NET ZERO TRACKER

Energy&Climate INTELLIGENCE UNIT

DATA DRIVEN ENVIROLAB

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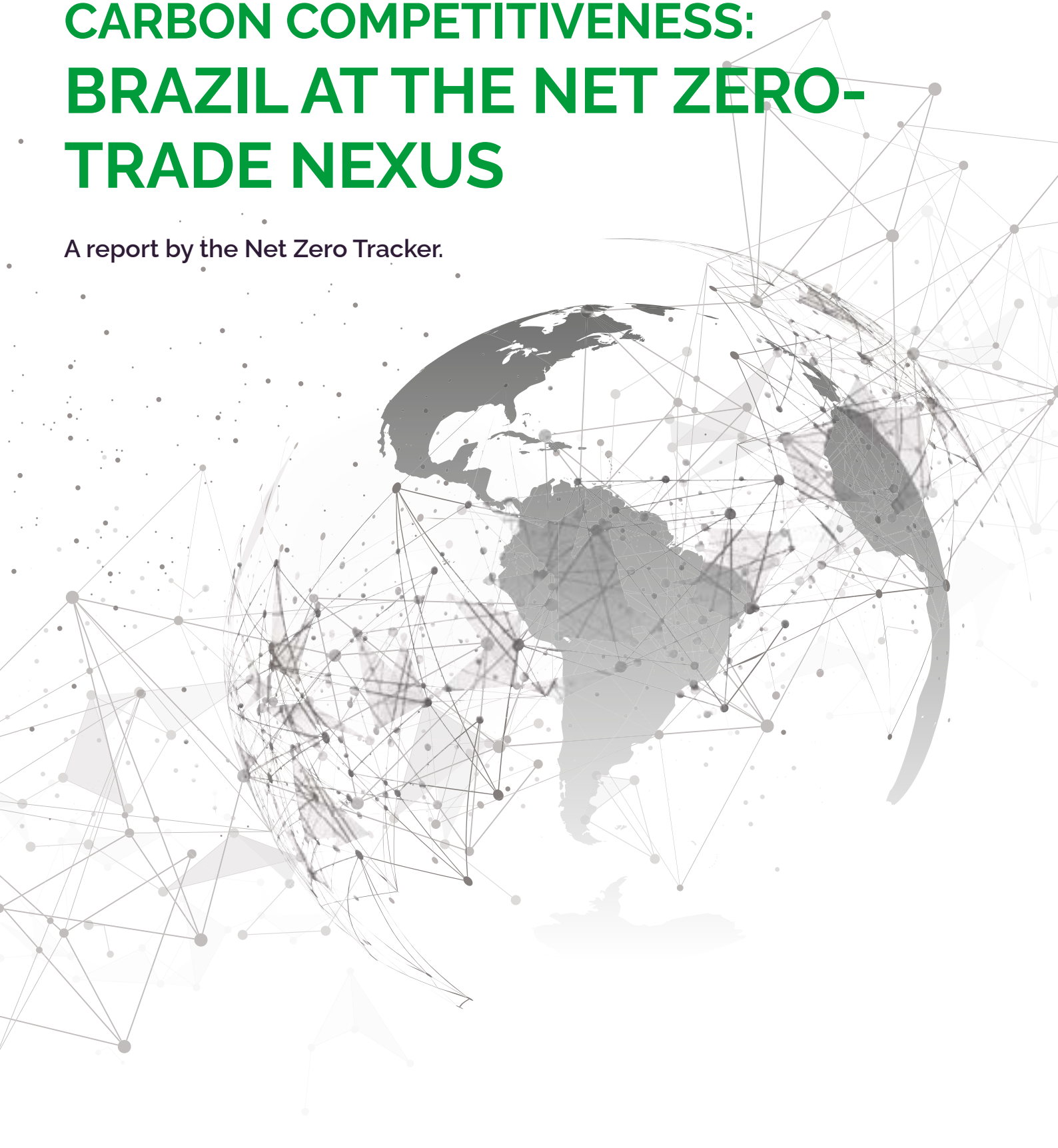
NET ZERO OXFORD

CARBON COMPETITIVENESS: BRAZIL AT THE NET ZERO-TRADE NEXUS

A report by the Net Zero Tracker.



Contents

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Authors

Net Zero Tracker (Energy & Climate Intelligence Unit, NewClimate Institute, Oxford Net Zero, and Data-Driven EnviroLab).

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Executive Summary

As climate policies continue to expand and tighten, Brazil's ability to leverage its emissions profile and carbon competitiveness to protect its economic interests is becoming increasingly important. Already, a large share of its exports go to countries with net zero targets and incoming Carbon Border Adjustment Mechanisms (CBAMs). At the same time, multinational companies are under increasing regulatory and consumer pressure to eliminate deforestation from their supply chains — placing Brazil squarely in the spotlight.

- **78% of Brazil's exports, worth $311 billion and supporting 4.9 million domestic jobs, are sold to countries with net zero targets.**
- More than **one million jobs** are tied to countries with active CBAMs, with another **478,000 jobs** dependent on markets with similar schemes incoming or under consideration.
- **266 major companies** in Brazil's 10 largest export markets — with **$9.4 trillion in combined annual revenues** — have full value chain (Scope 3) net zero commitments. An additional 44 companies, representing $1.2 trillion in revenue, have explicit Scope 3 reduction targets.

As the world's largest exporter of several agricultural commodities, Brazil is acutely exposed to measures aimed at curbing imports that are associated with deforestation.

- **The EU's new Deforestation Regulation** places **$15 billion in annual exports and 210,000 jobs** under heightened supply chain scrutiny. Similar legislation is emerging in other key export markets, raising the stakes for Brazil's agri-export model.
- Brazil's so-called '**Devastation Bill' (Bill 2159/2021)** puts the country's economic and trade interests at heightened risk. President Lula signed it into law in August 2025 but vetoed dozens of provisions; even so, critics warn the remaining rollbacks weaken oversight, endanger Indigenous lands, and risk backlash from partners such as the EU.

Brazil's export economy is heavily dependent on China. In 2023, **over a quarter of Brazil's total exports — and nearly half of its agricultural shipments — went to China**, making it vulnerable to shifts in Chinese trade and climate policy. Agricultural exports to China alone support 762,000 Brazilian jobs.

Meanwhile, tensions with the United States (US), Brazil's second largest bilateral trade partner, create uncertainty. In mid-2025, Washington imposed steep unilateral tariffs on Brazilian goods, triggering a formal WTO dispute and threatening nearly a million Brazilian export-linked jobs. These measures highlight how geopolitical shocks, as well as climate regulations, affect Brazil's trade outlook.

Brazil has long been a global trailblazer in renewable electricity, mainly hydro, giving many of its exports a carbon competitiveness advantage. This clean energy edge strengthens its position ahead of COP30 in Belém, where Brazil is poised to showcase climate ambition and influence the global agenda. But cracks are emerging in Brazil's climate credibility. Emissions remain high in transport and industry. Overreliance on biofuels risks slowing the electrification of its vehicle fleet. And recent moves to expand fossil fuel exploration are in tension with the country's green messaging in the run up to COP30.

The government argues that oil revenues will help fund a just energy transition. But this claim sits uneasily with the fact that **87% of Brazil's oil exports go to countries with the highest level of commitment to net zero** — governments that are actively working to reduce fossil fuel use.

Brazil's low-carbon electricity grid keeps the CO_2 emissions intensity of its non-agricultural exports relatively low — a key advantage as global buyers become more carbon-sensitive. Yet right across the economy, and particularly in manufacturing and other high-value sectors, **industrial and transport inefficiencies continue to erode Brazil's competitiveness**, limiting its ability to fully capitalise on its clean energy potential.

President Lula has taken concrete steps to reverse the surge in deforestation that occurred under former president Jair Bolsonaro. In 2023, Amazon deforestation fell by over 50%, after stronger enforcement by IBAMA (Brazil's environmental

agency), increased satellite monitoring and renewed commitments to Indigenous rights. Sustaining this progress will require consistent enforcement, policy coordination and even greater political will to resist pressure from agribusiness interests pushing for further land conversion.

1. Introduction

One of the world's largest economies, Brazil is a global agricultural and commodities powerhouse — but its trade competitiveness is increasingly tied to the carbon credentials of its exports. With the cleanest energy grid in the G20, powered nearly 90% by renewables (primarily hydro), Brazil has an advantage in producing low-carbon goods like aluminium, steel and biofuels. These sectors could position the country as a key supplier in a decarbonising global economy, particularly as advanced markets roll out Carbon Border Adjustment Mechanisms (CBAMs) and low-emissions procurement rules. This precarious balancing act is further complicated by the US's unilateral tariffs on Brazilian exports in 2025, a move that underscores how shifts in US politics and trade strategy can reshape Brazil's economic risk profile almost overnight.

Yet Brazil also faces structural contradictions. Deforestation — particularly in the Amazon — remains the country's largest source of emissions, and forest loss surged dramatically in the 2010s before falling under renewed enforcement efforts in 2023 and 2024. While President Lula da Silva has pledged to halt deforestation by 2030, legislation like the 'Devastation Bill' (Bill 2159/2021) — even after partial vetoes — threatens to weaken oversight, erode forest protections, and damage Brazil's credibility as a climate leader.

This tension between climate ambition and political reality could impinge on Brazil's trade relationships, particularly with Europe, where forest protection is becoming a major condition for deals such as the stalled EU–Mercosur agreement. It also increases Brazil's exposure to the EU Deforestation Regulation (EUDR), which requires importers to prove that their products are not linked to recent deforestation. As one of the world's largest exporters of soy, beef and other agricultural commodities, Brazil could face significant compliance challenges and reputational risks under the new regime — particularly as it prepares to host COP30, the annual UN climate summit, in Belém.

China is Brazil's largest trading partner, importing vast quantities of iron ore, soybeans, paper, beef, and oil — sectors with significant embedded emissions and deforestation risks. As China's primary overseas supplier of agricultural commodities, Brazil is one of the few countries that runs a substantial trade surplus with China. As Chinese firms seek to decarbonise supply chains, Brazil will face mounting pressure to prove that its commodities are not only competitive on cost but also compatible on climate. At the same time, Brazil's industrial policy — currently shaped by initiatives like the New PAC (Brazil's Growth Acceleration Programme), which funds infrastructure and energy transition projects, and early-stage strategies for green steel — offers an opportunity to shift from raw materials exporter to low-carbon industrial hub. Realising this shift will require more than clean electricity: the country needs infrastructure upgrades, innovation incentives, just transition plans for its workforce and international climate finance. Brazil's BRICS membership gives it leverage beyond Western markets. Through closer ties with China and India, Brazil can access alternative finance and demand for low-carbon exports.

On transport, uptake of fully electric vehicles (EVs) is growing fast. In 2024, EV sales more than doubled, with over 85% imported from China. While the current market share is less than 7%, it masks a sharp upward trend. To date, Brazil's emission reductions in road transport have come largely from biofuels. The country has one of the world's most mature flex-fuel vehicle markets, with large-scale bioethanol blending and widespread domestic production. Brazil is also exploring the future potential of sustainable aviation fuel (SAF) and green hydrogen-based fuels, which could *eventually* support the decarbonisation of hard-to-abate sectors.

Brazil's development priorities, vast natural resources and clean electricity give it a unique advantage at the net zero-trade nexus. But to turn that into sustained competitiveness, Brazil should align its forest governance, industrial policy and trade strategy. The alternative is rising trade friction, especially in markets like the EU where carbon intensity and supply chain transparency are fast becoming non-tariff barriers.

Brazil has overcome a history of institutional and economic challenges to become a global clean energy leader. It has weathered power shortages and economic turbulence, yet built one of the most renewable grids in the world. With a legacy of international climate leadership — including hosting the landmark 1992 Rio Earth Summit — it is well positioned to help shape the next chapter of global climate cooperation. Its clean power sector and vast natural resources offer the foundations for new industrial clusters aligned with net zero. Recent climate-related disasters — from catastrophic floods in Rio Grande do Sul to devastating fires in the Pantanal — underscore the urgency and the stakes. The latter, scientists found, was made at least four times more likely — and 40% more intense — by human-caused climate change (World Weather Attribution, 2024).

2. Methodology and datasets

The findings presented in this report are derived from the combination of several large datasets from multiple sources. This section details the datasets and methodology employed to perform our analysis.

2.1. Net Zero Tracker dataset

2.1.1. Scope of Net Zero Tracker data

The Net Zero Tracker database compiles data on the net zero targets of 4,169 global entities, including all nations that are parties to the UNFCCC, every region in the largest 25 emitting nations, all cities with more than 500,000 inhabitants, and the world's largest 2,000 publicly listed companies by annual revenue (Net Zero Tracker, 2025a).

