NET ZERO TRACKER

Energy&Climate INTELLIGENCE UNIT

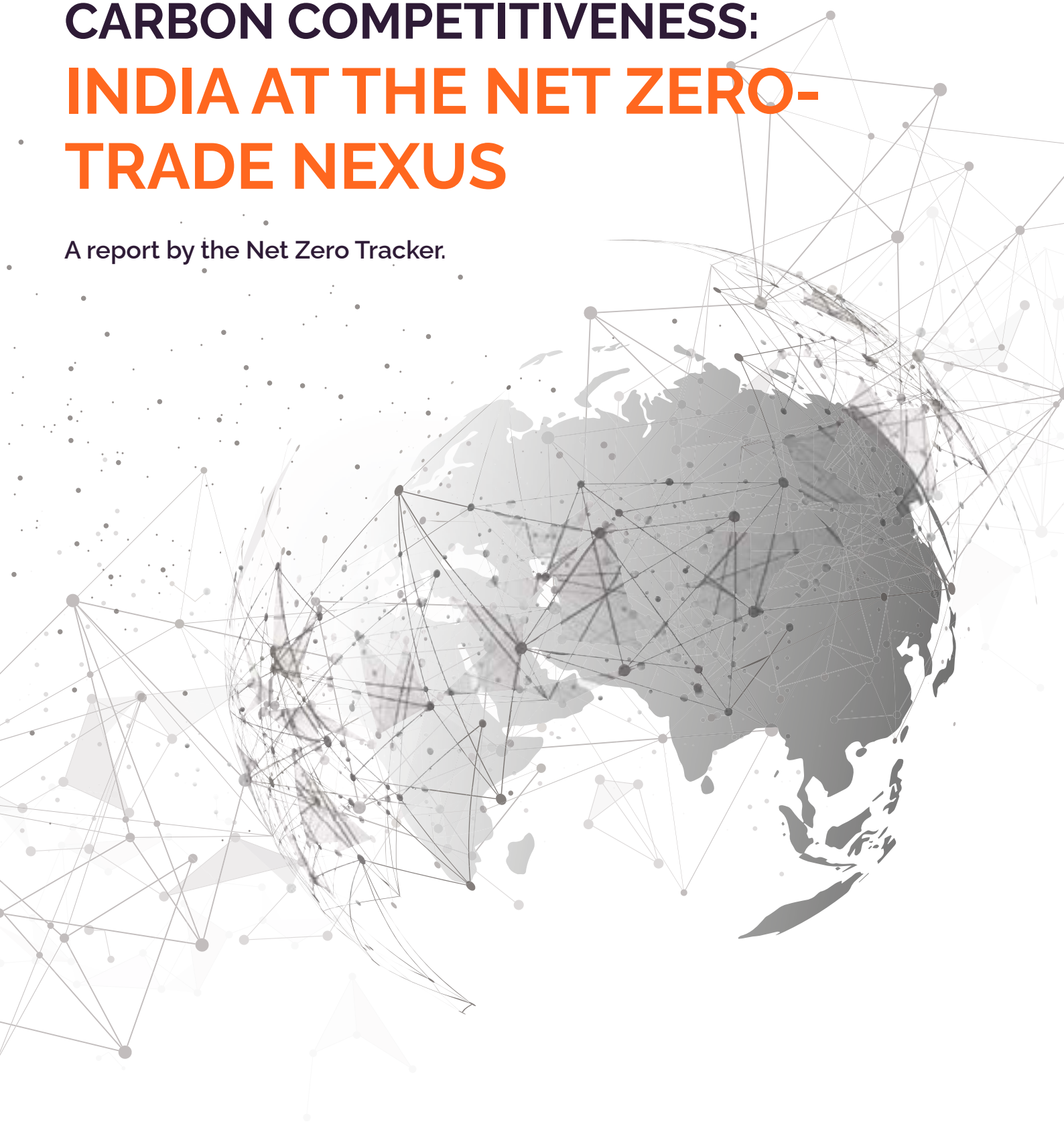
DATA DRIVEN ENVIROLAB

NEW CLIMATE INSTITUTE

NET ZERO UNIVERSITY OF OXFORD

CARBON COMPETITIVENESS:
INDIA AT THE NET ZERO-TRADE NEXUS

A report by the Net Zero Tracker.



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Executive Summary

As climate policies expand and deepen, high carbon emissions are fast becoming a trade risk — and India's exports are already under pressure to decarbonise. With a large share of its export value and employment tied to countries with net zero targets, active Carbon Border Adjustment Mechanisms (CBAMs), and multinational companies determined to cut value chain emissions, India faces growing exposure to emissions-based trade measures. But with surging demand for electricity and economic growth, its increasingly carbon-intensive power grid and high embodied emissions across both goods and services risk undermining its export-led growth.

This also presents huge opportunities. With a vast youth population and abundant renewable resources, India is well-placed to scale up cheaper clean energy and drive lower-carbon industrial innovation. Having begun to decouple energy demand from fossil fuel growth, a stronger commitment to decarbonisation would signal readiness to meet 21st-century challenges, attract carbon-sensitive investment, and boost 'carbon competitiveness' — positioning India to challenge Sino-American dominance in global trade. Otherwise, surging electricity demand, rapid economic growth and a carbon-intensive power grid will prolong high embodied emissions across both goods and services, potentially undermining its export-led growth.

This includes India's strategically important services sector: **its professional services industry emits more CO2 per million dollars of output than 97% of all countries** for which data is available. Competitor countries can supply the same markets up to 20 times more efficiently in carbon terms — a clear warning as multinational buyers tighten emissions scrutiny across global value chains, driven by regulation.

- **68% of India's exports — worth $446 billion — are sold to countries with net zero targets**, supporting an estimated **32 million domestic jobs**.
- **7.5 million Indian jobs** are tied to exports to jurisdictions with active CBAMs, while **another 4.7 million** depend on markets considering or planning such measures.
- **231 major companies** in India's 10 largest export markets — collectively controlling **over $8 trillion in annual revenues** — have full value chain (Scope 3) net zero commitments. A further 45 companies with $1.2 trillion in combined revenues have explicit Scope 3 reduction targets.

India's export economy is diverse, with its top 10 exporting industries accounting for nearly 70% of export value and supporting 22 million jobs. But vulnerability is spread widely:

- **Professional services** and **IT services** — India's two largest exporting industries — generated **$150 billion in export value (23%)** in 2023. However, their **extremely high carbon intensity** puts them at competitive risk as emissions increasingly influence private sector procurement decisions.
- **Agriculture**, despite comprising just over 2% of export value, supports **34% of India's export-related jobs**, reflecting its foundational role in employment.
- **Manufacturing n.e.c. (including gems and jewellery)** and **Textiles** are both emissions-intensive and employment-rich sectors, supporting **4.3 million and 5.5 million jobs** respectively. Over **50% and 62%** of their exports, respectively, go to jurisdictions with net zero targets.

The **United States (US)**, India's largest export market, bought nearly 20% of total exports in 2023 — led by professional services and IT services, jewellery, and textiles — though the employment return was relatively low, at just 17%, due to the capital intensity of those industries.

India's **EU trade**, worth $114 billion in 2023 and supporting 7.5 million jobs, is particularly exposed to future CBAM expansion. Nearly 35% of this trade is services. On the goods side, India's exports of chemicals, petroleum and textiles far exceed its basic metal exports — the latter of which are already subject to EU's CBAM. As Europe's carbon border regime grows in scope, some of India's higher-emission exports risk losing market share.

India's Coke and refined petroleum exports, 80% of which go to net zero-aligned markets, face further headwinds as global partners shift transport away from internal combustion engines. Similarly, India's Computer, electronic and optical products industry emits **five times more CO_2 than Southeast Asian competitors** like Vietnam — a competitive liability as multinationals look to diversify supply chains in the wake of US-China decoupling and diplomatic tensions.

For India, the challenge is clear: maintain and grow export competitiveness while slashing embodied emissions across sectors. The opportunity is there for the taking — India is well positioned to become a global manufacturing and tech hub, but only if it rapidly accelerates grid decarbonisation. Protecting exports through reducing emissions will protect jobs right across India's economy, not just in high-emissions industries but also in the employment-intensive agricultural sector, where many of India's most climate-vulnerable population make their living. Promisingly, India's emissions intensity is beginning to fall as clean generation grows faster than coal to meet incessant demand. This trend needs to accelerate.

Progress on a new Climate Finance Taxonomy offers potential to unlock capital flows into clean energy projects. However, its effectiveness will depend on alignment with a consistent and stable policy framework. Contradictory signals — from protectionist policies on clean technologies to continued coal support — risk eroding investor confidence and clouding India's decarbonisation trajectory.

Despite US immovability on trade and climate, developed countries, led by the EU, must do their part. For CBAMs and other carbon-related trade measures to be fair, effective and legitimate, they must be paired with delivery of long-standing financial and other commitments under the UNFCCC and Paris Agreement, including concessional and grant-based support to enable developing countries like India to implement a just transition and decarbonise without compromising development.

1. Introduction

India's economy is expanding at over 6% a year, but its export model faces rising climate-linked trade risks. The rise of Carbon Border Adjustment Mechanisms (CBAMs), growing scrutiny from multinational supply chains and shifting consumer expectations mean that India's export competitiveness will begin to hinge not just on cost and scale, but on emissions performance over time. India targets net zero by 2070, with a 2030 renewables goal of 500 gigawatts (GW). Progress against these goals can secure its place in global supply chains as clean energy increasingly displaces fossil fuels. It is already deploying 15 GW of solar-energy capacity annually.

But India's electricity system remains among the most carbon intensive in the world, and many of its largest export industries — including textiles, manufacturing and professional services — are hugely CO2-intensive. These industries are also among the most employment-intensive. As a result, India's trade competitiveness, and the livelihoods it supports, is increasingly exposed to climate-linked regulation abroad. The EU alone imported $114 billion in Indian goods and services in 2023, and with the CBAM already covering basic metals and likely to expand to other sectors over time, India should prepare for an era of emissions-sensitive demand.

India's path to net zero will be shaped by the principle of common but differentiated responsibilities (CBDR). As a lower-middle income country with development priorities and deep energy poverty, India's decarbonisation cannot come at the expense of jobs, livelihoods or economic growth. A true just transition requires tailored support from developing nations — including concessional finance and possibly a dedicated Just Energy Transition Partnership (JET-P) — to help India accelerate clean energy deployment while safeguarding socio economic priorities.

India brings strengths to a global economy in transition. It boasts a large and diverse export base that includes high-volume manufacturing, globally competitive IT services and one of the world's largest agriculture sectors. Its workforce is young, expanding and tech-savvy. Its services sector, already a $215 billion export powerhouse, is poised for further expansion as digitalisation and remote work reshape global value chains. Investment interest is growing: US companies now employ 1.5 million people in India — more than any other country. Indian-founded, domestically-based firms like Ola Electric, Greenko Group, and ReNew Energy are developing local battery and renewables supply chains that could underpin a clean energy future. Meanwhile, multinational companies such as Apple, Amazon, Samsung, Nidec and Skoda VW are looking to deepen investments.

