

VERSION CONTROL

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TABLE OF CONTENTS

VERSION CONTROL	2
TABLE OF CONTENTS	2
1 INTRODUCTION	4
1.1 ORGANISATIONAL BOUNDARY	4
1.2 ACQUISITIONS AND DIVESTMENTS	4
1.3 REPORTING PERIOD	4
1.4 DATA QUALITY	5
1.5 DATA VERIFICATION AND ASSURANCE	5
2 GHG EMISSIONS REPORTING	5
2.1 SCOPE 1 AND 2 EMISSIONS	5
2.1.1 Definitions	5
2.1.2 Scope and Boundary	6
2.1.3 Units	6
2.1.4 Collection Process	6
2.1.5 Data Quality	7
2.1.6 Target	7
2.1.7 Baseline	7
2.2 SCOPE 3 EMISSIONS, CATEGORY 1 – PURCHASED GOODS AND SERVICES	7
2.2.1 Definitions	7
2.2.2 Scope and Boundary	8
2.2.3 Units	8
2.2.4 Collection Process	8
2.2.5 Data Quality	9
2.3 SCOPE 3 EMISSIONS, CATEGORY 11 – USE OF SOLD PRODUCTS	9
2.3.1 Definitions	9
2.3.2 Scope and Boundary	9
2.3.3 Units	9
2.3.4 Collection Process	13
2.3.5 Data Quality	18
2.3.6 External Data Sources	18
2.4 OUTSIDE OF SCOPES EMISSIONS	19
2.4.1 Definition	19
2.4.2 Units	19
2.4.3 Collection Process	19
3 RESPONSIBLE CONSUMPTION REPORTING	19
3.1 ENERGY USE	19
3.1.1 Target	19
3.1.2 Baseline	19
3.1.3 Definitions	20
3.1.4 Scope and Boundary	20
3.1.5 Units	20
3.1.6 Collection Process	20

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3.1.7	Data Quality.....	20
3.2	MATERIAL EFFICIENCY.....	20
3.2.1	Target.....	20
3.2.2	Baseline.....	21
3.2.3	Definitions.....	21
3.2.4	Scope and Boundary.....	21
3.2.5	Units.....	21
3.2.6	Collection Process.....	21
3.2.7	Data Quality.....	22
4	ADDITIONAL CORPORATE SUSTAINABILITY REPORTING	22
4.1	STEM.....	22
4.1.1	Target.....	22
4.1.2	Baseline.....	22
4.1.3	Definitions.....	22
4.1.4	Scope and Boundary.....	22
4.1.5	Units.....	22
4.1.6	Collection Process.....	23
4.1.7	Data Quality.....	23
4.2	SAFETY TRIs.....	23
4.2.1	Target.....	23
4.2.2	Baseline.....	23
4.2.3	Definitions.....	23
4.2.4	Scope and Boundary.....	23
4.2.5	Units.....	23
4.2.6	Collection Process.....	24
4.2.7	Data Quality.....	24
4.3	EMPLOYEE ENGAGEMENT.....	24
4.3.1	Target.....	24
4.3.2	Baseline.....	24
4.3.3	Definitions.....	25
4.3.4	Scope and Boundary.....	25
4.3.5	Collection Process.....	25
4.3.6	Data Quality.....	25
4.4	TCFD CLIMATE MODELLING	25

1 INTRODUCTION

The purpose of this document is to outline the process for the data collection and verification of our sustainability performance data. This data falls into two main categories:

- Our **greenhouse gas emissions data** is published in our Annual Report, within our Climate Report and online at www.rolls-royce.com/sustainability. We calculate our scope 1, 2 and 3 emissions in accordance with the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and Corporate Value Chain (Scope 3) Accounting and Reporting Standard (GHG Protocol). In so far as possible, any known deviations from the GHG Protocol are documented.
- Our **corporate sustainability target data** is published in our Annual Report and online at www.rolls-royce.com/sustainability. Further detail on each individual target and its calculation methodology can be found in this document.

The following criteria apply to all sustainability performance data, unless otherwise stated.

1.1 Organisational Boundary

Sustainability performance data is collected from across our global operations. We aim to account for 100% of the data from the following entities:

- Wholly owned operations and subsidiaries
- Majority owned jointly controlled entities and associates, where we have an equity stake of $\geq 50\%$
- Minority owned jointly controlled entities and associates, where we have an equity stake of $< 50\%$ and retain management control. We do not report on jointly controlled entities and associates where we have an equity stake of $< 50\%$ and do not retain management control.

1.2 Acquisitions and Divestments

We aim to fully integrate any acquired entities into our data collection, consolidation and reporting processes within the first year following acquisition.

For divested entities that are financially classified as “discontinued operations” (divested or held for sale), all current year and historical performance data, including normalised data from the discontinued operation will be excluded from the consolidation process for the reporting year in which the divestment took place, with the exception of disclosure within our Streamlined Energy and Carbon Reporting (SECR) statement.

For any divested entities that are not financially classified as “discontinued operations”, performance data will be included in current year up to the time of sale completion. In subsequent reporting years all data including historical and normalised data from the divested entity will be excluded from the consolidation process.

Where an acquisition or divestment is material (inclusion or removal of the entity’s data results in a variation that exceeds $\pm 5\%$ of the original), historical data will be restated where attainable. We aim to restate data for a minimum of two years prior to acquisition or divestment, which may include restating target baselines where appropriate.

1.3 Reporting Period

The reporting period for our sustainability performance data is aligned to our finance reporting period, from 1 January through to 31 December.

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Where it is not possible to provide complete data within this timeframe, for example due to a lag in energy invoicing for scope 1 and 2 emissions calculations, then actual data is collected for a predefined period. This is then adjusted to the full reporting period through the application of an appropriate adjustment factor. Please see the individual sections in this document for the time frames covered by actuals and the adjustment factors applied.

1.4 Data Quality

The aim of our reporting processes is to provide data that is complete, accurate and relevant to our operations. For any data that is subsequently found to be materially in error following reporting or where conversion factors may have changed, then this will be clearly indicated and the data restated for the purposes of baselines and trend analysis.

For the purposes of materiality, we aim for each reported performance metric to be within $\pm 5\%$ of the true figure. All reported figures are subsequently reviewed during the next reporting cycle and where this results in a variation that exceeds $\pm 5\%$ of the original, the figures will be restated.

Where possible we report our corporate sustainability target data for a five-year window in order to demonstrate our long-term performance and commitment to continual improvement.

Data is subject to verification on an annual basis by relevant subject matter experts. As a part of the corporate verification process, the data is also subject to management review through the Sustainability Data Governance and Reporting Review which provides oversight of the systems, processes and competencies used to gather the data and compile performance reports.

The methodology for each metric is subject to review each year through the update of this document and has been subjected to external verification.

