

# ADAPTING TO CLIMATE CHANGE



Against a backdrop of inflationary pressure, rising interest rates and volatility, the recent energy crisis has demonstrated that our dependency on the global energy system has significant implications for how climate risk should be managed and how the transition to Net Zero should be planned.

In the context of rapidly changing global energy markets, we remain steadfast in our belief that the circular economy is part of the solution to climate change, whilst recognising the imperative to transition to an affordable and clean energy system.

Our circular business model keeps materials recirculating through recycling services which support the manufacture of recyclable packaging. Whilst this alleviates pressure on natural systems, such as forests, and prevents waste from entering landfills and oceans, it is energy intensive, generating greenhouse gas (GHG) emissions that contribute to climate change.

In support of a 1.5°C 'Net Zero' economy, we are committed to considering the Paris Agreement in our activities, including in our external engagement, as underpinned by the IPCC Sixth Assessment Report (AR6) and the IPCC Special Report on Global Warming of 1.5°C (SR1.5).

We have set a 1.5°C science-based target, to reduce Scopes 1, 2 and 3 GHG emissions 46 per cent by 2030 compared to 2019 and we are committed to reaching Net Zero by 2050. This target has been validated by the Science-Based Targets initiative (SBTi) and we are a member of the Business Ambition for 1.5°C campaign.

We first included the TCFD recommendations in our 2018 Annual Report. Since then, we have developed our reporting, reaching complete disclosure of all recommendations a year ahead of mandatory disclosure last year. The timeline above demonstrates how we have used the TCFD recommendations to accelerate climate action.

**Compliance statement**

DS Smith Plc has complied with the requirements of Listing Rule 9.8.6R(8) by including climate-related financial disclosures consistent with the Task Force on Climate-related Financial Disclosures recommendations (Oct 2021 update) in DS Smith Annual Report 2023, pages 52 to 63.

**Governance**

**Describe the Board’s oversight of climate-related risks and opportunities**

The Board and the Audit Committee maintain oversight of climate-related risks and opportunities when reviewing and guiding strategy, budgets and business plans. Annual updates on risk assessments, mitigation and progress are provided, and the Board makes significant strategic decisions, for example, the adoption of the science-based target.

The Board and its Committees, members of whom have relevant ESG and sustainability experience, are updated on climate-related issues at a minimum annually. This includes the progress of our Now & Next Sustainability Strategy and other items that involve climate-related issues, such as the Corporate Plan, principal risks and uncertainties, and remuneration. The Audit Committee is engaged on the assurance of climate-related metrics and developments in ESG reporting.

**Describe management’s role in assessing and managing climate-related risks and opportunities**

Members of the Health, Safety, Environment and Sustainability (HSES) Committee, chaired by the Group Chief Executive, assess and manage climate-related risks and opportunities. This Committee meets monthly, having met 12 times during 2022/23 to discuss, amongst other topics, GHG emissions forecasts, plans to deliver the science-based target and progress on climate-related opportunities, such as plastic replacement.

Climate-related risks are monitored as part of our standard operating procedures to ensure that appropriate mitigation is in place and are regularly reviewed by management. Management is supported by the Sustainability Leadership Team (SUS LT), which comprises leaders from across the business, to develop strategies and policies to address climate-related risks and opportunities. These committees draw on subject matter experts from Group Risk and Insurance, Group Strategy, Group Sustainability, Group Finance and externally. They report progress updates to executive management on an ongoing basis.

In 2022/23, a Sustainability Delivery Team, focused on the deployment of projects to deliver Net Zero, was introduced. This team is responsible for developing and maintaining detailed plans for carbon/energy, water and waste reduction and coordinating with divisional leadership and sites on the design, planning and implementation required to reach Net Zero.

There is further divisional and functional leadership responsibility and a Sustainability Network, supported by specialist networks and project teams, which cascade activities, including those related to climate change, throughout the business.

Climate-related metrics are discussed at least monthly by management teams. Senior management teams review within-year performance, forecasts and longer-term progress against our targets, in addition to challenges, trends and opportunities for addressing climate-related issues on a monthly basis and this is monitored by the HSES Committee on a quarterly basis, with progress presented to the Board annually.



**Strategy**

**Describe the climate-related risks and opportunities the organisation has identified over the short, medium and long term**

Climate-related risks and opportunities could arise over the short term (0-3 years), medium term (3-10 years) and long term (10+ years). These time horizons fit with the Group’s corporate and capital planning cycle time horizon (three years), which is used to develop the Group’s strategy, in addition to the annual risk reporting cycle (one year), which is used to assess and communicate risk.

Physical assets in our industry tend to have long lifetimes and efforts are made to extend the lifetime of machinery, components and spare parts, fitting into the long-term (10+ years) time horizon. As such, investment decisions are made, including the implications that such decisions may have on climate-related risks and opportunities under this long-term time horizon.

**Climate-related risks**

- Increased spend on carbon taxes
- Increased cost of raw materials or threat to supply
- Increased severity of extreme weather events
- Increased likelihood of water stress

**Climate-related opportunities**

- Growth in demand for sustainable packaging
- Greater resource efficiency
- Use of lower-emission energy sources

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) CONTINUED

**Climate-related risks**

**Increased spend on carbon taxes**

In the short term, there is a risk that new carbon taxes could be introduced, or existing carbon taxes could be extended as a policy tool to incentivise decarbonisation.

