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Redefining steel: Key considerations for corporate treasurers



Decarbonization of the steel supply chain is one of the key challenges of the energy transition. Efforts to redefine the steel production process will require investment into Direct Reduced Iron, Green Hydrogen, and Electric Arc Furnaces. This will necessitate collective partnerships between suppliers, steel-makers and off-takers alongside deep working capital & liquidity capabilities. These shifts will likely have a deep impact for the priorities of Corporate Treasurers in the steel supply chain, with a focus on liquidity efficiencies, trade & working capital and funding.

Steel is one of the most important materials in our world today and used across all industries, making it a prevalent part of our daily life. The global demand for steel has gradually increased over the years, reaching up to 1.9 billion tons in 2022¹, with a positive outlook in line with globalization. Yet steel as a product needs to be redefined to the new carbon-conscious normal.

As a result, the steel industry, along with its value chain, is being redefined based on the growing end-market demand for low-carbon steel products (e.g., automotive, consumer goods and, more recently, construction), in addition to increased focus on principles for responsible investment and tightened emissions-related regulations. However, decarbonizing steel is a challenging and costly undertaking, requiring a paradigm shift in the steel production process itself, as well as its source of energy and iron feedstock. Given the primary source of carbon emissions in today's steel value chain originates in the steel production itself, manufacturers will need to explore a spectrum of solutions ranging from optimizing BF-BOF operations and installing carbon capture storage and usage units, to building Electric Arc Furnaces (EAFs), melting more scraps, or using Natural Gas or Green Hydrogen.

The Electric Arc Furnace production process generates significantly lower carbon emissions than existing processes, and as production moves towards renewable energy sources, carbon emissions near zero. However, this new process is likely to take time to scale industrially and cost competitiveness is expected to remain challenged the next decade. New constraints will emerge such as the supply of Direct Reduced Iron or Scrap

for feedstock, and the availability of necessary infrastructure for generating and storing Green Hydrogen. From an off-taker perspective, new concerns around the provenance of their steel will arise, requiring trusted measurement and reporting. Regardless, the steel industry is at a critical crossroads as it moves ahead.



Steel has a relatively high carbon intensity,

1.85 tons

of CO₂ for every ton of steel.