1.5 Data Verification and Assurance

Data is reviewed and verified by the appropriate accountable persons and subject matter experts at point of reporting. Selected sustainability performance data is subject to external assurance, through a limited assurance engagement. A full assurance statement is available at www.rolls-royce.com/sustainability

Disclosures are reviewed by the Sustainability Steering Committee and subcommittees of the Executive Team, and subcommittees of the Board, prior to external publication.

2 GHG EMISSIONS REPORTING

2.1 Scope 1 and 2 Emissions

2.1.1 Definitions

“Scope 1 emissions” accounts for direct greenhouse gas emissions from sources that are owned or controlled by the company.

“Scope 2 emissions” accounts for indirect emissions associated with the generation of imported/ purchased electricity, heat or steam.

“Location based approach” refers to a methodology for calculating greenhouse gas emissions. Under the GHG Protocol, this means for scope 2 emissions the value will reflect the emissions from electricity based on the power grid’s average emission intensity. This is compiled at a regional/country level.

“Market-based approach” refers to a methodology for calculating greenhouse gas emissions. Under the GHG Protocol, this means for scope 2 emissions the value will reflect emissions from electricity that Rolls-Royce has

chosen to purchase. This allows for the recognition of renewable power contracts and Energy Attribute Certificates (EACs).

2.1.2 Scope and Boundary

The information contained in this section refers to both our location based and market based greenhouse gas emissions figures. For statutory reporting purposes we are required to use both methodologies. Please note that our corporate sustainability target focusing on greenhouse gas emissions reduction uses a market based approach.

Reported emissions cover scope 1 and scope 2 only and includes greenhouse gas emissions from our global operations, including our facilities and manufacturing activities as well as emissions from product testing and development.

Both location based and market based emissions are reported.

2.1.3 Units

Greenhouse gas emissions are expressed in kilo-tonnes of carbon dioxide equivalent (ktCO₂e). Greenhouse gas emissions are expressed as a consolidated annual figure in whole numbers or a minimum of two significant figures. For the purpose of statutory reporting, emissions are also reported as intensity in kilotonnes of carbon dioxide equivalent per million pounds sterling of group revenues (ktCO₂e/£m).

2.1.4 Collection Process

A web-based HS&E Performance Reporting System is used to collect energy use data from each individual site on a monthly basis. This energy consumption data is then turned into ktCO₂e via the application of emissions factors. This activity is carried out centrally by a subject matter expert.

This data is collected on a site by site basis for the period from January to October inclusive. To reflect the financial report period from 1 January to 31 December the data is adjusted through the application of an adjustment factor of 1.2. This factor is reviewed annually to ensure applicability as part of the existing reporting process. If actual Product Test site usage data is available for November and December it will be used as the adjustment factor method may distort usage greater than our ±5% materiality threshold due to irregular usage throughout the year. The reported figure is subsequently reviewed during the next reporting cycle and, where this results in a material change, the figure is restated to reflect the actual figure for the whole reporting period.

We collect the amount of energy consumed in kilowatt-hours (kWh) for our facilities and in support of our manufacturing activities as well as from product development and test. This includes but is not limited to electricity, natural gas, purchased heat and steam and fuel oils. We also capture emissions of greenhouse gases from our processes, for example hydrofluorocarbons (HFCs). These are collected as actuals emissions and are measured in kilogrammes.

These values are then converted into kgCO₂e via the application of relevant emissions factors using both a location based and market-based methodology approach (including contract specific emissions factors in the case of renewable energy contracts or Energy Attribute Certificates). The conversion of kWh into kgCO₂e through the application of emissions factors is undertaken on a site by site basis prior to consolidation. The methodology used during the conversion is outlined in 'The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)' valid as at 31 December 2014. This value is then converted into ktCO₂e for the purpose of reporting.

The emissions factors are taken from the latest version of internationally recognised sources (where a specific market-based factor is not being used, residual emission factors are not used in our market based approach

), including but not limited to:

- Defra's Greenhouse Gas conversion Factor Repository (Scope 1)

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- International Energy Agency's Emission Factors for electricity and heat generation (Scope 2)

Market-based emissions factors will be derived from:

- Renewable energy contracts – as evidenced by the supplier
- Purchase of Energy Attribute Certificates – as evidenced by the certificate, with reference to the region and volume of electricity covered by the EAC.

Emission conversion factors for a particular year may be updated in subsequent years. In such cases, historical figures are recalculated each year using the latest available factors. Where this results in a material change to the reported figure then it will be restated.

2.1.5 Data Quality

Businesses are provided with comprehensive company standards and guidance for HS&E performance reporting (which are maintained within our certified Quality and HS&E Management Systems) so as to ensure the consistency and reliability of the data. Such standards are periodically reviewed and refined following the outcomes from internal audit and assurance work.

Data is subject to verification on an annual basis by the Corporate HS&E function. As a part of the corporate verification process, the data is also subject to assurance from internal audit by subject matter experts which provides a review of the systems, processes and competencies used to gather the data and compile performance reports.

Greenhouse gas data is subject to external verification via a Limited Assurance engagement. This includes the initial consumption values, emissions factors and converted kgCO₂e emissions.

2.1.6 Target

Reduce scope 1 and 2 emissions by 46% by 2030, against a 2019 baseline.

This target is measured using a market-based approach and includes all scope 1 and 2 emissions (both facility and test).

2.1.7 Baseline

The baseline for our target reporting is our 2019 performance data.

2.2 Scope 3 Emissions, Category 1 – Purchased Goods and Services

2.2.1 Definitions

“Spend based” refers to a method of calculating emissions based on the amount spent on a good or service multiplied by an appropriate emissions factor.

“Mass based” refers to a method of calculating emissions based on the mass of a purchased good multiplied by an appropriate emission factor.

“Hybrid” refers to a method of calculating total emissions based on summing the results a combination of two or more of the following calculation methods: spend based, mass based, supplier provided, life-cycle assessment.

2.2.2 Scope and Boundary

Purchased goods and services bought by the company during the reporting year, including purchases from joint ventures that are not included under scope 1 and 2.

Excludes:

- Purchased energy and fuels as emissions are covered under scope 1, 2 and scope 3; category 3
- Purchased logistics as emissions are covered under scope 3; categories 4 or 9
- Purchased travel (car and van rentals, airlines, surface transport, hotels, serviced apartments etc) as emissions are reported under scope 3; category 6
- Internal supply purchases including from subsidiaries as emissions are reported under scopes 1 and 2
- Purchased capital goods as emissions are covered under scope 3, category 2.

2.2.3 Units

Emissions are reported in metric megatonnes of carbon dioxide equivalent (MtCO₂e). Data is reported in whole numbers to at least two significant figures.

2.2.4 Collection Process

Spend based data for goods and services is collected through the purchasing structure for the period from January to August inclusive, except for SMR and Power Systems with actual spend from January to December inclusive and Aerospace direct with actual spend from January to November inclusive.

To reflect the financial report period from 1 January to 31 December the January to August actual data is adjusted through the application of an adjustment factor of 1.5. For the January to November actual data the adjustment factor is 1.09091. These factors are reviewed annually to ensure applicability as part of the existing reporting process.

