

Fortescue FY24 Emissions Calculation Methodology

INTRODUCTION

This document is a technical guide to the Fortescue Ltd (Fortescue) Scope 1, 2 and 3 greenhouse gas (GHG) emissions as reported in our Climate Change Report, in the FY24 Annual Report. It outlines the methodologies, calculation boundaries, assumptions and references used in emissions calculations across the three Scopes.

Fortescue's FY24 emissions are calculated in accordance with the Greenhouse Gas (GHG) Protocol's [Corporate Standard](#), the GHG Protocol's [Scope 2 Guidance](#), [Corporate Value Chain \(Scope 3\) Standard](#), and [Technical Guidance for Calculating Scope 3 Emissions](#) and in accordance with the Australian National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Measurement Determination) for our emissions mandated by the Australian National Greenhouse and Energy Reporting Scheme (NGERs).

Organisational boundary

Fortescue uses the operational control boundary approach under the GHG Protocol, meaning that it accounts for 100% of emissions from operations over which it or one of its subsidiaries has operational control. Fortescue undertakes an annual legal review of its structure to identify facilities and members of the Corporate group with operational control, as well as material contracts and joint venture arrangements. Organisational boundaries relating to specific joint ventures and other arrangements are detailed within **Appendix 1**.



Assurance

Emissions data is subject to external assurance by a suitably qualified and experienced independent auditor. Assurance conclusions are published annually on Fortescue's website. We engage KPMG to conduct a:

- reasonable assurance engagement over the:

- Group's total Scope 1 greenhouse gas emissions for the year 12 months ended 30 June 2024



FY24 Group Scope 1 assurance report.pdf

- Group's total Scope 2 location-based greenhouse gas emissions data for the 12 months ended 30 June 2024



FY24 Group Scope 2 emissions location based assurance report.pdf

- Group's total Scope 2 market-based greenhouse gas emissions data for the 12 months ended 30 June 2024



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- limited assurance engagement over the:

- Group's total Scope 3 greenhouse gas emissions data for the 12 months ended 30 June 2024



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SCOPE 1 EMISSIONS

Scope 1 emissions are direct emissions from activities under Fortescue's operational control.

The majority of Fortescue's FY24 Scope 1 emissions came from Fortescue's Pilbara operations in Western Australia. Fortescue's reporting of these emissions is mandated by the Australian National Greenhouse and Energy Reporting Scheme (NGERs). Our Australian iron ore Scope 1 emissions are determined using the relevant emission factors specified in the Australian National Greenhouse and Energy Reporting (Measurement) Determination 2008 (NGER Measurement Determination) and are calculated from fuel consumption data where possible. Given the relatively small size of Fortescue's emissions across other international jurisdictions and in the absence of mandatory local regulations across *all* of the jurisdictions in which Fortescue operates, the NGER Measurement Determination has been set as the default source for emissions factors and methodologies to ensure consistency across our group Scope 1 reporting. When estimating emissions, it is assumed that all fuel (diesel and petrol) is consumed for transport purposes, unless specified otherwise by in-country teams.

Emissions associated with our shipping fleet are calculated based on fuel consumption data obtained from our fleet crews. FY24 fuel consumption data was gathered directly from our ships via a third-party platform (Maritech Services Limited, Sea/ platform). FY24 emissions were calculated using the Global Logistics Emissions Council (GLEC) Framework v3.0 methodology and emissions factors.

Our group FY24 Scope 1 emissions include our NGER reportable emissions; Australian emissions below the NGER thresholds; some Australian emissions outside of NGER requirements; shipping emissions from our marine fleet and our international emissions. In FY24, we have excluded emissions associated with our land use and on-site landfills. These emissions fall outside of the NGER requirements, and we are investigating the potential to address them in future. A small portion of Fortescue's Scope 1 GHG emissions has been estimated using appropriate estimation methods.

In FY24, our Scope 1 emissions included:

- **Diesel combustion** (for mining and transporting iron ore, and electricity generation), sourced and reconciled to delivery invoices in our Pilbara iron ore operations and sourced from international teams for our exploration activities outside of Australia.
- **Marine shipping** and marine fuel combusted in marine vessels (VLOCs and tugboats) under Fortescue's operational control with fuel data sourced from ship captains.
- **Pipeline natural gas** combustion (for electricity generation), sourced and reconciled from delivery invoices and sourced from international teams for our exploration activities outside of Australia.



- **Miscellaneous** sources such as petroleum-based oils, petroleum-based greases, liquid petroleum gas, acetylene, aviation fuel, unleaded petrol, sulfur hexafluoride and refrigerants are reconciled to warehouse usage records and sourced from international teams for our exploration activities outside of Australia.

