The concept of Net Zero has been at the centre of international climate change discussions since the 2015 Paris Agreement, which bound all signatories to:

"Achieve a balance between anthropogenic emissions by sources, and removals by sinks of greenhouse gases in the second half of this century" [1]

...and the conclusion of the IPCC Special Report (2018) which stated:

"To ensure Global Heating stays below 1.5C - the minimum requirements of the 2015 Paris Agreement - global net C02 emissions must reach 'net zero' by 2050 at the latest."

The simplicity of the concept – creating a global economy where the net emission of Greenhouse Gasses equals zero – has captured people's imagination, turning the complexities of climate science into a clear and achievable goal. By early 2021, over ⅓ of FTSE 100 companies (but only c.10% of SMEs) had set Net Zero targets.[2 3]

While these commitments are encouraging, there are striking inconsistencies in the detail of each commitment, primarily relating to the methodology for calculating business' current emissions, the necessity of committing to ambitious reduction of future emissions and the quality of the carbon credits or offset initiatives used to compensate for any emissions they are unable to avoid.

Of particular note for the professional services sector is the need to resolve the challenge of facilitated climate impact, or what has been called in some quarters "Scope X". These are greenhouse gas emissions that are not attributable to the subject business' account under current carbon accounting guidelines but which are nevertheless clearly related to the business' activity.

It would be illogical for a business to claim to be net zero, while its primary business activity was enabling avoidable climate damage and an industry accepted view must therefore be agreed.

Establishing a consistent approach to the way in which these fundamental issues are addressed is essential to the maintenance of the momentum of the Net Zero movement – businesses will be less willing to start the journey if they are unsure of the route they need to take, and customers and regulators will be less inclined to believe claims of Net Zero if there is no consistent standard against which those claims can be assessed.

The truth is, the journey to Net Zero will be different for a Tech firm in comparison to a restaurant, farm or retailer, but the journey one Tech firm needs to go on will be very similar to that of other Tech firms. A consistent and coherent industry approach will provide all stakeholders with the reassurance required to accelerate progress. .

Our goal is to create a pragmatic, effective and publicly available guide for Tech firms to achieve Net Zero. This "protocol" will be practical and easy to use, whilst remaining comprehensive in its scope and ambitious in its scientific robustness - offering businesses a realistic method of achieving credible sustainability goals, in line with the global climate goals required by the Paris Agreement.

The need for urgent, strong action has never been greater and businesses are eager to do the right thing. This protocol aims to help turn that commendable ambition into a practical reality.

The best time to go net zero was 20 years ago, the next best time is now.

Net Zero Now, September 2021

1. United Nations Framework Convention on Climate Change, 'Paris Agreement'.
2. Broadway Initiative, 'SME Discovery Phase Publication Report'.
3. BSI, 'Net Zero Barometer Report'.

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About the process.

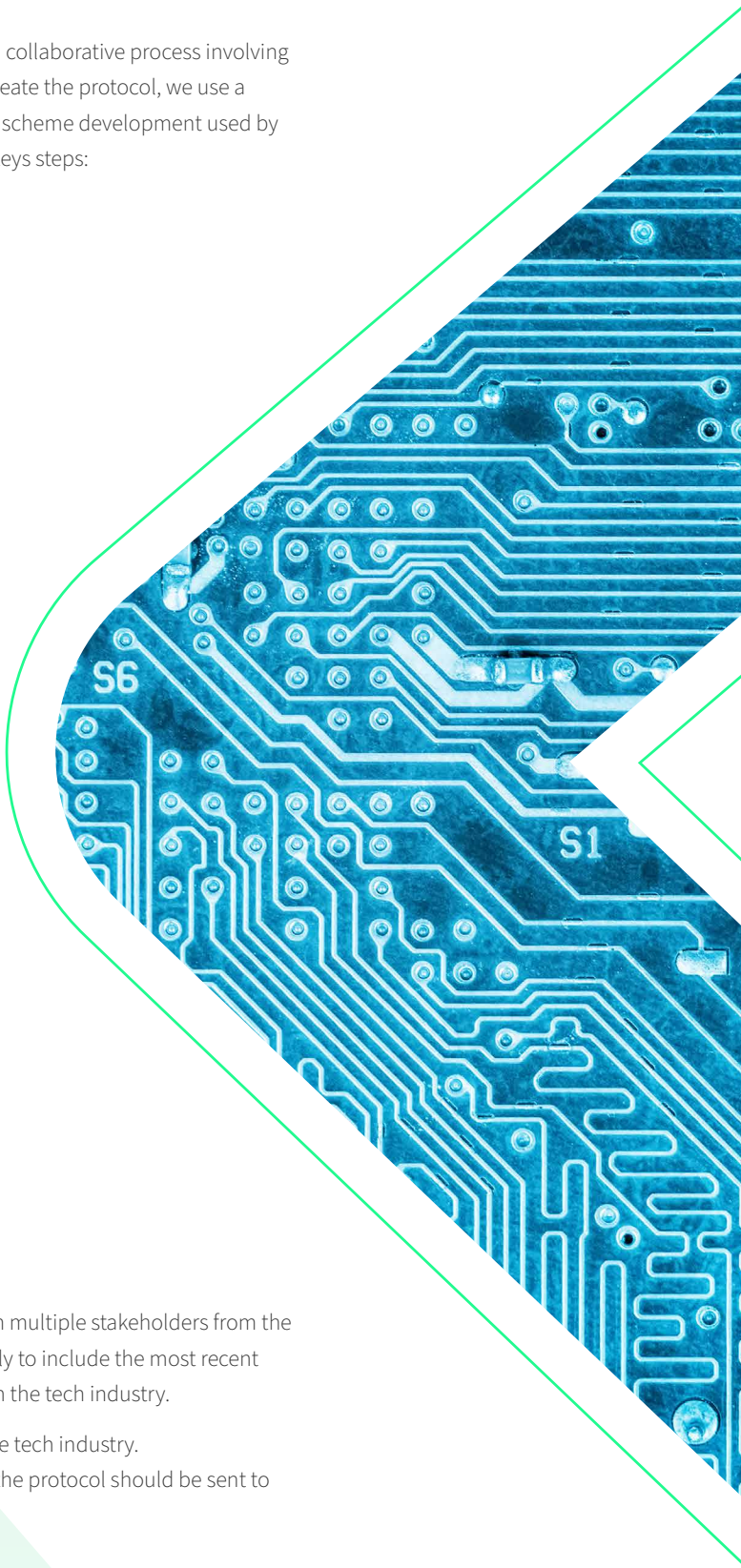
To reach the required consensus, Net Zero Now oversee an open and collaborative process involving thought-leaders and key players from across the Tech industry. To create the protocol, we use a 5-step development approach, based on the process for certification scheme development used by the ISO Committee on Conformity Assessment, in which there are 4 keys steps:

Research & drafting
Combining our climate knowledge with our partners' sector expertise, Net Zero Now will draft an initial protocol, designed to both comply with the global guidelines and be relevant for businesses in the sector

Pilot programme
We will then test that protocol with a representative sample of business from across the sector

Peer review
Before publication, we will share the protocol with a wide group of industry and climate experts, academics and government to ensure consensus

Publication
The final protocol will then be published on the Net Zero Now website alongside a sector-specific Climate Action Playbook featuring ideas and initiatives for businesses in the sector to reduce emissions



The Protocol has been developed following through peer-review with multiple stakeholders from the tech industry and the sustainability sphere. It will be updated annually to include the most recent advances in the science and best practice concerning sustainability in the tech industry.

Input is encouraged from all stakeholders interested in Net Zero in the tech industry. Suggestions for changes or futures priorities for the development of the protocol should be sent to review@NetZeroNow.org.

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About the Partners.

The climate crisis requires a response that is both broad and deep, that engages everyone and enables everyone to participate.

Therefore, while the Net Zero Tech Services Protocol is an initiative that has been coordinated by Net Zero Now, the protocol itself has been developed in partnership with a broad range of industry partners and represents an industry consensus of what tech companies need to do to reach Net Zero and a standard against which their progress can be assessed. The protocol will be a freely available resource that all tech companies can use for guidance when starting their Net Zero journey. We cannot achieve the necessary impact working alone and Net Zero Now is grateful for the support received from collaborating partners that share our ambition for a Net Zero global economy.

The Net Zero Tech initiative has been made possible by the support of key development partners:

- Tech Nation
- Tech UK
- Good Business Charter (GBC)

Strategic partner, Good Business, has been instrumental in guiding the development process and technical partners at University College London have provided climate expertise.

Sector stakeholder engagement has been facilitated by Net Zero Now.

Our pilot partners were:

- Tortoise Media
- Sweet Analytics
- Fluid IT
- We Are Penelope
- Nine 23

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Defining Net Zero.

Net Zero Now and the Net Zero Tech Services Protocol are aligned with the definitions of Net Zero provided by the Race to Zero Campaign.

"Net Zero occurs when an entity reduces its emissions following science-based pathways, with any remaining GHG emissions attributable to that actor being fully neutralised by like-for-like removals" [4]

There are a number of key differences between this definition and other definitions of terms such as Climate or GHG Neutrality. The following principles distinguish these key characteristics of Net Zero.

4.1 | The 5 Principles of Net Zero Now

1. Emissions must be calculated in accordance with the appropriate GHG Protocol methodology and include all Green House Gasses (GHGs)
2. Emissions in scope must include all relevant value chain sources (inc. scope 1,2 and 3)
3. Emissions reduction targets are mandatory and must be compliant with SBTi ambition criteria and accompanied by credible delivery plans. These must be enacted from Year 1.
4. Businesses must share details of their climate plans and action transparently and advocate for widespread adoption of paths to Net Zero.
5. Where carbon offset instruments are used they must be certified to recognized international standards and aligned in composition with the Oxford Principles on Net Zero Aligned Carbon Offsetting

4. Race to Zero Expert Peer Review Group, 'Race to Zero Lexicon,' 2021

5

The Net Zero Tech Services Protocol.

This first edition of the Net Zero Tech Protocol has been developed as a free and universally accessible standard guide, tailored specifically for businesses within the Tech industry. The protocol builds on existing greenhouse gas (GHG) accounting standards, scientific evidence, and industry best practice. The aim is to provide a guide for Tech firms to follow in order to achieve Net Zero certification.

The protocol provides an approved methodology for the development of a Tech-specific climate strategy. This includes:

i. The calculation of a Tech businesses direct and indirect GHG emissions
ii. Science Based Target setting and associated emissions reduction plans
iii. The purchase of appropriate and valid carbon offset credits
iv. Communication of their actions and results in a clear and transparent manner

Tech businesses that follow this methodology are eligible to receive a Net Zero Tech certification.

Tech businesses that follow this methodology are eligible to receive one of two Net Zero Tech certifications: either On the Road to Net Zero or Net Zero . Full details of the difference between these certifications are provided in sections 6.8 and 7.3.

As new research is produced, the protocol will be updated to ensure that scientific targets and product level emissions data are current and applicable.

The protocol has been developed following thorough peer-review with multiple stakeholders from the Tech industry and the sustainability sphere. It will be updated regularly to include the most recent advances in the science and best practice concerning sustainability in the Tech industry.

5.1 Purpose of the Protocol

The Net Zero Tech Protocol provides a set of requirements, guidance, and recommendations for Tech businesses to build strong, credible, and transparent Net Zero businesses that are recognised globally by the industry, their clients / customers, employees, investors and other stakeholders.

The main goal of this document is to provide a step-by-step approach to help Tech businesses understand their direct, indirect and value chain emissions, focusing on the biggest GHG emissions reduction opportunities, and helping them offset residual emissions to achieve carbon Net Zero.

This document aims to assist the tech industry to become **Net Zero by 2030**.

The Net Zero Tech Services Protocol is designed for:

- Tech businesses to understand what is required to achieve the Net Zero Tech certification.
- Tech businesses to understand the variety of benefits Net Zero can offer their operations: within multiple departments such as finance, sustainability, and communications.
- The wider Tech sector, to clarify what ‘Net Zero’ means for the sector, while ensuring collaboration on best practice to reduce emissions.
- Assessors to understand what is required to ensure consistency of certification requirements.

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The Net Zero Tech Services Protocol.

5.2 Using the Net Zero Tech Services Protocol

The Protocol is structured to provide an accessible entry point that introduces the key concepts, expanding on them in subsequent sections to offer increased detail and complexity.

1. **Going Net Zero** provides an overview on the implications and significance of going net zero, while presenting a step-to- step framework to achieve the Net Zero Tech certification.
2. **Detailed Guidance** offers a detailed vision over the framework and action required to achieve the Net Zero Tech certification, offering extended support to the FSP and clarifying the requirements for each step.

