

# **Green Steel leading the Green Transition**

## **JISF's activities and JISF case study**

Slides available at JISF website

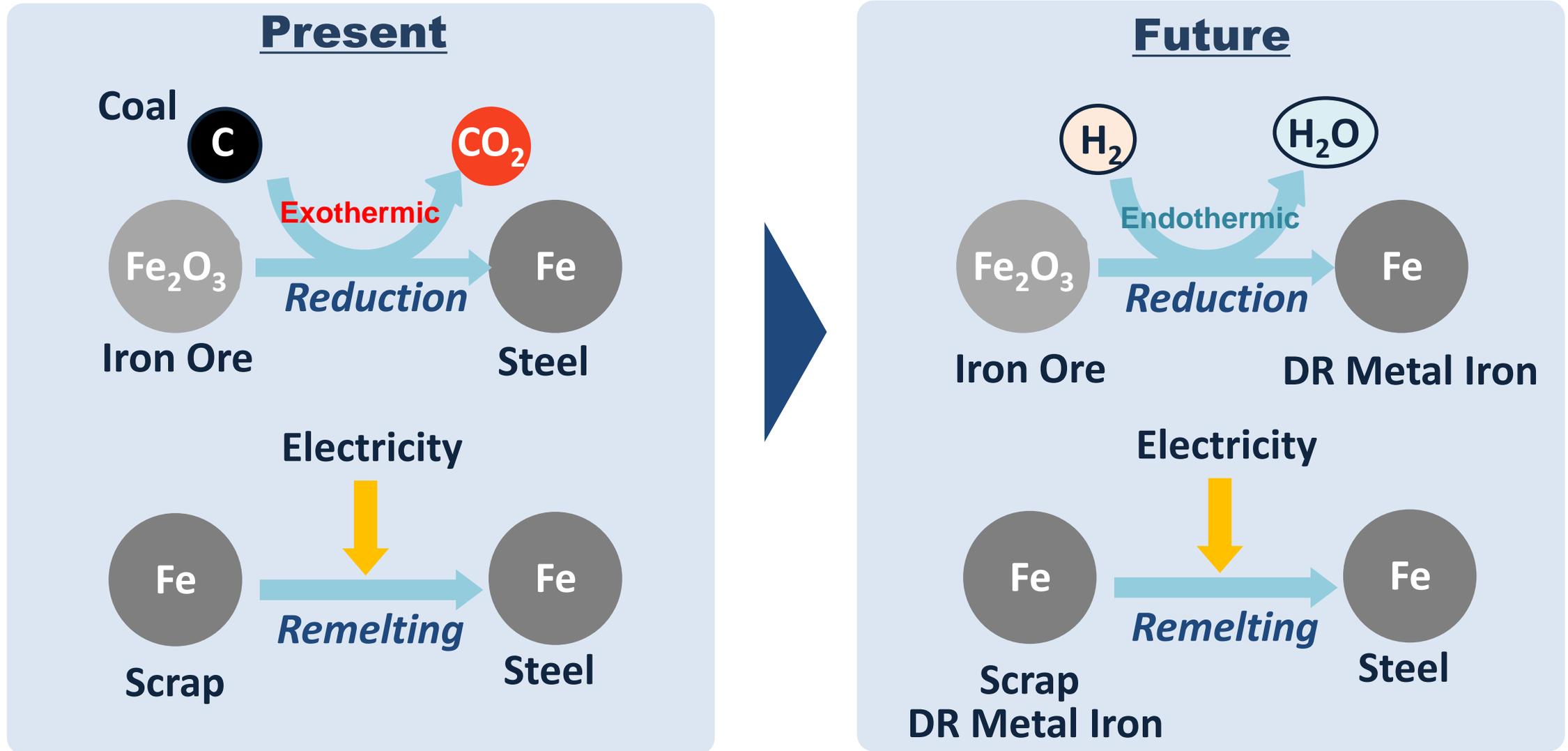
**COP29 Nov. 2024**  
**Hitoshi Dohnomae**  
**The Japan Iron and Steel Federation**