**Increased cost of raw materials or threat to supply**

In the medium to long term, there is a risk that raw materials could become more expensive or difficult to acquire due to disruption or market dynamic shifts caused by climate change.

**Increased severity of extreme weather events**

In the medium to long term, there is a risk that the frequency and severity of extreme weather events could increase, causing damage and disruption in our own operations or the value chain.

**Increased likelihood of water stress**

In the long term, there is a risk that competition for water could increase in the river basins from which we withdraw water, increasing the chance that supply constraints could be imposed.

**Climate-related opportunities**

**Growth in demand for sustainable packaging**

In the short term, there is an opportunity to drive organic growth by demonstrating the benefits of circular packaging that helps brands and consumers to replace plastic and reduce their carbon footprint in the transition to Net Zero.



**Greater resource efficiency**

In the short term, there is an opportunity to use fewer resources (materials, energy and/or water), both in manufacture through design and operating efficiency, and throughout the value chain to reduce climate impact and cost.




**Use of lower-emission energy sources**

In the medium to long term, there is an opportunity to adopt lower-emission energy sources and energy efficiency measures. These could be equipment-based (e.g. e-boilers and carbon capture and storage), fuel-based (e.g. hydrogen) or process-based (e.g. heat recovery and optimisation through digital and data innovation).

**Summary of climate-related risks and their potential future financial impact**

Climate-related risk	Type	Time horizon	Likelihood		Potential financial impact as indicated by reference to climate scenarios and our analysis*
			1.5°C scenario	>2°C scenario	
<b>Transition</b>  Increased spend on carbon taxes	Policy and legal	Short term	•••••	•	£40-155 million potential increase in operating costs, depending on the price of future allowances in emission trading schemes, which would likely be greater in a 1.5°C scenario versus a >2°C scenario as a way to meet public policy objectives
	Market	Medium - long term	•••	•••••	£36-119 million potential increase in production costs attributable to climate-related disruption, which would likely be greater in a warmer scenario (e.g. 10 per cent increase in costs in a >2°C scenario versus 3 per cent increase in a 1.5°C scenario)
<b>Physical</b>  Increased severity of extreme weather events	Acute physical	Medium - long term	••	•••••	£10-118 million potential business value-at-risk due to production downtime, assuming 1-12 months of disruption at one of our paper mills located in a region prone to specific climate events (e.g. 12 months in a >2°C scenario versus one month in a 1.5°C scenario)
	Chronic physical	Long term	••	•••••	£1-3 million potential business value-at-risk due to production downtime, assuming 7-31 days of interruption at one of our paper mills located in a region at risk of water stress (e.g. 31 days in a >2°C scenario versus seven days in a 1.5°C scenario)
<b>Total potential financial impact of climate-related risks</b>					£87-395 million*

## Summary of climate-related opportunities and their potential future financial impact

Climate-related opportunity	Type	Time horizon	Likelihood		Potential financial impact as indicated by reference to climate scenarios and our analysis*
			1.5°C scenario	>2°C scenario	
 Growth in demand for sustainable packaging	Products and services	Short term	•••••	•••	£468-715 million potential increase in revenue owed to production growth, which would likely be greater in a 1.5°C scenario as society demands more sustainable products and services
 Greater resource efficiency	Resource efficiency	Short term	•••••	•	£27-67 million potential cost saving as a result of resource efficiency (reduced energy consumption), which would likely be greater in a 1.5°C scenario as more resource efficiency opportunities are exploited
 Use of lower-emission energy sources	Energy source	Medium - long term	•••••	•	Zero-£66 million potential cost saving as a result of use of lower-emission energy sources, which would likely be greater in a 1.5°C scenario as more lower-emission energy sources are exploited
<b>Total potential financial impact of climate-related opportunities</b>					£495-848 million*

••••• Greater likelihood • Lesser likelihood

\* Climate scenarios are used, alongside other tools, to assess vulnerability to climate change and are intended to represent plausible future states to assist learning and aid decision-making rather than to present future projections or forecasts. The values given are illustrative and estimated within the context set out by each reference scenario and then adapted to fit DS Smith. This is based on a single financial metric, without considering the implications of secondary impacts. For example, there may be a cost associated with damage to reputation that could occur as a result of business interruption owing to climate change.

## Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning

The Board, Group Operating Committee (GOC) and its management committees consider climate-related issues when reviewing and setting strategy, policies and financial planning.

### Acquisitions or divestment

This includes significant strategic decisions, including how capital is secured and spent. For example, having divested our plastics business, our focus has turned towards organic growth through circularity, recyclability and resource efficiency, exploiting climate-related opportunities as a fibre-based manufacturer.

### Products and services

We work with some of the world's most iconic brands, which place climate change at the forefront of their agendas. In response, this has impacted our product strategy, for example in the articulation of our customer value proposition, which was recently adapted to include 'Circular ready: we help our customers with circular packaging solutions'.

