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Task Force on Climate-Related Financial Disclosures

Reference Document

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TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES STATEMENT

This Task Force on Climate-Related Disclosures ('TCFD') report provides a description of the specific disclosures and the work we undertook in FY23 and FY24 to move towards compliance with the TCFD recommendations for disclosure. This document should be read in conjunction with Genus's FY24 Annual Report.

1 TCFD INTRODUCTION AND OVERVIEW

Genus recognises that climate change is a significant systemic and strategic risk and that livestock farming and management is a contributor to climate change. Climate change may cause adverse regulatory and tax changes, exacerbate fluctuations in animal feed costs, cause more frequent impacts from adverse weather conditions, and limit access to water or increase costs of accessing and treating water. In FY23 we completed an analysis of:

- qualitative risks and opportunities assessment – to assess the potential physical and transitional climate change risks and opportunities across 11 Genus sites; and
- quantitative risks and opportunities scenario analysis – to assess the potential financial impact of the physical and transitional risks and opportunities.

We determined that in the short term physical climate risks are not likely to result in material losses for the business. The qualitative and quantitative analysis identified the material transition risks and opportunities, with the most significant risks relating to the exposure of the business to carbon taxes, energy prices and raw material prices over the medium to long term.

The findings from this scenario analysis informed and supported the climate strategy that we have followed to date. Continued investment in renewable energy and biogas capture will likely mitigate some of the material risks, and these investments, along with our elite genetics, will drive additional value for all of our stakeholders.

The scenario analysis also indicated that the risks from climate change will increase in the long term, but given the geographical spread of our sites, the risks remain relatively low, and none of the additional costs will materially impact the financial viability of our business.

1.1 Compliance statement

In FY23 we undertook our first scenario analysis, which only assessed the physical and transitional risks and opportunities at 11 priority sites, and we do not currently plan to expand our assessment beyond these sites – which are leased sites, or joint venture sites where the risk is diluted by our equity stake. In FY24 we have completed our scenario analysis evaluation and integrated the key finding into our business continuity plans ('BCPs') and financial strategy.

Despite this progress we do not fully comply with the TCFD recommendations because we need to focus further efforts to describe the impact of climate-related risks and opportunities on the organisation's business, strategy and financial planning (strategy recommendation B) and to describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario (strategy recommendation C). Genus will focus further efforts to:

- review and update our climate transition plan; and
- develop a financial model to assist in determining the climate change risks and opportunities with individual business investments.

In addition, TCFD requires companies to disclose Scope 1, Scope 2, and if appropriate, Scope 3 emissions, and the related risks (metrics and targets recommendation B), and describe the targets used by the organisation to manage climate-related risks and opportunities, including the performance against targets (metrics and targets recommendation C).

Whilst we have disclosed the partial Scope 3 upstream GHG emissions (for categories 1-6) including TAME pig production from third-party multipliers, we have not been able to report Scope 3 GHG emissions for our third-party bovine multipliers, employee commuting (category 7) and our downstream value chain GHG emissions (categories 9-15). Full details for the partial Scope 3 methodology are explained in the Basis of Reporting document.

We will continue to work to measure remaining upstream and downstream Scope 3 categories so that we can fully comply with metrics and targets recommendations B and C, including efforts to:

- identify future areas for management focus to reduce our exposure to carbon costs through investments in renewables; and
- fully understand how we can work in partnership with our value chain to drive down Scope 3 GHG emissions associated with the goods and services we procure. This work will be piloted with a few strategic suppliers in FY25 to help develop a scalable process.

2 GOVERNANCE

Full details of our governance can be found [here](#).

Genus Plc Board

The Board has overall responsibility and accountability for our Climate Change Policy and TCFD reporting. Genus's Chief Executive has formal responsibility for implementing and monitoring the strategy to manage climate-related risks and realise the opportunities, and the Board reviews the business's annual budgets, strategic plans and capital investments to ensure that the Company's climate change action plans are implemented and integrated into the Company's wider financial planning and strategy.

The Board is provided with regular reports on the performance of our ESG strategy in terms of performance against KPIs, absolute emission values, and performance against Genus's defined Primary Intensity Ratio ('PIR').

Remuneration Committee

The **Remuneration Committee** determines remuneration for Executive Directors and senior management, to support growth strategy and deliver value for stakeholders, and includes accountability for determining incentives for the management of climate-related issues its remuneration policy for Executives.

Genus has incorporated incentives for the management of climate-related issues into its remuneration policy for Executives.

Audit and Risk Committee

The **Audit and Risk Committee** evaluates the Group's risk management and internal control system, including reporting requirements of TCFD. The Audit and Risk Committee Chair is appointed to the Sustainability Committee.

Genus Executive Leadership Team ('GELT')

The GELT provides Genus with its strategic direction and operations, and the ESG strategy is overseen and driven by the Sustainability Committee.

Sustainability Committee

Genus updated its oversight on climate-related issues in FY23 to ensure that climate change risks and opportunities receive management focus at the highest level. As a result of this review, all members of the GELT as well as the Chairman of the Board's Audit & Risk Committee have been appointed to the Sustainability Committee, alongside operational leaders and subject matter experts with accountability for delivering the Group's sustainability objectives.

