



Carbon
Neutral
PAS 2060

Create A Better Future



MINIMIZE
Energy Use & Switch
to Cleaner Fuels



GENERATE
Renewable
Energy



PURCHASE
Renewable Energy Credits
& Carbon Credits



**ACHIEVE CARBON
NEUTRALITY**

Carbon Neutral Report 2019
www.isosystems.org.uk

THE GLOBAL CONTEXT

- The world is now nearly one degree warmer than it was before widespread industrialisation, [according to the World Meteorological Organization](#) (WMO).
- One degree may not sound like much, but, according to the IPCC, if countries fail to act, the world will face catastrophic change - sea levels will rise, ocean temperatures and acidity will increase and our ability to grow crops, such as rice, maize and wheat, would be in danger.
- The 20 warmest years on record have been in the past 22 years, with 2015-2018 making up the top four, the WMO says.

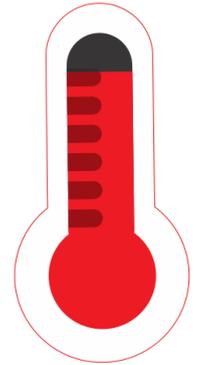
If this trend continues, temperatures may rise by 3-5C by 2100.



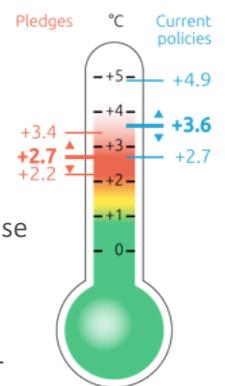
- The United Nations says we could have [just 11 years left](#) to limit a climate change catastrophe.
- The UN has warned that the goal of limiting global warming to "well below 2C above pre-industrial levels" is in danger because major economies, including the US and the EU, are falling short of their pledges.
- Scientists at the Intergovernmental Panel on Climate Change (IPCC) - the leading international body on global warming - argue the 2C pledge in the 2015 Paris accord didn't go far enough. The global average temperature rise actually needs to be kept below 1.5C, they say.
- The global average temperature for the first 10 months of 2018 was 0.98C above the levels of 1850-1900, according to five independently maintained global data sets.
- An international team of researchers suggest that global warming will have severe consequences for the planet. They paint a picture of boiling hot climates and towering seas in years to come if temperatures rise by just 2C. That means it could turn some of the planet's natural forces - that currently protect us - into our enemies. Dr Sarah Cornell is an environmental scientist and one of the researchers behind the report for the Stockholm Resilience Centre.
- Ice in the areas around the North Pole could melt completely, says Dr Cornell "When you melt the Arctic, you're changing the way that the whole Earth works," she says. "You're changing ice that reflects heat back into space into dark seawater that absorbs incoming solar radiation." So it's a vicious circle - the less ice there is to reflect heat away from the Earth, the more global warming accelerates.

THE YEAR 2018 SET ALL SORTS OF RECORDS

- 2018 saw record high temperatures in many places across the world amid an unusually prolonged period of hot weather.
- Large parts of the northern hemisphere saw a succession of heatwaves take hold in Europe, Asia, North America and northern Africa - a result of strong high-pressure systems that created a "heat dome".
- The concern is that such hot and cold weather fronts are being blocked - stuck over regions for long periods - more frequently because of climate change, leading to more extreme weather events.



- We are not on track to meet climate change targets. If we add up all the promises to cut emissions made by countries that have signed the Paris climate agreement, the world would still warm by more than 3C by the end of this century.
- Over the past three years, climate scientists have shifted the definition of what they believe is the "safe" limit of climate change. For decades, researchers argued the global temperature rise must be kept below 2C by the end of this century to avoid the worst impacts.
- Countries signing up to the Paris agreement pledged to keep temperatures "well below 2C above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5C". But scientists now agree that we actually need to keep temperature rises to below 1.5C.