But these efforts alone are unlikely to establish India as a viable alternative to China's market dominance. Its flagship $23 billion subsidy programme, the Production-Linked Incentive (PLI) scheme, announced in 2020 to boost manufacturing in key sectors underperformed and was lapsed in 2025 (Reuters, 2025a). India's ambitions are held back by contradictions in its policy mix. Tariffs on clean energy components, protectionist trade instincts, and coal-heavy power generation are out of step with the demands of a more climate-sensitive trading world. Despite the 2030 goal of 500 GW of renewables and demonstrable progress in capacity rollout, India still generates 74% of its electricity from coal, much of it low-grade. This inflates embodied emissions not just in heavy industry, but even in professional services, where India ranks among the most carbon-intensive globally.

India's geopolitical stance as a non-aligned rising power gives it room to manoeuvre, but also exposes it to uncertainty. Its reliance on imported critical minerals, many sourced from China, adds fragility to clean technology ambitions. While trade deals have been signed with partners like the UAE and Australia, they focus heavily on legacy exports like textiles and pharmaceuticals, not high-value sectors like semiconductors or clean-tech. And while investment incentives are generous, they often favour final assembly over full value chain manufacturing, reinforcing dependence on imported components.

India has unenviable tools to compete in a decarbonising global economy but requires a coherent plan. This includes aligning industrial policy with clean energy deployment, ensuring that climate goals support, rather than conflict, with export ambition, and accelerating efforts to clean the grid (supported by international partners). As advanced economies increasingly link trade to emissions, India can become not just a major exporter, but a more sustainable one, pioneering a new development model as it seeks to join the US and China as the only nations with annual economic output of more than $5 trillion.

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).[1]

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.

1 Hong Kong appears in the Net Zero Tracker database as a city. It also appears in both the BACI and BATIS trade datasets used in this analysis as a separate reporting entity from mainland China. Given Hong Kong's unique political and economic status as a Special Administrative Region (SAR) of China, and the fact that its trade relationship with India differs markedly in character and scale to that of mainland China, we have opted to retain this distinction and report Hong Kong and China's respective trade with India separately throughout this report.

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 Indian 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 (tCO_2/$M) of output.

It should be noted that these capture CO_2 emissions only, excluding other greenhouse gases (GHGs). 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 India's overall CO_2 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, 2025b). 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	Accommodation 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 vehicles
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.[2]

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.

2 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. India's Existing Exports

The world's most populous country, India is expected to leapfrog Japan to become the fourth largest economy in the world in dollar GDP terms in 2025 (International Monetary Fund, 2025a), having already been third largest in PPP terms since 2008 (International Monetary Fund, 2025b). Overall exports of $660 billion in 2023 represented 22% of GDP. The share of services in India's export mix has risen steadily since the early 2000s from a little over 20% to 33%, primarily driven by rapid growth in IT and professional services.

3.1 Current exports overview

India's existing export picture is heavily dominated by two key trade relationships: the United States (US) and the European Union (EU). The US is India's single largest trade partner, accounting for almost 20% of the value of exports in 2023, with the EU not far behind. These two markets support 15.6 million domestic Indian jobs. Underlining the critical importance of these two export markets for Indian trade, the next largest are the UAE and the UK, each accounting for just over 5%. The EU and UK — the two markets with incoming CBAMs for specific emissions-intensive sectors such as steel, aluminium and cement (See BOX X) — collectively account for 22.5% of all Indian exports. The combined share of India's exports going to markets with active or incoming CBAMs outweighs any single trade partner.

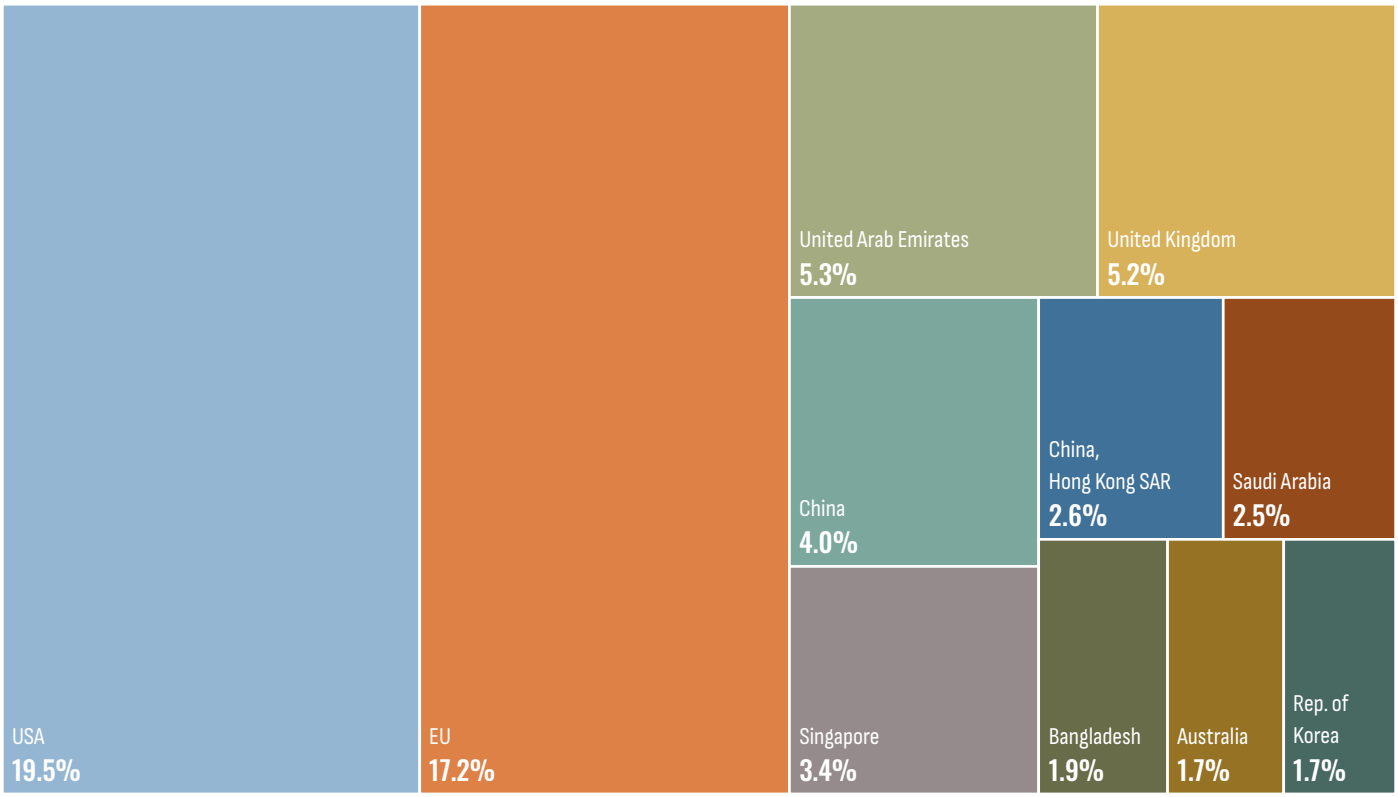

***Figure 1** : Top 10 export destinations (plus EU), 2023*

Trade partner	Export Value (US$, Millions)	Share of total exports	IND Jobs Supported
USA	128,312	19.5%	8,133,000
EU	113,768	17.2%	7,475,000
United Arab Emirates	35,188	5.3%	2,765,000
United Kingdom	34,077	5.2%	2,301,000
China	26,075	4.0%	2,166,000
Singapore	22,101	3.4%	1,016,000
China, Hong Kong SAR	17,311	2.6%	1,247,000
Saudi Arabia	16,237	2.5%	1,255,000
Bangladesh	12,798	1.9%	3,081,000
Australia	11,479	1.7%	688,000
Rep. of Korea	11,149	1.7%	535,000
Totals	**428,495**	**65.0%**	**30,662,000**

***Table 2** : Top 10 export destinations (plus EU), 2023*

India's successful service exports industries, predominantly professional services and IT services, have grown to become its largest export industries in dollar terms, collectively accounting for 23% of overall export value. Both are reasonably employment intensive, supporting 9.2 million jobs between them. India's Textiles and Agriculture[3] industries are notable outliers in the employment intensity of their exports; textiles account for 6.5% of export value but support 11% of India's export-related jobs, while agriculture supports a third of such jobs, while representing only 2% of export value in 2023.

3 Agriculture, hunting & forestry

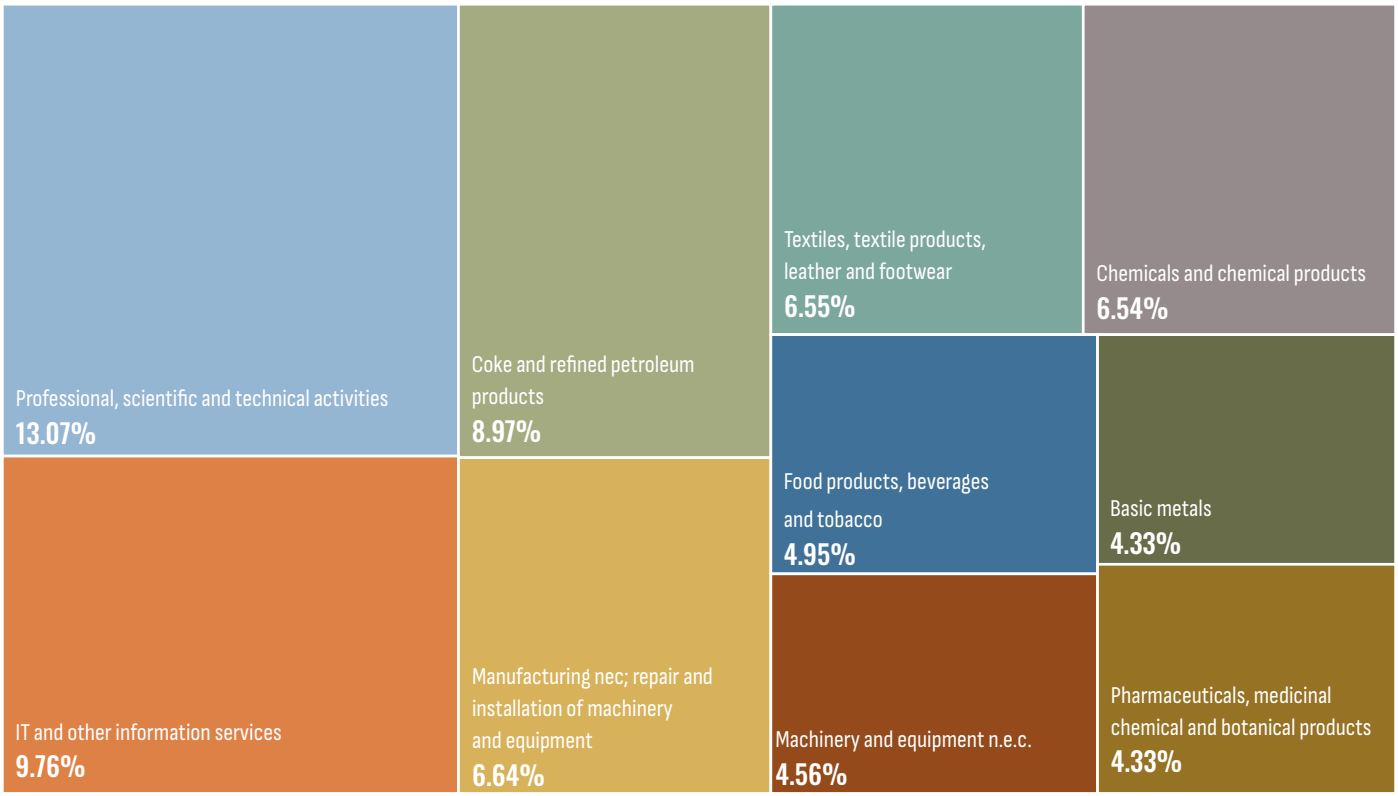

***Figure 2**: Top 10 export industries, 2023*

India's gems and jewellery industries are also a significant source of jobs; 84% by value of the Manufacturing not elsewhere classified (n.e.c.), repair and installation of machinery and equipment category, its fourth largest export industry, is trade in diamonds, jewellery and other precious gems. These exports supported 4.3 million jobs in 2023. Its Coke and refined petroleum products exports on the other hand, are not at all labour-intensive, supporting just 97,000 jobs despite being the third most valuable export industry in dollar terms.