FY24 Emissions (mt CO ₂ -e)	
Group Scope 1	2.36



SCOPE 2 EMISSIONS

Scope 2 emissions are indirect emissions from Fortescue's consumption of purchased electricity in our operations. The GHG Protocol outlines the following two methods for reporting Scope 2 emissions:

- **Location-based reporting** reflects the average emission intensity of grids on which Fortescue has purchased energy, with grid-average emission factors.
 - o Fortescue's reporting of its Australian Scope 2 location-based emissions is mandated by NGERs. Our Australian iron ore Scope 2 location-based emissions are determined using the relevant emission factors specified in the NGER Measurement Determination and are calculated from primary electricity data where possible. We report these emissions for our international operations as well, with appropriate local grid emission factors.
- **Market-based reporting** reflects the emissions from electricity purchased by Fortescue using a number of market mechanisms such as direct contracts or renewable energy certificates.
 - o Fortescue's calculation of market-based emissions is done in accordance with the Clean Energy Regulator's [Voluntary market-based scope 2 emissions guideline](#). Under the market-based method, in Australia, a percentage of renewable generation is already included with electricity purchases, due to the Australian Government Large Renewable Energy Target (LRET). For FY24, this is 18.72 percent as per the Australian Government's Clean Energy Regulator data.¹ Once the renewable power percentage and voluntary renewable electricity purchased through power purchase agreements (PPAs) and large-scale generation certificates (LGCs) surrendered beyond the requirement of the LRET are applied, the residual mix factor is applied to the residual electricity purchases. We report these emissions for our international operations as well, with appropriate local residual mix emission factors where available. Where a residual mix factor is not available, we apply the grid-based emission factors as recommended in section 4.2 (Scope 2 data hierarchy) of the CDP's [Technical Note: Accounting of Scope 2 Emissions](#).

In FY24, we are reporting both the location- and market- based methods as recommended by the GHG Protocol Scope 2 Guidance. A portion of Fortescue's Scope 2 GHG emissions has been estimated using appropriate estimation methods for example, in the absence of electricity data under certain leasing arrangements (e.g. coworking scenarios). In the absence of electricity data, electricity consumption has been estimated using assumptions around average

¹ Renewable power percentage, Clean Energy Regulator (<https://cer.gov.au/schemes/renewable-energy-target/renewable-energy-target-liability-and-exemptions/renewable-power-percentage>)



energy intensity per meters squared occupied in office spaces as outlined by the Australian Government's *Climate Active* standard using the program's calculation tools.

Emissions produced from the generation of electricity that is supplied from Solomon Power Station to other Fortescue entities under commercial contracts are reported as both Scope 1 and Scope 2 emissions in Australia, per NGER requirements. For the case of Group Scope 2 emissions calculations, only electricity purchases from third parties, outside of Fortescue's boundary, are reported as Scope 2 emissions, to avoid double counting. This applies to Iron Bridge Mine (a joint venture arrangement, with Fortescue holding operational control) that purchases electricity from Solomon Power Station where Scope 2 emissions reported for Iron Bridge Mine (and associated line losses) in NGER are excluded from Group Scope 2 emissions calculations.

FY24 Emissions (mt CO ₂ -e)	
Group Scope 2 – Location Based	0.37
Group Scope 2 – Market Based	0.50

SCOPE 3 EMISSIONS

Scope 3 emissions are indirect emissions resulting from activities in Fortescue's upstream and downstream value chain. Scope 3 emissions are estimated in alignment with the *GHG Protocol Corporate Value Chain Standard*. The GHG Protocol Scope 3 Standard categorises Scope 3 emissions into 15 distinct categories.

In FY24, the vast majority of Fortescue's Scope 3 emissions arose from the processing of our iron ore into steel which is outlined in Category 10: Processing of sold products below. A detailed emissions calculation methodology of each relevant category is provided below.



Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
1. Purchased goods and services	Relevant, calculated	2.82	<p>Input-output method: FY24 spend in US dollars was sourced from Fortescue's finance and accounting system (SAP) and categorised into relevant GHG Protocol categories in line with Fortescue's financial accounting methodology with relevant emission factors sourced in FY23 from the Greenhouse Gas Protocol Quantis Scope 3 Evaluator (Quantis). In FY24, Fortescue undertook a comparative exercise with Quantis emission factors against three other emission factor databases and found Quantis to be most conservative. The Greenhouse Gas Protocol's Quantis tool was decommissioned in August 2023 – Fortescue is looking to investigate other emission factor databases for future reporting years.</p> <p>A small amount of international spend which was not captured by SAP was assigned pro rata and added to this category.</p>	0	<p>Relevant purchased goods and services (except for those reported/covered by other scope 3 categories).</p> <p>No exclusion of emission sources</p>
2. Capital goods	Relevant, calculated	0.13	<p>Input-output method: FY24 spend in US dollars was sourced from SAP and categorised into relevant GHG Protocol categories in line with Fortescue's financial accounting methodology with relevant emission factors sourced in FY23 from the Greenhouse Gas Protocol Quantis Scope 3 Evaluator (Quantis). In FY24, Fortescue undertook a comparative exercise with Quantis emission factors against three other emission factor databases and found Quantis to be most conservative. The Greenhouse Gas Protocol's Quantis tool was decommissioned in August 2023 – Fortescue is looking to investigate other emission factor databases for future reporting years.</p> <p>A small amount of international spend which was not captured by SAP was assigned pro rata and added to this category.</p>	0	<p>No exclusion of emission sources</p>
3. Fuel-and-energy-related activities	Relevant, calculated	0.61	<p>Average-data method: FY24 totals of land-based fuel and electricity purchased by Fortescue were consolidated with</p>	> 50	<p>The consumption of fuels and electricity used to estimate Scope 3 emissions was taken</p>

Fortescue FY24 Emissions Calculation Methodology

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
(not included in Scope 1 or 2)			<p>relevant Scope 3 emission factors from National Greenhouse Accounts (NGA) Factors 2023 applied.</p> <p>Marine-based upstream Scope 3 emissions were calculated through the difference between the <i>Well to Wake</i> and <i>Tank to Wake</i> emissions calculated using a third-party platform (Maritech Services Limited, Sea/ platform) in line with GLEC framework v3.0.</p>		from the data used to estimate our Group Scope 1 and Scope 2. No exclusion of emission sources
4. Upstream transportation and distribution	Relevant, calculated	2.99	<p>Emissions from this category are attributable to outbound chartered transportation and distribution services purchased by Fortescue in FY24. The nature of the individual shipping services contracts has dictated the boundary applied to account for emissions where the carrier is solely under Fortescue duty (e.g. ballast and laden legs).</p> <p>Fuel-based method: FY24 fuel consumption data was gathered directly from chartered vessel ship owners via a third-party platform (Sea/ platform). Appropriate fuel emission factors from the GLEC Framework v3.0 were used to calculate <i>Well to Wake</i> tCO₂e emissions for these voyages via the <i>Sea/ platform</i>.</p> <p>When actual fuel use data was unavailable (owners did not submit their fuel consumption data), estimates were provided using the Sea/ platform's Estimated Carbon Emissions proprietary data model (a model that accounts for speed and activity of a vessel each day, whether it is in port, in a berth, at sea or stationary). A reverse calculation method was used to derive the fuel consumed by breaking down the laden and ballast legs and dividing it by the carbon content factor. The carbon content factor applied was the Heavy Fuel Oil factor from GLEC Framework v3.0.</p> <p>Spend-based method: Some financial spend associated with upstream transportation and distribution was captured in SAP</p>	86	No exclusion of emission sources.

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
			<p>and added to the category. This included miscellaneous third-party upstream transport such as freight costs, with relevant emission factors sourced from the Greenhouse Gas Protocol's Quantis Scope 3 Evaluator (Quantis). In FY24, Fortescue undertook a comparative exercise with Quantis emission factors against three other emission factor databases and found Quantis to be most conservative. The Greenhouse Gas Protocol's Quantis tool was decommissioned in August 2023 – Fortescue is looking to investigate other emission factor databases for future reporting years.</p> <p>A small amount of international spend which was not captured by SAP was assigned pro rata and added to this category. Overall, emissions from the spend-based method accounted for 3% of overall emissions of this category in FY24.</p>		
5. Waste generated in operations	Relevant, calculated	0.01	<p>Waste-type-specific method: FY24 waste data was calculated based on the type of waste and waste diversion methods provided by contractors. Some of our office spaces (for example, co-working arrangements) do not receive waste data so the data on waste types and diversion methods were extrapolated to include all offices based on meters squared occupied. Emission factors were sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors.</p> <p>Spend-based method: Financial spend associated with waste vendors was captured in SAP and added to this category. Relevant emission factors were sourced from Market Economics Limited, accessed with ClimaTiq.</p>	99	No exclusion of emission sources.
6. Business travel	Relevant, calculated	0.03	<p>Distance-based method: FY24 data on commercial flights, chartered flights, car hire data and train travel was obtained directly from Fortescue's travel providers.</p>	94	No exclusion of emission sources.

