



MASTER OF BUSINESS ADMINISTRATION

MODULE: MARKETING MANAGEMENT

MODULE CODE: LCMB7024

MARKETING ENVIRONMENT ANALYSIS OF TATA STEEL

Student Name: Alpitaben Jigneshkumar Sharma

Student ID: 2534431

Lecturer: Sinan He

Date of submission: 24th July 2026

Word count: 2666

Executive Summary

This report assesses the impact of natural and regulatory forces on Tata Steel's pathway to lower-carbon production. It reviews emissions intensity, the use of scrap, investments in electric arc furnaces, and EU carbon border adjustment mechanism, along with government support. The analysis reveals that environmental pressure is influencing customer demand, whereas regulation with respect to costs and market access. The discussions suggested that product development, aided with market penetration, is recommended by using the Ansoff Matrix. Tata Steel should look to increase use of certified lower carbon and recycled steel market segments, for current auto, construction and infrastructure users. Competitive advantage should be based on certified emissions, traceability, technical performance, sustainable delivery of low carbon electricity and/or scrap, and secure access to low carbon electricity and/or scrap.

Table of Contents

Task 1: Marketing Environment Analysis of Tata Steel	4
1.1 Company and transition context.....	4
1.2 Natural environment actor.....	5
1.3 Political and regulatory environment actor	8
Task 2: Strategic Growth and Competitive Positioning of Tata Steel	9
2.1 Strategic context	9
2.2 Market penetration	9
2.3 Product development	10
2.4 Market development	11
2.5 Diversification.....	11
2.6 Competitive positioning	12
2.7 Recommendation.....	13
Task 3: Critical Reflection on AI Usage	13
a. Tool Disclosure	13
b. Critical Evaluation of AI Output	14
c. Contribution Analysis	14
d. Ethical and Professional Reflection.....	14
References.....	15

Task 1: Marketing Environment Analysis of Tata Steel

1.1 Company and transition context

Tata Steel is a major multinational steel producer with operations in India, the United Kingdom and the Netherlands. The group had produced 31.67 million tonnes of steel in the FY2025–26, delivered 31.97 million tonnes and earned revenues amounting to ₹232,140 crore. The production grew from 30.92 million tons in FY2024–25 (Tata Steel, 2026).

(All figures are in Rs. Crores unless stated otherwise)	FY2026	FY2025
Production (mn tons)¹	31.67	30.92
Deliveries (mn tons)	31.97	30.96
Total revenue from operations	2,32,140	2,18,543
Raw material cost ²	92,628	95,097
Change in inventories	990	(97)
Employee benefits expenses	25,999	24,889
Other expenses	78,171	73,354
EBITDA	34,848	25,802
Adjusted EBITDA³	34,640	26,130
Adjusted EBITDA per ton (Rs.)	10,835	8,441
Other income	1,402	1,541
Finance cost	7,167	7,341
Pre-exceptional PBT	17,001	9,268
Exceptional items (gain)/loss	1,032	855
Tax expenses	5,083	5,239
Reported PAT	10,886	3,174

Figure 1: Tata Steel Consolidated

(Source: Tata Steel, 2026)

The company's Group-wide net-zero objective will be reached by 2045 (Tata Steel, 2025a). Tata Steel's blast furnace basic oxygen furnaces, however, are still carbon intensive. Therefore, the transition is shaped by a number of external actors. The two key ones are: Natural environment and Political and Regulatory. The natural environment represents the baseline requirement for lower carbon steel.

1.2 Natural environment actor

In Tata Steel's view climate change is the most significant external natural-environmental pressure. Global steel production creates about 8-10% of the global carbon dioxide emissions. Main environmental impacts are from coke fuel in blast furnaces, amongst other uses. As stated by Johnson et al. (2025), this is a process that can cope with significant emissions of CO₂, with a problem that it is hard to solve using incremental efficiency gains.