Industry	Export Value (US$, M)	Share of total exports	IND Jobs Supported
Professional, scientific and technical activities	86,206	13.07%	5,391,000
IT and other information services	64,347	9.76%	3,845,000
Coke and refined petroleum products	59,158	8.97%	97,000
Manufacturing nec; repair and installation of machinery and equipment	43,770	6.64%	4,341,000
Textiles, textile products, leather and footwear	43,223	6.55%	5,522,000
Chemicals and chemical products	43,120	6.54%	482,000
Food products, beverages and tobacco	32,621	4.95%	1,149,000

Industry	Export Value (US$, M)	Share of total exports	IND Jobs Supported
Machinery and equipment n.e.c.	30,051	4.56%	231,000
Basic metals	28,580	4.33%	488,000
Pharmaceuticals, medicinal chemical and botanical products	28,545	4.33%	399,000
Totals	**459,621**	**69.69%**	**21,945,000**

***Table 3**: Top 10 export industries, 2023*

Figure 4 illustrates the cumulative share of export value for India's top five exporting industries across their top 10 destination markets.. Four of the five industries show relatively well diversified export profiles, with their top 10 markets accounting for 50-65% of total export value. However Manufacturing n.e.c. — dominated by precious stones and jewellery — is a clear outlier with over 60% of its export value concentrated in just three markets (the US, United Arab Emirates and Hong Kong), rising to 83% when the top 10 destinations are considered.

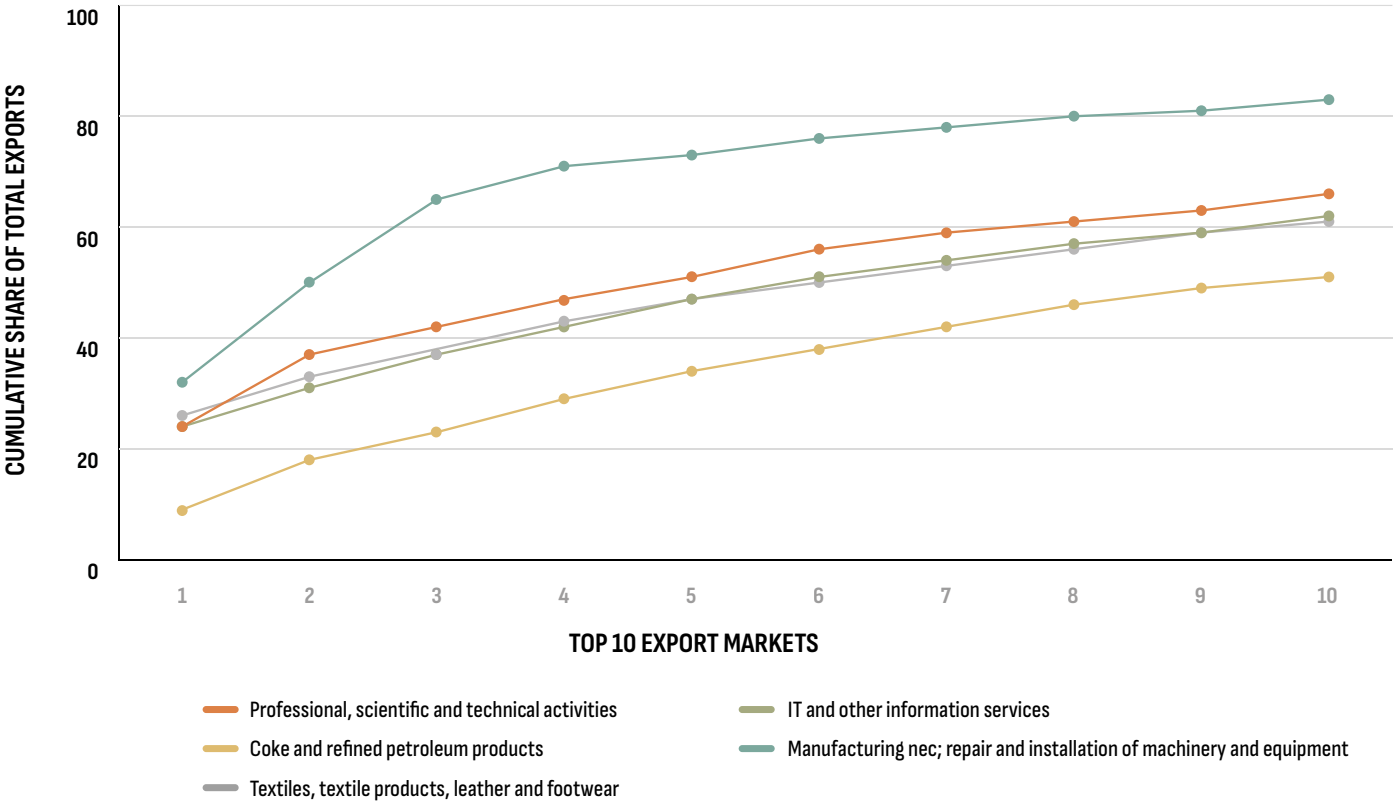

***Figure 3**: Market concentration: cumulative share of value of exports in top 5 exporting industries*

3.2 Trade with net zero aligned partners

India's trade with net-zero aligned nations represented 68% of the value of its total exports, worth $445 billion in 2023. These exports supported around 32 million jobs across the Indian economy. Of these, almost 11.4 million jobs are linked to exports destined for countries with targets enshrined in law, with another 14.5 million tied to countries that have formalised targets in official policy documents. Among India's top 10 export partners, only two — the US and Bangladesh — do not have net zero targets in place.

The US accounts for 19.5% of India's total exports. Despite only modest growth from 18.5% in 2019, it marks the fastest growth in export share among India's major export destinations over the past five years — a dynamic explored further in section 4.2. While the Trump administration's withdrawal from the Paris Agreement and scrapping of its net zero commitment means the US no longer has a national target, data from the Net Zero Tracker shows that 19 US states — representing 49.6% of US GDP, including California and New York, still have net zero goals in place (ECIU, 2024). Assuming India's exports to the US were proportionally distributed across the US economy, accounting for these state-level targets would increase the share of Indian exports going to net zero jurisdictions to **77%**.

At the industry level, 80% of India's Coke and refined petroleum exports go to jurisdictions with net zero targets in place, many of whom also have explicit targets to rapidly transition away from ICE cars to EVs (see ***Table 6***), underlining the systemic fragility of fossil fuel exports in a net zero world.

Net Zero Target type	Export value (US$, M)	Jobs supported	Share of total exports
In law	171,147	11,439,000	26%
In policy document	189,485	14,453,000	29%
Proposed / in discussion	29,439	1,665,000	4%
Declaration / pledge	53,818	4,043,000	8%
Achieved (self-declared)	1,751	160,000	0%
N/A or no commitment	213,886	16,861,000	32%
Totals	**659,527**	**48,621,000**	**100%**

Table 4: Trade with net zero aligned countries, 2023

3.3 Trade Blocs

While US exports represent India's largest bilateral trade relationship, it also does significant business with other major trading blocs, and has multilateral agreements governing its trade with several key partners.

	European Union	Comprehensive and Progressive Agreement for Trans-Pacific Partnership	Regional Comprehensive Economic Partnership	Association of Southeast Asian Nations	South Asian Free Trade Area	European Free Trade Area	MERCOSUR
Export Value (2023, $M)	113,768	112,863	118,815	59,678	27,792	10,871	13,018
Share of total	17.2%	17.1%	18.0%	9.0%	4.2%	1.6%	2.0%
Domestic Jobs Supported	7,475,000	8,092,000	9,460,000	5,329,000	4,919,000	909,000	456,000

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

As noted, India's trade with the EU represents over 17% of total value, supporting almost 7.5 million Indian jobs. This includes a significant portion of IT services and professional services exports, 27% of overall trade in Textiles and 24% of Basic Metals. The share going to the EU is significant not just on account of its scale, but because of its policy leadership on Carbon Border Adjustment Mechanisms (CBAMs), with its own scheme becoming fully active in 2026.

The EU's CBAM [further details on page 22] is intended to prevent the offshoring of emissions by European producers through the procurement of emissions-intensive inputs outside the EU, ensuring a level playing field with those produced inside the bloc which are subject to the pre-existing Emissions Trading Scheme (ETS). It currently targets primarily raw materials including iron and steel (European Commission, 2025a), with India heavily exposed due to high emissions in the production of these materials. The scheme is eventually expected to expand in scope and may end up including some manufactured goods.

India has major free trade agreements with the ASEAN nations, the European Free Trade Area (EFTA) and its South Asian neighbours through the South Asian Free Trade Agreement (SAFTA), as well as a preferential trade agreement with the South American MERCOSUR bloc (India Briefing, 2025a). Of these, SAFTA stands out: although it accounts for only 4% of dollar export value, its high share of agricultural trade means that these exports support almost 5 million jobs — disproportionately high relative to its value.

Table 5 also includes the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Regional and Comprehensive Economic Partnership (RCEP) due to the scale of India's exports to their member countries, even though India is not a party to either. Trade with CPTPP and RCEP member states each accounts for 17-18% of India's total exports, with some overlap in membership.

3.4 Large companies in trade partners

The Net Zero Tracker database assesses emissions reduction commitments made by the world's 2,000 largest publicly listed companies by annual revenue. The collective purchasing and investment potential of these firms is vast, and understanding the nature and extent of their net zero commitments adds a further layer of granularity to our analysis — particularly when considering the risks and opportunities for India's future trade.

Our analysis indicates that in India's top 10 export markets, 231 of these global companies — representing a combined $8.1 trillion in annual revenues — have adopted net zero targets that encompass scope 3 emissions — i.e. emissions throughout their full upstream and downstream value chains. This means they are committed to eliminating not only emissions from their direct operations, but also those of their suppliers. A further 45 companies — with combined revenues of $1.2 trillion — have emissions reduction targets which fall short of net zero, but still represent a serious commitment to decarbonisation of their supply chains.

