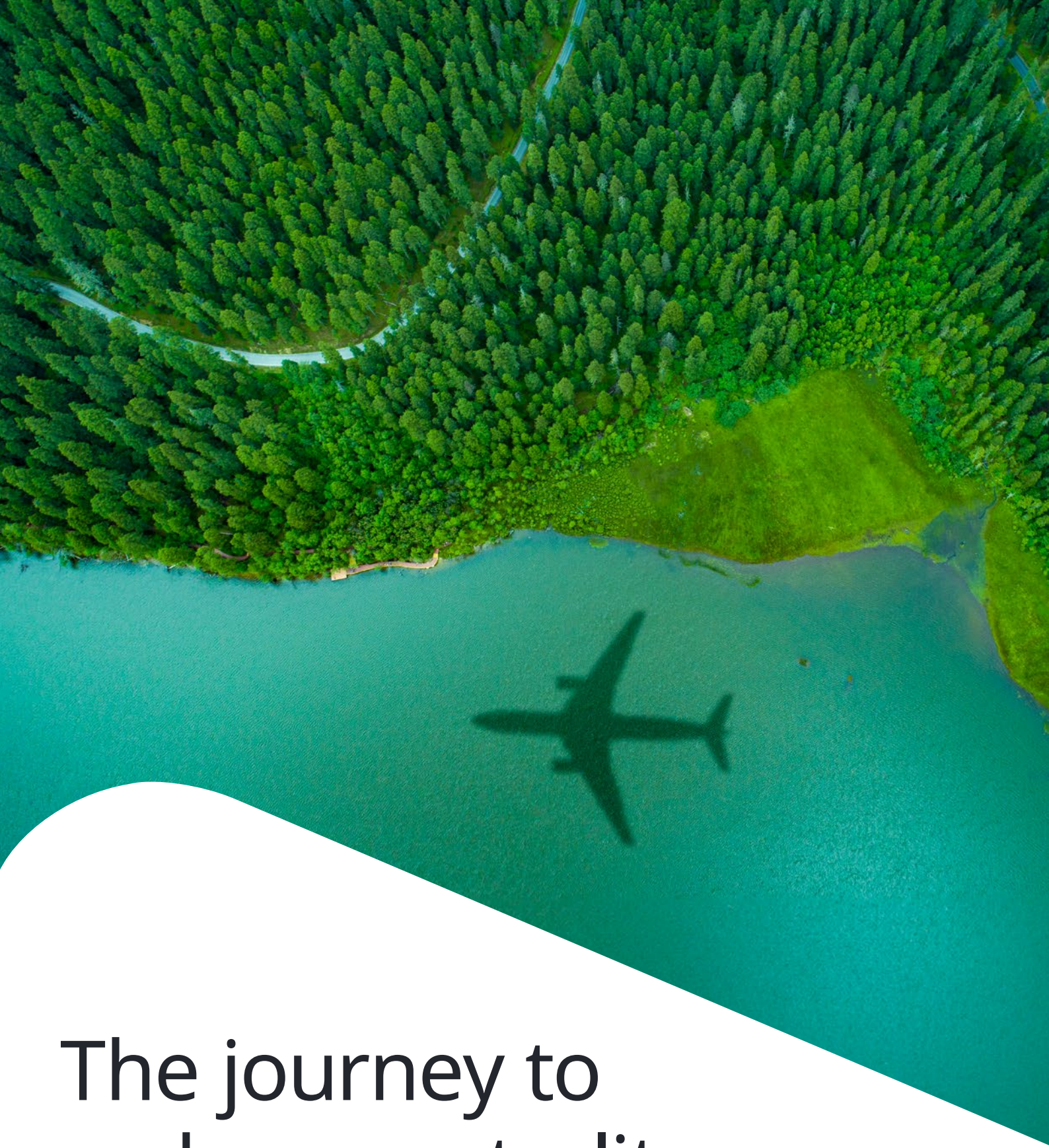


The journey to carbon neutrality

A guide to progress with standards

bsi Your partner in progress

Contents

Introduction

The countdown

In recent years, many business leaders have been considering how they can lower their emissions within their operations. In some instances, leaders have already begun to take action. Now, as climate change is recognized as a threat to the planet, the emphasis is shifting towards a need to set out on a journey to net zero. Carbon neutrality means that any CO_2(e) released into the atmosphere from a company's activities is balanced by an equivalent amount being removed.

What are the implications of carbon neutrality for your organization and how will you manage the necessary transition?

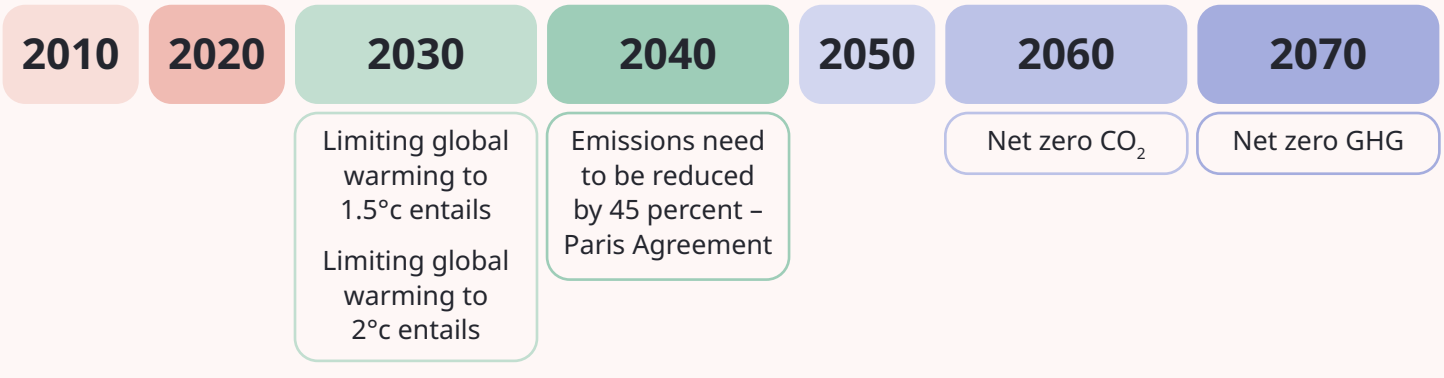
The Paris Agreement set goals to limit temperature rises via the reduction of greenhouse gas (GHG) emissions, which in turn have fed into regional policies, laws, and regulations. Alongside these regulations, real-world evidence, such as increased rainfall, tropical storms, flooding, and rising temperatures, tangibly demonstrates the urgent need for the world to become low carbon.

Many experts and climate scientists now speak clearly on the negative impact that human activity has on our planet; they advise that we are running out of time to resolve the issues. A report from the UN Intergovernmental Panel on Climate Change (IPCC) states that the 1.5°C target will be exceeded by 2040 unless emissions are slashed in the next few years.

It has been described as a ***'code red for humanity'***. Fixing the issues surrounding climate change and securing a stable, prosperous future for the planet is a key driving force behind climate action. But additionally, climate action can be good for business. Stakeholders, from consumers and investors to staff and suppliers, want to see progress and will support your organization as you take steps to actualize carbon neutrality throughout the supply chain.

Time is of the essence and the task ahead may seem complex. But standards can play an important role in helping organizations overcome the obstacles to achieving carbon neutrality. With this support and an intrepid attitude, organizations can adapt to becoming a part of the solution.