Overall, the industry is estimated to account for approximately

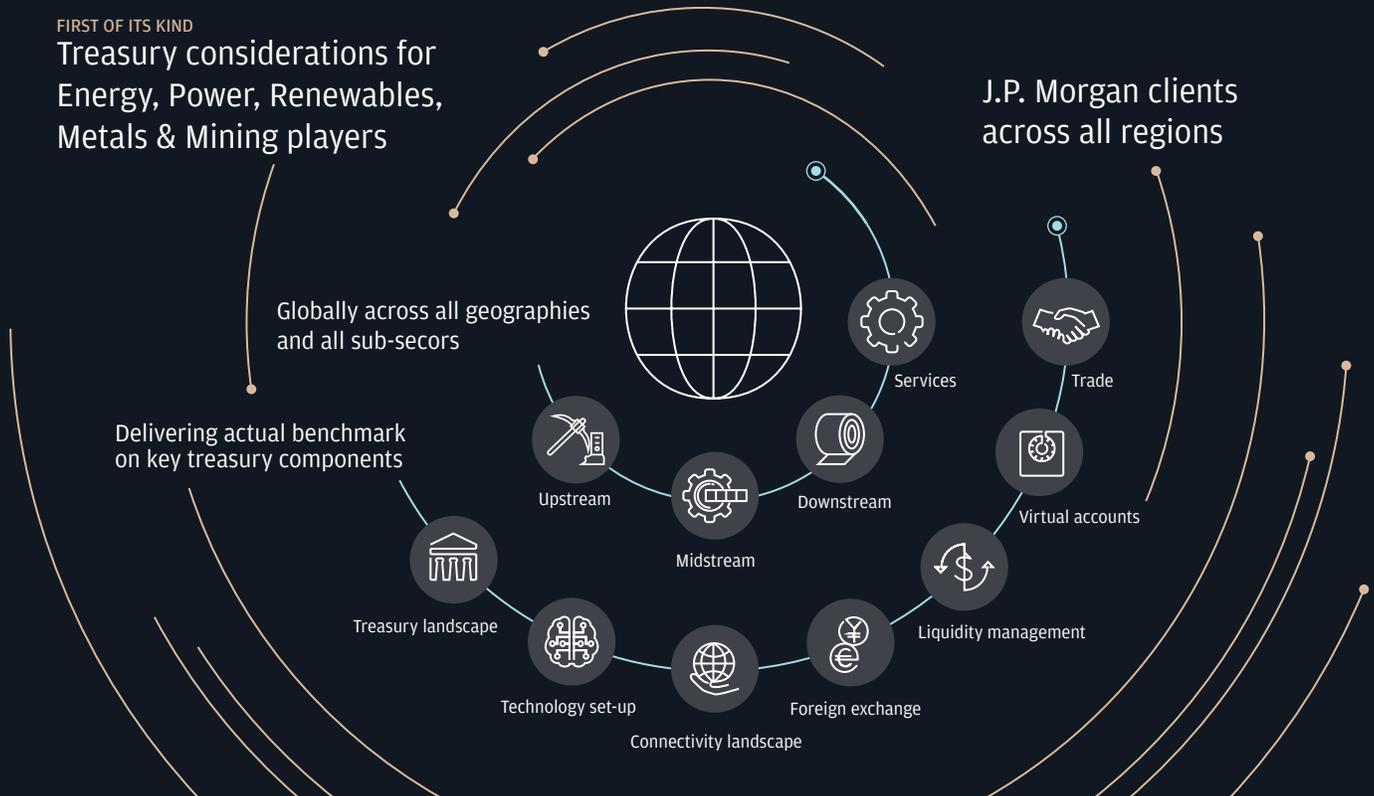
8–10%

of global emissions². In fact, steel is considered to be one of the harder-to-abate sectors.

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With such significant adjustments to the steel industry business model needed, a sectoral change will require partnerships across the value-chain view to activate industry interaction and, of course, significant capital investment. Such profound changes to an established sector will likely result in deep impact for the priorities of Corporate Treasurers in the steel supply chain.

Transparency, control and improved efficiency is more important than ever

The steel industry is relatively concentrated in terms of production capacity. While on one hand, this motivates the industry interaction and activates the value chain for decarbonization, on the other hand, this is challenging since the steel producers can drive increased demand for required inputs such as Direct Reduced Iron, Scrap and Green Hydrogen. This could then result in inflation on energy and feedstock, equipment, and products and related services needed to create commercial opportunities. This will further increase margin

pressure in an already relatively low-margin business. Add to that the large-scale funding requirements across the industry and it may result in self-crowding out.

Therefore, it will become imperative to future-proof the Corporate Treasury function within in the steel industry, combining gains in **liquidity efficiencies**, managing **trade and working capital** requirements, operating with agility and speed, and ensuring control and resilience. This future-proofing requires renewed focus on cash management, working capital and funding and to review the treasury set-up, account structure and treasury policies that face an evolving future.

Corporate treasurers can also aim to simplify and save, as well as automate and scale their treasury operations with superior payments and collection capabilities, immediate availability and usability of cash, and real-time visibility into balances. This is due to an increasing shift from physical into virtual on the back of increased adoption of **APIs** and **virtual accounts** to address the perennial liquidity challenge.

Corporate treasurers cannot predict the future, but they can prepare a robust base to remain competitively resilient. This can be achieved with a continuous cash and cost culture, and by running effective working capital management to help ease liquidity and funding pressures, working capital fluctuations and risks from external shocks.