For the purposes of this analysis, we use detail of the nature and coverage of an entity's zero commitment, including net zero end date (the year that entity has stipulated it will achieve net zero emissions), along with whether the entity has stipulated its net zero goal according to law or some other less binding form of commitment such as in a policy document or in a public declaration. In the case of companies, we also include revenues and whether their commitment encompasses Scope 3, or full supply chain emissions.

The Net Zero Tracker defines the following end target commitments as equivalent to 'net zero' end targets. See the Net Zero Tracker's Methodology (Net Zero Tracker, 2025b) and Codebook (Net Zero Tracker, 2025c) for more details.

- Carbon negative
- Carbon neutral(ity)
- Climate neutral
- Climate positive
- Net negative
- Net zero
- Zero carbon
- Zero emissions

2.1.2. A note on the status of net zero targets

Within each of our net zero status categories — from states that have enshrined net zero in law to those that have yet to specify a target date at all — there is broad divergence. Perhaps the broadest range of divergence exists between nations that fall into the category 'In policy document'. Such nations include China, which, while it has an in-policy commitment to achieving carbon neutral status by 2060, is rolling out renewable energy and electrification infrastructure at a faster rate than any other nation. China lacks a formal net zero law, but the climate and energy indicators of its 14th Five Year Plan are binding.

The same net zero classification, however, also applies to Russia, which is on paper committed to net zero in policy, with a goal of carbon neutrality set for 2060. But as Climate Action Tracker (Climate Action Tracker, 2025a) notes, the country's current policies 'indicate no real commitment to curb emissions', and its published energy strategy declares its intention to significantly expand fossil fuel extraction, consumption and exports. This category encompasses a very wide range of action and ambition.

2.2. Other datasets

Details of the other datasets used in our analysis is outlined below; further detail, including data sources and the process of mapping these datasets to a common industry categorisation, can be found in Appendix 1.

2.2.1. BACI (Base pour l'Analyse du Commerce International)

Global trade in goods data is sourced from CEPII's BACI (Base pour l'Analyse du Commerce International) database, which provides time series data for balanced annual bilateral trade in goods for over 200 countries across over 5000 product groupings based on Harmonised System (HS) classification codes.This dataset is derived from data collated from national reporting by UN Comtrade, and processed by CEPII to remove inconsistencies in reporting of trade flows between partner countries.

2.2.2. Balanced Trade in Services (BATIS)

Reliable and granular data for global trade in services presents more challenges than trade in goods; issues of intangibility and a lower historic significance of the category mean that many countries do not have the capability to report these flows. The OECD's Balanced Trade in Services (BATIS) dataset seeks to overcome these issues, similarly using nationally reported data on services trade flows where it is available, imputing missing values and balancing to remove discrepancies in order to create the fullest possible global picture. Historical time series data is reported for bilateral trade across 26 categories and subcategories of the Extended Balance of Payments (EBOPS) classification system, for over 200 countries.

2.2.3. International Labour Organisation (ILO)

We use International Labour Organisation (ILO) annual data on total employment by ISIC (International Standard Industrial Classification) 'economic activity' categories as the basis for the employment element of this analysis. This data is reported against a mixture of ISIC Rev 3.1 and ISIC Rev.4 groupings depending on the reporting year, with mapping undertaken to reconcile these into a coherent time series.

2.2.4. OECD Trade in Manufactured Goods Statistics (TIMS)

The ILO dataset reports employment for the entire Brazilian economy; OECD's Domestic Employment Embodied in Foreign Final Demand (DEEFFD) factors from its Trade in Employment dataset are then used to calculate the portion of total employment which can be attributed to exports. These factors are reported at the ISIC Rev.4 Industry grouping level, and are calculated using the OECD's Input/Output tables to capture the full supply chain employment impacts of foreign demand for final outputs.

2.2.5. International Monetary Fund's (IMF) CO2 Emissions Multipliers

The IMF's CO2 emissions multipliers provide annual emissions factors, reported by ISIC Rev.4 industry classification, for 66 major economies. These are calculated using IEA and OECD data, including Input/Output tables in order to capture the full supply chain CO2 emissions generated per one million dollars (tCO2/$M) of output.

It should be noted that these capture CO2 emissions only, excluding other greenhouse gases (GHGs), and emissions from land use and forestry. The latest data available is for 2018, the emissions factors used in our analysis. More recent high-level data for the years 2018-2022 indicates that Brazil's overall CO2 emissions per $ of GDP have declined 4% over that period, below the global average and a slower rate than the majority of comparator countries (Our World in Data, 2025a). Our use of this data is comparative; we do not use multipliers to calculate actual emissions, but to compare the relative emissions per $ of output of similar output across comparator countries.

2.2.6. Our World in Data (OWID) grid CO2 intensity

The final dataset is sourced from Our World in Data, which reports emissions from electricity generation in grams of CO_2 equivalents per kilowatt-hour, as an annual time series based on data from EMBER (Ember, 2025a) and the Energy Institute (Energy Institute, 2025).

2.3. ISIC Industries & dataset mapping

The datasets outlined above are reported against several internationally recognised classification systems, which have been mapped to a common system for the purposes of this analysis. We have chosen International Standard Industrial Classification of All Economic Activities (ISIC) Rev.4 'Industries', as reported (or closely matched) in the IMF, ILO and OECD datasets described above. This classification offers a balance between a granularity which enables meaningful insights across specific areas of economic activity, while being sufficiently aggregated to allow accurate mapping of other classification systems. The ISIC system also has the benefit of encompassing both goods and services, enabling the BACI and BATIS datasets to be unified. In the case of these datasets, mapping was undertaken to harmonise HS 6-digit codes and EPBOS codes initially to ISIC Rev.4 Divisions, which were then further aggregated to the 45 Industries detailed in ***Table 1*** and used throughout this analysis. Further detail on the dataset mapping process can be found in ***Appendix 1***.

Industry ID	Industry Name
1	Accomodation and food services
2	Activities of households as employers
3	Administrative and support services
4	Agriculture, hunting, forestry
5	Air transport
6	Arts, entertainment and recreation
7	Basic metals
8	Chemicals and chemical products
9	Coke and refined petroleum products
10	Computer, electronic and optical products
11	Construction
12	Education
13	Electrical equipment
14	Electricity, gas, steam and air conditioning supply
15	Fabricated metal products
16	Financial and insurance activities
17	Fishing and aquaculture
18	Food products, beverages and tobacco
19	Human health and social work activities
20	IT and other information services
21	Land transport and transport via pipelines

Industry ID	Industry Name
22	Machinery and equipment n.e.c.
23	Manufacturing nec; repair and installation of machinery and equipment
24	Mining and quarrying, energy producing products
25	Mining and quarrying, non-energy producing products
26	Mining support service activities
27	Motor vehicles, trailers and semi-trailers
28	Other non-metallic mineral products
29	Other service activities
30	Other transport equipment
31	Paper products and printing
32	Pharmaceuticals, medicinal chemical and botanical products
33	Postal and courier activities
34	Professional, scientific and technical activities
35	Public administration and defence; compulsory social security
36	Publishing, audiovisual and broadcasting activities
37	Real estate activities
38	Rubber and plastics products
39	Telecommunications
40	Textiles, textile products, leather and footwear
41	Warehousing and support activities for transportation
42	Water supply; sewerage, waste management and remediation activities
43	Water transport
44	Wholesale and retail trade; repair of motor vehicles45
45	Wood and products of wood and cork

Table 1 : Industry Names

Mapping of these datasets to standardised ISIC industry categorisation enables:

2.3.1. Calculation of 'employment intensity' of exports

The OECD's DEEFFD factors and ILO data are first multiplied to calculate the total employment supported by exporting activity in each industry. These employment totals are then divided by the total value of combined goods and services exports, which gives a calculated 'employment intensity'; i.e. the employment per dollar value of exports for each reporting industry.[1]

2.3.2. Quantification of domestic employment impacts of international trade based on a complete picture of trade in both goods & services.

While caution should be exercised when using these employment intensities as no direct causal relationship is established, the figures offer insights into the scale of employment currently supported by exports, and differences in the relative employment intensity across industries. With the detailed data on trade between individual countries compiled and harmonised through our analysis, we can also use these figures to estimate the employment supported through trade with specific trade partners, either at the industry or aggregate level.

2.3.3. Comparison of emissions intensities of industries across countries and assessment of vulnerability to trade partners' climate policy positions

By combining a complete picture of export activity with emissions intensity data, the Net Zero Tracker database and other areas of international climate policy, we are able to identify areas of risk to existing trade flows due to partner countries' committed or proposed policy positions. Further, we are able to quantify the scale of this risk in terms of both export values and the domestic employment supported by existing trade. This analysis also allows for the identification of possible areas of opportunity; understanding where successful decarbonisation might enable growth in trade via increased 'Carbon Competitiveness' on the global stage.

1 In a small number of mapped industries, calculated employment per $ output is anomalously high due to the absence of one-to-one mapping between datasets. Employment in these industries is excluded from the analysis.

3. Existing trade

Brazil is the seventh most populous country, the tenth largest economy and the largest in Latin America. The importance of its exports has risen consistently over the past decade, from 11% of GDP in 2014 to more than 18% in 2023 (World Bank, 2025). In 2023, Brazil exported $397 billion in goods and services, supporting over 6.6 million domestic jobs.

Goods dominate Brazil's trade profile, making up 89% of total export value, led by soybeans, iron ore, and crude oil. Services account for the remaining 11%, but are growing steadily — reaching a record $42 billion in 2023. Key growth sectors include professional services, tourism and water transport.[2]

3.1. By market

Brazil's export economy is heavily concentrated. China alone accounted for 27% of exports in 2023, more than Brazil's next two largest partners — the EU (14.7%) and the US (11.4%) — combined.These three markets purchased over half (53%) of Brazil's total exports, sustaining around 3.2 million domestic jobs.

Other key markets include Brazil's Latin American neighbours, the advanced economies of the northeast Pacific Rim, India and the UK. Together, the top ten export destinations absorbed 71% of Brazil's exports and supported 4.3 million Brazilian jobs — roughly two-thirds of all export-linked employment.

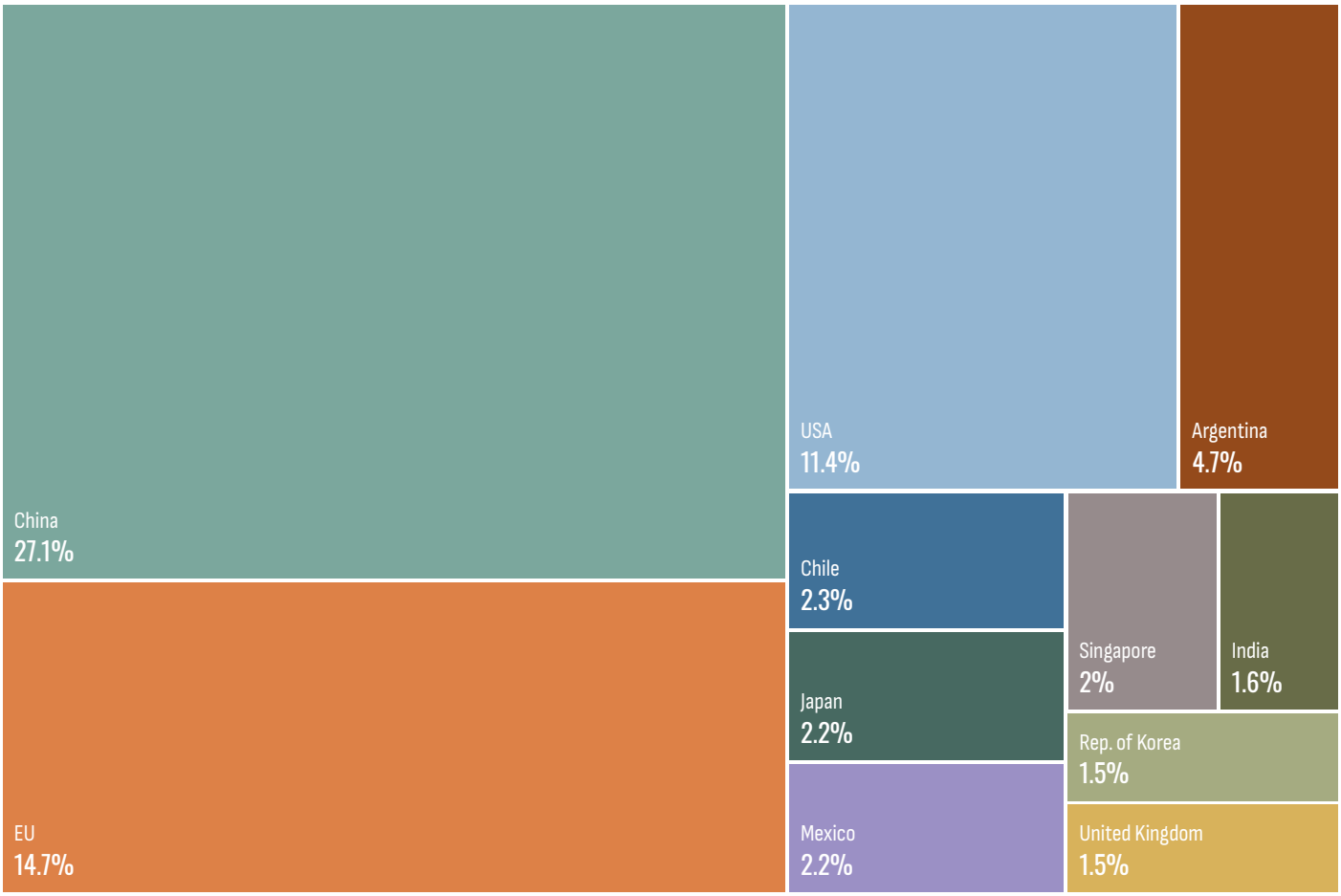

Figure 1: Top ten export markets (plus the EU), 2023

2 'Professional services' is technically 'Professional, scientific and technical activities'; tourism is technically 'Accommodation and Food Services'.

