

# Net zero transition plans for small and medium enterprises – Code of practice

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# Foreword

This BSI Flex was sponsored by BSI. Its development was facilitated by BSI Standards Limited, and it was released under licence from The British Standards Institution. It came into effect on 31 December 2024.

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- Institute of Environmental Management and Assessment (IEMA)
- Institution of Chemical Engineers (IChemE)
- INX International Ltd
- Jacobs
- Small99
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The content in this version is part of an iterative process. It is likely to change from time to time with subsequent iterations.

## Supersession

This version of BSI Flex 3030 supersedes BSI Flex 3030 v1:2024-03, which is withdrawn.

## Relationship with other publications

This BSI Flex can be used as a standalone document. However, users might find it helpful to refer to some or all of the documents in the Bibliography, including, but not limited to:

- BS EN ISO 14064-1;
- BS EN ISO 9001;
- BS EN ISO 14021;
- BS EN ISO 14040;
- ISO/TS 14064-4;
- BS EN ISO 14065;
- ISO Guide 84:2020 or The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard for the quantification of GHG emissions [1];
- PD ISO IWA 42 for the net zero guidelines;
- BS ISO 14068-1 for carbon neutrality;
- the Transition Plan Taskforce Disclosure Framework [2];
- and the Science Based Targets initiative [3].

Full titles, including the latest version as of the date of publication of this BSI Flex, can be found in the Bibliography.

## Information about this document

This is Version 2 of BSI Flex 3030, which is the last planned version of the document. All comments received will be reviewed to inform the future direction of this document. Interested parties are encouraged to check the BSI website for updates regarding any future plans.

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## Presentational conventions

The provisions of this document are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Where words have alternative spellings, the preferred spelling of the *Shorter Oxford English Dictionary* is used (e.g. "organization" rather than "organisation").

Commentary, explanation and general informative material is presented in these boxes and does not constitute a normative element.

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# 0 Introduction

Climate change is one of the most pressing challenges that our world faces. Scientific assessments in the Intergovernmental Panel on Climate Change (IPCC) reports have shown that many of the worst consequences of climate change can be avoided by limiting global warming to 1.5 °C above pre-industrial levels. The global temperature is already more than 1.2 °C above pre-industrial levels.

Scenarios assessed by the IPCC indicate that limiting warming to 1.5 °C with no or limited temperature overshoot requires achieving at least net zero global carbon dioxide (CO<sub>2</sub>) emissions in the early 2050s, along with deep and sustained global reductions in other greenhouse gas emissions (GHGs). These scenarios demonstrate that earlier and faster emissions reductions lead to a lower peak in warming and reduce the likelihood of exceeding warming limits. Emissions are driven by economic activity and therefore responsibility lies with organizations of all sizes to take rapid and sustained transformative actions to respond to this challenge. In particular, smaller organizations are collectively responsible for around half of corporate emissions and can have a valuable role as collaborators in larger organizations' value chains.

Although the full effects of warming above these limits is uncertain, climate change impacts are already beginning to be felt, with more severe storms leading to flooding in some parts of the world, with droughts and forest fires in others. Longer term, there is a significant risk posed by global sea level rises and the loss of agricultural land, with consequent risks to food supply and a need for mass migration. Organizations need to be prepared for significant disruptions to infrastructure and systems, impacting their current business models.

However, the necessary transition to net zero and responding to climate change can offer opportunities as well. Entrepreneurs can create businesses that help individuals and organizations reduce their carbon footprint by offering innovative goods and services. Some may be directly targeted at emissions or energy consumption, such as insulation installation or the skills to optimize renewable energy. Others may be providing lower impact goods or services, like locally based experiences or holidays, to replace those requiring air travel. Still others may be dealing with the need for adaptation as significant climate change impacts – including flooding or changes to food sources – are increasingly felt. However, these new businesses also need to minimize their own carbon footprint and to manage their own transition to net zero.

**NOTE** The term “carbon footprint” is sometimes used as a more informal way of describing the net greenhouse gas emissions of an organization and includes all the greenhouse gases recognized by the IPCC listed in definition 3.2.

Net zero transition plans (NZTPs) are an important tool to help organizations meet these challenges and opportunities. They can:

- a) enable organizations to develop a coordinated, organization-wide strategy for contributing to and responding to the net zero transition;
- b) allow organizations to communicate this strategy internally (e.g. to communicate planned changes to staff and generate buy-in and support);
- c) help organizations to communicate this strategy externally (e.g. to provide confidence to interested parties such as suppliers, customers, and investors that the organization has a robust strategy in place);



- d) demonstrate compliance with third-party requirements on transition planning, such as the Cabinet Office Public Procurement Notice 06/21 [4];
- e) support top management teams in the delivery and oversight of their climate strategy;
- f) identify opportunities for new goods and services;
- g) help the organization to consider adaptation and biodiversity implications; and
- h) ensure a just transition.

Net zero transition plans are not a one-time, standalone exercise, they are something that needs to be incorporated into the ongoing business planning process.

This BSI Flex is applicable to any organization, including companies, not-for-profit and public sector bodies. It is likely to be particularly useful to SMEs (typically organizations with 5-250 employees) that have not previously been required to address climate change. Smaller organizations have a pivotal role in the global transition to net zero, as they are often able to make emissions reductions quicker than larger bodies, benefitting from short command chains and top management buy-in. This BSI Flex is designed to help organizations:

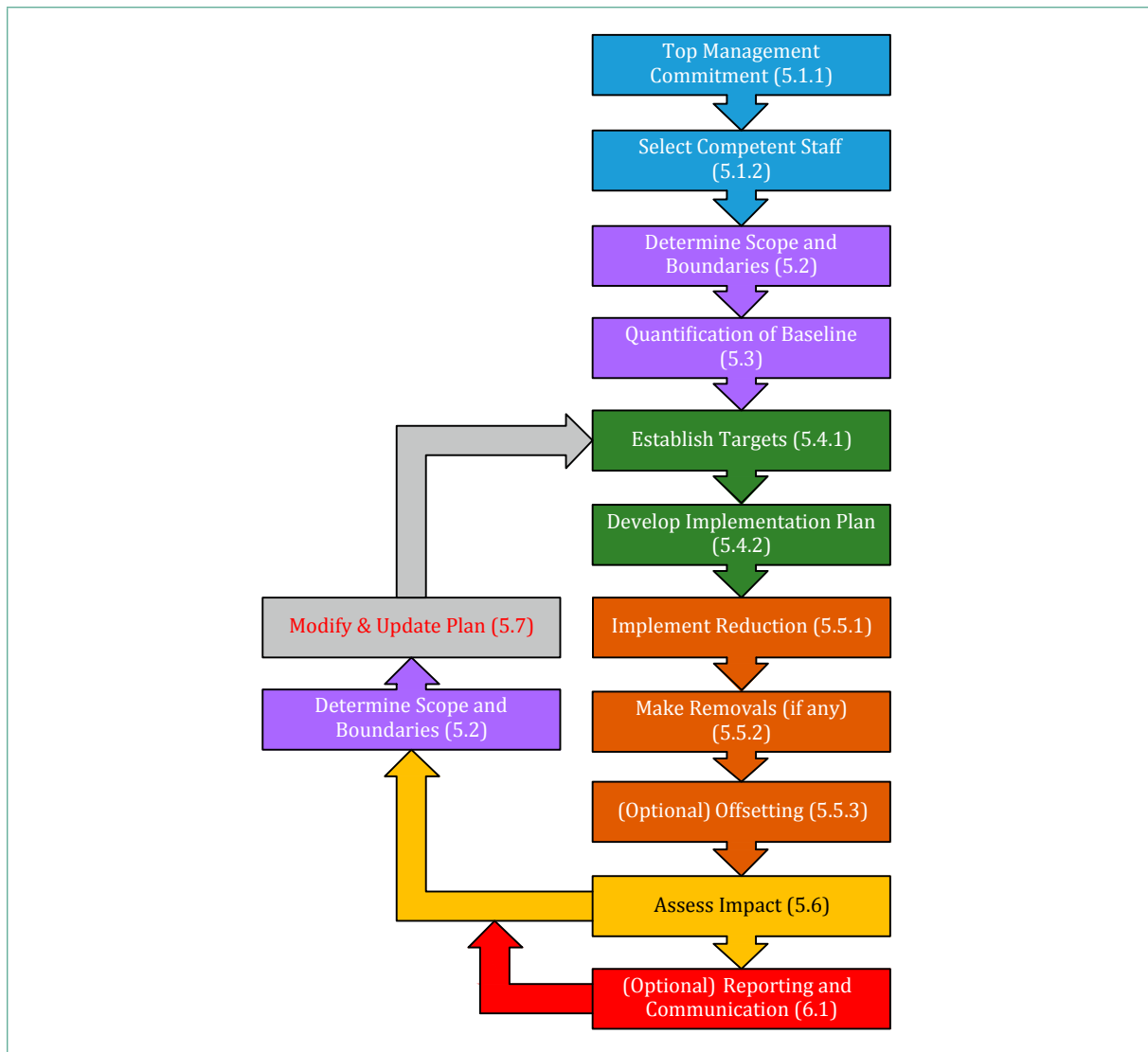
- 1) apply high-level principles to design their transition to net zero;
- 2) operate within a framework to deliver their transition to net zero;
- 3) understand and demonstrate where they are on their net-zero journey, and
- 4) link their NZTPs with their wider sustainability or environmental, social and governance (ESG) planning, implementation and reporting.

Net zero transition plans produced and reported in line with this BSI Flex can lead to increased transparency, accountability, and comparability with those of other organizations and across sectors.

Applying the principles within this BSI Flex can assist organizations meet the requirements of other initiatives including, but not limited to, those from the Science Based Targets initiative (SBTi), the Race to Zero (UNFCCC), the Carbon Disclosure Project (CDP), and the International Sustainability Standards Board (ISSB). The provisions can also be relevant to the publication of action plans for national initiatives such as the UK Government's Energy Savings Opportunity Scheme (ESOS) in the third compliance period and assessments carried out under PAS 51215-1:2024. This BSI Flex is also designed to work alongside formal management systems such as BS EN ISO 14001 (Environmental Management) or BS EN ISO 50001 (Energy Management).

This BSI Flex takes the following approach to developing and implementing NZTPs, as shown in Figure 1.

Figure 1 – Process flow for net zero transition plan



# 1 Scope

This BSI Flex gives recommendations for an organization intending to design and implement its transition to net zero through a clearly defined plan leading to GHG emissions reductions.

It covers how organizations:

- quantify their GHG baseline (emissions and removals);
- set targets for GHG emissions reductions;
- identify those actions or measures necessary to achieve the NZTP; and
- create a realistic pathway to net zero.

The main focus of this BSI Flex is on planning for mitigation actions leading to GHG reductions. Net zero transition plans prepared in conformity with this BSI Flex also consider GHG removals and adaptation to climate change.

This BSI Flex provides high-level principles and a framework for an organization on delivering its transition to net zero. This is intended to increase transparency, accountability and comparability between NZTPs of organizations and help demonstrate where organizations are on their net zero journey. This BSI Flex also assists the organization's own sustainability or ESG reporting.

It is designed to be used alongside other management system standards which include principles that enable this systematic approach to be followed, including those for quality, environmental and energy management.

This BSI Flex is applicable to any organizations, including companies, not-for-profit and public sector bodies. It is applicable UK-wide, and its recommendations are available to be used by organizations internationally.

This document is primarily for use by small and medium-sized enterprises (SMEs), typically in industry or commerce, including those that have not previously addressed climate change. However, it is also suitable for any organization that has already made significant progress in decarbonization or has achieved carbon neutrality.

It could be of interest to larger organizations which have SMEs in their value chain and wish to mobilize their suppliers or customers.

## 2 Normative references

There are no normative references.

