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# COUNTRY PROFILE – CHINA<sup>1</sup>

## 2023 STEEL POLICY SCORECARD

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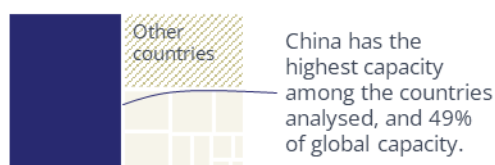
### Where domestic policy moves make a big global difference

China is central to the decarbonisation trajectory of the steel sector globally. It has nearly half of global steel production, and 59% of that is coal-based.<sup>2</sup> Challenging international diplomatic and trade relations tend to blur the picture, and issues of overcapacity and continued investment in coal-based production overshadow progress on other policy levers.

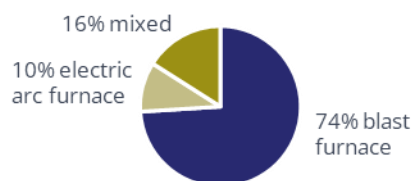
#### Country profile: China



#### Production capacity



#### Production methods



Source: Global Energy Monitor, 2023, 2023 Pedal to the metal



<sup>1</sup> This document supplements the main **2023 Steel Policy Scorecard report: Raising ambition on steel decarbonisation**.

<sup>2</sup> Global Energy Monitor, **Global Steel Plant Tracker**



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There are signs of small, yet important policy moves across a variety of levers in China. They include establishing an infrastructure for emissions reporting and setting clear targets for increasing the proportion of secondary, scrap-based steel production. However, these efforts are not yet reflected in China's steel facility pipeline, still dominated by coal-based production capacity, and will require increased ambition. What is more, while China's renewables capacity is expected to overshoot its 2030 target five years ahead of time, this progress remains strategically disconnected from industrial electrification plans.

### **Priority recommendations for Chinese steel decarbonisation policy**

- > Set an ambitious 2030 emission reductions target for the steel sector.
- > Take green building materials procurement policy to another level by setting embodied carbon thresholds for key materials, including steel.
- > Scale up scrap sorting and recycling and maximise material efficiency potential in the steel sector, building on China's existing track record on circular economy.

### **Key actor on the global steel market still relying on a coal-based production pipeline**

China currently produces 49% of global steel, with a capacity of 1,112 Mtpa.<sup>3</sup> Given this scale, its production landscape and domestic markets have direct implications for international markets. Steel exports have recently seen a 30% uptick as a result of the Chinese real estate crisis and related fall in domestic steel demand, coupled with ongoing challenges of overcapacity. This is raising concerns among trade partners about dumping and the impact on international prices.<sup>4</sup> How China handles these challenges will play an important role in shaping the steel transition globally, and the extent to which it will be characterised by protectionist measures versus trade openness.

China's climate policies also play an important role in the global transition. At present 74% of Chinese steel production is coal-based primary production capacity, with only 10% secondary, scrap-based EAF.<sup>5</sup> China has the second largest coal-based steel production pipeline globally, with another 147 Mtpa of

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<sup>3</sup> Global Energy Monitor, 2023, **Pedal to the Metal 2023**

<sup>4</sup> GMK Center, 2023, **China's overcapacity problem returns**

<sup>5</sup> Calculated from Appendix C in Global Energy Monitor, 2023, **Pedal to the Metal 2023** (noting that the discrepancy between coal-based and scrap-based production is explained by mixed production process capacity).



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capacity under development.<sup>6</sup> The steel sector is responsible for more than 30% of total coal use in China; it has been the main source of growth in demand for coal.<sup>7</sup> While some DRI facilities with plans for hydrogen or CCS use have been announced, these are minor in scale in the Chinese context. Turning this picture around is central to curbing emissions from global steel production.

### **Hopes for increased Chinese ambition on emission reduction targets**

Current official policy is to peak emissions from the Chinese steel industry before 2030.<sup>8</sup> However, there are indications that increased ambition – **reducing** emissions by 2030 – could be in the works. This was already indicated by the China Iron and Steel Association (CISA) back in 2021.<sup>9</sup>

### **Provincial strategies as source of hope for raising ambition**

With provincial populations ranging from 5 to over 120 million, a city pilot project or policy may have a larger budget or involve more industrial actors than it would in a medium-sized country. As such, provincial projects and policies can have a major bearing on the steel sector.

