TransitionAsia
ACCELERATING EAST ASIAN CORPORATE CLIMATE ACTION

NIPPON STEEL EMISSIONS PATHWAY ANALYSIS

Base year greenwash makes for a poor and unscientific 2030 target whilst the Japan fleet is exposed to commercial and climate risk without an industrial scale RE boom in Japan

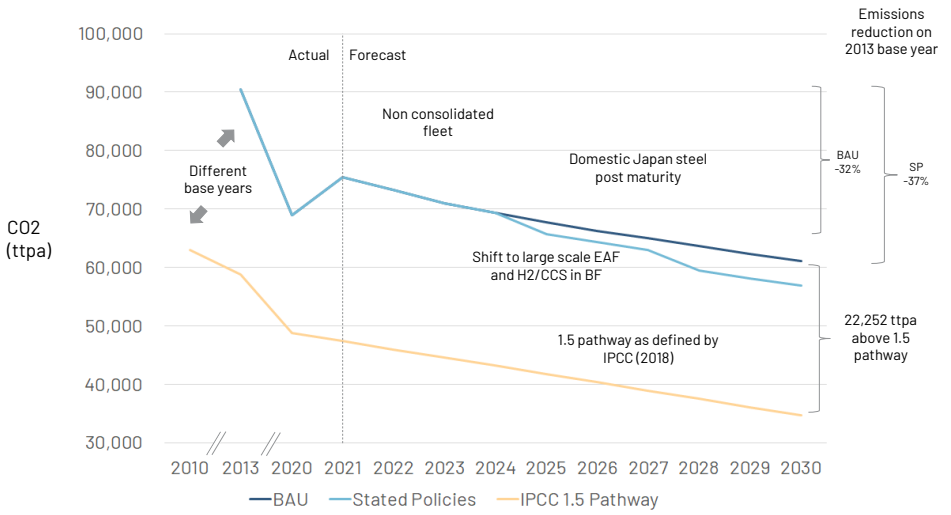
IS THERE A DECARBONISATION PLAN?

Nippon Steel has two clear objectives for 2030:

- **"Large-sized EAF"** High-grade steel production in a "large-sized EAF" means the build of new capacity in Japan. This is likely to be a 300 tonne per charge EAF (matching the size of a Basic Oxygen Furnace and therefore the same downstream processing); and
- **H2 BF** This mode of production is not H2 DRI but simply the removal of small amounts of coal from existing blast furnaces and replacing it with hydrogen. The proprietary technology branded COURSE 50 will reduce emissions by 30% but only 10% from hydrogen where the additional 20% is reliant on CCS.

Chart 1 - Nippon Steel Decarbonisation Pathways

Declining production = emissions reduction



Source: TA Analysis

We have analysed the core (non-consolidated) fleet of Nippon Steel (focusing on 100% owned plants in Japan and matching non-consolidated historical production volumes).

Chart 1 shows the summary of our analysis: three emissions pathways to 2030. The BAU pathway where we show the baseline trend in Nippon Steel's emissions without any action. The Stated Policies pathway - the twin EAF and H2 BF objectives described above. And the IPCC 1.5C pathway which reduces Nippon Steels emissions by 45% by 2030 based on 2010 levels.

Base year greenwash

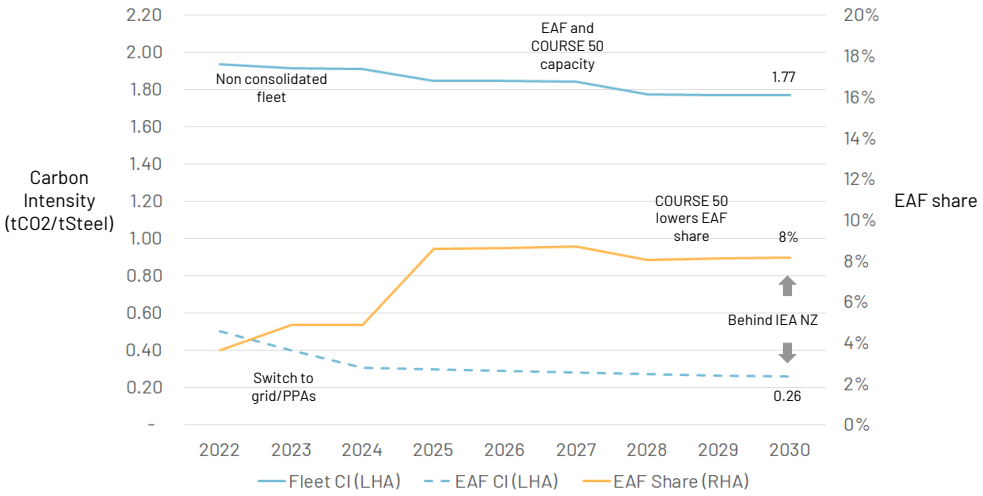
If we extrapolate the current trend in production by the core fleet a BAU pathway provides 32% emissions reduction by default. 37% by 2030 (base year 2013) in the Stated Policies pathway is wholly unambitious.