## 3 Terms, definitions and abbreviated terms

### 3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

#### 3.1.1 climate change

quantifiable difference in generally prevailing weather conditions that persists for an extended period, typically decades or longer

*NOTE Climate change is used to refer to changes attributable to human activities altering the atmospheric composition.*

##### 3.1.1.1 adaptation

adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts

*NOTE Adaptation refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change.*

[SOURCE: PD ISO IWA 42:2022, 3.1.5]

##### 3.1.1.2 carbon neutrality

condition in which, during a specified period of time, the GHG emissions of the **organization (3.1.4)** have been reduced as a result of GHG reduction or GHG **removal (3.1.3.4)** (enhancements and, if greater than zero, are then counterbalanced by **offsetting (3.1.3.5)**)

[SOURCE: BS ISO 14068-1:2023, 3.1.2 modified, 'carbon footprint changed to GHG emissions, carbon neutrality management plan changed to NZTP, Note 2 shortened]

##### 3.1.1.3 greenwashing

unsubstantiated or misleading claim about the positive or negative environmental aspects of a product, service, technology or company practice

*NOTE 1 Carbon credits used for offsetting meet certain criteria and are only used after GHG emission reductions and GHG removal enhancements have been made in line with the NZTP.*

*NOTE 2 The specified period is a finite number of years.*

*NOTE 3 Although related concepts, carbon neutrality is not the same as net zero as it relies on offsetting to counterbalance unabated greenhouse gas (GHG) emissions.*

[SOURCE: EN 17615:2022, 3.122]

##### 3.1.1.4 just transition

**net zero transition (3.1.1.6)** that aims to ensure the benefits are shared widely, while also supporting those who could face economic challenges

*NOTE Those who may lose out include countries, regions, industries, communities, workers or consumers.*

### 3.1.1.5 net zero

condition in which organizational residual greenhouse gases (GHG) are balanced by organizational removals (3.1.3.4) over a specified period and within specified boundaries

*NOTE 1 Also known as net zero greenhouse gas (GHG) as it relates to all GHGs (see note under greenhouse gas (GHG) and not just carbon dioxide.*

*NOTE 2 Organizational removals include ecosystem restoration, direct air carbon capture and storage; reforestation and afforestation; enhanced weathering, biochar.*

*NOTE 3 'Organizational' is intended to be understood as equivalent to the word 'anthropogenic' in IPCC definitions of net zero at a global level.*

[SOURCE: PD ISO IWA 42:2022, 3.1.1, modified, with 'Human-caused' and 'human-led' replaced by organizational; and 'other effective methods' removed from Note 1 but reference to all GHGs not just carbon dioxide added; Note 3 modified to reflect change to using 'organizational']

### 3.1.1.6 net zero transition

intentional move towards a state where any residual greenhouse gas (GHG) emissions (3.1.2.3) are balanced by GHG removal enhancements

*NOTE The net zero transition can be applied at an organizational level or to the global economy.*

### 3.1.1.7 renewable energy

energy collected from resources that are naturally replenished at a rate equal or faster than extracted or used

*NOTE 1 Renewable energy includes sources such as sunlight, wind, rain, tides, waves, biomass, and geothermal heat.*

*NOTE 2 In this document, the term "renewable electricity" is used to mean electricity that has been generated using renewable energy.*

[SOURCE: PD ISO IWA 42:2022, 3.1.4, modified, Note 2 added]

## 3.1.2 greenhouse gas (GHG)

gaseous constituent of the atmosphere, natural or anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, the atmosphere and clouds

*NOTE Greenhouse gases caused by human activities and relevant for this document include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulfur hexafluoride (SF<sub>6</sub>) and nitrogen trifluoride (NF<sub>3</sub>).*

[SOURCE: PD ISO IWA 42:2022, 3.2.1]

### 3.1.2.1 carbon dioxide equivalent (CO<sub>2</sub>e)

unit for expressing the global warming potential of a greenhouse gas (GHG) (3.1.2) in relation to that of carbon dioxide

*NOTE The carbon dioxide equivalent is calculated by multiplying the mass of a given GHG by its global warming potential.*

[SOURCE: BS ISO 14068-1:2023, 3.2.12, modified: "radiative forcing" replaced by "global warming potential"]

### 3.1.2.2 indirect greenhouse (GHG) emission

GHG emission that is a consequence of the organization's operations and activities, but that arises from **GHG sources (3.1.2.8)** that are not owned or controlled by the organization

*NOTE These emissions occur in the upstream and/or downstream value chain of the organization (see 3.4).*

[SOURCE: BS EN ISO 14064-1:2019, 3.1.11, modified, "generally" deleted from, and "of the organization" added to Note]

### 3.1.2.3 residual greenhouse gas (GHG) emission

unabated greenhouse gas (GHG) remaining after implementing all technically and economically feasible **GHG emissions reductions (3.1.3.3)**

[SOURCE: BS ISO 14068-1:2023, 3.1.5 modified, Note 1 to entry deleted]

### 3.1.2.4 Scope 1 emissions

GHG emissions from **GHG sources (3.1.2.8)** owned or controlled by the organization

*NOTE Scope 1 emissions can also be referred to as direct greenhouse gas (GHG) emissions.*

[SOURCE: PD ISO IWA 42:2022, 3.2.3, modified – sources changed to GDG sources, Notes removed]

### 3.1.2.5 Scope 2 emissions

**indirect greenhouse (GHG) emission (3.1.2.2)** from the generation of purchased electricity, heat, cooling or steam consumed by the organization

[SOURCE: PD ISO IWA 42:2022, 3.2.4, modified, Note 1 removed]

### 3.1.2.6 Scope 3 emissions

**indirect greenhouse (GHG) emission (3.1.2.2)** that is a consequence of the organization's activities but arises from **GHG sources (3.1.2.8)** that are not owned or directly controlled by the organization

*NOTE Scope 3 emissions include all attributable value-chain GHG emissions not included in Scope 1 or Scope 2.*

[SOURCE: PD ISO IWA 42:2022, 3.2.5, modified, Note 2 removed]

#### 3.1.2.6.1 activity-based emissions

GHG emissions quantified using non-financial data

*NOTE 1 Non-financial data typically measures the quantity of goods or a service consumed, such as distance travelled, volume of water supplied, tonnes of steel purchased, gigabytes of data stored.*

*NOTE 2 The term is mainly used in connection with the quantification of Scope 3 (indirect) emissions, although could be applied to Scope 1 or Scope 2 emissions.*

### 3.1.2.6.2 spend-based emissions

GHG emissions quantified using emissions factors derived from economic data

*NOTE 1 Spend-based emissions are usually based on the cost of goods or a service consumed, applying a factor representing the emissions per unit cost.*

*NOTE 2 The term is mainly used in connection with the quantification of Scope 3 (indirect) emissions (3.1.2.6).*

*NOTE 3 Spend-based emissions may be used when activity-based emissions are unavailable.*

### 3.1.2.7 GHG sink

process that removes a **greenhouse gas (GHG) (3.1.2)** from the atmosphere

*NOTE This is also sometimes called a carbon sink or sink.*

[SOURCE: BS EN ISO 14064-1, Note added]

### 3.1.2.8 GHG source

activity or process that releases a **greenhouse gas (GHG) (3.1.2)** into the atmosphere

[SOURCE: PD ISO IWA 42:2022, 3.2.7, modified by making “GHG source” the preferred term]

### 3.1.2.9 unabated greenhouse gas (GHG) emissions

GHG emissions of the organization remaining after activities resulting in GHG **emissions reductions (3.3.3)** within the boundary of the organization

*NOTE Unabated GHG emissions include, but are not limited to residual greenhouse gas (GHG) emissions (3.1.2.3)*

[SOURCE: BS ISO 14068-1:2023, 3.1.4 modified, subject changed to organization]

## 3.1.3 greenhouse gas mitigation

human intervention to reduce greenhouse gas emissions or to enhance

### 3.1.3.1 baseline

quantified **greenhouse gas (GHG) (3.1.2)** emissions and GHG **removals (3.1.3.4)** of an **organization (3.4)** for a specified period of time against which progress towards net zero can be assessed

*NOTE 1 This is also referred to as greenhouse gas (GHG) baseline.*

*NOTE 2 Emissions and removals are separate parts of the baseline and calculation of emissions reductions only refers to the baseline emissions.*

[SOURCE: PD ISO IWA 42:2022, 3.3.6, modified, “at a specified time” changed to “for a specified period of time”, new Note 1 introduced, and Note 1 in IWA 42 becomes Note 2]



### 3.1.3.2 carbon credit

tradeable certificate representing the **greenhouse gas mitigation (3.1.3)** of a specified amount of GHG emissions

*NOTE 1 This is also referred to as greenhouse gas (GHG) credit.*

*NOTE 2 An organization can retire a carbon credit without using it for **offsetting***

[SOURCE: PD ISO IWA 42:2022, modified, carbon added to the term]

### 3.1.3.3 emissions reduction

quantified decrease in greenhouse gas emissions specifically related to or arising from an activity between two points in time or relative to a **baseline (3.1.3.1)**

*NOTE This is also referred to as greenhouse gas (GHG) emissions reduction.*

[SOURCE: PD ISO IWA 42:2022, 3.3.2, modified, Note added]

### 3.1.3.4 removal

withdrawal of a **greenhouse gas (GHG) (3.1.2)** from the atmosphere as a result of deliberate human activities

*NOTE 1 This is also referred to as greenhouse gas (GHG) removal.*

*NOTE 2 Types of removals include afforestation, building with biomass (plant-based material used in construction), direct air carbon capture and storage, habitat restoration, soil carbon capture, enhanced rock weathering (mixing soil with crushed rock), bioenergy with carbon capture and storage.*

*NOTE 3 In this document the term removal includes storage, including the durable storage of CO<sub>2</sub>, which is referred to as carbon dioxide removal by the IPCC.*

*NOTE 4 Additional or incremental removals are sometimes referred to as GHG removal enhancements.*

[SOURCE: PD ISO IWA 42:2022, 3.3.3, Note 4 added]

### 3.1.3.5 offsetting

mechanism for counterbalancing the GHG emissions of the organization through preventing the release of, reducing, or removing an equivalent amount of GHG emissions outside the **value chain (3.4.2)**

*NOTE 1 Offsetting is commonly undertaken by retiring or cancelling a carbon credit recorded in a registry. A registry is a platform that allows organizations to track, manage and trade GHG emissions.*

*NOTE 2 Only offsetting based on GHG removals (3.1.4.4) can be used to counterbalance residual greenhouse gas (GHG) emissions (3.1.2.3) to achieve net zero.*

### 3.4.1 organization

person or group of people that has its own functions with responsibilities, authorities, and relationships to achieve its objectives

*NOTE The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, association, charity, or institution, or part or combination thereof, whether incorporated or not, public or private.*

[SOURCE: BS EN ISO 14064-1:2019, 3.4.2]

#### 3.1.4.1 top management

person or group of people who directs and controls an organization at the highest level

*NOTE Top management has the power to delegate authority and provide resources within the entity.*

[SOURCE: BS EN ISO 14001:2015, 3.1.5, modified, Note 2 removed]

#### 3.1.4.2 value chain

entire sequence of activities or parties that provide or receive value

*NOTE 1 Parties that provide value include suppliers, outsourced workers and contractors.*

*NOTE 2 Parties that receive value include customers, consumers, clients and other users.*

[SOURCE: BS ISO 14068-1:2023, 3.4.7 modified, Notes 3 and 4 removed]

## 3.2 Abbreviated terms

For the purposes of this document, the following abbreviated terms apply.

CCC	(The) Committee on Climate Change
CO <sub>2</sub>	carbon dioxide
DESNZ	(UK Government) Department for Energy Security and Net Zero
ESG	environmental, social and governance
GHG	greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
ISSB	International Sustainability Standards Board
ISO	International Organization for Standardization
NZTP	net zero transition plan
SBTi	Science Based Targets initiative
SIC	Standard Industrial Classification (codes)
TPT	Transition Plan Taskforce
UNFCCC	United Nations Framework Convention on Climate Change
VCMI	Voluntary Carbon Markets Integrity Initiative

## 4 Net zero transition planning principles

### 4.1 Using science-based evidence

Net zero transition plans (NZTPs) should take account of scientific evidence relating to GHG emissions and climate change and should be aligned with the 1.5 °C target of the Paris Agreement [5] and (in the UK) with Government targets to achieve net zero no later than 2050.