The reported figure is subsequently reviewed during the next reporting cycle and, where this results in a material change, the figure is restated to reflect the actual figure for the whole reporting period.

Excluded items are discounted and the remainder of goods and services mapped to emissions factors as follows:

1. For purchases of aerospace materials, parts and components to categories in the IAEG Purchased Goods and Services and Capital Goods calculation tool.
2. For purchases of non-aerospace materials, parts and components that do not map to the categories in the IAEG tool, additional emissions factors are assigned to calculate emissions.
3. For purchases of indirect goods and services, with the exception of Power Systems, categories in the IAEG Purchased Goods and Services and Capital Goods calculation tool
4. All Power Systems direct and indirect goods and services are mapped to proprietary emissions factors appropriate for their markets.

Spend data (except for Power Systems) is converted to EUR 1000 using the appropriate Group Treasury conversion rate. Power Systems spend data is converted to EUR. Emissions are calculated and totalled.

The results of the spend based calculations from the different sources are summed to give a total emissions figure.

2.2.5 Data Quality

Data is subject to verification on an annual basis by relevant subject matter experts. As a part of the corporate verification process, the data is also subject to management review through the Sustainability Data Governance and Reporting Review which provides oversight of the systems, processes and competencies used to gather the data and compile performance reports.

2.3 Scope 3 Emissions, Category 11 – Use of Sold Products

2.3.1 Definitions

“Scope 3 emissions” accounts for indirect greenhouse gas emissions from sources that occur within the organisation’s value chain.

“Category 11, use of sold products emissions” accounts for direct use-phase emissions associated with the lifetime emissions occurring in the use of products sold within a given year (Original Equipment Only).

2.3.2 Scope and Boundary

Reported emissions cover estimated lifetime CO₂e emissions from units sold within the reporting year. Units are counted as single instances of finished product deliveries of original equipment, predominately gas turbine and reciprocating engines, and excludes components, services or other activities, unless clearly stated in the “Collection Process” section.

As set out in our introduction, our calculation is based on operational control. Finished product deliveries from joint ventures where we have operational control are included unless otherwise stated.

Unless a specific entry into service date is known, the point of entry into service is taken as the year of delivery, unless stated.

Non-product-delivering business units (i.e. New Markets, comprising Rolls-Royce SMR), along with central functions, are excluded on the basis that they do not deliver finished products or engines to external customers at this point in time.

2.3.3 Units

Emissions are expressed both as an absolute amount in megatonnes of carbon dioxide equivalent (MtCO₂e) and as an intensity in kilotonnes of carbon dioxide equivalent per million pounds sterling of Group revenues from the sale of original equipment (ktCO₂e/£m OE revenue).

CO₂ emissions data from the use of sold products is calculated per individual product type on an annual basis against products sold within the reporting year. Where it is not possible to do so on a per individual product type basis, a judgement is taken to select the most representative values for a product category.

This exercise is performed within the three product-delivering Rolls-Royce business units (Civil Aerospace, Defence and Power Systems). Each business units’ detailed calculation methodology, including any known deviations from the GHG Protocol or judgements applied and key data

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inputs, is detailed in the subsequent tables. Some of the information used to perform these calculations is considered propriety and is therefore outlined but not described in detail. Where appropriate we have indicated external data sources that could be used to corroborate our calculations, although it is likely that any results using these data sources may differ from our reported metrics due to variances in the levels of accuracy and completeness compared to using Rolls-Royce proprietary information.

Each business units’ calculation and metrics are consolidated at a Group-level for the purposes of internal quality reviews and approval, and ultimately for external disclosure. Consolidated metrics, and the calculation methodology applied, are tested internally, and are reviewed by the Sustainability Steering Committee and the Energy Transition and Technology Committee, as subcommittees of the Executive Team, and by the Safety, Energy Transition and Technology Committee and the Audit Committee, as subcommittees of the Board, prior to external disclosure.

The collection process and the methodology applied for each product type can be summarised as:

Number of units sold within the reporting year

X

Number of hours of operation for each unit over its in-service lifetime

X

Typical fuel usage per hour of operation

X

Lifecycle CO₂e emissions per kg of fuel used

X

Weight-based allocation factor (where applicable)

This calculation methodology relies on a combination of actuals and assumptions, some of which may be subject to change over time as we continue to further refine and mature our emissions calculations.

Detail on each calculation stage, including the assumptions made at the time of our 2024 annual disclosures, is outlined below:

Number of units sold within a given year

The first stage in the process is to collect the total number of product units of each type delivered within the reporting period. This data is collected on a business-by-business basis for each product type for units sold within the period from 1 January through to 31 December inclusive. This is typically counted at point of delivery; when the product is transported from a Rolls-Royce facility, which may be for integration with a larger platform or for storage and therefore may not necessarily be the calendar year the product enters operational service. Where there are deviations this is outlined in the business units detailed calculation methodology tables.

Unless stated, spare engines are excluded on the basis that these units only enter operational service when another engine is taken out of service on either a temporary or permanent basis, and therefore act as a like-for-like replacement. Units are taken at an engine level, rather than at a component level, on the same basis, unless otherwise stated in the divisional tables below.

In-year deliveries are taken net of returns. This is to ensure consistency with financial disclosures but also to compensate for any potential lag in returns impact and therefore avoid repeated restatements. In the event that a significant one-off return were to occur, exceeding $\pm 5\%$ of the original, a judgement will be taken on the inclusion of one-off significant returns and a subsequent restatement.

Number of hours of operation for each unit over its in-service lifetime

An estimate of the in-service life of each product unit is made. This includes an estimate of the service life length of the product unit, and the number of hours of operation in each year of its service life.

Data collected from our own fleets is used to inform our assessment of the likely in-service life of sold products of each product type. Where possible, this is represented statistically as a retirement curve which expresses the gradually reducing likelihood of an individual product remaining in service as time progresses from one year to the next. The form of the retirement curve is calculated for each product type and takes account the very different in-service lifetimes observed in our different business units.

In the event that retirement curve data is not available, an average life expectancy is taken as an alternative. For Civil Aerospace products an assumption of 25-50 year in-service life is taken and for Defence 30-40 years depending on products. For Power Systems this ranges per product type and application, from 5 to around 25 years. Where available, a more specific assumption is applied per product type.

Typical fuel usage per hour of operation

Data relating to typical fuel consumption per hour of operation is taken from our proprietary engine performance data. In some cases, 3rd party information is available and used to aid transparency for audit purposes. In Power Systems, where products can be utilised in multiple applications (i.e. the *mtu* series 4000 has power generation, maritime, agriculture and mining use cases), a judgement is taken based on the average power sold for an application sub-type and the operating profile of a representative engine. This is due to the complexity of the product range and diversity of end-market applications. Representative engines are selected from the individual product type with high sales figures for the sub-application that best matches the average power sold for the entire sub-application.