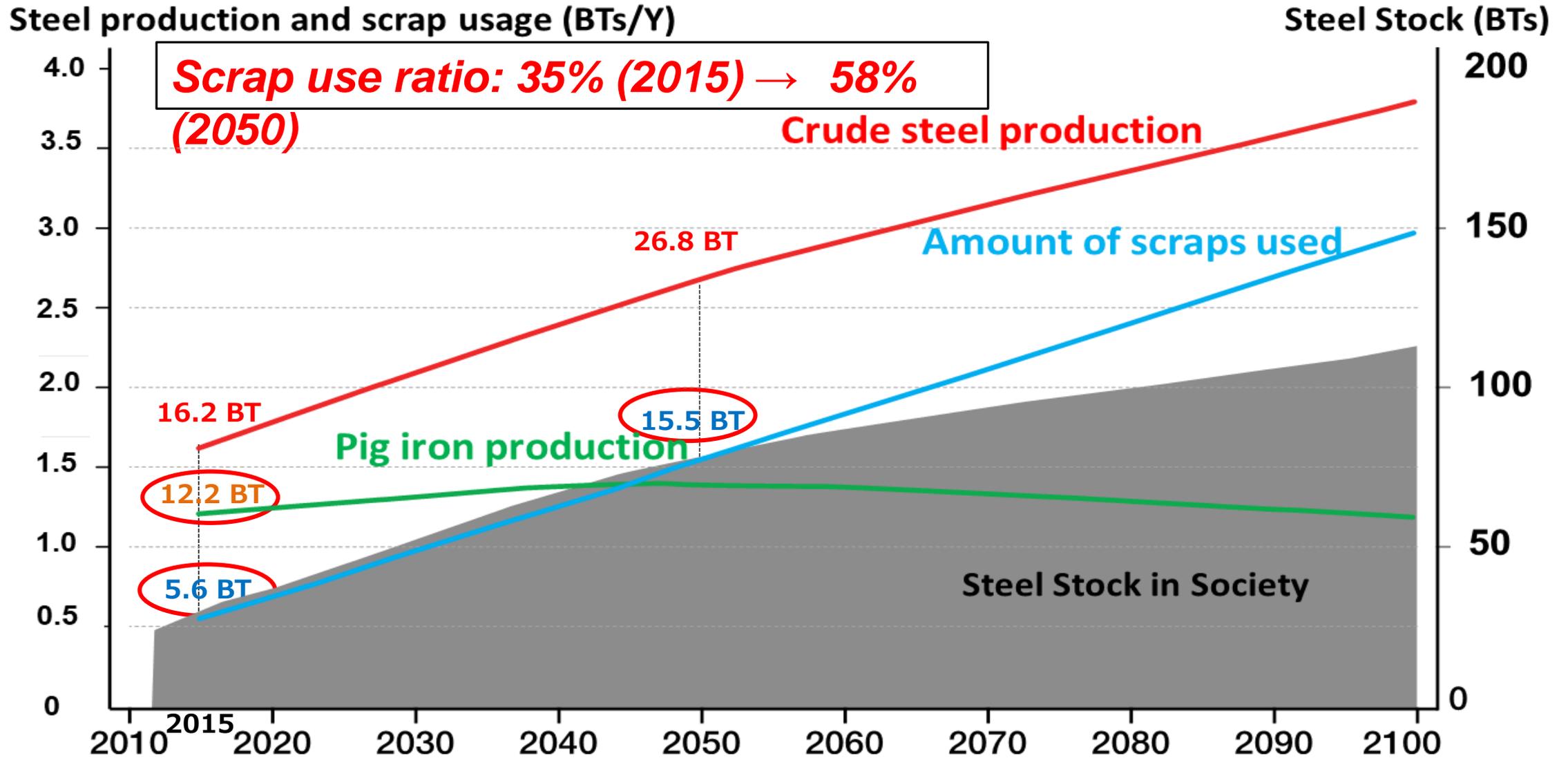
<https://www.jisf.or.jp/en/activity/climate/COP29.html>

# Steelmaking process

The global steel industry will eventually be fully hydrogenated and electrified for carbon neutrality.