***NOTE** Organizations, especially smaller organizations, need not develop their NZTP from scientific first principles, but may rely on third-party guidance that has been developed in line with good science-based evidence. Such third-party advice might come from, but not be limited to, international organizations such as SBTi, or, national bodies such as DESNZ, the CCC and the TPT in the UK and be applied at a national or sectoral level.*

### 4.2 Ambition and urgency of actions

Net zero transition plans should recognize the urgency of action and not delay implementation actions. Early actions should be taken when it is economically and technically feasible.

### 4.3 Hierarchy

Net zero should be achieved primarily through GHG emission reductions, then GHG removal enhancements within the boundary of the organization. Offsetting should only be used for residual GHG emissions that are not technically and economically feasible to reduce or in connection with claims of carbon neutrality.

### 4.4 Avoiding adverse impacts

Net zero transition plans should take account of indirect effects and seek to minimize adverse impacts on the environment and society.

***NOTE** An indirect effect may arise when a reduction in the organization's own emissions (for example, by outsourcing) leads to an overall increase in emissions, taking into account its value chain. An adverse impact could affect wider environmental or labour issues, such as the switch to a biofuel leading to loss of biodiversity through the need for additional planting of energy crops, or the closure of a highly polluting plant leading to a loss of local employment.*

### 4.5 Risks and opportunities

Net zero transition plans should take account of incomplete information in their assumptions, avoid optimistic estimates of progress and benefits and recognize the limitations of any plan. Net zero transition plans should also reflect the possibility that their implementation could be restricted or delayed due to circumstances outside the control of the organization such as additional climate change impacts.

***NOTE 1** Net zero transition plans are dynamic and should be updated at frequent intervals to deal with uncertainty and new information.*

***NOTE 2** Unforeseen climate change impacts may create new business opportunities as well as risks.*

## 4.6 Transparency and accountability

Net zero transition plans should be developed transparently, considering the needs of all interested parties. Top management should assign responsibilities in connection with NZTPs, and ensure that reporting is made on an open, fair, proportionate and comparable basis, avoiding greenwashing to provide interested parties with regular updates on progress.

## 4.7 Completeness consistency and accuracy

Net zero transition plans should be developed using accurate and reliable data sources and methodologies, accounting fully for the targeted GHG emissions. Where assumptions and scenarios are employed, these should be as plausible and realistic as possible. The organization should select methodologies and indicators that minimize uncertainty and yield accurate, consistent and verifiable results.

## 4.8 Value chain

Net zero transition plans should identify the effect on the entire value chain, including the full life cycle from sourcing of materials to disposal of products manufactured or sold, and services provided, by the organization.

***NOTE** A product that is designed to use less energy through the incorporation of efficient controls can have higher embodied emissions, but lower emissions over its full life cycle including manufacture, use and disposal. Similarly, it can require more resources (with higher GHG emissions) to manufacture a high-quality product that lasts longer, with lower life-cycle GHG emissions.*

***EXAMPLE** A bicycle lamp with a rechargeable battery can have lower life-cycle emissions than a simpler model that uses disposable batteries.*

## 5 Guidance

### 5.1 Management commitment to net zero

#### 5.1.1 General

Top management should:

- a) commit to achieving net zero with a high level of ambition, in line with the NZTP;

*NOTE 1 For a practical example, see A.2.1.*

- b) be accountable for the effectiveness of the NZTP;  
c) ensure that the NZTP is integrated with other business processes and management systems;  
d) consider risks and opportunities associated with the transition to net zero;

*NOTE 2 This may also consider wider risks and opportunities such as those relating to developing resilience to severe climate events and adaptation responses to the implications of climate change.*

- e) communicate its commitment to net zero at a high level to interested parties, inside and outside the organization, in terms that are honest and transparent, and not use the communication for greenwashing. This communication should ensure all employees are aware of the need for them to contribute to the effectiveness of the NZTP, including benefits arising from improved performance and risks associated with failing to meet net zero targets;

*NOTE 3 For a practical example, see A.2.2.*

*NOTE 4 These can include, but are not limited to, the Science Based Targets initiative (SBTi) the Race to Zero (UNFCCC), International Sustainability Standards Board (ISSB) Sustainability Reporting Standards, the CDP (formerly known as the Carbon Disclosure Project) and carbon neutrality using BS ISO 14068-1.*

- f) determine which voluntary initiatives, if any, are appropriate to participate in;  
g) delegate responsibilities for developing and delivering the NZTP to competent staff (see 5.1.2);  
h) make available appropriate human resources, including the provision of relevant training;  
i) make available appropriate financial resources, in order to invest in lower carbon products or services, to achieve the plan outcomes; and  
j) establish systems for monitoring, and the continual improvement, of performance and take corrective actions, in connection with the NZTP.

*NOTE 5 Top management may also choose to collaborate with local businesses seeking to reach net zero, for example, by joining (or establishing) a local Green Business Network and sharing practical advice on how to achieve net zero.*

### 5.1.2 Competence

Top management should have a process for managing the competence of personnel involved in the development and implementation of the NZTP to:

- a) determine the necessary competences required;
- b) ensure that the personnel are competent on the basis of appropriate education, training, skills or experience;
- c) where applicable, take actions to enable personnel to acquire the necessary competence, and evaluate the effectiveness of the actions taken;

*NOTE Applicable actions can include, for example, the provision of training to, the mentoring of, or the reassignment of currently employed persons; or the hiring or contracting of competent persons.*

- d) monitor the performance of the personnel; and
- e) retain appropriate documented information as evidence of competence.

## 5.2 Selection of scope and boundaries

The organization should:

- a) establish the scope of its net zero targets. At a minimum this should include all Scope 1 and Scope 2 emissions and should normally include all Scope 3 emissions in the organization's value chain.

*NOTE 1 For a practical example, see A.3.*

- b) determine the boundaries of the organization. This should normally comprise the entire organization, including subsidiaries; and
- c) exclude avoided emissions.

*NOTE 2 An organization's products (goods or services) may be said to result in avoided emission if those products have lower life-cycle GHG emissions than an alternative product with an equivalent function or reduce emissions attributable to a third party. For example, the organization may manufacture an electric vehicle (EV) that avoids emissions compared to a petrol car or might sell loft insulation that leads to lower heating emissions in its customers' homes. Both types of avoided emissions occur outside the organization's GHG inventory and so cannot be counted towards any targets.*

*NOTE 3 The subsidiaries may be accounted for on an operational control, financial control or equity share basis, but may exclude activities outside the UK (or the home country where the organization is based).*

*NOTE 4 In simple terms:*

- "operational control" means that GHG emissions are attributed to the organization that manages the subsidiary;
- "financial control" means that all GHG emissions are attributed to an organization if it owns more than 50% of the subsidiary; and
- "equity share" means that GHG emissions are allocated between shareholders pro rata with the shareholding percentage.

## 5.3 Quantification of GHG emissions and the baseline

### 5.3.1 General

The organization should:

- a) identify a base period (usually of one year) that is representative of its activities for which GHG emissions data are calculated to produce the GHG baseline;

**NOTE 1** The most common approaches are described in the GHG Protocol Corporate Accounting and Reporting Standard and BS EN ISO 14064-1 Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals. ISO 14068-1 Annex C includes a comparison of the two approaches. BS EN ISO 14083 provides detailed guidance on accounting for emissions throughout a transport chain, for passengers and goods.

**NOTE 2** For a practical example see A.4.

- b) select an appropriate quantification method for its GHG emissions;
- c) determine a suitable set of emissions factors for conversion of activities (including fuel use, electricity consumption, travel and other purchased goods or services) to equivalent emissions of carbon dioxide (in tCO<sub>2</sub>e);
- d) use the emissions factors appropriate to the year of the GHG emissions to ensure they are as accurate as possible and should not recalculate base or previous period emissions using more recent factors;
- e) quantify its GHG emissions for the base period, recording any areas where estimates have been used, or where there are uncertainties in order to benefit from a recalculation in future periods;
- f) quantify any GHG removals for the base period, again recording estimates and uncertainties;

**NOTE 3** In the UK a comprehensive list of conversion factors is published annually by DESNZ/ Defra [1] and is freely available from the gov.uk website. The tables also include emission factors for Scope 2 electricity within the UK and selected Scope 3 emissions including, for example, estimates of emissions per mile driven in vehicles broken down by type, size and fuel used by that vehicle. The total equivalent emissions from all GHGs (expressed in kgCO<sub>2</sub>e) should be used in all cases, rather than just the emissions associated with carbon dioxide itself.

- g) use quantification methods that reduce uncertainty and, if making estimates, use a conservative approach; and

**NOTE 4** Conservative means when determining the baseline GHG emissions, the approach does not lead to overestimation of emissions and when determining GHG emissions reductions, the approach does not lead to overestimation of GHG emission reductions. This could mean the conservative approach for the baseline and subsequent year on year GHG emissions quantification need to use different assumptions or estimates.

- h) except for the baseline period, where there are uncertainties about the level of emissions, use high-end estimates for emissions and low-end estimates for emissions reductions or removals.

**NOTE 5** As an example of a low-end estimate for removals made through tree planting, the assumptions could include a high-end estimate of losses due to factors such as disease, drought, forest fires or vandalism.

Where there have been significant changes to the organization should review and, if necessary, update its baseline.

**NOTE 6** Significant changes can include the sale or closure of part of a business or the acquisition of a new subsidiary. They do not normally include more incremental activities such as opening a new factory, switching suppliers, moving goods delivered between different modes of transport or adding or closing stores in a continuing retail chain.

### 5.3.2 Scope 1 emissions

Scope 1 emissions, resulting from the direct combustion of fossil fuels, including road fuels, and fugitive emissions of other GHGs should be calculated and converted to CO<sub>2</sub> equivalences, using a 100-year Global Warming Potential.

### 5.3.3 Scope 2 emissions

Scope 2 emissions (electricity, heat, cooling, steam) should be calculated using a location-based method. Targets and planned actions to reduce its GHG emissions should primarily be based on location-based emissions.

**NOTE 1** The organization may optionally also use a market-based method for comparison purposes.

**NOTE 2** Calculations of GHG emissions due to electricity consumption can be reported using both location-based and market-based methods. A location-based method reflects the average emissions intensity of the grid on which energy consumption occurs, taking into account all sources of generation connected to that grid. A market-based method uses the emission factors of the electricity purchased by the company that supplies it to the organization

**NOTE 3** For a practical example see A.5.

Scope 2 emissions factors selected by the organization should consider the time of day or season of use if data is available.

**NOTE 4** Many organizations purchase “renewable electricity” on a green tariff. However, this does not directly reduce emissions from electricity generation and is simply an accounting method attributing low or zero carbon generation to customers on green tariffs. Although such tariffs can lead to the construction of additional renewable energy resources over the long term, in practice most renewables are built as a result of legislation, other incentives or commercial decisions.

**NOTE 5** Renewable electricity purchased under a power purchase agreement (PPA), where the organization has a private wire connection and evidenced by renewable energy certificate, or where the generation facility does not otherwise contribute to the grid, may have a source-specific (or zero) carbon intensity attributed to it.