Further chapters explore the main trade-offs presented when implementing a Net Zero strategy in the context of the Tech industry and present some examples of best practice around successful implementation of the Protocol requirements.

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

The Protocol has been developed following through peer-review with multiple stakeholders from the Tech industry and the sustainability sphere. It will be updated annually to include the most recent advances in the science and best practice concerning sustainability in the tech services industry.

Input is encouraged from all stakeholders interested in carbon net zero in the Tech industry. Suggestions for changes or futures priorities for the development of the Protocol should be sent to review@netzeronow.org.

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5.3 Guiding Principles of the Protocol

The four principles that guide the construction of the Net Zero Tech Services Protocol are:

Inclusive

To move the Tech sector towards Net Zero, no part of the sector can be left behind. Tech businesses are often deterred from participating in carbon measurement and target setting due to the complexity attached to the process. This protocol has been designed to be accessible and achievable for any type of Tech businesses, regardless of size or scale. This collaborative approach is essential across all sectoral Net Zero Now Protocols.

Pragmatic

The protocol is primarily concerned with accelerating progress towards a wider Net Zero sector. Outputs have been designed to balance this ambition with what is practical and achievable. In order to avoid increased complexity, existing standards are adopted where possible.

Action orientated

Participation must lead to action. This is not an academic exercise, and the focus is not on documenting the status quo but on validating effective change. Immediate action is necessary to guide the sector as a whole to Net Zero by 2030.

Transparent

To eliminate confusion and inconsistency, transparency is key. This protocol aims to allow businesses to make public claims and commitments with confidence. This confidence is built after following the documented methodology which underpins the protocol.

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The Net Zero Tech Services Protocol.

5.4 Who should use the Protocol?

The Net Zero Tech Protocol is applicable for all Tech businesses. It forms part of a range of protocols provided by Net Zero Now across multiple industries. For more information about these initiatives, please visit NetZeroNow.org.

The Protocol is relevant for businesses of all sizes and types but is primary designed for SMEs, defined as businesses with under 500 employees. While the standards within this Protocol are relevant globally, this document has been created specifically for the UK market.

5.5 Relationship to other GHG standards and methodologies

This Protocol incorporates and builds on existing best practice in development of climate strategy. Concerning accounting standards for GHG emissions, the Protocol defers to the GHG Protocol Corporate Standard (including the separate Guidance on Scope 2 and 3 accounting), and PAS 2050 & 20601-5. Sections of the Net Zero Tech Protocol that deal with GHG measurement should be considered as Tech-specific additions to these existing standards.

5.6 Greenhouse Gases

Global warming occurs due to Greenhouse Gases (GHGs) accumulating in the atmosphere, however not all GHGs are equal in terms of their warming potential. Global warming potential (GWP) was developed to allow comparisons of the global warming impacts of different gases. Specifically, it is a measure of how much energy the emissions of 1 tonne of the gas will absorb over a given period of time, relative to the emissions of 1 tonne of carbon dioxide (CO2). The larger the GWP, the more that each gas warms the Earth compared to CO2 over that time period. The time period most frequently used for GWPs is 100 years.[5][6]

An example of the three most common GHGs and their GWP are listed in Figure 1.

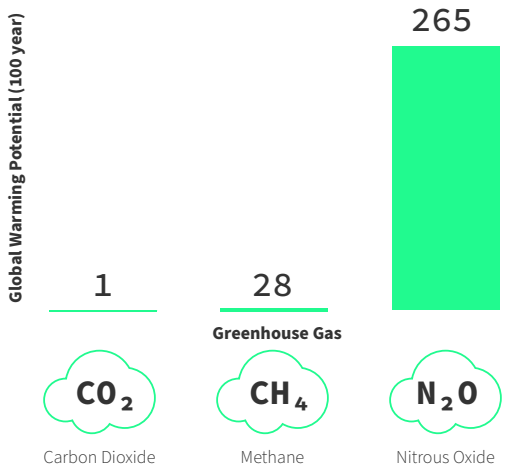

Figure 1. Three most common GHGs and their GWP

These numbers state that, with regards to their contribution to Climate Change, methane is 28x more potent than CO_2, whilst nitrous oxide is 265x more potent than CO_2 . For a full set of GWP, please refer to the IPCC Fifth Assessment Report.[7]

In addition to these, there are a number of other gases such as freons, hydrochloroflourocarbons, tetrafluoroethans, trifluorides, hexafluorides are used in refrigerants, aerosols and various industrial processes. While these gases are produced in much smaller quantities than the three gases listed above, they are extremely potent. These gases have between 1000x – 24,000x greater GWP than CO_2.

5. IPCC, Climate Change 2014.
6. US EPA, 'Understanding Global Warming Potentials'.
7. IPCC, 'Fifth Assessment Report'

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The Net Zero Tech Services Protocol.

5.7 What is not in the Scope of this Protocol

This Protocol recognises the importance for Tech businesses to holistically approach sustainability and corporate social responsibility. However, the Net Zero Tech certification is solely and purposefully focused on climate impacts and should be used in association with other sustainability metrics.

There are a variety of tools, models and frameworks available for businesses to develop a more systemic approach and explore the full range of social, ethical and economic factors at play and the interrelationship between them.

Figure 2, created by Oxford Economist Kate Raworth, is an infographic named the 'Doughnut'. The Doughnut depicts the social and environmental factors that must be managed to ensure the safe and equal distribution of resources globally. There are twelve social foundations and nine ecological boundaries which are recognised within this metric. Within ecological factors, climate change is one of several factors that require urgent action.

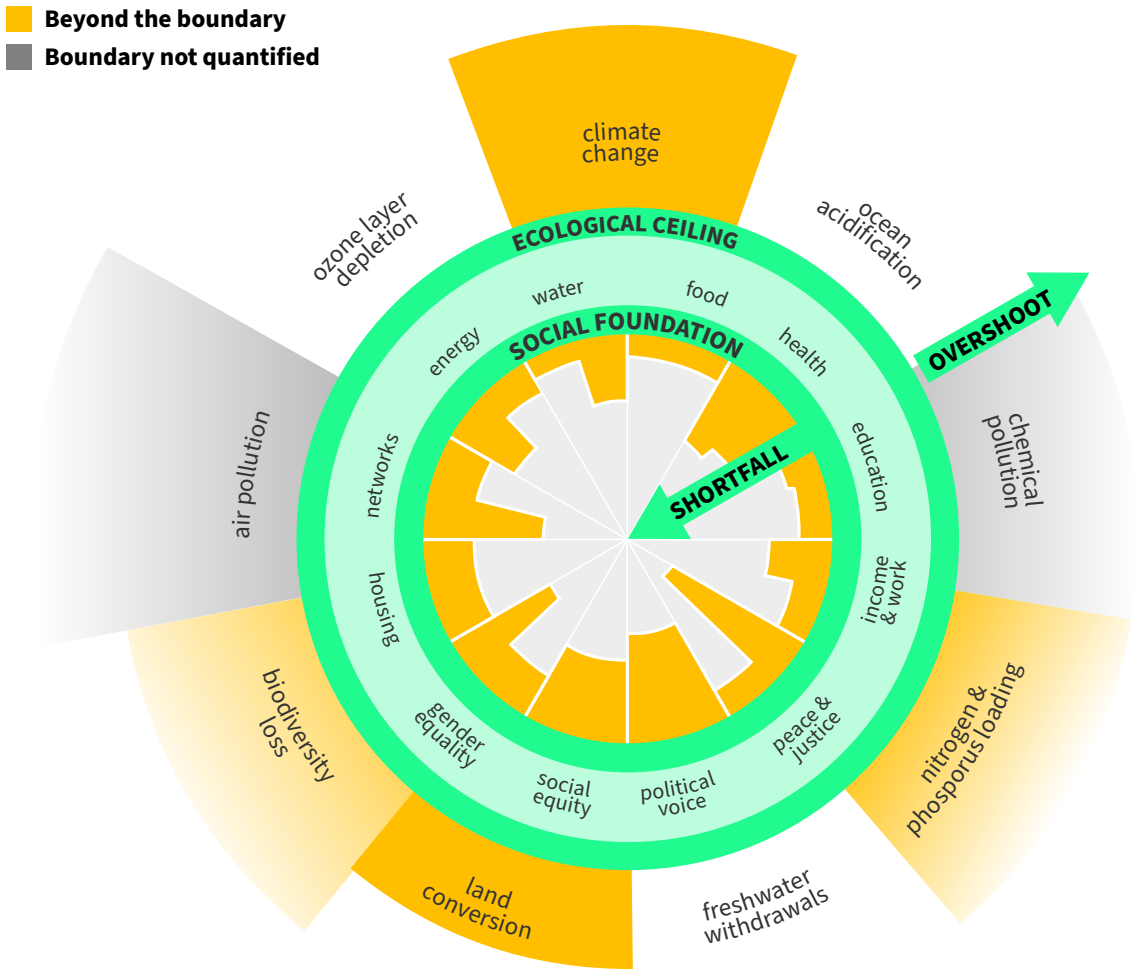

Figure 2. Doughnut Economics Infographic, Kate Raworth 2017[8]

8. Kate Raworth, Doughnut Economics: Seven Ways to Think like a 21st Century Economist, Book, Whole (White River Junction, VT:Chelsea Green Publishing, 2017), http://uu.summon.serialssolutions.com/2.0.0/link/0/eLvHCXMwdZ07C8IwEMcPH4NuPvGtX0CJaVLTUUQRQScnF0maK7q41Iof31xtUQTHJBByEO5_l9wvAfD4jE1_fALTAtFnPlgYN9zouRFah76Ta7RKWbrg3Z_U8qB2e7X1Mvaa6zpNxyqvkgNXzGDyK451Tq4zxv0QUAbhPP5IqgLZ95UvlOI7O3nPJ2SscmX-7qxqUGJWII6FPDWgEoOAcdNqFPgerkl9wnmnS0Yb9bH1XaaJOfsUOX8puKydfA2lFyyjh2YsACtNEKGHJWIjA5c-iOjhRCeDUKUrAudf7P0_g_1ocpJTtLUfwDlyG1NHJJRo9T4Fyy2Xrg

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The Net Zero Tech Services Protocol.

Figure 3 is an infographic provided by the UN on how to use the UN social development goals (SDGs) to become a more sustainable business. The UN states that by understanding their SDGs, measuring and analysing their performance of your business, and then implementing change to improve key areas, your business will become more sustainable. The UN has developed a full downloadable guide on how you can integrate SDGs into your business.[9]

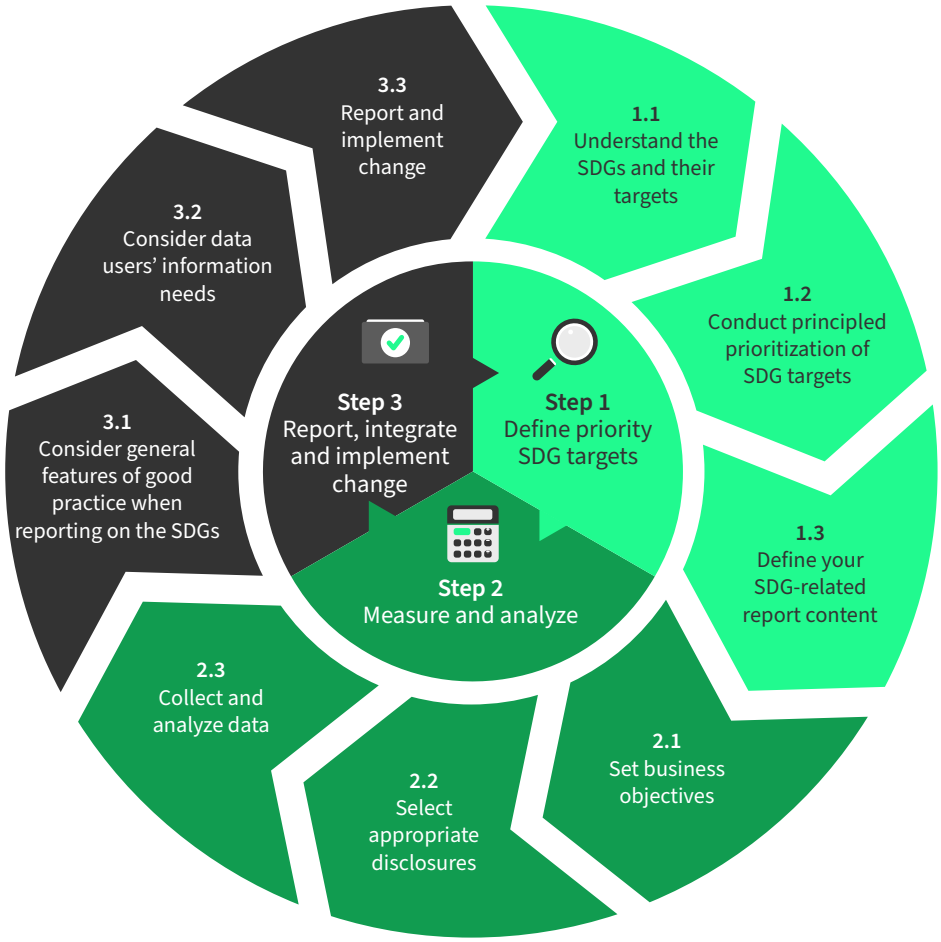

Figure 3. The steps required to integrate the UN SDGs into your business

5.8 Quality of Data

Good quality data is the foundation of accurate climate accounting and the foundation upon which decision making for emissions reduction is based. The GHG Protocol Corporate Standard is clear that for organisations, GHG measurement is not based on direct capture of flow rates and concentration monitoring:

"the most common approach for calculating GHG emissions is through the application of documented emission factors. These factors are calculated ratios relating GHG emissions to a proxy measure of activity at an emissions source"

Emissions calculations are therefore based on a combination of Activity Data that capture the quantity or volume of activity at a source and Emissions Factors that allocate an amount of carbon dioxide equivalent for each unit of that activity.

