Associated British Foods plc

Carbon and climate

As a Group, we have an ambition to achieve net zero by 2050 or sooner. Beyond that broad ambition, we do not set groupwide climate-related plans or commitments. In line with our devolved business model, our businesses set plans and commitments appropriate to their operations and supply chains regarding Scope 1 and Scope 2 greenhouse gas (GHG) emissions, and several of our businesses have set their own GHG emissions reduction commitments.

A British Sugar engineer inspecting an evaporator at our factory in Wissington, UK

ABF Sugar and Primark each have specific public targets for reducing their GHG emissions. Their reduction targets have been validated by the Science Based Targets initiative (SBTi), ensuring they align with the latest climate science. This year Primark and ABF Sugar have also published transition plans detailing their strategies for achieving these goals.

AB World Foods has also submitted a target to the SBTi for validation, and Twinings has committed to setting near and long-term emissions reduction targets in consultation with the SBTi in the coming financial year.

Grocery Group UK businesses are signatories to the Courtauld Commitment 2030, which outlines an ambitious set of industry-wide targets aligned to a 1.5°C pathway and a commitment to achieve net zero emissions by 2050. Grocery Group UK businesses have committed to reduce emissions by 50% across Scope 1, 2 and 3 by 2030 against a 2015 baseline, in line with the Courtauld Commitment 2030.

Achieving net zero across the Group will depend on a number of factors that are beyond our control, however, we will do our upmost to deliver on this objective in our operations.

Our businesses are addressing the challenge of climate change in four ways:

1. improving their understanding and responses to climate-related risks and opportunities;
2. reducing their own GHG emissions (Scope 1 and 2);
3. supporting their suppliers and partners to reduce their GHG emissions (Scope 3); and
4. providing products that help others reduce their GHG emissions.

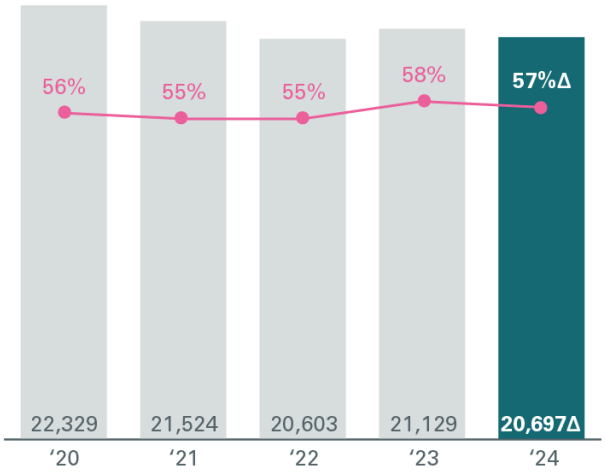
We regularly review our methodologies for monitoring our carbon footprint, including calculations and estimations where relevant. To ensure we align with latest protocols, we use the best data available and continually work to improve the accuracy of our reporting.

Energy and renewables

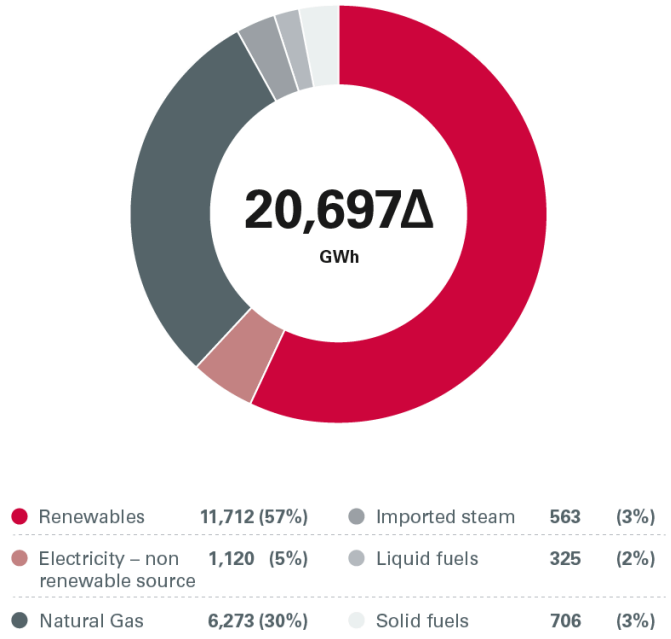
We remain focused on energy efficiency and transitioning to renewable energy where viable. In 2023/24, our businesses consumed 20,697 gigawatt hours (GWh) of energy in our operations, which is a 2% decrease compared with the previous year. Of this total energy, 57% was derived from renewable sources, predominantly biomass fuels from by-products generated as part of the production process within our agricultural businesses. During the same period 31% of the electricity we bought came from renewable sources, with the majority coming from the UK and European energy markets.

Several of our businesses also export surplus renewable energy back into national grids. During 2023/24 887 GWh of renewable energy generated by our sites was exported, with ABF Sugar contributing 96%. Of the renewable energy we generate, 87% comes from bagasse, the plant-based fibre that remains after the extraction of juice from the crushed stalks of sugar cane. Some renewable energy is also derived from the anaerobic digestion of a range of waste materials.

Total energy consumed and percentage from a renewable source
(GWh)



Energy use by source
(%)



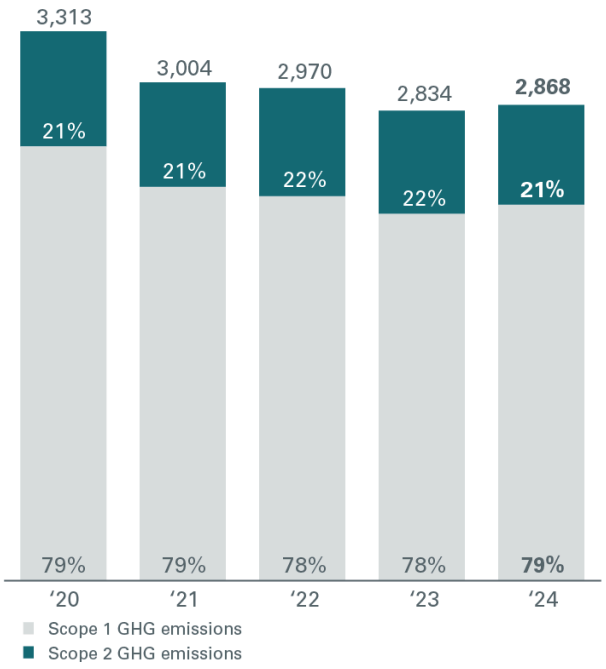
Scope 1 and 2 GHG emissions

Our Scope 1 and 2 (location-based) GHG emissions increased by 1% this year from 2,834 kt of CO_2e to 2,868 kt of CO_2e. Unless otherwise stated, all Scope 2 GHG emissions are location-based figures.

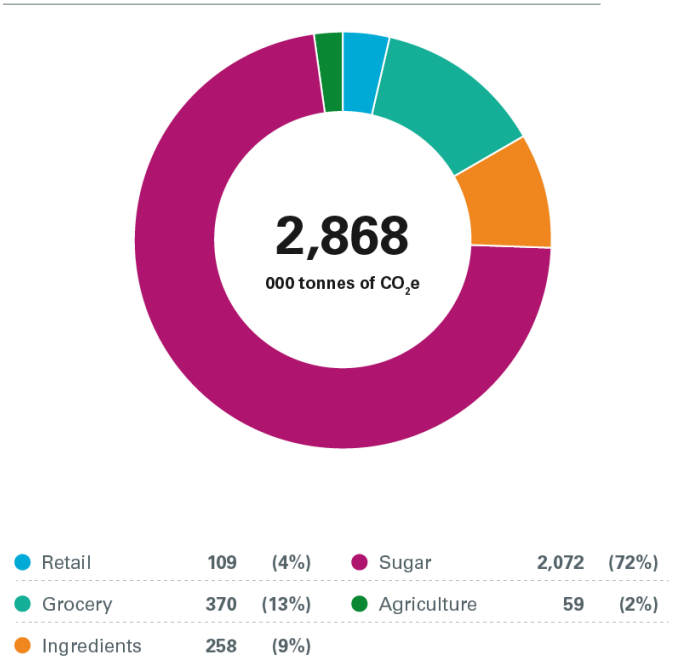
Our Sugar segment is the most significant contributor of Scope 1 and 2 emissions within the Group at 72%. As a result this has been a priority for the Group over many years. ABF Sugar's Scope 1 and 2 emissions had an increase of 5% this year. The drivers for the increase are as a result of Vivergo (our bio-ethanol plant) returning to near full operating capacity, British Sugar contending with the operational challenges due to difficult wet weather conditions and Azucarera processing more sugar beet. Despite the short-term increase, ABF Sugar has reduced its Scope 1 and 2 emissions by 18% against its 2018 baseline by continuously improving how efficiently it produces sugar, investing in new technology, innovating to use less energy and reducing its use of fossil fuels. British Sugar, the largest contributor to Group's Scope 1 GHG emissions at 36%, has made significant investment across its sites to reduce GHG emissions. From the 2017/18 baseline through to 2023/24, British Sugar invested approximately £96 million in various initiatives, resulting in a cumulative reduction of around 162 kt of CO_2e. Key initiatives include the energy reduction scheme at the Wissington site, which targets a 25% reduction in steam usage, and ongoing improvements in pulp pressing processes across multiple sites. Additionally, British Sugar is improving factory performance and efficiency by upgrading heaters, evaporators, and dryers to save energy and reduce coal and gas consumption. These efforts have contributed substantially to lowering Scope 1 emissions.

Our Retail, Grocery, Ingredients and Agriculture segments have reduced their Scope 1 and 2 emissions compared with last year which has been driven by decreases in imported electricity, changes to the fuels used as well as investment in on-site renewable generation and purchased power and in more efficient equipment which reduces overall energy use.

Scope 1 and 2 (location-based) GHG emissions
(000 tonnes of CO_2e)



Scope 1 and 2 (location-based) GHG emissions by segment
(000 tonnes of CO_2e and % of Group total)



Scope 3 GHG emissions

Understanding our total Group GHG emissions will be an important step towards achieving our ambition to meet net zero by 2050. At a Group level, we are supporting the divisions in the process of calculating their material Scope 3 GHG emissions, which will help us identify where to focus our priorities. Most of our divisions have either published or are in the process of calculating their Scope 3 GHG emissions from across their value chains.

Primark first completed this process in 2021 and this year reported 6,211 kt of CO_2e for their Scope 3 emissions, which is a 12% decrease compared with 2023. This represents a 0.6% decrease against its 2018/19 baseline, despite the significant increase in volumes. This reduction was achieved through investments in its Environmental Sustainability team and in supplier factory efficiency programmes aimed at supporting GHG emission reductions through targeted training, upskilling, and energy-saving projects.

See our data page for more details on our Scope 3 emissions.