These companies — and many others outside the top 2,000 that fall beyond the scope of this dataset — represent trillions of dollars in purchasing power. Their decisions about where to source components or locate manufacturing facilities carry significant weight for the markets in which they operate.

Many of the world's largest manufacturing and technology companies, with extensive operations across South and Southeast Asia, have adopted net zero targets that cover scope 3 (supply chain) emissions. Even where scope 3 is not explicitly covered, access to low-carbon power for directly owned or subsidiary operations is becoming essential, and a key factor in choosing where to locate such facilities. In response to recent shifts in global trade policy, high-tech manufacturers like Apple have begun shifting investments away from China towards alternative markets (CNN, 2024; AInvest, 2025). India and Vietnam have both benefited from this trend, but Vietnam holds a clear advantage on sustainability. India's electricity grid emits 50% more CO_2 per kilowatt-hour than Vietnam's, and India's Computer, electronic and optical products industry is **more than five times as carbon intensive** as its Southeast Asian counterparts.

Multinational companies increasingly view access to local renewable electricity, whether through the grid or on-site generation, as central to investment decisions as they strive to meet net zero goals. Tech firms including Microsoft and Google have committed to 100% renewable energy for their data centres, fuelling demand for clean power and drawing investment towards nations scaling up renewables (Data Centre Magazine, 2023; International Energy Agency, 2025). Chip manufacturers such as Intel and NVIDIA are investing billions in Malaysian provinces with high renewables penetration to meet their own emission reduction goals (TIME, 2024). In Vietnam, rising demand from companies like Nike and Samsung has accelerated legislation enabling Direct Power Purchase Agreements (DPPAs), which allow firms to buy clean power directly from local generators (World Resources Institute, 2024). Global fashion brand H&M is leading a similar pilot project in Bangladesh (Textile Today, 2024).

In textiles, India's competitors are taking steps to boost their environmental credentials to attract inward investment. Bangladesh is at the vanguard of Leadership in Energy and Environmental Design (LEED) certification in its textiles and garment factories (Business Standard, 2025a), while manufacturers in Turkey are actively promoting their sustainability performance (Fashion Network, 2024). The fashion house Bestseller, along with H&M, is directly investing in renewable energy capacity in Bangladesh, underlining the importance of the availability of locally generated renewable energy to multinational firms.

4. Comparative Analysis and detail of key trade relationships

4.1 Transition policies overview

Trade partner	Share of exports (2023)	Status of net zero target	Climate Action Tracker (CAT) overall rating[4]	High-level electricity policies	High-level Electric Vehicles (EV) policies	High-level industrial decarbonisation policies
United States	19.5%	No target[5]	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.
European Union	17.3%	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
United Arab Emirates	5.3%	In policy document	Insufficient	Tripling of clean energy generation by 2030 in line with 2050 net zero target.	Targeting 50% of all vehicles and 70% of buses sold to be electric by 2050.	Centred around efficiency gains in industrial processes, carbon capture and storage (CCS) and significant investment in hydrogen production, aiming for significant market share in key export markets.
United Kingdom	5.2%	In law	Insufficient[6]	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.
China	4.0%	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

4 (Climate Action Tracker, 2025c)

5 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

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

Trade partner	Share of exports (2023)	Status of net zero target	Climate Action Tracker (CAT) overall rating[4]	High-level electricity policies	High-level Electric Vehicles (EV) policies	High-level industrial decarbonisation policies
Singapore	3.4%	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
Saudi Arabia	2.5%	Declaration / pledge	Critically Insufficient	50% of electricity to be generated by renewables by 2030, but limited progress to date	Targets 30% EV market share by 2030	Aims to diversify its economy away from oil extraction. Decarbonisation pathway relies heavily on CCS. Intends to become a leader in green hydrogen
Bangladesh	1.9%	In policy document (Emissions reduction target)	N/A	Targeting 40% of electricity from renewable energy by 2041	30% of new registrations to be electric by 2030	Focused on energy sector and efficiency gains. NDC commits to 15% (5% unconditionally) emissions reduction vs. BAU
Australia	1.7%	In law	Insufficient	82% of generation from renewables by 2030	Average emissions intensity standards for new cars sold introduced in 2025, with allowable emissions to fall over time. Strategy aims to increase EV uptake but to explicit target for EV sales.	Prioritising the development of hydrogen, green metals, critical minerals, battery and solar manufacturing. Legislation requires large emitters to reduce emissions but allows for extensive use of offsets.
Republic of Korea	1.7%	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

***Table 6**: Transition policies in key export markets*

4.2 United States (US)

The US is by far India's most important bilateral trade partner, accounting for **19.5% of India's total exports of goods and services in 2023**. This is up from around 15% in the early 2010s, making it India's fastest-growing export market. Exports to the US now support over **8.1 million jobs**, and are heavily weighted toward high value-added services and advanced manufacturing, aligning closely with India's strategic ambitions to develop these sectors.

The US is also a major source of foreign direct investment (FDI), particularly in the high-tech and manufacturing sectors. It ranks third for FDI inflows into India in 2024 and with cumulative investment stocks of over $60 billion as of 2023 (Economic Times, 2025a; India Briefing, 2024a).

These headline figures mask even deeper dependence in specific industries. The US accounts for 38% of Indian Pharmaceuticals exports, and a third of Computer, electronic and optical products. While these sectors have relatively low employment intensity, others are far more labour-intensive and similarly exposed: IT & information services (24% of exports, supporting 920,000 jobs), Manufacturing n.e.c[7]. (32%, 1.4 million jobs), Professional, scientific and technical activities (24%, 1.2 million jobs) and Textiles (26%, 1.4 million jobs). These industries would be especially vulnerable to trade disruption.

That said, the strategic value of the relationship is mutual. India serves as a counterbalance to Chinese dominance in the Asia-Pacific, aligning with the US's 'China plus one' strategy for supply chain diversification (India Briefing, 2024a). Economic and diplomatic ties were strengthened under the first Trump administration, a trend which continued under Biden. India's Prime Minister Narendra Modi maintains a warm personal rapport with both President Trump and Vice President JD Vance. However, US concerns over its growing trade deficit led the Trump administration to announce tariffs of 26% on most Indian imports in April 2025, though implementation has been delayed (CNN, 2025a; India Briefing, 2025b). Figures from the US Congress indicate that the US ran a $45.6 billion goods trade deficit with India, while the services trade deficit was less than $0.5 billion (Akhtar, S. I., & Kronstadt, K. A., 2025).

In general, India maintains high average tariffs and a protectionist industrial policy aimed at strengthening domestic manufacturing. WTO data shows India's trade-weighted average tariff stands at 12%, compared with just 2.2% for the US (Miller, M. C., 2025; Reuters, 2025b). Despite these differences, momentum towards a bilateral trade deal is underway, and a first-phase agreement is targeted for later in 2025 (Akhtar, S. I., & Kronstadt, K. A., 2025).The US is pushing for greater access to India's agricultural markets — an area likely to face stiff resistance given its political sensitivity and high employment intensity. The Trump administration is also seeking deeper defence and intelligence ties, including increased procurement of US military equipment (BBC, 2025a).

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
No federal target, but state level policies covering 50% of US GDP	**$128bn, 19.5%**	**1.0%**	**- Professional, scientific and technical activities ($20.5bn, 16%)** **- IT and information services ($15.3bn, 12%)** **- Manufacturing nec; repair and installation of machinery and equipment ($14bn, 11%)** **- Textiles, textile products, leather and footwear ($11.1bn, 8.7%)** **- Pharmaceuticals, medicinal chemical and botanical products ($10.9bn, 8.5%)**	**8,133,00**

***Table 7**: Detail of trade with USA, 2023*

7 Dominated by jewellery & precious stones

4.3 European Union (EU)

Considered as a bloc, the EU rivals the US as India's most valuable export market, with exports reaching $114 billion, or **17.3% of total exports in 2023**. As with other developed country markets, services play a major role, led by Professional services and IT services. Services account for 39% of total export value. Textiles and Basic Metals also feature prominently: 27% of India's Textiles exports and 24% of Basic Metals exports go to the EU. The latter is especially significant given its vulnerability to the EU's incoming Carbon Border Adjustment Mechanism (CBAM) (World Bank, 2023).

Negotiations are underway for a long-anticipated Free Trade Agreement (FTA), with optimism for a breakthrough by the end of 2025 (Reuters, 2025c; Economic Times, 2025b). These talks have been protracted, including an eight-year hiatus between 2013 and 2021. India has long objected to what it sees as restrictive non-tariff measures limiting meaningful access to EU markets (RIS, 2025).

A major new sticking point in current negotiations is India's exposure to the EU's CBAM. India's coal-heavy power grid means almost all its manufactured goods exports have high embodied carbon, and are likely to face large tariffs under the mechanism (Carbon Trust, 2025). Though the EU CBAM initially covers only a limited range of industries, India's steel and aluminium exports are squarely in its crosshairs.

Carbon Border Adjustment Mechanisms

Carbon Border Adjustment Mechanisms (CBAMs) are climate policies designed to level the playing field by ensuring that both domestic and imported goods face a comparable price for their emissions. Their goal is to prevent carbon-intensive imports from undercutting domestic producers that face stricter climate regulations and, in the EU, a carbon price of around €70 ($80) per tCO2.[8] CBAMs are typically designed to apply to upstream, trade-exposed sectors — such as metals used in manufacturing — to reduce the risk of carbon leakage, where emissions-intensive industrial production relocates to countries with no (or limited) carbon pricing.

The EU's CBAM — in its transition phase now and fully operational January 2026 — initially covers **iron and steel, aluminium, cement, fertiliser, hydrogen** and **electricity** (European Commission, 2025a). Importers must purchase emissions allowances as if the goods were produced under the EU's Emissions Trading System (ETS). The policy will expand in scope over time. The UK's version is similar, but intends to exclude electricity when it launches in 2027 (UK Government, 2025). Neither of these two policies offer exemptions for developing countries. The initial scope of coverage means that India's Basic Metals industry is particularly exposed; of the $28.5 billion (4.3% of total exports) sold in 2023, 30% went to markets with a CBAM mechanism either active, incoming or under discussion.

CBAM status	Export value (US$, bn)	Share of total exports	Jobs supported
Active	$113.8	17.2%	7,475,000
Incoming	$34.1	5.2%	2,301,000
Under Discussion	$38.5	5.8%	2,425,000
Total	$ 186.4	28.3%	12,201,000

***Table 8** : India's potential economic and labour exposure to CBAM measures*

8 See 'European electricity prices and costs' https://ember-energy.org/data/european-electricity-prices-and-costs/. (Ember, 2025)

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 '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) notes, 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 India, navigating CBAMs before they become ubiquitous requires a proactive and multi pronged approach, including policy adjustments and a concerted shift towards lower-carbon forms of energy and production. Over the short-term, like Turkey, India could set up an advisory programme to help exporters reduce carbon footprints and improve energy efficiency (GMK Center, 2024).