Country	Export Value (US$, Millions)	Share of total exports	BRA jobs supported
China	107,643	27.1%	1,176,000
EU	58,413	14.7%	1,070,000
USA	45,133	11.4%	972,000
Argentina	18,695	4.7%	316,000
Chile	9,007	2.3%	116,000
Japan	8,925	2.2%	129,000
Mexico	8,702	2.2%	126,000
Singapore	8,122	2.0%	83,000
India	6,527	1.6%	118,000
Rep. of Korea	6,059	1.5%	75,000
United Kingdom	5,815	1.5%	170,000
Totals	283,041	71.3%	4,351,000

Table 2: Top ten export markets (plus EU), 2023

3.2. By industry

Brazil is one of the world's top agricultural producers, and is the world's largest exporter of many of its key agricultural outputs including Soybeans, Sugar, Coffee and Corn. Agriculture[3] exports made up almost a quarter of Brazil's total exports in 2023, with Food products, beverages and tobacco, dominated by processed agricultural outputs including beef and poultry, making up a further 13%, and Paper products and printing, primarily wood pulp, another 3%. These agriculture-related industries, all relatively employment intensive, supported 2.2 million jobs.

3 Agriculture, hunting, forestry

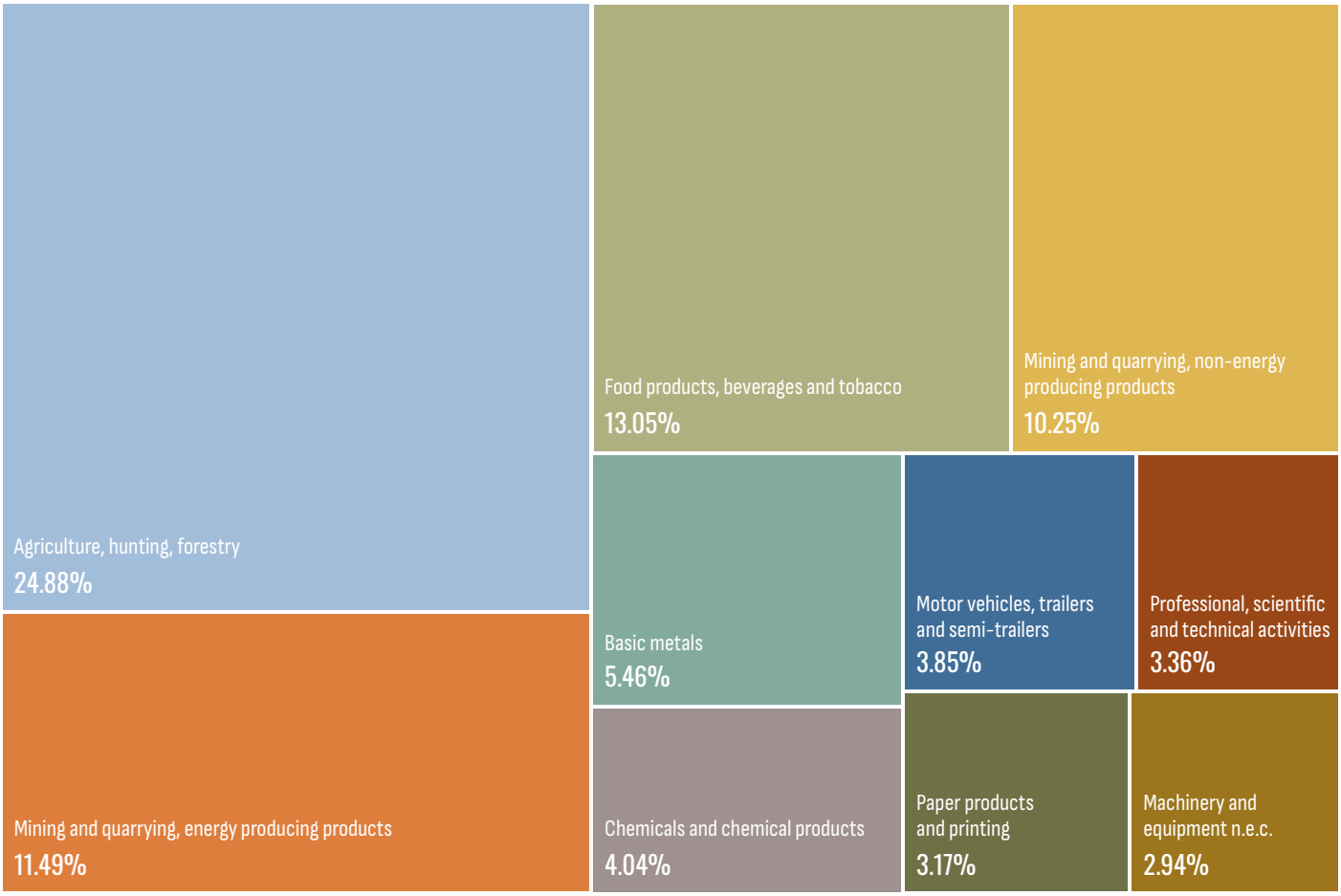

Figure 2: Top ten export industries, 2023

Crude oil and Iron Ore are other major exports, captured in the Mining and quarrying, energy producing products and Mining and quarrying, non-energy producing products industries respectively. Despite constituting 22% of Brazil's exports between them, these industries account for just 6% of all export-linked jobs. Professional services[4], the only services category which makes it into Brazil's top ten exporting industries, is an outlier in terms of employment support, its high employment intensity meaning that it supports 1.4 million domestic jobs despite generating just 3.4% of export value.

4 Professional, scientific and technical services

Industry	Export Value (US$, Millions)	Share of total exports	BRA jobs supported
Agriculture, hunting, forestry	98,819	24.88%	1,640,000
Mining and quarrying, energy producing products	45,629	11.49%	81,000
Food products, beverages and tobacco	51,827	13.05%	436,000
Mining and quarrying, non-energy producing products	40,718	10.25%	286,000
Basic metals	21,670	5.46%	154,000
Chemicals and chemical products	16,053	4.04%	163,000
Motor vehicles, trailers and semi-trailers	15,308	3.85%	117,000
Professional, scientific and technical activities	13,339	3.36%	1,394,000
Paper products and printing	12,597	3.17%	156,000
Machinery and equipment n.e.c.	11,672	2.94%	113,000
Totals	327,631	82.50%	4,540,000

Table 3: Top ten export industries, 2023

Several of Brazil's export industries are heavily reliant on a small number of destination markets - in the Agriculture and both mining industries, between 45% and 55% of all export value goes to the largest market (China in all three cases) alone. This is even more pronounced for some of Brazil's key export commodities: China buys 60% of Brazil's top three export goods (Soybeans, Crude Oil and Iron Ore), and an enormous 73% of its Soybeans, Brazil's largest export product by value in 2023.[5] At $38.9 billion, sales of this one good to China alone accounted for 9.8% of Brazil's entire exports in 2023.

5 Brazil's largest export product in any given year varies according to the relative prices of these commodities.

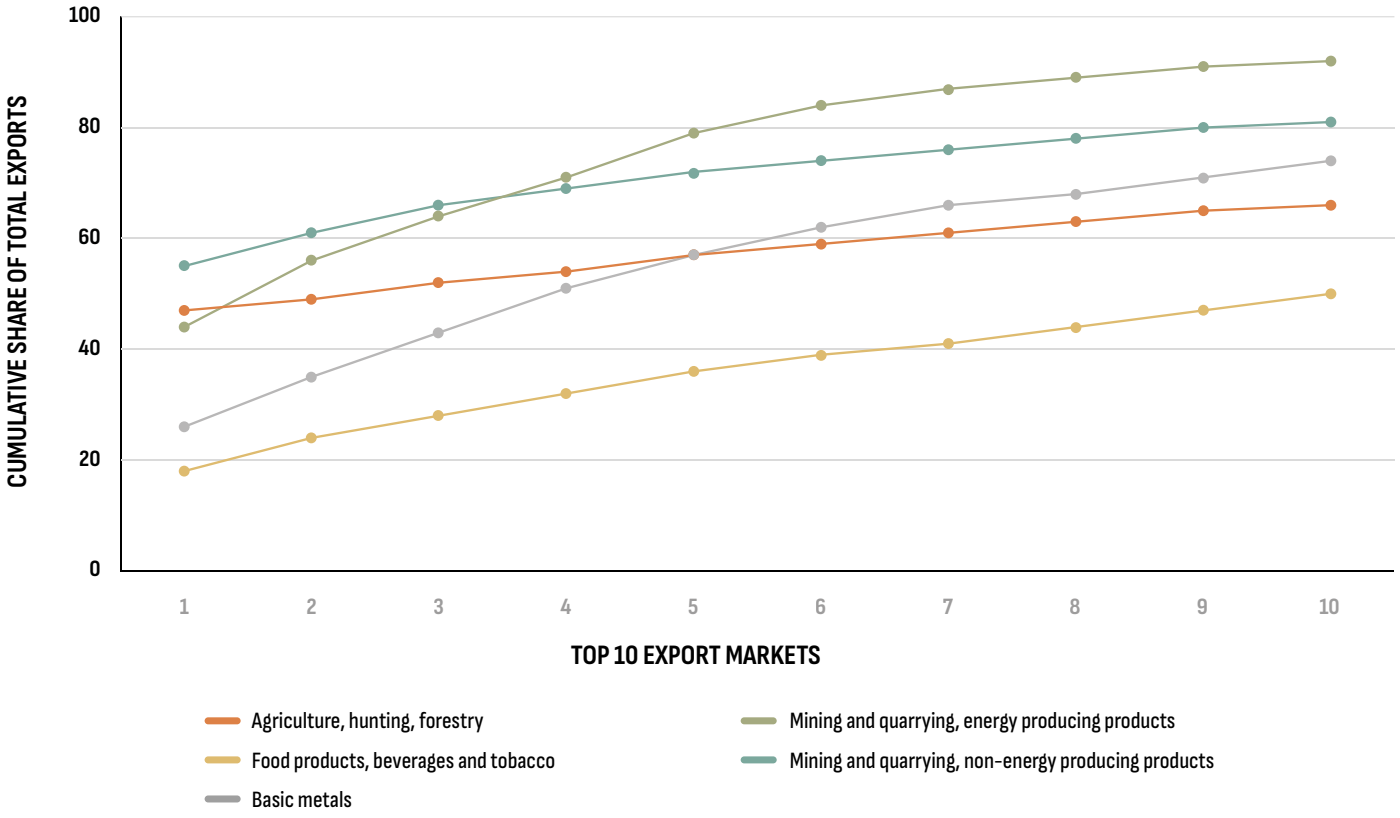

Figure 3 : Export market concentration: cumulative share of value of exports in top 5 exporting industries

3.3 Net zero trade partners

Using the Net Zero Tracker database, we are able to understand the nature of Brazil's trading partners' commitments to decarbonise their supply chains. We find that Brazil's trade with net zero aligned countries represents 78% of overall trade, or $311 billion in export value in 2023. Trade with these countries collectively supported 4.9 million Brazilian jobs. 21% of exports went to countries with the highest level of net zero commitment, with their targets enshrined in national law. A further 50% of export value goes to nations who have committed to targets in official policy documents. As these countries develop net zero-aligned industrial strategies and consumer preferences increasingly exert pressure on companies in those countries to decarbonise their supply chains, the degree of 'carbon scrutiny' to which these countries' imports will be subject is set to rise. This analysis therefore suggests that Brazil's exporters will increasingly have to account for the embodied emissions of their goods and services in the vast majority of their markets.