### 5.3.4 Scope 3 emissions

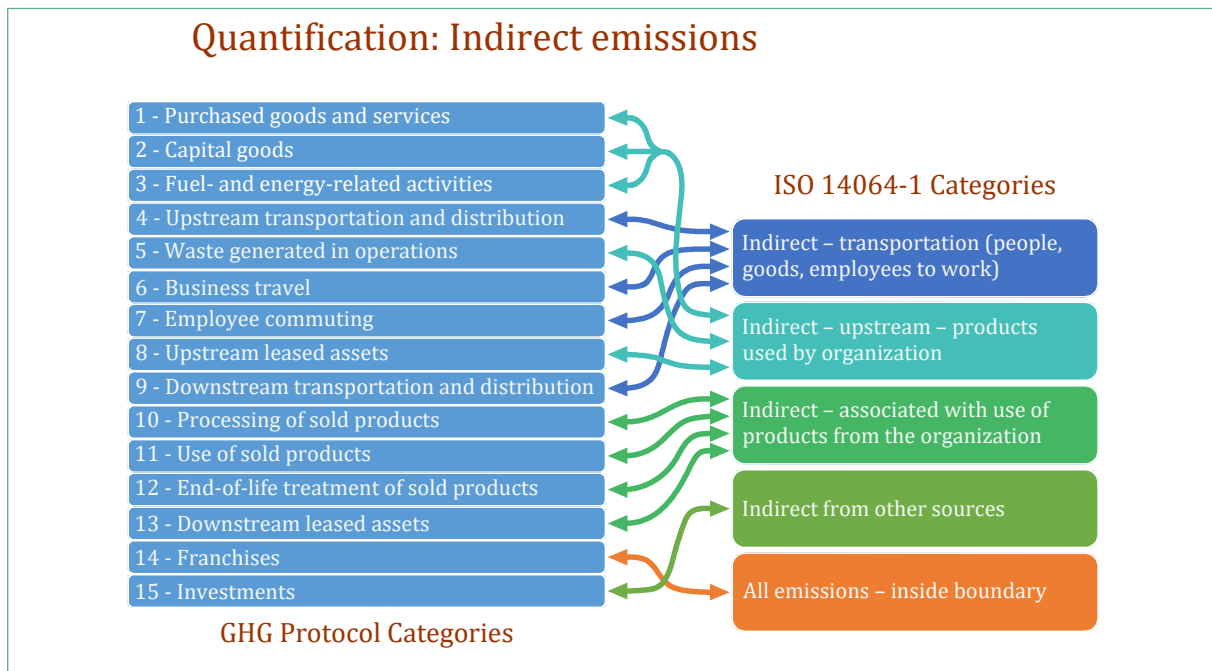
The organization should identify and include all Scope 3 emissions in its carbon footprint. These should include indirect GHG emissions from the entire value chain:

- upstream – goods/services purchased;
- transportation – people, goods, employees to work;
- downstream – use of goods/services; and
- any other indirect GHG emissions.

**NOTE 1** The four categories above align with those in ISO 14064-1:2018. The GHG Protocol divides Scope 3 emissions into 15 more granular categories, which can be mapped onto the four above.

**NOTE 2** For a practical example, see A.6.

**Figure 2** – Diagram showing simplified correspondence between the 15 GHG Protocol categories and the four of BS EN ISO 15064-1



If any Scope 3 categories are omitted following a materiality assessment, those Scope 3 emissions should be described, with an explanation of the reasons for their omission and an estimate of the quantity of such omitted emissions.

Many Scope 3 emissions from purchases are uncertain; when estimating these emissions, it should be assumed that suppliers are relatively inefficient in their use of energy, unless there is evidence to the contrary. For example, if carbon foot printing data is available from a number of competing suppliers, but not from the actual supplier, it should be assumed that the actual supplier's emissions per unit are at the 90<sup>th</sup> percentile point compared to their competitors.

**EXAMPLE** An organization which manufactures a range of food products including sausages and meat pies. Its main GHG emission sources are from energy used in the cooking process, as well as steam for cleaning and Scope 3 emissions associated with purchase of pork and other meat products. Like most companies, it also has a small administration function that uses office supplies such as photocopying paper and many other products in small quantities. Top management has determined that the Scope 3 emissions associated with these office supplies are not significant compared to those of its main activities, so can be omitted from the NZTP, as it continues to strive towards a paperless office.

### 5.3.4.1 Use of “spend-based” methods for Scope 3 emissions

Where data is available the organization should use activity-based Scope 3 emissions factors.

***NOTE 1** Activity-based data could be provided by suppliers in its value chain, or by considering more details of transport mode or vehicles.*

***EXAMPLE** An organization has records of mileage payments to its employees for using their private cars on business travel. Although it could base Scope 3 emissions on the sums paid, it requires employees to provide records of distances driven, make and model of car, and fuel used, in order to calculate a more accurate estimate.*

Where activity-based emissions factors are unavailable for upstream Scope 3 emissions, the organization should calculate them based upon its expenditure on goods and services, commonly known as a spend-based method.

***NOTE 2** In the UK, the Government publishes an annual table of “Conversion factors kgCO<sub>2</sub> per £ spent, by SIC code”, generally 3 years in arrears (so that the 2021 data was published in May 2024, for example). It also produces limited time series for similar data, which may be helpful in estimating Scope 3 emissions. However, use of SIC categories often provides insufficient granularity as similar products with different costs or footprints are grouped and attributed the same emissions factor.*

***NOTE 3** The organization may also use a commercial calculator for estimating Scope 3 emissions. Many Scope 3 emissions calculators use a methodology based on analysing financial accounts by category of expenditure, and then apply a single emissions factor for each category (the spend-based method).*

When using spend-based emissions factors, organizations should be careful to ensure that the dataset used takes account of inflation and exchange rate fluctuations.

If a Scope 3 emissions calculator is selected, the organization should ensure that the factors are appropriate to the countries where it operates, as they vary greatly by location.

***NOTE 4** Many Scope 3 calculators provide average emissions values based on the cost of goods or services purchased, using global or regional databases, such as the European Exiobase 3 and EcoInvent databases. These databases, and the UK Government factors by SIC code, are constrained by being based on detailed work funded by the EU that ended with data from 2011, with only partial updates since then. When creating an NZTP, organizations need to be aware that for some goods or services, especially those with electricity as the main source of emissions, factors are likely to change significantly over the planning period.*

***NOTE 5** Basing estimates of GHG emissions solely upon cost means that there is a potential disincentive to buy higher quality, more eco-friendly goods that can be more expensive because the attributed carbon footprint is directly proportional to the cost (the spend).*

### 5.3.4.2 Embodied carbon

The organization should consider embodied carbon when setting policies in its NZTP around the procurement of goods from its value chain.

***NOTE 6** For more information and examples see Annex B.*

## 5.4 Targeting and planning GHG emissions and reductions

### 5.4.1 Targets

After it has determined its GHG baseline, the organization should set targets for GHG emissions, including reductions and GHG removal enhancements. Targets should be expressed in percentage reductions from a baseline, or as absolute GHG emissions.

**NOTE 1** The organization can optionally use carbon credits to develop a pathway to net zero and identify those actions or measures to achieve this.

**NOTE 2** Organizations may also wish to set targets in intensity terms (either as a percentage or absolute reduction per unit of output or per economic unit). Intensity metrics can lead to continued growth in emissions in the short to medium term for organizations that are expanding before a longer-term decline in GHG emissions to net zero.

**NOTE 3** For a practical example see A.7.

Targets should be:

- a) set at an appropriate level;

**NOTE 4** These may be built up from similar activities or business units, such as subsidiaries, buildings, manufacturing plants or functions, in a way that permits them to be managed actively.

**EXAMPLE** A retail chain might set individual Scope 1 and Scope 2 emissions targets for its superstores, combined targets on a regional basis for its small stores, and a single target for its transport fleet, with additional Scope 3 emissions targets for purchased goods and services by product category.

- b) broken down by Scope and, in most cases by source;

**NOTE 5** Organizations frequently also break down Scope 1 emissions by fuel type, as a common target in NZTPs can be to eliminate all use of fossil fuels by a specified date. Organizations that have Scope 2 emissions other than electricity (such as steam or compressed air) may set separate targets for each source.

**NOTE 6** Organizations might find it helpful to set separate targets for different categories of Scope 3 emissions. For example, an organization could set greater reduction targets for business travel, over which it has more control, than for employee commuting over which it has little control.

- c) in line with a clearly defined pathway to net zero, where only residual GHG emissions remain, and should justify why residual GHG emissions cannot be further reduced or eliminated;

**NOTE 7** Although some initiatives set a level of 5% to 10% for residual GHG emissions, this approach is not recommended as selecting an arbitrary percentage can lead to missed opportunities and permits organizations that have delayed making reductions to designate a higher absolute figure for residual GHG emissions.

**NOTE 8** Net zero may only be claimed if all residual emissions are counterbalanced by removals or removal credits.

- d) set to cover defined time spans with clear interim milestones. The period between milestones should not exceed 5 years, with annual interim targets. The organization should also review and if necessary, update, its baseline data at each interim milestone;
- e) set to allow for some GHG emissions reduction actions failing to achieve the intended results, so that the sum of the targeted reductions should normally exceed the total figure required in any given time period;

- f) determined before any carbon credits are purchased, or other offsetting is undertaken outside the value chain;
- g) in line with, or more ambitious than, any relevant sector-specific targets;
- h) ambitious yet attainable; and
- i) aligned with the dates and timescales used for other plans or targets of the organization.

**NOTE 9** *The Science Based Targets initiative (SBTi) requires that companies set a near-term target that covers a minimum of five years and a maximum of 10 years from the date the target is submitted for assessment. The UK Government generally uses the fixed year of 2030 for short-term or interim targets, as do the Carbon Disclosure Project (CDP) credible transition plan and PD ISO IWA 42.*

The organization should set its own target dates.

The organization should determine a date for reaching net zero, where only residual GHG emissions remain. This should be aligned with global climate targets (such as the Paris Agreement [5]) and with national milestones or targets (such as the UK's 2050 Net Zero target).

The organization should seek to achieve net zero no later than 1 January 2050 or should justify why this date cannot be met.

**NOTE 10** *Although 1 January 2050 is often used as a default date, this does not account for hard-to-mitigate sectors. If global targets are to be met, most organizations need to achieve net zero earlier than this date.*

Targets should not end with the achievement of net zero but should indicate how net zero is likely to be maintained, and if there are opportunities to move beyond net zero towards net negative emissions.

Organizations should also consider if they need to develop indicators and targets for adaptation, including the level of resources, both human and financial, available for adaptation measures. Examples of adaptation impacts that should be considered are given in 3.1.1. Targets should also consider the effects of any land use changes attributable to the organization, including forestry.

Targets should also be set for other factors affecting the GHG emissions of the organization, such as:

- 1) installation of renewable energy generation onsite;
- 2) procurement of renewable electricity (within Scope 2);
- 3) employee engagement;
- 4) levels of engagement with suppliers or customers, with (or without) quantified emissions reductions for Scope 3 from those suppliers or customers; and
- 5) financial targets for investment in low or zero-carbon technologies.

#### 5.4.2 Planning GHG emissions reductions and removals.

The organization should also identify and plan the actions necessary to achieve its targets. Actions should distinguish between those leading to GHG reductions and any that enhance GHG removals. The organization should aim to make reductions in emissions first, before undertaking removals.

Planned actions should identify associated risks, including delays to the development of anticipated technological solutions, and risks of reversal from GHG removals. Where possible, alternative actions should be identified for actions deemed to have a significant level of risk.

**EXAMPLE** *An organization's NZTP anticipates the use of hydrogen-fuelled heavy goods vehicles (HGVs) for the long-distance delivery of its products. However, in 2024 there were no commercially available hydrogen HGVs available on the market. The NZTP therefore considers two possible alternatives – moving more goods onto rail, with loads being split into smaller units at distribution hubs for final delivery in electric vans; or the option to use electric HGVs if they come onto the market earlier than hydrogen-fuelled ones.*

For short-term targets, such as the first 5 years of a pathway to net zero, plans should be detailed indicating:

- what actions need to be taken;
- when they are to be taken;
- where they are to be applied (for example, in which building or process); and
- as far as it is possible to estimate how much they are expected to cost and whether (and from where) funding is to be sought.

The NZTP should also identify who is responsible for implementing actions, monitoring progress, and achieving the target.

For subsequent target periods (interim or long-term), NZTPs should indicate likely areas where actions are to be taken, with reasonable estimates of timescales and resulting GHG emissions reductions or removals.

***NOTE 1** Most governments and agencies regard 2050 as being the appropriate year for a long-term target, to align with the Paris Agreement [5]. However, it is possible for organizations to set an earlier date for which to achieve net zero.*

Organizations should set additional interim target dates between the short and long-term targets, so that there is never more than 5 years between consecutive target dates.

The organization should assess undertaking a sensitivity analysis to identify areas where the NZTP is most likely to fail to achieve its targets.

***NOTE 2** If undertaken, the analysis may seek to determine:*

- *areas where assumptions and estimates of GHG emission reductions or removals are least robust or cannot not be reached;*
- *areas where there are most likely to be delays in implementing actions or achieving GHG emission reductions or removals, including those arising from the development of new or enhanced technologies; and*
- *additional risks or opportunities resulting from the need for adaptation.*

## 5.5 Implementation of greenhouse gas (GHG) reductions

### 5.5.1 Greenhouse gas (GHG) reduction actions

Organizations should implement the actions contained in their NZTP and should report those not undertaken in the intended timescale.