We engage our customers using innovative tools such as our Circular Design Metrics, which help our customers compare the lifecycle carbon footprint of different packaging and help our customers to identify opportunities for greater resource efficiency across the supply cycle and engage with them on sustainability campaigns.

### Operations

In our operations, our energy procurement and asset renewal strategies are impacted by the value of emissions. This includes incorporating emissions valuations into project appraisals and capital planning, particularly when considering significant energy-related expenditure in our paper operations (as the most energy intensive part of our business and therefore the greatest emissions source).

For example, in 2022/23 we announced a new energy supply partnership at our Aschaffenburg Mill, which will combine technologies to transition from natural gas to energy generation from waste.

### Research and development (R&D)

Our R&D investments include alternative packaging materials, in addition to barrier coatings that increase the efficacy of corrugated as an alternative to plastic.

We opened our Fibre and Paper Development Laboratory at Kemsley Mill, as part of our £100 million R&D package announced last year, hosting innovative projects to accelerate our work on the circular economy. We also invest in achieving greater resource efficiency for natural assets, such as water. This includes, for example, the installation of water re-circulation systems within some of our paper mills.

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) *CONTINUED*

**Describe the resilience of the organisation’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario**

Our most relevant climate-related risks and opportunities, alongside example outcomes drawn from several IEA and IPCC climate scenarios, including industry-specific scenarios, are described in the tables that follow.

**Climate-related risks**

Climate-related risk	Description
 <p><b>Increased spend on carbon taxes</b></p> <p><b>Type:</b> Policy and legal transition risk</p> <p><b>Time horizon:</b> Short term</p> <p><b>Link to principal risk:</b> ‘Regulation and governance’</p> <p><b>Potential to impact:</b> our European paper mills, with the potential to extend to other regions</p>	<p><b>Definition</b></p> <p>New carbon taxes could be introduced, or existing carbon taxes, such as the European Union Emissions Trading System (EU ETS), could be extended as a policy tool to incentivise decarbonisation.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Carbon taxes are introduced in new regions in the future, and/or schemes become more expensive to limit emissions.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Carbon taxes remain mostly the same as today.</p>
 <p><b>Increased cost of raw materials or threat to supply</b></p> <p><b>Type:</b> Market transition risk and/or acute or chronic physical risk</p> <p><b>Time horizon:</b> Medium - long term</p> <p><b>Link to principal risk:</b> ‘Security of paper/fibre supply’</p> <p><b>Potential to impact:</b> our Paper Sourcing and Procurement functions</p>	<p><b>Definition</b></p> <p>Raw materials, such as paper, pulp or starch, could become more expensive or difficult to acquire owed to disruption or shifts in market dynamics as a result of climate change.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Disruption or shifts in market dynamics are less severe and more predictable, e.g. caused by planned regulatory change.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Disruption or shifts in market dynamics are more severe due to chronic reasons, e.g. extreme weather causes crop failure.</p>
 <p><b>Increased severity of extreme weather events</b></p> <p><b>Type:</b> Acute physical risk</p> <p><b>Time horizon:</b> Medium - long term</p> <p><b>Link to principal risk:</b> ‘Security of paper/fibre supply’</p> <p><b>Potential to impact:</b> specific geographies as identified by specialists, e.g. hurricanes on the south-eastern coast of the USA</p>	<p><b>Definition</b></p> <p>The frequency and severity of extreme weather events could increase, causing damage and disruption.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Extreme weather is less severe, causing minimal disruption.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Extreme weather is more severe, causing greater disruption, e.g. thunderstorms, tornadoes and extreme heat.</p>
 <p><b>Increased likelihood of water stress</b></p> <p><b>Type:</b> Chronic physical risk</p> <p><b>Time horizon:</b> Long term</p> <p><b>Link to principal risk:</b> ‘Regulation and governance’</p> <p><b>Potential to impact:</b> specific geographies as identified by the WRI Aqueduct tool, particularly our paper mills which use significant volumes of water to convert paper for recycling back into pulp</p>	<p><b>Definition</b></p> <p>Competition for water could increase in the river basins from which we withdraw water, increasing the chance that water supply constraints could be imposed by local authorities.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Water stress is less severe, causing minimal disruption.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Water stress is more severe, with greater disruption, e.g. as greater consumption patterns drive up water usage.</p>

**Primary potential financial impacts****Increased operating costs (e.g. higher compliance costs)**

In 2022/23, we paid c. £21 million (2021/22: £26 million) to emission trading schemes.

If the cost per allowance increased to €140 per tonne of carbon (based on analyst views), the estimated annual cost, depending on future allowances, could increase to c. £155 million.

If, as described by the IEA ETP 2°C scenario, a North American carbon tax was introduced, rising to \$85 per tonne by 2030, this could result in a new cost of c. £40 million.

**Increased production costs (e.g. higher input prices)**

Higher input costs would have to be recovered through increased packaging pricing, which would increase revenue.

If, for example, in a >2°C scenario, the average price of a key input were to increase by 10 per cent compared to present day, this could lead to an increase in production costs, assuming the same level of production as today, of £119 million.

