

OECD the 95th Steel Committee

Item 12. Facilitating steel companies' transition to low-carbon steel

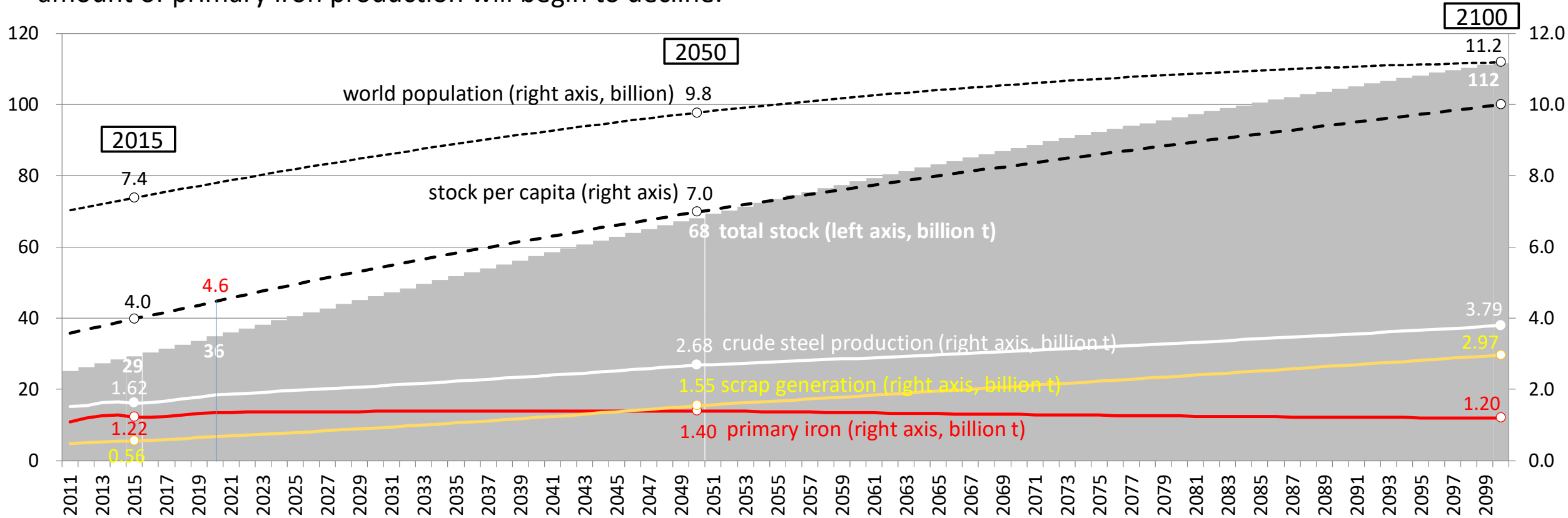
GHG reduction certificates in the steel sector - application of the mass balance approach