9. https://www.unglobalcompact.org/library/5628

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The Net Zero Tech Services Protocol.

Businesses should seek to use the highest quality data available, but also understand that the journey towards good quality data is an ongoing process that will improve over time. Figure 4 is an infographic for activity data and emission factors. For the available primary data, specific emission factors should be used. Emission factor specificity will decrease with data reliability. In this regard, a consistent approach should be taken between all Tech businesses from the base year forward.

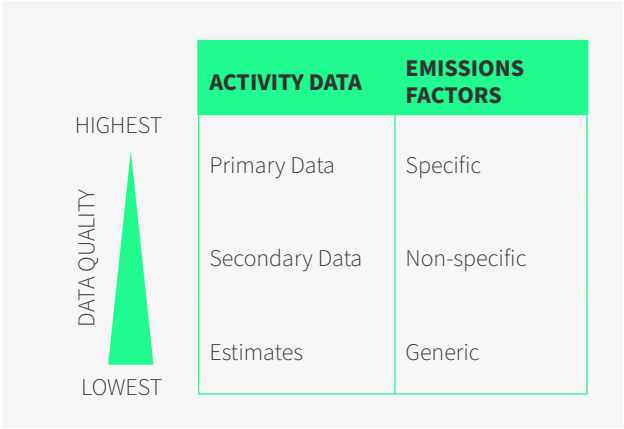

Figure 4. Infographic of data quality, activity data and emission factors

5.9 Use with other Standards and Methodologies

Where the Net Zero Tech Protocol refers to other Protocols (for example the GHG Protocol, Corporate Accounting Standard) the principles of those standards shall apply.

This Protocol incorporates and builds on existing best practice within the development of national and international climate strategy. With regards to the following topics, the protocol will complement and build upon the frameworks of the following standards:

5.10 Accounting Standards

- The GHG Protocol Corporate Standard (including the separate Guidance on Scope 2 and 3 accounting)[10]
- The latest UK Environmental Reporting Guidelines,[11 12]
- PAS 2050 - Specification for the assessment of the life cycle greenhouse gas emissions of goods and services[13]
- PAS 2060 – Carbon Neutrality[14]
- ISO 14064 – 1: Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals[15]

5.11 Target Setting

- Science Based Targets Initiative[16]
- UN Race to Zero[17]

5.12 Carbon Compensation / Offsets

To understand Carbon Offsetting, we must first understand what is meant by a Carbon Credit.

- 1 Carbon Credit = 1 tonne of CO_2e either removed from the atmosphere or prevented from entering the atmosphere

Carbon credits are generated through Greenhouse Gas projects which remove CO_2 or prevent CO_2 from entering the atmosphere. These projects are made possible by the sale of the credits that they generate as a carbon offset.

There are many different types of Carbon Credit and the qualities of those compliant with the protocol requirements are detailed in Section 7.3.

10. GHG Protocol, 'Corporate Value Chain Accounting Report Standard'; GHG Protocol and Carbon Trust, 'GHG Protocol - Technical Guidance for Calculating Scope 3 Emissions'.
11. UK Government, Department for Environment, Food and Rural Affairs, and Department for Business, Energy and Industrial Strategy, 'Environmental Reporting Guidelines'.
12. UK Government and Department for Environment, Food and Rural Affairs, 'Guidance on How to Measure and Report Your Greenhouse Gas Emissions'.
13. British Standards Institution, PAS 2050.
14. British Standards Institution, 'PAS 2060 Carbon Neutrality'.
15. ISO, 'ISO 14064-1', 2018, https://www.iso.org/standard/66453.html
16. Science Based Targets Initiative, 'SBTi Criteria'.
17. UNFCCC, 'Race to Zero Campaign', 2021, https://unfccc.int/climate-action/race-to-zero-campaign.

6 Going Net Zero.

6.1 What is Net Zero?

Climate change remains a global crisis, the severity of which increases each year. The Intergovernmental Panel on Climate Change (IPCC) is insistent that we must limit the rise in average temperatures to 1.5°C from pre-industrial levels to avoid a catastrophic impact. In current projections this temperature is expected to be exceeded as early as 2030 significantly exceeded by the middle of the century. In the same report, the IPCC state that the only way to limit the damage to the environment is to move beyond the current focus on incremental reductions in emissions, and rapidly shift to a low-GHG economy.[18]

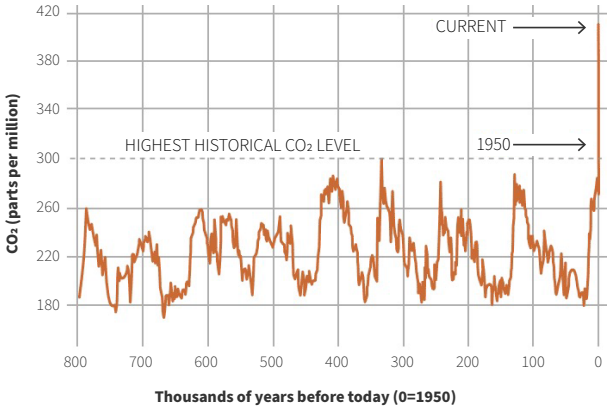

Figure 5. Historical trends of CO_2 emissions in the Earth's atmosphere (Nasa, 2021)[19]

Figure 5 shows the long-term change of CO_2 in the atmosphere. It is clear that the increased levels of CO_2 in the atmosphere over the last century are not part of the normal cycles that have taken place over the last 800 thousand years.

In 2018 alone, it was estimated that human actions added 55 gigatons (55 million tons) of CO_2e to the atmosphere. In the same time period, removals of CO_2e by human action were effectively zero. The result of decades of large imbalances such as this has been increasing concentration of CO_2 in the atmosphere.

When modern CO_2 records were first captured, in 1958, atmospheric CO_2 was measured at 315 ppm. Since the Paris Agreement was signed in December 2015, the atmospheric concentration of CO_2 in the atmosphere has increased from 403 parts per million (ppm) to 417 ppm in June 2021.

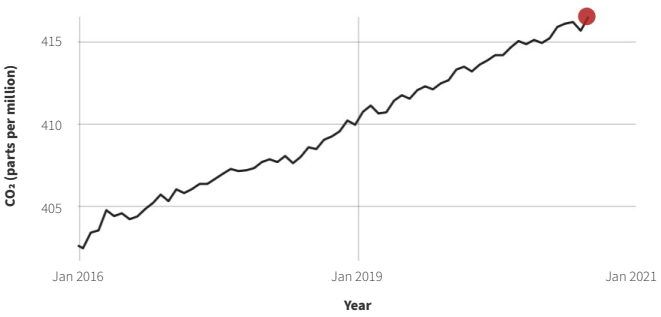

Figure 6. CO_2 concentration in the atmosphere in time period (2016 – 2021)

The UK Climate Change Committee has made clear that while the long-term goal is to reduce anthropogenic GHG emissions to absolute zero, and to have a 100% reduction in GHG from 1990 levels by the mid-century[20], in certain sectors the most pragmatic approach will involve Net Zero emissions in the near term.

The Net Zero economy envisaged by policy makers is one in which the gross emissions associated with human activity are progressively reduced and the remaining, unavoidable emissions are compensated by activity that offsets their impact on the atmosphere. These removals are expected to be crucially important in some sectors where there is difficulty in entirely eliminating emissions.

For businesses, Net Zero is a pragmatic response to the climate challenge which recognises that reducing human made emissions to absolute zero may not be possible in the immediate future, particularly for SMEs. Instead, organisational effort should be directed towards reducing emissions as far as possible each year, leaving a reduced quantity of residual emissions. Capital **should** then be allocated to programs which remove a quantity of greenhouse gases from the atmosphere, equivalent to these residual emissions. Offsetting is a vital process in achieving Net Zero due to the difficulty in removing all emissions. The Net Zero Now protocol provides a realistic approach to achieving a Net Zero status through the progressive gradual reduction of emissions on an annual basis and an allocation of capital to programmes that can offset the impact of residual emissions.

18. IPCC, 'Global Warming of 1.5°C'.
19. www.climate.nasa.gov/vital-signs/carbon-dioxide/
20. Climate Change Committee, 'Net Zero - The UK's Contribution to Stopping Global Warming'.

6

Going Net Zero.

6.2 Net Zero in the Tech Industry

|| 6.2.1 TheTech Industry

The Tech sector is part of the broader Professional Services industry, one of the largest sectors of employment in the UK. As of 2018 the sector accounted for 8.5% of UK employment combining full time and part time working; with an increase of 82,100 employees compared to the previous year. Within the professional services sector, almost all categories of employment increased within the same time period.

Awareness and action around climate change in the industry has been slow. In 1988 the Intergovernmental Panel on Climate Change was established leading to the Kyoto Protocol in 1997 and the Paris Climate Agreement in 2015. Yet as recently as 2019, the Deloittes European CFO survey of 1,168 CFOs revealed the following business perspectives in regard to climate change[21]:

- A thorough understanding of climate risk is rare within business
- Few businesses had governance mechanisms to develop and implement climate strategies
- Targets for emissions reductions were rarely aligned with the Paris Climate Agreement.
- Companies' primary climate response is currently focused on short term cost savings effects

Only in the last 2 to 3 years has climate change started to become a key priority for some UK businesses with pressure applied from a variety of stakeholders including consumers, investors and financial institutions, employees, activist groups and government.

Shift in investor sentiment has been one of the most recent and influential changes in regard to climate change action, with ESG increasingly becoming a top priority for investors. As of 2018 more than $30 trillion in funds were held in sustainable or green investments, a rise of 34% in two years. Investors representing more than $35 trillion in assets have also signed the Climate Action 100+ initiative with the focus on pressuring the largest emitting companies to reduce their emissions. At a recent UN climate summit, a group of investors with assets of $2 trillion pledged to reach net zero by 2050[22].

Many large Tech businesses are now starting to make genuine progress towards Net Zero, highlighting that this is an industry that doesn't have to damage the environment to operate profitably.

Microsoft has committed to become carbon negative as a company by 2030 meaning that by that date it will remove from the environment more carbon than it emits. By 2050, it has committed to remove from the environment all the carbon that Microsoft has emitted directly or through electricity use since the company was founded in 1975.