Alternatively, in a 1.5°C scenario, if only a 3 per cent increase was observed, owed to less severe disruption, this could lead to an increase in production costs of £36 million.

**Increased capital costs (e.g. more repair and maintenance)**

This could be as a result of damage to property, which may result in higher insurance premiums, compounded by costs to ensure continuity of supply. We use a 'business interruption value-at-risk' metric to determine the potential impact of disruption caused by a climate-related event.

If, for example, in a >2°C scenario, production was halted for a whole year at our highest-value site in a geographic region prone to specific climate events, this could present an incident valued at £118 million.

If, in a 1.5°C scenario, disruption only lasted for one month due to a less severe climate-related weather event, this would be valued at £10 million.

**Decreased revenues and profit (e.g. temporary curtailment)**

This could be as a result of decreased production capacity because of limits placed on water withdrawal. We use the IPCC 4°C scenario to identify sites at risk of water stress and a 'business interruption value-at-risk' metric to determine the potential impact resulting from a climate-related disruption.




If, for example, in a >2°C scenario, production was halted for 31 days at our highest-value site located in a region at future risk of water stress, this could present an incident valued at £3 million.

Were this incident only to occur for seven days, in a 1.5°C scenario, this would be valued at £1 million.

**Key actions in our strategies that mitigate the risk**

- Hedge the cost of fuel, energy and carbon with our suppliers and financial institutions
- Factor the cost of carbon into our carbon roadmap analysis, planning and optimisation of project deployment, alongside scenarios and forecasts of future growth and fuel availability
- Deliver our 1.5°C science-based target by switching from fossil to renewable fuels that reduce our GHG emissions and therefore limit exposure to carbon taxes
- Optimise the best fit between paper production, fibre sourcing and packaging demand to balance over the long term
- Remove unnecessary waste and save natural resources through innovative design, as part of delivering our Now & Next target to optimise fibre use for unique supply chains in 100 per cent of new packaging solutions by 2025
- Ensure that climate resilience indicators are part of the evaluation process when evaluating strategic decisions relating to our production footprint and capacity planning
- Implement adequate and flexible business continuity plans, using data to improve climate modelling and to strengthen our business resilience with a changing climate pattern
- Invest in closed-loop solutions that recycle water and other water efficiency measures as part of our Now & Next sustainability target to reduce water withdrawal by 10 per cent per tonne of production by 2030 compared to 2019 at paper mills located in regions at risk of water stress
- Maintain localised water stress mitigation measures at 100 per cent of our sites identified as at risk of water stress (29 sites in 2022/23), which includes business continuity planning, regular contact with relevant stakeholders (e.g. the water authority and local community) and monthly performance review. For 2023/24, we are rolling out water management plans.

## Climate-related opportunities

Climate-related opportunity	Description
 <p><b>Growth in demand for sustainable packaging</b></p> <p><b>Type:</b> Products and services</p> <p><b>Time horizon:</b> Short term</p> <p><b>Link to principal risks:</b> ‘Changes in shopping habits’, ‘Packaging capacity fluctuations’, ‘Organisation capability’, ‘Substitution of fibre packaging’</p> <p><b>Alignment with strategic pillar:</b> To delight our customers</p> <p><b>Potential to impact:</b> our Packaging division, fed by our Paper and Paper Sourcing operations, with implications for recycling</p>	<p><b>Definition</b></p> <p>Drive organic growth by demonstrating the benefits of circular packaging that helps brands and consumers to replace plastic and reduce their carbon footprint in the transition to Net Zero.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Demand for sustainable packaging is greater as consumers are more conscious of their impact on the planet, necessitating greater recycling.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Uptake for sustainable packaging is slower and appetite for recycling is lower, foregoing the opportunity.</p>
 <p><b>Greater resource efficiency</b></p> <p><b>Type:</b> Resource efficiency</p> <p><b>Time horizon:</b> Short term</p> <p><b>Link to principal risks:</b> ‘Paper/fibre price volatility’, ‘Sustainability commitments’</p> <p><b>Alignment with strategic pillar:</b> To double in size and profitability</p> <p><b>Potential to impact:</b> the whole business, but predominantly in packaging design to reduce material consumption and in the energy efficiency of our recycled paper mills, as they use heat to evaporate water in drying pulp and paper</p>	<p><b>Definition</b></p> <p>Use fewer resources (materials, energy and/or water), both in manufacture through design and operating efficiency, and throughout the value chain to reduce climate impact and cost.</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Greater resource efficiency is achieved across the industry at the ‘system’ level, for example, by encouraging markets to invest in improved recycling infrastructure to create cleaner waste streams. This has the added benefit of increasing energy efficiency, as cleaner material requires less processing.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>A lesser focus on resource efficiency fails to protect natural resources and the potential benefits are foregone.</p>
 <p><b>Use of lower-emission energy sources</b></p> <p><b>Type:</b> Energy source</p> <p><b>Time horizon:</b> Medium - Long term</p> <p><b>Link to principal risk:</b> ‘Sustainability commitments’</p> <p><b>Alignment with strategic pillar:</b> To lead the way in sustainability</p> <p><b>Potential to impact:</b> the whole business, but predominantly our recycled paper mills, which rely on fossil fuels as, unlike primary pulp production, recycled production does not have biofuels readily available as a by-product from the wood used</p>	<p><b>Definition</b></p> <p>As energy systems evolve, there is an opportunity to adopt lower-emission energy sources and energy efficiency measures. These could be equipment-based (e.g. e-boilers and carbon capture and storage), fuel-based (e.g. hydrogen) or process-based (e.g. heat recovery and optimisation through digital and data innovation).</p> <p><b>Example outcome in a 1.5°C scenario</b></p> <p>Transitioning from fossil fuels to renewable fuels, including biomass, biomethane and hydrogen limits warming to 1.5°C.</p> <p><b>Example outcome in a &gt;2°C scenario</b></p> <p>Lower-emission energy sources are not affordable or are unavailable at the scale required to achieve Net Zero and the fuel mix remains roughly the same as present-day.</p>