The United States, Brazil's second largest bilateral trade partner, accounts for 11.4% of 2023 exports and supports just under 1 million jobs. Following the Trump administration's withdrawal from the Paris Agreement in 2025, the USA currently has no federal target and therefore falls into the 'No commitment' category in this analysis. However, while this represents the national picture, data from the Net Zero Tracker shows that 19 US states — representing 49.6% of US GDP, and including both California and New York, still have net zero goals in place (ECIU, 2024). Assuming that Brazilian exports are evenly distributed across the US economy, if these states were included then the proportion of exports going to net zero aligned markets rises to 84%.

Net Zero Target Type	Export Value (US$, Millions)	BRA jobs supported	Share of total exports
In law	82,193	1,588,000	21%
In policy document	198,451	2,692,000	50%
Proposed / in discussion	6,943	144,000	2%
Declaration / pledge	23,075	435,000	6%
Achieved (self-declared)	613	18,000	0%
N/A or no commitment	85,868	1,763,000	22%
Totals	97,143	6,640,000	100%

Table 4: Trade with net zero aligned countries, 2023

At the industry level, the figures rise yet higher for certain key industries, with 84% of Agriculture, 88% of fossil energy mining[6] and 92% of non-energy mining[7] exports going to net-zero aligned territories. The 88% of fossil energy mining exports - primarily crude oil - shipped to countries with net zero targets should be of particular concern to Brazil. All but 1% of this total is sold to countries with targets enshrined in law or policy documents - the highest levels of commitment - and many are therefore accelerating efforts to phase fossil fuels out altogether from their domestic energy mix. These exports, currently worth $40bn and supporting 71,000 Brazilian jobs, are likely to be extremely vulnerable in the mid term.

3.4. Trade Blocs

Brazil is a founding member and recently assumed the rotating presidency of the Southern Common Market (MERCOSUR) customs union which encompasses Brazil, Argentina, Paraguay, Uruguay and Bolivia (Agência Brazil, 2025). All other major South American economies hold associate membership of the bloc and benefit from preferential trading arrangements, while Venezuela's full membership is currently suspended (Mercosur Secretariat, 2025). Brazil's exports to other MERCOSUR member countries made up 7.1% of its total exports in 2023 and supported just over half a million jobs.

MERCOSUR negotiates trade agreements as a bloc; an agreement with the EU is currently progressing through the ratification stage (European Commission, 2025a), and another with the European Free Trade Area (EFTA) was recently concluded (European Free Trade Association, 2025), with negotiations with Canada and the UAE ongoing.

The agreements with European nations, collectively responsible for 16% of Brazil's total exports and 1.3 million Brazilian jobs in 2023, represent a commitment on both sides to lower trade barriers and grow overall bilateral trade. However, recent years have seen significant controversy over two incoming EU climate measures - the Carbon Border Adjustment Mechanism (CBAM) and EU Deforestation Regulation (EUDR) - which have been argued by Brazil, among others, to introduce unfair non-tariff barriers to trade. Both have the capacity to have a significant influence on Brazil's future exports to the EU and are explored in more detail later in this report.

Brazil's trade with member states of these and other major global trade blocs and agreements is detailed in ***Table 4***, including the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional and Comprehensive Economic Partnership (RCEP), which have some overlap in membership. China's membership of the latter plays an outsized role given its prominence in Brazil's overall trade.

6 Mining and quarrying, energy producing products: dominated by Crude Oil.

7 Mining and quarrying, non-energy producing products: dominated by Iron Ore

	European Union	Comprehensive and Progressive Agreement for Trans-Pacific Partnership	Regional Comprehensive Economic Partnership	European Free Trade Area	MERCOSUR
Export Value (2023, $M)	58,413	61,463	152,923	5,115	28,143
Share of total	14.7%	15.5%	38.5%	1.3%	7.1%
Domestic Jobs Supported	1,070,000	936,000	1,848,000	210,000	516,000

Table 5: Trade with major trade blocs and customs unions, 2023

3.5. Companies

The Net Zero Tracker database evaluates the emissions reduction pledges of the 2,000 largest publicly listed companies worldwide, measured by annual revenue. These companies wield vast purchasing and investment power, and gaining insight into the depth and scope of their net zero ambitions offers greater detail to our analysis and insights into potential risks and opportunities for Brazil's future trade.

In Brazil's top 10 export markets, our findings show that 266 global companies—collectively generating $9.4 trillion in annual revenue—have set net zero targets that include scope 3 emissions, meaning they aim to eliminate not only the emissions from their own operations but also those across their entire supply chain. An additional 44 companies, representing another $1.2 trillion in combined revenues, have made emissions reduction commitments that, while not aiming at net zero, still mark a substantial effort toward decarbonising their supply chains.

These companies—and many more beyond the scope of this dataset—represent trillions of dollars in spending power. Their choices regarding sourcing materials and components or establishing production sites carry substantial influence over the markets they engage with.

Brazil leads the G20 in clean electricity generation, with 89% coming from renewable sources in 2023 (Ember, 2024), historically dominated by large hydro plants. It is therefore positioned well to capitalise on attracting both investment and commercial interest from multinationals with net zero ambition, and increasingly attracts household names seeking to leverage its abundant green power resources.

Brazil's green energy mix is already attracting interest from the power-hungry data centre industry. Major investments from Microsoft and Tiktok have been confirmed in recent years (DatacenterDynamics, 2024; DatacenterDynamics, 2025), with others likely to follow, encouraged by president Lula's push to establish a native AI sector in Brazil and a more supportive investment environment through, for example, a forthcoming National Data Centres Policy (Digital Policy Alert, 2025; Ministry of Finance, 2025).

In the Basic Metals industry, Brazil's renewables contribute to Aluminium production with embodied emissions as little as a third of global averages (Fastmarkets, 2024). Capitalising on this advantage, Norsk Hydro, one of the world's largest Aluminium companies, is investing heavily in its Brazilian operations, aiming to further cut emissions and target 100% emissions-free 'Green Aluminium' (Valor International, 2024). With the incoming EU CBAM regulations' initial scope expected to have a particularly large impact on the Basic Metals industry, the Brazilian sector's exports to the bloc will benefit from low emissions relative to its international peers. In an example of carbon taxation 'contagion' (Foresight Media, 2024), a concern for Brazilian operators is that as they invest to further reduce emissions, imports of cheaper, dirtier aluminium may increase as it becomes uncompetitive in Europe and looks for alternative markets, unless Brazil develops its own carbon pricing mechanisms to counteract this (FastMarkets, 2024).

4. Trade partner details

4.1. Policy environment in top 10 trade partners

Country	Share of exports (2023)	Status of net zero target	Climate Action Tracker (CAT) overall rating[8]	High-level electricity policies	High-level Electric Vehicles (EV) policies	High-level industrial decarbonisation policies	High level deforestation and nature policies
China	27.1%	In policy document	Highly Insufficient	Non-fossil fuels in primary energy consumption to around 25%; installed capacity of wind and solar power to 1,200 GW by 2030	BEVs to make up 40% of passenger vehicle sales by 2030	Reaching peak CO2 emissions by 2030 in polluting industries	Signatory to Glasgow Forest Declaration. 2020 update to China's Forestry Law prohibits the trade, processing or transport of illegally forested timber.
European Union	14.7%	In law	Insufficient	42.5% of electricity generation from renewable sources by 2030	All new cars and vans sold in Europe to be zero-emission from 2035.	Ensuring that by 2030, EU manufacturing can meet 40% of EU demand for solar and wind power, batteries, heat pumps, electrolysers, fuel cells, biogas and CCUS	European Union Deforestation Regulation (EUDR) due to come into force from December 2025, aims to prevent deforestation-linked products from entering EU markets
United States	11.4%	No target[9]	Insufficient	Fossil fuel focused with limited federal appetite for transition technologies, though Inflation Reduction Act renewables support remains largely in place — for now.	No active federal target, but significant ambition at state level remains.	Support for green industry and supply chains reduced under new administration, but much of IRA funding remains in place, and state-level policy varies.	Proposed 'Fostering Overseas Rule of Law and Environmentally Sound Trade' (FOREST) act would prohibit import of products linked to illegal deforestation.
Argentina	4.7%	In policy document	Critically insufficient	Minimum of 20% of total electricity from renewable sources by end of 2025	Aiming for 9.5% of light vehicles to be PHEV or EV by 2030. Buenos Aires aims for 30% by same date and 100% by 2050	Focused on energy management and efficiency requirements for firms receiving energy price support. Plans to develop green hydrogen capability.	Signatory to Glasgow Forest Declaration

8 (Climate Action Tracker, 2025b)

9 No national target, however 19 US states - which include California and collectively represent just below 50% of total US GDP still have net zero targets in place

Country	Share of exports (2023)	Status of net zero target	Climate Action Tracker (CAT) overall rating[8]	High-level electricity policies	High-level Electric Vehicles (EV) policies	High-level industrial decarbonisation policies	High level deforestation and nature policies
Chile	2.3%	In law	Almost sufficient	Aiming for 80% renewables share by 2030 and net zero by 2050. Committed to coal phase-out by 2032.	Targets 100% electric light & medium vehicle sales, plus all new public transport vehicles, by 2035.	Direct GHG emissions reduction target from industry & mining sectors of 70% below 2018 levels by 2050. 90% of all industrial heating & cooling to be powered by renewables by 2050.	Signatory to Glasgow Forest Declaration
Japan	2.2%	In policy document	Insufficient	Aiming for renewables share of 40-50% of power generation by 2040-41.	All new light vehicles to be EV or Hybrid (includes non - plug in hybrids) by 2035.	Integrated GX (Green Transformation) strategy including innovation financing and carbon pricing, and specific targets for green steel and cement.	Clean Wood Act (2023) requires due diligence for legally harvested wood & timber products
Mexico	2.2%	Declaration /pledge	Critically insufficient	2015 energy transition law mandated 35% renewable generation by 2024 but achievement fell well short, despite including CCS and combined cycle gas generation in 'renewable' definition. New strategy aims for ~40% by 2030.	National Electric Vehicle Strategy aims for 50% of light and medium passenger vehicles to be electric or plug-in hybrid by 2030, 100% by 2040 and 100% EV by 2050.	Unconditional emissions reduction target of 30% vs. 'business as usual' by 2030. Scant detail on sectoral ambition or supporting policy.	Signatory to Glasgow Forest Declaration
Singapore	2.0%	In policy document	Highly Insufficient	Aiming to install 2GW of solar capacity by 2030 and import up to 4GW of low carbon electricity by 2035.	Targeting 100% electric vehicles by 2040	Centred on energy and carbon efficiency gains. Mandatory GHG reporting for large energy users, minimum performance standards and funding for efficiency measures	Signatory to Glasgow Forest Declaration

Country	Share of exports (2023)	Status of net zero target	Climate Action Tracker (CAT) overall rating[8]	High-level electricity policies	High-level Electric Vehicles (EV) policies	High-level industrial decarbonisation policies	High level deforestation and nature policies
India	1.6%	In policy document	Highly Insufficient	500 GW of renewable energy installed capacity by 2030	By 2030, BEVs to comprise 30% of private car sales; 70% of commercial vehicle sales; 40% of buses; 80% of 2 to 3 wheelers.	Intention to reduce industrial emissions through, among others, carbon trading, energy efficiency, green hydrogen development	Deforestation within national boundaries requires central government approval, though extensive exemptions exist. Not a signatory to the Glasgow Forest Declaration
Republic of Korea	1.5%	In law	Highly insufficient	Aims to achieve 32% renewables by 2038, and grow nuclear generation capacity	Targeting 4.2 million EVs on the road by 2030 and providing subsidies to encourage adoption	National emissions trading scheme to incentivise decarbonisation, and funding available for efficiency measures	2017 Act on the Sustainable Use of Timber aims to eliminate illegally harvested wood from Korean markets. Forthcoming legislation expected to impose corporate sustainability due diligence requirements
United Kingdom	1.5%	In law	Insufficient[10]	Zero carbon electricity by 2030	All new cars to be zero emission by 2035	Industrial strategy with a roadmap to decarbonisation of industry in line with its 2050 net zero target.	2021 Environment Act prohibits larger UK businesses from using 'forest risk commodities' produced on illegally deforested land and introduced due diligence and reporting requirements.

Table 6: Transition policies in key export markets

10 Assessment has not yet been updated to reflect policy changes under the new administration, or updated NDC submitted in January 2025

4.2. China

It is difficult to overstate the importance of the Chinese market for Brazilian trade. China has taken the largest share of Brazil's exports every year since 2010, and now buys over 27% of overall export value, more than twice as much as the next largest bilateral partner, the USA. This gap is growing: China was also by some margin Brazil's fastest growing market over the last 5 years, with exports more than doubling in nominal terms since 2017.