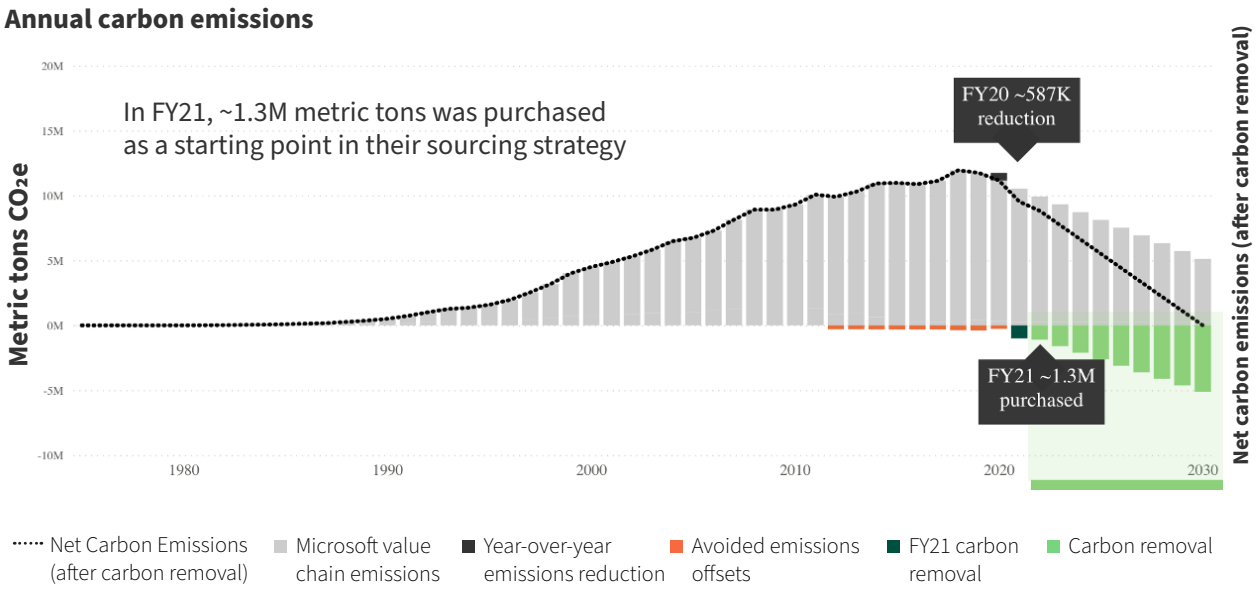

Figure 7. Carbon Removal in Microsoft's Carbon Negative Pathway (Source: Microsoft)

21. European CFO Survey - Into the woods; Deloitte, Autumn 2019. Available: https://www2.deloitte.com/gr/en/pages/finance/articles/autumn-2019-european-cfo-survey.html
22. Ibid

6

Going Net Zero.

These large organisations operate in multiple sectors and have unique organisational structures and therefore require a bespoke solution for reaching Net Zero. Very few SMEs in Tech or any of the professional services have made similar commitments because they do not have the resources to create a bespoke solution and until now, there has been no standardised definition of what Net Zero means for them.

The pandemic has provided another reason why SMEs have been slow to start the journey to Net Zero as many office-based employees have increased the amount of time spent working remotely. Company office locations remain the primary choice for most workers but are now frequently mixed with home working and shared office working spaces. This complicates emissions calculation and reduction for employers due to the lack of control they hold over certain working locations. Some benefits do arise from certain types of remote working such as reduced commuting, a source of emissions that is generally difficult for employers to calculate and reduce.

6.3 Why go Net Zero Now?

It is important to recognise that while there is broad consensus on the need to achieve Net Zero across the UK economy, the associated ambition, in terms of when this must be achieved is more contentious. A target of Net Zero by 2050 is seen by many scientists and climate experts as being too conservative and timid in the face of the urgent need for action[23 24 25]. The historical emissions from industrial processes in the UK combined with the current economic resources available has led many experts to call for Net Zero to be achieved within the next decade.

The following analysis briefly outlines factors which motivate the reasoning to speed up the timeline for Net Zero targets.

|| Ecological

reduce UK emissions in order to contribute to global GHG emission reductions. Global Heating is causing the ice caps to melt, which is leading to rising global sea levels, with some low-lying nations already suffering consequences[26]. The Climate Emergency is leading to severe weather fluctuations around the world, including monsoons, droughts and a long list of associated systemic changes.

|| Social

This environmental emergency is creating a humanitarian emergency, with over 25 million displaced due to weather related hazards in 2019 alone. The UNHCR expects this to rise to over 200 million each year by 2050[27]. Increased global migration will place added pressure on international infrastructure and political systems. Nationally, climate change related weather events have led to flooding, droughts, heat waves, air pollution and various extreme weather events that are life threatening. These events are adversely impacting on citizens lives now, with whole regions of the countries becoming less habitable, leading to the loss of homes and livelihoods.

|| Economic

As well as the well reported macro-level economic benefits of mitigating climate change[28], there are various key business reasons why a business should seek to implement a Net Zero strategy.

Reduce Business Costs

By monitoring energy and material use, many businesses are able to recognise areas where greater efficiency could occur, reducing inefficiencies and waste and delivering operational cost reductions.[29]

Spur Innovation

A focus on internal sustainability can stimulate innovation within businesses, including efficiencies, innovative use of energy and novel products and services.

Meet Customer Demand

As consumers become more knowledgeable on the subject of Climate Change, there is increased expectations on businesses to make a tangible positive impact on the environment through their operations. Consumers are frequently making conscious decisions about their spending and are willing to pay more for sustainable goods and services. There is evidence that consumers are willing to switch brands based on sustainable practices and are more likely to share these decisions with their friends and on social media.[30 31 32 33]

23. 'Net-Zero Carbon Pledges Must Be Meaningful to Avert Climate Disaster'.
24. Dyke, Watson, and Knorr, 'Climate Scientists'.
25. Rogelj et al., 'Net-Zero Emissions Targets Are Vague'; Dyke, Watson, and Knorr, 'Climate Scientists'.
26. 'Chapter 4'.
27. Refugees, '"Climate Change Is the Defining Crisis of Our Time and It Particularly Impacts the Displaced"'.
28. Climate Change Committee, 'Net Zero - The UK's Contribution to Stopping Global Warming'.
29. Climate Change Committee.
30. Kim et al., 'Country-Specific Dietary Shifts to Mitigate Climate and Water Crises'.
31. Griskevicius, Tybur, and Van den Bergh, 'Going Green to Be Seen'.
32. de Groot and Steg, 'General Beliefs and the Theory of Planned Behavior'.
33. Gilg, Barr, and Ford, 'Green Consumption or Sustainable Lifestyles?'

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Going Net Zero.

Improve Employee Retention

Considering the effects of investing on sustainable practises on employees, researchers have found that employees in companies with strong sustainability programmes had increased morale and loyalty, while the turnover was reduced. Additionally, sustainability positively impacts nearly all traditional dimensions of employee engagement including alignment, discretionary effort, advocacy for the company and pride.

|| Political and Legal

Many governments have set legally binding targets concerning climate goals[34] and the landmark legal ruling concerning Shell demonstrates how courts intend to enforce these laws.[35]

In addition to this, new regulation is expected to follow the UK Government's 2021 consultation on the need for all businesses to publish Scope 1,2 and 3 GHG accounts.

Several FTSE 100 companies, cities and governmental organisations have set Net Zero by 2030 targets[36]. There is a growing need for a framework for businesses, and particularly SMEs, that seek to provide a leadership role in setting the benchmark for Net Zero GHG emissions. The Net Zero Now Tech Services Protocol seeks to provide this framework to businesses in the tech industry, in order to achieve Net Zero targets.

34. UK Government, 'UK Enshrines New Target in Law to Slash Emissions by 78% by 2035'.
35. https://www.bbc.co.uk/news/world-europe-57257982
36. BSI, 'Net Zero Barometer Report'.

6

Going Net Zero.

6.4 How to achieve Net Zero

There are five steps to achieve the Net Zero Tech certification. While these steps are set out sequentially, they may be carried out in parallel. An outline approach to each of the steps along with their particular requirements is provided in the next sections. Figure 8 is an infographic explaining the five steps professional service businesses must take in order to achieve the Net Zero Tech certification.

Step 1: Calculate

- Complete a full GHG calculation and disclosure in line with follow GHG Protocol Corporate Standard
- Include all Scope 1 and Scope 2 emissions plus all sector material Scope 3 emissions

Step 2: Mitigate

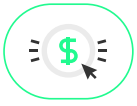
- Commit to ambitious reduction targets in line with what is required to restrict warming to less than 1.5ºC
  i. an absolute GHG emissions reduction (Scope 1 and 2) of at least 50% by 2030
  ii. At least 30% reduction of our scope 3 emissions within 5 years
  iii. A long term reduction target of -90% across all scopes, no later than 2050 with compensation for residual emissions
- Develop a credible mitigation plan to meet the target, and publish annual updates on progress to target

Step 3: Validate

- Submit evidence of compliance with protocol requirements to Assessor
- Provide any supporting documentation required

Step 4: Communicate

- Publish Net Zero commitment along with detailed footprint and reduction plan and details for credits purchased
- Adhere to the terms of use for the certification mark in stakeholder communications
- Advocate for widescale adoption of Net Zero commitments



Step 5: Compensate

- Once the 90% reduction target has been reached, purchase and retire carbon dioxide removal credits equivalent to the residual footprint
- Only purchase credits that meet good quality standards and are compliant in composition with the oxford principles. They **must** retire within 12 months of the accounting period end
- Commit to maintain status as a Net Zero business

Figure 8. Net Zero Professional Services certification steps

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Going Net Zero.

6.5 Step 1. Calculate

This section covers the methodology for calculation of GHG emissions consistent with the business achieving the Net Zero Tech certification. It is intended to complement and add to the methodology detailed in the GHG Protocol Corporate Standard.[37]

The Calculation step requires two parts: Define and Measure.

6.5.1 Define

The subject to which the Net Zero Tech certification is being applied must be clearly defined by name and by description of relevant legal and/or physical boundaries. The duration of the time period under consideration **must** be defined and **should** cover a 12-month period.

Organizational boundaries **must** be clearly defined, considering the subject's circumstances, and must be consistent across calculation of GHG emissions covering all three scopes. The boundaries **must** be a fair representation of the total GHG emissions of the business. Equity share or control approaches to the accounting of emissions **must** be chosen and remain constant throughout the process. For further information regarding how to choose between the equity share or control approaches please check the GHG Protocol Corporate Standard or ISO 14064-1.

The entities to be covered include all those related with the Tech service.

The definition of the subject **must** remain constant through all the required steps in the Net Zero Tech Protocol. If the definition of the subject changes during the certification process, the steps **must** be re-started taking into account the introduced changes.

Figure 9 is a diagram displaying an overview of all the GHG Sources that **must** be included within the calculation of subject GHG emissions. Adopting GHG Protocol terminology, this includes all Scope 1 and Scope 2 emissions, plus the upstream and downstream Scope 3 emissions that are most relevant for the Tech industry. Section 7.1.2 lists these sources in more detail.

All indicated sources **must** be reported and any exclusion and the rationale for the exclusion **must** be clearly indicated in the provided data.

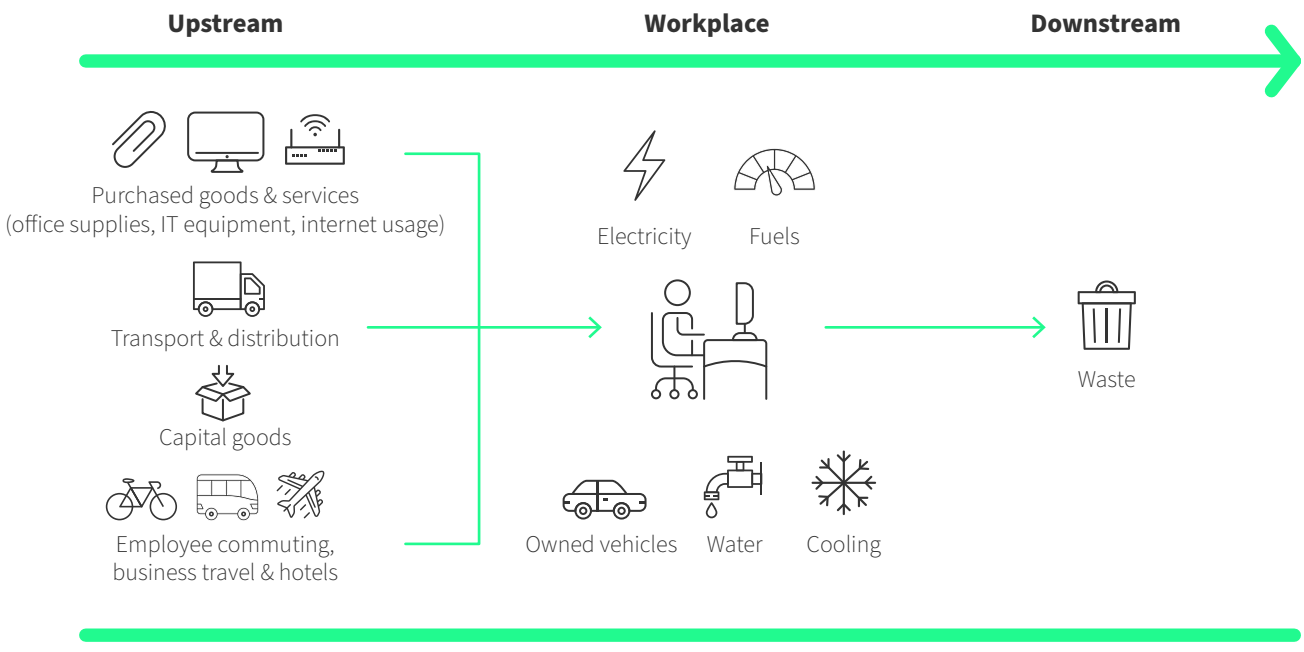

Figure 9. An overview of professional service emission sources

37. GHG Protocol, "Corporate Standard" and 'Corporate Value Chain Accounting Report Standard'

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Going Net Zero.