- Urban areas are, particularly under threat - Almost all (95%) of cities facing extreme climate risks are in Africa or Asia, [a report by risk analysts Verisk Maplecroft has found](#). And it's the faster-growing cities that are most at risk, including megacities like Lagos in Nigeria and Kinshasa in the Democratic Republic of Congo.
- Some 84 of the world's 100 fastest-growing cities face "extreme" risks from rising temperatures and extreme weather brought on by climate change.
- Arctic sea ice is also in danger- The extent of Arctic sea ice has dropped in recent years. It reached its lowest point on record in 2012. Sea ice has been reducing for decades, with melting accelerating since the early 2000s, [according to the UK Parliament's Environmental Audit Committee](#).
- The Arctic Ocean may be ice free in the summer as soon as the 2050s, unless emissions are reduced, the committee has said.
- The WMO found the extent of Arctic sea ice in 2018 was much lower than normal, with the maximum in March the third lowest on record and the September minimum the sixth lowest.
- The ocean is warming much faster than previously thought- new research has found, suggesting that global climate goals may be even harder to reach.



- A [study](#) published in November 2018 in the journal *Nature* concluded that the global oceans may be absorbing up to 60 percent more heat since the 1990s than older estimates had found.
- This suggests that the Earth, as a whole, is more sensitive to climate change than previous estimates would imply. And that means the planet may respond more strongly to future greenhouse gas emissions than expected.

“For a given level of emissions, the Earth has warmed more than we thought,”

“For the same amount of emissions, some of the heat is going into the ocean, so we missed it, kind of.”

- Laure Resplandy, an ocean and climate expert at Princeton University.



OUR WORLD OCEAN provides

THE AIR WE BREATHE



>50% The ocean produces over half of the world's oxygen and stores 50 times more carbon dioxide than our atmosphere.

CLIMATE REGULATION

70% Covering 70% of the Earth's surface, the ocean transports heat from the equator to the poles, regulating our climate and weather patterns.



TRANSPORTATION



76% Percent of all U.S. trade involving some form of marine transportation.

RECREATION



From fishing to boating to kayaking and whale watching, the ocean provides us with so many unique activities.

ECONOMY



\$282 billion Amount the U.S. ocean economy produces in goods and services. Ocean-dependent businesses employ almost 3 million people.

FOOD

The ocean provides much more than just seafood. Ingredients from the sea are found in surprising foods such as peanut butter and soymilk.



MEDICINE

Many medicinal products come from the ocean, including ingredients that help fight cancer, arthritis, Alzheimer's disease, and heart disease.



THE BUSINESS CONTEXT

Carbon Neutral UK by 2050

2019 saw the enshrining in law a commitment to reach net-zero carbon emissions by 2050, making Britain the first major economy to do so.

The commitment, to be made in an amendment to the Climate Change Act laid in parliament, would make the UK the first member of the G7 group of industrialised nations to legislate for net-zero emissions, Downing Street said.

The 2050 target, in an amendment being put down as a statutory instrument, meaning it does not require a vote of MPs, will be one of the most ambitious such goals set by a major polluting nation.

The plan was endorsed by the CBI's head, Carolyn Fairbairn, who said such efforts "can drive UK competitiveness and secure long-term prosperity"

Climate Emergency Declared

[Labour](#), [Scottish Nationalparty](#) and the [Welsh assembly](#) declared a climate emergency following high-profile protests by Extinction Rebellion and the recent school strikes.

UK Protests – XR.

Extinction Rebellion ("XR" for short) describes itself as an international "non-violent civil disobedience activist movement" with > 226, 000 facebook followers, and an aim for zero carbon emissions by 2025, was expected to disrupt five major cities, with their recent protest in London resulting in 1,130 arrests.

Greta Thunberg, the Swedish teenager who inspired the global school strikes.

On March 15th 2019, 2083 events in 125 countries to request stricter environmental legislation against climate change gathered over 1.5 million participants, according to organisers.

It's the worldwide reach of the school strike for the climate change movement, launched in 2018 by Greta Thunberg, a 16 years old Swedish student.