Exports to China are very heavily dominated by agricultural commodities, with the Agriculture, hunting and forestry, Food and beverage products and Paper products and printing industries collectively accounting for over $60bn - 55% of total value - in 2023, and supporting 893,000 domestic jobs. At a more granular level, the concentration is even more evident. Brazil's exports of just one commodity — Soybeans — to China were worth $38.6bn in 2023, over a third of its exports to China and just under 10% of Brazil's entire global exports. The growth of agricultural goods trade with China is set to continue, with recent agreements opening the doors to the sale of new commodities including the lucrative Distiller Dried Grains (DDGS) animal feeds segment historically dominated by the USA (HSF Kramer, 2025; Fastmarkets, 2025).

The two mining related industries in our analysis - energy[11] and non-energy[12] products (dominated by Crude Oil and Iron Ore respectively) each contribute around $20bn and support 194,000 jobs between them. 55% of Brazil's total exports from the non-energy producing mining sector are sold to China.

A public recommitment to open trade and multilateralism was made in direct response to Trump's increasingly protectionist stance ahead of the recent BRICS summit, held in Rio de Janeiro (Reuters, 2025a), while a 2023 agreement to settle all bilateral trade in their own currencies seeks to lower transaction costs and reduce reliance on the US dollar.

As China's primary overseas supplier of agricultural commodities, Brazil is one of the few countries who run a substantial trade surplus with China, despite also importing substantial quantities of higher-value manufactured goods including electronics and machinery, resulting in some unease that the relationship doesn't support growth in Brazil's industrial manufacturing capabilities (China Briefing, 2025; King's College London, 2025).

The diplomatic and economic relationship is close, having been characterised as a 'Global Strategic Partnership' since 2012, and President Lula having made two state visits to China since his second inauguration in 2023. Recent announcements suggest deepening and broad-based cooperation including on trade and investment (Ministério das Relações Exteriores 2025a; Ministério das Relações Exteriores 2023a), including agreements covering diverse areas including nanotechnology, clean energy, artificial intelligence, biotechnology and biofuels (Envision Energy, 2025; People's Dispatch, 2024). The two countries have also maintained a joint research centre dedicated to climate change technology and innovation in 2010 (Global Times, 2025).

With a total of $73bn invested since 2005, Brazil is China's largest recipient of FDI inflows in Latin America (American Enterprise Institute, 2025), with Chinese companies including consumer electronics giant Lenovo having over 1600 local employees (China Briefing, 2025), and Great Wall Motors committing up to $10bn in investment by 2032 to establish a manufacturing presence (Forum Macao, 2024). While Brazil is not officially part of China's Belt and Road Initiative (BRI), China has been investing heavily in infrastructure and trade corridors elsewhere on the South American continent, and agreement has been reached to enable significant Chinese involvement in Brazilian domestic connectivity projects which would facilitate the opening of new trade routes (Mongabay, 2025a; DatamarNews, 2024a). China's interest here is not just in easing flows of agri goods out of the Brazilian interior, but opening alternative routes to the US-controlled Panama canal in the face of renewed Sino-American tension (Orcasia, 2025; BRICS, 2025).

11 Mining and quarrying, energy producing products

12 Mining and quarrying, non-energy producing products

Net zero target status and year	Value and percentage of Brazil's exports	Recent trend: absolute growth in share of Brazil's exports, 2019-2023	Top five exporting industries, value, % of Brazil's exports to country, 2023	Total Brazilian jobs supported, 2023
In policy document, 2060	$108 billion, 27.1%	+ 3.2%	- Agriculture, hunting, forestry ($46.0bn, 43%) - Mining and quarrying, non-energy producing products ($22.4bn, 21% - Mining and quarrying, energy producing products ($20.1bn, 19% - Food products, beverages and tobacco ($9.5bn, 8.9% - Paper products and printing ($4.1bn, 3.8%)	1,176,000

Table 7: Detail of trade with China, 2023

4.3. European Union (EU)

The EU is Brazil's second largest export market, capturing almost 15% ($58.4 billion) of total exports in 2023. Of those, Mining and quarrying, energy producing products formed the largest component (dominated by crude oil), followed by Agriculture[13] and Food products,[14] both around 16% of exports and supporting some 233,000 jobs between them. These categories are dominated by Brazil's key commodity crops: coffee, soybeans and their derivative products, corn, and beef.

Brazil's exports to the EU are much more employment intensive overall than exports to China, supporting 1.1 million domestic jobs and almost matching the employment supported by trade with China despite its significantly higher dollar value. This is boosted by the labour-intensive Professional services[15] industry which fell just outside the top 5 industries in 2023 with exports worth $3.2bn, supporting 323,000 jobs.

There has been gradual progress and political agreement reached in December 2024 on an EU-MERCOSUR free trade agreement, which if ratified would be MERCOSUR's first agreement with an external trade bloc and establish one of the world's largest free trade zones (EU Commission, 2025a). A smaller deal with the four small European Free Trade Area (EFTA) countries is set to be finalised in late 2025 (Reuters, 2025b).

The EU has a collective net zero target enshrined in law, and has been a global leader in the introduction of climate regulation and measures to drive emissions reductions both at home and in the jurisdictions of its overseas suppliers. The incoming Carbon Border Adjustment Mechanism (CBAM) applies taxes to certain imported goods based on their embodied emissions, seeking to address the risk of carbon leakage via the offshoring of emissions in response to the EU's internal emissions taxation scheme. The initial scope of the CBAM covers emissions-intensive raw materials including iron and steel, aluminium, cement and fertilisers, though this scope is set to expand with the EU already consulting on the inclusion of downstream products (European Commission, 2025b).

> Carbon Border Adjustment Mechanisms (CBAMs) are emerging climate policies designed to level the playing field between domestic industries and foreign competitors by ensuring both face a comparable carbon cost. Their aim is to prevent carbon-intensive imports from undercutting domestic producers subject to stricter regulations — such as the EU's relatively high carbon price.[16] CBAMs typically apply to upstream, trade-exposed sectors, such as metals and cement, to minimise carbon leakage — the relocation of emissions-heavy industries to jurisdictions with weak or no carbon pricing.
>
> The EU's CBAM, currently in a transition phase and set to be fully operational by January 2026, initially covers iron and steel, aluminium, cement, fertiliser, hydrogen, and electricity (European Commission, 2025c). Importers must buy emissions certificates that mirror the cost of EU Emissions Trading System (ETS) allowances. The policy is designed to expand in scope over time. The UK's CBAM, launching in 2027, follows a similar model but will exclude electricity (UK Government, 2025). Neither of these two policies offer exemptions for lower-income countries.
>
> The impact on Brazil could be significant. The initial scope of coverage means that Brazil's Basic Metals industry is particularly exposed; of the $22 billion (5.5% of total exports) sold in 2023, 34% went to markets with a CBAM mechanism either active, incoming or under discussion, and almost half of that value is trade in commodities directly exposed under the initial scope of the EU scheme.
>
> CBAMs are under discussion in Australia (Department of Climate Change, Energy, the Environment and Water, 2025), Canada (Government of Canada, 2021), and Japan (Reuters, 2022), and other nations 'support' such a policy (S&P Global, 2024). Even in the US, two Republican senators have canvassed a similar mechanism, a

13 Agriculture, hunting and forestry
14 Food products, beverages and tobacco
15 Professional, scientific and technical services
16 Currently around €70/tCO_2 ($80). (Ember, 2025b)

'Foreign Pollution Fee', which would introduce tariffs on selected emissions-intensive imports to boost domestic competitiveness and raise revenue (U.S. Senate, 2025).

As the Energy Transitions Commission (ETC) argues, until there is a global carbon price on 'hard to abate' sectors, CBAMs are not protectionist and constitute the only way developed countries can take responsibility for imported consumption-based emissions. CBAMs should, however, be paired with: (i) efforts to agree international standards for the measurement of carbon intensity; (ii) technical assistance to developing countries on carbon pricing; and (iii) a portion of CBAM revenues should support climate finance flows to lower-income countries (ETC, 2025).

For countries like Brazil, the challenge is to navigate these mechanisms before they become ubiquitous. That means aligning industrial policy with lower-carbon production, expanding clean energy use and potentially offering support to affected sectors. Like Turkey, Brazil could establish an exporter advisory programme to help exporters improve emissions reporting, energy efficiency and carbon competitiveness in CBAM markets (GMK Center, 2024).

Resistance remains. Alongside other BRICS nations, Brazil has "condemned and rejected" CBAMs, branding them as protectionist and unilateral trade restrictions disguised as climate policy (S&P Global, 2025).[17] The measures, they argue, have been framed as non-tariff barriers that unfairly penalise developing countries for their lower historical emissions and limited funding for decarbonisation of hard-to-abate sectors.

The European Commission defends the CBAM as a legitimate climate policy, and a step towards effective global carbon pricing, not a trade tool. Meanwhile, Brazil has legislated for a domestic emissions trading scheme (ETS) and is developing implementing rules — partly to retain CBAM revenues that would otherwise flow to the EU (Government of Brazil, 2025b; Centre for European Reform, 2024; Foresight Media, 2024). At the same time, Brazil and other nations continue to highlight that developed countries have not yet fulfilled their climate finance commitments under the UNFCCC and Paris Agreement, particularly with regard to supporting mitigation and adaptation in low- and middle-income countries.

Thanks to the high proportion of renewables on Brazil's electricity grid, its exposure to CBAM is not as acute as some of its peers, though it will not be immune (World Bank, 2023). The affected industries exported $11.6bn to the EU in 2023, and at the commodity level some $2.3bn of exports, supporting 20,000 Brazilian jobs, are directly exposed under the current CBAM scope.

CBAMs are chief among EU climate measures with 'extraterritorial' reach, but are far from alone. Plans are afoot to introduce a new measure to address the risk of carbon leakage and ensure equal treatment for all goods, whether produced and sold in the EU, imported into the EU or exported (European Commission, 2025e). The EU Deforestation Regulation (EUDR - on which more detail in section 6) bans the sale of products — including palm oil, coffee and beef — produced on recently cleared land, and its Corporate Sustainability Due Diligence Directive (CSDDD) puts pressure on companies to increase transparency on environmental and labour abuses across global supply chains and present credible climate transition plans (European Commission, 2025d).

The EU holds the largest stock of FDI in Brazil, reaching $495bn, 40% of total foreign investment stocks, in 2023, while the EU is also the largest recipient of outbound Brazilian investment (CEBRI, 2025). Brazil is the biggest beneficiary of European Investment Bank financing in Latin America, with significant funding of climate and sustainability projects, including renewables (European Investment Bank, 2023a; European Investment Bank, 2023b). Private sector investment is also significant, with many global brands including Unilever, Volkswagen and Stellantis having significant - and expanding - footprints (Reuters, 2024a; Unilever, 2024; Stellantis, 2024).

17 Russia recently challenged the EU's CBAM at the World Trade Organization (WTO as being 'protectionist' in nature. See 'European Union and its Member States - Carbon Border Adjustment Mechanism: Request for Consultations by the Russian Federation' (WTO, 2025).

Net zero target status and year	Value and percentage of Brazil's exports	Recent trend: absolute growth in share of Brazil's exports, 2019-2023	Top five exporting industries, value, % of Brazil's exports to country, 2023	Total Brazilian jobs supported, 2023
In law, 2050	$58.4 billion, 14.7%	+ 0.5%	- Mining and quarrying, energy producing products ($11.4bn, 20% - Agriculture, hunting, forestry ($9.4bn, 16%) - Food products, beverages and tobacco ($9.1bn, 16%) - Mining and quarrying, non-energy producing products ($5.4bn, 9.2%) - Basic Metals (3.4bn, 5.8%)	1,070,000

Table 8: Detail of trade with the EU, 2023

4.4. United States (US)

The US is Brazil's second largest bilateral export market after China and a longstanding ally; the countries celebrated 200 years of diplomatic relations in 2024. Brazil's most significant exports are crude oil, iron and steel, but in contrast to its relationship with China, the US also buys significant quantities of high value-added professional services, and manufactured goods including construction equipment and aeroplanes. This, alongside the US's position as largest foreign investor over the last decade, has led Brazil to refer to the US as its 'primary economic partner' as recently as last year (DatamarNews, 2024b; Ministério das Relações Exteriores, 2025b).

Exports to the US totalled $45bn and supported 972,000 Brazilian jobs in 2023. This was 11.4% of total exports, but the global figure hides greater concentration at the industry level, particularly in services: the US accounted for 46% of exports in Financial services[18], 24% of Professional services[19] and 21% of IT services[20], collectively supporting over 400,000 jobs.