Products that help others reduce their GHG emissions

We provide products and services that have the potential to assist others in reducing their carbon emissions, often referred to as carbon enablement. This has always been integral to our businesses, and a key focus for investment and innovation. ABF businesses, including ABF Sugar, AB Enzymes and AB Agri help to facilitate the potential reduction of other businesses' emissions.

Δ EY has provided limited independent assurance over the 2024 metrics. See our data page for the assurance statement.

Carbon and climate - Retail

Reducing its carbon footprint is imperative to Primark meeting its environmental commitments and ensuring it does its part to mitigate the impacts of climate change.

Solar panels on the roof of a Primark supplier factory, Bangladesh

Greenhouse gas (GHG) emissions, energy and renewables

The Science Based Target Initiative (SBTi) has approved Primark's near-term target to reduce absolute Scope 1 and 2 greenhouse gas (GHG) emissions and absolute Scope 3 GHG emissions from purchased goods and services respectively by 50% by 2030 from a 2018/19 baseline. These targets also align with the commitments Primark made through reputable third parties, most notably UNFCCC Fashion Industry Charter for Climate Action (FICCA) and WRAP's Textiles 2030 initiative.

Additionally, Primark aims to achieve 100% renewable electricity for Scope 2 emissions by 2030, in line with the FICCA. Its strategy and roadmap to meet this ambition is disclosed in its Climate Transition Plan.

Primark has achieved a year-on-year decrease in market-based emissions across Scopes 1, 2 and 3 compared to the previous year of 12%, this is a 1.9% decrease against its baseline.

Primark recognises the broader climate-related risks associated with climate change, including physical and transition impacts. In line with the Task Force on Climate-Related Financial Disclosures (TCFD), Primark has collaborated with the ABF Group finance team and CR Hub to undertake a comprehensive assessment of the material Group risks, with the findings detailed in the ABF Annual Report. The business is now broadening its climate risk assessment and actively integrating climate-related responsibilities more deeply into its governance and risk management framework.

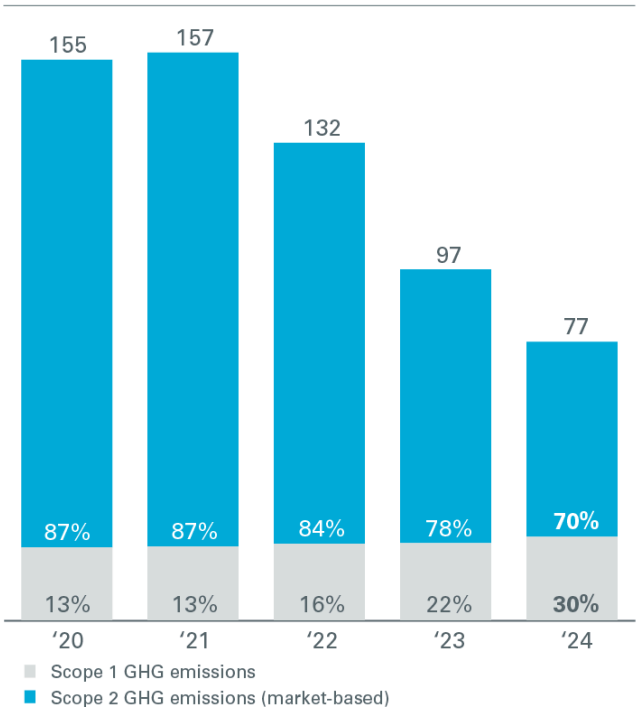
Scope 1 and 2 GHG emissions, energy and renewables

Primark is committed to reducing its Scope 1 and 2 GHG emissions through rigorous management of its operations. The business's Energy Policy, developed in 2018 and updated in 2022, outlines its approach. Primark's Scope 1 and 2 (market-based) emissions reduced by 21% in 2023/24 compared to 2022/23 and were 52% lower than the 2018/19 baseline. This reduction was achieved through energy efficiency measures in its stores and the procurement of renewable and low-carbon electricity. Considering its planned geographical expansion, Primark expects this reduction to fluctuate in the short-term.

This 52% reduction meets the threshold of Primark's SBTi validated Scope 1 and 2 emissions reduction target ahead of its 2030 deadline. However, Primark knows that with its growth, and renewable power procurement challenges in some markets, the business may drop below the 50% threshold in the short term. Primark is committed to evolving its programmes and strategies to align with its commitments in this space.

The business has established a network of Energy Champions across its operations, who drive energy efficiency in stores, offices, and distribution centres. Over 99% of Primark sites have achieved certification to ISO 50001, the internationally recognised energy management standard. Primark has upgraded to highly efficient LED lighting in 133 stores across 10 markets and the roll-out will continue to additional stores in 2025.

Scope 1 and 2 GHG emissions
(000 tonnes of CO_2e)



Scope 3 GHG emissions

Primark is dedicated to minimising the environmental impact of its products throughout the supply chain. Although it does not own manufacturing facilities, Primark works closely with suppliers to align their practices with its environmental goals.

Primark's total Scope 3 GHG emissions, which represent the biggest portion of its footprint, reduced by 12% in 2023/24 compared to 2022/23 and were 0.6% lower than the 2018/19 baseline. Primark is investing in its Environmental Sustainability Team and in supplier factory efficiency programmes aimed at supporting GHG emission reductions through targeted training, upskilling and energy-saving projects.

Starting this year, Primark now has a requirement for its top 100 suppliers, which includes approximately 79% of its procurement spend for goods for resale for 2023/24, to set science-based GHG emission reduction targets in line with the SBTi and the Greenhouse Gas Protocol. By recognising and rewarding supplier efforts, Primark aims to accelerate progress across those suppliers it works with.

Primark actively sources renewable and low-carbon energy in line with the GHG Protocol Standard and RE100. Despite progress, challenges remain, particularly for stores in shopping centres with limited energy procurement control. By the end of 2024, renewable and low carbon energy power contracts were in place in eight countries, covering approximately 64% of Primark's electricity demand.

Primark is also investing in supplier factory efficiency through targeted training, upskilling and energy-saving projects. This combined approach aims to reduce GHG emissions from both manufacturing and finishing processes.

Primark has recently conducted in-depth energy efficiency assessments of factories in Bangladesh, China and India. Partnering with external consultants, the business has conducted comprehensive audits of energy and water systems across suppliers' factories. These assessments have identified significant opportunities to reduce resource consumption and carbon emissions. By providing thorough reports and hosting workshops, Primark has been helping factories implement effective, business-driven solutions.
In 2023/24, Primark onboarded and assessed an additional 51 factories. Initial assessments in 29 of the factories onboarded in 2023 indicate that potential water and energy efficiency improvements could be made, with an average projected GHG emissions saving of 32% and a total potential water saving of two million m^3 per year for those factories assessed in Bangladesh. The next step involves working with these factories to realise the identified savings. The insights gained from these projects will be scaled up to engage and demonstrate the business case for more factories in efficiency initiatives in the future.

Alongside the work on factory efficiency, Primark is also working to assist suppliers switching to renewable energy. Building on its collaboration with an energy consultant to develop a renewable energy roadmap to 2030, Primark has launched its first initiatives in India this year. The initial project involves factories located in Tamil Nadu collectively purchasing on-site solar panels, offering projected savings of approximately 25% per kWh compared to average grid tariffs. Primark is also exploring collective purchasing of offsite renewable electricity to enable factories to meet their additional energy demands.

Primark is also working on reducing its upstream transportation GHG emissions. While the business primarily transports its products by sea rather than air, upstream transportation still accounts for nearly 2% of its total GHG emissions. Since 2018, Primark has partnered with Maersk to ship its products from factories to depots. Maersk has introduced the ECO Delivery Ocean product, which uses fossil fuel alternatives such as biofuels, and Primark has recently begun to invest in these fuels through Maersk.

Case study - Primark

Primark Transition Plan

Solar panels on the roof of a Primark supplier factory, Bangladesh

Governance

A comprehensive governance system is established at Primark to oversee sustainability and ethics matters, including the delivery of the commitments related to its Primark Cares strategy, which coincides with Primark's transition plan in the medium term. There has been no change in this position from last year. The Primark Chief Executive and Executive Committee remain responsible and accountable for all decision-making and implementation, and ultimately approve the transition plan. Please refer to Primark's most recent reporting for a more detailed understanding of its sustainability and ethics governance structure.

Risk management

In 2021/22 the ABF Group performed an initial assessment of the impact of climate-related risks and opportunities on Primark for which material risks and opportunities underwent scenario analysis. Any identified climate-related risks connected to the implementation of Primark's transition plan are managed through the governance structure described above. Primark recognises the need to evolve the initial scenario analysis by performing a deeper and more focused assessment of climate-related risks and opportunities across its value chain, ensuring that these get embedded into long-term transition, strategic and financial planning.

Strategy, metrics and targets

In 2021, Primark launched its Primark Cares strategy building on the work of its Ethical Trade and Environmental Sustainability ('ETES') programme. Under Primark Cares, the business has set out a number of public commitments up to 2030 with a focus on three areas, Product, Planet and People, which are expected to accelerate its transition to a lower-carbon economy. As such, in the medium term the Primark Cares strategy coincides with Primark's transition plan.

The strategy includes an overarching objective to halve carbon emissions across Primark's value chain by 2030, from a base year of 2018/19, which is aligned with Primark's commitments under the UNFCCC Fashion Charter for Climate Action (FICCA) and, therefore, the 1.5°C Paris Agreement. Under the FICCA, Primark has also pledged to achieve net zero emissions no later than 2050. The organisation is working to define its plan

to reach this long-term goal, taking into consideration uncertainties beyond 2030 in technology development and innovation, as well as the political and regulatory global landscape.

At present, Primark has not included carbon offsets in its transition planning.

Projects supporting carbon reduction to date

Primark Cares Commitment	Protecting Life on the Planet – Primark will halve carbon emissions across its value chain by 2030
Project	Energy efficiency and renewable energy procurement in the supply chain
Timeline	2018 – present
Description	Primark has been working on a decarbonisation programme with key suppliers, which focuses on improving energy efficiency, reducing the energy intensity of manufacturing goods and moving away from a carbon-intensive fuel mix within manufacturing under tier 1, tier 2, and tier 3 of our supply chain. At the same time, Primark has been working to pool some of the factories in its value chain and assisting them in negotiating contracts so they can use their combined purchasing power to access renewable energy.
Target	Reduce absolute Scope 3 GHG emissions from 'purchased goods and services category' by 50% by 2030 from a 2018/19 base year.
Metric	Annual Scope 3 GHG emissions from purchased goods and services (tCO2e)
Methodology	Primark's Scope 3 calculation methodology has been third-party reviewed by the Carbon Trust. It is not currently public.
Underlying uncertainties, challenges and assumptions	Challenge – maturity of renewable energy procurement in specific sourcing regions Challenge – supply chain monitoring and reporting for lower tiers
Progress to date	Energy efficiency: Primark keeps scaling up its resource efficiency programme, having now engaged a cumulative total of 108 factories in all key sourcing regions (Bangladesh, India, China, Cambodia) since activities started. Renewable energy procurement: Primark kicked-off activities to support factories with collective renewable power procurement in India, according to the roadmap developed in 2022/23. In particular, a solar power profile was created for all first 39 contributing factories and a collective Request for Proposal ('RFP') will be released to local renewable power developers.