Global timeline to reach net-zero



Source: IPCC Special Report on Global Warming of 1.5°C

The role of standards

Standards are established protocols developed by industry experts, researchers, consumers, and government departments, serving as criteria for organizations to follow, offering best-practice guidelines and definitions. In the context of carbon neutrality, an area that is both highly important and multifaceted, standards play a vital role.

BSI offers solutions across the spectrum of carbon management standards, from broad strategic and organizational levels to highly specific competency requirements for assessing, measuring, reducing, reporting, and guiding you on your journey to net zero.

Carbon neutrality is the condition in which, during a specified period of time, the carbon footprint has been reduced as a result of greenhouse gas (GHG) emission reductions or GHG removal enhancements. If greater than zero, is then counterbalanced by offsetting.

Defining carbon neutrality

- Standards are established protocols developed by industry experts, researchers, consumers, and government departments. Inconsistency in definitions breeds confusion around climate action, which in turn hampers progress. BSI research shows that only 10 percent of respondents say that they 'fully understand' the relevant terminology related to carbon neutrality.
- Part of the issue is that the concepts of carbon neutrality and net zero carbon can be confusing. Net zero carbon refers to eliminating CO_2 emissions to the minimum possible level and then offsetting the residual quantity. Carbon neutrality refers to CO_2 emissions being balanced, which to varying degrees can be dependent on carbon offsetting throughout the process.

Introduction to ISO 14068-1

This new international standard is setting out strong principles and detailed and verifiable requirements on quantification and reduction or removal of GHG emissions. Users gain clear, best practice guidance that will allow them to make verifiable claims of carbon or climate neutrality. It also helps decarbonization investment decisions to be made based on accurate data, which are critical for the Safeguard Mechanism compliance in Australia and the climate reporting requirements in New Zealand.

Understanding the scope of carbon neutrality

In a connected world with complex supply and value chains, understanding the true extent of the carbon emissions associated with your organization can be a challenge.

Imagine that you are a cardboard box manufacturer. It would be relatively simple to calculate your carbon emissions in the design and production of your goods. You could work out your factory's energy consumption, and the emissions associated with distributing your boxes to the marketplace.

But that is only a small part of the picture, as there are upstream and downstream emissions to consider. What was the carbon cost of extracting and processing the raw materials needed to make your boxes?

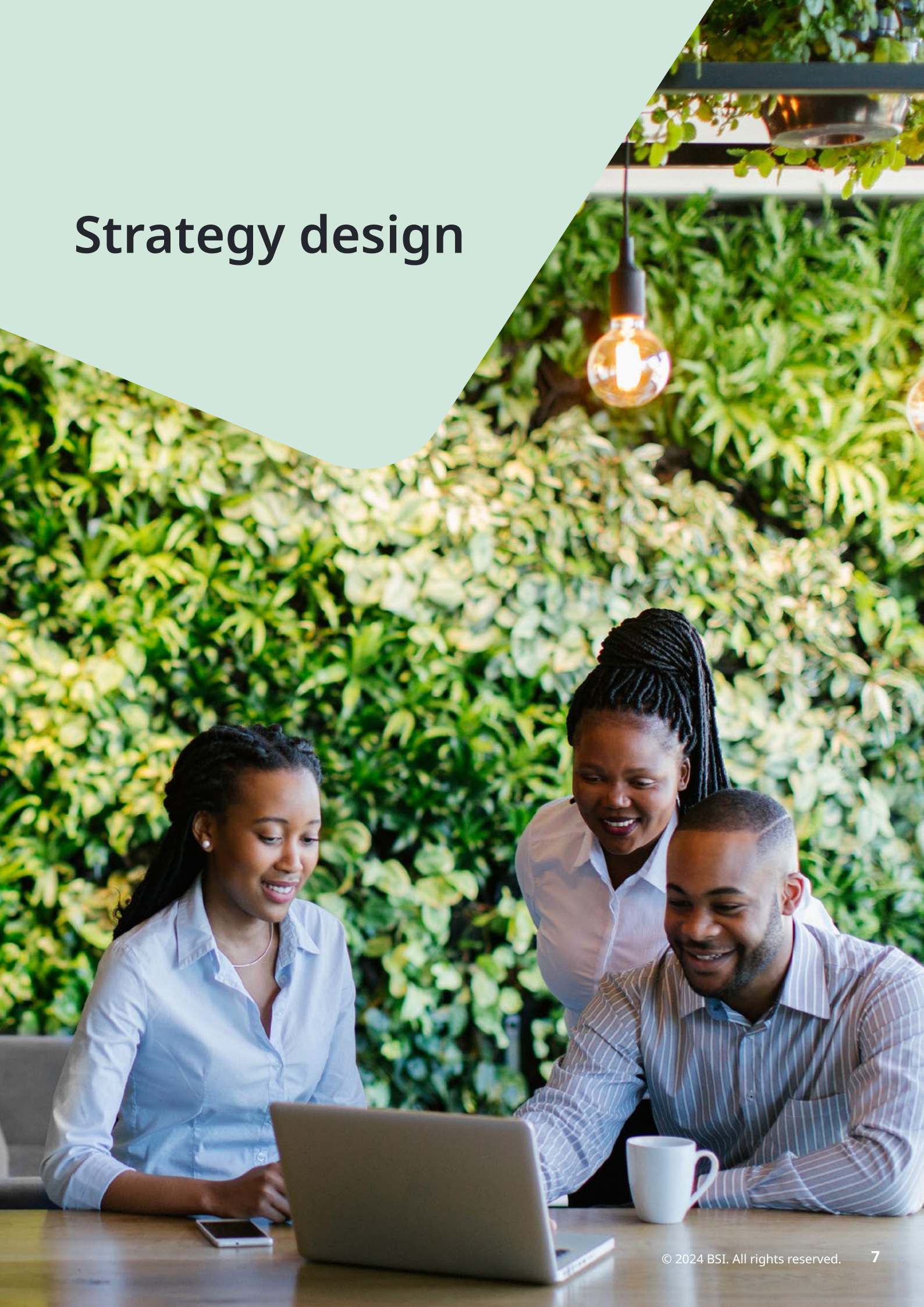
How far around the globe did those materials travel to get to your factory? What emissions result from retail, or from delivery to the end user? And what happens to your boxes when they reach the end of their life cycle? The graph below is a comprehensive guide to Greenhouse Gas (GHG) emission scope and their corresponding assessment approaches and standards.

The Greenhouse Gas Protocol (GHG Protocol) divides emissions into three scopes, while ISO 14064-1 categorizes emissions as either direct or indirect. ISO 14068-1, new international standard, can help your organization gain clear, best practice guidance that will allow them to make verifiable claims of carbon neutrality. See the graph below for more detail.