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
			<p>Emission factors for commercial flights, train travel and car hire were sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors. Emission factors from chartered flights were sourced using the National Greenhouse Accounts Factors for 2023. Assumptions around average day driving distances for car hire were made based on Australian Bureau of Statistics (ABS) data and total car hire day data from the travel team with relevant emission factors sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors.</p> <p>Spend-based method: Hotel, accommodation and taxi emissions were sourced from SAP and converted into emissions estimates with relevant emission factors sourced from the Greenhouse Gas Protocol's Quantis Scope 3 Evaluator (Quantis). In FY24, Fortescue undertook a comparative exercise with Quantis emission factors against three other emission factor databases and found Quantis to be most conservative. The Greenhouse Gas Protocol's Quantis tool was decommissioned in August 2023 – Fortescue is looking to investigate other emission factor databases for future reporting years.</p> <p>A small amount of international spend which was not captured by SAP was assigned pro rata and added to this category. Overall, emissions from the spend-based method accounted for 6% of overall emissions of this category in FY24.</p>		
7. Employee commuting	Relevant, calculated	0.03	<p>Emission sources include fly in fly out (FIFO) flight emissions, FIFO staff travel to and from the airport, emissions associated with staff commute to and from the corporate offices and emissions associated with office-based employees working from home.</p> <p>Distance-based method: FY24 data on FIFO flights were obtained directly from Fortescue's travel providers. Emission</p>	44	No exclusion of emission sources.

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
			<p>factors for flights were sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors. Assumptions around average day driving distances were made based on ABS data and applied to total car rental data provided by travel providers.</p> <p>Average-data method: Staff commute to and from corporate offices was estimated using employment data with ABS averages applied to: transport mode, fuel types by transport mode, average business commute distance and fuel consumption/km by each transport mode. Relevant emission factors were sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors.</p> <p>FIFO commute to and from the airport has been estimated using employment data and average day driving distances sourced from ABS data averages with relevant emission factors sourced from the UK's Department for Energy Security and Net Zero 2023 conversion factors.</p> <p>Emissions associated with employees working from home are estimated based on employment data and assumptions about baseline residential energy intensity by region (kWh per person per day) have been sourced from the International Energy Agency's (IEA) 2018 Data & Statistics – Electricity And Natural Gas Consumption by Sector, via Anthesis White Paper – Estimating Energy Consumption & GHG Emissions for Remote Workers. Relevant grid emission factors were sourced for energy consumed. It has been assumed that Fortescue's office-based staff spend half the time working from home.</p>		
8. Upstream leased assets	Relevant, calculated	0.13	Input-output method: FY24 spend in US dollars was sourced from SAP and categorised into relevant GHG Protocol categories based on Fortescue's accounting system with relevant emission factors sourced from the Greenhouse Gas	0	No exclusion of emission sources.

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
			<p>Protocol's Quantis Scope 3 Evaluator (Quantis). In FY24, Fortescue undertook a comparative exercise with Quantis emission factors against three other emission factor databases and found Quantis to be most conservative. The Greenhouse Gas Protocol's Quantis tool was decommissioned in August 2023 – Fortescue is looking to investigate other emission factor databases for future reporting years.</p> <p>A small amount of international spend which was not captured by Fortescue's finance and accounting systems was assigned pro rata and added to this category.</p>		
9. Downstream transportation and distribution	Relevant, calculated	0.40	<p>Emissions from this category are attributable to downstream chartered transportation and distribution shipping services arranged and paid for by the customer, such as FOB (free on board) basis. Emissions included are those between the port of loading (Fortescue's operations) and the customer at the port of discharge (e.g. laden leg of the voyage).</p> <p>Fortescue has continued with its conservative approach from FY23 to include the ballast leg on top of the laden leg for estimating emissions from downstream transportation & distribution. There is a low materiality for potential overstatement of emissions (<1%). This decision will be revised for future reporting years.</p> <p>Fuel-based method: FY24 fuel consumption data was gathered directly from chartered vessel ship owners via a third-party platform (Sea/ platform). Fuel emission factors from the GLEC Framework v3.0 were then used to calculate <i>Well to Wake</i> CO₂e emissions for these voyages via the Sea/ platform.</p> <p>When actual fuel use data was unavailable (owners did not submit their fuel consumption data), estimates were provided</p>	88	No exclusion of emission sources.



Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
			using the Sea/ platform's Estimated Carbon Emissions proprietary data model (a model that accounts for speed and activity of a vessel each day, whether it is in port, in a berth, at sea or stationary). A reverse calculation method was used to derive the fuel consumed by breaking down the laden and ballast legs and dividing it by the carbon content factor. The carbon content factor applied was the Heavy Fuel Oil factor from GLEC Framework v3.0 .		
10. Processing of sold product	Relevant, calculated	262.16	<p>Average data method: Fortescue has commissioned independent mining, metals and fertilisers consultancy CRU since FY22 to analyse its mix of iron ore products and determine emissions factors for each process from preparing iron ore, and the blast furnace to basic oxygen furnace route to producing crude steel in steel mills located in Fortescue's main markets.</p> <p>In FY24, CRU confirmed that Fortescue should continue applying the same emission factors as for FY23 and FY22, as there were no substantial changes to product specifications. Fortescue will continue to confirm the relevance of these emission factors yearly.</p> <p>Those emission factors, initially developed by CRU, were applied to FY24 volumes of the relevant iron ore product sold into Fortescue's main markets to determine the emissions from transforming Fortescue's iron ore into crude steel.</p>	0	No exclusion of emission sources.
11. Use of sold products	Not relevant, explanation provided	N/A	N/A	N/A	End of reporting boundary as Fortescue only sold intermediate products in FY24.
12. End of life treatment of sold products	Not relevant, explanation provided	N/A	N/A	N/A	End of reporting boundary as Fortescue only sold intermediate products in FY24.

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Scope 3 Category	Evaluation status	Emissions (mt CO ₂ -e)	Emissions calculation methodology	Emissions calculated using data obtained from suppliers or value chain partners (%)	Context
13. Downstream leased assets	Not relevant, explanation provided	0.002	Lessee specific method: FY24 electricity and fuel consumption data was gathered from lessees. Relevant emission factors for fuel as specified in the NGER Measurement Determination were applied, with relevant grid emission factors applied for grid electricity consumed.	100	No exclusion of emission sources.
14. Franchises	Not relevant, explanation provided	N/A	N/A	N/A	An emissions figure is not calculated for this category as Fortescue does not have franchised operations.
15. Investments	Not relevant, explanation provided	N/A	N/A	N/A	Fortescue has operational control over the operations of two JV which are included in our Scope 1 and 2 emissions. Fortescue does not have operational control over one other joint venture. For a full list of JVs and other arrangements, please see Appendix 1
Other (upstream)	N/A	N/A	N/A	N/A	N/A
Other (downstream)	N/A	N/A	N/A	N/A	N/A
Total	See above	269.31*	See above	See above	See above

*We engage KPMG to conduct a limited assurance engagement over the Group's total Scope 3 greenhouse gas emissions data for the 12 months ended 30 June 2024



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APPENDIX 1: JVS AND OTHER ARRANGEMENTS

Type of Arrangement and Location	Alignment to our Strategic Ambition	Approach taken to include these within Fortescue emissions inventory
Belinga Iron Ore Project, Gabon	Intention is that iron ore with high iron content will enable lower emissions downstream processing.	Fortescue has operational control over the operations and has accounted for the GHG emissions of the JV in our Scope 1 and 2 emissions.
Joint Venture, Kazakhstan	Aim is the development of global supplies of critical minerals.	Fortescue has operational control over the operations and has accounted for the GHG emissions of the JV in our Scope 1 and 2 emissions.
Joint Venture, Morocco	Aim is to supply green hydrogen, ammonia and fertilisers to Morocco, Europe and International markets.	Upcoming joint venture. No current operations and no GHG emissions to report in FY24.
Joint Venture, United Kingdom	Aim is to manufacture batteries.	Fortescue does not have operational control. Due to low materiality, we have not pursued obtaining data over which we don't have operational control.
Shareholding, Oman	Aim is the development of green hydrogen production.	Fortescue does not have operational control. No current operations and no GHG emissions to report in FY24.
Investment, Germany	Aim is to accelerate the development of a green hydrogen import facility in Germany.	Fortescue does not have operational control. Due to low materiality, we have not pursued obtaining data over which we don't have operational control.
Investment, Peru	Aim is to develop global supplies of critical minerals.	Fortescue does not have operational control. This project is in study phase and has not yet commenced emission generating activities.
Investment, Netherlands	Intention is an acquisition to support wind tower construction for Fortescue's decarbonisation.	Fortescue does not have operational control. Due to low materiality, we have not pursued obtaining data over which we don't have operational control.
Investment, USA	Aim is to provide a supply of electrolyser systems to Fortescue's projects.	Fortescue does not have operational control. Due to low materiality, we have not pursued obtaining data over which we don't have operational control.