26th March, 2024

The Japan Iron & Steel Federation

Global steel demand and supply prediction

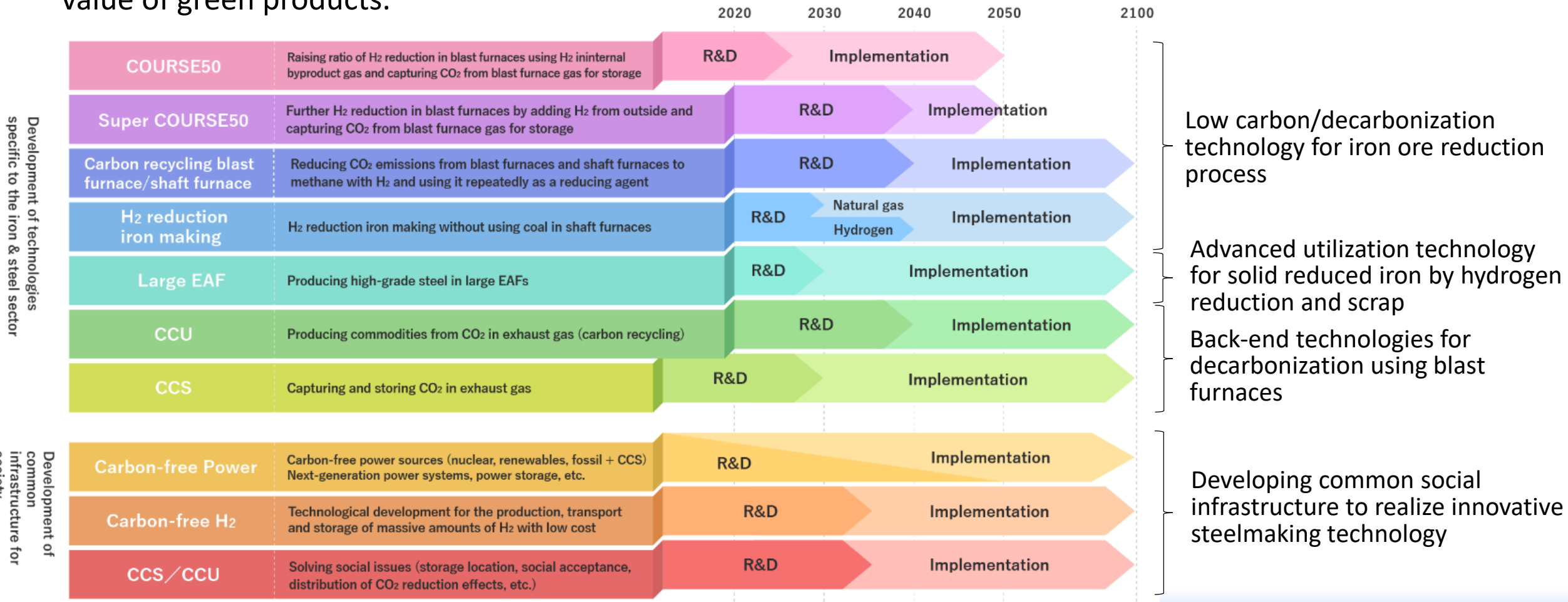
- ✓ Due to the increase in global population and the economic growth in developing countries, the world's steel stock will continue to expand.
- ✓ In order to respond to the expansion in global steel stocks, it is essential to maintain the current level of supply of primary iron (natural resource origin) at least during this century.
- ✓ With the expansion of steel stocks, the amount of scrap generated will increase, and by the middle of this century, the amount of primary iron production will begin to decline.



Decarbonization of the iron ore reduction process, and advanced utilization of scrap will be the keys to carbon neutrality and a circular economy in the steel sector.

JISF's technology roadmap for carbon neutrality in steel sector

- ✓ Achieving carbon neutrality in the steel sector will require many technical developments and a lot of time.
- ✓ During the transition period leading to carbon neutrality, it is necessary to promptly introduce each decarbonization technology as they are developed.
- ✓ To this end, it is necessary to ensure predictability of investment return by monetizing the environmental value of green products.



To meet customers' demand for green-steel products in the transition period

- ✓ There are increasing demands for "**green-steel products**". But it takes time to develop and implement innovative decarbonization technologies, and carbon neutrality cannot be achieved all at once in a short period of time.
- ✓ In order to achieve carbon neutrality steadily, it is important to combine multiple measures to promote continuous and step-by-step emission reductions.
- ✓ To realize such transitions, the importance of emission reductions achieved by steelmakers' decarbonization projects must be widely understood and properly evaluated.
- ✓ **The “Mass Balance Approach”** which allocates **“reduction in GHG emissions achieved by real projects in the organization”** to certain products, is the realistic way to satisfy customers' demand for “green-steel products” during the transition period.
- ✓ Achieving carbon neutrality in the steel process incurs huge costs in the development and implementation of innovative technologies and in building a supply chain of clean materials. The transition to decarbonization will not be possible unless green-steel products are sold at prices that adequately reflects the costs required to produce its "environmental value" .

Mass Balance Approach

- ✓ Steel manufacturers are gradually introducing already-developed GHG reduction technologies towards the goal of achieving carbon neutrality.
- ✓ The mass balance approach is a method to produce “green-steel products” by attaching “emission reduction certificate” generated by introducing GHG reduction projects in the organization.
- ✓ In recent years, many steel manufacturers as well as other industries have been developing “green-products” using the mass balance approach.
- ✓ The mass balance approach functions to promote introduction of innovative technologies and is designed to meet the needs of customers who are looking for green products as soon as possible during the transition period toward carbon neutrality.