Key emission assessment approaches and standards

Emissions/covers	**Scope 1** Direct emissions	**Scope 2** Indirect emissions	**Scope 3** Other indirect, all other emissions
Examples	Company vehicles, company buildings	Purchased electricity, heat and steam	Purchased goods and services, transportation and distribution, investments, leased assets, business travel, employee commuting
GHG protocol Corporate and project accounting	✓	✓	✓
NGER National Green and Energy Reporting	✓	✓	
AASB S2 and NZ CS1 Australian and New Zealand Climate Disclosures	✓	✓	✓
ISO 14064-1 (Organizational Footprinting)	✓	✓	✓
ISO 14064-2 (Project Footprinting)	✓	✓	✓
ISO 14067 (Product Footprinting)	✓	✓	✓
ISO 14068-1 (Transition to Net Zero – Carbon neutrality)	✓	✓	✓

Strategy design



Getting decisive

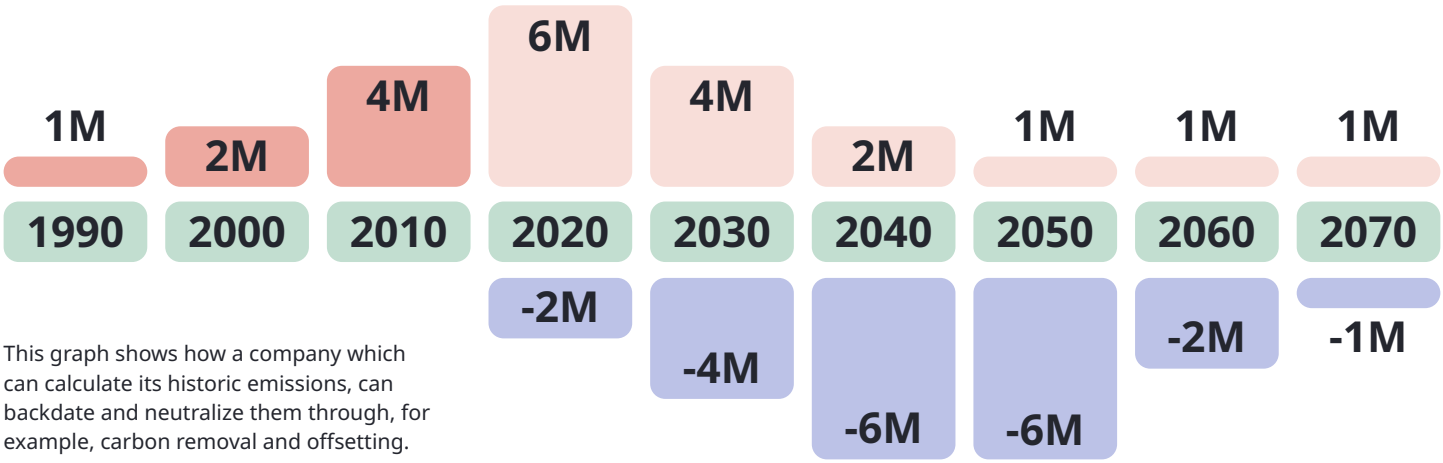
The route to carbon neutrality can seem daunting, but that should not discourage you. Any organization can get started on its carbon neutral journey. One of the initial details you will need to establish is how carbon neutrality is relevant to your organization's purpose and aspirations.

Organizations and sectors come in all shapes and sizes and there can be no one-size-fits-all strategy. You must work out what is the best course of action for your set of circumstances.

Strategic steps towards carbon neutrality:

1. Decide which compliance obligations and areas areas of your organization you will focus attention on.
2. Identify and prioritize hotspots for action. Are there any quick wins achievable, such as modifying your supply chain, adopting renewable energy, or electrifying vehicle fleets?
3. Evaluate the scopes (direct and indirect emissions) for your organization and consider mapping out time frames for your goals and investment in carbon neutrality. For example, direct emissions could be your first year goal and all indirect emissions could be your 10 year goal.
4. Determine where and how you will support and collaborate with suppliers or customers upstream or downstream in the value chain.
5. Consider whether you will attempt to neutralize your historic emissions. Alternatively, decide whether you will establish a rigid 'year zero' starting point from now or from a set time in the future.

Backdating carbon



This graph shows how a company which can calculate its historic emissions, can backdate and neutralize them through, for example, carbon removal and offsetting.

Organizational barriers to carbon neutrality[1]

23% Regulation

22% Lack of clarity on offsetting

21% Supply chain

19% Employee buy-in

1 All figures taken from the BSI Net Zero Barometer Report https://www.bsigroup.com/en-GB/topics/sustainable-resilience/net-zero/NetZeroBarometer/

Trust, transparency, and the pitfall of greenwash

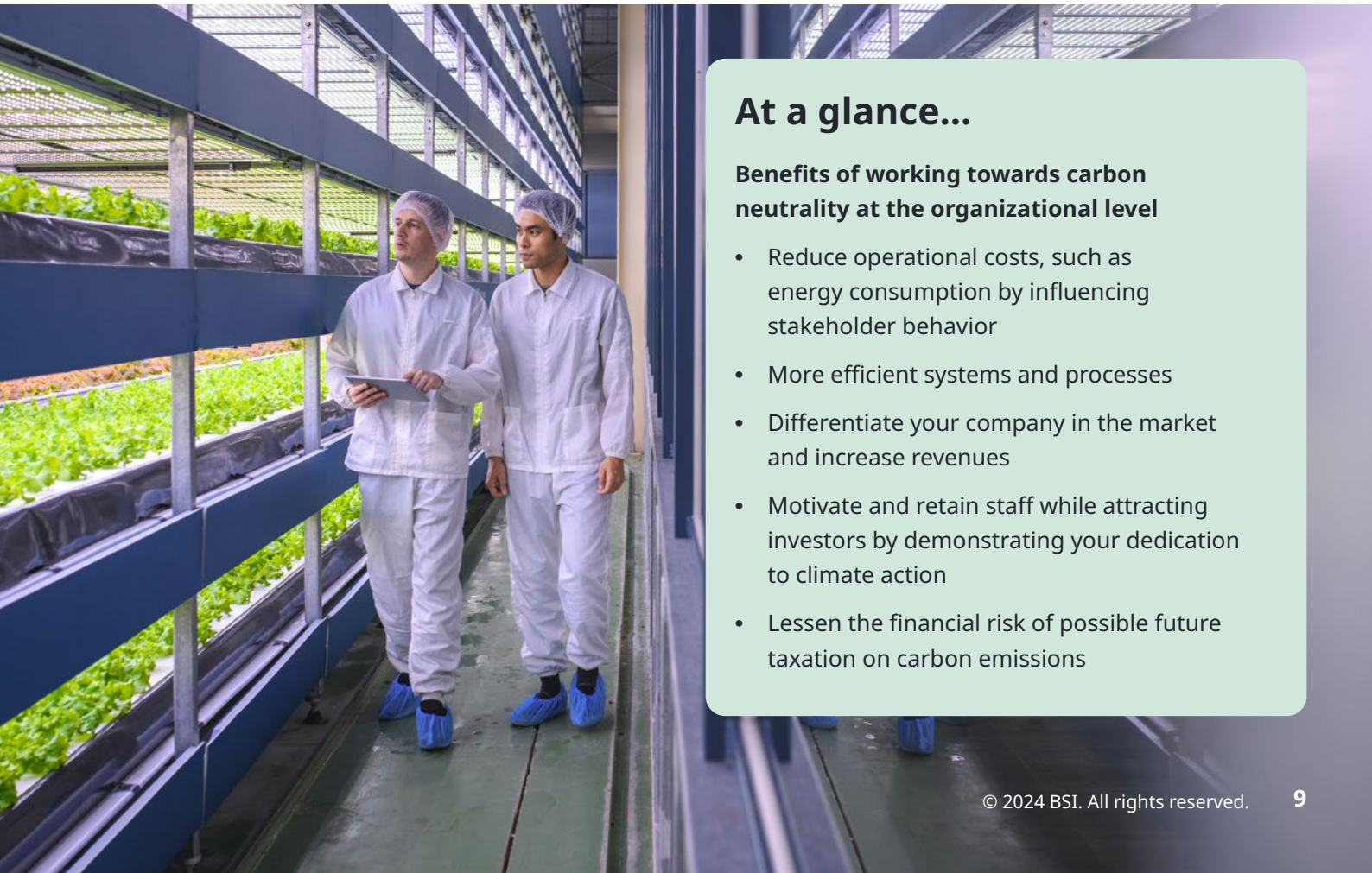
To become carbon neutral, net zero or even ‘carbon negative’, some sections of society will question the credibility of company strategies which claim to be sustainability led.