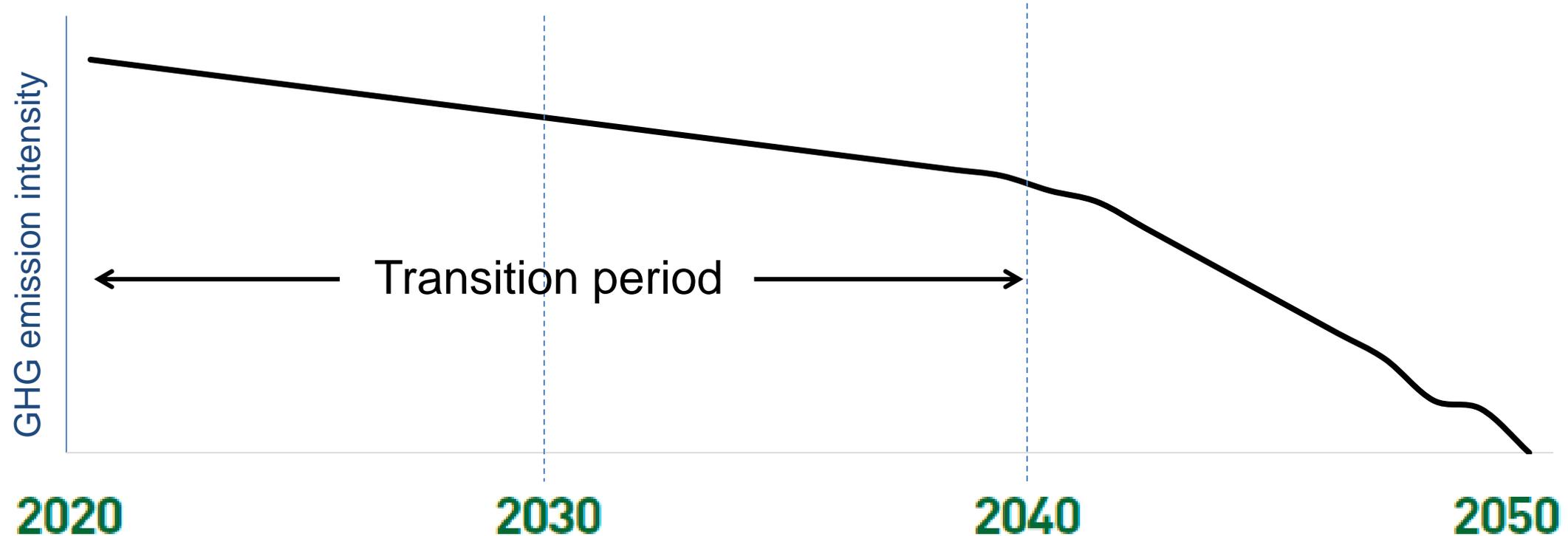
# Ref. Scrap can not fill the global steel demand in 2050



Source: "The Challenge of Zero Carbon Steel: Long-term Global Warming Countermeasures," Japan Iron and Steel Federation, November 2018

# Roadmap for the Japanese steel industry

During the transition period, we gradually reduce emissions through partial hydrogenation and electrification, while focusing on research and development of innovative technologies (up to 2040), and then to implement innovative technologies and achieve full decarbonisation (by 2050). . . Because the estimated cost of transition will be enormous, it is necessary to create a green market in which the green premium is appropriately evaluated on the demand side, and to make it possible to recover the investment, in order to make our sustainable transition possible.



Source: The Ministry of Economy, Trade and Industry, Technology Roadmap for Transition Finance in the Steel Sector

# REPs (Reduced Emission of Products)

The Japanese government recognised that it was important to reduce emissions in order to make the green transition, and proposed a new indicator REPs. Creating a market for products with REPs has become a pillar of Japan's decarbonisation policy.