Primark Cares Commitment	Protecting Life on the Planet – Primark will eliminate single use plastics and all non-clothing waste by 2027
Project	Eliminate non-clothing waste – Packaging Centre of Excellence
Timeline	Early 2019 – present
Description	A dedicated team, within Primark's Packaging Centre of Excellence, manages the delivery of packaging transformation projects. An example of a project is Primark's durable new plastic clothes hanger design made from a minimum of 90% recycled polypropylene which has been designed for reuse/ to be retained. This design is being phased in for main apparel ranges, with completion due in 2027. Alongside reusing hangers retained in stores, Primark also collects unusable hangers to be recycled and made into new hangers. The move to recycled materials for all hangers is expected to achieve a reduction in Primark's carbon footprint attributable to hangers by 40%.
Target	Eliminate single-use plastics by 2027
Metric	% reduction in tonnage of single-use plastic (SUP) packaging against 2022 baseline year % of SUP to overall packaging in tonnes
Methodology	The methodology is publicly available at the Basis of Reporting page of the Primark website
Underlying uncertainties, challenges and assumptions	Challenge and uncertainty - there are practical limitations, technical constraints and an absence of suitable alternatives that may impact Primark's goal of complete elimination of SUP by 2027
Progress to date	Performance against Primark's baseline will be reported from 2024/25 onwards Primark's SUP baseline of 21,797 tonnes represents 19.4% of our total packaging footprint for the baseline year

Primark Cares Commitment	Giving Clothes a Longer Life – All Primark clothes will be made from recycled or more sustainably sourced materials by 2030
Project	Clothes made from recycled or more sustainably sourced materials.
Timeline	Early 2021 – present
Description	Primark has committed to have all Primark clothes made from recycled or more sustainably sourced materials by 2030. The business works with certification bodies, to certify and validate claims it make on individual materials relevant to these standards. Primark also works hard to ensure that all Primark Cares products containing recycled fibres meet Primark's quality testing requirements.
Target	All Primark clothes will be made from recycled or more sustainably sourced materials by 2030
Metric	Percentage of Primark's clothing units sold containing recycled or more sustainably sourced materials Percentage of Primark's clothing units sold containing cotton that is organic, recycled or sourced from the Primark Cotton Project
Methodology	The methodology is publicly available at the Basis of Reporting page of the Primark website
Underlying uncertainties, challenges and assumptions	Challenge – restriction on the handling and trade of recycled materials due to regulatory changes Challenge – some sourcing markets may not have access to all recycled or more sustainable material types Challenge – for some less commonly used fabrics such as elastane, there are currently no sustainable alternatives available
Progress to date	66% of Primark clothing units sold in 2023/24 contained recycled or more sustainably sourced materials, up from 55% the previous year and 25% in 2021. 57% of Primark cotton clothing units sold in 2023/ 24 contained organic cotton, recycled cotton, or cotton sourced from Primark Cotton Project, up from 46% last year. As our Primark Cares initiatives continue to grow in number, Primark is actively working on training and embedding processes to facilitate the conversion to recycled and more sustainably sourced materials. Building on last year's training of 286 suppliers, Primark is continuing its efforts to further educate suppliers on the criteria required for products to meet its Cares standards. The business has already hosted six training sessions in February and March 2024, with plans for additional sessions in July 2024. The aim is to provide clarity to suppliers regarding Primark Cares requirements, including minimums, certification, and chain of custody.

Primark Cares Commitment	Protecting Life on the Planet – Primark will halve carbon emissions across its value chain by 2030
Project	Energy efficiency and renewable energy procurement in own operations
Timeline	Early 2021 – present
Description	While significantly smaller than Scope 3, Scope 1 and 2 emissions are areas where the business has the most direct influence. Energy efficiency: Primark uses a system called the Energy Bureau, which allows the business to manage energy consumption remotely by monitoring and modifying environmental parameters, to maintain suitable store conditions in an energy-efficient manner. To further reduce energy consumption, Primark has also been switching to energy-efficient LED lightbulbs in stores globally. Renewable energy: Primark's ambition is to switch all stores to renewable energy, as well as exploring ways to reduce emissions from on-site heating.
Target	Reduce absolute Scope 1 and 2 GHG emissions by 50% by 2030 from a 2018/19 base year.
Metric	Annual Scope 1 and 2 (market-based) emissions (tCO2e)
Methodology	Annual Scope 1 and 2 emissions are calculated by ABF at Group level
Underlying uncertainties, challenges and assumptions	Challenge – Misalignment between lease lifetime of some retail properties and payback period for installing new high-efficient equipment Challenge and uncertainty – Maturity of renewable energy procurement in specific markets
Progress to date	By the end of 2023/24, renewable power contracts were in place in 8 countries, covering approximately 64% of Primark's electricity demand The number of Primark stores fitted with energy-efficient LED lightbulbs significantly increased, from 141 in July 2023 to 274 in July 2024. At the end of 2023, the Energy Bureau covered more than 179 locations across the UK.

Primark Cares Commitments	Giving Clothes a Longer Life – Primark clothes will be recyclable by design by 2027. Primark will strengthen the durability of its clothes by 2025.
Project	Giving Clothes a Longer Life
Timeline	Late 2021 – present
Description	Circular design: Since the launch of Primark's Circular Product Standard ('CPS') and its pilot clothing collection designed in line with CPS in April 2023, Primark has focused efforts on: continuing to expand and improve knowledge of circularity within the business via training; scaling up the use of circular design principles in key product categories; investing in additional expertise. The CPS is as an integral and foundational part of Primark's overarching public ambition to become a more sustainable and more circular business. Durability: Durability to Primark means the amount of wear or use that a customer can get from an item of clothing over a period of time. Clothing is durable if it remains functional and wearable without requiring too much maintenance or repair, when faced with the challenges of normal wash and wear over its lifetime. As part of the Textiles 2030 initiative, Primark is taking part in an durability project led by WRAP.
Target	Primark clothes will be recyclable by design by 2027 Primark will strengthen the durability of its clothes by 2025
Metric	% of all clothing units sales that are circular by design % of clothing which passed the aspirational level of the durability framework
Methodology	CPS developed in 2023 with support from third-party consultant Will be developed in the next financial year with support from third-party consultant
Underlying uncertainties, challenges and assumptions	Uncertainty – No industry-wide definition for 'circularity' Uncertainty – No recognised standard for durability across the fashion industry Challenge – Today, many items of clothing are inherently hard or impossible to recycle based on their design, componentry, and fabric composition. For example – elastane is widely used within the fashion industry to ensure that a garment has adequate stretch to function and fit, but it is virtually impossible to recycle today. Primark's approach to circular design is category specific, and will evolve as textile recycling innovation grows
Progress to date	Circular design Training: Primark estimates that 80% of product colleagues have completed the foundation course of the Circular Design training by July 2024. This is an increase from 74% last year. Primark's expert level training was trialled in October/ November 2023. This training will continue its roll-out. Product categories: following from the pilot collection in April, sales from circular clothing products have reached 3% of total clothing units sales (August 2023 – July 2024). For Spring / Summer 2024, Primark has seen major progress in menswear, kidswear and womenswear, with an increasing number of products meeting the CPS. Circularity team: The team has grown from one colleague to four in the past 12 months. Durability Primark has launched its Primark Durability Framework which is guided by the WRAP Clothing Longevity Protocol. Information on the framework is available here As of January 2024, extended wash testing has been implemented on all machine washable products across all product categories (excluding exempted categories of hand wash and dry clean only products) Primark's extended wash testing methodology has been standardised and aligned across all machine washable products

Emission reduction plan

Key priority areas for action were identified on the basis of the influence and materiality of emissions categories, assessed from the base year of 2018/19 (see the table below).

These are Primark's Scope 1 and 2 emissions, where the business has direct ownership, and the most significant Scope 3 categories in terms of absolute emissions (purchased goods and services; upstream transportation; use of sold products).

Primark's baseline emissions (2018/19) (% of total emissions across all scopes)	
Scope 1 and 2 (location-based)	2.5%
Scope 3	97.5%
Of which:	
Purchased goods and services	74.5%
Capital goods	1.9%
Fuel and energy-related activities	0.5%
Upstream transportation	7.9%
Waste generated in operations	0.1%
Business travel	0.2%
Use of sold products	11.8
End-of-life treatment of sold products	0.6%

Scope 1 and 2 emissions

Short term (present – 2025)

- Maintain ISO50001 certification for all stores, offices, and distribution centres.
- Develop appropriate regional pathways for heat decarbonisation in Primark properties.

Medium term (2026 – 2030)

- Reduce absolute Scope 1 and 2 GHG emissions by 50% by 2030, from a 2018/19 baseline year.

Scope 3 emissions

Short term (present – 2025)

- Launch an energy efficiency programme, engaging and supporting suppliers' manufacturing facilities on energy demand reduction.
- Launch a renewable energy programme, engaging and supporting suppliers' manufacturing facilities on sourcing low-carbon and renewable energy.

- Optimise inbound transport modes to balance emissions, cost and time.
- Strengthen the durability of Primark's clothes by 2025.

Medium term (2026 – 2030)

- Primark clothes to be recyclable by desing by 2027.
- All Primark clothes will be made from recycled or more sustainably sourced materials by 2030.
- More regenerative agricultural practices will be used in the Primark Cotton Project.
- Eliminate single-use plastics and all non-clothing waste by 2027.

Primark acknowledges the uncertainties and challenges connected to the implementation of its medium-term plan, which include: supply chain monitoring and reporting for lower tiers; evolving climate policy in operating markets and sourcing regions; technology innovation and costs; consumer sentiment and behaviour. Primark is planning to address these through targeted long-term actions such as policy advocacy, data systems enhancement, supplier engagement and consumer education. Please refer to Primark's latest reporting for detailed information.

Associated British Foods plc

Carbon and climate - Grocery

Our Grocery businesses are addressing the risks associated with climate change by focusing on reducing energy use and emissions while also preparing for regulatory changes.

GHG emissions, energy and renewables

Our Grocery businesses are focused on improving energy efficiency and increasing their use of renewable energy to reduce greenhouse gas emissions and cost.

This year, total energy consumption across our Grocery businesses totalled 1,235 GWh, a decrease of 2% compared with last year. This reduction is primarily due to ACH implementing fuel and transport efficiencies between its own operations and its local distribution centre, as well as some George Weston Foods sites reducing their use of natural gas. In addition, many of the businesses have implemented a range of initiatives resulting in more efficient use of fuels on site and increasing their use of renewable energy sources. These initiatives have contributed to a decrease of Grocery's Scope 1 and 2 location-based GHG emissions of 3%, from 380 $ktCO_2e$ in 2023 to 370 $ktCO_2e$ this year.