Climate action is a critical issue affecting ecosystems, economies, and all forms of life. Naturally, your stakeholders, associates, and the general public care deeply about the issue and will not react favorably to efforts that overpromise and underdeliver. The way organizations utilize carbon neutrality strategies within its marketing is particularly sensitive.

That’s not to say you shouldn’t celebrate the positive steps that you take towards net zero. Doing so can bring considerable benefits, with research showing that **more than half of consumers would be willing to pay more** for a carbon neutral or low carbon product that can be reused or recycled.

However, what is vital is that communications are open, honest, and transparent. Making a solid commitment to impartial, internationally recognized standards will not only help your organization achieve its transition to carbon neutrality, but it will also reassure your customers and stakeholders that you are serious in your endeavors.

In addition, independent verification or certification of your sustainability efforts rooted in international standards could help your stakeholders have confidence in your claims, and scale your brand's visibility. These include services such as verification of GHG emissions report or any sustainability assurance; certification to environmental or energy management system standards, and
many others.



At a glance...

Benefits of working towards carbon neutrality at the organizational level

- Reduce operational costs, such as energy consumption by influencing stakeholder behavior
- More efficient systems and processes
- Differentiate your company in the market and increase revenues
- Motivate and retain staff while attracting investors by demonstrating your dedication to climate action
- Lessen the financial risk of possible future taxation on carbon emissions

Working backwards, moving forwards

In contrast to other business endeavors, carbon neutrality has pre-existing parameters that can make the formation of your strategy relatively simple. You know with some certainty what it is you need to achieve — a balance between the carbon you emit and the carbon that you remove from the atmosphere.

With this knowledge, you are already in a great position to start working backwards to create a structure for your plans.

Every business is unique and each company must follow its own path to carbon neutrality.

Stakeholder management

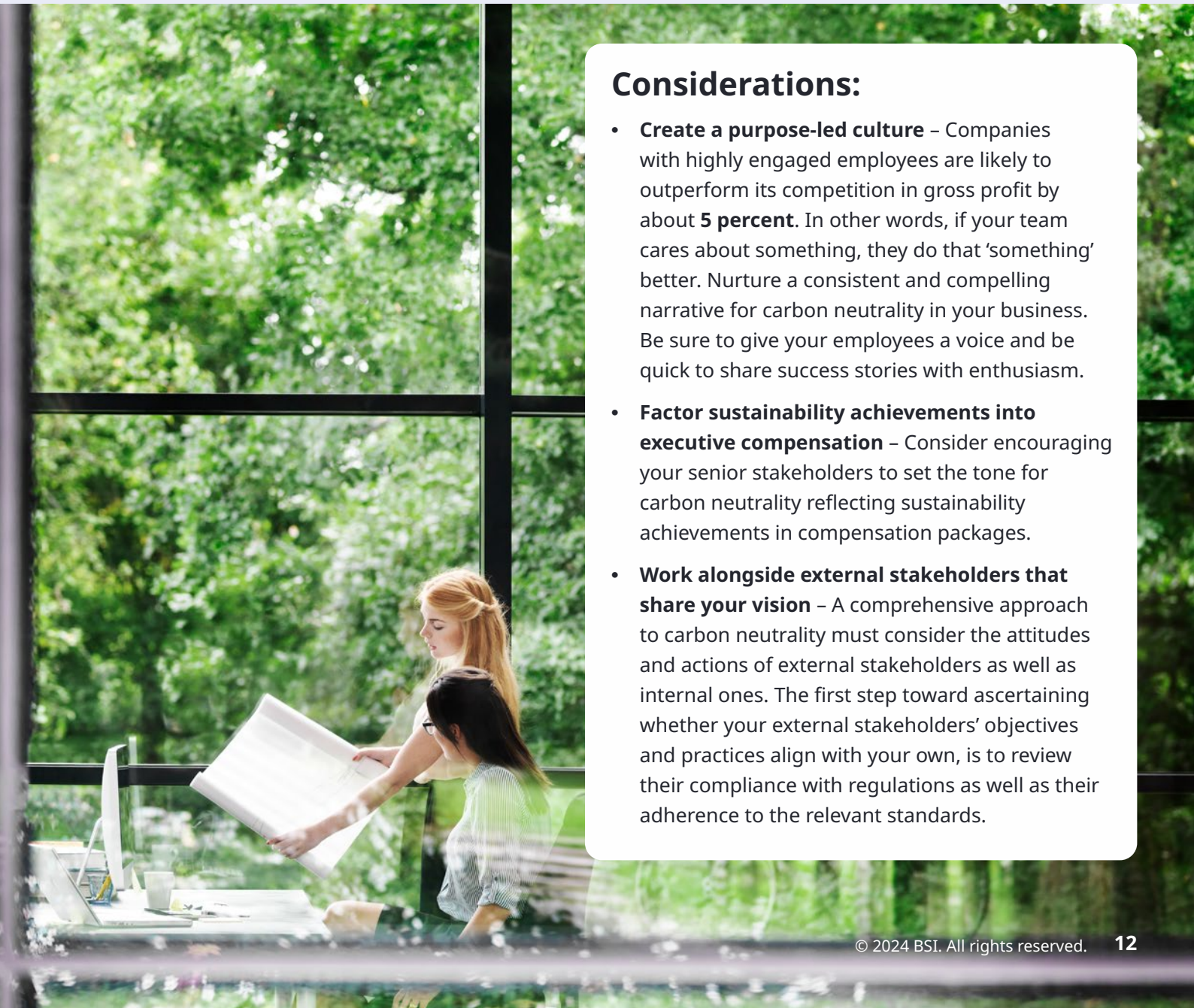
Stakeholder management

Securing stakeholder buy-in is a crucial element of your carbon neutrality strategy because it improves collaboration and diminishes conflict and apathy. With the support of everyone from leaders and employees to third-party members of your supply chain, you can build momentum behind your carbon management program.

BSI research found that 19 percent of companies cited employee buy-in as a barrier to climate action, with 24 percent stating the same about senior management.

Irrespective of seniority, your organization must make a compelling case for a more environmentally sustainable way of operating. Thankfully, the appetite for such an approach may already exist; one study found that **more than 50 percent of employees** would be willing to accept a lower salary to work for a socially responsible company.