The Sustainability Committee oversees the Company's performance against its emissions reduction targets and makes recommendations to the Board in relation to our business strategy and risk management processes. The Sustainability Committee meets three times a year and is chaired by Genus's Chief Executive.

In FY24 governance was further strengthened through the creation of an ESG Working Group, reporting into the Sustainability Committee, with a remit including the review of the quantitative and qualitative analysis of physical and transition climate-related risks.

3 STRATEGY

3.1 Climate-related risks and opportunities

Genus recognises that climate change is a significant risk to our business, and that climate change may exacerbate fluctuations in animal feed costs (over the medium to long term), cause more frequent impacts from adverse weather conditions, and limit access to water or increase the costs of accessing and treating water.

Genus has a global reach that seeks to support leading farmers with more productive and resilient breeding animals, which enables farmers to produce meat and milk more efficiently and sustainably. As a global company we are aware of the regional and global risks and opportunities linked to changes of diet. Our elite animal genetics have a significant impact on the porcine and bovine value chain and benefit multiple stakeholders. With an increasing world population that is expected to reach 8.5 billion in 2030, and 9.5 billion in 2050¹, we recognise that there will be regional variations in demands for animal protein, but see an overall increasing global demand, requiring our improved genetics to feed a growing global population with greater aspirations to eat a safe, affordable and sustainable diet.

In FY23 we completed an analysis of:

- a qualitative risks and opportunities assessment – to assess the potential physical and transitional climate change risks and opportunities across 11 Genus sites ('Qualitative Assessment'); and
- a quantitative risks and opportunities scenario analysis – to assess the potential financial impact of the physical and transitional risks and opportunities ('Quantitative Scenario Analysis').

In summary, the principal findings were:

- **Physical Risks** – there are limited physical risks to Genus sites from extreme weather, with risks highlighted at the low level across extreme heat, extreme wind, soil subsidence and forest fires. However, these may become more significant from 2040-2050.
- **Carbon Pricing** – Genus's most significant risk is carbon cost: carbon pricing, likely in the form of energy prices, poses a potentially significant financial impact to Genus in a 1.5°C scenario, with the analysis indicating an additional annual cost of approximately £22m by 2050 (NPV from 2022-2050 – £53m).
- **Renewable Energy Opportunity** – Genus has an opportunity to reduce electricity costs and avoid carbon pricing through the use of renewable energy in countries where the electricity grid is fossil-fuel-based. There is a greater risk to Genus's electricity cost from carbon pricing in a 1.5°C scenario. On an annual basis, the electricity cost in a 1.5°C scenario will be around £1.8m by 2050.

¹ <https://www.un.org/en/global-issues/population>

3.2 Impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning

In the short to medium term, the most significant impacts for Genus and its strategies around porcine and bovine genetic improvement are likely to arise from transition risks, specifically policy-driven carbon price increases, and energy and raw material price increases. These risks may impact the cost of feed and electricity used in the animal protein supply chain, increasing the price of the product for the consumer in some regions. We also recognise in the medium term that changing consumer preferences may have an impact on our business strategies.

The findings from this scenario analysis informed and supported the climate strategy that we have followed to date. Genus believes that our ongoing climate change mitigation activities, in connection with our genetic improvement programmes and our operational carbon footprint, along with our continued investment in R&D, will continue to deliver sustainability and environmental benefits for our stakeholders and mitigate risk.

In FY24, our porcine and bovine genetic improvement programmes continued to deliver sustainability and environmental benefits that benefited our customers and help us to grow our business in partnership with the wider animal protein value chain. We are leading the development of new genetic improvement data, underpinned by independently peer-reviewed Life Cycle Assessments ('LCAs'), to demonstrate that our genetics can deliver future carbon savings.

In FY24, we also continued to action our operational GHG footprint reduction through investments in renewables and biogas capture designed to better manage manure, applying renewable power solutions to our facilities and using energy more efficiently.

Genus can effect further change by working with our direct suppliers to reduce the embodied carbon emissions associated with our goods and services. Going forward, we will be engaging with our most material suppliers to understand where we can work in collaboration with them and to obtain more accurate information that can inform our future strategy development.

The ESG Working Group, formed in FY24 and reporting into the Sustainability Committee, has reviewed the Qualitative Assessment and Quantitative Scenario Analysis. This Working Group, along with a series of internal workshops, confirmed that the geographical spread of our sites, in conjunction with our normal BCPs and our current insurance coverage, ensures that we are unlikely to experience a material climate-related loss in the short to medium term, and concluded that there have been no material changes to the outcomes of the Quantitative Assessment or Quantitative Scenario Analysis. In FY25 the Working Group will seek to develop a financial model to assist in determining the climate change risks and opportunities associated with individual company investments.