Grocery Group

Grocery Group UK businesses are signatories to the Courtauld Commitment 2030, which outlines an ambitious set of industry-wide targets aligned to a 1.5°C pathway and a commitment to achieve net zero emissions by 2050. Grocery Group UK businesses have committed to reduce emissions by 50% across Scope 1, 2, and 3 by 2030 against a 2015 baseline, in line with the Courtauld Commitment 2030.

The Grocery Group's total energy consumption for 2024 was 448 GWh, a decrease of 2% compared with 457 GWh in 2023. Of the total energy consumed, 12% came from renewable sources. This was a 23% increase in renewable energy compared with 2023.

Grocery Group's total Scope 1 and 2 location-based GHG emissions increased by 2%, from 110 $ktCO_2e$ in 2023, to 112 $ktCO_2e$ in 2024. This was primarily driven by one UK site reporting higher quantities of diesel consumption.

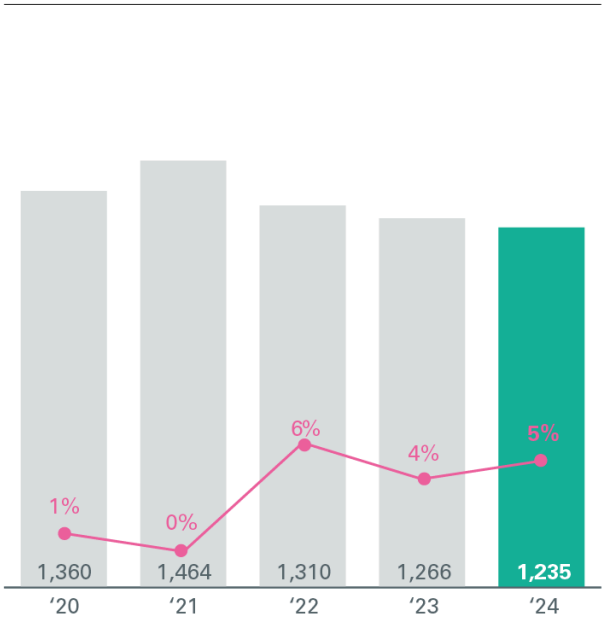
Grocery Group's UK businesses, who are signatories of the Courtauld Commitment 2030, achieved a decrease of 49% in their total Scope 1 and 2 location-based GHG emissions compared to the 2015 baseline.

These reductions against the 2015 baseline year are driven by operational structure changes, investment in renewable energy and ongoing capital investment in more efficient equipment.

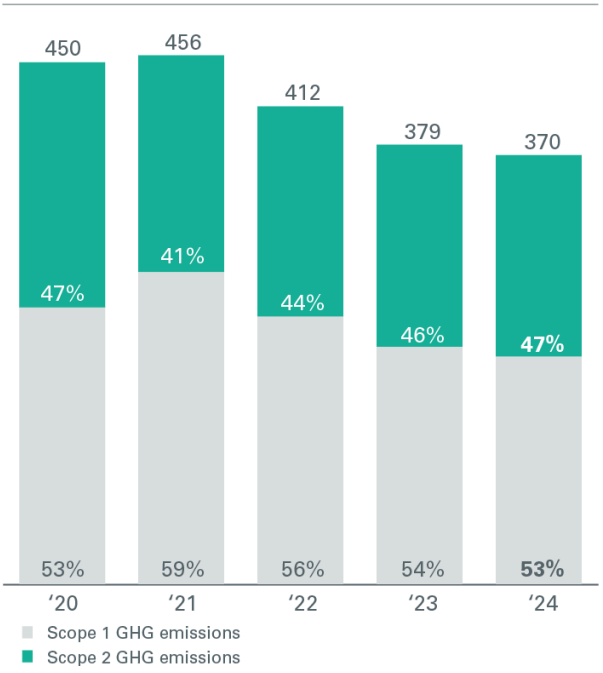
Grocery Group is working towards reporting verified Scope 3 emissions data by the end of 2025. Reducing Scope 3 emissions is challenging due to the fragmented nature of the businesses' supply chains and difficulties in obtaining accurate data. A dedicated project team is mapping supply chains, establishing baseline data for Scope 3 emissions, and working towards a methodology for annual calculations. This data will support the implementation of effective strategies to reduce the division's overall carbon footprint. Some businesses have already initiated discussions with key suppliers to find supply chain-wide interventions that can be delivered at scale and pace.

This year, AB World Foods joined the list of ABF businesses engaging with the Science Based Targets Initative. It has submitted a target and is currently waiting for this target to be validated.

Total energy consumed and proportion from a renewable source
(GWh)



Scope 1 and 2 (location-based) GHG emissions
(000 tonnes of CO_2e)



Twinings Ovaltine

Twinings Ovaltine has committed to setting near and long-term GHG emission reductions targets in consultation with the SBTi. The business has established a Net Zero Steering Group that is working with external experts to measure and analyse its Scope 1, 2 and 3 emissions and develop specific targets and a reduction roadmap.

In 2024, Twinings Ovaltine's total energy consumption reached 147 GWh, reflecting a 1% reduction from 149 GWh in 2023. Of this total, 6% was sourced from renewables, representing a 70% increase compared with 2023.

Twinings Ovaltine achieved a 12% decrease in its Scope 1 and 2 emissions compared with 2023. This decrease is largely attributed to the installation of photovoltaic panels in Thailand, Poland, the UK, and Switzerland, as well as the implementation of an energy management system in China. Additionally, the introduction of a trigeneration system in Poland and a shift to more hydropower energy in Switzerland contributed to this positive outcome.

In particular, Twinings has implemented many energy efficiency projects across its two main manufacturing sites, Andover in the UK and Swarzedz in Poland, including installing LED lighting and solar panels. In the UK, Twinings has upgraded its chiller and dust extraction systems, added two voltage power optimisation units to drive energy savings and installed a new robotic palletiser system, which requires 75% less energy than the previous system.

In Swarzedz, Twinings has implemented a trigeneration system that converts natural gas to electricity, which is less carbon-intensive and provides a significant portion of the site's power needs. When fully operational it is estimated that the panels and trigeneration system can supply up to 30% of the energy required to power its Polish sites. For the remaining energy needed across its operations, the business is looking to transition to renewable energy providers, including wind and hydropower. Ovaltine has also installed solar panels at its sites in Thailand and Switzerland.

Twinings Ovaltine understands the importance of collaborating with its suppliers to reduce its Scope 3 emissions. Farming communities, particularly smallholders, are increasingly affected by climate change and related environmental challenges such as water scarcity and poor soil health.

Twinings is engaging with key suppliers to support their efforts in reducing carbon emissions and it plans to conduct bespoke Life Cycle Assessments, starting with its largest tea suppliers, which represent the majority of its total tea spend. These assessments will focus on site-level factors such as existing reduction plans, renewable energy usage, farm inputs, regenerative farming practices, and soil management. By understanding suppliers' carbon footprints, Twinings aims to provide targeted support and drive emissions reductions across the supply chain. Logistics account for a minimal portion of Twinings' Scope 3 emissions, as raw ingredients are shipped from sourcing countries to production sites rather than being air-freighted. However, Twinings is working on optimising product transportation to customers by minimising the use of empty trucks, using jumbo trailers to reduce the number of journeys, shifting from road freight to rail freight, and exploring alternative fuels.

George Weston Foods

George Weston Foods is dedicated to contributing to the transition to a low-carbon economy and managing its climate risks and impacts. It incorporates climate change as a focus area in its strategic planning and is developing goals and targets for energy efficiency and carbon emissions reduction, which will be finalised in 2025.

George Weston Foods is developing a climate adaptation and resilience strategy based on thorough measurement of its carbon emissions, including Scope 3 emissions, and is considering the adoption of a science-based target. The business is collaborating with external experts to understand its climate-related risks and the potential impacts on its sites.

In 2024, GWF's total energy consumption was 523 GWh, a 1% decrease compared with 527 GWh in 2023. Of total energy consumed in 2024, 2 GWh was sourced from renewable energy. Total Scope 1 and 2 location-based GHG emissions totalled 181 ktCO_2e in 2024, a reduction of 1% compared with 2023. Reductions can be attributed to site-level energy efficiency projects and equipment upgrades. Tip Top is currently in the

process of installing solar arrays at 10 of its bakeries across Australia. Upon completion, these arrays will generate approximately 17% of the business's total electricity requirements. The business has already installed solar panels at its Townsville, Bendigo, Dry Creek, Carrara, and Chullora bakeries. Tip Top's procurement team is also exploring the possibility of procuring its remaining energy from renewable sources, where feasible.

ACH

ACH's total energy consumption for 2024 was 117 GWh, which was a 13% decrease compared with 2023. Its Scope 1 and 2 location-based GHG emissions totalled 29,257 tCO_2e in 2024, a 13% decrease compared with 33,800 tCO_2e in 2023. The reduction in both energy consumption and GHG emissions is related primarily to ACH implementing fuel and transport efficiencies between its own operations and its local distribution centre.

Associated British Foods plc

Carbon and climate - Sugar

ABF Sugar aims to reach net zero greenhouse gas emissions across its entire value chain by 2050.

British Sugar engineers with the boilers for the animal feed dryers at our factory in Wissington, UK.

Climate change is affecting ABF Sugar, with changing weather patterns, extreme events, and the increasing lack of water security. To address these challenges, the division is seeking solutions to reduce its carbon footprint, understand its emissions across Scope 1, 2 and 3, and drive innovation in agriculture, transportation, and manufacturing sites.

ABF Sugar aims to reach net zero greenhouse gas emissions across its entire value chain by 2050. To reach this goal, it has set ambitious targets to reduce Scope 1, 2 and 3 and FLAG (Forest, Land and Agriculture) GHG emissions by 2030. These targets, including its net zero commitment, have been validated by the Science Based Targets initiative (SBTi).

Every ABF Sugar business has developed a plan to reduce carbon emissions as part of their five-year strategy. This plan is based on a thorough analysis and is tracked using the ABF Sugar decarbonisation

dashboard. The dashboard brings together all decarbonisation plans and aligns them with the science-based targets set by ABF Sugar, allowing teams to focus on important areas and monitor progress. Monitoring progress against these decarbonisation plans is crucial for improving performance and will influence decisions about where to allocate resources and capital investments in each business.