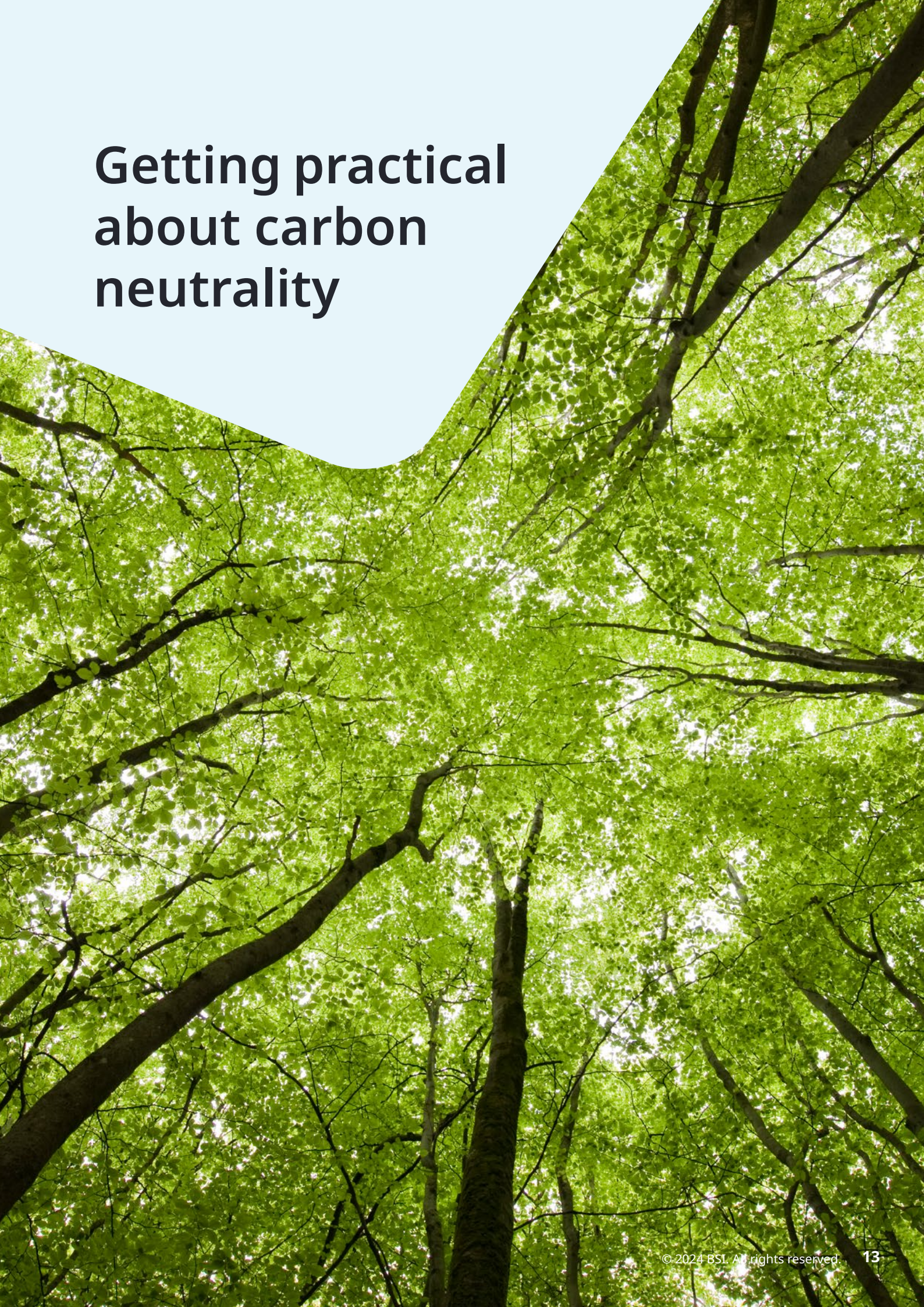
What this tells us is that individuals are genuinely incentivized to be part of a sustainable business. It's reasonable to suggest that a company with a serious commitment to mitigating climate change will have a more appealing proposition to prospective employees and therefore is likely to attract candidates of a higher caliber.



Considerations:

- **Create a purpose-led culture** – Companies with highly engaged employees are likely to outperform its competition in gross profit by about **5 percent**. In other words, if your team cares about something, they do that 'something' better. Nurture a consistent and compelling narrative for carbon neutrality in your business. Be sure to give your employees a voice and be quick to share success stories with enthusiasm.
- **Factor sustainability achievements into executive compensation** – Consider encouraging your senior stakeholders to set the tone for carbon neutrality reflecting sustainability achievements in compensation packages.
- **Work alongside external stakeholders that share your vision** – A comprehensive approach to carbon neutrality must consider the attitudes and actions of external stakeholders as well as internal ones. The first step toward ascertaining whether your external stakeholders' objectives and practices align with your own, is to review their compliance with regulations as well as their adherence to the relevant standards.

Getting practical about carbon neutrality



Greenhouse gas management

To help make GHG management more workable, the process can be broken into four distinct stages, as seen below. For each stage, there are several standards that will help to provide your organization with the necessary best practice framework for success.

Assess

Supporting the reliable measurement and management of your carbon emissions against recognized standards and frameworks.

Reduce

Offering an independent appraisal and overseeing progress to ensure carbon reduction goals, objectives and targets are on track towards carbon reduction for both our organization and your products.

Mitigate

Identifying best practice for mitigating your carbon footprint by investing in schemes such as renewable energy generation and/or use, low carbon process technologies, reforesting through high integrity offset, etc.

Report

Providing the validation, verification, and documentation you need to build trust and confidence with your stakeholders and align to carbon regulations.

Discover the standards which can help your organization manage and verify GHG emissions:

BSI Kitemark™ for Product Carbon Neutrality
Reassure consumers and organizations that your products have been verified to international standards for carbon neutrality.

Quantification and Reporting of GHG emissions and removals (ISO 14067)
Consider encouraging your senior stakeholders to set the tone for carbon neutrality reflecting sustainability achievements in compensation packages.

Carbon management in infrastructure (PAS 2080)
Achieve independent certification that demonstrates that your built environment projects, including retrofits, are sustainably managed through standardized collaboration across the whole value chain.

Introduction to ISO 14064-1

is the international standard for specification with guidance at the organization level for quantification and reporting of GHG emissions and removals. It sets out requirements for the design, development, management, reporting, and verification of inorganization's inventory.

Energy management system (ISO 50001)

Drive down energy use and thereby cut emissions and associated costs with a robust management system approach. ISO 50005 provides a phased approach for implementation.

GHG Emissions of a City (PAS 2070)

Effectively assess GHG emissions produced by urban populations with methodologies designed to produce actionable insight for city leaders.

ISO 14001

Effectively assess GHG emissions produced by urban populations with methodologies designed to produce actionable insight for city leaders.

ISO 14068

New international standard that sets out requirements for organizations wishing to achieve carbon neutrality, including for products (such as goods, services or events) made by the organization.

Introduction to ISO 14064-2

is the international standard for specification with guidance at the project level for quantification and reporting of GHG emissions and removals. It sets out requirements for planning monitoring, quantifying, documenting, and reporting GHG project performance.