4 RISK MANAGEMENT

4.1 Identifying and assessing climate-related risks and opportunities

As part of our Group risk management process, we regularly review and update our sustainability risks, including climate change, through the Sustainability Committee and the Audit and Risk Committee. We include in our review climate-related risks for alternative climate scenarios (1.5°C and 4.0°C of warming). This has informed our risk descriptions and management response in relation to our aim to lead the market in climate-focused breeding and our focus towards our customers' challenge of managing fluctuations in animal feed costs, which we believe will be exacerbated by climate-related factors over the medium to long term.

In FY23, we performed a detailed business-wide review of sustainability risks and opportunities, with an update to include an assessment of risks and opportunities by geographic region. We enhanced the risk and opportunity assessment process through our:

- risks and opportunities identification project;
- Qualitative Assessment; and
- Quantitative Scenario Analysis.

The Quantitative Scenario Analysis modelled the impacts for the 1.5°C (Paris Agreement-aligned) and 4.0°C (business as usual) climate projections across the Shared Socioeconomic Pathway 2 ('SSP2') transition pathway, and used the 'best-fit' sectors for Genus (i.e. agriculture, manufacturing and energy-intensive technology). These climate scenarios are considered to highlight the variation in risks and opportunities directly, and model 'best-case' and 'worst-case' outcomes for our business and the planet.

We ran a series of workshops to validate the risks and opportunities within finance, sustainability, and business leadership teams across Genus. We ensured that we had a common understanding of the risk horizon, the qualitative understanding of the risk impact to our financial position and the variation within the geographical regions where we operate.²

The Qualitative Assessment and Quantitative Scenario Analysis used the time horizons set out in section 4.1.1 to ensure alignment with our existing business planning cycles.

² The risk assessment was between RCP 2.6 climate scenario (where global warming is limited to below 2°C of pre-industrial temperatures) and RCP 8.5 (which assumes business as usual and therefore catastrophic global warming of 4.0°C)

4.1.1 Time horizons

Time	Alignment within Genus	Qualitative Assessment and Quantitative Scenario Analysis time horizon
Short 0–2 years	0–2 years linked to our annual business planning and risk management cycle.	N/A
Medium 3–5 years	3–5 years links to our strategic planning cycle, but it also captures the transition risks and opportunities, and links to the planned R&D investment cycle.	Short term (2024–2030)
Long 5+ years	5+ years runs beyond our normal strategic planning cycle. This captures physical and transition risks over the longer term, our achievement of net zero goals, and emerging risks and opportunities that we are tracking.	Medium term (2031–2040)
	Asset planning and depreciation is evaluated and considered by Genus within these timeframes. See note 17 to the Group Financial Statements for the year ended 30 June 2024.	Long term (2041–2050)

We set the materiality threshold at £3m, which is consistent with our internal risk management assessment process.

4.2 Qualitative Assessment

We commissioned Marsh Consulting in FY23 to undertake a deep-dive qualitative assessment of the following climate change risks – sea level rise, riverine flooding, flash flooding, drought, extreme temperatures, cyclones and wildfires. The sources utilised for this analysis include private risk information providers, such as Think Hazard, and global entities such as the World Bank. Academic sources were also used to gain a qualitative understanding of specific regional complexities to complement the quantitative risk data. Marsh also reviewed relevant news sources to gather information on local natural disasters that have occurred in recent years.

In line with the requirements of the TCFD, we have assessed how these risks may vary by region. Generally, most of the risks apply at a global level, but in some cases we have considered specific geographies, supply chain and transition risks at a market level (e.g. diet change for environmental and climate reasons). We continue to keep these risks under review, and to evaluate market trends over time and by region and market demographics, where appropriate.

Genus assesses risk by considering the likelihood of the risk or opportunity materialising within the time horizons noted and having a potential financial impact of >£3m. Where risks are deemed to be high, they have received additional focus, and we plan to look at additional climate mitigation actions.

4.2.1 Qualitative Assessment – findings

Improvement to our physical climate risk exposure may be relatively small given that our sites are not exposed to significant physical climate risks, because they are reasonably isolated and not near forested areas, the coast or major rivers.

The isolated and dispersed locations of our facilities, our BCPs, our insurance, and our current actions to reduce emissions, provide climate change risk mitigation that will likely ensure that, in the short to medium term, there is no material detriment to our business. In the longer term, increases in the frequency and severity of physical risks, such as extreme weather events, water stress and higher ambient temperatures could have greater potential to impact sites, supply networks and consumer value chains, whilst changes to regional climates may lead to changes to costs, the availability of raw materials, and the ability of our customers to produce feed and livestock. Our BCPs are regularly reviewed to ensure that all current and future climate risks are effectively managed in line with Genus's risk appetite.

The table in appendix A shows the most significant physical and transition risks and opportunities identified by Genus and the Qualitative Assessment of their impact through the Marsh input. This simple assessment helped Genus to prioritise our operational sites where there is the greatest potential for a material loss or disruption to our operations.

4.3 Quantitative Scenario Analysis

Genus conducted the Quantitative Scenario Analysis to understand the potential financial impact of key physical and transition risks and opportunities. A quantitative scenario analysis is a tool used to explore different futures, by capturing different assumptions about policy and physical climate impacts to project into a range of potential future outcomes. The main benefits of the Quantitative Scenario Analysis are its value in informing strategic business decisions, in that we can:

- enhance our risk management and identify potential new revenue opportunities;
- identify the appropriate climate change mitigation options to support our transition; and
- meet regulatory requirements and provide enhanced disclosures to our stakeholders³.