Along with other BRICS nations, India has "condemned and rejected" CBAMs as unfair and protectionist, arguing they amount to unilateral trade restrictions under the pretext of climate concerns (S&P Global, 2025).[9] The measures, they argue, have been framed as non-tariff barriers that unfairly penalise developing countries for their lower historical emissions and limited decarbonisation capacity.

Despite India warning that it will respond with retaliatory measures, the European Commission maintains that the CBAM is legitimate climate policy, not a trade tool. Meanwhile, India and other nations repeatedly point out that the developed world is yet to fully deliver on their commitments under the UNFCCC and the 2015 Paris Agreement, particularly those related to providing finance to lower middle - and low-income countries to mitigate and adapt to climate change. The EU's CBAM poses one of the biggest hurdles to negotiations on a free trade agreement (FTA) between India and the EU.

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, 2025g). The EU Deforestation Regulation (EUDR) bans the sale of products — including palm oil, coffee and beef — raised on recently cleared land; 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.

Our analysis finds that 70% of India's Basic Metals exports to the EU are directly exposed under the current CBAM scope, along with 40% of Fabricated metal products and 21% of Mining and quarrying, non-energy producing products. Together, these commodities accounted for $5.6 billion — 8% of India's goods exports to the EU — and supported around 143,000 domestic jobs in 2023. If the scope of the EU's CBAM expands into other industries, so-called 'downstream products', both figures are likely to rise. (European Commission, 2025f)

The EU's evolving climate legislation further raises the bar. The Corporate Sustainability Reporting Directive (CSRD) and Corporate Sustainability Due Diligence Directive (CSDDD) will place new requirements on large firms operating within the bloc — forcing them to report and reduce not only their own emissions, but also those embedded in their global supply chains

9 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).

(European Commission, 2025b; European Commission, 2025c). Despite recent amendments to the rules of these directives, including postponing application dates, these measures aim to drive greater transparency and accelerate decarbonisation among firms supplying the world's largest single market. India's agricultural exports also face rising scrutiny. The EU's new deforestation regulation (EUDR), due to take effect later this year, is expected to cover $1.3 billion worth of Indian exports, placing India's employment-intensive agricultural sector under increasing spotlight (EU Commission, 2025d, Indian Business & Trade, 2024).

The EU is a major source of FDI into India, with cumulative inflows of $140 billion and more than 6,000 EU firms operating in the country as of 2023 (European Commission, 2025e). Green hydrogen is emerging as a strategic area of collaboration: Germany and India are co-developing a joint roadmap under the National Green Hydrogen Mission (Ministry of New and Renewable Energy, 2025a), including a forthcoming $1.3 billion investment in Andhra Pradesh (Fuel Cells Works, 2025; Entrepreneur, 2025).

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
In law, 2050	$114bn, 17.3%	1.3%	- Professional, scientific and technical activities ($19.2bn, 17%) - IT and information services ($13.0bn, 11%) - Textiles, textile products, leather and footwear ($11.5bn, 10%) - Coke and refined petroleum products ($9.9bn, 8.7%) - Chemicals and chemical products ($9.1bn, 8.0%)	7,475,000

Table 9: *Detail of trade with EU, 2023*

4.4 United Arab Emirates (UAE)

Trade relations with the UAE have been strengthened in recent years, and while rapid growth in India's overall exports means that UAE's share of its total exports has actually dropped slightly, overall bilateral trade value has risen sharply (Business Standard, 2025b; India Briefing, 2022).

India's exports totalled $35 billion in 2023, supporting 2.8 million domestic jobs. This was dominated by jewellery and precious stones, captured within the Manufacturing n.e.c. category in our analysis. Exports to UAE accounted for 18% of India's total exports in this industry, supporting 755,000 jobs.

India's export growth to the UAE has accelerated since the 2022 Comprehensive Economic Partnership Agreement (CEPA), which set ambitious targets for bilateral trade growth through tariff elimination and wider strategic collaboration (Consulate General of India, Dubai, 2025; Consultancy ME, 2024). Further integration could come via the US-led India-Middle East-Europe Corridor (IMEC) initiative — a large-scale, multi-modal connectivity project positioned as a counterweight to China's Belt & Road Initiative (BRI). IMEC intends to better connect India to Europe through the UAE, Saudi Arabia and Israel (India Today, 2025). While recent geopolitical tensions in the Middle East have delayed progress, if implemented, the project would position India and the UAE as central nodes in a strategic corridor and support India's aim to reduce reliance on Chinese-dominated trade routes (European Council on Foreign Relations, 2024).

Beyond trade, ties are deepening through broader economic cooperation. Agreements on local currency settlement, investment liberalisation, and collaboration on green hydrogen, critical minerals and nuclear energy signal a growing strategic alignment (India Briefing, 2024b; Consulate General of India, Dubai, 2025). The UAE was India's seventh largest source of FDI in 2023, with overall investment since 2000 exceeding $19 billion (India Briefing, 2024b) — a figure set to rise as Abu Dhabi's sovereign wealth fund commits a reported $4-5 billion through Gujurat's new tax-efficient GIFT City finance hub (Reuters, 2024).

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
In policy document, 2050	$35bn, 5.3%	-01.3%	- Manufacturing nec ($7.6bn, 22%) - Computer, electronic and optical products ($4.4bn, 13% - Coke and refined petroleum products ($3.2bn, 9.0%) - IT and information services ($2.8bn, 8.1%) - Textiles, textile products, leather and footwear ($1.8bn, 5.2%)	2,765,000

***Table 10**: Detail of trade with UAE, 2023*

4.5 UK

In 2023, India exported $34 billion worth of goods and services to the UK — 5.2% of its total exports — supporting 2.3 million jobs. Trade is heavily dominated by services, comprising almost 60% of export value and supporting 1.3 million of those jobs. Professional services[10] alone support 680,000 jobs, with exports doubling in value over the five years to 2023. IT services[11] and Accommodation and food services[12] add another 356,000 jobs between them.

The UK–India relationship is long-standing, with deep diplomatic, cultural and economic ties. As of 2025, people of Indian heritage make up 2.7% of the UK population (1.9 million people), the largest diaspora by ethnic background (Department for Business and Trade, 2025). Bilateral trade between the two nations is growing, and the recent announcement of a new Free Trade Agreement (FTA) promises to bolster this further (BBC News, 2025b). While final terms are still under negotiation, the FTA aims to lower or remove barriers to goods and services. India's high tariffs and tightly regulated services sector — ranked the 9th most restrictive globally by the OECD — remain obstacles to deeper integration (OECD, 2025a).

A major point of contention is the UK's proposed Carbon Border Adjustment Mechanism (CBAM), due to be implemented in 2027 and mirror the EU's own CBAM, fully active from 2026. The measure, which adjusts the price of imports based on their embodied carbon (see BOX X), poses a significant threat to Indian exporters given the country's coal-heavy energy mix. India has sought exemptions, arguing the policy violates WTO principles and disproportionately harms developing countries (Chatham House, 2025a). The dispute remains unresolved. While India has threatened reciprocal measures, it has so far failed to secure an exemption in the FTA negotiations (Politico, 2025).

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
In law, 2050	$34bn, 5.2%	0.9%	- Professional, scientific and technical activities ($10.9bn, 32%) - IT and information services ($3.6bn, 11%) - Accommodation and food services ($2.7bn, 7.8%) - Textiles, textile products, leather and footwear ($2.3bn, 6.9%) - Coke and refined petroleum products ($2.2bn, 6.4%)	2,301,000

***Table 11**: Detail of trade with UK, 2023*

10 Professional, scientific and technical activities
11 IT and information services
12 Primarily tourism

4.6 China

The China-India trade relationship remains one of the most complex and consequential economic partnerships in geopolitics — characterised by deep interdependence, rising competition and strategic tensions. Diplomacy flared up in 2020 during the Ladakh border disputes but have since eased, with the resumption of direct flights and the restoration of diplomatic engagement (BBC News, 2025c).

Strategic trust remains low. China's close ties with Pakistan and India's deepening defence and security cooperation with the US continue to fuel mutual suspicion. India's foreign policy posture of 'strategic autonomy' allows it to engage with competing powers, but its position at the fault line of Sino-American rivalry presents persistent challenges for trade, diplomacy and industrial strategy (Chatham House, 2025b). As China continues to expand its influence through the Belt and Road Initiative and other strategic goals, boosting trade and soft power, India is often on the back foot (Singh, A., 2024).

Trade between the two remains deeply imbalanced. In 2023, India exported $26 billion in goods and services to China, supporting 2.2 million domestic jobs. Exports were largely low-value raw materials such as iron ore and precious stones, along with significant Chinese spending on water transport services. In terms of employment, however, over half of the jobs supported by these exports were in agriculture, despite constituting just 4% of export value. In contrast, imports from China are predominantly high value-added manufactured goods, leaving India with a large trade deficit.

India aims to rival China in manufacturing — particularly in electronics, renewables and advanced technology — but progress has been slow due to continued dependence on Chinese inputs (United States Institute of Peace, 2025). Chinese efforts to prevent the emergence of India as a challenger to its dominance as the world's preeminent manufacturing hub (Government of India, 2024; China Briefing, 2024) have included the targeted use of export controls to prevent the sale of critical minerals and manufacturing equipment to firms in India (International Institute for Strategic Studies, 2025a; International Institute for Strategic Studies, 2025b). India's vulnerability is stark: it depends on China for 93% of the rare earths needed in electric vehicle battery production (Moneycontrol, 2025), while Production Linked Incentive (PLI) schemes to support domestic industry have been repeatedly undermined by Chinese restrictions on key components (Mint, 2025a; IMD, 2024; Business Standard, 2025c).

While there is deep uncertainty as to how global trade will realign in response to the US's protectionist turn, India has taken a conciliatory approach. Indeed, it serves US interests to enable India's development as an alternative manufacturing hub and the diversification of global supply chains away from China. Meanwhile, as heightened protectionism under Trump restricts Chinese access to the US market, China could find itself compelled to relax its own restrictions on exports to India in order to compensate for a fall in trans-pacific trade.

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
In Policy Document, 2060	$26bn, 4.0%	-1.1%	- Mining and quarrying, non-energy producing products ($4.6bn, 18%) - Water transport ($3.2bn, 12%) - Chemicals and chemical products ($2.2bn, 8.7%) - Professional, scientific and technical activities ($1.5bn, 5.7%) - Food products, beverages and tobacco ($1.3bn, 5.2%)	2,166,000

Table 12: *Detail of trade with China, 2023*

4.7 Singapore

India's close economic relationship with Singapore is underpinned by the Comprehensive Economic Cooperation Agreement (CECA) free trade agreement signed in 2005, with the diplomatic relationship elevated to a 'Comprehensive Strategic Partnership' in 2024 (High Commission of India, Singapore, 2025). The CECA has facilitated significant growth in bilateral trade, with exports of $22 billion in 2023 supporting just over a million Indian jobs. While refined petroleum accounted for the largest share of exports by value, just under three quarters of export-supported jobs were in services in 2023, with 635,000 jobs linked to high value IT services, Professional services and Financial services.[13]

Cooperation between the two countries is extensive, with further ties in defence, digital connectivity, skills development and fintech, and the recent announcement of an initiative to collaborate on the decarbonisation and digitalisation of port and shipping infrastructure (India Briefing, 2025c).