GHG reduction actions should include:

- a) improvements in energy efficiency, for example, through adding insulation to buildings, improving efficiency of boilers, motors, or industrial processes, upgrading controls or switching to low-energy lighting;
- b) improvements in energy management, e.g. by ensuring equipment is switched off when not in use, by optimizing manufacturing processes or by lowering space heating temperatures;
- c) behavioural changes, including maximizing use of daylight, changing modes of transport (e.g. from aeroplane or private car to rail or bus);
- d) installation of onsite renewable energy, such as photovoltaics, solar thermal panels;
- e) fuel switching, e.g. from fuel oil to gas, from mineral diesel to biodiesel, or the electrification of transport;

- f) energy demand management, including installation of batteries or other energy storage and the use of digital technologies, to enable electricity to be used at a time of low carbon intensity (sometimes known as flexibility);
- g) using hydrogen from renewable sources ("green" hydrogen) as an alternative to traditional fuels; and
- h) actions to reduce leakage of GHGs to the atmosphere, including the capture or recycling of refrigerant gases, and the elimination of methane leaks.

Other GHG reduction actions which should be taken to reduce Scope 3 emissions, include:

- 1) sourcing components from a local supplier rather than one abroad, thereby reducing the transportation footprint;
- 2) sourcing components from a supplier that uses electricity primarily from renewable sources, rather than fossil fuels;
- 3) using recycled materials or refurbished components in preference to new ones;
- 4) supporting small businesses in its supply chain to implement an energy management system;
- 5) encouraging the use of lower carbon forms of public transport (rail, bus) rather private cars or aircraft for business travel and, if appropriate, for customers;
- 6) replacing product packaging with materials that are readily recyclable; and
- 7) improving the design of a product so that it uses less energy in its use phase.

Many industries or sectors have actions that are quite specific to them; guidance should be sought from sources such as trade associations or the Climate Change Committee's Net Zero Industry Pathways (NZIP).

*NOTE 1 Guidance on energy management systems is provided in BS EN ISO 50001 and, for smaller organizations looking to implement a system in phases, in BS EN ISO 50005.*

*NOTE 2 For a practical example see A.8.*

Some actions are interim changes e.g. switching from fuel oil to gas, pending technological advances (or cost reductions) and permit a move to very low or zero carbon alternatives; these interim changes should be recorded in the NZTP.

#### 5.5.1.1 Unintended consequences

Actions should be planned to avoid the risk of unintended consequences that may prevent a just transition through:

- damage to the wider environment (e.g. by making a switch from coal to biomass pellets which leads to deforestation or a loss of biodiversity);
- adverse social effects (e.g. changes to employment, or the sourcing of raw materials for battery technology from parts of the world where forced or child labour is prevalent);
- possible rebound effects, where the move to a more efficient system leads to users being less efficient in the way they use the system (e.g. by leaving lights on all the time as they are known to be low energy lights); and
- the potential ways reduction actions interact with or affect other reduction actions intended to improve the organization's resilience to severe climate events and plans to adapt to the effects of climate change.

### 5.5.2 Greenhouse gas (GHG) removals

The organization should also consider opportunities for GHG removals. These are frequently found in industrial or agricultural sectors but should be considered by all organizations.

**NOTE 1** For a practical example see A.9.

**NOTE 2** Examples of GHG removal actions that may be considered include:

- a) biomass energy with carbon capture and storage, for example, by collecting CO<sub>2</sub> in flue gases, compressing it, and storing underground in depleted oil or gas wells;
- b) direct air capture;
- c) tree planting; and
- d) land use changes, with the primary aim of increasing the carbon dioxide stored in the soil.

**EXAMPE** Reversals can occur in the forestry sector owing to wildfires, disease leading to diebacks, or political changes leading to a loss of permanence for a reserve.

In planning for GHG removals, the organization should determine the expected longevity of any storage, and risks of leakage or earlier reversal.

Removals that lead to additional emissions elsewhere should not be used, for example, by using captured CO<sub>2</sub> to enhance oil recovery in otherwise depleted oilfields

Conservative estimates should be used when calculating the long-term value of any GHGs removed.

### 5.5.3 Offsetting and carbon neutrality

#### COMMENTARY ON 5.5.3

*Opinion is divided on whether carbon credits achieve their stated aims. Although most verified carbon credits are required to offer real savings that are additional and permanent, there have been several instances where these have been found not to apply or there has been double counting. For example, some credits associated with tree planting were found to be merely supporting business as usual, and some forests associated with credits were destroyed (by fire, or human intervention) within a decade of their establishment. Some carbon credits supporting cleaner cookstoves were found to have only a minimal effect on the amount of biomass foraged, with no discernible reduction in deforestation. Avoidance credits, for example, where payment is made to prevent the loss of rainforest, are also widely deprecated.*

*Conversely, it can be argued that the majority of credits do achieve their stated aims and provide useful finance for projects in developing countries that could not be financed commercially. These include projects that support renewable energy and have co-benefits such as expanding access to rural electrification, improving educational attainment, and improvement of local air quality. Removal credits are sometimes seen as being the most secure, and as being the only type that can be used to counterbalance residual emissions at net zero.*

*Many pressure groups also argue that for the purchaser of carbon credits, they offer a licence to continue polluting and to delay making their own GHG emissions reductions, and are often linked to greenwashing claims, including from companies in the fossil fuel industry.*

The organization should prioritize reducing (or removing) its own emissions and those in its value chain before using carbon credits (or other forms of offsetting outside the value chain).

**NOTE 1** Offsetting is not an alternative to attaining net zero but is a way of counterbalancing unabated GHG emissions while on the pathway to net zero.

The organization should not rely on offsetting as a means of reaching net zero, except when there are only residual GHG emissions, when all possible emission reduction (or removal) actions have been taken. At that point, the organization should counterbalance those residual emissions using removal credits.

**NOTE 2** A removal credit is a carbon credit that intends to remove 1 tonne of carbon dioxide permanently from the atmosphere, for example, through afforestation.

**NOTE 3** The organization may use offsetting, in the form of high-quality carbon credits, as an interim measure in order to claim carbon neutrality, providing that they have also commenced making GHG reductions in line with their plan.

**NOTE 4** BS ISO 14068-1 contains requirements for entities seeking to achieve and claim carbon neutrality for organizations or products as an interim measure, whilst also demonstrating that they are making emissions reductions according to their NZTP.

Any organization considering the purchase of carbon credits should assess the reasons for doing so, and the quality and safeguards around the credits being purchased. It should also look at the reputation of the registry that records the carbon credits and ensure that as a minimum the carbon crediting program adheres to the core carbon principles of the Integrity Council for the Voluntary Carbon Market (ICVCM). It should additionally ensure that its use of any carbon credits is in line with the Oxford Principles for Net Zero Aligned Carbon Offsetting [8], the VCMI Claim Code of Practice [9] and the IETA Guidelines for High Integrity Use of Carbon Credits [10].

#### 5.5.4 Impact on business model and activities

The organization should consider changes to their business model, strategy or policies that need to be made as part of a transition to a low-carbon economy. GHG emissions resulting from such changes should be estimated, along with the timescale for implementation (or relevant milestones in the NZTP).

**NOTE 1** For a practical example see A.10.

**NOTE 2** Examples of business model changes include:

- a) phasing out high emitting activities, for example, by replacing plastics with naturally occurring raw materials, ceasing the manufacture of products with fossil fuelled engines or boilers or replacing physical events with virtual ones;
- b) the introduction of new low-carbon products (goods or services); and
- c) changes in the value chain, including availability of upstream goods and services from suppliers, and changes to customer (downstream) demand.

**NOTE 3** Some actions can lead to a short-term increase in emissions, for example, through the replacement or deep retrofitting of buildings or other facilities, where medium-and long-term reductions to Scope 1 or Scope 2 emissions are exceeded by the short-term Scope 3 emissions associated with the capital goods installed.



### 5.5.5 Adaptation

The organization should consider the potential need to adapt to climate change. This should include any impacts on its business model (taking account of both risks, and opportunities arising from addressing climate change) and should ensure that the NZTP is aligned with any adaptation plan.

**NOTE 1** For a practical example see A.11.

**EXAMPLE** Climate change impacts that may require adaptation responses include changes that affect goods or services offered by the organization, or purchased from its suppliers (value chain) due to:

- a) availability of inputs, especially water, energy, and agricultural products;
- b) short-term weather effects, including floods, heatwaves, and wildfires;
- c) longer-term weather effects, including the need to heat and cool buildings;
- d) rises in water levels and erosion due to changes to sea levels;
- e) the frequency and severity of flooding along rivers and in urban areas due to high rainfall;
- f) socio-economic and demographic changes;
- g) financial constraints, including the availability of insurance; and
- h) legislation, such as laws prohibiting the import or export of products or re-zoning land use.

**NOTE 2** BS EN ISO 14090 contains information on how to create an adaptation plan. BS 8631 goes into further detail on how to use adaptation pathways.

## 5.6 Measuring the impact of greenhouse gas (GHG) reductions

The organization should provide the resources, including the availability of competent persons, needed to enable valid and reliable results when monitoring or measuring the outcomes of the NZTP.

The organization should identify key performances indicators (KPIs) that have an impact upon its GHG emissions. These should be monitored on a regular (at least annual) basis, using the same methodology as for setting its baseline and targets. The organization should consider changes in sales volume or product mix, as well as corporate changes, such as the purchase or sale of a building or subsidiaries.

**NOTE 1** In addition to monitoring GHG emissions directly, the organization might need to identify and monitor other indicators, such as staff travel by mode, energy consumption by fuel, proportion of work outsourced, internal temperatures and lighting levels.

The organization should measure and track GHG emissions in absolute terms; or/and optionally measure and track GHG emissions in terms of carbon intensity (i.e. relating total GHG emissions to an indicator such as sales in financial or volume terms, or to the number of employees).

**NOTE 2** Using carbon intensity can help the organization understand its performance better, but as the primary aim is to reach net zero in line with global, Paris Agreement [5] targets, the primary performance indicator is based on absolute GHG emissions.

The organization should monitor all significant GHG emissions reduction or removal actions, typically on a project-by-project basis, and measure or estimate the GHG reductions from each project. The organization should also estimate total GHG reductions by summing the total measured (or estimated) GHG reductions from such actions – a bottom-up approach. However, for monitoring overall performance against the NZTP, the organization should use total GHG emissions (on a top-down basis covering all activities within the boundary).

**NOTE 3** More information on reconciling top-down and bottom-up methods, in the context of reductions arising from energy savings, is given in BS ISO 50047.

The organization should maintain the documented information necessary to demonstrate conformity with the NZTP.

**NOTE 4** *The organization may choose to have the NZTP validated, and its performance against the plan verified, by either internal or external auditors.*

## 5.7 Modifying the net zero transition plan

Organizations should keep NZTPs under continuous review and should identify all significant variations from the plan.

The organization should make periodic amendments and updates to the plan, based on changes to:

- a) the structure of the organization, such as opening or closing branches or subsidiaries;
- b) outsourcing arrangements (changing emissions between Scopes 1 or 2 and Scope 3);
- c) the goods or services provided by the organization to its customers;
- d) available resources;
- e) emissions factors, in particular those associated with grid electricity;
- f) technology, that leads to improved processes or new lower-carbon products;
- g) climate science information, potentially requiring more rapid action;
- h) national and international standards on net zero and climate change, and;
- i) legal requirements, for example, the introduction of a ban on fossil-fuelled vehicles on a different timescale to that originally envisaged.

All changes to the NZTP should be justified and documented. The plan should be subject to a periodic management review, which should identify:

- 1) performance against the plan, including the extent to which its objectives have been met;
- 2) any required changes or corrective actions;
- 3) the available resources (human and financial); and
- 4) opportunities for improvements or additional reduction or removal actions.

Organizations should continually improve the suitability, adequacy, and effectiveness of their NZTPs.