- *Mark Carney*

- The changes [required to achieve the UK 2050 target] are enormous. Carbon emissions will have to decline by 45% from 2010 levels over the next decade.²⁶ This will require a massive reallocation of capital creating unprecedented risks and opportunities
- Firms that align their business models to the transition to a carbon-neutral world will be rewarded handsomely; those that fail to adapt will cease to exist.
- If the UK is to reach net-zero carbon emissions. Disclosure must become comprehensive. Risk management must be transformed. Sustainable investing must go mainstream.
- In the future, to achieve a carbon-neutral economy, disclosure must become mandatory. Before it does, we need to get it right. Over the next few years, the current iterative process of disclosure, reaction and adjustment will be critical to ensure that these market standards are as comparable, efficient and decision-useful as possible.
- Transition risks result from the huge adjustments required to create a low-carbon economy. Changes in policies, technologies and physical risks will prompt a reassessment of the value of a large range of assets as new costs and opportunities become apparent. The longer meaningful adjustment is delayed, the more transition risks will rise.
- Where credible policy frameworks are in place (and when firms disclose the risks accordingly), the market will allocate capital to deliver the necessary innovation and growth and pull forward the adjustment to a carbon-neutral future.
- The path to a carbon-neutral economy will affect every institution in this country—very much including the Bank of England. We need to do more than just cutting out cups and bringing up bees. We must lead by example.
- Small and medium-sized businesses should have access to new credit to grow. Banks themselves should be more productive and supervision more efficient. And the financial system should seize the opportunities and manage the risks associated with the UK's transition to a carbon-neutral economy.



“Capitalism is part of the solution to tackling climate change”

“Companies that don’t adapt – including companies in the financial system – will go bankrupt without question. [But] there will be great fortunes made along this path aligned with what society wants.”

- Mark Carney

The Channel 4 interview can be seen here:

<https://www.channel4.com/news/mark-carney-capitalism-is-part-of-the-solution-to-tackling-climate-change>

PAS 2060 – CARBON NEUTRAL

Introduction

Climate change and the emission of greenhouse gases continue to be one of the critical issues facing society. Strategies and actions to reduce carbon footprints remain important and governments, industry and communities are still responding to this issue in various ways.

In some markets, carbon neutrality is seen as an important indicator for consumers wishing to choose greener products and services and in these areas, PAS 2060 has provided common definitions and a recognised method of validation that has helped to restore credibility to the concept of carbon neutrality.

PAS 2060 The Journey to Standard

The PAS 2060 specification provides a credible and logical roadmap for businesses that are setting out to achieve carbon neutrality.

Since the term carbon neutrality has been in use, organisations have employed a range of methodologies to claim it. For example, some have measured a wide range of emissions including those from their supply chain (scope 3), while others have chosen a narrower focus. There is also the distinction between those organisations that work to reduce their emissions and offset the net amount and those that choose 100% offsetting with no internal reductions.



**Carbon
Neutral**
PAS 2060

Prior to PAS 2060, the absence of regulation or a common standard outlining organisational boundaries, methodology, internal reduction requirements and type of offsets made it difficult for consumers to judge the credibility of carbon neutrality claims. This threatened to devalue the concept and in turn, reduce incentives to organisations wishing to develop a carbon-neutral approach.

Organisations were also finding the question “how best can I become carbon neutral?” difficult to answer. Clearly, the concept of carbon neutrality had reached maturity and an independent standard was needed to provide this guidance, increase consumer confidence and lend support to carbon-neutral endeavours.

Responding to this need, the BSi started the development of a Publicly Available Specification for the demonstration of carbon neutrality in 2009. It was introduced in April 2010 as PAS 2060 after a series of consultations with the private, public and third sectors.