Singapore is India's largest source of FDI, a position it has held for the last seven years (Economic Times, 2025a), with cumulative investment reaching $167 billion between 2000 and 2024, 24% of India's total inward FDI during the period.

Net zero target status and year	Value and percentage of India's exports	Recent trend: absolute growth in share of India's exports, 2019-2023	Top five exporting industries, value, % of India's exports to country, 2023	Total Indian jobs supported, 2023
In Policy Document, 2050	$22bn, 3.4%	0.32%	- Coke and refined petroleum products ($5.4bn, 24%) - Professional, scientific and technical activities ($4.9bn, 22%) - IT and information services ($4.5bn, 20%) - Water transport $1.1bn, 5.0%) - Chemicals and chemical products ($0.9bn, 4.3%)	1,016,000

***Table 13**: Detail of trade with Singapore, 2023*

13 Financial and insurance activities

5. Export competition and 'carbon competitiveness'

The IMF's emissions multiplier data enables comparison of full supply chain emissions a-cross industries and economies.[14] 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. ***Table 14*** breaks this down for India's key exports, including professional services, jewellery, textiles and agriculture.

For each 'industry subcategory', we show:

- **D.** India'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 India's emissions performance compares to each competitor country (final column).

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

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

Our analysis points to major risks for India's exports. **Across all key service export categories, India's embodied emissions are significantly higher than those of its direct competitors — often by an order of magnitude**. This is true across both professional and IT services, and given the nature of these industries' supply chains, the bulk of these emissions stem from India's carbon-intensive electricity grid.

The scale of the gap is stark. In Professional, scientific and technical activities, India's largest export industry, competitor suppliers to India's top export markets are able to offer comparable services with 15 to 25 times fewer CO2 emissions.

India's jewellery and precious stones exports, its most significant manufacturing industry and dominating the Manufacturing not elsewhere classified[15] category, are similarly at risk. 65% of its exports from this industry go to the UAE, the USA and Hong Kong, and in all three cases, other countries are able to supply those markets at significantly lower emissions cost. Only South Africa's diamonds are more carbon intensive; another country with a very high proportion of coal in power generation.

The picture is similarly challenging across other areas of Indian manufacturing, particularly high value-added industries including mobile phones and pharmaceuticals, specialisms into which India aims to attract investment through its 'Make in India' strategy and further develop as engines of growth (Make in India, 2025). India's Asian manufacturing competitors China and Vietnam are currently able to produce mobile phones with much lower emissions, while European pharmaceuticals manufacturers generate lower emissions than their Indian counterparts.

Only in its more employment-intensive industries does India come within touching distance of its main rivals, though the picture remains mixed. In Textiles, India's fifth largest export industry, its CO2 emissions are still as much as double those of other countries who supply the same markets, and in an industry driven by consumer preferences and the growth of sustainable fashion, manufacturers in Turkey and India's other competitors are looking to capitalise by investing in sustainable practices.

14 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.

15 Manufacturing nec; repair and installation of machinery and equipment

For India, the opportunity of decarbonising its grid and 'going green' is not just about derisking specific export sectors, but also about positioning itself for gaining market share in strategic industries. That means positioning itself for more jobs, more growth and accelerated development vis-à-vis competitors.

A. Industries	B. India's embodied CO_2 emissions in that industry (tCO_2/$M)	C. Industry subcategory	D. India's largest export destination countries	E. Competing countries also exporting to those markets	F. Competing country's embodied CO_2 emissions (tCO_2/$M)	G. Embodied emissions ratio (India / competing country supplier)
Professional, scientific and technical activities	506	Professional and management consulting services	USA, UK, Singapore, Netherlands	United Kingdom	35	14.5
				Canada	102	5.0
				Singapore	32	16.0
				Germany	46	11.0
				Belgium	33	15.3
				Ireland	21	24.2
		Research and development services	USA, Germany, Ireland	United Kingdom	35	14.5
				Germany	46	11.0
				China	332	1.5
				France	29	17.3
				Belgium	33	15.3
		Technical, trade-related, and other business services	USA, UK, Netherlands, Germany	USA	70	7.2
				France	29	17.3
				Germany	46	11.0
				Canada	102	5.0
				Ireland	21	24.2
IT and other information services	229	Computer Services	USA, Singapore, Germany, UK	Ireland	21	10.7
				Canada	82	2.8
				United Kingdom	28	8.2
				Germany	28	8.3
				USA	56	4.1

A. Industries	B. India's embodied CO_2 emissions in that industry (tCO_2/$M)	C. Industry subcategory	D. India's largest export destination countries	E. Competing countries also exporting to those markets	F. Competing country's embodied CO_2 emissions (tCO_2/$M)	G. Embodied emissions ratio (India / competing country supplier)
Manufacturing not elsewhere classified	1775	Jewellery	UAE, USA, Hong Kong	Turkey	340	5.2
				Italy	78	22.9
				Thailand	323	5.5
				Switzerland	37	48.2
		Diamonds	USA, Belgium, Hong Kong, UAE	Israel	344	5.2
				Belgium	68	26.0
				China	777	2.3
				South Africa	1909	0.9
Computer, electronic & optical products	1114	Wireless & cellular phones	USA, UAE, UK, Italy	China	481	2.3
				Vietnam	211	5.3
				Netherlands	28	39.3
Pharmaceuticals, medicinal chemical and botanical products	394	Pharmaceuticals	USA, UK, South Africa, Brazil	Ireland	16	24.6
				Germany	131	3.0
				Switzerland	44	9.0
				France	116	3.4
Chemicals and chemical products	426	Organic chemicals	USA, Brazil, China, Germany	Ireland	17	25.5
				China	980	0.4
				Singapore	307	1.4
				Rep. of Korea	340	1.3
Basic Metals	3850	Iron & Steel	Italy, Belgium, Spain, UAE	Germany	643	6.0
				France	788	4.9
				China	2209	1.7
				Italy	311	12.4

A. Industries	B. India's embodied CO_2 emissions in that industry (tCO_2/$M)	C. Industry subcategory	D. India's largest export destination countries	E. Competing countries also exporting to those markets	F. Competing country's embodied CO_2 emissions (tCO_2/$M)	G. Embodied emissions ratio (India / competing country supplier)
Textiles, textile products, leather & footwear	482	Clothing & accessories	USA, UK, Germany, Spain, UAE	China	446	1.1
				Vietnam	339	1.4
				Turkey	257	1.9
				Mexico	223	2.2
		Cotton	Bangladesh, China, Vietnam, Sri Lanka	China	446	1.1
				Brazil	112	4.3
				Vietnam	339	1.4
				Australia	301	1.6
Agriculture, hunting, forestry	324	Rice	Saudi Arabia, UK, USA, Iraq	Thailand	Not available	Not available
				Pakistan	276	1.2
		Pepper	China, Thailand, Bangladesh, USA	China	402	0.8
				Vietnam	400	0.8
				Mexico	285	1.1

***Table 14**: Carbon competitiveness of key export industries*

Column **A** shows the parent industry; column **B** is the IMF emissions multiplier for that industry, in India (CO2 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. Turkey, Italy, Thailand and Switzerland are the other largest suppliers of jewellery to the USA, UAE and Hong Kong. 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 India are higher than those in the alternative supplier's economy, for the same dollar value of output.[16]

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

6. Opportunities and challenges at the net zero-trade nexus

6.1 Reinvigorating manufacturing and capitalising on 'China plus one'

India has long sought to challenge China's dominance as the world's workshop and present itself as a viable, cost-effective alternative. As China's investments in the Global South become greener, nurture low-carbon innovation and embrace 'small but beautiful', India should take note. India's own self-interested push to develop and boost its manufacturing sector — exemplified by its 2014 'Make in India' industrial strategy and 2020 Production Linked Incentive (PLI) scheme — has not yet had the impact anticipated, with Manufacturing as a share of GDP remaining stagnant over the past decade (BBC News, 2024).

While China is more cost competitive than other countries across major clean energy technologies (ETC, 2015), India's costs indexed against China is only fractionally more for Solar PV, Wind, Batteries — and at parity for Electric Vehicles (ETC, 2025). What's more, the cost of ramping up production across all four is significantly lower than in the EU or US, showing that finance, not production costs, is the main barrier.

The shifting tectonics of global trade ushered in by President Trump's second term presents opportunities. Companies are looking to pursue a 'China plus one' strategy to insulate themselves from the fallout of a deterioration in Sino-American trade relations. India's long standing approach of 'strategic autonomy' to foreign policy positions could capitalise on this realignment and the US's broader rejection of multilateralism.

Decarbonisation is increasingly shaping global investment decisions — and here, India lags and is falling further behind. Progress in cleaning up its electricity mix has been slow relative to China. Since 2000, India has reduced emissions from power generation by just 4%, compared with China's 29% drop over the same period (Our World in Data, 2025a).

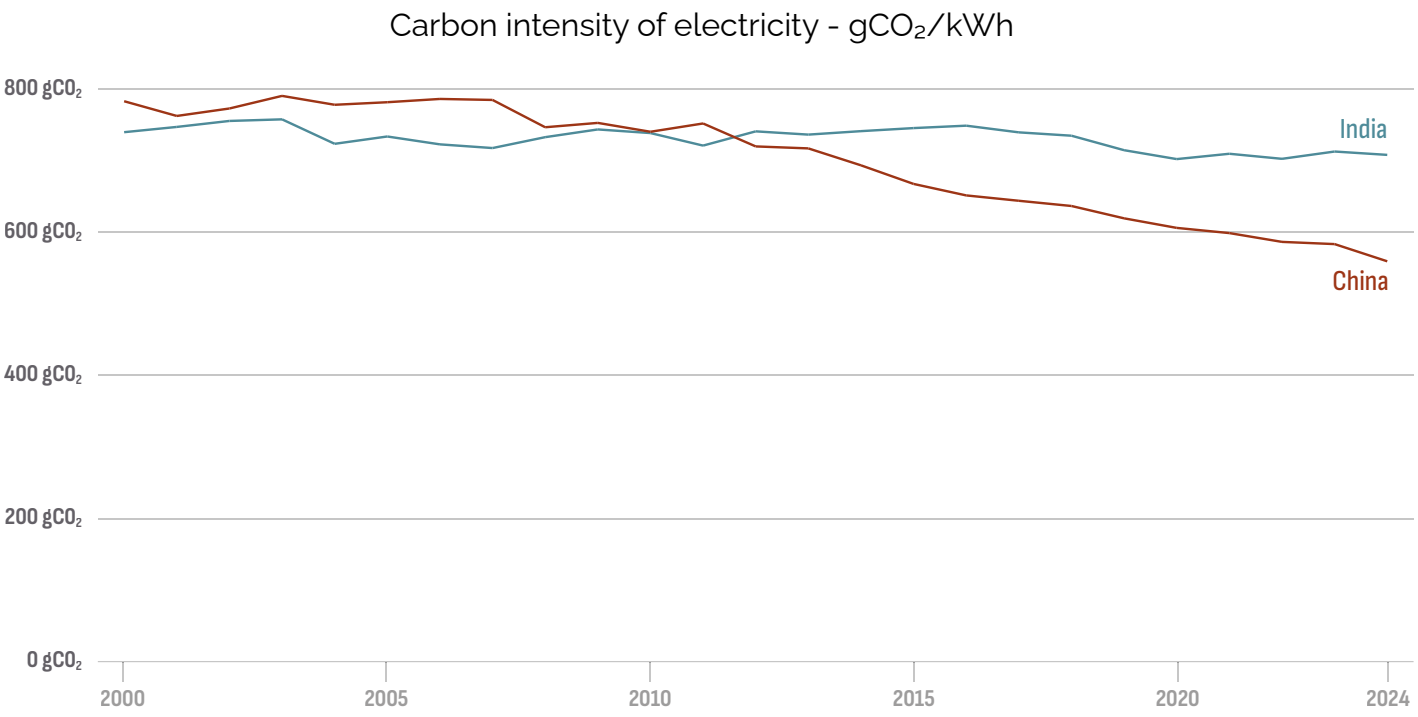

***Figure 4**: Carbon intensity of electricity generation.* Our World in Data, 2025

This divergence is reflected in manufacturing emissions intensity. India emits more CO_2 per million dollars of output than China across nearly all sectors targeted by Make in India — covering 69% of the initiative's export value. If China responds to retreating US federal climate ambition by doubling down on low-carbon industrial policy, this gap will widen. That is, unless India plans for, and accelerates, deeper emission cuts over the near-term (Geall, S., 2025; The Conversation, 2025).