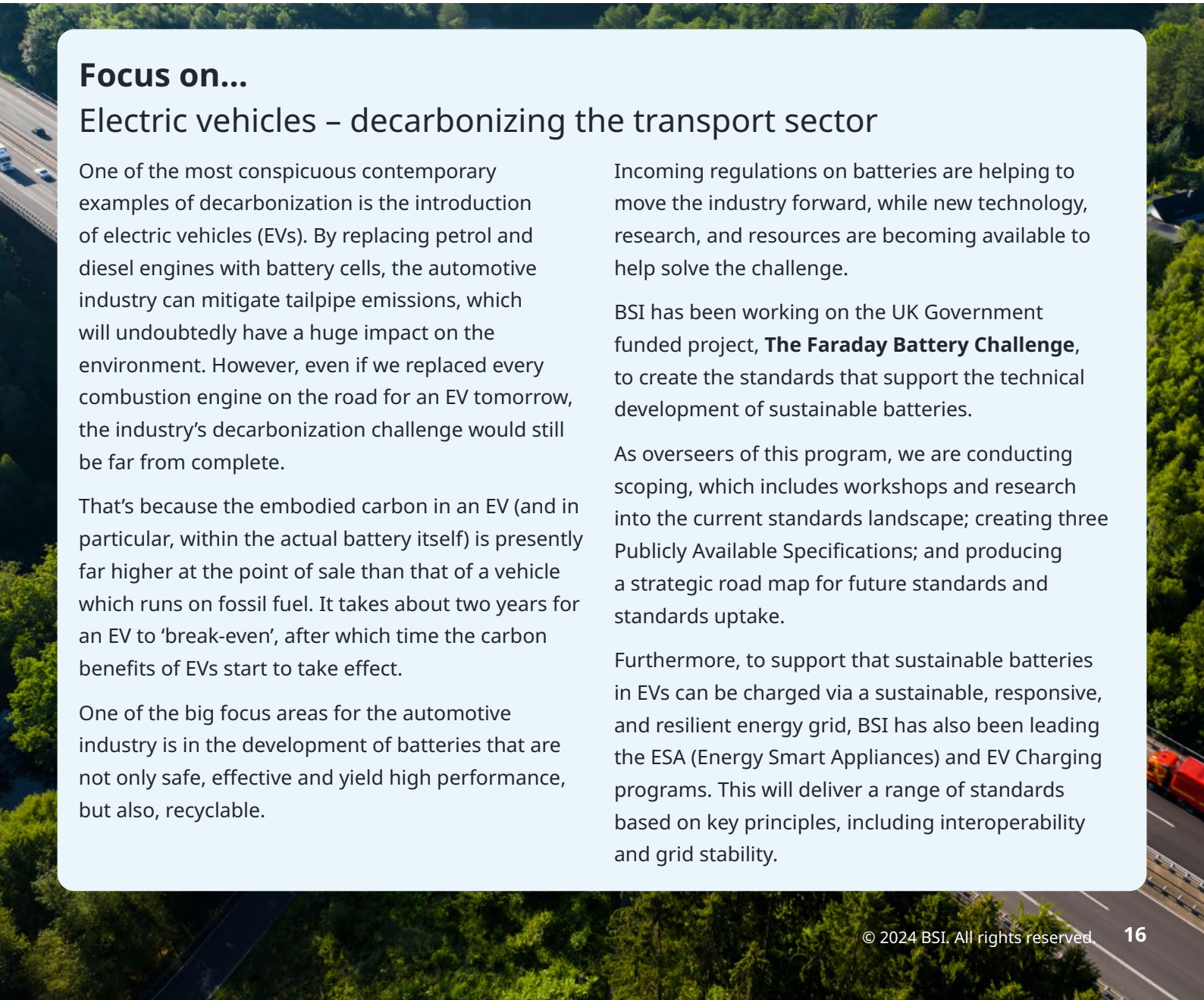
Decarbonization

Organizations don't operate independently. They sit within the context of national and international developments in decarbonization innovations. About 200 Australian companies have a 43% compulsory Scope 1 emission reduction target by 2030.

Decarbonization can be is largely focused on clean, renewable energy. The energy sector has tackled its own emissions. Huge gains will be made in other industries too, especially the most energy intensive.

It's important to remember that while offsetting may initially be the means of achieving carbon neutrality, it's not an example of decarbonization.

Decarbonization (the process of removing or reducing CO_2 output) should always be the primary focus of any carbon neutrality agenda.



Focus on...

Electric vehicles – decarbonizing the transport sector

One of the most conspicuous contemporary examples of decarbonization is the introduction of electric vehicles (EVs). By replacing petrol and diesel engines with battery cells, the automotive industry can mitigate tailpipe emissions, which will undoubtedly have a huge impact on the environment. However, even if we replaced every combustion engine on the road for an EV tomorrow, the industry's decarbonization challenge would still be far from complete.

That's because the embodied carbon in an EV (and in particular, within the actual battery itself) is presently far higher at the point of sale than that of a vehicle which runs on fossil fuel. It takes about two years for an EV to 'break-even', after which time the carbon benefits of EVs start to take effect.

One of the big focus areas for the automotive industry is in the development of batteries that are not only safe, effective and yield high performance, but also, recyclable.

Incoming regulations on batteries are helping to move the industry forward, while new technology, research, and resources are becoming available to help solve the challenge.

BSI has been working on the UK Government funded project, **The Faraday Battery Challenge**, to create the standards that support the technical development of sustainable batteries.

As overseers of this program, we are conducting scoping, which includes workshops and research into the current standards landscape; creating three Publicly Available Specifications; and producing a strategic road map for future standards and standards uptake.

Furthermore, to support that sustainable batteries in EVs can be charged via a sustainable, responsive, and resilient energy grid, BSI has also been leading the ESA (Energy Smart Appliances) and EV Charging programs. This will deliver a range of standards based on key principles, including interoperability and grid stability.

Circularity

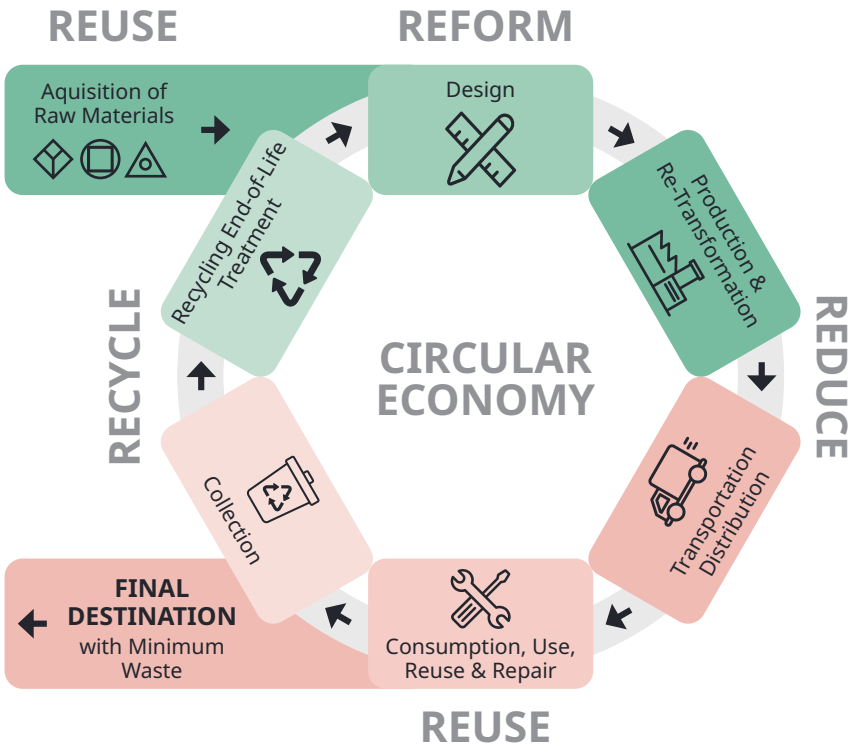
In the existing, linear economic model, materials are grown or extracted, made into goods, used, and then disposed of. The circular economy differs as the materials used to make goods are kept in circulation for as long as possible at their highest possible quality and then recovered and regenerated at the end of their service life.