## Reduced Emission of Products (REPs) = GX value of product

GHG emission reductions generated by corporate decarbonization investments.

**This is an indicator of current and future additional reductions, i.e. GX value.**

## Carbon Footprint (CFP)

A numerical value representing the GHG emissions of a product over its entire life cycle.

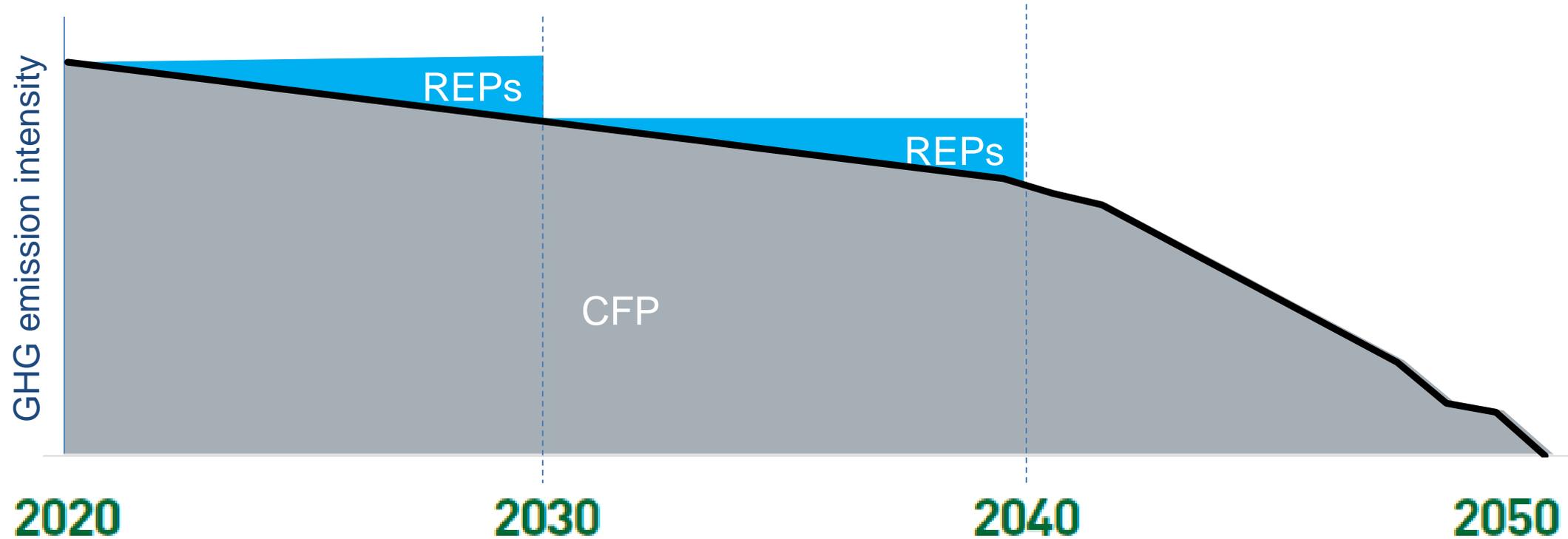
This is an indicator of past efforts.

Excerpts from the [Interim Report of the Study Group on GX Product Markets that Contribute to Demand Generation for Enhancing Industrial Competitiveness and Reducing Emissions](#)

# The role of CoC Green Steel applying REPs

The reality is that only a limited number of steel companies in the world are able to manufacture steel products with significantly reduced GHG emissions in the near future, and it is predicted that near-zero emission steel will not be widely available until around 2040.