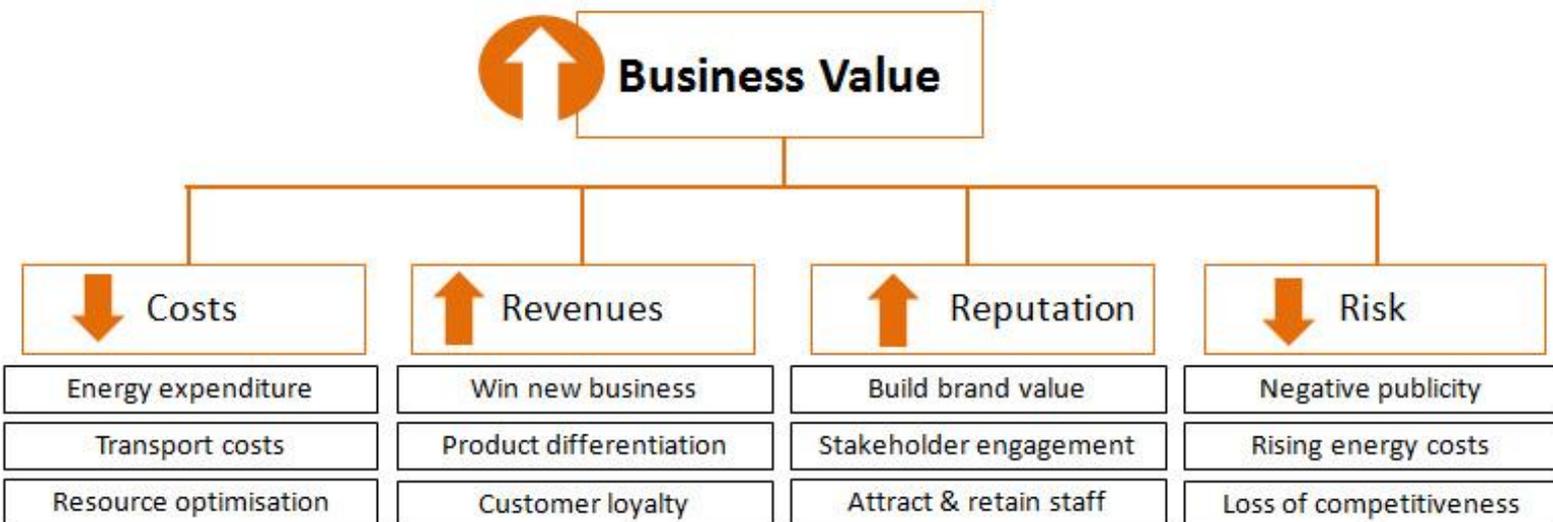
BENEFITS OF USING PAS 2060

- enhanced consumer protection;
- increased action on climate change;
- accurate and verifiable declarations of carbon neutrality that are not misleading;
- reduction in confusion between trading partners;
- increased likelihood that corporate entities will make improvement in their carbon management relating to production processes and products, in response to customer pressure;
- increased opportunity for the public, consumers, purchasers and potential purchasers to make more informed choices

Benefits of Carbon Neutrality

The benefits of carbon neutrality are both commercial and reputational. Being carbon neutral demonstrates environmental integrity, reduces risk, creates a competitive advantage and, through emissions reductions, can help organisations to cut costs.

Commercial Benefits of Carbon Neutrality



Statement

PAS 2060 now provides text for a “representative statement” that may be used in advertising, literature, publicity, labels, and technical bulletins in printed or electronic media.

CREDIBILITY

The fundamental principle that the methodologies used to collate evidence that substantiates such declarations need to be clear, transparent, and scientifically sound, documented and readily available remains as the foundation of PAS 2060.

It is this public availability of supporting evidence that ensures that interested parties can be assured of the validity of any claim of carbon neutrality in accordance with PAS 2060.

PAS 2060 has been updated to recognize improvements in the knowledge and understanding of greenhouse gas emissions assessment, reduction and offsetting that have taken place over the first two years of its availability but continues to underpin reliable, credible claims that the subject of such a claim can indeed be considered carbon neutral.

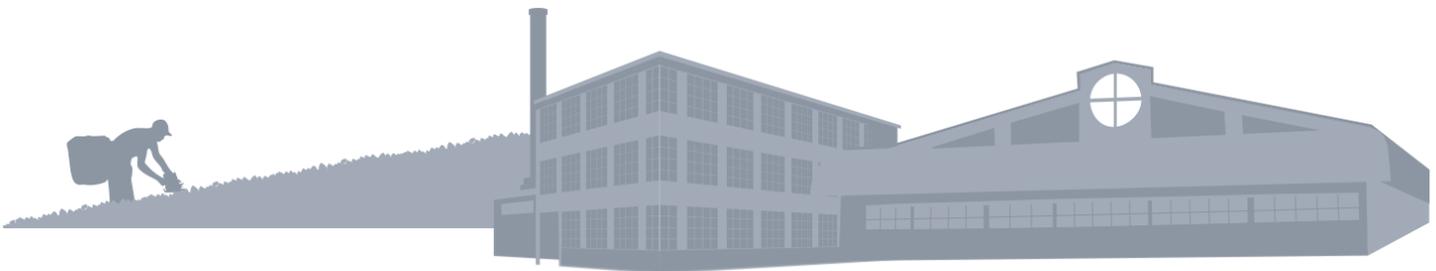


DEMONSTRATING CARBON NEUTRALITY

REQUIREMENTS OVERVIEW

Any entity seeking to demonstrate carbon neutrality through compliance with this PAS must undertake the following actions (see also Figure 1) and in the related clauses of this PAS that each refers to:

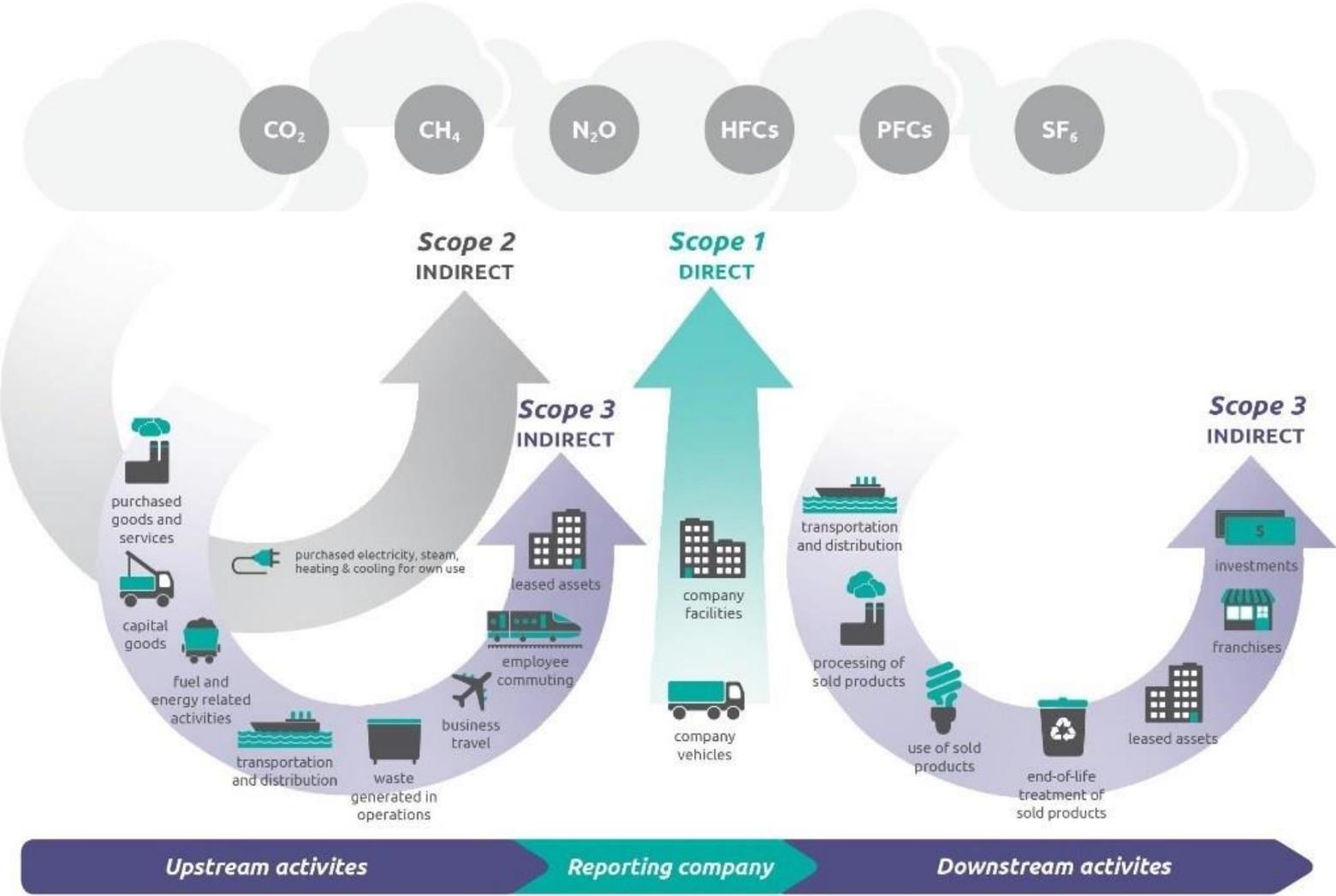
- a) determine the scope and boundaries of the intended business which is to make the claim of carbon neutrality (see Clause 5);
- b) quantify the carbon footprint of that subject using a recognised methodology (see Clause 6);
- c) develop a carbon footprint management plan (see Clause 7) and make a declaration of commitment to carbon neutrality in accordance with the requirements of PAS 2060 (see Clause 10);
- d) take action to reduce the carbon footprint of the determined subject and establish the effectiveness of those actions (see Clause 8);
- e) re-quantify the carbon footprint of the determined subject, ensuring that subject is unchanged, to determine the residual GHG emissions, using the methodology applied at b) (see Clause 8);
- f) introduce or take account of, a previously initiated offset programme to balance out the residual GHG emissions (see Clause 9);
- g) in the event that carbon neutrality has been achieved for the determined subject, make a declaration of achievement of carbon neutrality in accordance with the requirements of PAS 2060 (see Clause 10).