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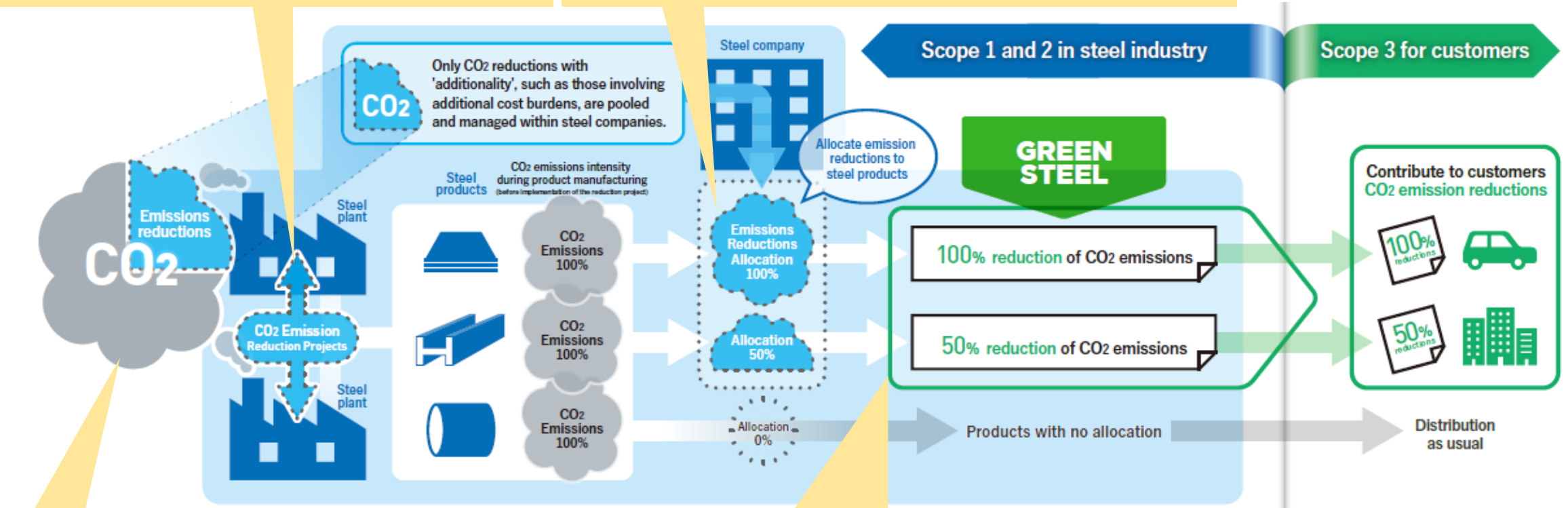


Nippon Steel Corporation

Application of the mass balance approach

STEP 1: Identify the GHG reduction projects to be applied the mass balance approach

STEP 3: Attach “emission reduction certificate” sourced from the account to specific steel products by the mass balance approach



STEP 2: The amount of emission reduction achieved by the projects is correctly measured and verified by a third party, and controlled in an organization's account

STEP 4: Green-steel products are sold at prices that properly reflect the GHG reduction effects. The product and the certificate are inseparable, and the certificate alone will not be distributed.

The environmental value of "Green Steel" is reflected in the customer's Scope 3 Category 1

Guidelines for green steel upon the application of the Mass Balance Approach

Guidelines for green steel
upon the application of
the mass balance approach

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<https://www.jisf.or.jp/en/activity/climate/index.html>

Conclusions

- ✓ The mass balance approach not only responds to the green-steel demands of customers during the transition period, but also ensures the predictability of steel manufacturers' introduction of innovative technologies towards the goal of achieving carbon neutrality.
- ✓ It is hoped that the mass balance approach will gain consensus not only from our customers but also from society as a whole.

The Japan Iron & Steel Federation