Lifecycle CO₂e emissions per kg of fuel used

Multiple assumptions about anticipated choice of fuel, and the carbon intensity of that fuel, throughout in-service life, could be taken.

For the purposes of disclosure, two principal fuel pathways have been evaluated. One of these assumes a 100% fossil fuel based pathway, the other assumes a near 100% sustainable fuel uptake by 2050. These act as bookends to a pathway that in reality, given the status of current and anticipated future policies including fuel mandates in some applications and geographies, will be somewhere in the middle.

We utilise external emissions conversion factors to convert mass of fuel usage to mass of CO₂e. This conversion factor not only accounts for CO₂ emissions released at the point of use of the fuel by our products, but also accounts for upstream emissions of CO₂ and other long-lived greenhouse gases during non-use phases of the fuel's lifecycle.

Weight-based allocation factor

Engines are classified as intermediate rather than final products, therefore, an adjustment factor can be applied according to the proportion of the overall vehicle weight attributable to the Rolls-Royce product. For example, in our Civil Aerospace business a single Trent XWB-84 engine contributes approximately 3.8% of the total weight of the Airbus A350-900 it powers, therefore a weight-based allocation factor of 0.038 is applied.

We have taken a judgement to account for the total weight of the individual product, i.e. the weight at a whole engine level, which does therefore include engine components that come from our supply chain and are integrated into the final product by Rolls-Royce for delivery. This could be considered a minor overstatement.

Weight-based adjustment factors are most appropriate for our mobile applications such as aviation, maritime, rail and other land-based transport applications. It is less appropriate for stationary power-generation applications, which could be within significantly larger infrastructure. In addition, some power-generation products are final products where weight-based adjustment factors cannot be applied. At present, weight-based adjustment factors are applied to our Civil Aerospace and Defence products, but not our Power Systems products. For Power Systems, whilst ~60% of product emissions come from mobile applications (based on 2022 data), it is not always clear what the final platform will be, and in some instances where the final platform is known, there is insufficient data to determine the weight of the final platform. This means that a weight-based judgement is not appropriate at this time across the full Power Systems portfolio.

For the purposes of disclosure, we present both a weight-based adjusted metric and a total metric with no weight-based adjustment applied.

Intensity metric

Alongside absolute CO₂e emissions disclosures, we disclose a normalised metric to demonstrate the carbon intensity of our portfolio. This is calculated as an emissions ratio:

Emissions ratio:
$$\frac{\text{Total CO}_2\text{e emissions from products sold within the reporting year}}{\text{Revenues originating from the sale of original equipment within the reporting year}}$$

This is calculated and disclosed for each fuel pathway.

Original equipment revenues are taken from the financial disclosures made within our Annual Report. Original equipment revenues have been selected as a denominator as these most closely reflect the delivery of finished products within the reporting year, rather than including revenues associated with service activities relating to the installed fleet.

2.3.4 Collection Process

2.3.4.1 Civil

Calculation stage	Business unit approach	Key inputs and data sources
Number of units sold within a given year	<p>OE engines sold within the reporting year, including units sold from joint ventures and entities over which Rolls-Royce has operational control.</p> <p>Within Civil Aerospace, there are no joint ventures that supply finished engine products; the majority supply components into the aerospace supply chain, operation of testing facilities, or provide maintenance, repair and overhaul services.</p> <p>There are a small number of entities that provide components into third party products, for example Europea Microfusioni Aerospaziali S.p.A., is a wholly owned subsidiary supplying precision advanced micro-castings into Rolls-Royce as well as to third parties for non-aerospace applications. Emissions for these components have not been included in our calculations, although we anticipate that any contribution would be immaterial, particularly after a weight-based adjustment is applied. This could be considered a minor understatement.</p> <p>Spare engines are excluded on the basis that these units only enter operational service when another engine is taken out of service. Leased engines are excluded on the same basis.</p> <p>The total volume of OE engine deliveries is published within our financial disclosures each year.</p>	Internal data derived from sales figures
Number of hours of operation for each unit over its in-service lifetime	<p>An assumption is applied that the operational service life of all Civil Aerospace products begins the quarter following engine delivery. This is to account for a potential timelapse after delivery from Rolls-Royce to the airframer for integration before delivery to the final customer.</p> <p>Through our on-wing intelligence and service arrangements, we collect data on the actual operation throughout the engine's in-service life. This includes information on the hours of operation at an individual engine level.</p> <p>Through this information, we build up a picture of the usage intensity of each engine type at different parts of its in-service lifetime over time. For new engine types we can draw upon experience from previous engine types, taking note of the expected route structures on which engines will be deployed. This allows us to make judgements about the future in-service operation and life expectancy of a particular engine type.</p> <p>Information on the expected hours of operation of an engine is amassed internally through proprietary databases but can be corroborated to a certain extent against third party information, such as the Cirium database.</p> <p>The anticipated in-service life of an engine can be derived in a similar manner through known historic information and</p>	Internal data derived from service information

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	<p>market intelligence. This is represented statistically as a retirement curve which expresses the gradually reducing likelihood of an individual product remaining in service as time progresses from one year to the next. On average, an individual product type has an operational life expectancy of around 25 years.</p> <p>We corroborate our assumptions against judgements published by airframe manufacturers to ensure consistency.</p>	
Typical fuel usage per hour of operation	Data relating to typical fuel consumption per hour of operation is taken from our known engine performance data, informed by aircraft performance models.	Internal data derived from engine programme information
Lifecycle CO2e emissions per kg of fuel used	Lifecycle (well-to-wake) CO2e emissions per unit of fuel energy are multiplied by the amount of fuel energy per kg of fuel.	<p>For fossil fuel based pathway: Lifecycle CO2e emissions (well-to-wake) per unit of fuel energy taken from SBTi Aviation Guidance August 2021. Typical fuel energy per kg of jet fuel taken from US Department of Energy</p> <p>For sustainable fuel based pathway: reduction in lifecycle (well-to-wake) CO2e emissions expressed as a percentage of fossil fuel baseline.</p>
Weight-based allocation factor	<p>A weight-based allocation factor is applied according to the engine contribution to the overall platform weight.</p> <p>Engine and aircraft weights are taken from European Union Aviation Safety Agency (EASA) type certificate data sheets.</p> <p>For aircraft weights, we have taken a judgement to use maximum zero fuel weight (MZFW). The weight of fuel within an aircraft can be highly variable, depending on the length and nature of the route, the load of the aircraft, and also varies throughout the duration of a single flight as fuel is consumed. Using MZFW avoids underestimating the engine's contribution to the overall aircraft weight. We use the engine's "dry weight", which is the weight disclosed in the type certificate data sheets.</p> <p>In some cases a single aircraft or engine type may have more than one sub-type, each with different weights. To avoid under-estimating the engine's share of aircraft weight, we take the heaviest engine option and the lightest aircraft option.</p>	EASA aircraft certificates