6.5.2 Measure

AAfter defining the subject and establishing the boundaries that will be used throughout the GHG accounting, the GHG emissions of the subject **must** be measured to provide a complete, consistent, and relevant GHG inventory over the defined timescale.

The Tech firms GHG emissions **must** be assessed in accordance with the requirements established in this section.

For each of the mandatory sources the subject **must** identify appropriate activity data covering the defined time period and multiply this by appropriate emissions factors.

In many countries, the emissions factors covering many of the operations sources are published annually by government (in the UK this service is provided by the Department of Business, Energy and Industrial Strategy)[38] and the subject **must** use national, regional, international or other emission factors of relevance, prioritising those most closely associated with the emission source.

Emissions data **must** be reported in units of GHG or CO2e according to the 100-year potential of each gas. GWP factors included in the latest report of the Intergovernmental Panel on Climate Change (IPCC) **should** be included. GWP factors used in the assessment **must** be clearly reported.

Required emission sources that can be demonstrated to represent a value of less than 0.5% of total emissions for the business (but collectively no more than 5% of total emissions) may be excluded where evidence can be presented to demonstrate that quantification would not be technically feasible, practicable or cost effective. Where a single source contributes more than 50% of the total emissions, the 95% threshold applies to the remaining sources of emissions.[39]

The method for calculating all purchased goods and service emissions **must** use emissions factors covering all emissions from cradle to retail (point of purchase). The subject **must** complete calculations for all purchased goods and service types that are relevant to their business.

The entity **must** clearly document and explain any estimations and assumptions used in the calculation of the inventory. Where changes have been made to the methodology, these **should** be described in a transparent manner.

One of the primary benefits of the Net Zero Tech Protocol is how it seeks to bring together an otherwise disparate set of emissions factors relevant to business in the Tech industry. Details concerning the methodology for selection of approved data sets, can be found in the online appendix at www.netzeronow.org. This information will be constantly updated, in order to keep up with the burgeoning field of research in lifecycle assessments.

38. UK Government, 'Greenhouse Gas Reporting'.
39. Science Based Targets Initiative, 'SBTi Criteria'

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Going Net Zero.

6.6 Step 2. Mitigate

This section covers the creation and implementation of an emissions reduction target and a framework for taking action to reduce GHG emissions in alignment with the ambition criteria of the Science-Based Targets initiative.

6.6.1 Set a Target

Reducing emissions is an essential step in the Net Zero process. The subject **must** set a target to reduce its GHG emissions in-line with the latest science regarding climate change.

To achieve the Net Zero Tech certification, the business **must** have set a reduction target in compliance with the ambition criteria of the Science Based Targets initiative (SBTI)[40] and commit to eliminate revenue generated from climate negative activities within 5 years.

The emissions reduction target **must** represent at least:

i. At least 30% reduction of our scope 3 emissions within 5 years[41]
ii. An absolute GHG emissions reduction (scope 1&2) of 50% by 2030
iii. A long term reduction target of -90% across all scopes, no later than 2050 with compensation for residual emissions

A client analysis activity, we call Scope X, **must** be carried out by the Tech business. They **must** demonstrate that they generate more revenue from climate positive activities than from climate negative activities. More information can be found in section 7.2.2.

Emissions data from the most recent year **should** be used as a base year for the reduction calculations, or according to the provisions for business interruption.

6.6.2 Reduce Emissions

This step covers the actions that may be taken to reduce emissions by Tech businesses with the objective to achieve the targets set in the previous step.

The Tech business **must** provide an achievable carbon emissions reduction plan to meet the emissions targets set. The largest sources of emissions **should** be prioritised, and cost-effectiveness of the measures **should** be taken into consideration, regarding alternative emission reduction actions.

The methodology used to forecast GHG emissions reductions should align with that used to quantify the original GHG emissions, and therefore the same principles apply.

GHG reduction plans **must** be reviewed at least annually and progress against planned actions **must** be tracked. Feasibility assessments of possible additional action **should** be undertaken to ensure that the required reduction targets are met. A director or senior manager **should** be responsible for the development and implementation of the emission reduction plan.

A guide to the actions that may be considered to reduce missions is outlined in Section 7.2.2 as well as an online resource available here.

40. Science Based Targets Initiative, 'Towards a Science Based Approach to Climate Neutrality in the Corporate Sector (Draft for Comments)'.
41. Race to Zero Campaign, 'Race to Zero Pledge'.

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Going Net Zero.

6.7 Step 3. Validate

After performing the three activities that concern the calculation, target setting and action plan for GHG emissions produced by the Tech firm, the last technical step towards the Net Zero Tech certification is for a qualified party to assess and validate the conducted activities.

The subject business **must** submit all the required information, as stipulated in the protocol, to achieve the Net Zero Tech certification to a qualified assessor.

The assessor will review the documentation and award the certification to the subject business if all requirements are met. The assessor can at any time require further detail in any of the areas concerning the documentation if doubts about any of the principles stated in this protocol arise, including completeness, accuracy and robustness of data provided, and the subject business **must** provide it to successfully achieve the certification.

Businesses that calculate, set targets, and develop action plans in accordance with the criteria have the option to be certified:

On the Road to Net Zero:

- **Carbon Footprint:** Businesses need a verified assessment of their carbon footprint over a 12-month period, calculated in accordance with this protocol
- **Emissions Reduction:** Businesses **must** commit to meeting the short-term emissions reduction targets as prescribed in this protocol

To retain their Net Zero Certification, businesses **must** complete and publish an annual validated carbon footprint and details of any carbon offsets initiatives used to compensate for any residual emissions.

In each case, the applying business **must** take action towards meeting the reduction targets and continue to follow this pathway. If the applying business falls below 65% of the target reduction pathway, it **must** demonstrate that measures are in place to correct this, or certification will be removed.

If the applying business has put in place a rectification plan but still falls below 65% of the target reduction for 2 consecutive years, certification will be suspended.

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Going Net Zero.

6.8 Step 4. Communicate

The final step consists of making accurate, transparent and relevant information about the details and process of becoming a Net Zero Tech business available to all stakeholders and using the certification to engage stakeholders.

The Net Zero Tech certification marks are the main tool provided to communicate the net zero status of the business to stakeholders. The ability and right to use the mark is dependent on the ability of the business to complete all the certification requirements successfully.

Once certified, Tech businesses **should** use the mark to communicate their actions and raise awareness of their status, ensuring that all communications **must** be factually based, providing clarity and transparency about the procedures and results achieved to avoid misunderstandings. The use of the Net Zero Tech certification marks **must** comply with the requirements and guidance stipulated on its use.

The Tech businesses participating in the Net Zero Tech certification must disclose all GHG inventory metrics related to the certification, including gross emissions, targets, reduction activities, current progress to targets, and details of carbon credits.

Tech businesses **should** also ensure that all claims are consistent with any national or regional guidance or legislation concerning green claims.

6.9 Step 5. Compensate

Tech businesses that have reduced their emissions by 90% from base year shall purchase certified carbon offsets equivalent to their residual emissions to be certified as Net Zero.

7

Detailed Guidance.

This chapter aims to provide more detailed and technical information of how to reach Net Zero, using the same structure as laid out in the previous section.

i. Calculate
ii. Mitigate
iii. Compensate
iv. Validate
v. Communicate

7.1 Calculate

Calculating emissions requires the use of two types of data: activity data and emission factors.

"Activity data" is a quantitative measure of a level of activity that results in GHG emissions (for example, litres of fuel consumed, or kilograms of material purchased).

An "emission factor" is a factor that converts activity data into GHG emissions data (for example kg CO_2 emitted per litre of fuel consumed, or kg CO_2 emitted per kilograms of material produced).

Tech businesses **must** follow the guidelines for setting organisational and operational boundaries set out here and in Chapters 3 & 4 of the GHG Protocol.[42]

|| 7.1.1 Organisational Boundaries

Tech businesses **must** define the organisational entity that is the subject of the certification. Certification requirements apply to this entity as well as any subsidiaries.

Tech businesses operating in multiple countries, even if they are under the same brand, are considered as different organisations for each country and **must** apply separately.

For Tech businesses with multiple sites, or numerous activities taking place under the same brand name, all sites and brands that operate under the same brand nationally, **must** contribute data to the certification process.

The following activities must always be included to achieve a Net Zero Tech certification[43]:

- Any accounting directly managed by the certification holder, or that operates under the same brand, that contributes to the activities performed at the business.
- Any upstream and downstream activities performed by third parties that are necessary to the functioning of the business (e.g., transportation, production of office commodities, etc.).

The Net Zero Tech Services certification is held by the certificate holder, and it is not transferrable to other supply chain entities.

|| 7.1.2 Operational Boundaries

Emissions inventories **must** include activities of any Tech service or other site managed by the organisation that form part of its operations as well as the upstream and downstream activities performed by third-parties that are necessary to the functioning of the professional service (e.g. business travel, office supplies, etc).

Tech businesses **must** account for all the emissions from sources identified as "required" in Figure 10. This includes all scope 1 (direct) and scope 2 (indirect) emissions together with the most material scope 3 (value chain) emissions.

42. GHG Protocol and Carbon Trust, 'GHG Protocol - Technical Guidance for Calculating Scope 3 Emissions'
43. DEFRA, BEIS, and UK Government, 'Environmental Reporting Guidelines'.

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Detailed Guidance.

GHG Assessment Emission Sources						Certification
GHG Protocol: Corporate Standard Scope 1 and 2. Value Chain Standard Scope 3	Scope 1				Direct emissions arising from owned, leased or directly controlled stationary sources that use fossil fuels and/or emit fugitive emissions (e.g. natural gas, refrigerants)	
					Direct emissions from owned, leased or directly controlled mobile sources (e.g. leased cars, refrigerants)	
					Direct emissions from employee mileage claims	
	Scope 2				Emissions from the generation of purchased electricity, heat, steam or cooling	
	Scope 3 upstream	1	Purchased goods & services	1a.	Office commodities supplied to the subject	
				1b.	Internet and server usage, cloud storage	
				1c.	Mains water supplied to the subject	
				1d.	Other goods and consumables	
				1e.	Subcontractors	
		2	Capital Goods			
		3	Fuel and energy related activities (not included in Scope 1 or Scope 2)	3a.	Upstream emissions of purchased fuels	
				3b.	Upstream emissions of purchased electricity, e.g. Utility bill from landlord, work from home electricity supply, rental space electricity supply	
				3c.	Transmission and distribution (T&D) losses	
				3d.	All other fuel and energy related activities	
		4	Upstream transportation and distribution	4a.	Outbound courier deliveries of packages	
				4b.	Third-party transportation and storage of service-related goods	
				4c.	Third-party transportation and storage of sold products	
				4d.	All other upstream transportation and distribution	
		5	Waste generated in operations	5a.	Recycled waste by category	
				5b.	Waste to landfill or to incineration	
				5c.	Mains water waste	
		6	Business travel	6a.	All transportation by air, public transport, rented/leased vehicle and taxi	
				6b.	Emissions arising from hotel accommodation associated with business travel	
				6d.	Events / conference overhead	
		7	Employee commuting			
		8	Upstream leased assets			
	Scope 3 down-stream	9	Downstream transportation and distribution	9a.	Third-party deliveries services	
		10	Processing of sold services			
		11	Use of sold services			
		12	End-of-life treatment of sold services			
		13	Downstream leased assets			
		14	Franchises	14a.	Franchise Licensed Premises	
		15	Investments			

Legend — Required — Recommended — Not required

Figure 10. A list of all emission sources Tech businesses must account for

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Detailed Guidance.

7.1.3 Measure

Tech businesses **must** follow the GHG Protocol methodology for calculating emissions or ISO 14064-1[44][45]. For each emissions source, Tech businesses **should** identify the relevant unit metric, the activity or consumption data for the year and the associated unit emissions factors. Unit emissions factors can be specific to the product or service used only if a life cycle analysis has been carried out and data published. Otherwise, industry benchmarks **must** be used and explicitly referenced in the calculations.

All GHG emission sources included in the emissions assessment **must** be categorised and published according to the categories defined in Table 3. Each of the categories defined as required within the Protocol **must** contain information with either the calculated result, a zero result, or a clear reasoning behind its exclusion from the assessment.