Scope

The assessment should include 100% of scope 1 & 2 emissions and all scope 3 emissions that contribute more than 1% of the total footprint.

Scopes are divided into the following:



Selection and reliability of supporting methodologies

Methodologies used to deliver the evidence needed to substantiate the declarations, shall follow, International Standards (ISO), standards that have international acceptability (i.e. regional or national standards) or recognised, proprietary industry or trade methods that are considered to be sufficiently robust to demonstrate carbon neutrality in accordance with this PAS in a manner that can be reliably and repeatedly validated.

Recognised measurement software tools are available from the Carbon Trust which fully support the PAS 2050 and GHG protocol product/service standard such as:

- Footprint Manager – a cloud-based reporting tool, supported by the Carbon Trusts expertise, which enables an organisation to measure, manage and reduce its carbon footprint.
- Footprint Expert – Product/service carbon footprinting software enabling you to produce fast and consistent carbon footprint measurements for products and services.

<https://www.carbontrust.com/resources/tools/carbon-footprinting-software/>

<https://www.carbontrust.com/news/2012/09/footprint-expert-40-software-now-includes-new-carbon-footprinting-standards/>

The plan: Business carbon footprint CO₂e = **100t** - **50t** Reduced through strategies = **50t** to offset, = Carbon Neutral.

Reduction

Entities must develop and implement a Carbon Footprint Management Plan in order to achieve accurate reductions in GHG emissions. There must be a process in place for undertaking periodic assessments of performance against the plan and for implementing corrective action to ensure targets are achieved.

Entities should also have sufficient resources to achieve the Carbon Footprint Management Plan. The frequency of assessing performance against the plan should be commensurate with the timescale for achieving carbon neutrality.

Successful implementation of the Carbon Management Plan should demonstrate emission reductions, either a reduction in the total amount of carbon emitted (in absolute terms) or a reduction in carbon intensity (in relative terms). In the case of the latter, GHG reductions must be greater than the economic growth rate for the region in which the entity operates.



Offsetting

Entities must develop and implement a Carbon Footprint Management Plan in order to achieve accurate reductions in GHG emissions. There must be a process in place for undertaking periodic assessments of performance against the plan and for implementing

Example Business carbon footprint CO₂e = 100t - 50t Reduced through strategies = 50t to offset, = Carbon Neutral.

The PAS 2060 requires that the total amount of carbon emissions at the end of a reduction period be offset by high-quality, certified carbon credits which meet the following criteria:

- From one of the PAS 2060 approved schemes (for example the Clean Development Mechanism, Joint Implementation, The Gold Standard or Voluntary Carbon Standard)
- Genuinely additional (i.e. reductions that would not have happened anyway)
- Verified by an independent third party to ensure that emission reductions are permanent, avoid leakage (so that emissions are not increased in another area as a result of the project reductions) and are not double counted.
- Retired after a maximum of 12 months to a credible registry



THE PROCESS

Measurement

Assess GHG (Greenhouse Gas) based on accurate & complete raw data

Set Target to Reduce Emissions

Implement a carbon management plan by declaring the commitment to carbon neutrality by adopting several reduction strategies.

Note: To retain the declaration of carbon neutrality the Carbon Footprint Management Plan must be reviewed and renewed every twelve months.

Offset

At the end of the reduction phase, measure the GHG emissions remaining that cannot be reduced any further. Offset the remaining GHG emissions with high-quality, certified carbon credits, such as Gold standard clean development mechanism or joint implementation or voluntary carbon standard.

Carbon offsetting costs – This means essentially paying for the reduction of emissions somewhere else in the world. The range of carbon offset prices range from \$0.10 per tonne to \$44.80 per tonne.