Adding to the challenge is India's heavy reliance on imported critical minerals — such as lithium, cobalt and nickel — essential for clean technology. Many of these imports come from China, exposing India to supply chain disruptions and geopolitical risks (Institute for Energy Economics and Financial Analysis, 2024a). The recently announced National Critical Minerals Mission aims to reduce this exposure by investing heavily in domestic exploration and strategically diversifying supply chains (Ministry of Mines, 2024).

6.2 Rural jobs: balancing industrialisation with lower emissions

Agriculture remains central to India's economic and social fabric. The sector employs 46% of the workforce and contributes around 16% of GDP (Government of India, 2025; World Bank, 2025). The extremely high employment intensity of India's agricultural sector makes it vulnerable to shifts in export demand. In 2023, agriculture ranked only 16th among India's top export sectors by value, but it supported over 16 million jobs — almost triple any other industry. Most of these are low-income, rural roles, making them acutely vulnerable to shifts in global demand. Falling employment in the agricultural industry would have a disproportionate impact on some of India's most vulnerable communities, where the effects of climate change are already playing havoc (Centre for Science and Environment, 2024).

Our analysis (see section 5) finds Indian agricultural exports are relatively carbon competitive with international peers. This reflects the sector's low-tech, high-labour structure (Alonso, C. and MacDonald, M.; 2024). But as Indian agriculture modernises — adopting more energy-hungry and capital-intensive methods — carbon intensity will rise sharply if the country's energy mix continues to expand coal-fired power. This could put millions of rural jobs at risk, as buyers shift to lower-carbon suppliers over time.

Rice is India's largest agricultural export, worth over $11 billion in 2023. One of its main competitors, Pakistan, already outperforms India on carbon metrics: it emits less CO_2 per million dollars of agricultural output, and its electricity grid's emissions per kilowatt-hour are just over half India's, and falling. Beyond trade competitiveness, coal-fired power in India also has direct negative effects on crop yields due to air pollution, compounding human health risks with agricultural losses (Singh et al, 2025).

As mechanisation increases, more solar and emerging solutions like electric tractors and solar pumps offer a potential off-ramp from rising agricultural emissions. The PM-KUSUM scheme, launched in 2019, aims to solarise India's agriculture sector by deploying 35 GW of decentralised solar capacity through solar pumps, grid-connected plants and feeder-level solarisation (renewable Watch, 2025). While it has seen meaningful uptake of solar pumps, progress on other components has lagged, threatening its 2026 targets. If renewed and reinvigorated — with financing and bureaucratic hurdles addressed — it could become the backbone of agricultural decarbonisation. While still nascent, e-tractors could also help India modernise farming practices while maintaining carbon competitiveness, provided they scale quickly and are powered by a cleaner grid (KPMG India, 2024).

India could also learn from Pakistan's large-scale deployment of distributed solar power to reduce on-farm emissions. In 2024 Pakistan imported 17 GW worth of solar panels to meet growing consumer demand in a grassroots 'rooftop revolution', double the amount imported the year before. Within just a year, it became one of the world's largest markets for new solar installations (EMBER, 2025b). While India's solar capacity doubled from 2023 to 2024, most of the 24 GW of additions was utility scale (EMBER, 2025b). It still has just 18GW of total grid-connected rooftop solar, and 5GW of off-grid rooftop solar capacity installed (Ministry of New and Renewable Energy, 2025b). Combining distributed solar with a domestic e-tractor rollout could allow India to modernise without locking in future coal-powered emissions, especially in remote rural areas where grid reliability is weak or absent.

6.3 Powering a lower-carbon advantage in Services

India is a global heavyweight in professional and IT services, particularly in English-speaking markets. Services now account for one-third of total exports and export-related jobs. This leadership has been hard won, but it is not immune to carbon scrutiny.

With supply chain emissions under greater regulatory and consumer attention, the 15.6 million jobs supported by India's services exports face rising pressure. This is particularly true in high value-added services industries serving Europe, the UK, and other advanced economies with relatively stringent climate legislation.

The emissions gap between India and its global competitors in these sectors is significant (see section 5). However, services supply chains are typically short, and embodied emissions are heavily influenced by the electricity generation that powers them. This creates an opportunity: the expansion of more renewables and the displacement of fossil fuel-derived electricity can quickly improve the carbon competitiveness of India's services exports.

More broadly, successful decarbonisation can drive inbound investment in high-value add services and tech sectors. India was the 8th largest recipient of FDI globally in 2023 (White & Case, 2024). With continued regulatory liberalisation and the rollout of cleaner energy, India could become even more attractive to multinationals seeking sustainable growth locations.

One high-potential area is data centres and infrastructure. India generates roughly 20% of the world's data but hosts just 3% of global data centre capacity (CareEdge Ratings, 2024). Faster clean energy deployment could help India capture a greater share of this investment wave, while also aligning its digital economy with rising expectations for low-emission operations.

6.4 India's just transition is gaining momentum

The concept of a just transition is gaining traction in India, but remains in its early stages of policy and institutional development. Recent signals — including a dedicated chapter on just transition in the draft National Electricity Plan and early state-level roadmaps in Jharkhand and Odisha — show growing recognition of the need to manage coal phase-down equitably. (Government of India, 2023). India's Long Term Low Emission Development Strategy focuses on workforce reskilling and redeployment. Some of India's most carbon-intensive state owned enterprises — such as Coal India and energy conglomerate NTPC — have announced diversification plans. (Ministry of Coal, 2023; Sustainable Energy For All, 2025)

But, as it stands, implementation remains fragmented, with limited financial resources, weak coordination and few concrete safeguards for affected workers and communities (Just Transition Finance Lab, 2024). To be credible and effective, India's just transition efforts should be integrated into its broader energy and industrial strategies, with major investment in community consultations, skills development and economic diversification across the regions most dependent on the coal sector.

6.5 Renewable energy rollout: progress and obstacles

India's progress in decarbonising its electricity grid presents a mixed picture. Under its updated emissions-cutting NDC in 2022, it pledged to cut emissions intensity of GDP by 45% from 2005 levels and ensure 50% of installed power capacity is non-fossil by 2030. The ambitious target of deploying 500 GW of non-fossil capacity by 2031–32 reflects the scale of India's clean energy aspirations, though this timeline has already slipped from an initial 2030 goal (Mercom India, 2024).

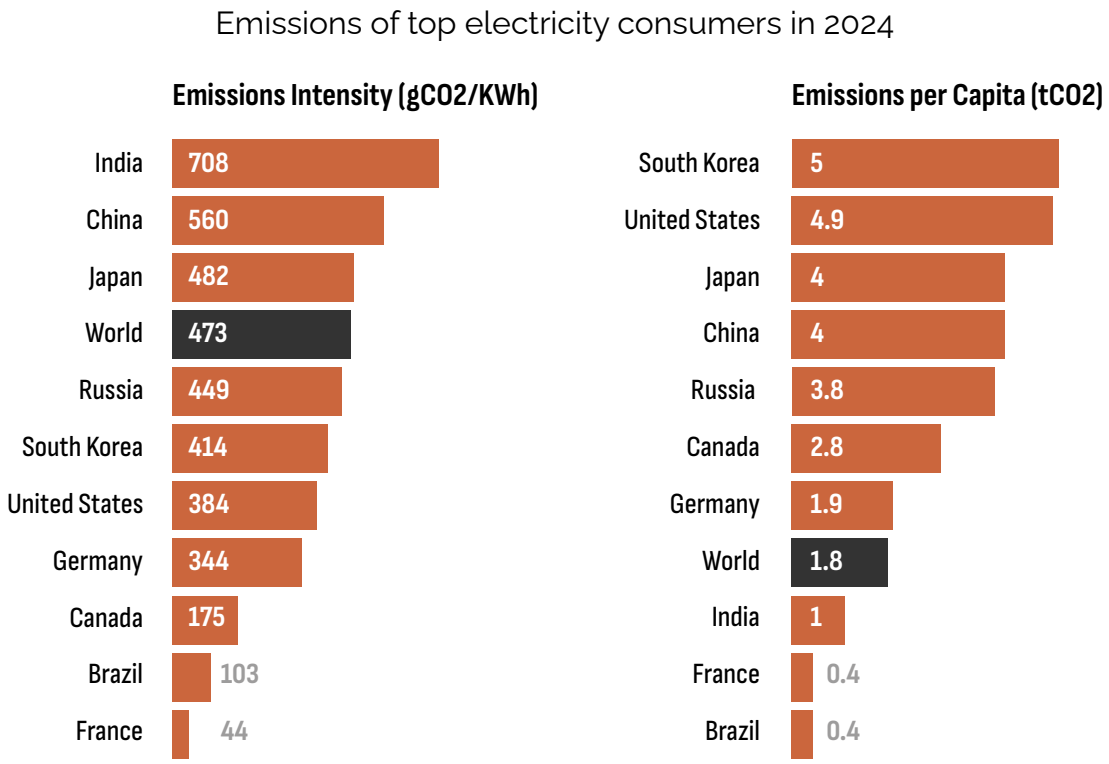

***Figure 5**: India has very high emissions intensity, but extremely low emissions per capita — and vey low historical responsibility for climate change, especially compared with developed countries.* Ember (2025)

There is cause for optimism: in many ways, India has made remarkable progress in renewable energy deployment. As of 2025, non-fossil sources account for 50% of installed capacity, putting India five years ahead of its 2030 target under the Paris Agreement; India's renewable power output rose at its fastest pace since 2022 in the first half of 2025, while coal-fired generation declined nearly 3% (Reuters, 2025d; Reuters, 2025e). In 2022, India overtook Japan to become the world's third-largest solar generator. Renewable additions now outpace new coal, signalling a decoupling of electricity demand from fossil fuel growth. As clean generation surges ahead, India's emissions intensity has begun to fall (EMBER, 2025c).