**Primary potential financial impacts****Increased revenues and profit (e.g. more sales)**

Organic growth and market share capture as a result of greater demand for recyclable packaging, enhanced by the added value of our sustainability, innovation and circularity credentials.

If, for example, in a 1.5°C scenario, 1.5 per cent annual growth, as described in the IEA NZE 2050 scenario, could be fully exploited, by 2030 this could increase revenue by c. £715 million.

Alternatively, in a >2°C scenario, with less demand for sustainable packaging, assuming 1 per cent annual growth, by 2030 this could increase revenue by c. £468 million.

In each of these figures, we assume that the growth in paper production described in the reference scenario is a result of packaging demand, increasing packaging revenue.

**Decreased production costs (e.g. less material consumption)**

Decreased cost as a result of reduced materials, energy and water consumption, increasing profitability and added positive reputation value associated with a low environmental impact product.

If, for example, in a 1.5°C scenario, energy intensity reduced by c. 1.5 per cent per year to 2030, as described in the IEA NZE 2050 scenario, this would result in a saving of c. £67 million.

Alternatively, if in a >2°C scenario, only a 0.6 per cent decrease in energy consumption was secured, as described in the IEA SDS 2030 scenario, the saving would be reduced to c. £27 million.

Beyond this example of energy efficiency, material efficiency through better product design and supply chain optimisation could present more savings and value creation opportunities.

**Decreased operating costs (e.g. less fossil fuel consumption)**

Decreased cost as a result of reduced energy consumption and less exposure to future fossil fuel price increases and sensitivity to the cost of carbon. Added returns on investment secured from low-emission technology.

According to the IEA NZE 2050 scenario, it will be important to move away from fossil fuels to near zero-emission alternatives for the industry to reach Net Zero, with the proportion of renewable fuels in the average energy mix increasing from 43 per cent to almost 50 per cent in 2030.

Assuming average renewable/non-renewable fuel costs, achieving this transition could present an energy cost reduction of £66 million. Alternatively, were no transition achieved, this would be zero. Inevitably costs would be incurred in achieving this transition which are not included in this analysis.

**Key actions in our strategies that realise the opportunity**

- Support our design and innovation community with the tools they need to design for the circular economy, building on over 1,000 designs for millions of products geared towards reducing the use of plastic
- Invest in R&D (recently doubled to a £100 million package to deliver over five years) to include the creation of new breakthrough technologies in materials and design innovation to support the circular economy
- Identify new plastic replacement opportunities, as part of delivering our Now & Next target to remove one billion pieces of problem plastics by 2025

- Reduce energy consumption as part of our Group-wide ISO 50001:2018 certified energy management system at 100 per cent of relevant sites to continuously improve energy performance, cost and GHG emissions, with site-level targets and monitoring in place
- Advocate for separate collection of recyclables to improve quality of material by reducing contamination, increasing recycling rates, lowering environmental impact and cost for local authorities as part of our engagement with policy makers
- Work with our customers to reduce fibre consumption, predominantly through better design, as part of delivering our Now & Next target to optimise fibre use for unique supply chains in 100 per cent of new packaging solutions by 2025

- Investigate opportunities to implement lower-emission energy sources, including the viability of renewable fuel sources as fossil fuel alternatives, to be well-positioned to take advantage of lower-emission energy sources
- Deliver our carbon reduction roadmap, which sets out initiatives that allow our business to grow whilst realising the benefits of harnessing emerging renewable technologies



### Climate scenario analysis methodology

We use reference scenarios that are most relevant to our business, including industry-specific scenarios, to evaluate the potential impact of climate change. These reflect a range of temperature warming trajectories, based on different assumptions, that lead to worlds in which the average increase in global temperature varies from 1.5°C to greater than 2°C by 2100 compared to pre-industrial levels, presenting a range of potential contrasting futures.

In each scenario, we assumed that we have the same activities as today, drawing on financial and non-financial data from the most recent reporting period at the time of producing the analysis. We selected reference points from the scenarios that are most relevant to our business.

The financial impacts are estimates, given within the context set out by each scenario. Some of these estimates are different compared to last year because of changes in the macroeconomic environment (e.g. higher energy cost), updates made to the reference scenarios and developments made to our assumptions. The estimates provided may therefore be incomparable to those previously reported.

