

Tata Steel Nederland

Sector	Revenue	Emissions	Pledge	Transparency	Integrity	
Steel production	€ 6.9 bn (2021-2022)	15.9 MtCO ₂ e (2021-2022)	CO ₂ -neutral steelmaking by 2045	Moderate	Moderate	
1. Tracking & disclosure of emissions				Transparency & Integrity		
15.9 MtCO ₂ e in April 2021- March 2022		● Subsidiaries are covered.		11,6		
Major emissions sources	Emissions from steelmaking processes (S1) account for a majority of reported emissions.			3,5		
Disclosure	First sustainability report specifically for the Dutch entity, but limited historical or broken-down data provided for S3. S2 emissions reported as slightly negative due to the surplus of non-renewable electricity from residual gases.			0,8		
				Scope 1	Scope 3 upstream	
				Scope 3 downstream		
2. Setting emission reduction targets				Transparency	Integrity	
Headline target or pledge	CO ₂ -neutral steelmaking by 2045 (S1 & S2)			High	Moderate	
Short- & medium-term targets (up to 2030)	- S1 & S2: CO ₂ emissions -35% by 2030 (base 2019) - S3 downstream transport (0.1Mt): -30% by 2030 - No further S3 reduction goals					
Scope coverage	1 2 3	The conversion of one major facility to hydrogen-based DRI-technology by 2030 may be aligned with benchmarks for Paris-aligned steelmaking in the EU, but this depends on TSN's unclear commitment to source green hydrogen.			High	Moderate
Own emission reductions (compared to full value chain in 2019)	26% by 2030					
Long-term vision (beyond 2030)	- S1 & S2: reduce 75% by 2035, CO ₂ neutral by 2045 - No S3 reduction goals			High	Moderate	
Scope coverage	1 2 3	100% reduction in CO ₂ emissions across S1 and S2 covering 73% of emissions across full value chain.				
Own emission reductions (compared to full value chain in 2019)	73% by 2045					
3. Reducing own emissions				Transparency	Integrity	
Emissions reduction measures	In September 2021, TSN committed to hydrogen-based steelmaking. In April 2023, TSN presented its path to hydrogen-based steelmaking in more detail.			High	Moderate	
Renewable electricity procurement	Self-generated (Vattenfall) non-renewable electricity (9.9 PJ) covers all of TSN's consumption (7.9 PJ), with additionally purchased REGO's covering a fraction of total usage.			Low	?	
4. Climate contributions & offsetting				Transparency	Integrity	
Responsibility for unabated emissions	No information identified on how the company takes responsibility for unabated emissions.			Low	Low	
Climate contributions	- No climate contributions identified.			N/A	Low	
Offsetting claims today	- No offsetting claims identified.			N/A	N/A	
Offsetting plans for the future	TSN aims for 100% reduction in S1 and S2 emissions if hydrogen is used. Unclear whether offsets will be used in other scenarios.			High	High	

RATINGS **Transparency** refers to the disclosure of information. **Integrity** refers to the quality and credibility of the approach.

Overall Average of sections 1-4 ■ High ■ Reasonable ■ Moderate ■ Low ■ Very Low;

Sections 1-4 Average of criteria in each section ■ ■ ■ ■ ■; **Rating criteria** See methodology for rating criteria ■ ■ ■ ■.

Source: SEO Amsterdam Economics' interpretation of identified public documentation from Tata Steel Nederland (TSN)

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Tata Steel Nederland (TSN) is part of the India-headquartered steel producer Tata Steel Ltd. TSN's production site in IJmuiden has a long steelmaking history. With 8 percent of Dutch emissions and 24 percent of all emissions in the Dutch industrial sector, it is the biggest emitter in the Netherlands. TSN has the ambition to become CO₂ neutral by 2045 (S1 and S2). TSN's roadmap shows that the company is committed to hydrogen-based steelmaking but does not rule out the use of natural gas.