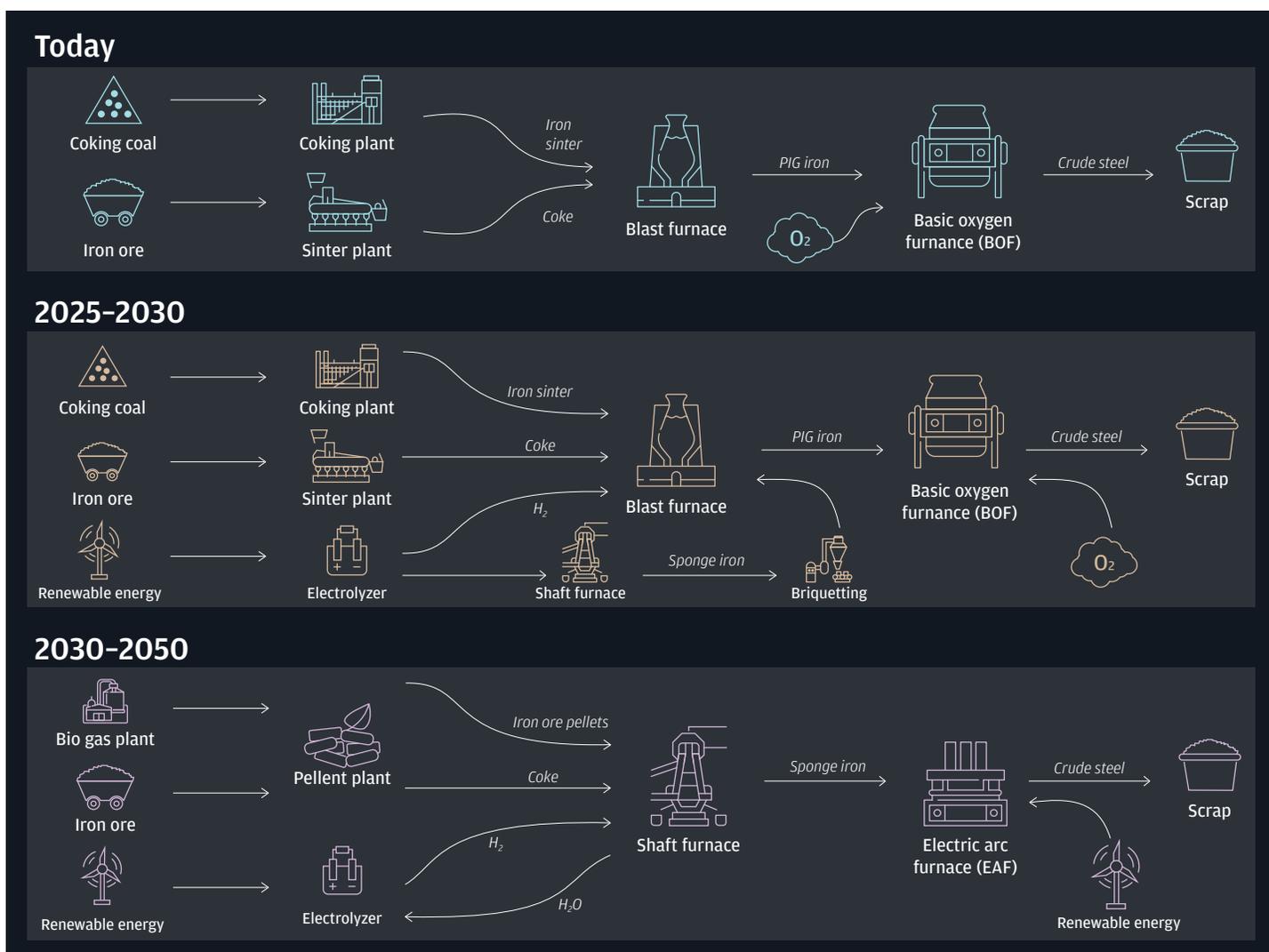
Diversifying funding sources to decarbonize the steel production process

Achieving a meaningful change in the steel production process, as well as the source of energy and feedstock to redefine steel, would require significant investments. McKinsey Sustainability estimates that investment to average \$164 billion over a 10-year period². The total capital investment will not likely

include the potential upfront spending needed by the other companies in the steel value chain, including the suppliers of energy and feedstock, equipment, and products and related services.

Large-scale funding could materialize if the steel industry, along with its value chain, work together to deliver on commercial partnerships, thereby mitigating risks of energy and feedstock, such as hydrogen or high-grade iron ore respectively and / or end-market demand. Capital would move to the steel industry, having a sustainable impact in terms of redefining steel in every part of our daily lives.

For this, export credit agencies, development finance institutions and other multilateral agencies could take a more active role by addressing market gaps, putting off private sector participation in the financing of trade and investment in the steel industry. The agencies could support cooperation across the public and private sectors for the rollout of new and disruptive steel production processes, along with the supply



of energy and feedstock needed for these processes to be a catalyst for change in trade, export and growth.

In line with this, several agencies are taking a more strategic interest in decarbonizing steel and other hard-to-abate industries, working towards adopting and encouraging new behaviors and regulations to enable export and trade flows at scale.

The importance of supply chain security

The steel industry, along with its value chain, has a well-established and mutually dependent supply chain. Steel producers and other players along the value chain could aim to reduce their scope 1 and scope 2 emissions by increasing energy efficiency, electrifying processes or using low-carbon alternatives. But their scope 3 emissions, which are sectoral emissions, require the entire value chain to motivate and activate each other to make the right progress towards redefining steel.