#### IEA SDS 1.5°C by 2030 (Pulp & Paper)

In this scenario, growth in production and energy consumption are decoupled to achieve decarbonisation to the extent required to be on track with the Sustainable Development Scenario (SDS) by 2030.

#### IEA Net Zero Emissions by 2050 (Pulp & Paper)

In this scenario, annual production expands, necessitating greater recycling. Using a higher share of bioenergy is important to align with the Net Zero Emissions by 2050 trajectory.

#### IEA ETP SDS 2°C

In this scenario, mitigation measures are applied to carbon intensive industries, alongside technological advancements to the extent required to limit global warming to within 2°C by 2100 versus pre-industrial levels.

#### IPCC RCP 8.5 4°C

In this scenario, a 'business as usual' state of no policy changes leads to growth in emissions, causing some of the physical effects of climate change to be felt with greater severity.

### Outcome of our climate scenario analysis

The results obtained from our climate scenario analysis suggest that our present-day strategy is resilient to climate-related risks and opportunities and that we would not need to make fundamental changes to our business model between now and 2030, under a variety of contrasting future warming scenarios.

As an enabler of our strategic goal, 'to lead the way in sustainability', our Now & Next Sustainability Strategy, including our 1.5°C science-based target, sets the appropriate ambition to maximise the potential to exploit the opportunities arising from the transition to a 1.5°C world.

Delivering the science-based target helps to mitigate climate-related risk through a strong decarbonisation programme coupled with appropriate risk management practices.

As we decarbonise alongside the entire industry, we see an opportunity to be at the forefront of leading the transition to a circular economy, which, compared to the linear economy, is a better system for tackling climate change, pollution and biodiversity loss.

#### Implications for financial planning

The potential impacts of climate-related risks and opportunities and mitigating actions are included in our financial planning processes.

The potential for climate change having a material financial impact is captured through our enterprise risk management framework and Corporate Plan and Capital Plan processes.

As we decarbonise our assets to deliver the science-based target, climate-related issues serve as an input into our financial planning processes, including budgeting, capital investment and insurance decisions.

This includes, for example, the replacement of capital equipment such as boilers and combined heat and power (CHP) plants with more efficient and lower emission alternatives.

These projects are considered over the time periods referred to on page 53 and are prioritised by a range of factors, such as asset retirement, technology availability and investment cost.

We consider ourselves adequately positioned to respond to the identified climate-related risks and opportunities, including the results obtained from our climate scenario analysis.

## Risk management

### Describe the organisation's processes for identifying and assessing climate-related risks

We undertake regular materiality analysis to ensure our sustainability priorities remain aligned to those of our stakeholders. In developing our Now & Next Sustainability Strategy, we consulted our stakeholders on a range of issues, including climate change, asking them about their perception of each issue as a risk or opportunity to our business.

In 2022/23, we refreshed this assessment through a 'double materiality' lens, considering financial materiality (e.g. the impact of climate change on the Group) and sustainability materiality (e.g. the impact of the Group on climate change). The results of this assessment reinforced climate action, energy use and efficiency, product design for optimal resource use, recyclability and transitioning to a circular economy as of critical importance for business and for the planet and society (see page 25 for more information about our materiality process). All of these topics, categorised as of 'critical importance', are covered within our climate-related risks and opportunities.

These results, alongside a range of other credible sources such as industry research, CDP and the TCFD implementation guidance, are used to grade risks using the likelihood of the risk occurring and an estimate of the severity of resulting financial or strategic impacts over various time horizons. Based on this risk grading, the highest graded risks are evaluated in greater depth, considering our operations, supply chain, stakeholder expectations and regulation. Transition risks are assessed by the Group Risk and Insurance, Group Sustainability, Government and Community Affairs, and Group ESG Reporting teams, working across functions to develop responses to the financial and strategic implications. Physical risks are assessed by each division, supported by the Group Risk and Insurance team, drawing on expertise from specialist organisations.

Climate change could affect the availability of raw materials and production processes, while natural disasters can disrupt supply chains and damage infrastructure. It could also enhance the focus and opportunities presented to DS Smith from investment into alternatives, innovation and focus on regulation. In considering the prioritisation of climate-related risks and the relative significance of climate-related risks in relation to other risks, we assess climate change factors within the wider context of our Group principal risks (see pages 45 to 48), given that climate change may amplify or dampen some of the Group's principal risks.

This integrated approach reduces the chance of inadvertently neglecting or creating a trade off between climate change and other risks, ensuring that climate-related risks and opportunities are embedded in the Group's enterprise risk management and corporate planning.

### Describe the organisation's processes for managing climate-related risks

Our process for managing climate-related risks involves deciding whether to avoid, transfer, mitigate or accept a given risk. This is influenced by a range of factors, such as the type of risk, site location, investment needed and forecasts of volume demand.

Our risk management processes require that our principal business risks, including climate risks, are graded on a scale from negligible to critical using specific impact criteria such as a financial value range. By way of example, a financial impact between 2.5 per cent and 10 per cent of operating income or net profit is graded as a moderate strategic or financial risk.