2.3.4.2 Defence

Calculation stage	Business unit approach	Key inputs and data sources
Number of units sold within a given year	<p><u>Defence Aerospace</u> The number of units has been defined at a whole product level, with the exception of the LiftSystem within Defence aerospace. LiftSystem is not an entire engine, but components within a unit, and has been included. This was included last year so continued for consistency. The number of units only include OE engines sold within the reporting year, including units sold from joint ventures and entities over which Rolls-Royce has operational control.</p> <p>For Defence aerospace, the operational service life start point is taken from the year of delivery.</p> <p><u>Defence Naval</u> For Defence naval, as the lead time between delivery and operation varies considerably we use platform entry into service data, i.e. the date of ship launch. The units are counted within the year of entry into operational service rather than the year of delivery. This includes engine deliveries as well as non-engine units such as propellers. Components and handling systems are excluded. We recognise this as a departure from the GHG Protocol but felt it was most representative of actual emissions.</p> <p>There are no leased or returned engines for Defence aerospace or Defence naval.</p>	Internal data derived from sales figures
Number of hours of operation for each unit over its in-service lifetime	<p>Operating hours are calculated based on a combination of internal service information, propriety data and applied internal subject matter expert judgement where data is not available.</p> <p>Service lifetime is calculated based on known and estimated years' service data. Some data is from internal service information and others is from 3rd party data sources e.g. Janes.</p> <p>For Defence aerospace, lifetime expectancy of each unit is taken from known customer information held internally. Where this is not available then average data is drawn from published industry data (Cirium and Janes databases). Where this is not possible or applicable to specific products, an assumption is applied of a 30-year in-service life.</p> <p>For Defence naval, an assumption is applied of a 40-year in-service life in the absence of any alternative information.</p> <p>There is currently no retirement curve incorporated for Defence. This will be incorporated into future year assessments..</p>	<p>Internal data derived from service information.</p> <p>Cirium aviation database (for Defence aerospace)</p> <p>Janes military platform database (for Defence aerospace and Defence naval)</p>
Typical fuel usage per hour of operation	<p>Fuel consumption data is calculated based on a combination of internal and customer engine performance information and applied internal subject matter expert judgement.</p> <p>Engine performance information, including fuel consumption, is produced by Rolls-Royce in engine</p>	Internal data derived from engine programme information, including validation and verification procedures.

	<p>specification documentation by engine type and application, and is considered proprietary information.</p> <p>Judgement is applied by engine programme chief engineers/ performance engineers where data is not available / sensitive.</p>	Customer data derived from average flying cycle information.
Lifecycle CO2e emissions per kg of fuel used	<p>Lifecycle (well-to-wake) CO2e emissions per unit of fuel energy are multiplied by the amount of fuel energy per kg of fuel.</p>	<p>For fossil fuel based pathway: Lifecycle CO2e emissions (well-to-wake) per unit of fuel energy taken from SBTi Aviation Guidance August 2021. Typical fuel energy per kg of jet fuel taken from US Department of Energy</p> <p>For sustainable fuel based pathway: reduction in lifecycle (well-to-wake) CO2e emissions expressed as a percentage of fossil fuel baseline.</p>
Weight-based allocation factor	<p>A weight-based allocation factor is applied according to the engine contribution to the overall platform weight.</p> <p><u>Defence Aerospace</u> Aircraft and engine weight data is taken from external sources, including from European Aviation Safety Agency (EASA) aircraft type certificate data sheets or from 3rd party data sources such as Janes. In the event that external information is not available for a particular platform or application, an average of similar platform weights has been taken (e.g. Helicopter products use average weight for single engine platforms or average weight for twin engine platforms).</p> <p>Where possible a Maximum Zero Fuel Weight (MZFW) has been used to align with Civil calculations. Where this isn't available we have used the maximum take-off weight and deducted maximum fuel weight. If information isn't available for either of these figures then an estimate is made using similar applications. The only aerospace product doesn't directly emit CO₂ is LiftSystem.</p> <p><u>Defence Naval</u> Applying a weight-based allocation factor to Naval is very complex as the total ship emissions might not come from solely our products, meaning we have limited information around the total emissions of a ship.</p> <p>Weight information of ships is gathered from externally published displacement data. Displacement is used in the absence of weight.</p> <p>Due to the amount of variability in the Naval applications calculations have been simplified into average weight (displacement) and emissions for small, medium or large ships. Individual ships are then categorised as small, medium or large and the weight-based allocation is applied based on the estimated weight of the Rolls-Royce equipment on board.</p>	<p>Janes database</p> <p>EASA type certification data sheets</p> <p>Where external information is not available an average of similar platform weights is taken</p>

2.3.4.3 Power Systems

Calculation stage	Business unit approach	Key inputs and data sources
Number of units sold within a given year	<p>OE engines sold within the reporting year, including units sold from all legal entities over which Rolls-Royce has operational control ($\geq 51\%$ equity share and contractually secured operational control). There are instances where we have $\geq 51\%$ ownership but lack the operational control required to obtain relevant emissions data.</p> <p>Selected spare engines are included where there is a separate purchase order in place. Spare engines that are delivered to replace engines in operational service are not included, on the basis that another engine is being removed from service, on either a temporary or permanent basis, and therefore the spare engine acts as a like-for-like replacement.</p> <p>There are no leased engines within the Power Systems portfolio.</p>	Internal data derived from sales figures
Number of hours of operation for each unit over its in-service lifetime	<p>Operating hours are calculated on a sub-application basis based on a representative engine.</p> <p>Representative engines are used instead of actual individual product types due to the complexity of the product range and diversity of end-market applications.</p> <p>For example, a single product category the <i>mtu</i> series 4000 has power generation, maritime, agriculture and mining use cases. Within the power-generation application, there are six different power ratings, including standby, prime and continuous power, covering a wide power output range and multiple sub-applications, including data centres, industrial plants, residential buildings and decentralised power stations. The application and sub-application, determines the use profile of the product type, and in turn has a significant impact on operating hours, including if it is used for continuous or back-up power generation only.</p> <p>Representative engines are selected from the individual product type with high sales figures for the sub-application that best matches the average power sold for the entire sub-application. For instance, in the marine sub-application “yacht” the engine model 12V2000M96L was chosen as it is one of the most sold engines in this sub-application between 2012 and 2019 that is also closest to the average power sold in this segment (on average power, see below).</p> <p>Operating hours, alongside the average power output, are set for a representative engine based on information for typical use cases in the sub-application and service data collected from the field.</p>	Internal data derived from sales figures and services database