For general guidance on all categories set out in Table 2, please refer to the GHG Protocol Standard or ISO 14064-1.[47][48]

> “Direct measurement of GHG emissions by monitoring concentration and flow rate is not common…the most common approach for calculating GHG emissions is through the application of documented emission factors. These factors are calculated ratios relating GHG emissions to a proxy measure of activity at an emissions source.”[46]

An example of the data required for an electricity consumption figure is shown in Figure 11:

Scope 2

Emissions from the generation of purchased electricity

Unit metric
kWh

Annual Consumption
20,000

Emissions Factor kg CO_2e/ kWh
0.212

KG CO_2e
4,200

Figure 11. Example emissions calculated from electricity consumption

- the unit metric is kWh
- the consumption is drawn from electricity invoices from the supplier or monitoring of the electricity meter
- the associated emissions factor is drawn from published sources

44. ISO 14064 – 1: Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals.
45. GHG Protocol, ‘Corporate Value Chain Accounting Report Standard’.
46. World Business Council for Sustainable Development and World Resources Institute, ‘A Corporate Accounting and Reporting Standard (Revised Edition)’.
47. GHG Protocol and Carbon Trust, ‘GHG Protocol - Technical Guidance for Calculating Scope 3 Emissions’.
48. ISO 14064 – 1: Greenhouse gases — Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals

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Detailed Guidance.

|| 7.1.4 How to report GHG Emissions from Carbon Neutral and Net Zero Suppliers

Businesses are increasingly considering the option of becoming carbon neutral while offering services to other companies. As an increasing practice, this will have an impact on GHG emissions calculation for businesses that trade with them.

When accounting for these services in the GHG inventory the following steps **must** be followed:

1. Suppliers **must** provide written confirmation that the goods or services provided are Net Zero or carbon neutral and any relevant third-party certification.
2. Where certification is not provided an inventory for the supplier's GHG emissions and evidence of the purchase and retiring of equivalent approved carbon credits is required.

Where confirmation is provided that a supplier was offering a Net Zero product or service during the accounting year, the subject business may account for goods or services purchased from this supplier as zero emissions.

If suppliers are not fully Net Zero or carbon neutral but make claims to have substantially lower emissions than the market average, it is recommended that they produce an independent Life Cycle Analysis detailing the carbon footprint of the products. This LCA **must** then be attached to the footprint, to ensure that the lower emissions can be accurately calculated.

|| 7.1.5 Scope 1 - Direct Emissions

Scope 1 emissions are the direct emissions associated to your business. This includes any fuel combustion for heating (e.g. natural gas boiler), fuel for transport in company owned vehicles (or for any mileage claimed back), chemicals required for air conditioning or refrigeration in an open looped system and any process emissions.

Fuel / Refrigerant / Process gas ($kg\ CO_2e$ / volume) **X** Volume (L or m^3)

|| 7.1.6 Scope 2 – Indirect Energy Emissions

Scope 2 emissions are the indirect energy emissions associated to your business. They are the emissions associated with the electricity, heat and steam purchased from the national grid. If your business does not purchase energy directly from an energy supplier, but rather it's included within a utility bill, provided by a 3rd party (e.g. a landlord, shared workspace, etc.), please see section 7.1.9, 'all-inclusive bill' scenario, for more information.

For businesses that purchase "green" electricity, both the average locational grid factor and market factor **should** be reported i.e. calculated and reported once with the national grid emission factor, and a second time with an emission factor specific to the supplier. For further guidance see GHG Protocol Scope 2 Guidance[49].

Electricity / heat / steam ($kg\ CO_2e$ / kWh) **X** Consumption (kWh)

|| 7.1.7 Scope 3 - Purchased goods and services

This section details how the greenhouse gas impact of purchased goods and services, from cradle-to-retail, is accounted for in Scope 3 emissions under the Net Zero Tech certification.

Tech businesses **must** account for all upstream emissions of the office. Businesses **should** include all purchased items and services within their Scope 3 accounting and **must** include 90% by purchase value.

In accordance with the Quality Data principles (Section 5.8), emissions for each source s**hould** be calculated with best quality activity data and emissions factors available.

In the absence of item specific emissions factors, businesses **should** adopt a pragmatic approach towards achieving a complete GHG assessment of raw material purchases with best match emissions factors.

When calculating the impact of purchased items or services in terms of GHG emissions, more accurate emissions factors **should** be prioritised where available with full source details submitted with validation documents.

49. GHG Protocol Scope 2 Guidance

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Detailed Guidance.

Use of peer reviewed studies may be allowed in the context of the Net Zero Tech certification and **must** be first submitted to Net Zero for approval.

Figure 12 lists the most commonly used purchased goods and services by Tech firms and specific calculations **should** be completed for each item. Where additional products are used, and specific emissions factors are not available, the nearest feasible category **should** be used.

This is not an exhaustive list and may be added to with more specificity. However, purchased goods and services reporting **must not** be less specific than this list.

OFFICE COMMODITIES
Paper
Stationery
Furniture
Uniforms
IT
PC/Laptops
Monitors
Phones
Internet Usage
Data Centre Usage
SERVICES
Subcontracting
Physical Products
FOOD & DRINK
Tea and Coffee
Milk
Snacks
Entertaining and subsistence

Figure 12. Required purchased goods and services

Office commodity supplied to the subject || **Paper**

Unit metric
1 kg
Annual Consumption
10,000
Emissions Factor kg CO_2e/ kWh
0.19
KG CO_2e
1,860

Figure 13. Example emissions calculated from purchased goods consumption

Office commodity supplied to the subject || **Laptop**

Unit metric
1 laptop
Annual Consumption
10
Emissions Factor kg CO_2e/ laptop
329
KG CO_2e
3,290

Figure 14. Example emissions calculated from services consumption

Figures 13 and 14 are example calculations for purchased goods and services.

|| 7.1.7.1 Scope 3 - Data Centres

Figures from the UK energy research centre indicate that Data Centres in the UK consume around 38 TWh of electricity, or roughly 10% of the total UK consumption.[50]

Many tech businesses will rent space for servers in a third party data centre and the energy consumption associated with this may represent a significant part of the emissions profile. The accuracy with which this consumption can be assessed depends on the provider's billing method.

Larger deployments may have metered power billing, in which case the electricity consumption for the servers will be itemised alongside additional charges and total electricity consumption is equivalent to:

kWh **X** (PUE+1)

On a fixed price or allocated kW billing approach there is a commitment to pay a fixed fee for an amount of circuits or power and penalties for exceeding this. In this case, the energy consumption is less correlated to the billing and more to the installed capacity and users should calculate:

servers **X** server power rating (400w) **X** 8,760 **X** (PUE+1)

50. https://ukerc.ac.uk/news/uk-data-centres-carbon-neutral-by-2030/

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Detailed Guidance.

7.1.8 Scope 3 - Capital Goods

Emissions associated with large capital goods purchases such as vehicles, construction or technical electronic equipment must be accounted for in full in the year in which they are purchased. They are not amortised as may be the case with financial accounting methods. For full details of this, please refer to Category 2 in the GHG Protocol Technical Guidance.[51]

Due to the high variation in available capital goods the supplier of the good is the first source of data for emissions factors. If this is not available, the carbon footprint of manufacturing the assets should be calculated by life cycle analysis in accordance with ISO 14040:2006 or from peer reviewed literature.

7.1.9 Scope 3 - Fuel and Energy Related Activities

This section details how the greenhouse gas impact of electricity, heat and steam purchased not from an energy company, is accounted for in Scope 3 emissions under the Net Zero Now Tech Protocol.

Most businesses will purchase their electricity, heat and steam directly from an energy supplier e.g. Ecotricity and report within Scope 2. However, there are circumstances where this is not the case e.g. working in shared offices (e.g. WeWork), an all-inclusive services bill, or employees working from home. If your business hosts events, the electricity supplied to the event location **should** also be calculated within this section. Other goods and transport associated to the event **should** be included within purchased goods and services, as well as upstream and downstream transportation. This section of the Net Zero Tech Protocol details how energy emissions associated to shared offices, an all-inclusive utility bill, work from home and events are calculated.

Shared Office Scenario

Within a shared workplace, the emissions associated to your business are a percentage of those generated by the overall metered area.

Whether you hot desk, or rent three floors, to calculate the emissions associated with your energy use you **must** know the energy use associated with the building as a whole and divide by the proportion for which you are responsible: either a square meter fraction for fixed office space, or per employee per day for hotdesking.

The assumption for this calculation is that energy usage is uniform across the building.

If the energy consumption of the whole building or relevant metered area is unavailable, the methodology for the all-inclusive scenario **must** be followed.

All-Inclusive Utility Bill Scenario

If the electricity bill for the building as a whole is unattainable, or your business is provided with a single service bill that combines rent and utilities, the following methodology **must** occur to obtain the emissions associated to Scope 3 fuel and energy related activities.

The UK government provides a tool which estimates the carbon footprint of a building from required energy certificates. The tool is able to provide an annual mass of CO_2e provided per m^2. By knowing the postcode of your building and the total m2 of office space your business rents, you are able to calculate the CO_2e of energy consumption based on the size of office space rented.

UK government energy certificate tool:
https://find-energy-certificate.digital.communities.gov.uk/find-a-certificate/type-of-property

Where the area in M2 allocated to your business is not clear, the benchmark for area per employee **should** be used:

Basic: **$10m^2$ / employee**

Comfort: **$15m^2$ / employee**

Luxury: **$20m^2$/ employee**

Work from Home Scenario

In the situation where employees work from home, the energy consumption associated to the employee working on the business **must** be measured and reported.

The adopted approach uses average daily incremental energy use data for gas and electricity that results from employees working from home.

2.47 kWh electricity per person per day

8.91 kWh natural gas per person per day

51. GHG Protocol and Carbon Trust, 'GHG Protocol - Technical Guidance for Calculating Scope 3 Emissions'.

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For further information, see the Anthesis Working from Home White Paper[52].

Estimates may be used to derive the number of days during the accoiunting year that employees spent working from home and these may be supplemented by sampling surveys of employees in larger businesses.

Events

The emissions associated with the energy consumption of hosting an event **must** be calculated and reported for the Net Zero Tech Protocol. The methodology to do so follows similar methodologies for the shared office scenario or the all-inclusive scenario.

If the annual energy consumption for the building rented as a whole is known, then the energy consumption of the event can be calculated by dividing this figure by the number of days the building has been rented for, and the percentage of the building used for the event. If the annual energy consumption of the building is unknown, the UK government energy certificate tool **must** be used in its place.

|| 7.1.10 Scope 3 - Upstream Transportation and Distribution

Tech businesses **must** calculate and report the emissions associated with their upstream transportation and distribution, such as third-party transportation and storage of service-related goods.

Delivery Method (CO_2e/km) **X** Deliveries Made (#) **X** Average Distance (km)

|| 7.1.11 Scope 3 - Waste

All waste produced by Tech businesses **must** be recorded. Recycled and non-recycled waste **should** be categorised.

Mass of material by type (tonnes) **X** Disposal method (kg CO_2e / tonne)

Where categorisation of waste is not available, businesses **should** use a single quantity of general waste

Where disposal method is not available, businesses **should** assume landfill.

Where no quantity, category or disposal method data is available, businesses **should** assume 97kg general waste per employee, disposed of to landfill.[53]

|| 7.1.12 Scope 3 - Business Travel

This category details how the greenhouse gas impact of business travel is accounted for in Scope 3 emissions under the Net Zero Tech Services certification.

Business travel includes emissions from the transportation of employees for business-related activities in vehicles owned or operated by third parties, such as:

- Aircraft
- Trains
- Buses
- Ferries
- Passenger cars

Emissions from transportation in vehicles owned or controlled by the reporting company are accounted for in either scope 1 (for fuel use) or scope 2 (for electricity use). Emissions from leased vehicles operated by the reporting company not included in scope 1 or scope 2 are accounted for in scope 3 (Upstream leased assets). Emissions from transportation of employees to and from work are accounted for in scope 3, (Employee commuting)[54].

Emissions from business travel **must** be recorded in the format of transportation method and distance travelled.

Distance (km) **X** Transportation method (kg CO_2e / passenger / km)

Emissions from business travellers staying in hotels **must** be calculated and reported within the Net Zero Now Tech Services Protocol. Where applicable, the emissions associated to attending an event, e.g. a conference **should** also be reported.

Hotel visit (no. of nights) **X** Hotel country of origin (kg CO_2e / night)

52. Estimating energy consumption & GHG emissions for remote workers. Anthesis. 2nd February 2021. Available: https://www.anthesisgroup.com/whitepaper-estimating-energy-consumption-ghg-emissions-for-remote-workers/
53. The World Bank, Trends in Solid Waste Management to 2050
54. GHG Protocol Scope 3

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7.1.13 Scope 3 - Employee Commuting

Tech businesses **should** carry out an employee transport survey capturing a representative sample to quantify the climate impact of employee travel. If a survey is not completed impact **must** be calculated based on an estimation of the total annual number of journeys made for each transport type, together with the average distance travelled per journey.