GHG emissions, energy and renewables

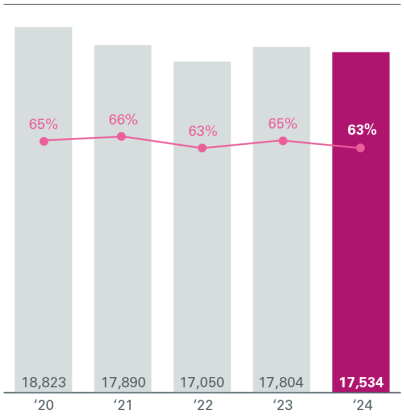
ABF Sugar is working on projects to support the transition to a low-carbon economy. These projects focus on energy efficiency, switching to renewables, and the implementation of process improvements.

Compared with 2023, ABF Sugar's energy consumption decreased by 2% in 2024 from 17,804 GWh to 17,534 GWh. The amount of renewable energy consumed decreased by 4% from 11,550 GWh in 2023 to 11,109 GWh in 2024. Renewable energy as a proportion of total energy decreased from 65% to 63%. The majority of this renewable energy comes from bagasse, the renewable plant-based fibre that remains after the juice is extracted from the crushed sugar cane stalks.

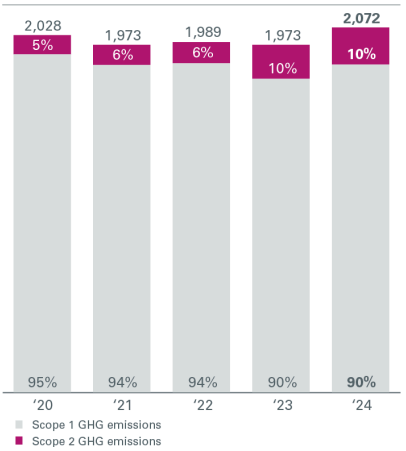
ABF Sugar remains focused on reducing Scope 1 and 2 emissions, which accounts for 31% of its overall GHG emissions footprint. This effort resulted in a reduction of approximately 493 ktCO2e, representing a 18% decrease compared with its 2018 baseline. British Sugar, the largest contributor to ABF Sugar's Scope 1 and 2 GHG emissions, has reduced its emissions by 21% from the baseline year.

Comparing 2024 with the prior year, ABF Sugar increased by 5% its Scope 1 and 2 GHG emissions from 1,973 ktCO2e in 2023 to 2,072 ktCO2e in 2024. The increase is as a result of Vivergo (our bio-ethanol plant) returning to near full operating capacity, British Sugar contending with the operational challenges due to difficult wet weather conditions and Azucarera processing more sugar beet.

Total energy consumed and proportion from a renewable source
(GWh)



Scope 1 and 2 (location-based) GHG emissions
(000 tonnes of CO_2e)



A crucial component of ABF Sugar's decarbonisation strategy is replacing fossil fuels with low-carbon alternatives, particularly in Europe and South Africa. In South Africa, the Sezela and Noodsberg factories have reduced coal use in boilers by optimising the use of bagasse, a byproduct of sugar cane processing.

Combined heat and power plants (CHP) are used across many of ABF Sugar's sites to provide the necessary steam and electricity throughout the sugar-making process. By efficiently generating its own heat and electrical energy, the business is reducing its carbon emissions and impact on the environment. The surplus electricity is fed back to the national grid in the UK, Spain and Eswatini.

ABF Sugar has a roadmap outlining projects that are delivering impact today and that will continue to deliver key savings up to and beyond 2030, in order to achieve its GHG reduction commitments. Initiatives that have already been implemented include mechanical cane harvesting, heat recovery, steam reduction and renewable energy Power Purchase Agreements (PPAs). Towards 2030, the focus will shift to carbon capture projects, efficient drying processes, fuel switches and implementation of new farming systems. Beyond 2030, ABF Sugar plans to explore hydrogen use and further develop biomethane production and anaerobic digestion technologies.

British Sugar, the largest contributor to ABF Sugar's Scope 1 emissions, achieved a 21% reduction in Scope 1 emissions compared with the baseline year of 1,024 ktCO2e, reducing total Scope 1 emissions to 807 ktCO2e for the year ending July 2024. Initiatives such as the energy reduction scheme at the Wissington site, which aims to cut steam usage by 25%, and ongoing investments in pulp pressing improvement processes across multiple sites, have contributed to a significant reduction in Scope 1 emissions.

Case study - ABF Sugar

ABF Sugar's SBTi-validated target

One of our Azucarera employees demonstrating the Visor crop monitoring platform to a sugar beet farmer on his farm, Spain

Overall net-zero target

ABF Sugar commits to reach net-zero greenhouse gas emissions (GHG) across the value chain by 2050.

Near-term targets

Energy and Industrial

- ABF Sugar commits to a 52% reduction in absolute Scope 1 and 2 GHG emissions by 2030 from a 2018 base year*.
- ABF Sugar also commits to a 30% reduction in absolute Scope 3 GHG emissions from purchased goods and services, capital goods, fuel and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting and downstream transportation and distribution within the same timeframe.

*The target boundary includes biogenic land-related emissions and removals from bioenergy feedstocks.

Forest, Land and Agriculture (FLAG)

- ABF Sugar commits to reduce absolute Scope 1, 2 and 3 FLAG GHG emissions 36.4% by 2030 from a 2018 base year*.
- ABF Sugar also commits to maintain no deforestation across its primary deforestation-linked commodities.

*The target includes FLAG emissions and removals.

Net-zero targets

Energy and Industrial

- ABF Sugar commits to reduce absolute Scope 1 and 2 GHG emissions by 90% by 2050 from a 2018 base year*.
- ABF Sugar also commits to reduce absolute Scope 3 GHG emissions by 90% from purchased goods and services, capital goods, fuel and energy-related activities, upstream transportation and distribution, waste generated in operations, business travel, employee commuting and downstream transportation and distribution within the same timeframe.

*The target boundary includes biogenic land-related emissions and removals from bioenergy feedstocks.

Forest, Land and Agriculture (FLAG)

- ABF Sugar commits to reduce absolute Scope 1 and 2 FLAG GHG emissions 90% by 2050 from a 2018 base year*.
- ABF Sugar also commits to reduce absolute Scope 3 FLAG GHG emissions 72% by 2050 from a 2018 base year*.

*The target includes FLAG emissions and removals.

Case study - British Sugar

British Sugar decarbonising operations

British Sugar engineers with a new evaporator that is helping to reduce GHG emissions at our factory in Wissington, UK

British Sugar has established a decarbonisation strategy to significantly reduce its Scope 1 and 2 emissions by 2030. The business has implemented a range of projects focusing on energy efficiency, renewable resources and fuel switching.

From the baseline year of 2017/18 through to 2023/24, British Sugar invested approximately £96 million in these initiatives, achieving a cumulative reduction of around 162,000 tonnes of CO_2e.

At the Wissington site, the installation of additional evaporators, heat exchangers and other equipment significantly lowered steam usage, reducing emissions by 30,000 tonnes of CO_2e annually and reducing process steam demand by 25%. Additionally, Wissington integrated an Air Liquide CO_2 capture plant, utilising the CO_2 from bioethanol production and reducing total Scope 1 emissions of the site by approximately 5%. Also, performance improvements to gas turbines at Wissington have reduced emissions by 10,407 tonnes of CO_2e.

Across all sites, ongoing investment in pulp pressing processes has improved the efficiency of animal feed drying, reducing energy consumption. Fuel-switching projects at Newark and Bury have transitioned dryers to operate on natural gas, displacing higher carbon-emitting fuels. Similarly, the Cantley site's shift from heavy fuel oil to natural gas has reduced carbon emissions by 1,422 tonnes of CO_2e.

Upgrades at the Bury site, including replacing older slicer machines, have improved cossette quality and reduced water usage, leading to a reduction of 20,242 tonnes of CO_2e due to decreased evaporation demand in the sugar extraction process.

Looking ahead, British Sugar is set to further its decarbonisation efforts with key projects at the Cantley and Bury sites. The Cantley site will see the introduction of a new modular gas-fired Combined Heat and Power (CHP) plant, scheduled for full operation by 2025. This plant, which will replace the existing coal boiler, is expected to reduce carbon emissions by around 16,000 tonnes of CO_2e annually. The Bury energy reduction project, already underway, aims to mirror the success of similar initiatives implemented at Wissington, with an anticipated reduction of approximately 20,000 tonnes of CO_2e per year once fully operational.

Case study - ABF Sugar

Scope 1 and 3 GHG emissions from forest, land and agriculture (FLAG)

Cane fields on the Ubombo sugar estate in Eswatini

As part of its science-based targets, ABF Sugar has developed new targets covering Scope 1 and Scope 3 emissions from forest, land and agriculture activities. It is also developing plans at business unit level and gaining a deeper understanding of the emissions factors linked to its agriculture activities.

As the sugar industry faces the effects of climate change, ABF Sugar is focusing on building resilience at its own estates and with its farming partners. The aim is to maintain yields and improve them in the medium term where possible.

ABF Sugar has identified synthetic nitrogen fertilizer and field movements as the two highest sources of emissions within its agricultural operations and supply chain. Given that maximising yield is central to ABF Sugar's agricultural strategy, reducing GHG emissions from these areas is a priority to support its ambition to maintain and improve yields. For instance, minimising field movements preserves soil structure, enhances water retention, improves air circulation and boosts organic matter, all of which contribute to better yields. Proper application of synthetic nitrogen at optimal times in the growing cycle is essential for maintaining or increasing yields.

In addition to fertiliser management and field movements, other factors affecting yield include moisture management (irrigation scheduling), timing of operations, planting at the right time, crop management and integrated pest management. Efficient use of land through best practices that maximise yields is vital for maintaining the current land footprint while expanding high-yielding crops using sustainable and regenerative agricultural principles.

Case study - Vivergo Fuels

Vivergo delivering energy savings

The Vivergo Fuels plant in Hull, UK, which converts surplus non-food-grade wheat into bioethanol and animal feed

Since recommissioning in 2022, a process of plant optimisation and planning efficiencies has driven substantial improvements in the energy performance of the Vivergo Fuels plant. In 2024, it has seen a 16% reduction in electricity, steam and gas usage per tonne of products made compared 2023.

In addition, Vivergo is working with partners to explore the opportunity to displace natural gas consumed in the manufacturing process with Green Hydrogen. There are currently several projects in development in the Humber region dedicated to producing hydrogen and replacing existing sources of GHG emissions.

Case study - ABF Sugar

ABF Sugar's transition plan

British Sugar's factory at Wissington, UK

Recognising its role in transitioning to a low-carbon economy, ABF Sugar formalised its climate transition plan, laying out the strategy for meeting its GHG emission reduction targets.

Governance

The ABF Sugar CEO and Business Unit Managing Directors are responsible for overseeing the transition plan developed to achieve the SBTi commitment, climate-related risks, opportunities and the overall strategy. Throughout the year, an increased number of cross-functional meetings have been held to ensure transition plans are progressing against targets.

To ensure plans will be delivered and GHG emissions and monetary savings captured for all projects, ABF Sugar has developed a central system that provides up-to-date carbon information and categorises projects that will contribute to GHG emission reductions. Through this system all ABF Sugar businesses can track progress against targets and monitor their savings.