	UOM	FY2020-21	FY2021-22	FY2022-23	FY2023-24	FY2024-25
GHG emissions (based on GHG protocol, in million tCO₂e)						
Tata Steel Limited						
Absolute emissions - Scope 1 for steelmaking sites	Million Tonnes			47	51	53 [#]
Absolute emissions - Scope 1 for all sites	Million Tonnes	33	49	50	59	61
Absolute emissions - Scope 2 for steelmaking sites	Million Tonnes			5	5	5 [#]
Absolute emissions - Scope 2 for all sites ^{1,c}	Million Tonnes	4	5	6	5	5
Absolute emissions - Scope 3 ^{1,b}	Million Tonnes	5	6	7	22	23
Total absolute emissions (Scope 1+2+ 3)	Million Tonnes	42	61	62	86	89

Figure 2: GHG emissions of Tata Steel

(Source: Tata Steel, 2025)

Environmental performance is a sign of this problem in the case of Tata Steel. In FY2024–25, its total Scope 1 and Scope 2 emissions were around 66 million tonnes of CO₂ equivalent, with 61 million tonnes of Scope 1 emissions and five million tonnes of Scope 2 emissions. It is about 3.2 tonnes of CO₂ e per tonne of the output of crude steel within the reported scope (Tata Steel, 2025). The company's high direct emissions add strain to customers of the automotive, construction and engineering sectors who are trying to cut their emissions in supply chains.

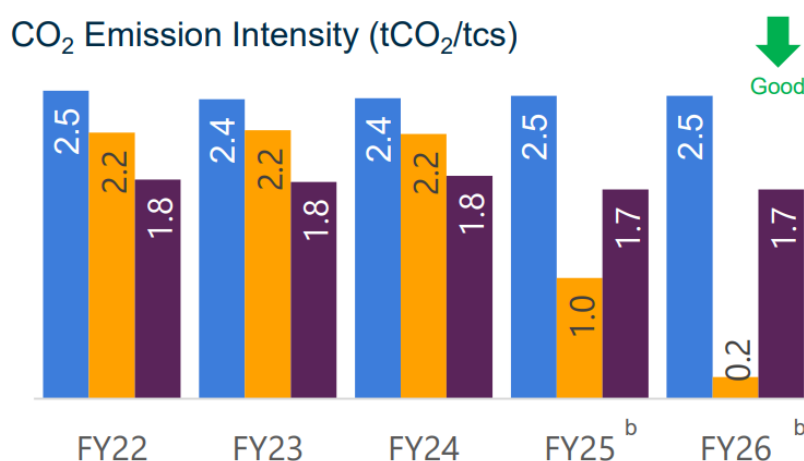


Figure 3: CO2 Emission Intensity

(Source: Tata Steel, 2026)

Tata Steel India remains heavily dependent on the coal-based blast furnace route. The emission intensity of its standalone electricity use reached 2.4 tonnes of CO₂ produced per tonne of crude steel for FY2024, increased to 2.5 tonnes in FY2025, and is estimated to be 2.5 tonnes in FY2026 (Tata Steel, 2026). There is no ongoing decrease of carbon intensity. Lower-carbon marketing claims thus need product-level emissions information, which is verified independently, to progress as well as goals and measurable steps. As per Samuel (2025), lower carbon claims, therefore, need independent product-level emissions information, meaningful goals and measurable actions to keep up with progress, not just long-term, net-zero plans. Overshape opportunities are also located in the natural environment, by means of circular production. Steel is recyclable, and scrap can be used at the electric arc furnace, instead of virgin iron ore. Tata steel has deployed 637 KT of scrap in their steel melting shops in India during its FY24-25 and recently they report 100% successful utilization of solid waste in their operations (Tata Steel, 2025). This can help to decrease extraction volumes, coal consumption and direct emissions, whilst promoting recycled content marketing work with customers accounting for embodied carbon.