US investment into Brazil has been consistently high, with the US holding the largest single-country stock of FDI in the country. Many large US multinationals have significant footprints. In 2024, both Amazon and Microsoft announced major multi-year plans to expand their data centre and computing capacity in Brazil (Reuters, 2024b; Microsoft, 2024), while General Motors also plans to expand its operations to develop EV manufacturing capacity (Investment Monitor, 2024). Meanwhile, US headquartered agribusiness giants Cargill and Bunge are amongst the largest employers in the country (Forbes Brasil, 2025).

Diplomatic relations had been warm in recent years, with Trump finding common ground during his first term with former president Jair Bolsonaro, while President Lula and Joe Biden met several times since Lula's return to the presidency in 2023 and launched a slew of initiatives during 2024, including a 'Partnership for the Energy Transition' centred around action on clean energy and green industrial policy (The White House Archives, 2024a; The White House Archives, 2024b).

But Trump's return to the White House in 2025 has already translated into direct trade action. In April, the US imposed a 10% reciprocal tariff on Brazilian imports, followed in July by an Executive Order applying an additional 40% duty across most categories, sparing only some politically sensitive goods such as aircraft, orange juice and energy products (White House, 2025; EY, 2025). In response, Brazil has filed a WTO dispute and offered relief to affected industries while holding back from immediate retaliation, signalling both pragmatism and concern over escalation (WTO, 2025). The economic impact is already visible: for example, Brazilian coffee shipments to the US dropped almost 50% year-on-year in August (Reuters, 2025d). Other sectors — from steel to machinery — now face similar risks.[21] Its ethanol sector is navigating the tariffs cautiously, helped by the fact that the US share of Brazilian ethanol exports has fallen from around 70% in 2017 to below 20% in 2024. (S&P Global, 2025).

While both nations frame the measures as reciprocal, the timing suggests wider political undertones, not least given the ongoing Brazilian Supreme Court trial of Trump ally, former president Jair Bolsonaro. President Lula has activated Brazil's new 'economic reciprocity' law to enable rapid counter-tariffs if required, while continuing to emphasise dialogue (Government of Brazil, 2025a; Reuters, 2025). This episode exposes the vulnerability of Brazil's US trade relationship to political cycles, compounded by swings in US federal climate policy, even as nearly half its states pursue ambitious goals (Net Zero Tracker, 2025).

18 Financial and insurance activities

19 Professional, scientific and technical activities

20 IT and other information services

21 The US Chamber of Commerce and the American Chamber of Commerce in Brazil released a joint statement opposing the proposed tariffs, highlighting that more than 6,500 US small businesses rely on Brazilian imports, and 3,900 US companies invest in Brazil (S&P Global, 2025).

Net zero target status and year	Value and percentage of Brazil's exports	Recent trend: absolute growth in share of Brazil's exports, 2019-2023	Top five exporting industries, value, % of Brazil's exports to country, 2023	Total Brazilian jobs supported, 2023
No federal target, but state level policies covering c.50% of US GDP	$45 billion, 11.4%	- 1.5%	- Mining and quarrying, energy producing products ($7.2bn, 16%) - Basic Metals ($5.6bn, 12%) - Professional, scientific and technical activities ($3.1bn, 7.0%) - Food products, beverages and tobacco ($3.0bn, 6.7%) - Machinery and equipment n.e.c.($2.9bn, 6.4%)	972,000

Table 9: Detail of trade with the United States, 2023

4.5. Argentina

Exports to Argentina were $18.7bn in 2023, 4.7% of the total, and supported 316,000 domestic jobs. The character of Brazil-Argentine trade is significantly heavier in manufactured goods than exports to Brazil's larger trade partners, with high value-added goods from the motor industry accounting for $4.7bn - 25% of total exports to Argentina, and 31% of Brazil's global automotive exports, with the chemicals and metals industries both playing significant roles.

Trade and economic integration has been underpinned by common participation in MERCOSUR since its formation in 1991, the two countries forming the backbone of the bloc and generating 94% of its GDP between them (Council on Foreign Relations, 2024; Ministério das Relações Exteriores, 2025c). Diplomatic cooperation is well developed, although tensions have flared recently due to significant divergence in the views of President Lula and his right-wing Argentinian counterpart Javier Milei, including on trade and the role of MERCOSUR (Valor International, 2025). In a clear signal of where relations currently lie, the two leaders did not hold a bilateral meeting during the recent MERCOSUR summit in early July, Lula instead making a highly publicised visit to Milei's predecessor Cristina Fernandez de Kirchner, currently under house arrest following a corruption conviction (Associated Press, 2025).

Economic and supply chain integration is significant, especially in the automotive manufacturing sector where deepening ties enable extensive market access both for finished products and upstream materials and parts (TV BRICS, 2025), but in recent years this has also left Brazil exposed to Argentine economic instability(DatamarNews, 2023). While Argentine FDI is not among the largest investment flows into Brazil there is nonetheless significant capital movement in both directions (Ministério das Relações Exteriores, 2025c), and many Argentine companies have significant operations, including the ecommerce giant MercadoLibre, Latin America's most valuable company (Investment Monitor, 2025).

Net zero target status and year	Value and percentage of Brazil's exports	Recent trend: absolute growth in share of Brazil's exports, 2019-2023	Top five exporting industries, value, % of Brazil's exports to country, 2023	Total Brazilian jobs supported, 2023
In policy document, 2050	$18.7bn, 4.7%	- 1.2%	- Motor Vehicles, trailers and semi-trailers ($4.7bn, 25%) - Agriculture, hunting and forestry ($2.4bn, 13%) - Chemicals and chemical products ($1.9bn, 10%) - Basic Metals ($1.7bn, 9.3%) - Machinery and equipment n.e.c ($1.1bn, 5.9%)	316,000

Table 10: Detail of trade with Argentina, 2023

4.6. Chile

Chile imported $9bn of goods and services from Brazil in 2023, supporting 116,000 Brazilian jobs. This was heavily dominated by over $3bn of crude oil, captured in the Mining and quarrying, energy producing products category, which accounted for 40% of export value, though it supported only 6000 jobs. As detailed in ***Table 11***, it is worth noting that Chile has some of the most ambitious and far-reaching sustainability policies of any major nation, including a full phase-out of ICE cars by 2035, jeopardising this significant chunk of Brazilian export value in the medium term.

Food products[22], primarily meat from Brazilian agribusiness, supported 11,500 jobs and accounted for a further 15% of exports, while value-added manufactured goods including vehicles and machinery also play a significant role.

Economic integration is underpinned by the 2015 Chile-MERCOSUR Economic Complementation Agreement, and a subsequent bilateral Free Trade Agreement signed in 2018 which further liberalised trade (Ministério das Relações Exteriores, 2025d; Electronic Database of Investment Treaties, 2018). Diplomatic relations are strong, with a common commitment to regional economic integration underpinned by a raft of new agreements in early 2025, including on cooperation in establishing regional trade corridors (Planalto, 2025). Brazil holds the largest stock of Chilean FDI globally (Ministério das Relações Exteriores, 2025d), with very significant investments in the paper & pulp and aerospace industries, among others (Reuters, 2024c; Reuters, 2024d).

Net zero target status and year	Value and percentage of Brazil's exports	Recent trend: absolute growth in share of Brazil's exports, 2019-2023	Top five exporting industries, value, % of Brazil's exports to country, 2023	Total Brazilian jobs supported, 2023
In law, 2050	$9.0 billion, 2.3%	- 0.3%	- Mining and quarrying, energy producing products ($3.6bn, 40%) - Food products, beverages and tobacco ($1.4bn, 15%) - Motor vehicles, trailers and semi-trailers ($0.9bn, 10%) - Chemicals and chemical products (($0.5bn, 5.7%) - Machinery and equipment n.e.c ($0.5bn, 5.6%	116,000

Table 11: Detail of trade with Chile, 2023

22 Food products, beverages and tobacco

5. Carbon competitiveness

The IMF's emissions multiplier data enables comparison of full supply chain emissions across industries and economies.[23] It measures embodied emissions — the total CO2 emissions generated, directly and indirectly — per dollar of output, offering insight into the emissions intensity of entire value chains. When overlaid with global trade data, it reveals which export industries may face rising 'carbon competitiveness' risks as buyers increasingly look to shift towards lower-carbon suppliers, and which may be able to take advantage of lower embodied emissions than their peers.

It is important to note that the IMF's emissions multipliers methodology (IMF, 2022) does not include emissions from Land Use, Land Use Change and Forestry (LULUCF) historically the largest source of overall Brazilian emissions due to deforestation. Methane is also excluded, which accounts for 30% of Brazilian GHG emissions (including LULUCF), 75% of which is generated by the agricultural sector, primarily from cattle (Climate Action Tracker, 2025c). While these factors are also excluded from reported figures for competitor countries, the structure of Brazil's economy means that they play a larger role in overall emissions than many other countries, so **the data likely understates Brazil's true emissions compared with countries where LULUCF and methane are less significant**.

Table 12 breaks down our Carbon Competitiveness indicator for Brazil's key exports, including those from its agriculture, food, automotive and basic metals industries.

For each 'industry subcategory', we show:

- **D.** Brazil's top export destination countries
- **E.** Major competing countries also exporting to those markets
- **F.** The major competing country's embodied CO2 emissions for that industry
- **G.** An 'Embodied emissions ratio' indicating how Brazil's emissions performance compares to each competitor country (final column).

For the final 'Embodied emissions ratio' column, the colour coding is as follows:

- **Green: Brazil is more carbon-efficient than the competitor supplier — emissions per million dollars of output are lower than those of its competitor**
- **Orange: Brazil is one-to-three times more emissions-intensive than the competitor supplier.**
- **Red: Brazil is more than three times more emissions-intensive than the competitor supplier.**

Our analysis indicates that Brazil is broadly well positioned relative to its peers and competitors across a range of its key exporting industries. **In many of its largest exporting sectors, Brazilian emissions are equal to or in many cases substantially lower per million dollars of output than the majority of the countries who are exporting the same goods to the same markets.**

Brazil is the largest exporter globally in several agricultural commodities, including all of those detailed here within the Agriculture, hunting, forestry industry. In some of these, such as Soybeans and Raw Sugar, Brazil's market dominance is such that they export many multiples of the value of their next largest exporter; as such, they may not be subject to the competitive pressure of easily accessible alternative producers. However, this does not mean that carbon competitiveness in such commodities is a moot point; **as consumer preferences and supply chain accountability increasingly become relevant drivers of demand, Brazil's ability to point to low embodied emissions in the production of its core agricultural outputs will play to its advantage.** Within the agricultural sector, only in Coffee is another major producer able to service the same markets at lower carbon cost; Brazil's emissions per $M are more than double those of neighbouring Colombia.

23 The IMF's emissions multiplier shows how much CO2 emissions are caused for every dollar spent in a country, helping to identify which types of spending have the biggest climate impact.

Processed outputs from the agricultural sector also play leading roles in the export mix, and Brazil is also the largest global exporter of poultry meat, frozen beef products and wood pulp. Again, Brazil demonstrates lower emissions intensity than the vast majority of its peer countries exporting to the same markets, with the notable exception of Sweden in supply of wood pulp, whose electricity grid is less than half that of Brazil, and is able to produce its output with less than a third of the CO2 emissions.

The Basic Metals and Automotive[24] industries are notable in bucking the trend for Brazil. In these industrial manufacturing sectors, Brazilian emissions tend to be higher than competitors', with alternative suppliers able to produce the same goods around half as carbon intensively. What's more, 46% of Brazil's Basic Metals exports to the EU is commodities which are directly targeted by the current scope of the EU's CBAM, putting the 11,000 jobs which those exports support at risk.

It is also interesting to note that despite Brazil being a world leader in renewable energy generation with some of the cleanest electricity globally, even in those sectors where it currently has a carbon advantage its emissions are often within touching distance of rival producers. Of all the competitor countries featured in table 12, only Sweden and Paraguay have cleaner electricity grids, with New Zealand also in fairly close contention (Our World in Data, 2025b). In spite of this, Brazil's full supply chain CO2 emissions for most of the goods featured are on par with, or only fractionally lower than those of competitor countries whose grids are in many cases four or more times more carbon intensive. This further suggests that emissions elsewhere in Brazil's supply chains and means of production, such as transport or industrial processes, are acting to counterbalance the benefits of its renewable power. By implication, striving for improvement in these areas to match the efficiencies of its competitors could substantially improve Brazil's carbon competitiveness, giving it a clear advantage in meeting increasingly carbon sensitive demand and building on its position as a clean energy leader.