	In-service lifetime is calculated based on the operating hours, the average power output factor to determine the useful life for the representative engine within the sub-application. This information is taken from the “time between overhaul” information provided in customer service manuals and used by Power Systems in the context of service agreements.	
Typical fuel usage per hour of operation	<p>Fuel consumption data is derived from the performance data of the representative engine when operating at average power. Engine performance data is produced by Rolls-Royce in engine specification documentation by engine type and application, and is considered proprietary information.</p> <p>Average power is taken as the average power output of engines sold across the period 2012-2019 and as consolidated in the Power Systems sales database used for management reporting.</p>	Internal data derived from engineering data
Lifecycle CO ₂ e emissions per kg of fuel used	<p>Emissions factors are applied for the fossil fuel based pathway and sustainable fuels based pathways. The fossil fuel based pathway assumes use of 100% mineral diesel across the portfolio.</p> <p>In addition to the tank to wake factor of 2,65 kg CO₂/litre diesel, an upstream emission mark-up of 23% (for well-to-tank emissions) of diesel is added. Emission mark-ups are adjusted for other fuels and for hybrid propulsion.</p>	Taken from externally published database, BEIS
Weight-based allocation factor	A weight-based allocation factor is not currently applied in Power Systems. Whilst ~60% of product emissions come from mobile applications (based on 2022 data), where weight-based allocation factors could be applied, it is not always clear what the final platform will be, and in some instances where the final platform is known, there is insufficient data to determine the weight of the final platform. This means that a weight-based judgement is not appropriate at this time across the full Power Systems portfolio.	Not applicable

2.3.5 Data Quality

Data is subject to verification on an annual basis by the Environmental Strategy Manager. As a part of the corporate verification process, the data is also subject to management review through the Sustainability Data Governance and Reporting Review which provides oversight of the systems, processes and competencies used to gather the data and compile performance reports.

The methodology for each business is subject to review each year through the update of this document and has been subjected to external verification.

2.3.6 External Data Sources

- Cirium aviation analytics – database accessed under licence - Cirium – Data and analytics for aviation and travel related industries
- Janes defence equipment intelligence – database accessed under licence - Janes | Military platforms and defence equipment intelligence
- UK Department of Business, Energy and Industrial Strategy (BEIS), Greenhouse gas reporting: conversion factors - Government conversion factors for company reporting of greenhouse gas emissions

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- US Department of Energy, Sustainable Aviation Fuel – Review of Technical Pathways
- SBTi Science-Based Target Setting for the Aviation Sector

2.4 Outside of Scopes Emissions

2.4.1 Definition

“Outside of Scopes” emissions account for direct Carbon Dioxide (CO₂) emissions released from biofuel sources (fuels with a biological origin) that are owned or controlled by the company. Methane (CH₄) and Nitrous Oxide (N₂O) emission components of biofuel sources are reported in Scope 1. Scope and Boundary

Reported emissions from our global operations, including our facilities and manufacturing activities as well as emissions from product testing and development.

2.4.2 Units

‘Outside of Scopes’ emissions are expressed in kilo-tonnes of carbon dioxide equivalent (ktCO₂e) but can also be reported at kilo-tonnes of carbon dioxide (ktCO₂). Greenhouse gas emissions are expressed as a consolidated annual figure in whole numbers or a minimum of two significant figures.

2.4.3 Collection Process

A web-based HS&E Performance Reporting System is used to collect biofuel energy use data from each individual site on a monthly basis. This energy consumption data is turned into ktCO₂e with the application of emissions factors. This activity is carried out centrally by a subject matter expert.

This data is collected on a site by site basis for the period from January to October inclusive. To reflect the financial report period from 1 January to 31 December the data is adjusted through the application of an adjustment factor of 1.2. This factor is reviewed annually to ensure applicability as part of the existing reporting process. The reported figure is subsequently reviewed during the next reporting cycle and, where this results in a material change, the figure is restated to reflect the actual figure for the whole reporting period.

We collect the amount of energy consumed in kilowatt-hours (kWh) for our facilities and in support of our manufacturing activities as well as from product development and test. This includes but is not limited to fuel oils containing Sustainable Aviation Fuel (SAF), diesel with a biogenic content and Hydrotreated Vegetable Oil (HVO).

The emissions are converted into kgCO₂e by multiplying the site-level data from the HS&E Performance Reporting System with the appropriate emission factors from Defra’s Greenhouse Gas Outside of Scopes conversion factors.

3 RESPONSIBLE CONSUMPTION REPORTING

3.1 Energy Use

3.1.1 Target

Reduce energy use from our facilities by 50%, normalised by revenue, by 2025.

3.1.2 Baseline

The baseline for reporting is our 2014 performance data.

3.1.3 Definitions

“Energy use” refers to the amount of energy consumed in megawatt-hours (MWh) from our facilities and in support of our manufacturing activities.

“From our facilities” refers to the Rolls-Royce global operations, excluding product test and development.

3.1.4 Scope and Boundary

Excludes energy use associated with product test and development activities.

3.1.5 Units

Energy use data is presented both as an absolute in megawatt-hours (MWh) and as an intensity in MWhs per million pounds sterling of group revenues (MWh/£m). Data is reported to whole numbers or at least 2 significant figures.

3.1.6 Collection Process

A web-based HS&E Performance Reporting System is used to collect energy use data from each individual site on a monthly basis.

This data is collected on a site by site basis for the period from January to October inclusive. To reflect the financial report period from 1 January to 31 December the data is adjusted through the application of an adjustment factor of 1.2. This factor is reviewed annually to ensure applicability as part of the existing reporting process. The reported figure is subsequently reviewed during the next reporting cycle and, where this results in a material change, the figure is restated to reflect the actual figure for the whole reporting period.

We collect the amount of energy consumed in kilowatt-hours (kWh) for our facilities and in support of our manufacturing activities. This includes but is not limited to electricity, natural gas, purchased heat and steam and fuel oils. This value is then expressed both as an absolute figure in megawatt-hours (MWh) and as an intensity in megawatt-hours per million pounds sterling of group revenues (MWh/£m).

3.1.7 Data Quality

Businesses are provided with comprehensive company standards and guidance for HS&E performance reporting (which are maintained within our certified Quality and HS&E Management Systems) so as to ensure the consistency and reliability of the data. Such standards are periodically reviewed and refined following the outcomes from internal audit and assurance work.

Data is subject to verification on an annual basis by the Corporate HS&E function. As a part of the corporate verification process, the data is also subject to assurance from internal audit by subject matter experts which provides a review of the systems, processes and competencies used to gather the data and compile performance reports.

Energy data is subject to external verification via a Limited Assurance engagement.

3.2 Material Efficiency

3.2.1 Target

Waste Reduction: Reduce total solid and liquid waste in our operations and facilities by 25%, normalised by revenue, by 2025.

Recycling and Recovery Rate: Increase the recycling and recovery rate to 68% by 2025, whilst maintaining zero non-hazardous waste to landfill.

3.2.2 Baseline

Waste Reduction: The baseline for reporting is our 2014 performance data.

Recycling and Recovery Rate: The baseline for reporting is our 2019 performance data.

3.2.3 Definitions

“Recycling and recovery” refers to any wastes that are sent for recycling (closed or non-closed loop) or recovery (including valorisation). This excludes any wastes which are disposed of to landfill, via chemical or biological treatment or incineration either with or without energy recovery.