Production from that raw material, however, is not necessarily carbon free. The findings of Krekel et al. (2026) revealed that variations in emissions of electric arc furnaces depend on the hot metal content, the type of electricity source and the upstream impacts of the material. The use of hot metal had a negative effect on the life-cycle carbon footprint; however, clean electricity and full-scrap operation performed better. More specifically, Tata Steel should not claim the sustainability of all electric arc furnace steel as the same. As with everything in construction, the Port Talbot project presents challenge and opportunity. Once operational, the electric arc furnace will cut site emissions by about 90%, which corresponds to about 5 million tonnes of CO₂ per year (Tata Steel, 2025a). It will have about 0.4 tonnes of CO₂ e per tonne of crude steel (Tata Steel, 2026). This generates differentiation potential in the automotive markets of the UK and in the construction and infrastructure market and enables customers Scope 3 targets.

However, the road will ultimately rely on superior scrap and cheaply available low-carbon electricity. Rumsa et al. (2025) list a lack of scrap, availability of renewable-energy technologies, high-grade iron ore, hydrogen cost, and uncertain demand and weak certification as key constraints on global steel decarbonisation. Tata Steel may, therefore, incur more input costs and quality limitations in particular for advanced automotive grades. Water and waste continue to be issues. During the FY2024-25 standalone operations produced 17.35 million tonnes of waste and used 98,609 million litres of water or 98.61 billion litres of water. As a result, the level of recovering and reusing steel rose to about 19.44 million tonnes, representing more than the waste generated during the current year, which included legacy waste (Tata Steel, 2025). Marketing communications must provide verified and substantiated water efficiency, material recovery, air quality and biodiversity data as well as carbon.

Environmental factor	Current evidence	Marketing opportunity	Main threat or limitation
Carbon emissions	About 66 MtCO ₂ e Scope 1 and 2 in FY2024–25	Demand for verified low-carbon steel	High current footprint may weaken sustainability claims
Carbon intensity	Around 2.3 tCO ₂ /tcs in India in FY2025–26	Measurable product improvement	Earlier sub-2.0 aspiration was not achieved
Port Talbot EAF	Expected 90% site-emission reduction	Differentiated UK green-steel offer	Depends on scrap and low-carbon electricity
Circularity	637,000 tonnes of scrap used in India	Recycled-content products	Scrap quality and availability
Water and waste	98.6 billion litres of water; over 17.3 Mt waste	Broader responsible-production positioning	Community and regulatory scrutiny

Table 1: Natural-environment implications for Tata Steel

(Source: Developed from Tata Steel, 2025)

1.3 Political and regulatory environment actor

Political and regulatory factors play a major influence over the commercial viability of Tata Steel's lower carbon products. The cost of the Port Talbot electric arc furnace scheme is £1.25 billion, of which the UK Government will cover £500m. This was not built until July 2025 and will create approximately 5,000 roles (UK Government, 2025). This will lower the cost to Tata Steel and help strengthen the business case for lower-

carbon domestic steel. Demand will also rise from rail, energy, defence and infrastructure projects, as well as from UK safeguards, lower energy costs in industry and public procurement. This government support is, however, risky due to the prospect of a reduction in cost advantage if subsidies, electricity policy or electricity procurement rules were to change.

Additional pressure comes from the European Union's Carbon Border Adjustment Mechanism. Its definitive stage started on 1st January 2026. Any importer of more than 50 tonnes of covered goods into the EU is required to report embedded emissions and to purchase certificates, if carbon prices have already been paid for emissions by the importer in their own country or EU duty-exempt country of origin (Europa 2026). With a weight share of approximately 69% of reported CBAM goods, iron and steel is the largest CBAM beneficiary (Johnson et al., 2025). CBAM could make Tata Steels' exports from India more expensive since they are carbon-intensive, but it would also give a boost to verified low-carbon production. For this reason, Tata Steel requires information on emissions levels of each product and environmental product declarations (EPDs) and supply chain traceability to safeguard the access to European markets. Demand for lower carbon steel results from the natural environment wherein demand becomes financial and market consequences due to regulation (Wang et al., 2025). Tata steel may realize benefits from lower carbon and recycled steel, provided the emissions can be verified, a reliable supply of recycled steel and affordable low-carbon electric power are assured.