## 5.8 Financing the net zero transition

The Net zero transition plan should address how the organization aims to finance actions identified; source of finance include:

- a) incorporating net zero actions into other planned investments at little or no additional cost;
- b) commercial finance, including specifically “green” loans or leases;

**NOTE 1** *There are two main types of sustainable finance facilities that banks provide:*

- *sustainability-linked loans (SLLs): loans for general corporate purposes where the corporation signs up to certain ESG metrics, which, if met, lead to a step-down in the interest rate; and*
- *“use of proceeds” facilities for specific ESG projects, e.g. finance for green projects, converting fleets to electric vehicles, installing biomass boilers and smart building technology.*

**NOTE 2** *For a practical example see A.12.*

- c) grant finance at local or national level;

*NOTE 3 Organizations need to be cautious about assuming the extension of current schemes and should not rely unduly on expectations of future grant schemes.*

- d) community finance, where there is a clearly defined asset that is funded; for example a SME in Surrey, England was supplied with 180 kWp of solar panels mounted on its factory roof by an energy cooperative and benefits from low-cost electricity generated from those panels; and
- e) energy system operator payments, which are possibly received for reducing demand, either in total, or at times when the local supply network is constrained, for example, in Winter 2022, the UK National Grid Electricity Systems Operator Demand Flexibility Service delivered 3,300 MWh in electricity reductions at peak times across the 22 events, with payments made to many small businesses.

*NOTE 4 More information on the application of sustainability principles for organizations in the financial sector is given in ISO 32210.*

## 6 Reporting and communication

### 6.1 General

The organization should transparently communicate its NZTP to interested parties external to the organization.

Any such communication should:

- a) be an accurate summary of the full NZTP, relevant and not misleading;
- b) state the scope, boundaries and timeline of the NZTP;
- c) be based on an assessment of GHG emissions across the organization's entire value chain;
- d) not, either directly or by implication, exaggerate the significance of the organization's contribution towards national or global net zero targets;
- e) clearly indicate that the organization is on a pathway to net zero and not imply, without justification, that it has already attained net zero;
- f) identify significant climate change impacts and opportunities including qualitative or quantitative information about uncertainties;
- g) justify and explain the mitigation and, if applicable, adaptation actions chosen;
- h) explain the monitoring and evaluation activities, and summarize performance to date against the NZTP;
- i) be reviewed and updated as necessary to reflect changes to the NZTP, or to take account of the results of monitoring and evaluation;
- j) indicate whether the NZTP has been independently validated and, if so, by whom; and
- k) indicate whether the quantifiable outcomes from applying the NZTP to date have been verified and, if so, by whom.

**NOTE 1** Examples of quantifiable outcomes might be a reduction in CO<sub>2</sub>e in GHG emissions by the organization or training a specified number of employees in behavioural change.

**NOTE 2** For a practical example see A.13.

**NOTE 3** Annex A shows how the recommendations of this BSI Flex relate to selected third-party requirements.

**NOTE 4** A clearly communicated NZTP produced in line with this BSI Flex can also demonstrate compliance with third party requirements on transition planning, such as the Cabinet Office Public Procurement Notice 06/21 [1]. PPN 06/21 is a partial carbon reduction plan, as it only covers Scope 1/Scope 2 and the Scope 3 requirements relating to transport, and the one relating to waste. PPN 06/21 requires a target date for net zero of no later than 2050. PPN 06/21 only applies in England & Wales (not the other devolved administrations) for contracts in excess of £5 mn/annum.

Reports help support an organization's sustainability or ESG objectives; and should also be aligned with requirements of third-party initiatives.

## 6.2 Documented information

The organization should maintain documented information in order to:

- a) justify the scope and boundaries in the developing of the NZTP;
- b) demonstrate the competence of person(s) involved with the development and implementation of the NZTP;
- c) support the quantification of the GHG baseline;
- d) justify the targets set;
- e) identify the measures taken to implement the NZTP and quantify associated GHG emissions reductions and removals;
- f) assess the effectiveness of the NZTP; and
- g) justify modifications to the NZTP.

Documented information should be controlled to ensure:

- 1) it is available and suitable for use, where and when it is needed; and
- 2) it is adequately protected (e.g. from loss of confidentiality, improper use, loss of integrity).

## Annex A (informative)

# Case Study: Sunnywinds Hotel

This case study is designed to show how the various stages in the main part of the BSI Flex may be applied to a small business, the fictional Sunnywinds Hotel. It is not intended to be comprehensive, but to offer some examples of the sort of decisions that may be made when developing an NZTP. The case study elements are matched to the stages in the main document for ease of use.

### A.1 Background

The Sunnywinds Hotel lies on the seafront about a mile east of the centre of the small seaside town of Walmington-on-Sea, in the UK.

The main building, with around 25 letting rooms, a lounge and bar/restaurant, was built in the late Victorian era with solid walls of local stone and pitched slate roof, some years after the railway reached the resort.

A two-storey flat-roofed extension was opened in 1957 with a further 30 rooms, although this was reduced to 20 in 1990 when en suite bathrooms were added. The extension is built of pebbledashed brick, and rooms in it are heated by night storage heaters; in the main building a gas central heating system is used. Hot water for the whole property comes from the gas boiler.

There is a car park for 30 cars located behind the extension; a minibus stored here is used to collect people from the station (and, very rarely, the local airport). The kitchen uses a mixture of gas and electrical appliances.

There is no air-conditioning to any of the bedrooms, although some complaints have been received in recent years about summer overheating on the upper floor of the extension. The lounge, bar/restaurant and kitchen have limited room air-conditioning through split units.

The hotel was acquired by the Wilson family using a commercial mortgage in 2022.

In recent years, the main business had been catering for hen and stag parties, with some stays by families in the school holidays, although both collapsed during the pandemic.

The Wilsons are keen to take it slightly more upmarket and see an NZTP as being part of the process, although capital budgets are limited for the foreseeable future, and market research suggests that Walmington-on-Sea would not support an expensive boutique eco-hotel.

## A.2 Management commitment

### A.2.1 Statement of commitment

Top management are keen that they should be seen as leaders in the sector, but that their NZTP should be SMART (specific, measurable, attainable, relevant and time-bound). They are also aware that many of their targets depend on action by third parties – notably the decarbonization of the UK's electricity supply and actions of some of their key suppliers. With that in mind, they have developed a very short high-level objective:

*Sunnywinds Hotel aims to be net zero by 2044, at which time fewer than 10% of its current indirect value chain emissions will remain to be offset – these will be its residual emissions. As interim targets, Sunnywinds aims to eliminate all direct (Scope 1) emissions by 2034. All indirect emissions from energy (Scope 2) will be eliminated in line with the decarbonization of the UK electricity grid, but our use of electricity will be capped at current (2024) levels. While pursuing our NZTP, we aim to maintain or exceed the comfort levels for our guests, and to operate at an average hotel occupancy level of 80%. We intend to be recognized as a leading “green” hotel in Walmington-on-Sea and will actively publicise our achievements.*

This objective recognizes that to support a wider net zero transition, it is not possible simply to switch away from fossil fuels (the main component of Scope 1 emissions) by greatly increasing electricity consumption, as the grid would be unable to keep up with increased demand from low carbon sources if everyone did this. The Wilsons are keen also to stress that their net zero transition cannot be achieved by lowering the comfort of guests or shrinking the size of the business.

### A.2.2 Risk register

The Sunnywinds Hotel owners started by preparing a risk register. Although many possible formats exist, the extract below show how it focused on both the level of risk (how seriously it might affect the NZTP) and the likelihood of the risk occurring, to enable them to identify those that needed to be addressed most urgently. In the example, the key risk was that to undertake the changes to the electrical systems that would be required to decarbonize the hotel, the local electricity district network operator (DNO) might not be able to schedule work upgrading the connection several years. Mitigation factors could include extending the current life of the system (and adjusting the NZTP accordingly), but also highlighted the need to speak early to the DNO in order to get a provisional application for a connection in place.

**Table A.1 – Sunnywinds Hotel – NZTP risk register**

#	Risk	Effect	Likelihood	Mitigation
1	Suppliers unable to provide estimate of carbon footprint for food & drink purchases	Low	High	Sign up to spend-based calculator; ask other eco-hotels if they can share data collaboratively
2	Bank finance unavailable to support investment in required measures	High	Medium	Target lower cost measures in early years; consider third-party asset financing (e.g. for EV chargers)
3	Wilmington Council rejects planning permission for new roof on extension	High	Low	Redesign as a flat roof (but with reduced PV output)
4	Heat pumps require better insulation on old part of hotel	High	Medium	Investigate costs, as part of major upgrade; consider hybrid heating with small backup boiler
5	Electricity DNO unable to upgrade connection to permit heat pumps and PV for at least 5 years	High	High	Contact DNO early. As interim measure, extend life of existing heating system; start with smaller PV array that matches existing connection capacity
6	Climate change leads to frequent coastal storms, preventing use of the extension rooms (leaking roof, etc.)	Medium	High	Add pitched (PV) roof above existing flat roof; improve glazing on sea view rooms
7	Guests unimpressed by actions planned or taken	Low	Medium	Improve marketing message; explain that may lead to lower rates and more comfortable stays in future
8	—	—	—	—

Not all the risks and mitigations shown above were in the initial draft of the Risk register – it is a living document that is updated when circumstances change. For example, risk 1 is around quantification of the baseline (see 5.3.1); but risks 2 to 5 relate to difficulties in taking GHG reduction measures (see 5.5.1), which may only be identified after the measures have themselves been selected. Risk 6 is about adaptation (see 5.5.5) – as a coastal resort, Wilmington-on-Sea is at an elevated level of risk around climate change effects such as storms and flooding; its mitigation is a measure that simultaneously increases resilience and lowers emissions.



### A.3 Selection of scope and boundaries (5.2)

This was straightforward for the Sunnywinds Hotel – the boundary was simply the hotel and grounds. Had there been an owners' bungalow, elsewhere in the town, this could also have been brought into the boundary. All GHG emissions were included in the scope. This included employees' travel to work and crucially emissions associated with hotel guests coming to stay in the hotel (a category that is not always included). The scope does however exclude avoided emissions [5.2 c)]. The hotel cannot take any credit for the fact that most hotel guests travelling to Walmington-on-Sea (on England's South Coast) have significantly lower emissions than had they chosen to holiday overseas, taking a flight to reach their hotel in a destination such as Ibiza.

### A.4 Quantification of Scope 1 emissions

It was also easy to find the data for the initial baseline (set as the 2024 calendar year, as 2023 was still suffering from the after-effects of the COVID pandemic). There were only two significant sources of Scope 2 emissions – mains gas, with data readily available from gas bills and diesel for the hotel's minibus, with amounts generally on the garage VAT receipts. Any that failed to show the volume of diesel sold could produce an accurate estimate from the cost and websites showing historical fuel prices. It was decided that the occasional use in winter of a log fire could be ignored as being immaterial. In future, the NZTP requires that wood purchased should be weighed to provide an estimate (the DESNZ conversion factors have a figure for wood).

### A.5 Quantification of Scope 2 emissions

Sunnywinds Hotel had recently signed up to a contract with EcoGreeny Energy that proudly announced that it has "No emissions. Zilch. Nada". This is a market-based figure of 0 kgCO<sub>2</sub>e/kWh and is based on EcoGreeny buying an amount of "renewable" electricity sourced from wind, solar and hydrogenerators backed by Renewable Energy Certificates equivalent to its annual sales.

However, at any given time, their energy comes through the national grid like any other suppliers, and EcoGreeny have not built any new sources themselves. Although the Wilsons are committed to continuing buying so-called green electricity, for their calculations (baseline and targets) they need to use the grid average figure, which can also be obtained from the DESNZ conversion factor tables, and for 2024 was 0.20705 kgCO<sub>2</sub>e/kWh.

In future, they may be able to use a more localized real-time conversion factor, which takes the emissions produced on a half-hourly basis and matches those to the pattern of use in the hotel. This can also take account of their location (although electricity in Southern England often has a higher carbon content, owing to its distance from large offshore or Scottish wind farms).

### A.6 Quantification of Scope 3 emissions

This is significantly harder and requires estimates and judgment. Sunnywinds found factors for some purchases, such as water and waste, relatively easy to obtain from its suppliers. Data on food and drink was much harder to come by; although there are some well publicized "carbon neutral" foods or beers, the underlying emissions (before the manufacturers purchased any carbon credits) were hard to find, and for most of the many food lines data was completely absent.