Progress on projects contributing to the science-based targets is monitored by a defined governance structure through the establishment of a dedicated function: the Results Delivery Office. The CEO and Business Unit Managing Directors review the progress on each of the projects on a quarterly basis. The review aligns with the investment capital plan and Performance Improvement Programme of each business.

The ABF Sugar executive team conducts regular meetings to monitor and review progress against the strategic five-year plan. Typically, three key strategy meetings take place each year:

- Long-Term Strategy Review: The ABF executive team visited a business, gaining a deep understanding of its strategy and the status of its execution.
- Assumption and Parameter Alignment Meeting: In this meeting, the Finance Director, Business Intelligence team, Managing Director, and Transformation team monitor progress of fundamental KPIs, assessing how the business plans to achieve its targets.
- Five-Year Strategic Plan Meeting: This meeting focuses on the affordability and prioritisation of the strategic plan, ensuring that all proposed initiatives are realistic and achievable within the set timeframe.

There are also regular meetings held between ABF Sugar and the ABF Group. These act as a forum to discuss climate-related issues, including progress on climate commitments, GHG reduction roadmaps and any additional risks or opportunities identified.

Risk management

The CEO and Business Unit Managing Directors are accountable for effective risk management. The process for identifying, assessing, and managing climate-related risks is the same as for other risks and sits with the business where the risk resides. Each business within ABF Sugar develops action plans through a well-established governance process that examines each performance improvement proposal against internal criteria. These plans are then approved by the ABF Sugar CEO and Business Unit Managing Director.

Strategy, metrics and targets

The current five-year planning process, initiated in 2023, involves each business unit analysing its risks and opportunities while determining the necessary approach to achieve the group science-based targets. With the guidance of relevant Group Functional Directors and facilitated by the Chief Transformation Officer, all businesses are crafting transition plans aligned with their respective five-year strategies. These plans underwent endorsement by the ABF Sugar executive team in July 2024 and subsequent ratification by the ABF board in September.

In working towards reducing GHG emissions for Scope 1 and 2 for Energy and industry, ABF Sugar has categorised proposed plans and projects into three timeframes:

- Immediate term: focusing on reducing operation GHG emissions, investing in energy efficiency with the aim of reducing energy consumption and eliminating the use of coal;
- Short-term (to 2030): targeting key sites and pairing them with key technological resources; and
- Long-term (to 2050): focusing on employing low emission technologies, managing climate-related risks across the value chain, and partnering to innovate at factories across the business.

ABF Sugar will not be utilising carbon offsets in its decarbonisation strategy.

The FLAG targets are new for the division in Scope 1 and 3 and include those emissions related to agriculture use. ABF Sugar is building plans at each business unit level based on previous programmes of work and the more detailed understanding of emissions factors. The two highest areas of emissions are synthetic nitrogen fertiliser and movements in the field. Action on these areas is the company's top priority and will support its ambition to maintain and improve yields.

Emission reduction plan

Looking forward, there is a strong pipeline of accretive GHG reduction projects. Each business has their own environmental plan which has been categorised between short and long term.
To achieve the targeted emissions reduction, each business will focus on the following areas:

Energy and Industrial – short-term:

- British Sugar: projects focus on smaller factory energy efficiency/steam reduction, coal elimination and reduction of energy use for pulp drying;
- Our sugar businesses in Africa: projects focus on energy efficiency and coal elimination/ reduction in RSA and green cane harvesting; and

- Azucarera: projects focus on factory energy efficiency and automation as well as a specific Guadalete project.

Energy and Industrial – long-term:

- British Sugar: projects focus on technological advancements for factory energy efficiency/steam reduction and alternate pulp drying technologies;
- Our sugar businesses in Africa: projects are aligned to those in the short term. However, the technology is yet to be developed; and
- Azucarera: projects focus on alternate fuel projects. However, current regulations present a challenge now.

In FLAG, businesses have developed plans targeting both yield improvements with carbon reductions.

FLAG – short-term (2023-2025 growing cycle):

- Azucarera: water and nitrogen reduction through precision agriculture tools;
- British Sugar: reducing synthetic nitrogen fertiliser for our 'Self-Grow' segment and reducing impurities pilot;
- Illovo Sugar Zambia: Nakambala New Farming System and trials reducing nitrogen; and
- Illovo Sugar Eswatini: rolling out the new farming system, chopper harvesting efficiency and ratoon management activities.

FLAG – long-term (2025 onwards):

- Azucarera: increase yields thanks to the 'net beet project' which consists of sustainable fertilising, efficient irrigation, optimal crop timing and soil health surveillance using predictive tools;
- British Sugar: deliver plan to improve yield;
- Illovo Sugar Zambia: Nakambala New Farming System; and
- Illovo Sugar Eswatini: rolling out the new farming system, chopper harvesting efficiency and ratoon management activities.

Projects supporting carbon reduction (Energy and Industrial)

ABF Sugar has a continued focus on Energy and Industrial Scope 1 and 2 as this is the most material risk to the business and is an area of significant spend. In 2023/24, ABF Sugar spent approximately £73m on 39 approved projects. To date, 30 of these projects have contributed a saving of 53,721 tCO2e. For its five-year plan, ABF Sugar is planning to spend 6% of its planned capex to support climate change strategy and ESG initiatives.

Projects supporting carbon reduction

Entity	British Sugar – Bury
Project	Decarbonisation steam reduction [Phase 1]
Description	This project replaces four existing Roberts type evaporators with three new falling-film type evaporators. This will realise a significant reduction in LP liquid prolene gas burn for sugar manufacturing (approx. 25%) as well as increasing engineering reliability of the station. The second main element of the project will be to upgrade the Raw Juice Heating Station. This project will replace the station as a whole, eliminating the planned essential replacement plan spend, and will allow the factory to realise the full gas burn reduction of the three new evaporators as well as improving engineering and process reliability of the site.
Year of approval	2023/24
tCO2e saving	19,822
Target project close-out date	December 1, 2026

Entity	British Sugar – Cantley
Project	Provision of modular steam and power
Description	This project will re-establish a steam generation capacity of up to 60 t/hr at the Cantley Factory to meet a range of business requirements within upcoming Medium Combustion Plant Directive emission limits. The low-pressure ‘modular technology’ utilised will deliver process/maintenance simplification, improve process safety, as well as enable operational effectiveness through ‘Industry 4.0’ methodology.
Year of approval	2023/24
tCO2e saving	16,460
Target project close-out date	September 1, 2025

Entity	Azucarera – Guadalete
Project	Pre-scalders and 6th evaporation effect
Description	This project reduces the global energy consumption of the Guadalete factory through the installation of pre-scalders, and implementation of evaporators. In turn, this will improve the heating steam scheme.
Year of approval	2023/24
tCO2e saving	5,202
Target project close-out date	Completed

Entity	Illovo Sugar – Sezela
Project	Steam traps replacement on juice heaters
Description	Over the years, the steam traps on the juice heaters were replaced with non-return valves (NRVs) which has caused excessive steam wastage. The ideal opportunity is to reinstate the steam traps on the juice heaters to allow energy savings to be made. It would look at installingwill install x13 steam traps on the various heaters and these will be placed before the NRV to ensure the energy is captured. In turn, this will reduce energy and save coal use within the Sezela heaters area.
Year of approval	2022/23
tCO2e saving	3,605
Target project close-out date	July 17, 2023

Entity	Azucarera – Miranda
Project	Energetic improvements APRO [Phase 1]
Description	The objective of the project is to modify the heating of the raw juice, improving the use of the pan vapours and reducing the consumption of steam in the heating of the purification stage.
Year of approval	2023/24
tCO2e saving	1,200
Target project close-out date	December 1, 2025

Entity	Illovo Sugar – Ubombo
Project	Entry-level housing upgrade [Phase 8 – 15]
Description	The project involves the phased upgrading of staff housing at agricultural and industrial villages to comply with the minimum Illovo Group entry-level housing standards. As part of the project, houses for employees at Nyetane, Majombe and Shonalanga villages will be electrified to eliminate the usage of domestic coal within the villages
Year of approval	2023/24
tCO2e saving	1,177
Target project close-out date	August 12, 2024

Associated British Foods plc

Carbon and climate - Ingredients

AB Mauri and ABFI recognise that climate change poses risks to their operations and supply chains, while the transition to a low-carbon economy also brings potential opportunities.

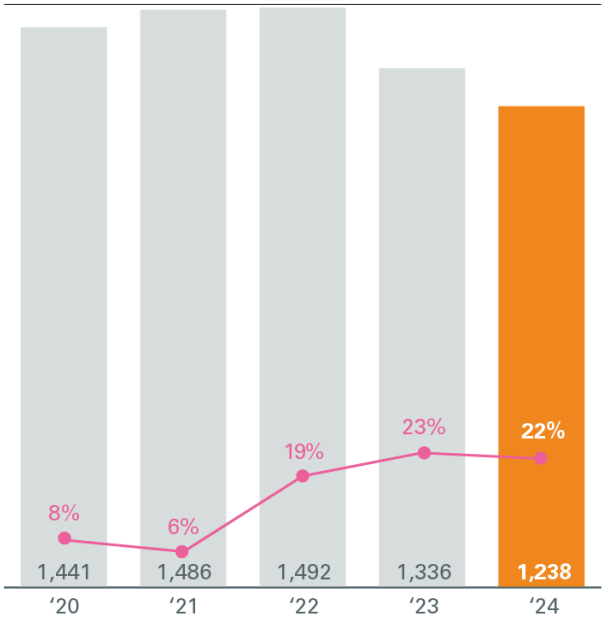
The anaerobic digestion facility at AB Mauri's yeast plant in Hull, UK

GHG emissions, energy and renewables

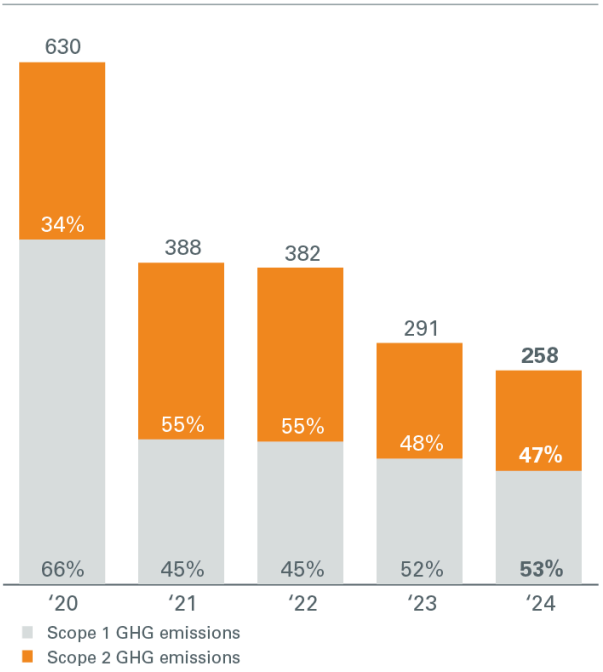
AB Mauri and ABFI are looking to improve the efficiency and resilience of their operations by producing more while using less energy and switching to renewables. They also seek to help customers reduce their GHG emissions. Many of their customers, particularly in the EU and UK, have ambitious GHG emission reduction targets, including Scope 3 emissions.