Task 2: Strategic Growth and Competitive Positioning of Tata Steel

2.1 Strategic context

Tata Steel requires a growth strategy that combines commercial expansion with measurable decarbonisation. The group's annual capacity for crude-steel production is about 36 million tonnes (Tata Steel, 2026b). It also caters to the automotive, construction, infrastructure, engineering and packaging market in India and Europe. It gives market access, but it could expose to Carbon Regulation and Evolving Customer Expectations due to its scale. The Ansoff Matrix proposes to assess the growth in terms of market penetration, product development, market development and diversification. All four options need to be considered by Tata Steel. The best

combination of growth, environmental progress and manageable risk comes however, from product development that is backed by market penetration.

2.2 Market penetration

Market penetration is increasing sales of current products to current customers. Tata Steel can borrow the lower emission and recycled content steel technology to the automotive, construction, packaging and engineering industries. It has 25,000 dealers and distributors. During the first nine months of FY24-25, India deliveries increased 6% YOY to 15.3 million tonnes (Tata Steel, 2025d). This network helps Tata Steel to bring lower carbon products to a market where no new distribution channel has to be established. Early demand is likely to come from the automotive, energy, construction and consumer-goods sectors with climate demands (Maier et al., 2024). Some automotive customers may accept a green premium (Muslemani et al., 2021). However, penetration alone cannot deliver transformation, so it should support lower-carbon product development.

2.3 Product development

Product development involves providing new and improved products in an existing product area. It is the most powerful principal strategy, as Tata Steel already serves carbon sensitive industries but requires products that have lower and greenhouse gas verifiable embodied emission. In Europe the company has launched the brand Zeremis® Carbon Lite, Zeremis® Recycled and Optemis®. Additionally, it also has supply contracts with Wuppermann, BILSTEIN, EMW Stahl Service, Arania and Permastore. It has a future contract with the Ford for green-steel deliveries from IJmuiden (Tatasteeluk, 2022). Such Engagements are defining valid customer demand. The activities carried out in the Port Talbot electric arc furnace further contribute to this strategy. It is expected to be in operation in 2027 and will be able to deliver a lower emission hot metal at around 3.2 million tonnes per annum. This is expected to result in Tata Steel reducing the site emissions by 90%, to approximately 5 million tonnes of CO₂ annually (Tata Steel, 2025c). This may benefit customers in the automotive, construction, infrastructure and packaging sectors within the UK on certified products.

This represents yet another chance in India. In March 2026, Tata Steel ordered a 0.75 million tonne per annum electric arc furnace with a 27 tonne of raw steel furnace (RSF)

facility based on scrap at Ludhiana. The ₹3,200 crore plant aims for over 50% of renewable electricity consumed and produces less than 0.3 tonnes of CO₂ e per tonne of crude steel (Tata Steel, 2026a). It will create a Tata Tiscon product into lower-carbon rebar, a segment that's served by an existing brand. Tata Steel also released Environmental Product Declarations for its slab, cold-rolled closed-annealed and galvanised steel in 2025. Defending these declarations for lower-carbon grades would make them more credible, help assess grades against Scope 3, and help no greenwash. However, high investment, scrap quality, electricity costs and technical limits remain. Progress requires proven pilots, Customer trials and long term contracts.

2.4 Market development

Market development involves selling already developed products in new markets across a geographical or a sector. Tata Steel may make investments in infrastructure for renewable energy, electric vehicles, rail, modular construction, and the projects for low carbon. Port Talbot may provide UK offshore wind, rail and energy customers. The UK Government has committed £500 million to Tata Steel's £1.25 billion Port Talbot transformation and £102 million to support affected workers and communities (UK Government, 2026). As labour intensive and quality-sensitive as steel is, its demand can rise as a result of public procurement practices. These are focused on verifying and applying domestic origin and lower embodied carbon. For certification rules, carbon price and customer specifications, risk increases as transportation emissions. capacity expansion should be followed by adequate low carbon capacities and credible certification.