“Non-hazardous” refers to any waste which is not defined as hazardous, special¹ or toxic by local legislation.

“Waste to landfill” refers to any waste stream which are sent to landfill. This is defined as the permanent disposal or storage of waste in or on the ground at a permitted site, which includes the use of waste to construct the landfill.

3.2.4 Scope and Boundary

Solid and liquid waste that is sent off site for disposal, recovery or recycling. These targets exclude construction waste, one-off disposals (as defined in internal guidance notes), liquid wastes disposed to sewer (waste water), on-site re-use and recycling within the company, any surplus material of equipment classified as a commodity rather than a waste, customer waste and contractor self-produced waste.

Zero non-hazardous waste to landfill excludes hazardous and radioactive waste and any wastes where local legislation requires disposal to landfill. Maintaining zero applies to all sites that have achieved zero-non-hazardous waste to landfill. For residual sites not-yet achieving zero-non-hazardous waste to landfill, up to <3% exemption threshold allowed for total global non-hazardous wastes unable to avoid landfill due infrastructure, contractual, or technology limitations. Each is to be evaluated on a case-by-case basis and approved rejected by Group subject matter experts.

3.2.5 Units

Waste data is presented both as an absolute in metric tonnes and also as in intensity in metric tonnes per million pounds sterling of group revenues (tonnes/£m). Data is reported to whole numbers or at least 2 significant figures.

The recycling and recovery rate is expressed as a percentage. Data is reported to whole numbers or at least two significant figures.

Recycling and recovery rate =
$$\frac{\text{Weight of in scope waste sent for recycling/recovery}}{\text{Total weight of in scope waste}} \times 100$$

Non-hazardous waste to landfill data is reported in metric tonnes.

3.2.6 Collection Process

A web-based HS&E Performance Reporting System is used to collect waste data from each individual site on a monthly basis.

This data is collected on a site by site basis for the period from January to October inclusive. To reflect the financial report period from 1 January to 31 December the data is adjusted through the application of an adjustment factor of 1.2. This factor is reviewed annually to ensure applicability as part of the existing reporting

¹ The term “special” in this context is used by some jurisdictions to classify certain wastes that are considered to have hazardous properties.

process. The reported figure is subsequently reviewed during the next reporting cycle and, where this results in a material change, the figure is restated to reflect the actual figure for the whole reporting period.

We collect the waste data by location of production, volume, type of waste and disposal route.

3.2.7 Data Quality

Businesses are provided with comprehensive company standards and guidance for HS&E performance reporting (which are maintained within our certified Quality and HS&E Management Systems) so as to ensure the consistency and reliability of the data. Such standards are periodically reviewed and refined following the outcomes from internal audit and assurance work.

Data is subject to verification on an annual basis by the Corporate HS&E function. As a part of the corporate verification process, the data is also subject to assurance from internal audit by subject matter experts which provides a review of the systems, processes and competencies used to gather the data and compile performance reports.

Waste data is subject to external verification via a Limited Assurance engagement.

4 ADDITIONAL CORPORATE SUSTAINABILITY REPORTING

4.1 STEM

4.1.1 Target

Inspire 25 million of tomorrow's pioneers by 2030

4.1.2 Baseline

The baseline for reporting is our 2014 performance data.

4.1.3 Definitions

"STEM" Is defined as Science, Technology, Engineering and Mathematics subjects, or local equivalents.

"Inspire" is defined as people who are involved through interaction with our people, resources or partners, or aware of Rolls-Royce contribution through visibility of our brand in a STEM context.

4.1.4 Scope and Boundary

All Rolls-Royce facilities and operations are in scope. Geographic responsibility lies specifically in Asia Pacific, Germany, North America, Norway and UK.

4.1.5 Units

Data is presented as an overall total of people reached. Supporting data is available by tier, people and geographic location. Data is presented by location due to the governance and delivery structure in place for STEM activities.

Data is measured on a tiered basis:

Tier1: Exposed to Rolls-Royce brand in a STEM context; engagement without active contact, including branded publications or articles and branded events or venues

Tier 2: Actively engaged through our people or resources where we have a simple STEM interaction, which may be in person or electronic/online.

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Tier 3: Actively engaged in a one-off learning activity where we provide an interactive STEM learning opportunity, which may be delivered by either Rolls-Royce or a partner on our behalf.

Tier 4: Actively engage in a sustained learning activity where we provide interactive STEM learning over a period of time, which may be delivered by either Rolls-Royce or a partner on our behalf. glamour

4.1.6 Collection Process

Data is collected using an online reporting tool. Completion is mandatory for all STEM activities as defined by our Global Charitable Contributions and Social Sponsorship policy and procedure.

Data is collected globally, on a live basis, to generate annual figures for presentation in the annual report and on the company website.

4.1.7 Data Quality

The data is subject to verification at both a business level (at the point of submission) and annually by the Corporate Community Investment and Education Outreach team on behalf of the Executive Team, via the Group Charitable Contributions and Sponsorship Committee.

4.2 Safety TRIs

4.2.1 Target

Achieve a Total Reportable Injury (TRI) rate of 0.33 per 100 employees by 2025.

4.2.2 Baseline

The baseline for reporting is our 2014 performance data.

4.2.3 Definitions

“Total reportable injuries” defined as fatalities, lost-time injuries, restricted work cases and medical treatment cases (including any loss of consciousness).

“Lost-time injuries” defined as work-related injuries, including those occurring away from our premises whilst on business assignment, resulting in absence of at least one complete working day/shift, not including any home to work commuting incidents. Lost time injuries do not include Restricted Work Injury cases.

“Occupational disease” defined as a disease with a specific diagnostic criteria related to occupation, for example Hand-Arm Vibration Syndrome (HAVS).

“Work related ill health” defined as a medical condition which on the balance of probabilities is primarily caused by work, for example stress.

4.2.4 Scope and Boundary

Employees include both those that are permanent Rolls-Royce employees and also those that are on fixed term contracts. This excludes temporary workers and contractors. All calculations are based on headcount basis. Occupational illness incidence rate includes new cases of occupational disease and work-related ill health that are diagnosed within the reporting period.

4.2.5 Units

Total reportable injury rate is expressed as an incidence rate per 100 employees:

$$\text{Lost-time injury rate} = \frac{\text{Number of lost-time injuries}}{\text{Average number of company employees over the reporting year}} \times 100$$

$$\text{Total reportable injury rate} = \frac{\text{Number of total reportable injuries}}{\text{Average number of company employees over the reporting year}} \times 100$$

Occupational illness incidence rate is expressed as an incidence rate per 100 employees:

$$\text{Incidence rate} = \frac{\text{Total number of new cases of occupational disease + work related ill-health}}{\text{Average number of company employees over the reporting year}} \times 100$$

Data is reported to whole numbers or at least two significant figures.

