STEELWATCH

What is the journey to green steel and where do labels fit in?

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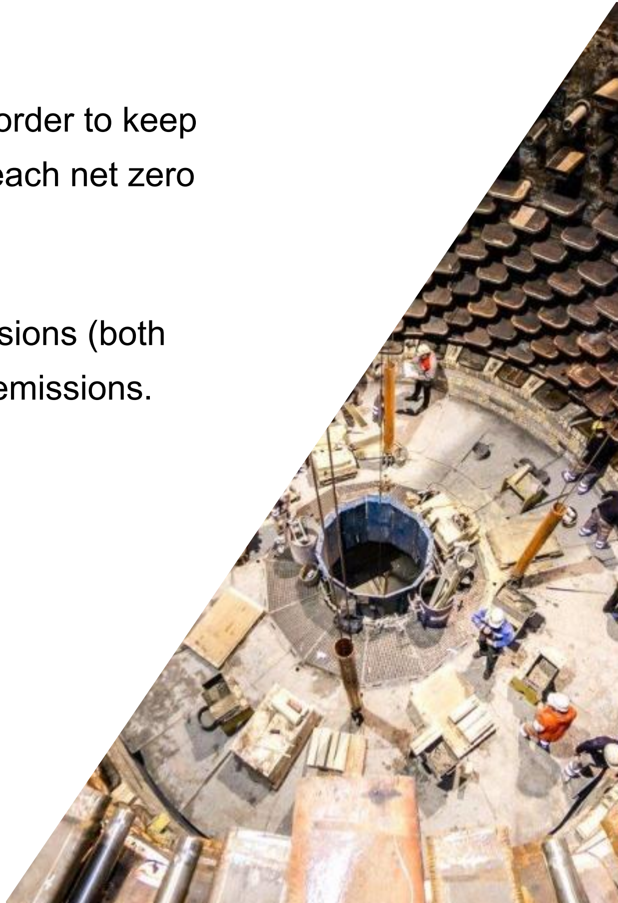
Our starting point:

- According to the IPCC 2018 special report on global warming of 1.5C, in order to keep global warming below 1.5C, global anthropogenic CO2 emissions must reach net zero around 2050, and decrease rapidly and steadily in the meantime.

- The iron and steel industry is responsible for 3.7 gigatonnes of CO2 emissions (both direct and indirect, IEA figures). This represents 11% of total global CO2 emissions.

- The climate impact of steel production is fundamentally two variables:

> Climate impact = steel output x CO2 intensity
>
> So CO2 intensity must fall - dramatically so.
> Not a little bit, but to near-zero per tonne of steel.



The good news

We are already able today to produce steel with near-zero CO_2 intensity:

- ➢ an electric arc furnace powered by renewable electricity,
- ➢ and iron sourced from recycled steel or in the form of DRI produced with green hydrogen.

So problem solved?
In a narrow technical sense yes - we know what to do.

But these products are not widely available yet and the process of scaling them up is a huge change. So in a practical sense, we do not yet know how to drive and achieve the transition.

The journey to green steel: labels are just one tool

Several policy instruments and voluntary measures are needed for the transition. One tool cannot achieve every objective.

Statutory (or credible independent) labelling is particularly useful to:

- ➢ Guide green public procurement decisions;
- ➢ Confer premium status to enable premium prices to be achieved in the wider market;
- ➢ Form definitions used in trade agreements.

Other critical tools include:

- ➢ Public subsidy - particularly useful for large infrastructure projects, but can have multiple uses; useful to shift BF to DRI.
- ➢ Carbon pricing - useful to apply incentives to the entire steel sector equally (as well as other high-emitting industries) and to price in carbon emissions;
- ➢ Price and availability of energy - price variations or guarantees, access prioritisation, etc.

Using labels to drive the transition

The problem with green steel - defined as near-zero CO_2 emissions steel - is that no one produces it yet in commercial volumes. Green steel will not represent 100% of steel production overnight. So if we simply define green steel as near-zero emissions steel today, it will apply to very little and will be so far from achievable for most producers that it will have little effect as an incentive.

Given that the transition takes time, money and planning ahead, labelling green steel needs careful design:

- ➢ It is not just a product meeting a fixed emissions level, but a tool to **incentivise companies in that transition;**
- ➢ It is useful to have a green steel **definition that tightens over time.** The Paris agreement contains a 'ratchet' effect - this is particularly useful in steel given that investment decisions are taken with a timespan of decades.

Should labels vary by scrap content?