2.5 Diversification

Diversification brings Tata Steel into a new space of products and markets, such as scrap collection, steel recycling, renewables initiatives, hydro production and carbon accounting services. An expansion into scrap collection may provide sources of high quality, constant feed stocks to EAFs. Slightly better on the sorting and processing side would minimize supply risk and help make it possible to meet traceable recycled content claims. Low carbon and lower capital cost steel making technology has been identified as potential investment options in the future by Tata Steel (Tata Steel, 2025b). Ansoff risk is highest for diversification since new processes, hydrogen and CCS involve investment and uncertainty of development. Also, the competitiveness of

the green-steel has an impact on the low-cost renewable energy (Ellersdorfer et al., 2024).

Ansoff strategy	Tata Steel application	Supporting evidence	Risk level	Strategic judgement
Market penetration	Sell more lower-carbon steel to existing customers	25,000+ Indian dealers and distributors	Low–moderate	Supporting strategy
Product development	Certified EAF steel, recycled rebar and specialist green-steel grades	3.2 MTPA Port Talbot EAF and 0.75 MTPA Ludhiana EAF	Moderate	Recommended principal strategy
Market development	Enter renewable energy, low-carbon infrastructure and new European markets	UK public-investment opportunities and European carbon regulation	Moderate–high	Introduce selectively
Diversification	Scrap processing, hydrogen partnerships and carbon services	Increasing EAF scrap requirements	High	Pilot before expansion

Table 2: Evidence-based Ansoff Matrix for Tata Steel

(Source: Tata Steel, 2026)

2.6 Competitive positioning

Tata Steel use a product-development strategy that is supported by Porter's differentiation strategy. The company should compete based on actual reductions in emissions, recycled content, traceability, product quality and reliable supply instead of price. First of all, customers should be targeted who have knowledge about high Scope 3 targets, such as automotive, renewable-energy or construction and also have an interest in their products. The backlog of Tata Steel's Environmental Product Declarations, together with known relationships with customers and the branded portfolio create a good foundation. As inspired by the ideas of Devlin et al. (2023), green steel could lose its unique characteristic as other steel companies switch to electric arc technology and use hydrogen steelmaking. Tata Steel must focus on differentiation through well-known certification, long contracts, renewables contracts and guaranteed supply of scrap. A lower carbon label without backed up data, technical uniformity, and competitive pricing will not provide permanent tradable benefit (Samuel, 2025).

2.7 Recommendation

Product development needs to be Tata Steel's main strategy, with market penetration as one of its supporting strategies (Bhattacharjee and Singhania, 2023). It also becomes essential for the company to independently supply verified low carbon steel for all customers who are using steel in automotive, construction, packaging and infrastructure sectors. This approach leverages on Tata Steel's brands, distribution chain and customer synapse, making response to environmental and regulatory challenges the hand of the strategy. Principles for competitive advantage are measurable reductions in carbon, Environmental Product Declarations, recycled content and technical performance and reliable delivery. Other diversification activities, such as industries related to making hydrogen, and scrapping will still be a longer-term choice as technical risks and investments are higher.

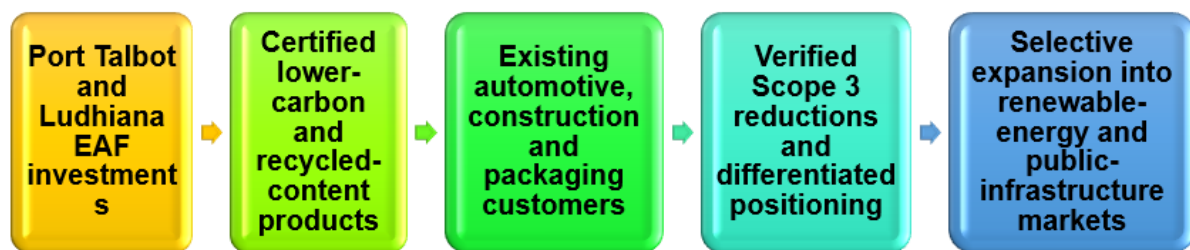


Figure 4: Tata Steel's Recommended Growth Path

(Source: Self-developed)