The Quantitative Scenario Analysis also supports Genus with strategic business planning as findings from the analysis can highlight key elements of a possible future and draw attention to the key factors that will drive future developments. The Quantitative Scenario Analysis sought to review and shortlist key risks and opportunities to be quantified relating to:

- transition risks and opportunities – carbon pricing, electricity cost (energy transition), raw material costs; and
- physical risks.

³ Note that the Quantitative Scenario Analysis has its limitations as the scenarios are hypothetical, usually limited in scope, and do not encompass all business activities or locations

The regions that were assessed for the Quantitative Scenario Analysis for both transition and physical climate risks included sites in the US, Canada, Brazil and the UK. The outputs from the Qualitative Assessment of climate-related risks and opportunities were considered in line with Genus's materiality threshold (£3m) and through a series of reviews and workshops to enable the transition risks to be rationalised for the Quantitative Scenario Analysis to those shown.

It should be noted that some of our transition risks were deemed to be intangible and therefore unsuitable for modelling at this stage⁴. For example, we explored how diet change and interest in alternative proteins could impact our business in the short, medium, and long term. Unfortunately, the diet change transition risk is extremely difficult to quantify and model, and we will continue to manage this risk and opportunity using a qualitative assessment.

The consultant constructed a proprietary economic model that calculates multiple variables for the future climate and economic projects (e.g. labour supply and costs, cost and availability of capital, carbon emissions, economic activity, price changes for key commodities). The output is then used to assess how Genus's financials are potentially affected in these potential futures.

4.3.1 Quantitative Scenario Analysis – findings

In a 1.5°C climate change scenario, GDP is shown to increase over time across all countries, with all developed/service-based economies faring well. Economic performance is relatively constrained in Canada and the US when compared to a 4.0°C climate change scenario, due in part to carbon pricing. In comparison, constraints in Brazil's economy in a 1.5°C scenario are offset by a relatively low carbon price and already significant hydropower generation, resulting in a lower cost of transition relative to other emerging economies. In a 4.0°C scenario, GDP could increase at a greater rate in all countries. In particular, emerging economies grow at an accelerated pace in this scenario. This is driven by business-as-usual production pathways with no further policy intervention to curb emissions, thereby avoiding potential lost production, stranded labour or assets.

When considering emissions across both scenarios⁵, emissions decline significantly in a 1.5°C scenario due to decarbonisation measures across all sectors and countries⁶. In a 4.0°C scenario global emissions still grow notably.

The analysis showed that Genus's physical risk exposure at its 11 sites is limited. The table in appendix B quantifies the exposure at the sites to physical risk including extreme heat, forest fires, extreme wind and soil subsidence.

The 2025 physical risk figures only include potential business interruption, but from 2030 to 2050 the figures include additional costs that could be associated with site damage. While the risk is limited, the aggregated financial impact for extreme heat could become more significant between 2040 and 2050.

The Quantitative Scenario Analysis also concluded that Genus's overall transition risk exposure is limited. The table in appendix B identifies the transition risks of carbon price, energy and raw materials (expressed with no mitigating actions) and an aggregated potential financial impact to 2050.

A failure of sufficient action to decarbonise the business could lead to increased costs in the future of approximately £53m in net present value in a 1.5°C scenario for carbon taxation and pricing, along with an additional potential exposure of approximately £2m in electricity costs. In each case, much of the additional cost impacts were in the US with a lower share of renewable energy, and more aggressive transition towards the Paris Agreement goals.

4.3.2 FY24 review

In FY24 Genus reviewed and updated of the Quantitative Scenario Analysis and Qualitative Analysis, and in addition developed a new desktop tool to drive greater consistency for the BCP reviews and recommendations for mitigation options to avoid climate-related business interruption or physical damage. The BCP review process has not identified any sites where the climate risks require additional investment in equipment or reconfiguration of the sites to mitigate climate risks in the short to medium term.

The FY24 review concluded that the FY23 Quantitative Scenario Analysis and Qualitative Analysis was still valid, and that Genus's overall physical and transition risk exposure is limited in the short to medium term. Our current actions to reduce emissions, our BCPs and the isolated location of our facilities provide risk mitigation that will likely ensure that, in the short to medium term, there is no material detriment to our business. In the longer term, increases in the frequency and severity of physical risks, such as extreme weather events, water stress and higher ambient temperatures could have a greater potential to impact sites, supply networks and consumer value chains, whilst changes to regional climates may lead to changes to costs, the availability of raw materials, and the ability of our customers to produce feed and livestock.

5 METRICS AND TARGETS

Genus has committed to climate-related carbon reduction targets to drive performance in areas both directly controlled by Genus, and others which provide usefulness across our value chain, including:

- reporting of absolute Scope 1, 2 and 3⁷ GHG emissions;
- genetic improvement targets for Pork, Beef and Dairy; and
- Primary Intensity Ratio improvement target (tonnes of CO₂e/tonne live weight of animals produced).