24 Motor vehicles, trailers and semi trailers

A. Industries	B. Brazil's embodied CO_2 emissions in that industry ($tCO_2/\$M$)	C. Industry subcategory	D. Brazil's largest export destination countries	E. Competing countries also exporting to those markets	F. Competing country's embodied CO_2 emissions ($tCO_2/\$M$)	G. Embodied emissions ratio (Brazil / competing country supplier)
Agriculture, hunting, forestry *(IMF's emissions multipliers methodology does not include emissions from LULUCF or methane)*	282	Soybeans	China, Argentina, Spain, Thailand	USA	282	1.0
				Paraguay	No data	N/A
		Corn	China, Japan, Vietnam	USA	282	1.0
				Ukraine	No data	N/A
				Argentina	375	0.8
				India	324	0.9
		Raw Sugar	China, Saudi Arabia, UAE, USA	Thailand	276	1.0
				India	324	0.9
				Rep. of Korea	158	1.8
		Coffee	Germany, USA, Belgium, Japan	Colombia	112	2.5
				Guatemala	No data	N/A
				Vietnam	400	0.7
				Italy	197	1.4
		Soybean meal	Indonesia, Thailand, Poland, France	Argentina	375	0.8
				Ukraine	No data	N/A
				Belgium	258	1.1
				India	324	0.9
Mining and quarrying, non-energy producing products	316	Iron Ore	China, Japan, Malaysia, Netherlands	Australia	325	1.0
				India	608	0.5
				South Africa	1453	0.2
				Canada	353	0.9
Paper products and printing	296	Sulphate chemical wood pulp	China, USA, Italy, Netherlands	Indonesia	566	0.5
				Canada	397	0.7
				Chile	454	0.7
				Sweden	88	3.4

Coke and refined petroleum products	479	Refined Petroleum	China, Netherlands, Spain, Chile, USA	Australia	1110	0.4
				India	505	0.9
				South Africa	796	0.6
				Canada	1346	0.4
Basic metals	1441	Ferroalloys	China, Japan, Netherlands, USA	Canada	520	2.8
				Indonesia	1171	1.2
				Rep. of Korea	1180	1.2
				United Kingdom	709	2.0
Motor vehicles, trailers and semi-trailers	209	Cars	Argentina, Mexico, Poland, Colombia	Mexico	161	1.3
				China	599	0.3
				USA	120	1.7
				Japan	153	1.4
Food products, beverages and tobacco *(IMF's emissions multipliers methodology does not include emissions from LULUCF or methane)*	216	Poultry Meat	China, Japan, UAE, Saudi Arabia	USA	239	0.9
				Russian Federation	629	0.3
				Thailand	320	0.7
				Ukraine	No data	N/A
		Frozen bovine meat	China, USA, Egypt, UAE	Argentina	280	0.8
				Australia	285	0.8
				USA	239	0.9
				New Zealand	180	1.2
				India	352	0.6

Table 12: Carbon competitiveness of key export industries

Column **A** shows the parent industry; column **B** is the IMF emissions multiplier for that industry, in India (CO_2 emissions per $M of output, capturing for full supply chain emissions). Column **C** shows the subcategory of goods, and **D** displays the top destinations to which India exports those goods. Column **E** lists, for each goods subcategory, the top alternative suppliers of those same goods to the same markets - e.g. The USA, Ukraine, Argentina and India are the other largest suppliers of corn to China, Japan and Vietnam. Column **F** shows the IMF emissions multiplier for the relevant industry - i.e. the direct comparison figure for that shown in column B. Finally, column **G** is the result of the division of column B by column F; that is, it shows the relationship between domestic emissions per $M and emissions per $M in the competitor economy. Numbers above one indicate that emissions in Brazil are higher than those in the alternative supplier's economy, for the same dollar value of output.[25]

25 Compiled using https://oec.world/en and our own analysis

6. Nature and deforestation: EUDR

Increasing international scrutiny of the CO2 embodied in imports is one factor shaping trade in the age of the climate crisis, but it is not the only consideration around which policy and regulation is taking shape. The role of nature and forests in sequestering carbon is another dimension of sustainability which interacts with the global trade flows, and Brazil's position as one of the world's primary producers of 'forest risk commodities' - that is, those goods which are most frequently linked with the deforestation of large areas of land - makes it uniquely important to the management of deforestation risk.

The EU is again leading the way in shaping legislation to recognise the impact that demand within its borders can have on environments elsewhere. Its Deforestation Regulation (EUDR), due to enter force in 2025, seeks to safeguard global forest regions by prohibiting any goods linked to deforestation from entering the EU market. The legislation introduces due diligence requirements - including full geolocated traceability - for any organisation buying or selling an exhaustive list of agricultural goods and their downstream products within the EU. Its current scope encompasses agricultural goods including timber, soy, palm, coffee, cocoa, rubber, and cattle, plus their upstream feedstocks and downstream derivative products. Anyone trading in products falling under EUDR scope must be able to prove that their production is not linked either directly or indirectly to land having been deforested since 2020, or in the case of products containing wood, that their harvesting has not led to the degradation of forest since that date (European Union, 2023).

Brazil, as the largest global producer and the EU's largest supplier of many of the goods covered under EUDR, is uniquely exposed to the burden of compliance with the incoming regulations. Of the $50bn of goods which Brazil exported to the EU in 2023, $15bn, or 30% was trade in commodities directly exposed to the EUDR legislation. This included 69% of all Agriculture exports, 57% of Food products, beverages and tobacco, 98% of Paper products and printing and 90% of Wood and products of wood and cork. Collectively, the sale of EUDR exposed exports to the EU supported 209,000 Brazilian jobs.

Industry	EUDR Exposed Value ($M)	EUDR Exposed value %	EUDR Exposed Jobs
Agriculture, hunting, forestry	6,550	69%	109,000
Food products, beverages and tobacco	5,176	57%	44,000
Paper products and printing	2,414	98%	30,000
wood producs of wood and cork	617	90%	20,000
Manufacturing nec;repair and insatlation of machinery	72	23%	4,000
Rubber and Plastics Products	65	42%	2,000
Totals	**14,903**		**210,016**

Table 13: Brazilian export exposure to EUDR scope, 2023

Brazil has objected to the EUDR legislation, arguing that it unfairly penalises countries with significant forest resources (O'Donoghue, S., 2024), and there are further concerns that the disproportionate burden on smaller producers may make them less competitive. The EU commission responded by delaying the roll-out by a year from late 2024 and introducing measures to simplify the regulation, though some have argued that these changes risk weakening the effect of the legislation when implemented (WRI, 2025a).

One of the risks identified with the EU's unilateral introduction of such legislation is the risk of 'leakage' via bifurcation; if exports to the EU require full traceability and zero deforestation then those goods which can prove compliance will sell to that market, and deforestation-linked products no longer able to sell to the EU will simply be sold elsewhere (Murakami Lima et al., 2025).

The success of measures like the EUDR - and CBAM - to some extent rely on the impact of knock-on effects and policy contagion, whereby minimum standards are raised in response to regulation in a key global market.

The EU is not the only jurisdiction which is tightening forest protection legislation to prevent the import of deforestation-linked products into domestic markets, but the EUDR is unique in extending its reach to prohibiting trade in goods linked to deforestation or forest degradation, regardless of whether that activity is legally permitted in the country of origin. The UK's Forest Risk Commodities legislation (Barclay, S., 2023) and the US's FOREST act (United States Congress, 2023) both aim to eliminate the products of illegal deforestation from domestic supply chains and introduce due diligence requirements for domestic firms trading in those goods, but the definition of what is legal or illegal deforestation is left open (Loyola, R., 2023). Similar laws in Japan, South Korea and perhaps most importantly China (Ministry of Ecology and Environment, People's Republic of China, 2021) have also introduced mechanisms to penalise trade in timber linked to deforestation.

Recent years have also seen broader signs that China, by far the largest market for Brazilian agricultural exports, is taking action to improve traceability in its supply chains (Mongabay, 2024). As a signatory to the Glasgow Forest Declaration and via joint statements with Brazil itself (Ministério das Relações Exteriores, 2023), China has made public commitments to help end deforestation, and having already made significant strides domestically (Dialogue Earth, 2021), the EUDR may provide an opportunity for it to strengthen action overseas (Trase, 2024).

Brazil has already made huge progress in reducing rates of deforestation in recent decades, with a public commitment to end deforestation across all its biomes by 2030 via the Glasgow Forest Declaration, and so is strategically aligned with the EUDR's aims, if not its methods. Its Action Plan for the Prevention and Control of Deforestation in the Legal Amazon (PPCDAm), now in its fifth phase, has structured efforts to eliminate illegal deforestation, and state- and sector-level traceability initiatives have already significantly improved supply chain transparency (Climate Policy Initiative, 2023; Murakami Lima et al., 2025).

Much as with CBAM, where developed nations introduce regulation to prevent the offshoring of climate-negative impacts like CO_2 emissions or deforestation, those nations also have a responsibility to ensure that adequate support exists to enable supplier nations to adapt to new regulations, and prevent the burden of climate protection measures from falling on those least able to shoulder the cost.

Increased public awareness, investor pressure and changing consumer preferences also exert pressure on the corporations implicated in Brazilian deforestation. Many operators now have Zero Deforestation Commitments (ZDCs) in place, and while agribusiness remains by some margin the largest driver of deforestation in Brazil (Global Forest Watch, 2024), there is evidence that the alignment of commercial targets with the evolving regulatory environment is driving the development of supply chain traceability and already having an impact on deforestation rates in the Amazon (university of Cambridge, 2023; Unilever, 2022).

7. COP leadership: Pressing home the carbon advantage

Brazil's hosting of COP30 in late 2025 offers a unique opportunity for it to demonstrate climate leadership on the global stage, coming in the wake of hosting the G20 summit last year and complementing its current BRICS presidency. With one of the cleanest electricity grids in the world, Brazil can showcase its global leadership in renewable energy, while using its platform to raise ambition on decarbonisation of industry and transport. With deep ties to both the east and west via close trade and diplomatic relations with China and the forthcoming EU/MERCOSUR free trade agreement, Brazil is well positioned to capitalise on the rise in emissions-sensitive demand and play a part in the shaping of global green supply chains.

7.1. Clean power leadership

Brazil is a global leader in clean power. With the highest proportion of renewable electricity in the G20, and 90% of electricity generated from renewable sources in 2024, its power sector emissions are amongst the lowest in the world (Ember, 2024). Historically this has been driven by large-scale hydroelectric projects utilising the enormous hydro potential of the water flowing South and East from the Amazon and Paraná river basins, with hydroelectric power contributing as much as 84% of total power at its peak. However recent years have also seen rapid growth in wind and solar, which now contribute 24% of total generation, up from just 2% in 2014 (Ember, 2025c).

That Brazil has maintained - and increased - its share of renewables generation is all the more remarkable given the rapid growth in electricity demand. Total generation has almost doubled over the last 20 years - Brazil is now the 6th largest electricity generator in the world - but meeting rising demand with new renewable capacity has meant that total emissions from the power sector have still fallen over the past decade (International Energy Agency, 2025a).

Having been ahead of the curve on renewable deployment opens up opportunities for Brazil as it looks to continue its progress in clean energy and accelerate the decarbonisation of its industry and transport sectors. Meeting energy demand growth with a higher proportion of wind and solar in the generation mix presents storage and intermittency challenges for any country transitioning their energy matrix, but strategic use of controlled release from Brazil's existing hydro plants may offer flexible storage solutions which reduce the need for battery integration (McKinsey & Company, 2024a). However, significant grid and transmission upgrades are still expected to be required to manage growing demand, including the integration of planned datacentres and green hydrogen projects (BNamericas, 2024).

7.2. Low-carbon transport

Brazil's green grid masks a high-carbon transport sector. While electricity generation contributes a relatively small proportion of overall CO2 emissions, transport is a different story. In 2022, it was responsible for 51% of total energy-related emissions, despite accounting for just 37% of final energy consumption. It has consistently been the largest source of emissions in Brazil's energy sector (International Energy Agency, 2025b). This is largely driven by road transport, with freight and trucking responsible for 44% of road transport emissions and personal vehicles a further 36% (SEEG, 2025).

The heavy reliance on road transport drives Brazil's energy-sector emissions, despite extensive use of biofuels in the sector. Since the 1970s, Brazil's bioenergy industry developed in response to energy security concerns, and mandatory blending of ethanol and biodiesel mean that biofuels now make up over 22% of final transport fuels (IEA Bioenergy, 2023).

Brazil's forthcoming National Railways Plan aims to shift the balance. It promises major investments to reopen long-distance freight lines, including key North-South and East-West routes (Click Petroleo e Gas, 2025; UIC Communications, 2023), with momentum likely to build following China's formal commitment to develop strategic inland transport links (Mongabay, 2025a).

The picture is mixed for the electrification of Brazil's car fleet. As a global leader in biofuels, Brazil has seen widespread uptake of 'flex-fuel' cars, which run on any combination of gasoline or ethanol made from sugarcane or corn. This success has created a form of technology lock-in: in mid-2023, flex-fuel vehicles still accounted for over 80% of new car sales, while EVs made up less than 1% (Bloomberg, 2023).