Task 3: Critical Reflection on AI Usage

a. Tool Disclosure

The only use of ChatGPT was about detecting repeated sentences, long sentences, and grammatical errors, as well as lack of clarity in the language. It also recommended brevity, without altering my meaning. There is a lack of any AI assistance for research, structure of the report, developing the argument, or culminating in the final report. Research done on its own and strictly from Tata Steel reports, Government websites, journal databases and other legitimate sources. There was no inclusion of AI-generated image, nor was there AI used for programming. Please refer to the AI-use acknowledgement which outlines these restrictions.

b. Critical Evaluation of AI Output

All proofreading suggestions were duly considered. Revised sentences compared with original text to ensure that statistics, citations, meaning in analysis were not altered. Weaning off breastfeeding was rejected if they became too vague, took away restrictions or made claims without any supporting evidence. Statistics that I found online about Tata Steel was by analyzing annual reports, investor presentations and official publications. Government evidence has been checked via websites of the UK Government and the European Commission. Journal references were crosschecked on the publisher page and/or using the DOI. Walters and Wilder (2023) have discovered that ChatGPT can produce fake or incorrect bibliographic citations.

c. Contribution Analysis

Research, structure and critical analysis was carried out independently. I chose natural environment, as well as, naturalistic and regulatory ones, used Ansoff matrix and proposed product development, based on market penetration. These decisions were not made by ChatGPT. It clarified my own writing, but that is it. Khalifa and Albadawy (2024) acknowledged the editing tool as a valuable tool for AI but stated that it is important to include human oversight.

d. Ethical and Professional Reflection

Adopting AI ethically necessitates transparency, accountability for source/citations, privacy and following assessment guidelines. The study brought by Rasul et al. (2024) has described the need for clearness of expectations and shared liability for the responsible utilization of GenAI. AI may lead to generating false impressions in marketing, risks of greenwashing or in-recommendation mistakes.

References

- Bhattacharjee, D. and Singhania, A., (2023) Research and Development in Tata Steel—The Past, the Present and the Future. In *Indian Metallurgy: The Platinum Years* (pp. 3-25). Singapore: Springer Nature Singapore.
- Devlin, A., Kossen, J., Goldie-Jones, H. and Yang, A. (2023) Global green hydrogen-based steel opportunities surrounding high quality renewable energy and iron ore deposits. *Nature Communications*, 14(1), p.2578.
- Ellersdorfer, P., Wang, C., Saydam, S., Canbulat, I., MacGill, I. and Daiyan, R. (2024) Unlocking new export opportunities: An open-source framework for assessing green iron and steel supply chains. *International Journal of Hydrogen Energy*, 92, pp.1366–1374.
- Europa (2026) *CBAM definitive regime from 2026 onwards*. Available at: https://taxation-customs.ec.europa.eu/carbon-border-adjustment-mechanism_en [Accessed on: 19.07.2026]
- Johnson, C., Åhman, M., Nilsson, L.J. and Li, Z. (2025) Emerging green steel markets surrounding the EU emissions trading system and carbon border adjustment mechanism. *Nature Communications*, 16(1), p.9087.
- Khalifa, M. and Albadawy, M. (2024) Using artificial intelligence in academic writing and research: An essential productivity tool. *Computer Methods and Programs in Biomedicine Update*, 5, p.100145.
- Krekel, G., Suer, J., Jäger, N. and Traverso, M. (2026) Life cycle assessment of natural gas based steelmaking via the direct reduction–Electric Arc Furnace route. *The International Journal of Life Cycle Assessment*, 31(5), p.76.
- Maier, R., Gerres, T., Tuerk, A. and Mey, F. (2024) Finding tipping points in the global steel sector: A comparison of companies in Australia, Austria, South Korea and the USA. *Global Environmental Change*, 86, p.102846.
- Muslemani, H., Liang, X., Kaesehage, K., Ascui, F. and Wilson, J. (2021) Opportunities and challenges for decarbonizing steel production by creating markets for green steel products. *Journal of Cleaner Production*, 315, p.128127.