⁴ Other climate risks such as new regulations, influence of investors and stakeholders, and disclosure requirements were also deemed to be unsuitable for the Quantitative Scenario Analysis. The scenario analysis does not model transition risks associated with access to, or the cost of, water, or the interaction with biodiversity

⁵ In each climate transition pathway, economic and sector performance was aligned with SSP2, which was a 'middle of the road' assumption, with moderate population growth levelling in the second half of the century, and GDP growing in line with historical trends

⁶ Residual emissions derive from hard-to-abate sectors such as steel, cement and petrochemicals

⁷ Includes emissions from Scope 3 categories 1 (Purchased goods and services), 2 (Capital expenditure), 3 (Upstream fuel and energy-related activities), 4 (Upstream transport and distribution), 5 (Waste in operations) and 6 (Business travel)

These metrics and targets enable Genus to fulfil its commitments to act on climate change through:

- **driving genetic improvement** – driving porcine and bovine genetic improvements, including the PRP⁸, which support productivity gains, and improve health and feed efficiency, enabling a reduction in GHG emissions per unit of milk or meat produced;
- **reducing operational carbon footprint** – reducing the carbon footprint of our operations through better manure management, applying renewable power solutions to our vehicles and facilities and more efficient power use;
- **partnering** – partnering and advocating for policies that advance positive climate goals and identified United Nations Sustainable Development Goals ('SDGs'); and
- **net zero GHG emissions by 2050** – as our business grows, we are seeking to ensure that over time our GHG emissions shrink.

We use the PIR to report emissions reductions against our FY19 emissions baseline. We aim to reduce the PIR by 25% by 2030 compared to our FY19 baseline, and to have net zero GHG emissions by 2050. This means that even as our business grows, we are seeking to ensure that over time our GHG emissions shrink.

5.1 Driving genetic improvement

In view of the impact our products have on carbon emissions in our value chain, we have adopted genetic improvement targets which consider generational change in the carbon impact of pork, beef and dairy products.

5.1.1 Genetic improvement target and performance for our porcine and bovine genetics

Target	Target description	KPI	FY24 outcome
Porcine	2.22 kg reduction in the life cycle carbon emissions required to produce one market pig	Continue increasing porcine genetic improvement index by 0.75 standard deviation per generation.	We achieved 1.05 standard deviation of genetic gain in the PIC porcine genetic improvement index (20.9 index points).
Bovine beef	0.127 kg reduction in the life cycle carbon emissions required to produce 1 kg of beef	Continue increasing beef genetic improvement index by one standard deviation per generation.	We achieved 1.08 standard deviation of genetic gain for T14 (14.6 points improvement) and 1.28 standard deviation of genetic gain for T15 (12.9 points improvement).
Bovine dairy	Yearly improvement of \$66.9 in the \$ net merit index (public US dairy industry index measuring commercial performance traits).	Continue increasing dairy genetic improvement index by one standard deviation per generation.	We achieved 1.11 standard deviation of genetic gain in NM\$ (74.40 points).

The real strength of our elite genetics builds down successive generations and with the number of animals produced by our customers across the globe. When we have completed our LCA for our porcine and bovine beef genetic lines, we will be able to provide an accurate assessment of the value our genetics brings to the value chain and the corresponding savings in carbon emissions.

In FY25 we will:

- complete our ISO-conformant suite of porcine LCAs; and
- complete the LCA work for our beef-on-dairy genetics, to support the development of a more comprehensive Scope 3 footprint.

Completion of the LCAs for our elite genetics will enable Genus to make a decision on whether to continue to use the genetic indices on their own or use them in conjunction with the LCA work to track avoided carbon emissions.

5.2 Reducing operational carbon footprint

Our GHG emissions are primarily methane produced by our animals, and carbon dioxide from consuming fuel and other materials for energy, and from transport. FY24 GHG emission reporting outcomes include:

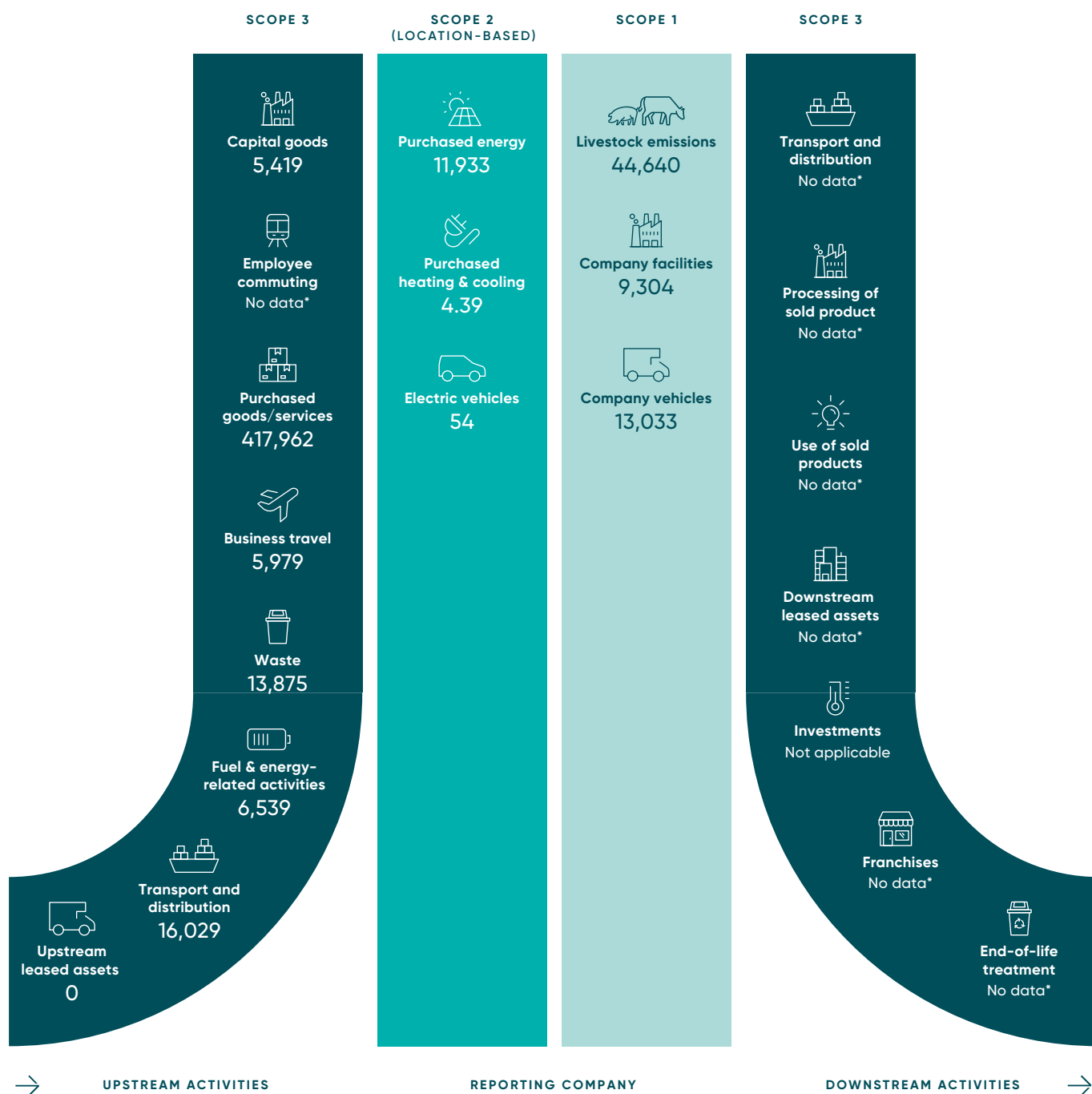
- investments for renewable energy projects such as solar PV and biogas capture which have reduced our Scope 1 emissions (down in FY24 by 624 tCO₂e with emissions of 66,977 tCO₂e versus 67,601 tCO₂e in FY23);
- changes within our production facilities in the US and China have increased future production capacity that have increased our Scope 2 location-based GHG emissions in FY24 to 11,991 tCO₂e versus 9,765 tCO₂e in FY23, and if we report this using market-based emission factors the Scope 2 GHG emissions decrease slightly to 11,981 tCO₂e;
- we were disappointed to see that progress for our PIR target stalled this year. The increase in Scope 2 emissions, coupled with a reduction of animal weight, caused the PIR to increase from 6.04 in FY23 to 6.46 in FY24;
- for FY24 we successfully achieved our goal to review our processes and procedures for calculating emissions, to ensure our data is more accurate and robust; and
- in addition, we reported on our partial Scope 3 emissions (465,803 tCO₂e) which includes our upstream emissions for categories 1–6 (including TAME pig production from multipliers, but not beef and dairy multipliers) but does not include downstream emissions for categories 9–15.

5.2.1 FY24 GHG emissions performance and variance against base-year emissions

	FY24 (tCO ₂ e)	FY24 vs base year of 2019
Scope 1	66,977	-18.3%
Scope 2	11,991	+61.2%
Scope 1+2	78,967	-11.7%
Scope 3	465,803	n/a