As the steel production process is under transformation, along with the supply of energy and feedstock, critical regional

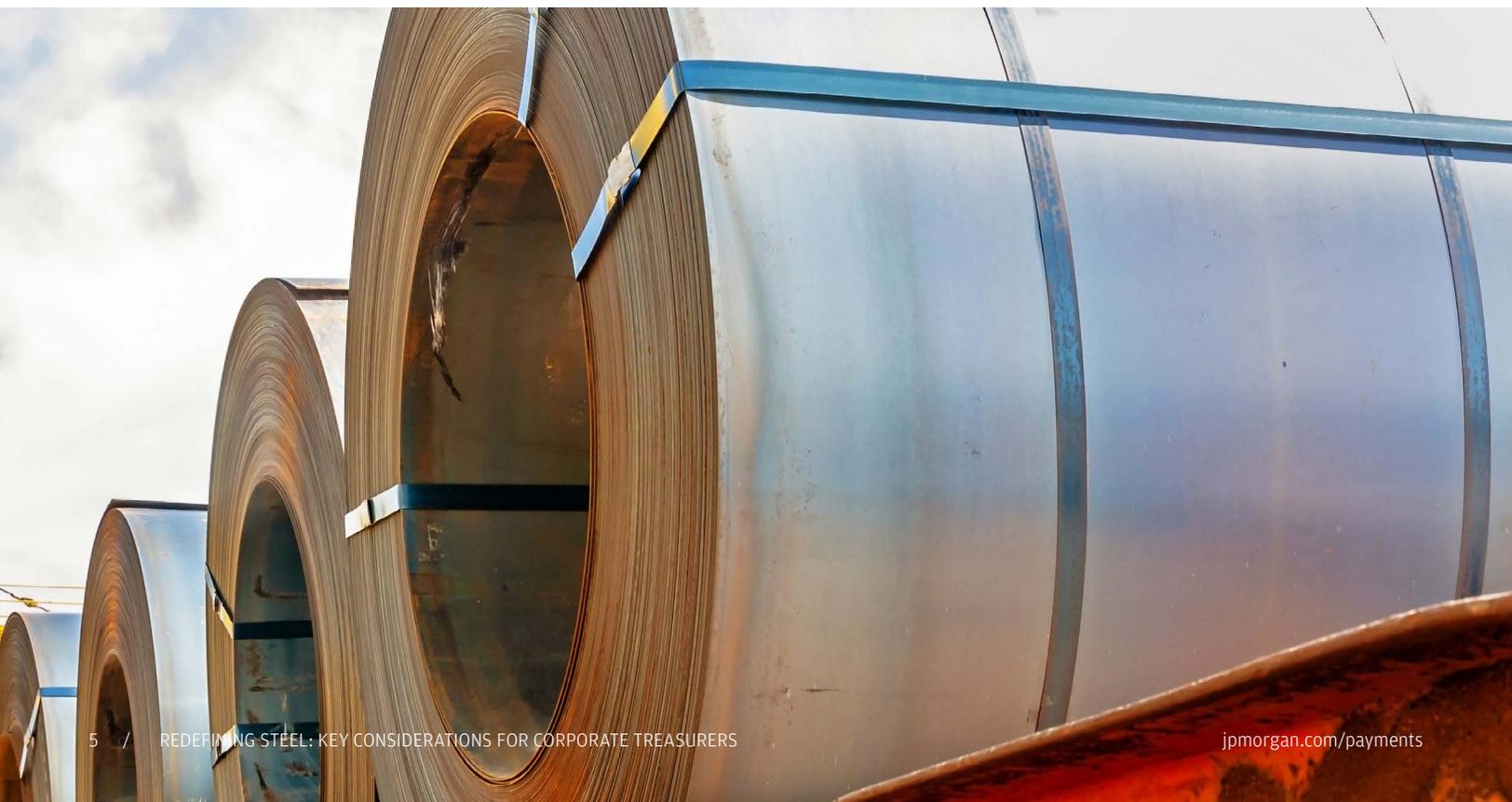
conditions such as availability and affordability of renewable energy sources, including hydrogen, could impact the way forward. For example, the change from natural gas as a reductant to green hydrogen is a relatively straightforward, proven production process, and the Middle East and Australia are well-positioned to benefit from this change, subject to the relative cost of hydrogen. To this end, the supply chains could be split across several different global regions to achieve the highest cost efficiencies. This geo-split could complicate treasury operations further. Given such an uncertain landscape, corporate treasurers should embed a proactive, resilient and competitive approach – no matter their starting point – by integrating and streamlining supply chains and treasury operations.

There is no simple or single conclusion. Yet it is clear that if the steel industry is to redefine steel at the speed and scale needed, all elements within the industry – along with its value chain – must function together as a system. For this, Systems Finance by J.P. Morgan Payments is an integrated, industry-specific solution, supporting corporate treasurers' existing and emerging requirements along the way to redefine steel.

¹ <https://worldsteel.org/wp-content/uploads/World-Steel-in-Figures-2022.pdf>

² <https://worldsteel.org/wp-content/uploads/Climate-policy-paper-2021.pdf>

³ <https://www.mckinsey.com/capabilities/sustainability/our-insights/spotting-green-business-opportunities-in-a-surging-net-zero-world/transition-to-net-zero/steel>



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