As a result, Sunnywinds paid for a consultant to undertake the initial baselining. The consultant used one of the commercially available spend-based tools, but worked with the Wilsons to identify items that might have unusually high or low GHG emissions. As an example, Sunnywinds has recently started selling wine from a local Sussex winery; this is more expensive than bulk wine from South America or Australia but has a much lower carbon footprint per unit cost. The consultant also identified that operating a bottle bar (with all beers and ciders sold in bottles) potentially had higher emissions than if the best-selling lines were available on draught.

The third main area of interest was in laundry services; Sunnywinds already encourages guests to re-use towels but was surprised to discover that the carbon saved was as much about heating the water, and transporting the dry laundry, as about the water saved by not washing it as often.

Travel emissions were estimated using surveys – one for employees' travel to work and another for guests. It was decided that the embodied carbon in capital items purchased would be looked at on a case-by-case basis.

## A.7 Targets

As part of their commitment to net zero, a high-level target had already been set. This was reviewed in the light of the baseline emissions, and two minor modifications were made:

- a) Scope 1 diesel emissions could be eliminated more quickly, by 2028; but
- b) the scale and speed of electrification (including the intention to acquire an electric minibus and phase out the gas heating), meant that to cap electricity demand at 100% of 2024 level was impractical, and this should be revised upwards to permit higher levels up to 2038, with a peak of 150% in 2034.

Interim milestones were added for 2029 and 2039. All figures would be kept under annual review and would take account of any sectoral guidance for the UK hospitality industry.

An additional target of generating at least 20% of net electricity demand from solar panels onsite was added with a target date of 2034.

## A.8 GHG reduction actions

An energy and carbon audit was carried out to identify key actions, and a summary produced of potential measures.

**Table A.2 – Potential measures to reduce GHG**

#	Location(s)	Brief description	Costs	Savings	Payback	CO <sub>2</sub>
<b>Heating/hot water systems</b>						
1	Main building	Install GSHP (replacing boiler)	££££	££	⌚	🌍🌍🌍
2	Main building	Insulate hot water pipework	£	£	⌚⌚	🌍
3	Extension	Decommission DHW boiler, either join to main building boiler or add to heat pump when installed	££ – ££££	£ – ££	⌚⌚	🌍 – 🌍🌍
4	Extension	Improve controls in bedrooms	££	£	⌚⌚	🌍
<b>Insulation and building fabric</b>						
5	Main Building	Add internal wall insulation	£££	£	⌚	🌍
6	Extension	Investigate options for adding cavity wall insulation if not present	£££	££	⌚⌚	🌍🌍
7	Extension	Re-roof extension with 300 mm loft insulation, and pitched roof to mount PV panels (see below)	££££	££	⌚	🌍🌍🌍

Table A.2 – Potential measures to reduce GHG (continued)

#	Location(s)	Brief description	Costs	Savings	Payback	CO <sub>2</sub>
<b>Lighting</b>						
8	Both sites	Replace remaining halogen spots and fluorescent tubes with LEDs	£	£	⌚⌚⌚	🌐
9	External	Check/improve floodlight controls	£	£	⌚⌚⌚	🌐
<b>Renewable energy</b>						
10	Main site	Add solar thermal for pre-heating kitchen hot water	£££	££	⌚⌚	🌐🌐
11	Extension	Add up to 40 kWp of PV panels	££££	£££	⌚⌚	🌐🌐🌐
12	External	Add solar PV car park lights	£££	£	⌚	🌐
<b>General</b>						
13	Minibus	Replace minibus with EVs when diesel one reaches end of life (or golf buggy)	££££	££	⌚⌚	🌐🌐🌐
14	Overall	Obtain smart metering for gas (currently still billed quarterly)	–	£	–	–
15	Overall	Check equipment is not left on standby; appoint an energy champion	£	£-££	⌚⌚⌚	🌐
16	Both sites	Reduce size of kettles in bedrooms to max. two cups	££	££	⌚⌚	🌐🌐
17	Kitchen	Replace gas hobs with induction hobs	£££	££	⌚⌚	🌐🌐
18	Kitchen	Upgrade fridges/freezers to A rated	£££	££	⌚⌚	🌐🌐
19	Housekeeping	Train cleaners to use less hot water cleaning showers	–	£	⌚⌚⌚	🌐

Table A.2 – Potential measures to reduce GHG (continued)

#	Location(s)	Brief description	Costs	Savings	Payback	CO <sub>2</sub>
<b>Scope 3</b>						
20	Guest travel	Offer free minibus link to railway station; end offer of free pickup from airport (rarely used)	£	–	–	Guest travel
21	Guest travel	Install 6 secure cycle racks (under cover if possible)	£££	–	–	Guest travel
22	Employee travel	Subsidize monthly bus pass	££	–	–	Employee travel
23	Bar	Switch 100% bottles to include draught for popular lines	–	–	–	Bar
24	Bar	Allow glasses (not single use plastic) in garden	–	£	–	Bar
25	Kitchen menu	Improve plant-based food options; default to plant-based sausages in cooked breakfast	£	–	–	Kitchen menu
26	Kitchen menu	Increase local sourcing of food; encourage chef to stop adding avocados to everything	–	–	–	Kitchen menu
27	Water	Install low flow shower heads (also benefits DHW use)	£££	££	⌚⌚	Water
28	EV charging	Add EV chargers in the car park for guests (which may also attract users to the restaurant)	£££	£££	⌚⌚	EV charging
<b>Key:</b>						
<b>Costs</b>			<b>Savings</b>			
££££	Over £10 000		£££	Over £500 per annum		
£££	£1000-10 000		££	£50-£500 per annum		
££	£100-1,000		£	Under £50 per annum		
£	Under £100					
<b>Payback</b>			<b>Carbon saving</b>			
⌚⌚⌚	Fast – under 5 years		🌍🌍🌍	Significant >1 tCO <sub>2</sub> e per annum		
⌚⌚	Medium – 5 to 20 years		🌍🌍	Moderate 0.1 to 1 tCO <sub>2</sub> e per annum		
⌚	Slow – Over 20 years		🌍	Low <0.1 tCO <sub>2</sub> e per annum		

The long list of measures then required narrowing down to projects that could be undertaken immediately, with little third-party financing (see 5.8), or which would need scheduling. Given that there are only a small number of large projects, the pathway towards net zero would not follow a smooth trajectory but would have some years with major reductions in emissions and others where emissions remained broadly static. This is common in SMEs.

## A.9 Greenhouse gas (GHG) removals

Sunnywinds also carried out a review of any possible GHG removal enhancements. The only possible option was to plant trees on an area of approximately 0.2 ha on the edge of the car park, as well as a native species hedge around its perimeter. Over time, the size of the car park could potentially be reduced if more people used sustainable travel, but this was sufficiently uncertain that it was not included in the NZTP.

## A.10 Business model changes

The Wilsons decided to investigate having a small number of sustainability themed weekends in the quiet seasons, possibly including a local or vegan food themed weekend. This was recorded as an opportunity in the NZTP.

## A.11 Adaptation

As a hotel close to the seafront, there is a long-term concern about rising sea levels. In the nearer term, the main issues are around the increasing incidence of winter storms, requiring more work to be done creating a more resilient building structure. The re-roofing of the flat-roofed extension is partly in response to the need for adaptation. In the long term, rising summer temperatures in the Mediterranean, with frequent days in excess of 40 °C, may lead to a greater demand for UK-based holidays. This was included in the NZTP as part of the justification for the capital expenditure upgrading the extension.

Rising temperatures at home may also require air-conditioning to be installed in hotel bedrooms. The pitched roof should take some of the pressure off the need to do this on the upper floor, but the NZTP noted that by 2044 this could be regarded as essential and additional PV panels might need to be installed (possibly on a framework above the car park) to match additional summer electricity demand.

## A.12 Financing the net zero transition

In common with many SMEs, raising finance for investment can be difficult. A well drawn up NZTP, with realistic estimates of costs and benefits, can help put the business case to banks. The local branch of Swallows Bank has indicated that it has funds available at a slightly lower interest rate for projects that meet its key sustainability criteria.

The local district network operator (DNO) indicated that although constraints may delay their ability to connect up a large PV array on the site, if the town falls into a constraint management zone, there may be opportunities to earn revenue through flexibility, turning up or down demand to meet the DNO's requirements. To allow for this, Sunnywinds Hotel should consider the economics of installing battery storage alongside its new solar panels.

Some assets may be able to be leased or provided without charge in exchange for the provision of land, in the car of a publicly accessible EV charging point in the car park. The benefit to the hotel could come from attracting additional customers.

## A.13 Reporting and communication

Sunnywinds Hotel sees this as a key part of its marketing strategy, helping distinguish it from the several other Victorian era hotels in Walmington-on-Sea. Although it only briefly includes reference to the net zero transition in its general advertising, it does include more detailed information on its website, to support and justify its claim, following the guidance given in 6.1.

## Annex B (informative)

### Embodied carbon

Subclause 5.3.3.2 states that the organization should consider embodied carbon when setting policies in its NZTP around the procurement of goods from its value chain (see **Annex C**).

The GHG emissions resulting from the manufacture and supply of capital goods, including buildings and machinery, are often known as embodied carbon, although the term can be applied to any physical assets and, as with many other terms using the word 'carbon' should take account of all GHGs. The term is often also associated with the related concept of embodied energy.

Embodied carbon is most commonly captured as part of upstream indirect emissions (Scope 3 Category 2 in the GHG Protocol). However, many actions to reduce future GHG emissions require significant investment in such capital goods, and the organization should ensure that its NZTP takes into account the balance between short term Scope 3 emissions and longer-term reductions in Scope 1 or Scope 2 emissions by quantifying GHG emissions from the full life cycle.

***EXAMPLE 1** In many cases purchasing goods with higher embodied emissions leads to lower lifetime GHG emissions. An EV can have higher embodied emissions than its petrol car equivalent, but lower emissions during its period of use. This can be particularly difficult to estimate if the car is bought new, but then expected to be sold after three years, as some of the lifetime savings fall into the subsequent, often private, purchaser.*

***EXAMPLE 2** Improving the energy efficiency of buildings, through the addition of insulation. In the year in which the work is undertaken, there is an increase in Scope 3 emissions, but in subsequent years direct and indirect emissions from heating (or cooling) the building more than offset the embodied carbon in the insulation.*

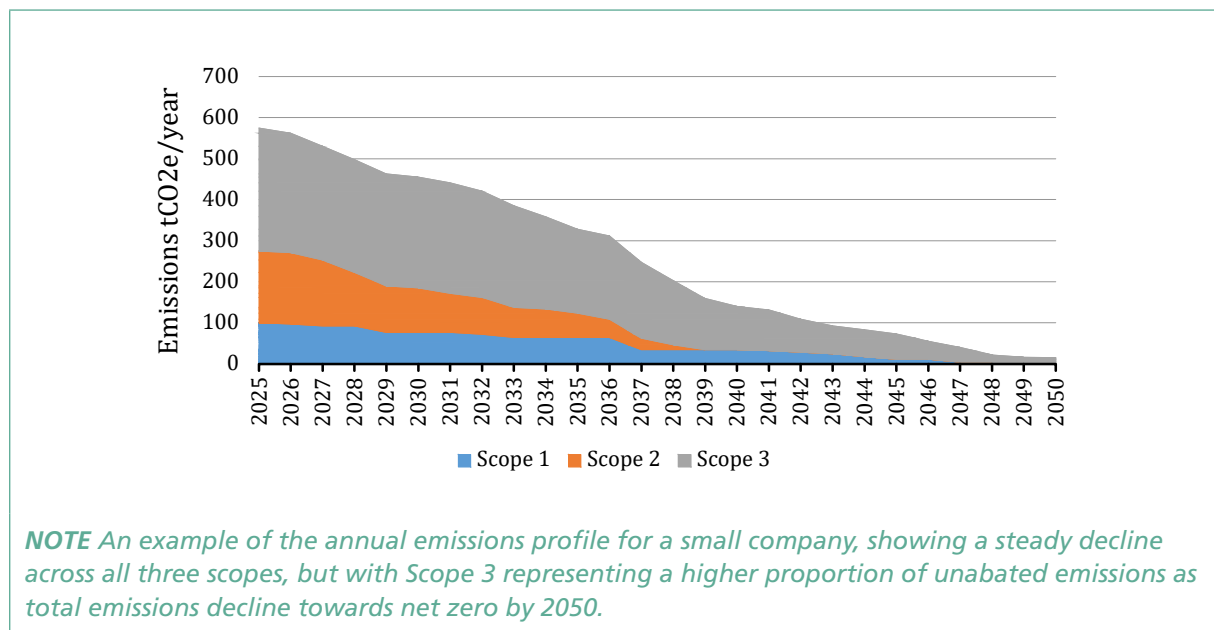
## Annex C (informative)

# Net zero transition plan (NZTP) emissions profile

This annex provides an example of an NZTP emissions profile.