While the principles of circularity are not new, the concept has become increasingly popular in recent years, gaining traction as businesses seek to minimize waste and alleviate pressures on dwindling natural resources.

The circular economy decouples economic growth from resource use. It offers potential for a global economic system resulting in long-term prosperity as well as a healthier environment. Because circularity helps to limit emissions throughout the value chain, it can serve an important and effective function in your carbon neutrality strategy.

Benefits of the circular economy for your organization

- Decoupling your organizational growth from natural resource dependence can help you build resilience, protecting you from supply and stock shortages.
- Resources - and by extension, your organization's assets - last longer, thus saving you money.
- The circular economy has the potential to be lucrative for forward-thinking organizations and has been estimated to present a €1.8 trillion opportunity in Europe alone.
- A responsible attitude toward resources and the environment is valued by stakeholders and customers, helping to build market share.
- Moving toward a circular economy will aid to manage your waste and resources, therefore reducing your emissions and helping you on your journey toward carbon neutrality.



Offsetting

Although elimination might be the ultimate goal, the truth is that no organization or entity is able to eradicate all of its emissions. That's where offsetting can play a supporting role. After avoiding and reducing GHG emissions as much as possible, an 'offset' is a way to compensate residual emissions by funding an equivalent CO2 saving elsewhere.

Good practice for offsetting

1. Offsetting should be viewed as a last resort when all options for carbon reduction or removal have been exhausted.
2. For a credible net zero plan, there must be a program to reduce offsets over time.
3. Offsets should provide 'additionality' (i.e., a reduction that wouldn't otherwise happen).
4. Purchase offsets from a valid, credible provider.
5. Offsetting results must be permanent or effective over an extended period of time.
6. Offsetting measures must be measurable for validation.
7. Offsets to ideally meet high integration principles of the ICVCM.

Regulation

Think local. Think global.

Regulations are a vital component in the pursuit of carbon neutrality globally. From top level demands - such as limiting and taxing emissions - down to nuanced, sector-specific mandates, regulations are one of the key drivers of change. Your company should be aware of the regulations that apply within your particular sphere of operation.

To achieve carbon neutrality, however, you also need to think in broader, more global terms. For example, you will in all likelihood have links to other organizations, either up or downstream, that operate from a different country or continent. Often these links will be indirect, but if they fall somewhere within your supply or value chain, you should consider the impact of their involvement and the implications of their local regulatory controls.

Effective climate action cannot be tackled with an individualist agenda: success depends on connectivity, transparency, and collaboration.

Keeping pace with regulatory change...

And why regulations might need to start keeping pace with you.

As climate science and technology develop and the race to net zero intensifies, regulations will inevitably evolve, such as the recently approved Australian and New Zealand's Mandatory Climate Disclosures. For this reason, your organization will benefit from agility, flexibility, and a proactive approach to carbon neutrality.

However, regulations are rigid by necessity and regulatory changes inevitably take time. For this reason, progress within an industry can outpace progress at a regulatory level.

Once your product or your service has been developed and undergone the necessary assessments to receive approval, it can become very hard to deviate from the processes you have established without compromising regulatory compliance - even if you find a more efficient, sustainable way to operate.

In order to circumvent this regulatory bind, a whole new regulatory paradigm would need to be developed. That will allow for real-time reporting and assessment, thus, supporting efficacy and safety as well as sustainable innovation.

You will have to operate within the existing regulatory framework. Voluntary adherence to standards is the best way to achieve that.

Digital transformation

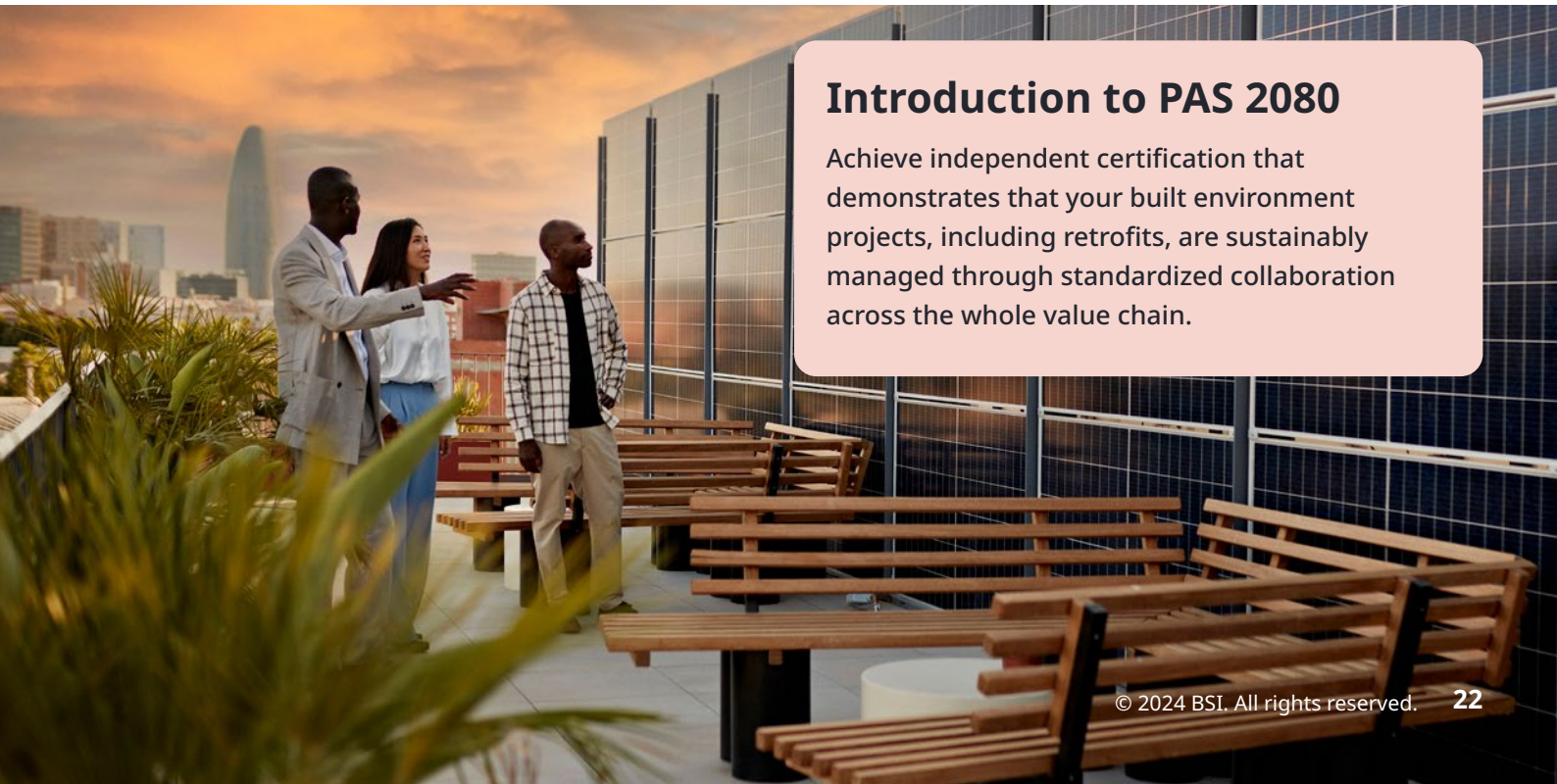
The digital transformation of the built environment

Construction is a sector that is taking huge strides in reducing emissions with the help of digital information. With a new technological focus, some players in the industry are proving that data brings a host of sustainable benefits throughout the entire value chain. Organizations within some sectors, for example, manufacturing, might rely on more process-driven methods whereby the costs of inputs are compared against the value of outputs. And while such an approach may have been sufficient for business success in the past, it will not be adequate in a future world where carbon neutrality could be mandatory.