Specialist functions (e.g. energy procurement), steering committees (e.g. the recyclability forum) and project teams (e.g. those developing decarbonisation roadmaps) work across the divisions and functions to implement mitigation measures and to deliver our Now & Next targets that address climate-related risks and opportunities. These groups draw on internal and external resource, utilising specialist analysis, tools and expertise.

For example, we have applied forecasts relating to the carbon price, electrical demand, decarbonisation policy, renewable deployment and availability of technologies in our project work to inform decarbonisation roadmaps for our packaging plants to manage climate-related risk.

### Describe how processes for identifying, assessing and managing climate-related risks are integrated into the organisation's overall risk management

Climate-related risks are evaluated using the Group's common risk language and are integrated into our principal risk assessments where such risks could significantly affect the business during our Corporate Plan time horizon.

All divisions and Group functions produce formal principal risk assessment reports twice per year and undertake frequent risk reviews, considering the grading, trends and controls. The most critical climate risks and opportunities are selected for climate scenario analysis, prioritising those for which high-quality data is available.

Key mitigating actions in response to climate-related risks, such as the science-based target, are agreed and developed by specialist functions, with input from the Sustainability Leadership Team and approval of the HSES Committee. These are prioritised based on factors such as materiality, regulatory requirements and commercial opportunity. For example, actions relating to climate change and the circular economy are prioritised given that our stakeholders considered these issues of 'critical importance' in the most recent materiality assessment.

Prioritised actions are implemented by the relevant sustainability network, project teams and sites, with accountability for delivery with Divisional and Functional leadership. Management performance, including challenges and opportunities relating to mitigating actions are reviewed alongside the wider review of sustainability performance and where a material risk exists, this is captured in our regular risk reviews (see page 43).

TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES (TCFD) CONTINUED

**Metrics and targets**

**Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process**

**Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets**

Metrics and targets can be located in the table below. Progress against our Now & Next Sustainability Strategy targets is disclosed on page 26. Selected information marked with an asterisk (\*) has been independently assured by Deloitte - see the Independent Assurance Statement on page 63. Additional non-financial metrics can be obtained from our online ESG Reporting Hub.

**Industry-specific metrics and targets used to assess and manage climate-related risks and opportunities**

Climate-related risk or opportunity	Metric	Unit of measure	2022/23	2021/22	2020/21	Trend
<b>Increased spend on carbon taxes</b>	Gross global Scope 1 emissions	tonnes CO <sub>2</sub> e	<b>1,542,250*</b>	2,023,278*	2,047,265	↓
	Percentage covered under emissions limiting-regulations	Per cent	<b>73*</b>	79	80	↓
Now & Next target: By 2030, reduce Scope 1, 2 and 3 GHG emissions by 46 per cent compared to 2019						
<b>Increased cost of raw materials or threat to supply</b>	Percentage of fibre use optimised for individual supply chains	Per cent	<b>64</b>	26	23	↑
Now & Next target: By 2025, optimise fibre for individual supply chains in 100% of new packaging solutions						
<b>Increased severity of extreme weather events</b>	Internal and highly localised insurance metrics (financial and non-financial), such as loss expectancy and proprietary risk scores, which can be compared within the Company and across the industry					
<b>Increased likelihood of water stress</b>	Total water withdrawals	m <sup>3</sup>	<b>53,802,571*</b>	54,644,995*	55,237,583	↓
	Percentage of water withdrawn from areas at risk of water stress	Per cent	<b>38</b>	31	36	↑
	Percentage of sites with a water stress mitigation plan in place	Per cent	<b>100</b>	100	100	-
Now & Next target: Maintain water stress mitigation plans at 100 per cent of our sites in current or future water stressed areas						
New Now & Next target: By 2025, 100 per cent of our paper mills and packaging sites to have water management plans						
<b>Growth in demand for sustainable packaging</b>	Number of pieces of problem plastics replaced	Million units	<b>762 million (cumulative to the end of 2022/23)</b>	-	-	↑
Now & Next target: By 2025, help our customers take 1 billion pieces of problem plastics off supermarket shelves						
<b>Greater resource efficiency</b>	Total energy consumption	MWh	<b>14,407,601*</b>	15,324,120*	15,446,255	↓
	Water withdrawal per tonne of production at mills in areas at risk of water stress	m <sup>3</sup> /t nsp (tonne net saleable production)	<b>8.9*</b>	8.1	8.1	↑
Now & Next target: Maintain ISO 50001:2018 certification at 100 per cent of in-scope sites, covering 90 per cent of total energy consumption						
Now & Next target: By 2030, 10 per cent reduction in water withdrawal intensity at mills at risk of water stress compared to 2019						
<b>Use of lower-emission energy sources</b>	Percentage of overall energy consumption from renewable sources	Per cent	<b>26</b>	21	17	↑
	Percentage of electricity consumed that was generated from renewable sources	Per cent	<b>15</b>	13	12	↑
Now & Next target: Reach Net Zero GHG emissions by 2050						

### Carbon pricing

We use internal carbon pricing as a tool to assess and manage carbon-related risks and opportunities. We apply an internal carbon price on an ad-hoc, project-by-project basis to arrive at the best cost solution, balancing financial and non-financial outcomes. For example, in our strategic assessment to achieve Net Zero, we modelled growth and investment phasing over 30 years to tackle our greatest emission sources. The analysis included a range of historic and forecast carbon prices, as well as carbon offset costs.