Rasul, T., Nair, S., Kalendra, D., Balaji, M.S., de Oliveira Santini, F., Ladeira, W.J., Rather, R.A., Yasin, N., Rodriguez, R.V., Kokkalis, P. and Murad, M.W. (2024) Enhancing academic integrity among students in GenAI Era: A holistic framework. *The International Journal of Management Education*, 22(3), p.101041.

Rumsa, M., John, M. and Biswas, W. (2025) Global steel decarbonisation roadmaps: Near-zero by 2050. *Environmental Impact Assessment Review*, 112, p.107807.

Samuel, S.A., (2025) Carbon pricing mechanisms for reducing greenhouse gas emissions and encouraging sustainable industrial practices. *World J. Adv. Res. Rev*, 25(2), pp.1-24.

Tata Steel. (2025) *GHG emissions based on GHG protocol, in million tCO₂e*. Available at: <https://www.tatasteel.com/media/23973/fy25-integratedreport.pdf> [Accessed on: 16.07.2026]

Tata Steel. (2025a) *Tata Group Chairman N. Chandrasekaran marks groundbreaking of new Electric Arc Furnace at Port Talbot*. Available at: <https://www.tatasteel.com/newsroom/press-releases/india/2025/tata-group-chairman-n-chandrasekaran-marks-groundbreaking-of-new-electric-arc-furnace-at-port-talbot> [Accessed on: 17.07.2026]

Tata Steel. (2025b) *Tata Steel Board affirms the long-term strategy for growth in India*. Available at: <https://www.tatasteel.com/newsroom/press-releases/india/2025/tata-steel-board-affirms-the-long-term-strategy-for-growth-in-india> [Accessed on: 19.07.2026]

Tata Steel. (2025c) *Our 10th Integrated Report*. Available at: <https://www.tatasteel.com/investors/integrated-report-2024-25/pdf/fy25-integratedreport.pdf> [Accessed on: 18.07.2026]

Tata Steel. (2025d) *Tata Steel reports Consolidated EBITDA of Rs 7,480 crores for the quarter ended June 30, 2025*. Available at: <https://www.tatasteel.com/newsroom/press-releases/india/2025/tata-steel-reports-consolidated-ebitda-of-rs-7-480-crores-for-the-quarter-ended-june-30-2025> [Accessed on: 19.07.2026]

Tata Steel. (2026) *Tata Steel Consolidated*. Available at: <https://www.tatasteel.com/media/25699/4qfy26-and-fy2026-results-presentation.pdf> [Accessed on: 17.07.2026]

Tata Steel. (2026a) *Submission of Press Release and Investor Presentation to be made to Analysts/Investors*. Available at: <https://www.tatasteel.com/media/25704/press-release-and-analyst-presentation.pdf> [Accessed on: 20.07.2026]

Tata Steel. (2026b) *Tata Steel: 1QFY2027 Production and Delivery Volumes Provisional*. Available at: <https://www.tatasteel.com/newsroom/press-releases/india/2026/tata-steel-1qfy2027-production-and-delivery-volumes-provisional> [Accessed on: 19.07.2026]

Tatasteeluk (2022) *Tata Steel and Ford ink MOU for Zeremis green steel supply*. Available at: <https://www.tatasteeluk.com/corporate/news/tata-steel-and-ford-ink-mou-for-zeremis-green-steel-supply> [Accessed on: 18.07.2026]

UK Government. (2025) *Tata Steel / Port Talbot steelworks Q&A*. Available at: <https://www.gov.uk/government/news/tata-steel-port-talbot-steelworks-qa> [Accessed on: 19.07.2026]

UK Government. (2026) *Stabilising and rebuilding our existing sector*. Available at: <https://www.gov.uk/government/publications/steel-strategy/the-uk-steel-strategy-web-version> [Accessed on: 21.07.2026]

Walters, W.H. and Wilder, E.I. (2023) Fabrication and errors in the bibliographic citations generated by ChatGPT. *Scientific Reports*, 13(1), p.14045.

Wang, X., Chen, Y., Dong, Y., Zhang, T. and Shi, B., (2025) How does environmental regulation impact low-carbon transition? Evidence from China's iron and steel industry. *Annals of Operations Research*, 345(2), pp.637-663.