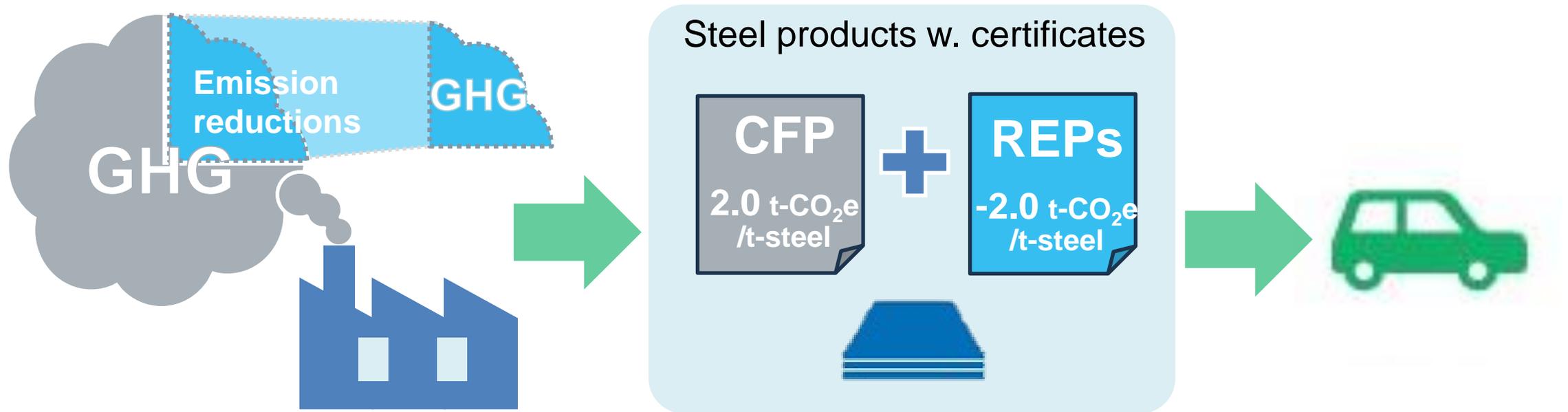
During the transition period, the provision of green steel, which embeds the value of REPs, will be the only way to meet customers' needs for green steel.



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

# Case study of CoC Green Steel by JISF

By issuing certificates of REPs based on the results of a company's emission reductions and selling them together with steel products, it has been possible to supply customers with green steel products that have substantially reduced their embedded emissions. Customers can reduce their Scope 3 emissions by using certificates of REPs. By a premium paid for green steel, steel companies can raise funds for their next decarbonisation investment.



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

# Green steel brands applying GHG chain of custody approach



**Kobenable Steel**

Kobe Steel, Ltd.

**JGreeX**

JFE Steel Corporation



**NSCarbolex**

**Neutral**

Nippon Steel Corporation

# Green steel used in the public and private sectors #1

## Governmental project

**“NSCarbolex<sup>®</sup> Neutral (Nippon Steel)” and “Kobenable<sup>®</sup> Steel (Kobe Steel)” used in bridge construction work ordered by the Kyushu Regional Development Bureau of the Ministry of Land, Infrastructure, Transport and Tourism of Japan**

This project was contracted under the comprehensive evaluation bidding system that includes factors other than price. In response to this, Yokogawa Bridge Corporation proposed “use of green steel” as one of the technical proposals and won the bid.



[https://www.nipponsteel.com/news/20240222\\_100.html](https://www.nipponsteel.com/news/20240222_100.html)

[https://www.kobelco.co.jp/releases/1214476\\_15541.html](https://www.kobelco.co.jp/releases/1214476_15541.html)