A tree can absorb as much as 48lbs of CO₂ per year. By the time it reaches 40years old it will have absorbed 1 tonne of CO₂.

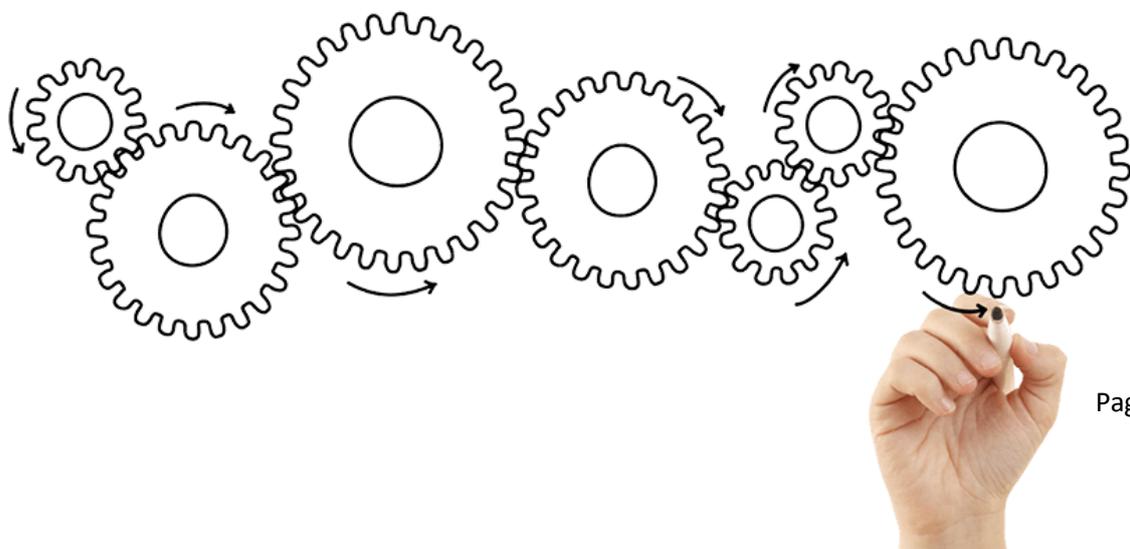
Carbon Footprint is measured in tonnes of CO₂ equivalent (tCO₂e)

Document & Validate

Standard-compliant declaration of achievement of neutrality, through a set of statements (QES) – There must be a specific disclosure of all the documentation/data that supports the carbon neutrality claim.

Standards which may assist/provide guidance during each phase can include:

Measure	PAS 2050, ISO 14064-1, WBCD/WR1 Protocol
Reduce	EN 16001 (also for energy reduction ISO 50001), ISO 14001:2015
Offset	ISO 14064-2
Declare	PAS 2060



DOCUMENTATION

The business shall prepare documentation defining and substantiating the scope and the GHG emissions associated with it, including:

- a) what standard and methodology it uses
- b) Justification for the selection of the methodology chosen including all assumptions made in defining the boundaries and for determining which GHG emissions to include (in terms of both sources and which greenhouse gases);
- c) confirmation that the selected methodology was applied in accordance with its provisions and that the principles set out in PAS 5.2.2 to 5.2.4 were met;
- d) details of and justification for the exclusion of any Scope 3 emissions;
- e) identification of uncertainties and variability associated with defining boundaries including the positive tolerances adopted in association with estimates (see 5.2.4d).

Explicit declarations in respect of carbon neutrality

Basis of declaration

Each declaration shall identify the type of conformity assessment (to be) undertaken as one of:

- a) independent third party certification in accordance with 10.3.2;
- b) other party validation in accordance with 10.3.3; or
- c) self-validation in accordance with 10.3.4.

NOTE 1:

Attention is drawn to the fact that claims of conformity used to support communication of results achieved under this PAS to third parties, made in accordance with 10.3.2, is most likely to gain the confidence of interested parties such as customers.

NOTE 2 - Independent third party certification:

Businesses seeking to demonstrate that their declarations have been independently validated as being in accordance with this PAS shall undergo an assessment by an independent third-party certification body able to demonstrate that it has (or has access to) the knowledge and expertise necessary to provide assessment and certification to this PAS.



Practical • Simple • Flexible

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Date: 28-08-2019

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