**Figure C.1** represents a typical profile for a company that initially has just over half its emissions in Scope 3 (purchases and sales in the value chain), and one sixth in Scope 1, arising mainly from direct combustion of fuels. Electricity is the only significant source of Scope 2 emissions.

**Figure C.1** – Example NZTP emissions profile



In **Figure C.1**, although it might look as if the decline in emissions is fairly even between 2025 and 2050, there are a number of points worth noting.

- Scope 1 emissions tend to be stepped. The company makes a major improvement that reduces emissions every few years, for example, by switching a process from gas or oil to electricity, but emissions are relatively constant between improvements.
- Scope 2 emissions fall on a more regular basis, as electricity use is spread across a much wider range of equipment and benefits from continuous improvements to energy management using an BS EN ISO 50001 system. However, there might occasionally be small increases in Scope 2 emissions, as processes change from gas to electricity, or vehicles with diesel engines are replaced by EVs. Simultaneously its electricity suppliers are reducing emissions in line with the UK Government target of decarbonizing electricity by 2035, so by the late 2030s, there are only negligible Scope 2 emissions.

- c) Scope 3 emissions fall quite sharply to start with, as there are some easy wins around transport. However, they then plateau as the company has to re-engineer its processes to use components with a lower carbon footprint, and to reduce the energy consumption of the products it sells. There is a sharp fall around the mid-2030s due to the decarbonization of the electricity supply in the UK, although much of Scope 3 is attributable to purchases of goods from outside the UK. By the 2040s, Scope 3 emissions make up over three-quarters of the company's emissions and by 2050 these are reduced to just 5% of the 2025 level.

In common with many companies, there are only very limited opportunities for removals, and the company chooses not to offset unabated emissions along the transition pathway.

The NZTP also includes an annual investment budget showing where measures are to be taken to reduce emissions.



# Annex D (informative)

## Comparison to other documents describing transition plans

### D.1 General

This BSI Flex is focused on providing practical guidance on developing and implementing a net zero transition plan (NZTP), with limited attention to reporting, and has a stated target audience of SMEs (small and medium-sized enterprises). However, there are many other published documents that also refer to transition plans.

For example, the UNFCCC Race To Zero requires signatories to publish a transition plan within 12 months of signing up to the campaign, but does not maintain a detailed list of the contents or requirements of a transition plan. It is intended that an NZTP in line with this BSI Flex would be an acceptable plan for SMEs signing up to the Race To Zero through a partner network.

This annex summarizes how the guidance in this BSI Flex compares to guidance or requirements in five other documents (see **Table D.1**). The content of each of the documents reflects the target audience, the aims of the document and the body responsible for its creation.

Information is provided in this annex in good faith, without any implied guarantee of accuracy in summarizing third-party documents.

### D.2 PD ISO IWA 42:2022 *Net Zero Guidelines*

The ISO *Net Zero Guidelines (PD IWA 42)* focuses on how organizations, and those with responsibility for setting standards and guidance on net zero (called governance organizations by the document), can take net zero action and reduce their risk of greenwashing. Issued in 2022, the document is undergoing revision and conversion to a full international standard (to be numbered ISO 14060) which offers verification against requirements for being a “net zero aligned organization” and is scheduled to be published in 2026.

### D.3 The Carbon Neutrality Management Plan in BS ISO 14068-1:2023

BS ISO 14068-1:2023 describes a “Carbon Neutrality Management Plan” which is similar in concept and scope to a net zero transition plan but has the primary focus of guiding an entity down a pathway to net zero that includes offsetting of unabated GHG emissions every year using carbon credits to permit a claim of carbon neutrality.

### D.4 The SBTi Corporate Manual (April 2023) [3]

The Science Based Targets initiative (SBTi) goes into detail about the target-setting elements, for example, around different types of intensity target, and can be helpful for organizations undertaking this part of the process. However, it then arranges for the verification of those targets; it has less to say about achieving the targets, and discourages regular revision, as it wishes to provide fixed numbers that can be reported against.

## D.5 The Transition Plan Taskforce Disclosure Framework (October 2023) [2]

The TPT Disclosure Framework [3] sets out good practice for robust and credible transition plan disclosures. It is designed to be consistent with, and build on, the final Climate-Related Disclosures standard (IFRS S2) [7] issued by the International Sustainability Standards Board (ISSB). The Disclosure Recommendations in the Framework are principles-based. They have been designed to accommodate evolution both in entities' climate ambition and in their transition planning practices and to allow for the detail and richness of their reporting to evolve over time.

## D.6 Carbon Disclosure Project (CDP) Credible climate transition plan elements [6]

The CDP Technical Note on Credible Disclosure Plans [5] has little detail around baselines and targets, as the reporting of GHG emissions is covered under CDP's main programme. The Technical Note stresses the need for credible transition plans to consider different scenarios and identify risks and opportunities. It gives equal prominence to value chain engagement, increasing the share of revenue from low-carbon products or services and making GHG emissions reductions. Although CDP can be applied at product or business unit level, the transition plans seem to apply mainly to larger companies, expecting mechanisms such as shareholder feedback and requiring third-party verification.

## D.7 International Financial Reporting Standards (IFRS) (June 2023) [7]

The International Financial Reporting Standard (IFRS) S2 [6] has been omitted from the comparison table, as it contains only a very high-level summary of expected content. It requires information to be disclosed about how climate-related risks and opportunities may affect the organization's strategy and decision-making, as well as information about its climate-related transition plan. In relation to the plan, it repeats the requirement around disclosing climate-related risks and opportunities, but notes these include how the organization plans to achieve any climate-related targets, where set internally or by laws or regulations. There are additional requirements for disclosure around the provision of resources, and for quantitative and qualitative information about the progress of previously reported plans.

Finally, there are a number of specific elements, with each supported by explanatory examples, covering:

- a) current and anticipated changes to the organization's business model;
- b) current and anticipated mitigation and adaptation actions, both direct and indirect;
- c) key assumptions used in developing its transition plan, and any identified dependencies; and
- d) how the organization plans to achieve its climate related or GHG targets

Sub-clause (a) then lists 5 elements, each with a few examples (not reproduced here):

- 1) current and anticipated changes to the entity's business model;
- 2) current and anticipated direct mitigation and adaptation efforts;
- 3) current and anticipated indirect mitigation and adaptation efforts;
- 4) any climate-related transition plan the entity has, including information about key assumptions used in developing its transition plan, and dependencies on which the entity's transition plan relies; and
- 5) how the entity plans to achieve any climate-related targets, including any greenhouse gas emissions targets.

**Table D.1** – Comparison of this BSI Flex with five other documents

	NZTP	PD ISO IWA 42	BS ISO 14068-1	SBTi	TPT	CDP
<b>General</b>						
Top management commitment	Yes	Yes	Yes	Public	Yes	Yes
Supplier or customer engagement	Permitted	Yes	Not stated	Permitted	Yes	Yes
Includes adaptation plan	Yes	No	No	No	Yes	No
May lead to changes in business model	Yes	Yes (minor ref)	Yes (minor ref)	Not stated	Yes	Yes
Scenario analysis	Permitted	No	No	No	No	Yes
Focus on financial effect of transition	No	No	No	No	Yes	No
Stresses equity/fair share/justice	No	Yes	No	No	Yes (minor)	No
Carbon neutrality at interim date	No	No	Yes	No	No	No
Can be applied at product level	No	No	Yes	No	No	No
Main target audience	SMEs	Governance bodies; large orgs	All orgs	Large orgs and SMEs	All companies	All companies
<b>Scope and boundaries</b>						
All Scope 1 and Scope 2 emissions	Yes	Yes	Yes	Yes	Yes	Yes
Include Scope 3 emissions	Yes	Yes	Yes	Minimum 67%	Yes; disclose emissions	Yes

**Table D.1** – Comparison of this BSI Flex with five other documents (*continued*)

	NZTP	PD ISO IWA 42	BS ISO 14068-1	SBTi	TPT	CDP
Value chain (upstream/downstream)	Yes	Yes	Yes (B2B/B2C)	Yes	Yes	Yes
Subsidiaries included	Yes	Not stated	Permitted	Yes	Required	Yes
Allows avoided emissions	No	No	No	No	No	Not stated
<b>Quantification</b>						
BS EN ISO 14064-1 or BS EN 14083 as appropriate	Permitted	Permitted	Preferred	Not stated	No	Not stated
GHG protocol	Permitted	Permitted	Permitted	Yes	Required	Not stated
National methods (e.g. DESNZ)	Permitted	Permitted	Permitted	Not stated	Required	Not stated
Scope 2 emissions basis	Location	Location	Location	Prefer location	Location	Not stated
<b>Targets</b>						
Science-based/in-line with Paris Agreement	Yes	Yes	Yes	Yes	Permitted	Yes
Carbon budget approach	No	Only by sectors	No	Yes	No	No
Sector-specific targets	Permitted	Yes	If available	Permitted	Permitted	No
Convergence for energy intensive/hard to abate sectors	No	No	No	Yes	No	No
Absolute targets	Yes	Not stated	Preferred	Yes	Yes	Yes

**Table D.1** – Comparison of this BSI Flex with five other documents (*continued*)

	NZTP	PD ISO IWA 42	BS ISO 14068-1	SBTi	TPT	CDP
Intensity targets	Permitted	Not stated	Permitted	Permitted	Permitted	Yes
Scope 2 Renewable electricity targets	Permitted	Encouraged	No	Permitted	Permitted	Permitted
Scope 3 gross emissions per value added (GEVA)	No	No	No	Permitted	No	No
Scope 3 economic intensity targets	Permitted	Permitted	No	Permitted	No	Permitted
Multiple targets for different Scopes	Yes	Required	Not stated	Yes	Yes (Scope 1 or 2; Scope 3)	Not stated
Short term/ interim targets	Yes (none specified)	2030; 2-5 years	Yes (none specified)	5-10 years	<3 years	2030; 5-10 years
Long-term target date	By 2050	By 2050	Yes (none specified)	2040/2050	Yes (none specified)	By 2050
Should reach net zero	Yes	Yes	Yes	Yes	No	Yes
Residual GHG emissions allowed at net zero	Yes	Yes	Yes	5% of baseline	n/a	Not stated
<b>Removals and offsetting in targets/plan</b>						
Removals included	Yes	Yes	Yes	Yes	Permitted	Not stated
Offsetting permitted (carbon credits)	No	Residual only	Yes	No	Permitted	Not stated

Table D.1 – Comparison of this BSI Flex with five other documents (*continued*)

	NZTP	PD ISO IWA 42	BS ISO 14068-1	SBTi	TPT	CDP
<b>Evaluation &amp; revision</b>						
Third-party evaluation of targets	No	No	No	Yes	Permitted	No
Evaluation of outcomes	Yes	Yes	Yes	No	Yes	Yes
Third-party verification of outcomes	Permitted	Permitted	Permitted	No	Permitted	Yes
Periodic revisions required	Yes	No	Yes	Discouraged	Yes	Yes
<b>Reporting</b>						
Disclosure of targets	Permitted	Yes	Yes	Yes	Yes	Yes
Disclosure of outcomes	Permitted	Ye	Yes	Yes	Yes	Yes
<b>NOTE:</b> In Table D.1:						
a) <b>Yes</b> means that it is recommended or an accepted method.						
b) <b>Required</b> has occasionally been used when there is a firm requirement preventing the use of alternatives.						
c) <b>Permitted</b> means that it is mentioned as a permitted approach.						
d) <b>Not stated</b> means that there is no reference to an element, but nothing to suggest that it would not be permitted.						
e) <b>No</b> means that it is not permitted.						

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For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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