Commuting Method (kg CO_2e/km) **X** Journeys Made (#) **X** Average Distance (km)

7.1.14 Scope 3 - Upstream Leased Assets

Tech businesses **should** include the emissions associated to the operation of any leased assets in the reporting year that are not already included in the S1&2 data.

7.1.15 Scope 3 - Downstream Transportation and Distribution

Tech businesses **must** calculate and report the emissions associated with their downstream transportation and distribution, such as requiring third-party to travel as part of the service delivered.

Distance (km) **X** Transportation method (kg CO_2e / km)

7.1.16 Scope 3 – Franchises

Where a business operates franchises under a common brand, all franchisee emissions **must** be included in the franchisor GHG inventory.

For reporting purposes the franchise owner **must** calculate and report under its scope 3, Category 14 emissions.

1. The scope 1 and scope 2 GHG emissions of the franchisees
2. The scope 3 GHG emissions of the franchisees

The Franchisor shall be responsible for cascading emissions reduction targets to the Franchisees and making arrangements for the allocation of any associated carbon compensation costs.

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7.2 Mitigate

7.2.1 Set Targets

Tech businesses **must** set and publish targets for emissions reduction that are supported with a base year, timescales and a clear achievability plan.

Science-based targets (SBTs) are carbon emission targets that are specifically developed in line with climate science and the level of decarbonisation that is required to limit global temperature increase in line with science. SBTi is a collaborative initiative by CDP, World Resources Institute (WRI), the WorldWide Fund for Nature (WWF) and the United Nations Global Compact (UNGC), that helps companies to set targets aligned with science by providing guidance, effectively helping them transition into a low carbon economy.

To receive certification under the Net Zero Tech Services Protocol, Tech businesses **must** have or set a reduction target in compliance with the ambition criteria of the Science Based Targets initiative (SBT).

The emissions reduction target must represent at least:

i. At least 30% reduction of our scope 3 emissions within 5 years
ii. An absolute GHG emissions reduction (scope 1&2) of 50% by 2030
iii. A Long term GHG emissions reduction target (All scopes) of -90% by 2050 at the latetst and a commitment to offset residual

A client analysis activity, we call Scope X, **must** be carried out by the tech business. This **must** demonstrate that they generate more revenue from climate positive activities than from climate negative activities. More information can be found in section 7.2.2.

How to choose a base year?

Tech businesses **should** use the most recent year of data when setting base years for targets.[55]

Recalculations in base year values **must** be undertaken in the event of acquisitions or disposals but not for organic growth.

Details of any base year recalculations **should** be submitted to third party assessors for their consideration, along with a clear reasoning of why a recalculation is necessary, and an explanation of all the considerations taken in the process. Recalculations of base years **should** be done along with the guidance provided in the GHG Corporate Standard Protocol or ISO 14064-1.

Tracking progress to target

Progress towards achieving these targets **must** be reported annually during the process of re-certification. Professional service businesses that are considerably off track to meet their goals **must** demonstrate that measures are in place to correct it. A business is considered to be 'considerably off-track' is one that is below 65% of the way towards meeting the target.

56. GHG Protocol and Carbon Trust, 'GHG Protocol - Technical Guidance for Calculating Scope 3 Emissions'; UK Government, Department for Environment, Food and Rural Affairs, and Department for Business, Energy and Industrial Strategy, 'Environmental Reporting Guidelines'.

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|| 7.2.2 Scope X: Aligning services with a Net Zero Economy

Credibility is the foundation of the Net Zero Certification and it is clear from stakeholder engagement that this is compromised in the event that services offered by the subject business are responsible for a net increase in GHG emissions.

Subject businesses **must** therefore conduct a screening of services offered and allocate services and associated revenue on the basis of whether these services are climate positive, climate negative or climate neutral. In each case the principle to be applied is whether the service offered directly facilitates or enables the associated climate impact.

Example 1 - Positive climate impact: Providing services that help organisations or individuals reduce their Carbon footprint.

Example 2 - Negative climate impact: Providing tech services to support extraction of fossil fuels.

Example 3 - Climate neutral: Developing tech products and services that help people connect and stay in touch.

Businesses applying for net zero certification **must** demonstrate that they generate more revenue from climate positive activities than from climate negative activities and commit to eradicate revenue generated from climate negative activities within 5 years.

|| 7.2.3 Reduce

Professional service businesses **must** develop emissions reduction plans to achieve targets, as specified in Section 6.6.1, that prioritise pragmatic and cost-effective action around the main sources of emissions.

GHG reduction plans **must** be reviewed at least annually to assess the progress against planned actions, assess the feasibility of further reductions and ensure that the required reduction targets are met. A director or senior manager **should** be responsible for the development and implementation of the emission reduction plan.

Net Zero Now has prepared an advisory document listing steps businesses in the Tech industry can take to reduce their GHG emissions. This document can be found in the online appendices at Netzeronow.org. The structure of that document is outlined in Figure 15. Organisations are advised to check with local authorities and business advisers on grants, incentives and offers to support the adoption of action in each of these areas.

Creation of heat or steam	**Efficiency**	☑ Optimise how the boiler / furnace operates ☑ Minimise heat / steam losses
	Biomass	☑ Utilise a sustainable source of biomass for fuel
Company vehicles	**Reduce**	☑ Minimise travel where possible ☑ Utilise public transport where possible
	Electrify	☑ Electrify company vehicles
Onsite AC / Refrigeration	**Fridges / Freezers**	☑ Review gas type and operations ☑ Ensure systems are well maintained ☑ Minimise losses from refrigeration systems
	AC	☑ Review gas type and operations ☑ Ensure systems are well maintained ☑ Reduce usage where possible

Figure 15. Type of reduction activities

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National grid electricity	Audit, Analyse, Target, Act	☑ Explore possibilities to understand where and when electricity is used: sub-meters and half hourly data and set reduction targets ☑ LED lighting ☑ SMART systems within offices
	Supplier	☑ Select a 'green' energy supplier ☑ Install solar PV directly on to building
	Incentivise	☑ Incentivise employees working from home to have green electricity suppliers.
National grid heat and steam	Audit, Analyse, Target, Act	☑ Explore possibilities to understand where and when electricity is used: sub-meters and half hourly data and set reduction targets
Purchased goods and services	Audit, Analyse, Target, Act	☑ Explore possibilities to understand where and when you are purchasing goods and services. Target hotspot areas and reduce the purchase of goods and services to only items that are truly necessary
Capital goods	Audit, Analyse, Target, Act	☑ Ensure the capital good is 100% necessary before purchase. Take into the account it's carbon footprint from a full LCA. Is there a lower carbon alternative?
Fuel and energy related activities	Audit, Analyse, Target, Act	☑ Explore possibilities to understand where and when electricity is used: sub-meters and half hourly data and set reduction targets
	Lobby	☑ Lobby your building manager to select a 'green' energy supplier
Upstream transportation	Reduce	☑ Explore how to reduce delivery frequency with consolidation of orders from suppliers
	Sourcing	☑ Explore local sourcing to minimise delivery distance ☑ Use public transport where possible ☑ Leverage low carbon transport. I.e. Rail over flying ☑ If flying is necessary, choose economy over business or first class ☑ Can video conferencing be utilised over travel?
Waste	Audit, Analyse, Target, Act	☑ Assess waste across types and streams
	Reduce	☑ Reduce waste throughout the professional service process as much as possible
	Recycle	☑ Recycle waste material appropriately as much as possible ☑ Encourage clients to recycle appropriately
Business transport	Reduce	☑ Explore how to reduce business travel frequency
	Sourcing	☑ Use public transport where possible ☑ Leverage low carbon transport. I.e. Rail over flying ☑ If flying is necessary, choose economy over business or first class

Figure 15. Type of reduction activities (cont.)

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Employee commuting	Incentivise	☑ Incentivise walking or cycling to work ☑ Incentivise public transport to get to work ☑ Install electric charge points for employee use
	Work from home	☑ Can the office be closed entirely for 1 or 1+ days per week?
Upstream leased assets	Audit, Analyse, Target, Act	☑ Ensure the leased asset is 100% necessary before leasing. Take into the account it's carbon footprint from a full LCA. Is there a lower carbon alternative?
Downstream transportation	Reduce	☑ Explore how to reduce travel frequency of clients ☑ Can video conferencing be utilised over travel?
Waste	Audit, Analyse, Target, Act	☑ Assess waste across types and streams
	Reduce	☑ Reduce waste throughout the professional service process as much as possible
	Recycle	☑ Recycle waste material appropriately as much as possible ☑ Encourage clients to recycle appropriately
Franchise	Audit, Analyse, Target, Act	☑ Franchise owner should set companywide initiatives to reduce the GHG emissions. Upon auditing all franchised locations, the highest emitting locations should be targeted for emission reductions.

Figure 15. Type of reduction activities (cont.)

7.3 Compensate

Once an Tech firm has calculated and begun reducing emissions in line with science based targets, carbon credits **should** be used to offset residual emissions.

The purchase of offsets **must** be in line with the core Oxford Principles for Net Zero Aligned Carbon Offsetting. These state that: emissions reductions **must** take priority, high quality offset schemes **must** be used, and the composition of offsets **must** regularly revise and updated to meet the latest scientific guidance.[56]

Carbon offsets are an external environment instrument that can be used to offset the remaining residual emissions from professional service businesses. These credits are generated by implementation of projects that either stop GHGs being emitted (avoidance) or extract and store GHGs from the atmosphere (sequestration).[57]

To retain their Net Zero Certification, businesses **must** complete and publish an annual validated carbon footprint and details of the carbon offsets initiatives used to compensate for any residual emissions.

If the applying business falls below 65% of the target reduction pathway, it **must** demonstrate that measures are in place to correct this, or certification will be removed.

If the applying business has put in place a rectification plan but still falls below 65% of the target reduction for 2 consecutive years, certification will be suspended.

56. Allen et al., 'The Oxford Principles for Net Zero Aligned Carbon Offsetting'.
57. UNFCCC, 'Race to Zero Campaign'.

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7.3.1 Carbon offsets

Tech businesses that wish to be certified Net Zero **must** buy and retire carbon credits equivalent to 100% of the calculated footprint. Those credits **must** be certified to international; standards

The composition of purchased credits **must** be in accordance with the ratios and taxonomy set out by the Oxford Principles, listed in Figure 16.

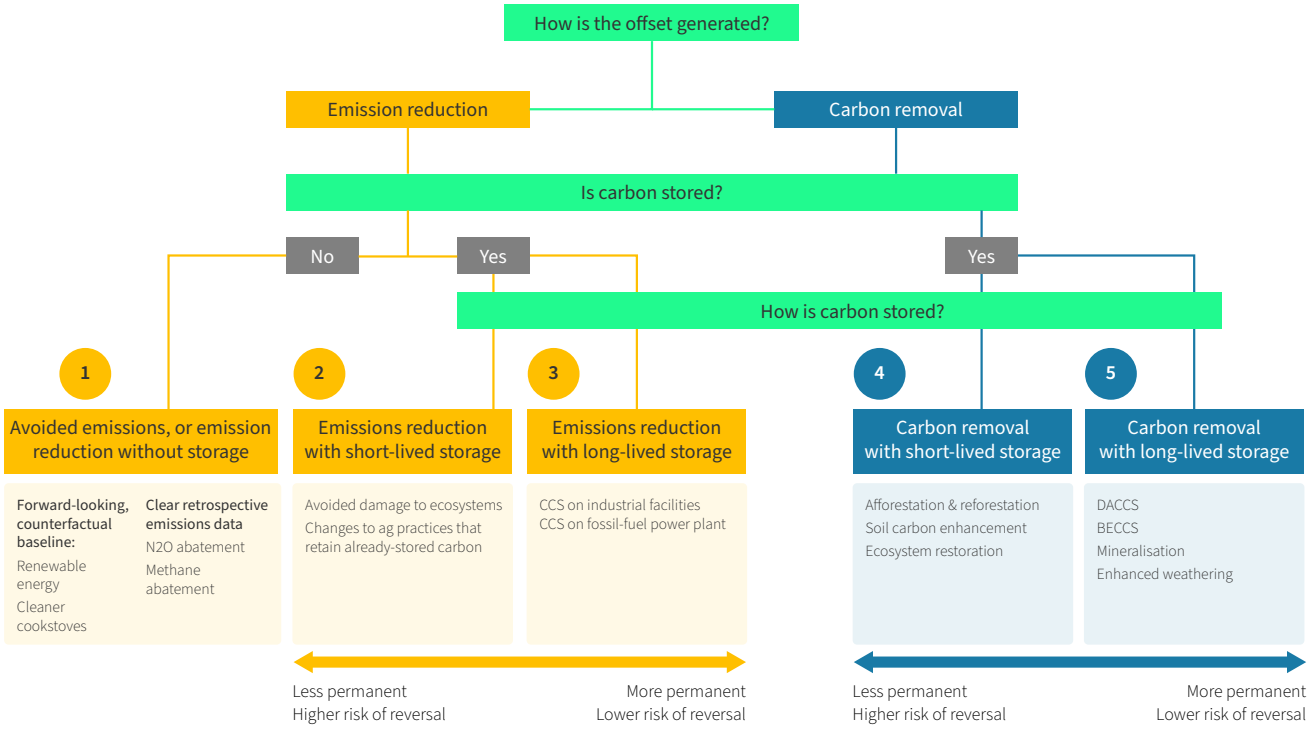

Figure 16. Taxonomy of Carbon Offsets (Oxford University)[58]

The five types of offsets, as described by the Oxford Principles, have different long-term impacts with regards to climate change mitigation. Due to the current state of the offset / removal market, and in line with future expected developments, long term carbon removal is currently not available at a large enough scale to make it practical for businesses going Net Zero Now.