Embracing digital technology can help to place data at the heart of your operation and have a transformative impact on the way you understand and manage your emissions. Today, effective data management is facilitating collaboration, minimizing errors and rework, and providing leaders with the information they need to make better decisions The upshot is that projects run more smoothly, less resources are wasted and building quality is higher – all of which help to minimize emissions. A construction project that runs without mistakes is inevitably completed faster, thus limiting emissions from machinery during construction.

In addition, fewer wasted materials mean less embodied carbon, while higher quality buildings are more energy efficient, last longer, and require less carbon-heavy maintenance work throughout the building life cycle. BIM (Building Information Modeling) is a tangible example of construction's digital revolution and its potential to deliver a more sustainable built environment. By providing a data-rich 'digital twin' for a physical asset, BIM helps architects, contractors, and asset owners derive learnings from the way an asset comes together and operates.

These learnings can then be applied to optimize processes on subsequent projects or to optimize the way a completed asset is managed. Enhancing the benefits provided by BIM, augmented reality is now being used to allow contractors to overlay digital building plans in holographic form upon the physical construction site with precise accuracy. This means errors can be spotted proactively and has the potential to eradicate the reactive remediation phase of the construction process altogether.



Introduction to PAS 2080

Achieve independent certification that demonstrates that your built environment projects, including retrofits, are sustainably managed through standardized collaboration across the whole value chain.

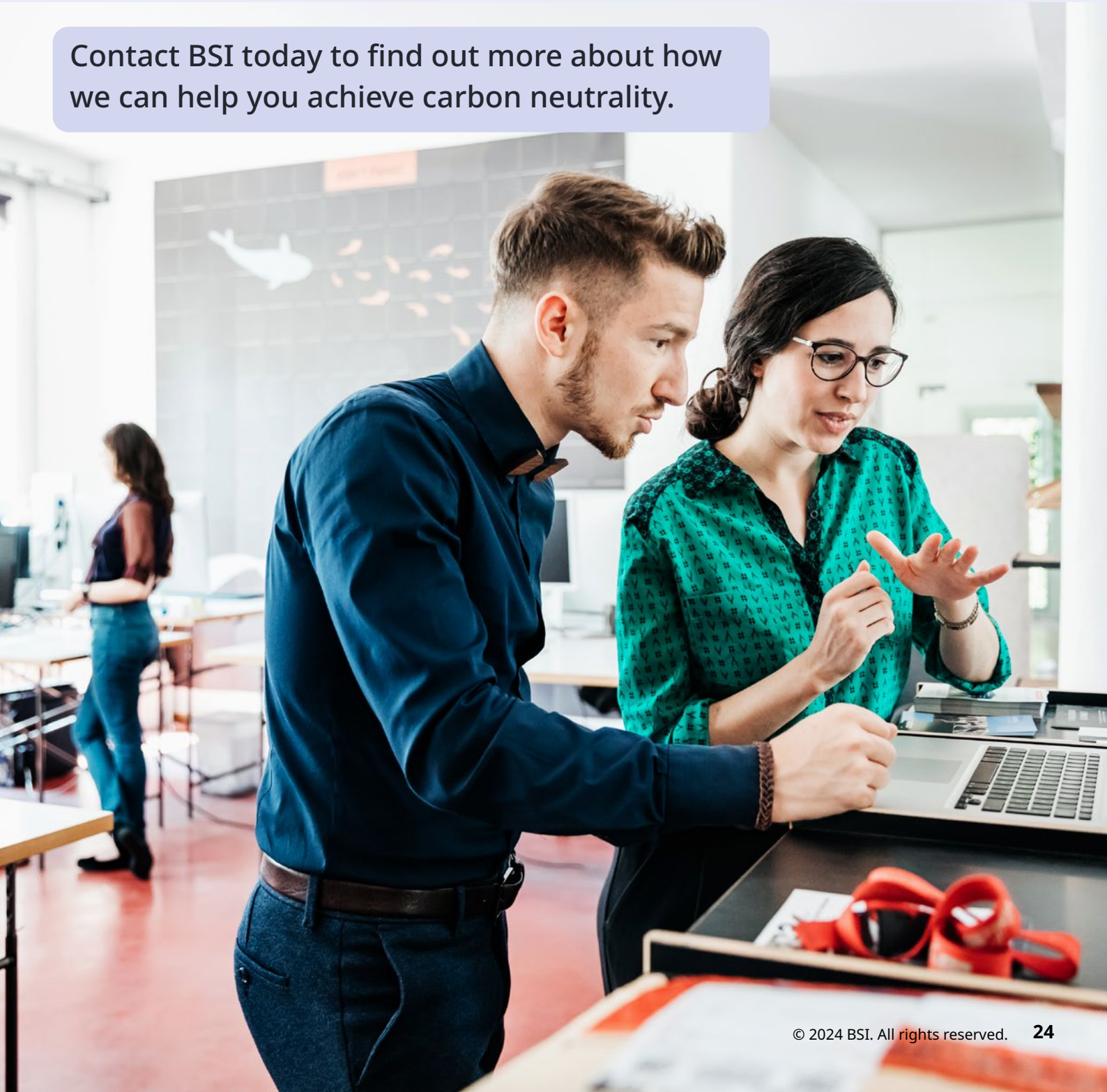
A carbon neutral future

A carbon neutral future

As you progress on your journey toward carbon neutrality, the landscape will inevitably shift. New technology, regulations, guidance, knowledge, and practices will emerge all the time. Your organization must be alert to these changes if it's to successfully reach the finish line.

Carbon neutrality will require investment, dedication, upskilling, persuasion, innovation, transparency, and collaboration. There are few easy answers and there's no one-size-fits-all solution. With deference to the science and a host of standards-based tools at your disposal, you will be able to draw upon best-practice consensus to drive down your emissions. The reward is a more sustainable world in which your organization can thrive.

Contact BSI today to find out more about how we can help you achieve carbon neutrality.



About BSI

About BSI

We’re global sustainability thought shapers

BSI was the world’s first National Standards Body formed in the UK.

We shape and embed best practice so that your organization can become future ready. We have not only committed to achieving net zero by 2030, but BSI is instrumental in the ‘Our 2050 World’ collaboration as its conveyor, that brings the International Organization for Standardization (ISO), the UN Race to Zero campaign, and the UNFCCC Global Innovation Hub together to enable and mainstream the transition to net zero through standards.

The London Declaration, led by BSI, working with the ISO, is a commitment to ensure global standards will support climate action and advance international initiatives to achieve global climate goals.

We are equipped to transform your net zero journey through access to unrivaled expertise.

Whether you are starting your carbon neutral journey, want to enhance your current strategy, or are an environmental leader, we’re ready to accelerate your progress.

bsi Your partner in progress

For more information, or to get in contact with one of our experts, please contact us:

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