Stronger incentives are needed to achieve near-zero emissions virgin iron production :

Scrap alone will not be able to cover the entire steel demand for many decades to come (well beyond 2050). Therefore **driving decarbonisation of steelmaking using virgin iron is essential.**

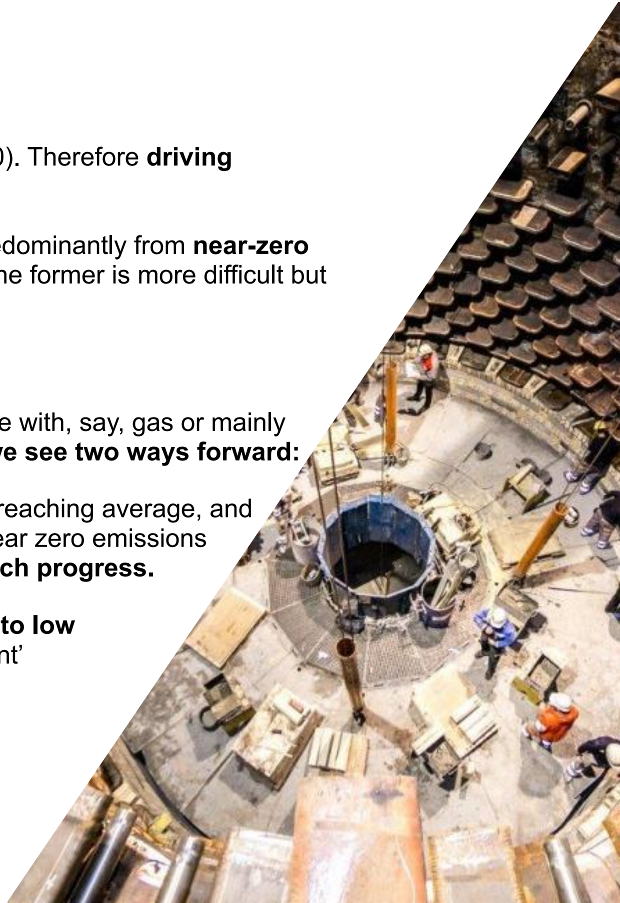
So to achieve a decarbonised steel sector, there is a clear rationale to more strongly favour steel made predominantly from **near-zero emissions ore-based iron** (today this means H2-DRI) over other low emissions steel made from scrap. The former is more difficult but has a greater role driving the transition.

What about 'high emissions' production?

Should steel made with virgin iron and higher emissions should be treated equally or better than steel made with, say, gas or mainly scrap, because it is better than average virgin steel. Our lens focuses on driving change to near zero, **so we see two ways forward:**

- ➢ Reward reductions in emissions from virgin steel making with a **very clear ratchet effect,** so that reaching average, and reaching below average emissions, are only rewarded if the steel producer is on the pathway to near zero emissions steel. This would be similar to progression across progress levels, but would be **dependent on such progress.**

- ➢ **Or use subsidy to drive the change in virgin steel production, from high emissions to jump to low emissions, and use green labelling to reward low emissions steel of any kind.** This 'fixed point' labelling would still need to tighten up over time, say starting at 400 tCO2/tcs and going lower.



The SteelWatch perspective

Labelling in the overall picture:

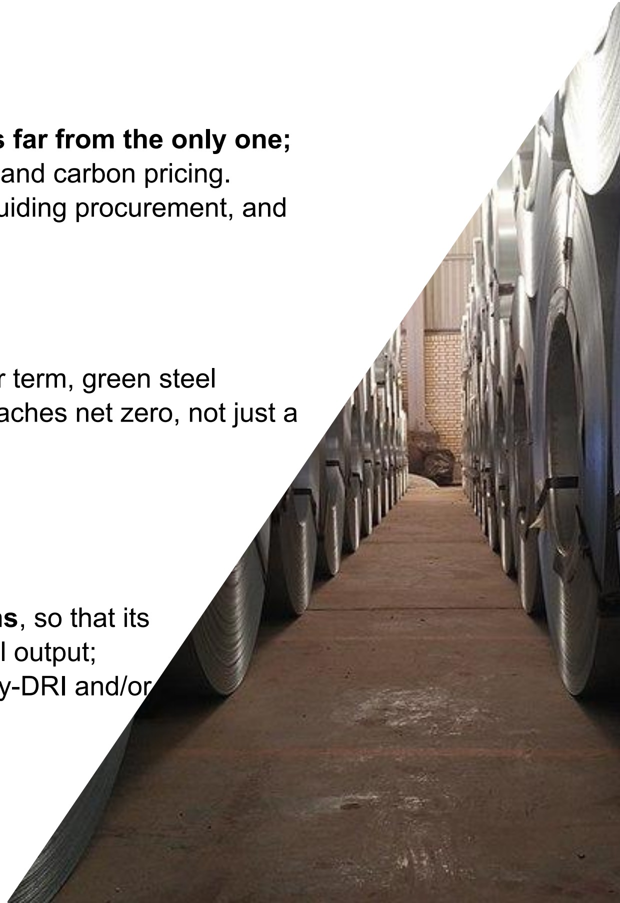
- ➢ **Labelling some kinds of steel as low emissions is one useful tool to drive change, but it is far from the only one;**
- ➢ The massive transformation needed will also require other forms of incentive and public support and carbon pricing.
- ➢ Different policy tools should target different elements. Green steel labels may be best used for guiding procurement, and can focus on rewarding different elements of the transition to other tools.