In 2024, the Ingredients segment saw a 7% decrease of total energy consumption compared with 2023, reducing from 1,336 GWh to 1,238 GWh in 2024. Of the total energy consumed in 2024, 22% was from a renewable energy source including biogas, wood and on-site solar. The number of sites with on-site solar energy has increased by 25% in 2024, and the segment contributes 18% of the Group's consumed self-generated renewable energy. The segment's Scope 1 and 2 (location-based) GHG emissions decreased by 11% compared with 2023.

Total energy consumed and proportion from a renewable source
(GWh)



Scope 1 and 2 (location-based) GHG emissions
(000 tonnes of CO_2e)



AB Mauri

AB Mauri's approach to GHG emissions is governed by its Environment Policy, which requires its businesses to identify opportunities to mitigate emissions and to collaborate and share best practice across the division. AB Mauri does not have division-wide GHG emission targets, however its businesses are required to assess the carbon impact of any major capital investments, particularly those affecting Scope 1 or 2 emissions, and this is considered as part of the capital investments approval process.

To support these efforts, AB Mauri provides its businesses with an internally developed tool to forecast GHG emissions up to 2030. This tool factors in five-year capital plans, projecting the impact of various initiatives on emission levels, changes in production volumes and shifts in electricity grid carbon intensity where data is available. The global and regional results are reviewed twice a year by the global leadership team, led by the Head of Environment and regional managing directors.

AB Mauri focuses on reducing energy use and emissions by investing in energy efficiency and increasing the use of renewable energy. Its sites have access to a wealth of energy efficiency tools, specific guidance and a shared database of successful carbon reduction initiatives already implemented by other sites. Additionally, AB Mauri leverages a network of regional engineering and operational experts to evaluate and implement the most impactful new energy technologies. AB Mauri is subject to volatility in the cost of energy, particularly for electricity and natural gas. It has identified several opportunities to reduce both energy costs and emissions. Some of these include implementing energy efficiency measures, generating renewable energy on-site, and exploring fixed-term power purchasing agreements with renewable energy suppliers.

In 2024, AB Mauri used 1,030 GWh of energy, an 8% reduction compared with 1,116 GWh consumed in 2023. This is driven by a reduction of natural gas at its site in Italy as part of its energy saving strategy. This has been achieved by the installation of a new blower which has enabled the site to retire a natural gas turbine previously used for peak energy requirements and exporting electricity to the grid when not needed for own

operations. Renewable energy sources, including biogas, wood and on-site solar, accounted for 24% of the total energy consumed.

An increasing number of AB Mauri sites are purchasing renewable energy from external suppliers, with manufacturing sites in Brazil, Colombia and Spain all using 100% renewable electricity. AB Mauri businesses in Mexico and India achieved approximately 67% and 79% renewable electricity respectively during 2023/24. AB Mauri sites in Argentina now purchase 20% of their electricity directly from a renewable supplier. Some sites in Italy, Spain, the US and Mexico also have on-site solar installations. In some AB Mauri's yeast plants, biogas created from biological wastewater treatment is turned into a source of heat and/or power for operations where feasible.

AB Mauri's Scope 1 and 2 (location-based) GHG emissions decreased by 13% compared with 2023 from 243 $ktCO_2e$ to 212 $ktCO_2e$. The emissions from biogenic carbon, which are mainly from its yeast fermentation process, have also reduced this year by 4%.

AB Mauri has undertaken a number of projects to decarbonise operations across its businesses and geographies. Its yeast plants are focused on energy efficiency, in particular advanced fermentation aeration technology, new highly efficient natural gas boilers, steam distribution optimisation and new heat recovery technologies. This year, its plant in Casteggio, Italy introduced a new biogas-powered boiler, using renewable energy from its anaerobic digestion process to generate low-carbon heat. Its plant in Tucuman, Argentina installed equipment that uses hot air from the yeast fermentation process to pre-heat water for cleaning, replacing steam produced with natural gas. This initiative has cut GHG emissions by close to 100 tCO_2e in 2024 compared with 2023, a saving that is expected to more than double once the technology has been fully rolled out.

In addition, at a plant in Palmira, Colombia, heat generated during the effluent treatment process is recycled to pre-heat incoming effluent to the required temperature, avoiding the use of steam produced using natural gas and resulting in a reduction of associated GHG emissions by over 800 tCO_2e per year compared with the same system without this technology.

AB Mauri has also acted to reduce fugitive GHG emissions that are not directly related to energy. In January 2024, its plant in Atzala, Mexico, installed a new system to eliminate emissions related to its anaerobic wastewater treatment process. The system collects and combusts gases emitted as organic matter decomposes, greatly reducing emissions of biomethane and other gases by converting them into biogenic carbon dioxide. The system is expected to reduce non-biogenic emissions by approximately 100 tCO_2e per year.

ABFI

During the year, ABFI consumed 208 GWh of total energy, which is a decrease of 6% compared with 2023, with 11% of the total energy used coming from renewable sources. Additionally, Scope 1 and 2 (location-based) GHG emissions dropped by 5%, decreasing from 49 $ktCO_2e$ in 2023 to 46 $ktCO_2e$ in 2024. This reduction was supported through equipment replacement at sites which has led to an increase in energy efficiency.

ABFI's approach to energy management, GHG emission reduction and renewable energy transition is guided by its Environmental Policy, which promotes energy efficiency and continual efforts to minimise environmental impacts. ABFI's businesses focus on heat recovery and invest in renewable energy sources. Currently five out of 10 production sites use renewable electricity, with two sites using 100% renewable

electricity. While there is no division-wide target for emissions reduction, each business develops its own strategies and processes, allowing each business to tailor its efforts to the specific needs and opportunities of its local environment.

Ohly is working to reduce its Scope 1 and 2 emissions through decarbonising its Hamburg site. This includes ongoing efforts to switch energy sources from natural gas to electricity where feasible. Additionally, Ohly has installed electric vehicle charging stations to help employees reduce their carbon footprint.

Scope 3 GHG emissions

AB Mauri

AB Mauri is working to calculate a full Scope 3 carbon footprint, which is expected to be primarily driven by emissions from purchased goods and services. AB Mauri purchases large quantities of raw materials, including molasses and ammonia for yeast production, as well as a wide range of agricultural ingredients, specialised additives and other inputs for its bakery ingredients business. Other material categories are likely to include GHG emissions related to upstream energy and capital expenditure.

ABFI

At ABFI, AB Enzymes and Ohly work with a consultant to calculate their Scope 3 emissions. These Scope 3 assessments help to identify opportunities for GHG emission reduction activities and inform their GHG emissions reduction strategies across their value chains.

Other ABFI businesses are calculating their Scope 3 emissions, recognising that understanding where emissions occur within the value chain and identifying the most material categories is crucial for implementing effective reduction activities with value chain partners. Fytexia, PGPI, and SPI Pharma are building in-house capabilities to accurately calculate and account for these emissions, developing strategies aimed at reducing their overall Scope 3 footprint.

Carbon enablement

Some Ingredients businesses provide products and services that have the potential to assist others in reducing their carbon emissions, often referred to as carbon enablement. Carbon enablement is integral to these businesses' customer proposition and a key focus for investment and innovation.

AB Enzymes, an industrial biotech company that specialises in the development of enzymes used in multiple industries for various applications, has enablement at the core of its purpose. Enzymes are biological catalysts that essentially accelerate biochemical reactions, making them a very effective alternative to petrochemical-based products.

AB Enzymes has developed a number of innovative products that enable emissions reductions in comparison to using traditional products, with no impact on product performance, such as ECOPLULP®.

Case study - AB Mauri

Heat recovery projects

AB Mauri Maya's yeast plant in Bandrima, Türkiye

A core part of AB Mauri's GHG emissions reduction strategy is investing in energy efficiency, particularly at its yeast production plants. Yeast production requires both electricity and heat, primarily to create steam, which is used throughout the process to keep equipment sterile. Recovering heat from this production process to use in another is a key way energy use can be reduced.

At its site in Bandirma, Turkey, a state-of-the-art two-stage economiser was added to an existing steam boiler in 2024. The economiser now takes flue gas waste heat from the boiler, which was previously lost, recycling it to heat cold water coming into the boiler. The project reduced the site's emissions by approximately 200 tCO_2e in 2024. Another significant investment in improved evaporator technology has enhanced overall site efficiency by improving co-products processing. This contributes to an annual reduction in emissions of over 1,300 tCO_2e.

Case study - AB Mauri

Casteggio emissions reduction

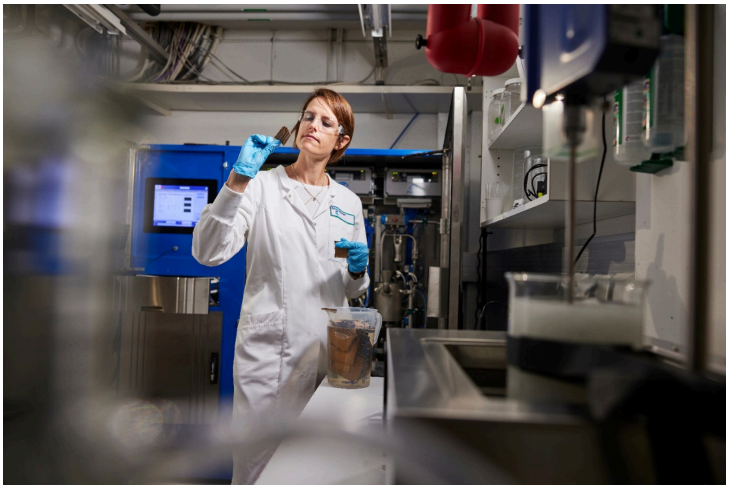
Energy efficiency equipment at AB Mauri's factory in Casteggio, Italy

AB Mauri's yeast plant in Casteggio, Italy, is decarbonising its operations through the implementation of various technologies and initiatives. The focus has primarily been on improving energy efficiency through advanced fermentation aeration technology, high-efficiency natural gas boilers, steam distribution optimisation and new heat recovery systems.

In 2024, the plant introduced a new boiler that uses renewable biogas, generated as a by-product of its anaerobic digestion water treatment process, to supply low-carbon heat. These efforts have reduced carbon intensity (tCO_2e/tonne of product) by 9% since 2018, excluding changes in grid electricity carbon intensity. Further reductions are expected in 2025 as additional energy efficiency measures, including rooftop solar panels, are implemented, allowing for the decommissioning of a natural gas turbine.