### Climate-related remuneration

The importance of ESG and sustainability, including climate change, continues to be emphasised by the use of a variety of

ESG considerations as an underpin to the annual bonus.

In 2022/23, the three elements of the ESG underpin were met, including the programme of work for our sites to achieve the science-based target.

When considering the application of discretion to override the formulaic outcome for the 2023/24 annual bonus, the Remuneration Committee will take into account, alongside other ESG factors, the roll out of the updated Now & Next Sustainability Strategy, which includes our approach to the delivery of science-based targets, taking into account updated actual performance and current customer/regulatory requirements.

[For more information, see page 108.](#)

### Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks

#### Group GHG emissions (Streamlined Energy and Carbon Reporting (SECR))

Metric	Unit of measure	2022/23	2021/22	2019/20 (base year)	Compared to last year	Compared to base year
Direct (Scope 1) GHG emissions	tonnes CO <sub>2</sub> e	<b>1,542,250*</b>	2,023,278*	2,181,890	-24%	-29%
Indirect (Scope 2 market) GHG emissions	tonnes CO <sub>2</sub> e	<b>833,759*</b>	759,257*	792,275	10%	5%
Indirect (Scope 3) GHG emissions	tonnes CO <sub>2</sub> e	<b>5,015,409</b>	5,468,167	5,671,528	-8%	-12%
Total GHG emissions <sup>1</sup>	tonnes CO <sub>2</sub> e	<b>7,391,418</b>	8,250,702	8,645,693	-10%	-15%
Gross Scope 1 and 2 (market) GHG emissions	tonnes CO <sub>2</sub> e	<b>2,376,009*</b>	2,782,535*	2,974,165	-15%	-20%
GHG emissions from energy export	tonnes CO <sub>2</sub> e	<b>529,699*</b>	647,258*	791,810	-18%	-33%
Net Scope 1 and 2 (market) GHG emissions <sup>2</sup>	tonnes CO <sub>2</sub> e	<b>1,846,310*</b>	2,135,278*	2,182,355	-14%	-15%
Energy consumption	MWh	<b>14,407,601*</b>	15,324,120*	15,707,667	-6%	-8%
Energy exported	MWh	<b>1,739,186*</b>	1,774,539*	1,977,616	-2%	-12%
Total production	tonnes	<b>10,164,657*</b>	11,014,256*	10,222,065	-8%	-1%
GHG emissions (net) per tonne of production	kg CO <sub>2</sub> e/t nsp <sup>3</sup>	<b>182*</b>	194*	213	-6%	-15%
Outside of scopes GHG emissions	tonnes CO <sub>2</sub> e	<b>1,018,232*</b>	804,880	552,789	27%	84%

1. This is the metric used for our science-based target, calculated using the market-based approach.

2. Calculated as ('Scope 1' + 'Scope 2 (market-based)') - 'GHG emissions from energy export' to subtract the avoided emissions as a result of energy sales.

3. Industry-specific intensity metric. 't nsp' stands for 'metric tonnes net saleable production'. This is 'Net Scope 1 and 2 (market) GHG emissions' / 'Total production'.

4 per cent of Scope 1 emissions and 33 per cent of Scope 2 (market-based) generated by UK-based operations in 2022/23.

12 per cent of energy consumption consumed by UK-based operations in 2022/23.

Outside of scopes GHG emissions has been restated to include the CO<sub>2</sub> emissions from renewable fuels considered 'Net Zero' under the greenhouse gas protocol.

### Methodology

GHG emissions are reported in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard (Revised), consolidated under a financial control boundary. Department for Business, Energy & Industrial Strategy (BEIS) (2021) emission factors are applied, unless emission factors from other sources are more appropriate. For more information, see our online Basis of Preparation, available from our ESG Reporting Hub. Independent assurance has been obtained for the metrics marked '\*', see the statement below.

#### Independent Assurance Statement

Deloitte have provided independent third-party limited assurance in accordance with the International Standard for Assurance Engagements 3000 (ISAE 3000) and Assurance Engagements on Greenhouse Gas Statements (ISAE 3410) issued by the International Auditing and Assurance Standards Board (IAASB) over the selected information, identified with \* in the above table, and other selected information relating to carbon, energy, water, waste, production and employee diversity identified with \* within DS Smith Annual Report 2023, DS Smith Sustainability Report 2023 and DS Smith ESG Databook 2023.

Deloitte's full unqualified assurance opinions, which include details of the selected information assured in 2022/23 and 2021/22, can be found on our ESG Reporting Hub, at <https://www.dssmith.com/sustainability/reporting-hub>.

Independent third-party limited assurance of selected information for the 2019/20 base year was provided by Bureau Veritas. See the full assurance statement on our ESG Reporting Hub, at <https://www.dssmith.com/sustainability/reporting-hub>.