Progress has been enabled by increased funding to the Ministry of New and Renewable Energy (MNRE), India's renewables directorate (British Safety Council, 2025). According to the IEA's STEPS scenario, with increasing deployment of renewables capacity India could meet all new demand growth with clean electricity as soon as 2030, and its pipeline of planned projects suggests a doubling of wind and solar capacity by 2028 (International Energy Agency, 2024; EMBER, 2025c).

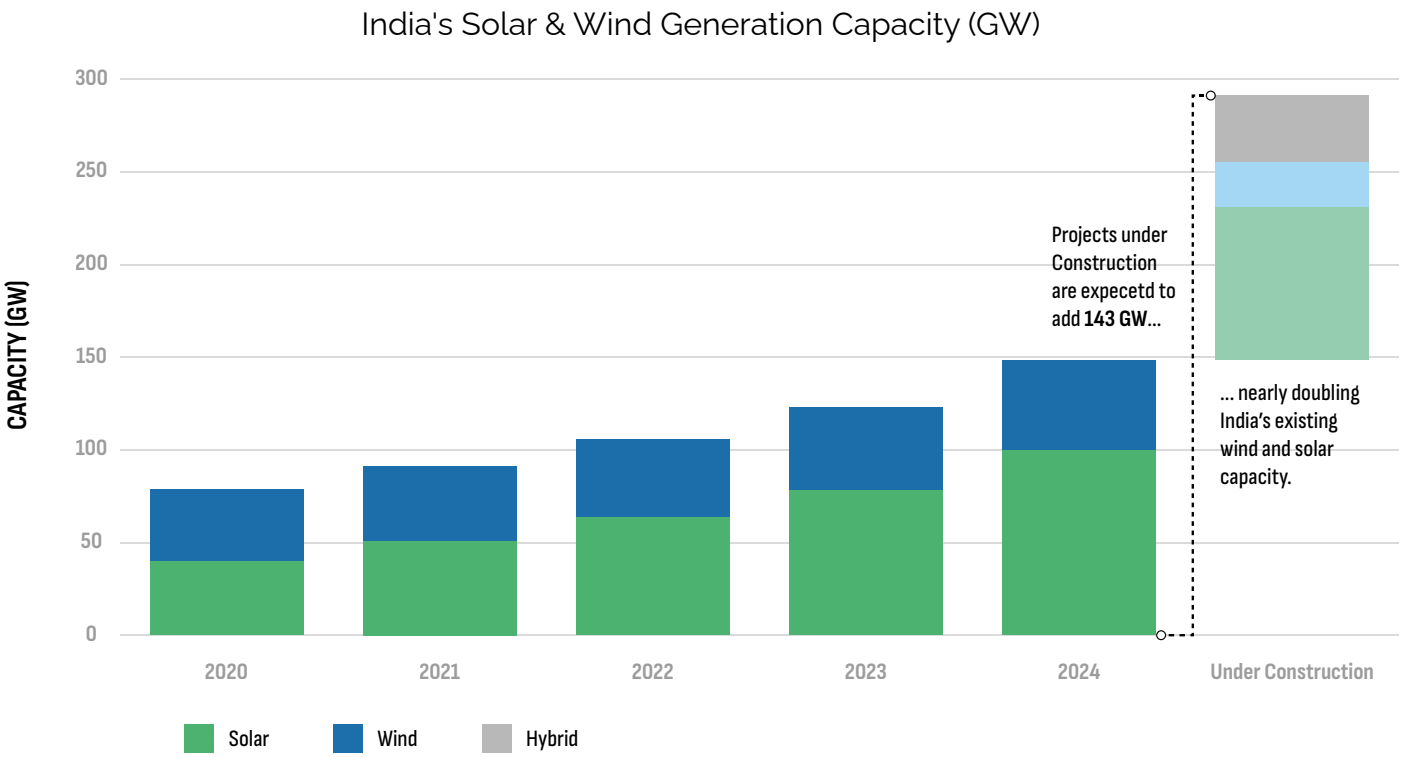

***Figure 6**: Future renewables capacity expansion.* Ember (2025)

But deep structural challenges remain. Renewables still contribute a modest share of overall electricity generation (NITI Aayog, 2025), with storage capacity limited and the renewable energy mix struggling to keep pace with rapidly growing demand (Climate Action Tracker, 2025b). Coal-fired power supplied 64% of demand in 2024 (EMBER, 2025b). Coal dominates 91% of thermal capacity, and India is set to lead global fossil generation growth as China pivots more aggressively towards renewables. Grid integration is also a growing concern: expanding capacity without parallel investments in transmission, storage, and grid resilience risks bottlenecks and a slower rollout. Urgent infrastructure investments and upgrades, as laid out in India's National Electricity Plan (Transmission), will be critical to successful delivery of decarbonisation objectives, made more challenging by regionally concentrated wind and solar resources (Ministry of Finance, 2024).

7. International Finance

India has consistently advocated for the principle of Common but Differentiated Responsibilities (CBDR),[17] as enshrined in the UNFCCC and Paris Agreement, arguing that developed nations must significantly scale up both the volume and quality of climate finance to support developing countries (Ministry of Environment, Forest and Climate Change, 2023; Ministry of Environment, Forest and Climate Change, 2024). It has been estimated that India will require around $10 trillion in domestic investment to achieve its 2070 net zero pledge, with a $3.5 trillion financing gap requiring as much as $1.4 trillion in international concessional finance to unlock it (Council on Energy, Environment & Water, 2021).

Despite collective pledges by Multilateral Development Banks (MDBs) to enhance climate finance flows (World Bank, 2024), tangible progress has been slow. Developed countries continue to fall well short of their UNFCCC commitments (Carbon Brief, 2024), and the scale of collective finance mobilised remains vastly inadequate. As of early 2025, India's government reported to parliament that it had received just $1.16 billion through UN multilateral climate finance mechanisms, including $804 million from the Green Climate Fund, $347 million from the Global Environment Facility, and a mere $16 million via the Adaptation Fund (Economic Times, 2025c).

In the absence of adequate climate finance via the UN process, India has increasingly turned to bilateral partnerships like the Green and Sustainable Development Partnership (GSDP) with Germany, which includes a €10 billion concessional finance pledge by 2030 (Federal Ministry for Economic Cooperation and Development, 2025; Mint, 2025b). Even where international funds are accessible, they are overwhelmingly offered as debt instruments. Servicing this debt can undermine the viability of the very projects they are intended to support (Asian Development Bank Institute, 2024) — a central concern behind the breakdown of Just Energy Transition Partnership (JET-P) negotiations with India (Climate Change News, 2024).[18]

India is working to strengthen its domestic financial architecture through regulatory reform to attract both public and private capital. The Securities and Exchange Board of India (SEBI) has introduced ESG fund regulations, while the Reserve Bank of India is establishing climate risk disclosure requirements (India Briefing, 2025d, Reserve Bank of India, 2024). The Ministry of Finance is developing a comprehensive Sustainable Finance Taxonomy to streamline green capital allocation (Ministry of Finance, 2025; Institute for Energy Economics and Financial Analysis, 2024b), and sector-specific institutions like the Power Finance Corporation and REC Limited are channelling investment into renewable projects (Climate Policy Initiative, 2024).

These regulatory improvements should help to reduce international and domestic investment risks, enhance transparency and improve investor confidence (EMBER, 2023). But without tens of billions in concessional and grant-based international finance from developed economies, India's transition risks remaining chronically underfunded, preventing accelerated decarbonisation and putting the country's climate targets at risk (Ember, 2023). Unleashing India's full industrial potential means greater flows of multilateral finance at affordable costs of capital.

As outlined in the global finance agreement at COP29, the New Collective Quantified Goal on Climate Finance, developed countries should work together to scale up finance flows to developing nations, including India, allowing accelerated electrification and renewables deployment.

17 The principle of CBDR is often extended to 'Common but Differentiated Responsibilities and Respective Capabilities' (CBDR-RC) to reflect not only historical responsibility for emissions, but also the differing capacities of nations to act, given varying levels of development, technological capabilities and financial resources.

18 Like JET-Ps for other countries like South Africa, the aim would be to support an accelerated phase out of fossil fuels from power and industry, and a corresponding scaling up of clean energy technologies.

Conclusion

With over two-thirds of its exports directed toward countries with net zero targets, and nearly one in every twenty jobs in the country tied to these flows, India's climate-linked trade dynamics are tied directly to its economic trajectory. The rise of CBAMs, growing scrutiny from multinational supply chains and shifting consumer expectations mean that India's export competitiveness will begin to hinge not just on cost and scale, but on emissions performance over time.

India is positioned well. Its 'strategically non-aligned' geopolitical posture allows it to be on friendly terms with most G20 economies. It has a broad and dynamic export base, globally competitive and growing services sectors, and increasing clean-tech capacity. Domestic champions are emerging in solar, batteries and renewables; major bilateral partnerships — such as with Germany under the Green and Sustainable Development Partnership — offer channels for concessional finance. Recent regulatory efforts to enhance investor confidence through ESG standards, green taxonomies and disclosure rules represent positive steps. However, extremely high-carbon electricity, protectionist instincts, and an underperforming industrial policy still limit India's ability to fully seize the fruits of a carbon-competitive future, with its key services exports as much as twenty times more emissions intensive than its closest competitors.

To better compete as it seeks to become a five trillion dollar economy, India's government policy should act with coherence and urgency. That means more strategic industrial policy, aligning its energy system with trade goals by developing plans to decarbonise its grid over time, beginning to phase out inefficient coal, and facilitating direct access to renewable electricity for export-oriented firms. Rather than relying solely on top-down subsidies, India can design industrial policy that leverages market signals, builds full domestic value chains and rewards low-emissions innovation — especially in the employment-intensive agricultural sector where high emissions risk the security of over 16 million jobs supported by exports. Future trade negotiations should anticipate incoming climate regulations beyond the EU and UK. Any new agreements should reflect not just tariff preferences but also shared climate commitments and enhanced energy transition support from developed nations.

India's success at the net zero-trade nexus will depend not only on coherent domestic action and a just transition, but also on renewed financial and climate cooperation, especially with the EU. Developed economies must go beyond rhetoric, upholding and building upon the principle of CBDR and other responsibilities tied to international equity: for example, scaling up concessional finance, supporting India's grid decarbonisation, and adapting trade policies to avoid unfairly penalising emerging economies, even ones as large as India's. With the right mix of domestic ambition and international support, India can become more than a resilient exporter — it can compete with arch rival China, engage strategically with the Trump administration, and help shape the next chapter of the global economy.

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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, 2024) 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 CO2 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: tCO2e 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)

Dataset	Source	Description	Categorisation & Mapping Detail	Data Preparation steps	Final Dataset, Units & Variables
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
CO2 Grid Intensity (Our World in Data, 2024)	Our World In Data	Annual CO2 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: gCO2e/kWh Variables: ISO3 Country Code, Values (2004-2023)

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