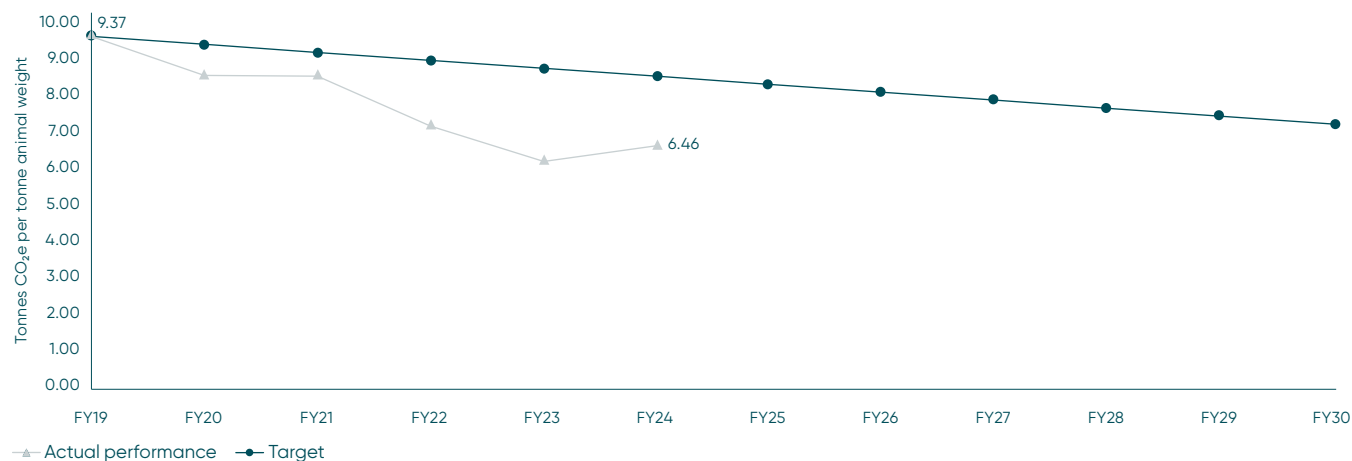
In FY25 we plan to continue investment in energy efficiency, renewable energy technologies and our vehicle fleet. We will increase our focus on transforming our vehicle fleet because we have made less progress than we had hoped for. Emissions have continued to reduce but the rollout of cleaner and more fuel-efficient vehicles is still being constrained by the availability of replacement vehicles from the manufacturers.

5.2.2 Distribution of GHG emissions across GHG Scopes and activities



5.3 Reduce Primary Intensity Ratio

The PIR is a measure of the Group's Scope 1 and 2 emissions per tonne of animal weight. We use the PIR to report emissions reductions against our FY19 emissions baseline. We aim to reduce the PIR by 25% by 2030 compared to our FY19 baseline.



5.4 Net zero GHG emissions

Genus has a wide range of activities that will contribute to our own decarbonisation efforts and help our farmers and the wider value chain to collectively move towards net zero using our elite genetics. We continuously review our 2030 and 2050 targets to ensure they remain relevant and meet stakeholders' expectations. We have decided that once we have concluded our LCA work and have completed the assurance of our Scope 3 footprint, we will seek to rebase our carbon goals.

5.4.1 Roadmap to net zero emissions

2025	<ul style="list-style-type: none"> • Ongoing investment in renewable energy • Aurora biogas project validation • Green power procurement contracts • Ongoing genetic improvement 	<ul style="list-style-type: none"> • Ongoing transition to more fuel-efficient vehicles in the US and UK • Complete beef LCA • Upgrade existing slurry management equipment to capture biogas – Brazil or China
<p>Achieve 25% reduction of Primary Intensity Ratio</p>		
2030	<ul style="list-style-type: none"> • Ongoing genetic improvement • Update LCAs for porcine and bovine elite genetics • Phase out of hybrid vehicles and transition to EVs in Europe • Identify offsets for emissions and commence investments 	<ul style="list-style-type: none"> • Ongoing investment in renewable energy globally • Ongoing investment in slurry pond covers and anaerobic digesters • Investigation into carbon sequestration in soils
2050	<ul style="list-style-type: none"> • Offset remaining emissions to achieve net zero 	<ul style="list-style-type: none"> • Update LCAs for porcine and bovine elite genetics