Most alarmingly, the base year selection of 2013 is clearly designed to give maximum headroom for emissions reduction. So much headroom in fact, that the 2030 emissions

levels in BAU exceed 2010 (the IPCC base year) and the 2030 emissions of the Stated Policies pathway are only marginally below 2010 levels which is significantly above the IPCC 2030 target.

In Chart 2 we look in more detail at the trend in Carbon Intensity and EAF share in Nippon Steel's Stated Policies pathway.

Chart 2 - Carbon Intensity and EAF Share, Nippon Steel's Stated Policies Pathway



Source: TA Analysis

The Carbon Intensity of production in the Stated Policies pathway declines as EAFs and COURSE 50 come onstream, to 1.77 tCO2/tSteel in 2030. Both the EAF Carbon Intensity and the aggregate Carbon Intensity are dependent by decarbonisation of grid electricity and PPAs at speed and scale.

More EAFs means the need for more RE

Currently Nippon Steel generates 89% of the electricity it uses. With a wholesale need for utility scale renewable electricity from solar and wind, for example, the real demand from the government and from Japanese utilities should be abundant and cheap RE. Nippon Steel operates this fleet in a market which is above the G20 average for emissions intensity from the power sector at approximately 487gCO2/kWh (IEA 2020) and is behind on an ambitious reduction to approximately 250gCO2/kWh by 2030.

EXPOSURE TO COMMERCIAL AND CLIMATE RISKS

Lack of climate ambition will result in commercial risk:

Behind the competition, shifting buyer trends

- Nippon Steel remains underweight on EAFs (at 8% in 2030). China is aiming to increase the EAF share of its total crude steel output to 15-20% by 2025.
- Automotives represent approximately 16% of domestic steel consumption and 11 of the top 15 buyers of Nippon Steel. They are demanding green steel in Japan, but Nippon Steel needs to demand the realisation of a Strategic Energy Plan to get green electricity for EAFs and green hydrogen.
- Initiatives like CBAM in Europe make a carbon premium on some of the world's most expensive steel a reality. Exports to the EU are 3-4% of total exports.

Investor activism is focusing on heavy emitters in East Asia and raising the bar

Leading global investors are demanding more disclosure of emissions. They have their own fiduciary duty and voluntary obligations (e.g. TCFD and SBTi) to calculate financed emissions. For the vast majority who will remain invested in steel they will gravitate to lower carbon investment choices whilst the more activist investors will seek clarification on capex strategies and seek to tie remuneration to climate indicators as in the recent corporate campaign by Storebrand and ACCR on JFE Steel.

So what is the best that Nippon Steel can do by 2030? To reach around 44% emissions reduction on a 2013 base year it needs to implement an Ambitious Policies pathway - double down on EAFs and implement 3 large sized EAFs by the end of the decade, and, 2 COURSE 50 installations, notwithstanding the nature of this "short term fix". This would remain short of an IPCC 1.5C pathway because of overshoot and, in any event, requires renewable electricity at speed and scale, either centrally or via PPAs. However, it would be a strong climate signal to investors, customers and government.

All of these trends manifest in commercial and/or climate risk and make the lack of ambition in Nippon Steel's Sustainability Report 2022 (released 02 September 2022) a key concern for investors.

OUR TEAM

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EAF	Electric Arc Furnace
BF	Blast Furnace
DRI	Direct Reduced Iron
CCS	Carbon Capture and Storage
IPCC	Intergovernmental Panel on Climate Change
PPA	Power Purchase Agreement
CBAM	Carbon Border Adjustment Mechanism
TCFD	Task Force on Climate-Related Financial Disclosures
SBTi	Science Based Targets Initiative