Case study - AB Enzymes

Enzyme carbon enablement ECOPULP®



Lab colleague testing enzymes for pulp and paper at AB Enzymes, Finland

The pulp and paper industry faces numerous challenges in resource usage and efficiency, as well as reducing emissions. Cellulase enzymes, including AB Enzymes' ECOPULP®, are seen as part of the solution to these and many other challenges.

Cellulase enzymes are responsible for the degradation of cellulose structures, which are a major component of plant cell walls and thus wood pulp, the primary material in paper making. Cellulase enzymes impact paper and pulp milling in three key ways:

- **fibre modification:** cellulase enzymes can help modify the cellulose fibres in wood pulp, allowing for efficiency in the mechanical refining processes;
- **reduced refining time:** by breaking down cellulose fibres, cellulase enzymes may reduce the time needed for refining; and
- **improved drainage:** cellulase enzymes may improve the drainage of water from the pulp during the refining process, meaning less energy is needed for water removal and drying processes.

Findings show that the addition of AB Enzymes' ECOPULP® cellulase enzymes to non-integrated paper mill production over a 72-hour period demonstrated immediate production benefits on the paper fibre. This included a 20% reduction in the refining energy required, which equates to a potential emissions reduction of 15.6 kg CO_2e/kWh for one tonne of enzyme treated pulp compared to untreated pulp in a paper refining process.

Case study - AB Enzymes

Enzyme carbon enablement - BIOTOUCH® and ECOSTONE®

Lab colleague testing enzymes for pulp and paper at AB Enzymes, Finland

AB Enzymes, an industrial biotech company that specialises in the development of enzymes used in multiple industries for various applications, has enablement at the core of its purpose. Enzymes are biological catalysts that essentially accelerate biochemical reactions, making them a very effective alternative to petrochemical-based products. AB Enzymes has developed a number of innovative products that enable emissions reductions with no impact on product performance.

For instance, BIOTOUCH® is a washing powder incorporating a specialist enzyme developed by the business, that allows the average washing temperature to be decreased by 13°C. This can potentially lower electricity consumption by about 260 kWh or 120 kg of CO_2e per 1,000 washes[1].

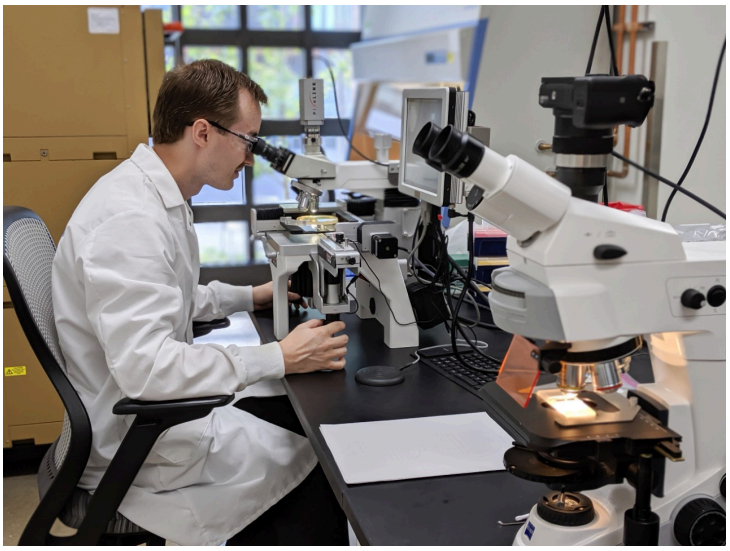
Another product, ECOSTONE®, reduces the water temperature needed for biopolishing cotton textiles, a process that cleans the surface and removes fluff, from 50°C to 30°C. This can result in energy savings of approximately 350 kWh or 360 kg of CO_2e for every tonne of cotton processed, a significant reduction given the carbon-intensive nature of textile processing[2].

1. Calculations are based on the emissions saving from the reduced energy consumption when using an average detergent and washing machine type with 164 cycles per household in Central Europe. The use of the enzyme results in an average reduction of 13°C in washing temperature compared to when using an average detergent, which equates to a reduction of 258 kWh electricity and 119kg avoided emissions per 1,000 washing cycles.

2. Calculations are based on the emissions savings from the reduced energy consumption in the South East Asia region, which is the largest cotton producing region. The use of the enzymes results in an average reduction of 20°C in water temperature, which equates to a reduction of 350 kWh and 360 kg avoided emissions for every tonne of fabric processed compared to untreated biopolishing processes.

Case study - AB Mauri

Helping customers with climate change resilience



An AB Mauri colleague at the Global Strain Development Center in St. Louis, United States

AB Mauri is developing solutions to help its customers adapt to the challenges posed by climate change. A key example of this effort is the development of yeast strains for bioethanol production that can perform efficiently at higher temperatures.

Fermentation typically takes place in temperatures between 30-34°C. Temperatures higher than this can cause heat stress to yeast cells, which reduces fermentation efficiency and impacts overall yield (i.e. the amount of bioethanol produced for a given quantity of input).

As ambient summer temperatures rise with climate change, bioethanol producers require increasing amounts of energy to cool the fermentation process to ensure decent yields. To address this issue, AB Mauri has launched a new product called Summit Olympus in Europe, India and other markets which operates at higher temperatures bands, reducing costs for cooling compared to traditional methods and maintaining optimal yields.

Associated British Foods plc

Carbon and climate - Agriculture

AB Agri is working hard towards reducing GHG emissions across its business and aims to support its customers in reducing the environmental impact of food production.

The Amur Energy anaerobic digestion plant in Yorkshire, UK

AB Agri recognises the significant role of the agricultural sector in global GHG emissions.

A warming planet, evidenced by rising global temperatures and increasingly volatile weather patterns, presents a major challenge for agriculture. Threats such as extreme heat, drought and flooding could disrupt AB Agri's supply chain at every stage, from sourcing crops for feed to its own manufacturing sites and customers' farm businesses.

Climate risk

AB Agri has identified an initial list of climate-related physical and transition risks and opportunities in alignment with the Task Force on Climate-Related Financial Disclosures (TCFD) framework. These risks are managed within the AB Agri Risk Register.

The primary risks include extreme weather events and temperature changes that could affect the availability of critical raw materials in the supply chain or hinder AB Agri's manufacturing operations. To mitigate these risks, AB Agri has implemented effective measures to manage stock requirements and established contingency plans for critical raw materials.

In its manufacturing sites in the UK and China, AB Agri has implemented controls and mitigation plans to address snow, flooding, and extreme temperatures. Additionally, AB Agri uses the Verisk Maplecroft global risk analysis tool to monitor temperature variations and any business interruptions caused by extreme weather events.

Its seed business, Germains, recognises the challenges faced by US farmers from the combination of intensifying heat and water restrictions. To address this, Germains is developing heat-resistant seed varieties to help maintain yields. The business is also exploring commercially promising markets that may develop from future climate shifts.

GHG emissions, energy and renewables

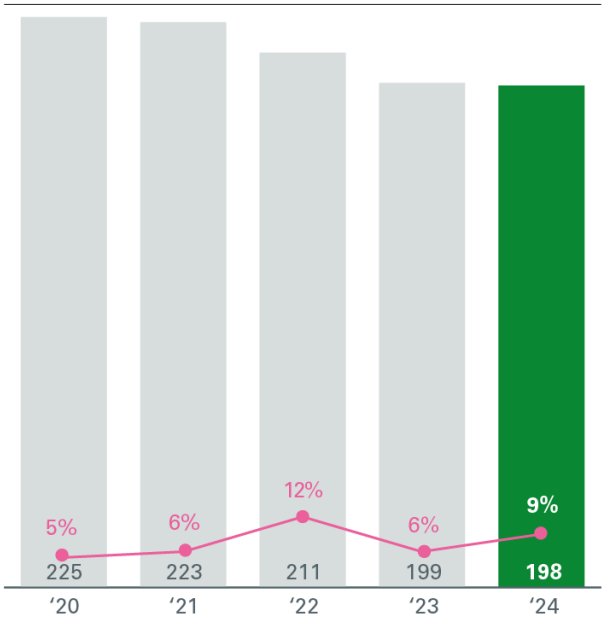
AB Agri seeks to improve energy efficiency and reduce the fossil fuel reliance of its sites globally. The business has set a roadmap for reduction, with 'energy used in manufacturing' and 'distribution operations' its priority focus areas.

AB Agri's total energy use in 2024 was 198 GWh, a decrease of 1% compared with 2023. Of that total energy consumption, 9% came from a renewable source. During 2024, AB Agri exported 35 GWh of energy to the national grid.

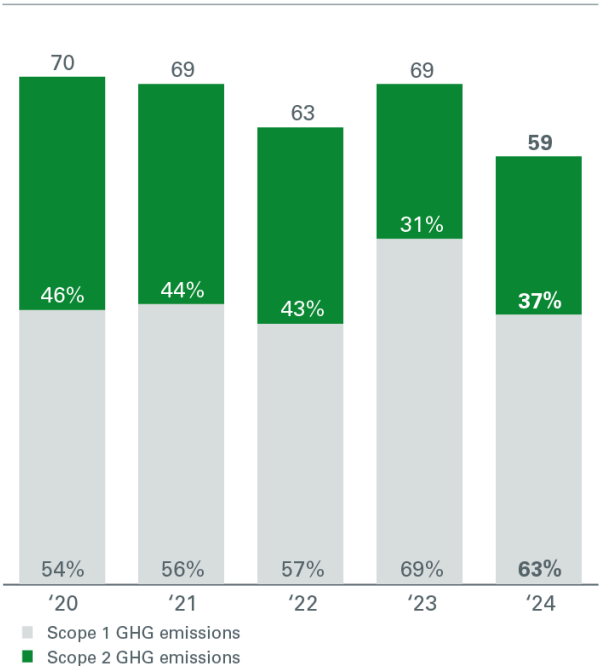
AB Agri's Scope 1 and 2 emissions reduced by 14% from 69 ktCO2e in 2023 to 59 ktCO2e in 2024. This reduction is partly driven by one site in the UK operating at reduced capacity due to operational reasons. Additionally, efforts across the business were put in place to improve process efficiencies, investments were made in technology and fuel sources were changed, including the installation of solar panels.

AB Agri continues to make progress in transitioning to lower emission sources across its estate, with solar panels installed at nine sites globally. Additionally, its anaerobic digestion plant in Yorkshire, UK, produces renewable gas from food waste, equivalent to around 69% of the gas used to power AB Agri's UK manufacturing sites.

Total energy consumed and proportion from a renewable source
(GWh)



Scope 1 and 2 (location-based) GHG emissions
(000 tonnes of CO_2e)



Scope 3 emissions

This year, AB Agri successfully completed a project to calculate its Scope 3 emissions in accordance with the GHG Protocol. In preparation for public disclosure in 2024/25, a pre-assessment assurance audit is being conducted on its Scope 3 data.