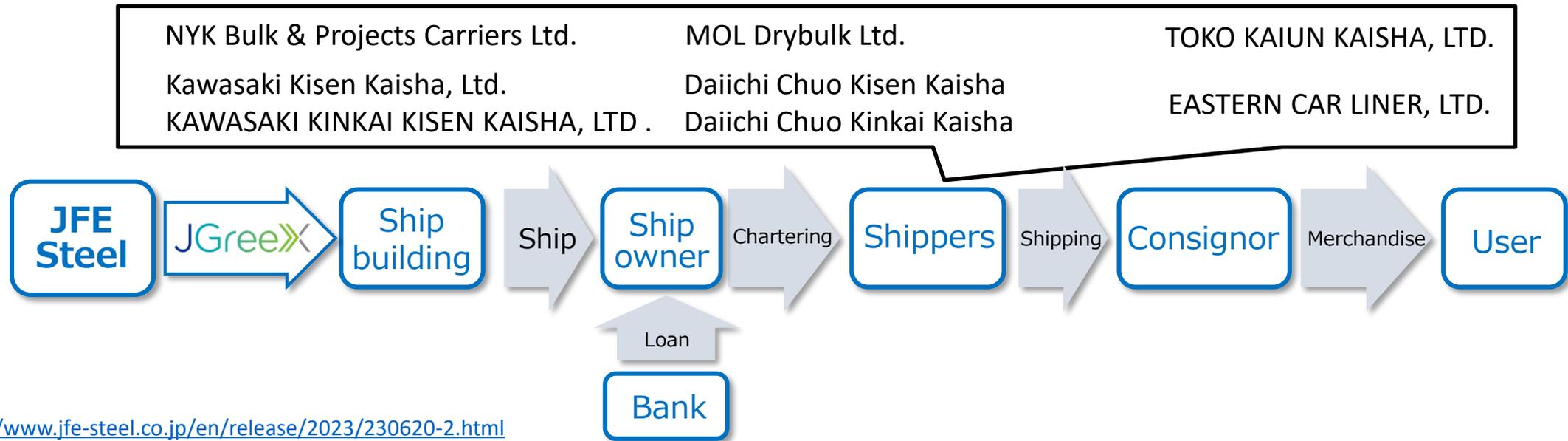
# Green Steel used in the Public and Private Sectors #2

## Shipbuilding & Marine Transportation

**Large Cargo Ships to be Made Exclusively with JFE Steel's JGreeX™ (JFE Steel) Green Steel**

**-Collaboration with shippers aimed at sharing CO<sub>2</sub>-reduction costs across society-**

JFE Steel's "JGreeX™" green steel products have been selected for exclusive use in the construction of dry bulk carriers (large cargo ships). Under the business model established this time, participating shipping companies and shipowners will require that shipbuilders exclusively use "JGreeX™". All parties involved in the new business model will share the associated costs of reducing CO<sub>2</sub> emissions. JFE Steel, which itself is also engaged in shipping activities, will support the business model as both a shipper and a steelmaker, contributing to the realization of a distributed model in which the costs of CO<sub>2</sub> reduction are shared across the entire supply chain within a sustainable framework.



<https://www.jfe-steel.co.jp/en/release/2023/230620-2.html>

# Rulemaking for CoC Green Steel

Establish the principles and theories  
with the LCA Society

Establish sectoral standards  
with **JISF**, **worldsteel**, ISO/TC 17

Establish general standards  
World/ ISO (TC308, TC207), GHG Prot., SBTi  
Domestic/ **Guidelines for REPs**

Establish procurement rules  
**UN/IDDI**, Domestic Green Purchasing Law  
Automobile LCA, Building SBTi, etc.

Mandatory  
procurement

Strong incentive for  
purchasing

Create public /private demand  
for CoC Green Steel

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

Version 2.0 | Revised October 2023



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

worldsteel guidelines for GHG chain of  
custody approaches in the steel industry

Version 1: GHG  
reduction  
certificates  
November 2024

worldsteel  
ASSOCIATION

<https://worldsteel.org/climate-action/chain-of-custody/>

# Conclusions

- ✓ The global steel industry will eventually be fully hydrogenated and fully electrified in order to achieve carbon neutrality, but this will require the completion of challenging technological development. There will be a long transition period during which partial hydrogenation and partial electrification will be implemented.
- ✓ Even partial decarbonisation will require huge CAPEX investment and will increase OPEX. On the other hand, near-zero steel, which can appeal to customers, cannot be supplied through partial decarbonisation. In this situation, the only way to promote a sustainable green transition is through CoC Green Steel.
- ✓ The Japanese government has endorsed this concept and has promised to support CoC Green Steel through domestic policy.
- ✓ However, for CoC Green Steel to be adopted internationally, it is important that it be recognised by international general rules, particularly GHG accounting standards. We would like to ask for your support in international rule-making.

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