Momentum is now building. In 2024, EV sales more than doubled to 6.5% — nearly 125,000 units — with 85% of those imported from China (International Energy Agency, 2025c). Brazil does not yet have an official EV adoption target (Argus Media, 2023; Climate Action Tracker, 2025d). While it is the world's seventh-largest car producer and a key manufacturing base for global brands (World Population Review, 2025; Oxford Academic, 2024), domestic EV production only began this year with the opening of a BYD factory in Bahia (The EV Report, 2025). European carmaker Stellantis also announced major investment in the region, though EVs are expected to represent just one part of its expansion, alongside hybrids and biofuel-powered models (Stellantis, 2024).

7.3. Industry

Industry accounts for 21% of energy-related emissions and 34% of total final energy consumption, the second largest share behind transport (International Energy Agency, 2025b). Energy use in industry is dominated by biomass, which powers just under half of industrial energy consumption, but fossil fuels still provide around 30% and the prominence of energy intensive sectors such as basic metals and pulp and paper mean that the overall energy intensity of Brazil's industrial sector remains high (International Energy Agency, 2025d), and industry energy intensity continues to rise, suggesting significant opportunity for efficiency gains (McKinsey & Company, 2024a).

Brazil's clean electricity grid positions it to lead on the development of new clean industries. The abundance of renewables should help it to attract investment from companies and international organisations engaging in 'powershoring' - locating production facilities for energy-intensive industries like green steel and hydrogen where electricity is cleanest. Major projects including a Green Hydrogen industrial cluster in Ceará (OECD, 2024b; FuelCellsWorks, 2024) and a strategic partnership with Chinese cleantech giant Envision to develop a biofuels hub focusing on sustainable Aviation Fuels (SAFs) are already underway (Envision Energy, 2025), and mining giant Vale has plans to leverage Brazil's clean energy to produce low-carbon iron briquettes for the production of green steel (Mining.com, 2024). Such projects are already accounted for in planned transmission network upgrades, successful completion of which will be necessary to prevent infrastructure bottlenecks from putting a brake on green industrial growth (BNamericas, 2024).

Brazil's existing position as a biofuels leader, with substantial feedstocks and domestic demand lock-in, make it an obvious location for research and development for new automotive, aviation and future energy transport fuels. Research has put the potential market opportunity for SAFs alone in Brazil at upwards of $40bn by 2040 (McKinsey & Company, 2024b), but questions remain around the capacity of SAFs to deliver the emissions cuts in aviation required to meet the Paris goals, and the ability to manage deforestation risks with a significant increase in biomass production.

In early 2024 the new Lula administration launched its refreshed neo-industrial strategy, 'Nova Indústria Brasil', aiming to leverage BRL 300 billion in investment focusing on support for innovation and new industrial development projects, including low carbon technologies and a goal of reducing industrial emissions intensity by 30% (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024). International collaboration on industrial innovation hubs such as that planned with the UK's Department for Energy Security and Net Zero (DESNZ) look to accelerate this (United Nations Industrial Development Organization, 2024) alongside commercially driven projects like Envision's SAFs cluster, while Brazil's successful export agency ApexBrasil is leveraging the supportive policy environment offered by Nova Indústria Brasil to attract foreign investment in climate tech (Climate Investment, 2025).

7.4. Risks to Brazil's climate credibility

Brazil's potential to capitalise on the opportunities presented by its clean energy leadership and improved custodianship of its biomes at COP30 and beyond relies on the maintenance of a stable policy environment and consistent signalling on climate positive measures. While the re-election of President Lula has marked a step change in Brazil's approach to climate policy, there remain inconsistencies in approach which risk undermining its leadership in a critical year for climate diplomacy.

A key concern for Brazil's sustainability ambition is its continued exploration and commitment to exploit new oil and gas resources off its Atlantic coast. Despite the relatively high prevalence of biofuels in its energy mix for both transport and industry, it remains the world's 8th largest consumer of petroleum products and its 9th largest oil producer (Nature, 2023). Continued expansion of new oil and gas projects will see this production rise significantly over the next decade, with the 'Novo PAC' flagship BRL 1.7 trillion (around USD 320 billion) infrastructure investment programme allocating 60% of 'Energy transition and security' funds to the oil and gas industry (Climate Action Tracker, 2025d; Instituto Talanoa, 2023). The Brazilian government has argued that growth in the Brazilian fossil fuel sector will facilitate, rather than contradict, its commitment to a net zero transition and eventual phase-out of fossil fuels (Financial Times, 2025), despite the established scientific consensus that the exploitation of any new oil and gas resources is incompatible with a 1.5°C pathway (International Energy Agency, 2021; International Institute for Sustainable Development, 2025).

Concerns about Brazil's commitment to forest protection persist. Although progress is underway on traceability and forthcoming demand-side rules like the EUDR are forcing greater scrutiny, land-use change remains a challenge, and powerful agricultural and industrial lobbies continue to resist stronger environmental safeguards. Some states have used opposition to the EUDR as a pretext to weaken corporate responsibility laws (Fern, 2025) — for example, by passing measures to penalise firms that adopt stricter deforestation policies. In mid-2025, Congress passed a sweeping environmental licensing reform known colloquially as the 'Devastation Bill' (Brazilian Senate, 2025); although President Lula vetoed or modified 63 of its most controversial articles before signing it into law, critics argue that the framework still shifts licensing power to states, relaxes oversight and leaves loopholes (Reuters, 2025c; ICLG, 2025; Mongabay, 2025b; Martins, R.M, 2025).

Meanwhile, deforestation-related damage continues: in Brazil's Amazon, roughly 91% of forest loss is linked to illegal activity (WRI, 2025b). As for industrial decarbonisation, Brazil's early lead in clean electricity is not yet matched across other sectors. Energy intensity in industry is rising, and progress in decarbonising transport remains slow, constraining the full carbon-competitiveness potential of Brazilian exports. While Brazil's updated 2035 NDC (submitted in November 2024) raises ambition compared to prior goals, it lacks detailed, sector-specific pathways to net zero by 2050, and still provides no clear strategy to phase out fossil fuel exploration or end coal use (Climate Action Tracker, 2025c).

Conclusion

Brazil's clean power leadership and the sharp drop in Amazon deforestation in 2023 underscore the country's climate credentials and its rightful place on the global stage. With nearly four-fifths of export value tied to net zero markets — and measures such as CBAMs and the EU Deforestation Regulation poised to reshape trade — Brazil's carbon competitiveness advantage needs to be both preserved and extended.

Persistent high emissions in transport, heavy industry and fossil fuel exports threaten to erode these gains and expose key sectors to non-tariff barriers in big markets. A clear timeline to phase out fossil fuel exploration, combined with a domestic carbon pricing framework, would signal seriousness to international partners and allow Brazil to capture revenues at home that would otherwise be lost to CBAM charges abroad. Similarly, accelerating rail freight expansion, broadening EV incentives, and scaling up green hydrogen and sustainable aviation fuel could turn infrastructure needs into competitive strengths over the long run.

Restoring robust forest governance is essential: reversing the 'Devastation Bill' and embedding full traceability could protect agribusiness exports and reinforce Brazil's commitment to end deforestation by 2030. Hosting COP30 in Belém offers a golden opportunity to showcase Brazil's clean ambition, deepen BRICS and EU-Mercosur partnerships, and improve the mobilisation of green finance for a just transition.

Brazil's trade strategy cannot rest on climate action alone. Political shocks, such as the sweeping US tariffs imposed in 2025, demonstrate how quickly external headwinds can erode hard-won competitiveness gains. By aligning industrial policy, nature protection and trade diplomacy, Brazil can not only sustain momentum but also unlock new low-carbon industries and secure resilient economic growth in an uncertain global landscape.

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Appendix 1: Primary Data Sources and detail of processing and mapping

Dataset	Source	Description	Categorisation & Mapping Detail	Data Preparation steps	Final Dataset, Units & Variables
BATIS (OECD, 2025b)	OECD/ WTO	Balanced **trade in services** data covering 2005-2023 for bilateral pairs of countries, 26 service categories	Reported to 26 Extended Balance of Payments Services (EBOPS) categories. Mapped onto ISIC Rev.4 Divisions with aid of WTO TiSMOS methodology paper (WTO, n.d), then from Rev.4 Divisons to Industries using OECD paper (OECD, 2024a) and Rev 4 publication document (UNSTATS, 2008), with manual adjustment.	Processing undertaken in PowerQuery including filtering, cleaning to remove unused columns and null values, merging onto mapping tables, grouping over year/partner pairs and pivoting on year to generate time series.	**Unit:** Annual services exports (MIllions current USD) **Variables:** Partner country ISO3 Code, ISIC Rev 4 Industry Name, WDI GDP Sector, annual export values (2005-2023)
BACI (CEPII, 2025)	CEPII	Balanced **trade in goods** based on UN Comtrade data. 2004-2023, bilateral pairs of ~200 countries, ~5000 6-digit HS codes	Reported to 6 digit HS-2 (Harmonised System) codes. Mapped to ISIC Rev 4 categories using existing mapping (Jordan Industrial Observatory, 2022), plus manual adjustments to capture missing mapping. Aggregated from ISIC categories to division level, then mapped to Industries as for BATIS	Initial processing in PowerQuery including filtering, cleaning, mapping to ISIC Rev 4 by merging on map tables, grouping over partner country/industry pairs, appending all annual datasets and pivoting on year to generate time series.	**Unit:** Annual goods exports (Millions current USD) **Variables:** Partner country ISO3 Code, ISIC Rev 4 Industry Name, WDI GDP Sector, annual export values (2004-2023)
WDI (World Bank 2024)	World Bank	Timeseries dataset spanning approx. ~1500 developmental indicators across ~200 countries, including national accounts data, emissions, energy use, grid CO_2 intensity, population, labour market data, natural resource use and many others.	National indicators reported at country level.	Basic cleaning, filtering by reporting country and removal of data prior to 2003	**Unit:** Varies by indicator **Variables:** Indicator Name, Indicator Code, Annual values (2004-2023)
CO_2 Emissions, Emissions Intensities, and Emissions Multipliers (IMF, 2024)	IMF	CO_2 emissions; CO_2 direct and indirect emissions per unit of output by industry and by country. Uses OECD Input-Output tables to calculate supply chain emissions (IMF, 2022)	Reported into ISIC Rev.4 broad industry groupings.	Manageable dataset in usable format. Rev.4 industry groupings used in analysis were chosen as the 'master' categorisation for overall analysis in this project, being the most detailed categorisation which all other datasets can be practically mapped to.	**Units:** tCO_2e per Million $USD **Variables:** ISO3 Country Code, Indicator [Emissions Intensity (Scope 1), Emissions Multipliers (Scopes 1-3)]. ISIC Rev 4 Industry, WDI GDP Sector, Annual values (2004-2018)

ILOSTAT (ILO, 2025a)	ILO	ILO Employment Data from online ILOSTAT data explorer: **Filters:** Employees => Employment by Sex and Economic Activity => Total => Economic Activity (ISIC Rev. 3.1 / 4)	Reported to a combination of ISIC Rev 3.1 / Rev 4 divisions (dependent upon when/if the reporting country updated its reporting methodology). Rev. 3.1 divisions mapped to Rev.4 manually using descriptions in UN documentation (UNSTATS, 2008) and ILOSTAT methodology (ILO, 2025b).	ILOSTAT portal allows online exploration and direct download of relevant dataset ready for mapping.	**Units:** Persons employed, thousands **Variables:** ISIC Rev 4 Industry Name, WDI GDP Sector, Annual values (2004-2023)
TIMS Database (OECD, 2025c)	OECD	Provides the proportion of domestic employment, or DEEFFD (Domestic Employment Embedded in Foreign Final Demand). Uses OECD Input-Output tables to calculate supply chain effects.	Reported at ISIC Rev.4 Industry level	Reported as a % of total domestic employment for each industry. Combined with ILO employment dataset to give total employment figures for export portion of output, by industry. Then divided by total exports to give employment supported by the given *value* of exports. Latest figures are for 2020, but remain relatively steady over time so these factors are applied to years from 2020 onwards.	**Units:** Jobs per Million $USD of exports **Variables:** Industry Name, Values
CO_2 Grid Intensity (Our World in Data, 2025b)	Our World In Data	Annual CO_2 Intensity of power generation.	National indicator reported at country level.	Filtered data to remove non-country entities, trimmed time periods and pivoted on the year to create a time series.	**Unit:** gCO_2e/kWh **Variables:** ISO3 Country Code, Values (2004-2023)

Appendix 2: Sources for national policy detail

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