This year, TSN (2022, p. 43) produced the first dedicated sustainability report detailing its own emissions, which it expects to publish annually and in a more complete manner.¹ Even though this is a major improvement compared to last year, the report lacks granularity. S1 and S2 emissions are mostly grouped together and when this is not the case, S2 emissions are reported as sub-zero due to the surplus of non-renewable electricity from residual gases from the steel production. These residual gases account for 5.4 of the 11.6 MtCO₂ of S1 emissions. The breakdowns of upstream and downstream S3 emissions are only reported for 2021-2022, still miss certain categories, and are unclear given the difference with the key figures for S3 reported in the appendix (TSN, 2022, p. 22, p. 44). Nevertheless, the lack of untracked categories is explained and TSN provides some data on non-GHG climate forcers, such as recycling and waste management (including landfills), and local air and water pollution. However, important forcers associated with raw material extraction are not disclosed. It is crucial to report on all emission factors to get a thorough understanding of a company's value chain emissions.

TSN commits to CO₂-neutral steelmaking by 2045. To achieve this, TSN (2023a) describes a roadmap towards steelmaking using direct reduced iron (DRI) technology in two major steps by replacing old installations.²

Although TSN presents several uncertainties and potential obstacles (e.g. surrounding technology readiness, cost barriers and availability of hydrogen), hydrogen-based steelmaking is seen as one of the best prospects for low-carbon technology in the steel industry. A potential limitation of this plan is the uncertain availability of (local) green hydrogen. TSN plans to use natural gas as a transition fuel, if the availability of hydrogen is still limited. According to TSN (2023a, p. 7), using natural gas would result in a 60 percent reduction after the final DRI installation is in place, while the use of green hydrogen leads to a reduction of 75 percent. The company does not give a timeline for the complete phase-out of natural gas. TSN describes the hydrogen route as the preferred option, and calls on government support to realise it. TSN plans to use 1.0 to 1.3 GW of electricity from offshore wind turbines (5 to 6 percent of the total offshore electricity production), but does not detail how the company is involved in realising this apart from being a (guaranteed) purchaser.

TSN proactively identifies challenges for its target realisation. The company presents major challenges in its roadmap document, from getting its permits in a timely manner to the availability of hydrogen and the technical feasibility. TSN (2023a, pp. 14–15) lobbies for more renewable energy capacity in the Netherlands and subsidies for initial investments, for example. By outlining these challenges and uncertainties, TSN transparently highlights the urgent policy and societal transition needs.

¹ Update: On 7 September 2023, TSN released its Sustainability Report for 2022-2023. This assessment by SEO solely incorporates information that was publicly accessible on 1 June.

² *'With this DRI technology, which is already being used elsewhere in the world, pig iron can be made from hydrogen or natural gas'* (TSN, 2022, p. 23). Update: On 27 July 2023 (after the CCRM deadline of 1 June), TSN (2023b) announced a change in strategy with regard to the technologies to be applied.

Apart from the minor category of downstream transport, TSN does not address upstream or downstream S3 emissions in its climate strategy nor in its reduction targets. Although hydrogen-based steelmaking by 2045 may be an ambitious commitment for S1 and S2 emissions, it is crucial that TSN considers ways to reduce emissions from the entire value chain in order to transform the sector's emissions footprint as a whole. The company has substantial control over its upstream emissions, such as purchased goods and services, and can influence downstream emissions, such as the use of sold products, though to a lesser extent.

Sources:

Tata Steel Nederland (2022). Tata Steel Nederland: Sustainability Report 2021/2022.

Tata Steel Nederland (2023a, April). Tata Steel kiest voor groen staal in een schone omgeving.

Tata Steel Nederland (2023b, 27 July). Tata Steel opteert voor andere technologieroute in Groen Staal-plan.

Retrieved from <https://www.tatasteelnederland.com/nieuws/tata-steel-opteert-voor-andere-technologieroute-in-groen-staal-plan>

Tata Steel Europe (n.d.). Zeremis: Together towards a zero-carbon emissions, circular world. Retrieved from <https://www.tatasteeurope.com/sustainability/green-steel-solutions/zeremis>

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Moderate Integrity assessment for short- and medium-term target(s) towards 2030

What do the short- and medium-term targets actually mean?

What are the targets for the short to medium term?

- S1 and S2 CO₂ emissions:
- 35 percent reduction by 2030 (2019 baseline)
- S3 downstream transport CO₂ emissions:
- 30 percent reduction by 2030 (2019 baseline)

How do these targets equate to emission reductions across the value chain (compared to a 2019 baseline)?

We estimate that TSN's short- and medium-term emission reduction targets translate to emissions reductions of 26 percent by 2030. The company's targets cover 73 percent of total emissions across the complete value chain. The targets exclude virtually all S3 emissions, as downstream transport equals only 0.12MtCO₂ (less than 3 percent of upstream and downstream S3 emissions).