Labelling green products or green companies?

Green steel should be near-zero-emissions steel. In the medium term that must be the definition. Shorter term, green steel definitions should be driving change **towards that near-zero** level, and such that the **entire industry** reaches net zero, not just a few premium products.

Incentives for **steelmakers** should depend on the **following cumulative conditions:**

- ➢ at the company level, the steelmaker should have **1.5-aligned** climate plans verified by science;
- ➢ at the site level, the production site should have a **transition plan towards near-zero-emissions**, so that its whole output will eventually reach near-zero-emissions, not just a small, premium fraction of total output;
- ➢ at the product level, be produced in processes that are **near-zero-emissions-capable** (H2-ready-DRI and/or scrap in an EAF or an electric smelter and a BOF, (or emissions-equivalent tech).



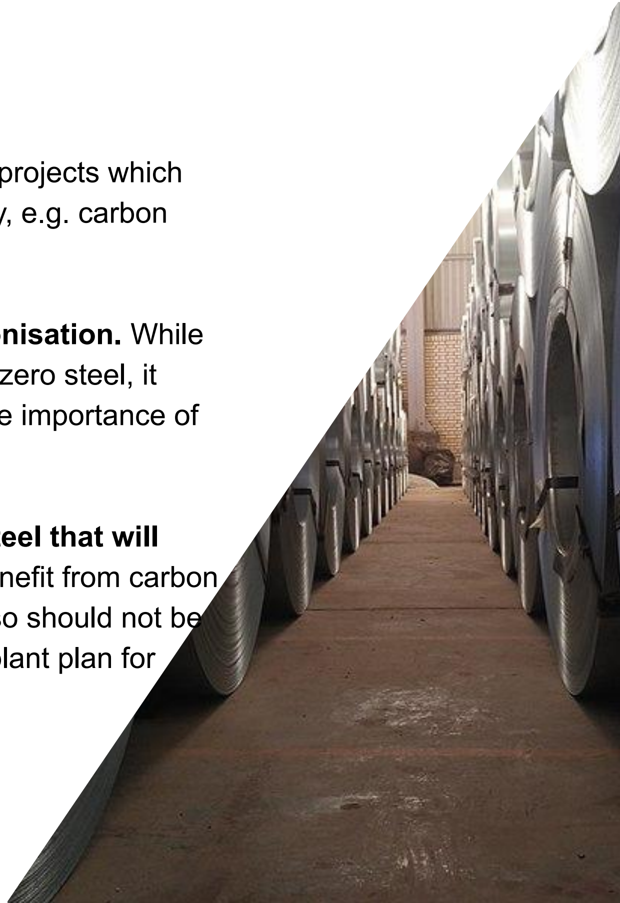
The SteelWatch perspective cont…..

Implications:

- **This rules out mass balance-based** “green” steel when the CO_2 savings come from projects which cannot be scaled up to decarbonise the entire steel production of a site and a company, e.g. carbon capture-based projects and efficiency improvement projects.

- **These principles also sets some limits to incentivisation of scrap-based decarbonisation.** While a renewable electricity-powered EAF fed 100% with scrap would deliver physical near-zero steel, it would be difficult for the entire sector to scale this, for the foreseeable future. Hence the importance of incentivising change in virgin iron and steel production.

- **We place less value on reducing emissions of low-scrap content blast furnace steel that will continue to be made in a blast furnace**. Trimming a percentage of emissions will benefit from carbon pricing. Trimming blast furnace emissions on its own will not reach near-zero at scale so should not be labelled green. In such circumstances, public incentives should focus on the plant-by-plant plan for transition and the company’s commitment to 1.5 aligned plans.



From a climate-conscious buyer's perspective….

It follows that the best contribution to make today to decarbonising the steel industry is not to buy right now scope 3 emissions reductions certificates (which may apply, to say 10% of emissions, but have little potential to scale), but rather to enter arrangements that will move towards near zero emissions steel, e.g. offtake agreements, to support investments in the production of steel that is capable of reaching near zero CO_2 intensity.

Thank you.

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Bringing climate urgency to steel