Based on these mitigating circumstances linked to the current carbon offset market, alternative methods may be used in combination. The composition of offsets **must** follow the suggested ratios as listed in Figure 17.

Based on this timeline, avoided emissions and short-term emission removal **must** be gradually phased out over the coming years, ensuring that long-term storage of GHG emissions becomes more prevalent and eventually all offsets will be *Carbon Removal with Long-Lived Storage*.

	2021	2022	2023	2024	2025
1 & 2	55%	53%	50%	47%	45%
3	0%	1%	3%	5%	7%
4	45%	45%	45%	45%	45%
5	0%	1%	2%	3%	3%

Figure 17. Composition of carbon offsets that must be followed for Net Zero Professional Services)[59]

58. Allen et al., 'The Oxford Principles for Net Zero Aligned Carbon Offsetting'.
59. Allen et al.

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Purchase of credits

To receive certification under the Net Zero Tech Protocol, the purchase of approved carbon credits equivalent to the total GHG emissions produced by the business in the assessment year **must** be made in full once the carbon footprint is complete. Below 65% of the reduction pathway target, the commitment certification will be removed and the business **must** restart the certification process.

When offsets are purchased by the applying business, they **must** follow the guidelines set out in Section 7.3.1.

7.4 Validate

To support the integrity of the Net Zero Tech certification, this step defines all required actions to meet the quality assurance and documentation requirements within the Protocol.

Quality assurance **must** be conducted by the professional service. The process consists of an evaluation of the processes, data and calculations undertaken, ensuring that all the requirements established in the Protocol have been met.

Documentation **must** be submitted to the assessor for verification including input data, calculations, assumptions and estimations, procurement evidence and quality assurance attestations.

Figure 18 lists details of the verification requirements and procedures relating to each step in the process. The ability and right to use the Net Zero Tech certification mark is dependent on successful validation of the submitted documentation.

Step	Verification Requirements
1. Calculate	The definition of the subject and assessment year **must** be recorded, and full, itemised GHG inventory provided. All calculation tools and emissions factors **must** be documented and from approved sources. All requirements established in the Protocol **must** be met. *The Assessor may require additional information in the event that concerns arise over the quality, completeness, accuracy or robustness of the presented data.*
2. Mitigate	The Tech firm **must** submit evidence of a commitment to a valid reduction target together with an emissions reduction plan to meet the defined targets. The Tech firm **must** submit a commitment statement signed by a director. *The Assessor may require additional information in the event that concerns arise over the quality, completeness, accuracy or robustness of the presented data.*
3. Compensate	Tech firms going Net Zero **must** submit evidence that approved credits equivalent to the total GHG emissions in the assessment year have been purchased and retired. Tech firms committing to Net Zero **must** complete and sign the commitment statement.
4. Validate	Tech firms **must** complete and sign a quality assurance attestation and submit together with all the necessary documentation.
5. Communicate	Use of the Net Zero Tech certification mark **must** adhere to the utilisation of the mark guidelines. All the communications transmitted to customers **must** be factually based and consistent with the steps followed to achieve the certification.

Figure 18. Verification requirements

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7.5 Using the Certification Mark

Companies that have successfully completed the Net Zero Tech Services certification, are permitted and encouraged to use the relevant Net Zero Tech Services logo to communicate their actions to customers and other relevant stakeholders.

The logos have been designed to allow companies to give a clear and transparent statement about their achievements and intentions, while helping educate customers in Net Zero businesses. By using the Net Zero Tech Services certification logo, Tech businesses can unequivocally demonstrate that they have met the requirements of the Net Zero Protocol, signalling leadership in environmental issues, differentiating from the competition and meeting the demands from customers for more sustainable options.

Requirements

The logo can only be used by the certification holder in its own communications and **must not** be used by any subsidiary that has not undertaken and successfully passed the certification process.

As part of the quality assurance of the Net Zero Tech Services Protocol, all usage of the Net Zero Tech logo **must** be in accordance with the terms of use.

The certification logo **must not** be copied or edited. If this occurs, the certification logo will automatically be invalid.

If the requirements and guidelines provided in the Net Zero Tech Services Protocol regarding the usage of the certification logo are not met, NZN has the right to withdraw its license and request its removal to the affected entity.

7.6 Communicate

Providing accurate and transparent information about your Net Zero certification is a key element of taking part in the initiative.

The communications made regarding the conformance with the Net Zero Tech certification **must** be made in the appropriate form of disclosure, and **must i**nclude an unambiguous identification of the subject, the qualifying date and application period, and access to all evidence supporting the qualifying explanatory statement.

Communicating the certification **should** be done via the use of the Net Zero certification mark. Use of this logo **must** conform to guidelines and all communications **must** be factually based and consistent with the certification achieved.

Rights to using the mark are subject to Tech businesses receiving Net Zero certification.

Tech businesses **should** have a high-level understanding of all their major environmental, social, and economic impacts, and ensure that their Net Zero claims are appropriate and presented in relation to these major impacts.

All Tech businesses **should** make their GHG inventory emissions relating to their Net Zero certification public. This could include, total gross emissions, a brief description of the emissions sources, justification of any excluded or included sources, reporting period covered any trends evident from the data, targets and reduction activities.

All claims **should** be consistent with any national or regional guidance or legislations on such claims.

8 Glossary of terms.

For a more in depth lexicon and glossary of words and terms linked to climate change, see the IPCC Annex[60].

Absolute Zero
When no greenhouse gas emissions are attributable to an actor's activities across all scopes.

Anthropogenic Removals
The withdrawal of greenhouse gases from the atmosphere, as a result of deliberate human activities.

Assessor
An independent body/organisation that will inspect reported data to ensure it meets the standards of this and other protocols.

Carbon Footprint
Often used to refer to all Greenhouse Gas Emissions associated with a product, business or entity. See Greenhouse Gas.

Carbon Neutral
Carbon neutrality is achieved when human made $C0_2$ emissions are balanced by human made $C0_2$ removals.

Carbon Offsetting
An action or activity (such as the planting of trees) that compensates for the emission of carbon dioxide or other greenhouse gases to the atmosphere. A carbon offset occurs when an individual company or organization directly or indirectly (by funding projects in other locations) removes greenhouse gases from the atmosphere or prevents a certain quantity of greenhouse gases from being released.

Climate Change
A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods. Also referred to as the Climate Emergency, Global Warming and Global Heating.

Climate Neutral
See Carbon Neutral. In addition to Carbon, climate neutral often refers to all greenhouse gas emissions.

Climate Positive
Activity that goes beyond achieving Net Zero to create an environmental benefit by removing additional carbon dioxide from the atmosphere.

Cradle-to-grave
Measuring the total greenhouse gas emissions from the extractions of raw materials to create the product, through to the product's manufacture, distribution, use and eventual disposal by consumer.

Cradle-to-retail
Measuring the total greenhouse gas emissions from the extractions of raw materials to create the product, through to the product's manufacture, packaging and distribution to the retailer.

Emissions Factor
A term used for calculations of the greenhouse gas footprint associated with a product or activity. Emissions factors are often presented in CO_2e (Carbon dioxide equivalent). For more information, see Section 2.1 Greenhouse Gases.

Global warming potential (GWP)
Measure of the quantity of heat a greenhouse gas traps in the atmosphere up to a specific time horizon, relative to carbon dioxide. For more information, see Section 2.1 Greenhouse Gases.

60. IPCC, 2018: Annex I: Glossary [Matthews, J.B.R. (ed.)]. In: Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty

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Glossary of Terms.

Greenhouse gas (GHG)
A gas that contributes to the greenhouse effect by absorbing infrared radiation. Groups of gases recognised by the United Nations Framework Convention on Climate Change (UNFCCC) include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6).

Greenhouse gas (GHG) Neutral
See Climate Neutral.

Ibid
Same as previous reference.

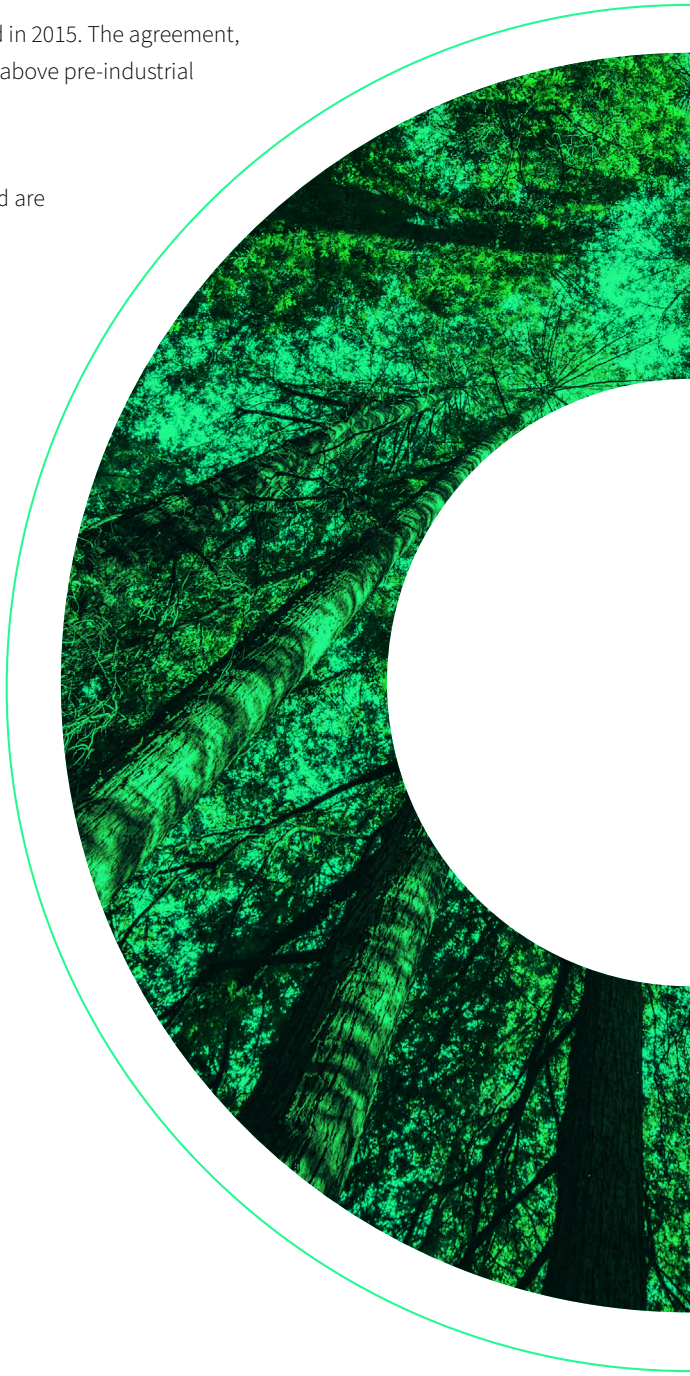
Net Zero
See Section 3.

Paris Agreement / Paris Aligned
The Paris Agreement was a United Nations mandated treaty, that was adopted in 2015. The agreement, adopted by 196 signatories, sought to "limit the temperature increase to 1.5'C above pre-industrial levels', which is what alignment is aimed at achieving.

Science Based Targets initiative (SBTi)
Emissions reduction targets that are informed by the latest climate science and are sufficiently robust to meet the goals of the Paris Agreement. See section 2.4.1.

Scope 1, 2 & 3 emissions
Scopes refer to different sources of greenhouse gas emissions within an organisation. A detailed breakdown of scopes is listed on the GHG Protocol website.

Zero emissions
Applies to the state of a subject when new Greenhouse Gas emissions are reduced to zero.



NET ZERO
TECH SERVICES

PROTOCOL

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