Do these targets cover both the short term (within 5 years) and medium term (up to 2030)?

TSN does not commit to any earlier interim targets within a five-year time horizon.

Do these emission reduction commitments align with a 1.5°C trajectory for the sector according to available literature?

Global benchmarks: The IPCC's Sixth Assessment Report stresses that global CO₂ emissions must be reduced by net 48 percent by 2030, compared to 2019 levels, to stand a reasonable chance of limiting global warming to 1.5°C (IPCC, 2022). In the same period, global GHG emissions must decrease by 43 percent. The Sixth Assessment Report thus reaffirms the findings of the IPCC's Special Report on 1.5°C (IPCC, 2018). Based on the scientific insights from the latter report, the Hague District Court ordered Shell to reduce CO₂ emissions across all emission scopes by net 45 percent by 2030 below a 2019 baseline (The Hague District Court, 2021). TSN likely does not meet these global benchmarks, but operates in a particularly hard-to-abate sector.

Sector-level benchmarks: Teske (2022, p. 326) finds that S1 and S2 emissions should decrease by 29 percent by 2030, and emissions should decrease by 34 percent if S3 emissions are included (2019 baseline). Therefore, while TSN's interim reduction commitment falls below the global benchmark, it is likely aligned with sectoral benchmarks for S1 and S2. However, existing literature finds that by 2030 the emission intensity of steel production in Europe should be lower than the rest of the world: 1.13-1.35 tCO₂e/tonne steel globally versus 0.68-0.70 tCO₂e/tonne within the European Union (CAT, 2020; Boehm et al., 2021, 2022; Dietz, Gardiner, & Scheer, 2022; SBTi, 2021a). TSN's conversion of one major steelworks facility to hydrogen-powered direct reduced iron (DRI) technology by 2030 may be in line with benchmarks for Paris-aligned steelmaking in the EU, but this is dependent on the company's unclear commitment to source green hydrogen. TSN plans to use natural gas as a transition fuel if hydrogen remains unavailable, but the company could also take a more proactive stance by producing green hydrogen or pursuing partnerships to this effect. Moreover, virtually all S3 emissions, currently accounting for 27 percent of the full value-chain emissions, are not covered by the targets.

Moderate Integrity assessment for long-term target(s) (post-2030)

What do the long-term targets actually mean?

What are the targets for the long term beyond 2030?

- S1 and S2 CO₂ emissions:
- 75 percent reduction by 2035 (2019 baseline)
 - 100 percent reduction by 2050 (2019 baseline)

How do these targets equate to emission reductions across the value chain (compared to a 2019 baseline)?

We estimate that TSN's short- and medium-term emission reduction targets translate to emission reductions of 55 percent by 2035 and 73 percent by 2045. TSN mainly aims to do so using hydrogen, which is considered good practice for the steel industry. The use of natural gas is not explicitly excluded, but green hydrogen is explicitly preferred, if available. The target excludes all S3 emissions.

Do these emission reduction commitments align with a 1.5°C trajectory for the sector according to available literature?

Sector-level benchmarks: If TSN manages to realise its green hydrogen-based steelmaking route towards 2045, the company will likely meet sectoral benchmarks for 2050. Teske (2022, p. 326) finds that S1 and S2 emissions should decrease by 100 percent by 2050 and S3 emissions by 89 percent. The carbon intensity of global steel production must reach around 0-0.13 tCO₂e/tonne steel by 2050 globally (CAT, 2020a; Boehm et al., 2021, 2022; Dietz, Hastreiter, & Scheer, 2021; SBTi, 2021a, 2023), representing a reduction in intensity of around 90 percent compared to 2015 or 2020 levels. For the EU, the remaining emissions intensity by 2050 should be even lower, in the range of 0-0.08 tCO₂e/tonne (CAT, 2020). Identified benchmarks in the literature also imply that all steel facilities in operation by 2050 should be low-carbon, and that the share of electricity in the total final energy demand should range between 50 and 55 percent (CAT, 2020; Boehm et al., 2021). As TSN plans to achieve net zero by 2045 already, S1 and S2 emissions meet sector-level benchmarks. Again, it is important to note that all S3 emissions are excluded from the long-term targets.