4.2.6 Collection Process

Incidents are reported via the HSE Management Information System (HSE MIS) and categorised by the local HSE team. All TRI relevant incidents are reviewed at a weekly HSE Data Assurance Meeting. Incident data is reported in line with the financial periods. Where it is not possible to provide complete data with the usual financial

reporting period from 1 January to 31 December then actual data is collected for the period from January to October inclusive. This data is then adjusted to the full reporting period through the application of an appropriate adjustment factor.

4.2.7 Data Quality

Businesses are provided with comprehensive company standards and guidance for HSE performance reporting (which are maintained within our certified Quality and HSE Management Systems) so as to ensure the consistency and reliability of the data. Such standards are periodically reviewed and refined following the outcomes from internal audit and assurance work.

Data is subject to verification on an annual basis by the HSE function. As a part of the corporate verification process, the data is also subject to assurance from Internal Audit which provides a review of the systems, processes and competencies used to gather the data and compile performance reports.

Total reportable injury rate data is subject to external verification via a Limited Assurance engagement.

4.3 Employee Engagement

4.3.1 Target

In 2024 we measured against the Qualtrics global manufacturing peer group. Given this was the first year of a new survey, the industry benchmark was not set as a target, but instead a threshold. The proposed approach is intended to be as simple and reasonable as possible, given no baseline, from which to set targets.

4.3.2 Baseline

We measured engagement using the Gallup Q12 survey until 2023. During 2024 we transitioned to a new employee survey. This will move our baseline to 2024 moving forward. An internal baseline now in place, from Our Voices, we will explore future ambitions and targets, including non-financial metric options to ensure we drive the right behavioural outcomes to deliver our strategy and transformation.

4.3.3 Definitions

Our voices, powered by Qualtrics, that provides insights on engagement, inclusion and employee experience relative to our targeted behaviours

4.3.4 Scope and Boundary

Businesses included in the scope are: Civil Aerospace, Defence, Power Systems and the central business areas. Employees who are not employed directly by Rolls-Royce (e.g. employed by 3rd parties, joint ventures, sub-contractors) are excluded.

4.3.5 Collection Process

Each year a survey is sent to in-scope populations using a standard set of question questions. Additional questions are sometimes included, but these do not form part of the score and are asked for information only. All employee responses are aggregated to provide an overall average score. Responses are reported as % favorable/neutral/unfavorable across various topics and themes. Qualtrics compare this score to the other companies they work with and provide us with a comparison.

4.3.6 Data Quality

Ipsos Karian & Box (IKB) retain the raw data and provide Rolls-Royce with reporting access to it, therefore none of the data is handled by Rolls-Royce employees. IKB have internal assurance protocols to undertake prior to the survey results being released. Employee engagement score data is subject to external verification via a Limited Assurance engagement.

4.4 TCFD Climate Modelling

The following table describes the scenarios and key data points used as part of our TCFD-aligned energy transition and physical climate risk assessment

Climate scenarios: summary and key assumptions

	Description	Key Data Points 2030*	Key Data points 2050*
Baseline	The world follows a path in which social, economic and technological trends do not shift markedly from historical patterns. Global and national institutions work toward achieving sustainability goals but make slow progress. Environmental systems experience further degradation, despite gradual improvement in energy and resource intensity. Global population growth is moderate and levels off in the second half of this century. Economic development proceeds unevenly. Income inequality persists or improves only slowly and challenges to reducing vulnerability to societal and environmental changes remain.	CO2 price (\$/tonne) — advanced economies \$60/t — developing economies \$30/t GDP growth rate (global ten-year average) 2.6% Global emissions rise 38Gt CO2 Global temperature rise 1.5°C	CO2 price (\$/tonne) — advanced economies \$100/t — developing economies \$55/t GDP growth rate (global ten-year average) 1.7% Global emissions rise 33Gt CO2 Global temperature rise 1.9°C

	Description	Key Data Points 2030*	Key Data points 2050*
Accelerated transition scenario (< 1.5°C by 2100)	The world shifts gradually, but pervasively, toward a more sustainable path, emphasising more inclusive development that respects perceived environmental boundaries. Resulting global temperature rise plateaus at 1.5°C. Educational and health investments accelerate the demographic transition and the emphasis on economic growth shifts toward a broader emphasis on human wellbeing. Driven by an increasing commitment to achieving development goals, inequality is reduced both across and within countries. Consumption is oriented towards low material growth and lower resource and energy intensity.	CO2 price (\$/tonne) — advanced economies \$140/t — developing economies \$90/t GDP growth rate (global ten-year average) 2.2% Global emissions rise 26Gt CO2 Global temperature rise 1.5°C	CO2 price (\$/tonne) — advanced economies \$250/t — developing economies \$200/t GDP growth rate (global ten-year average) 1.9% Global emissions rise 0Gt CO2 Global temperature rise 1.6°C
Accelerated physical scenario (3.5°C by 2100)	Expanding fossil fuel demand and government failure to meet stated commitments leads to higher emissions. The expected expansion towards renewables is cut short causing global emissions to rise significantly. Global warming rises to 2.1°C by 2050, on track to hit 3.5°C of global temperature rise by 2100. This causes significant physical disruption and damage that accelerates as the scenario progresses. Fossil fuel supply is slower to adjust than demand as existing resources are strained and further exploration is needed. This causes spot prices to rise contributing to inflationary pressure in both energy and consumer sectors.	CO2 price (\$/tonne) — advanced economies \$24/t — developing economies \$12/t GDP growth rate (global ten-year average) 2.5% Global emissions rise 44Gt CO2 Global temperature rise 1.5°C	CO2 price (\$/tonne) — advanced economies \$31/t — developing economies \$17/t GDP growth rate (global ten-year average) 0.0% Global emissions rise 53Gt CO2 Global temperature rise 2.2°C
Delayed disruption scenario (1.7°C by 2100)	Increasing fossil fuel demand and delay of climate policies until 2030 leads to higher emissions. Stronger policy actions are necessary to compensate for time lost. Global warming can be contained to 1.7°C but the sudden shift in the energy mix causes more economic and environmental damage than in the baseline. Aggressive and uncertain carbon taxation policies cause substantial inflationary pressures, stranded assets and financial instability. Frictions in the shift towards renewables and more limited carbon capture availability than in the accelerated transition scenario require vast gains in energy efficiency to bring down emissions and therefore global warming by 2050.	CO2 price (\$/tonne) — advanced economies \$24/t — developing economies \$12/t GDP growth rate (global ten-year average) 2.6% Global emissions rise 38Gt CO2 Global temperature rise 1.5°C	CO2 price (\$/tonne) — advanced economies \$379/t — developing economies \$209/t GDP growth rate (global ten-year average) 1.8% Global emissions rise 0Gt CO2 Global temperature rise 1.7°C

*Key data points are taken from external sources, including Oxford Economics Global Climate Service and Databank (data extract September 2024) and the International Energy Agency, Net Zero by 2050 – A Roadmap for the Global Energy Sector, May 2021 and World Energy Outlook 2022, October 2022. These data points are then used to model Group specific assumptions such as demand for aviation and maritime