China's national hydrogen strategy prioritises its use in the commercial vehicles sector; industrial decarbonisation is treated as a future issue. The annual production target of renewable hydrogen planned at national level is 100,000–200,000 tonnes per year;<sup>10</sup> this is insufficient to play a meaningful role in decarbonising China's steelmaking capacity. The strategy aims to also use other types of hydrogen, without indicating any CCS application to hydrogen derived from fossil fuels. Notably, regional strategies are already moving beyond national ambition, with Inner Mongolia aiming to produce 480,000 tonnes of renewable hydrogen a year by 2025.<sup>11</sup>

The lead role provinces can play is also reflected in carbon pricing where some regional pilot carbon market schemes cover the steel sector. The national carbon pricing scheme does not yet include it, and benchmarks for the power sector are

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<sup>6</sup> Global Energy Monitor, 2023, **Pedal to the Metal 2023**

<sup>7</sup> E3G, PNNL, Oct. 2021, **1.5C Steel: Decarbonizing the Steel Sector in Paris-Compatible Pathways**

<sup>8</sup> National Development and Reform Commission (NDRC), 2021, **Action plan for carbon dioxide peaking before 2030**

<sup>9</sup> National Business Daily article, 31 March 2021, **Exclusive interview with Li Xinchuang, vice president of the China Iron and Steel Association**

<sup>10</sup> Energy Iceberg, 2022, **China's National Hydrogen Development Plan**

<sup>11</sup> Center on Global Energy Policy, 2023, **China's Hydrogen Strategy: National vs. Regional Plans**

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non-stretching. There are however plans to include steel in the national system, with emissions reporting set to start in 2023.<sup>12</sup>

### **Together with state-owned enterprises, the government can provide financial support to the green steel transition**

There may be little to no public sector support for R&D on low-carbon steelmaking technology or subsidies for capital or operational expenditure directly from the Chinese government. But the major role of state-owned enterprises (SOEs) in China blurs the line between government policy and company action. Some public sector action indeed takes place **through** the SOEs. The production giant Baowu, 100% government owned, is an important example for steel. For instance, together with the government, Baowu has set up the \$6.9bn Carbon Neutral Equity Fund and vowed to dedicate part of its annual revenues to it.

### **Reporting and comparing emissions from steel products**

An important government initiative is the Chinese Environmental Products Declaration (EPD) platform for the steel sector, with its method for calculating, reporting and comparing emissions from products.<sup>13</sup> Here China is building the data to make it easier to establish green steel definitions and standards. While, unofficially, the Chinese EPD team is also said to be exploring green steel definitions and standards, there is no public information on a process or intention in that direction. If confirmed, this would represent a major step forward.

There is no evidence of China looking to set a green-steel public procurement target or requirement. However, the recent green building materials procurement policy includes emission calculations and analysis requirements, an encouraging move. This policy is expected to cover all public procurement projects in the 48 pilot cities by 2025.<sup>14</sup>

### **First moves on circularity (scrap) and a mixed bag on clean power**

China is one of very few countries explicitly connecting steel with its circular economy initiatives. It has set steel scrap use targets as part of its fourteenth Five-Year Plan for the Development of the Circular Economy.<sup>15</sup> The government

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<sup>12</sup> Climate Cooperation China, 2022, **Status of China's national ETS and regional emission trading pilots**

<sup>13</sup> State Owned Enterprises News, 2022, **China's EPD programme makes debut**

<sup>14</sup> State Council, 2022, **Procurement to Support Green Building Materials to Promote the Improvement of Building Quality**

<sup>15</sup> China Briefing, 2021, **China's Circular Economy: Understanding the New Five Year Plan**



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is implementing policies to increase the proportion of secondary, scrap-based EAF production – from 10% in 2020 to 15% in 2025 and 20% in 2030.<sup>16</sup> These represent important starting points and can lead to a broader focus on material efficiency and demand reduction.

Finally, China is projected to achieve its target of 1.2 TW RES by 2030 as early as 2025, although its official power system decarbonisation ambition remains low. These developments are overshadowed by widespread curtailment due to insufficient grid capacity and disconnected from industrial electrification plans.

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<sup>16</sup> Ministry of Industry and Information Technology & National Development and Reform Commission (NDRC), 2022, **Implementation Plan for Carbon Peaking in the Industrial Sector** / CREA, 2023, **China's steel sector invests USD 100 billion in coal-based steel plants, despite low profitability, overcapacity and carbon commitments**

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## About E3G

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E3G builds broad-based coalitions to deliver a safe climate, working closely with like-minded partners in government, politics, civil society, science, the media, public interest foundations and elsewhere to leverage change.

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