6 APPENDIX A: QUALITATIVE PHYSICAL AND TRANSITIONAL RISK AND OPPORTUNITY ASSESSMENT

		Time horizon			Risk management	Variation by region			
Risk or opportunity		1-2 years	3-5 years	5+ years		NAM	EMEA	LATAM	ASIA
Physical risks and opportunities	Extreme weather events disrupting the value chain or our operations (e.g. flooding, drought, extremes of temperature, cyclones and wildfires impacting the value chain, including the cost of raw materials).				<ol style="list-style-type: none"> Review the existing infrastructure (i.e. that outside of our business) and supply chain to evaluate the robustness in the event of regional/countrywide weather event, and review BCPs. Identify any opportunities for value chain diversification across different locations to reduce the impact of localised disruptions. Review existing insurance policies and BCPs along with identifying key sites that warrant investment to mitigate risks. Undertake regular exercises to demonstrate that the BCPs are effective. 	=	=	=	=
	Increased prevalence of pests, diseases and zoonotic infections (e.g. climate change expands the range and rate of spread for diseases).				<ol style="list-style-type: none"> Identify the regions where in the long term new pests, diseases and zoonotic infections may migrate to. Review the biosecurity and BCP controls to ensure they remain fit for purpose. 	Λ	Λ	V	V
	Risks to critical infrastructure (e.g. risk to critical facilities or utilities, including increased costs of, or disruption to, water, energy, transport, information technology).				<ol style="list-style-type: none"> Periodically, conduct a comprehensive infrastructure vulnerability assessment to identify potential weak points and develop contingency plans to update BCP processes. Continue to diversify and secure alternative sources of energy and transportation to reduce reliance on vulnerable infrastructure. Recognise that some regions have less resilient infrastructure and stress-test the BCP plans and assumptions on a more regular basis with the need for extended resilience measures. 	V	V	Λ	Λ
Transitional risks and opportunities	Increasing consumer interest in alternative proteins.				<ol style="list-style-type: none"> Watching brief. In the EU/UK we may see reduced protein consumption linked to environmental concerns or government policy, balanced by increased consumption in other regions. 	Λ	=	=	V
	Failure to produce genetic improvement that adapts to different climatic environments.				<ol style="list-style-type: none"> Genus is well placed to produce elite genetics or cross-breeds that are suited to different climatic environments. Ensure that product development and R&D processes continue to manage these genetic improvement opportunities. 	Λ	=	=	Λ
	Influence of regulators, investors, or other stakeholders (e.g. increased disclosure requirements in the medium to long term).				<ol style="list-style-type: none"> EU/UK greater focus on disclosure and interest from stakeholders versus other regions. The LCAs will provide third-party validation and a strong business case for our genetics. In the short to medium term, we are likely to see the greatest changes in EU/UK/US markets. Ensure environmental legislation register continues to be updated to monitor changing regulations and ensure compliance with applicable legal requirements. Genus is well placed to produce elite genetics suited to different climates. Ensure that product development and R&D processes continue to manage these genetic improvement opportunities. 	Λ	=	=	=
	Government policies encouraging carbon emissions reduction (e.g. carbon pricing, which is a cost or incentive imposed by governmental or sub-governmental authority on carbon emissions, generating a financial motivation to decarbonise).				<ol style="list-style-type: none"> Genus is well placed to produce elite genetics that will reduce GHG emissions. Continued refinement of risks and opportunities through focused R&D programmes. EU/UK greater focus on disclosure and interest from stakeholders versus other regions. The LCAs will provide third-party validation and a strong business case for our genetics. 	Λ	=	=	Λ

Key to qualitative physical and transitional risk and opportunity assessment:

Low risk	Medium risk	High risk	Opportunity	Λ Elevated relative to global risk	V Low relative to global risk	= No material difference relative to global risk
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7 APPENDIX B: QUANTITATIVE PHYSICAL AND TRANSITIONAL SCENARIO ANALYSIS

	Risk or opportunity	Aggregated potential impact (2050 NPV)	Region	1.5°C scenario				4.0°C scenario				Drivers, and if no mitigating actions taken by Genus
				Genus (2025)	Short (2030)	Medium (2040)	Long (2050)	Genus (2025)	Short (2030)	Medium (2040)	Long (2050)	
Physical risks and opportunities	Extreme heat ⁹	£1.2m Business interruption by 2050 for NAM	NAM									Local temperatures change based on climate projections. Heat extremes are assumed to be associated with site disruption rather than asset damage.
			EMEA									
			LATAM									
	Forest fires	£0.2m Negligible for most sites	NAM									Change in local temperature, humidity, wind speeds and forest-fire-prone land based on climate projections. Very few of Genus's sites are near heavily forested areas. Across all assets the overall financial impact is negligible in both scenarios, but more likely for Brazil and DeForest in a 4°C scenario.
			EMEA									
			LATAM									
	Extreme wind	<£0.2m Limited but more likely in the USA	NAM									Change in baseline wind gust speed based on changing weather systems. Analysis does not include tropical cyclones, hurricanes or tornadoes because these are difficult to predict and model at an appropriate scale.
			EMEA									
			LATAM									
	Soil subsidence	<£0.2m Potentially low financial impact	NAM									Change in soil moisture, and for soils that are particularly prone to shrinkage during prolonged drought occurring at a site's location, increases the probability of soil subsidence that results in damage to buildings, drainage, and other site infrastructure.
			EMEA									
			LATAM									
Transitional risks and opportunities	Carbon cost	Potential exposure of £53.3m, concentrated in USA and Canada	NAM									Not applicable – The scenario analysis considers the potential remaining exposure between a 'business as usual' 4.0°C scenario and the transition to a 1.5°C scenario.
			EMEA									
			LATAM									
	Energy transition	Potential exposure of £2.0m with the USA more exposed	NAM									
			EMEA									
			LATAM									
	Raw materials (corn) ¹⁰	Low risk £0.1m	NAM									
		None	EMEA									
			LATAM									
	Raw materials (soya)	Low risk £0.9m	NAM									
			EMEA									
			LATAM									

Key to quantitative physical and transitional scenario analyses:

Low <£1m
 Medium £1-3m
 High >£3m
 Potential saving

⁹ Extreme heat only considers the impacts to business disruption such as drought, but not the direct impacts on the welfare of our people and livestock. We are aware that extreme heat can cause semen production and quality to drop in our bulls. This will be an area for more detailed discussion and future analysis. The scenario analysis indicates we have sufficient time to review and implement cost-effective mitigation options before 2040-2050

¹⁰ Physical risk analysis for heat stress on crop production, water availability etc have not been considered as part of this scenario analysis