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# G7 STEEL POLICY SCORECARD ANNEX A

## DELVING DEEPER INTO THE FINDINGS – POLICY LEVER BY POLICY LEVER

September 2022

In this annex we outline the findings of the E3G Steel Policy Scorecard one policy lever at the time, comparing countries' progress on each. The scorecard itself, with headline and country-by-country findings, is outlined in the main briefing document.

### 1. Providing policy direction and clarity

Emission reductions that limit global warming are central to the Paris Agreement. It is now commonplace for countries to have interim (2030) and long-term (2050) national emission reduction targets. Individual country emission profiles and socio-economic contexts differ, requiring country-specific sectoral targets and pathways. A national target for industrial emission reductions, including the setting of steel sector targets, indicates that the area is a government priority while giving clear policy direction for steel industry actors.

We look at the policy landscape of the G7 countries, documenting their focus on industrial emission reductions within national policy, including steel-specific focus and targets. We find that:

- > The G7 countries fare very differently when it comes to policy direction and clarity. **France shows the strongest sense of direction** with its steel industry roadmap<sup>1</sup> and related steel emission reduction target of 31% by 2030 (relative to 2005).<sup>2</sup>
- > **Germany** and the **UK** are also showing **some positive policy direction**. The German Climate Action Plan<sup>3</sup> has an industry focus and includes an industrial

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<sup>1</sup> Conseil National de l'Industrie, 2022, **Plan Sidérurgie France**

<sup>2</sup> The steel industry roadmap was co-developed by the National Council for Industry and the state and the mining and metallurgy sector, and the degree to which it can be enforced, with industry and relevant government actors held to account, is however not entirely clear.

<sup>3</sup> Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety, 2016, **Climate Action Plan 2050**



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emission reduction target of 55% by 2030 (relative to 1990). However, its dedicated steel strategy<sup>4</sup> is more focused on how the German and EU steel industry can stay competitive. In the UK, the industrial decarbonisation strategy lacks any clearly formulated emission reduction target but commits to exploring a 2035 target for near-zero emission steelmaking.

- > **The US's** recent release of an industrial decarbonisation roadmap<sup>5</sup> that has a dedicated policy direction on steel is a positive move. However, it is still staying clear of setting a steel emission reductions **target**.
- > **Towards the bottom we find Japan, Canada and Italy.** Japan and Canada's national climate policies indirectly speak of emission reduction pathways for steel, yet without any clear formulation of targets. Japan also has a roadmap for transition finance,<sup>6</sup> which recognises the need to decarbonise steel production and move towards net zero, but without clear interim targets and milestones. Italy's National Energy and Climate Plan (NECP)<sup>7</sup> has an industry focus with overarching industry targets.

## 2. Enabling hydrogen and carbon capture and storage (CCS) for steel

Decarbonising primary steel production will require large amounts of hydrogen fuel, and carbon capture and storage (CCS) for cases where it is not possible to avoid all the off-gasses or for reducing the emissions of younger BF-BOF facilities. Hydrogen and CCS require infrastructure and planning beyond the actual steel plant, namely hydrogen production and distribution infrastructure and transport and storage infrastructure for the CO<sub>2</sub>. This in turn requires concerted policy prioritisation and the rollout of supporting infrastructure by governments.

We consider the extent to which governments make hydrogen and CCS a dedicated priority: the prioritisation in policy and the rollout of projects. We find that:

- > While all G7 countries have a **hydrogen strategy** in place, the weight put on **hydrogen for steel** varies. The German strategy<sup>8</sup> makes steel a high priority,

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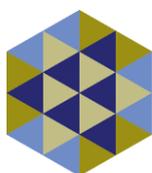
<sup>4</sup> Federal Ministry for Economic Affairs and Energy, 2020, **Handlungskonzept Stahl**

<sup>5</sup> Department of Energy, 2022, **Industrial Decarbonisation Roadmap**

<sup>6</sup> Ministry of Economy, Trade and Industry, 2021, **Technology Roadmap for "Transition Finance" in Iron and Steel Sector**

<sup>7</sup> Ministry of Economic Development, 2019, **Integrated National Energy and Climate Plan**

<sup>8</sup> Federal Ministry for Economic Affairs and Energy, 2020, **The National Hydrogen Strategy**



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and the Japanese strategy<sup>9</sup> includes plans to develop hydrogen-based technologies for steelmaking. The other strategies tend to be more vague, highlighting steel among potential hydrogen end-users (Canada<sup>10</sup>) or noting how hydrogen will be needed to decarbonise steel (Italy<sup>11</sup>).

- > Only the **UK** has a CCS strategy<sup>12</sup> in place, while **Germany** and **Canada** are planning CCS strategy releases.
- > When it comes to the **implementation of hydrogen for steel projects** (mainly through hydrogen for direct reduction iron), the European G7 countries are in a clear lead. **Germany**, the largest producer in Europe, is the front-runner with multiple hydrogen-DRI installations being developed. **France** is not far behind, with three hydrogen projects. In **Italy** projects on hydrogen for steel are under way.
- > **Canada** has one hydrogen for steel project under way. The **UK** has one project planned that explores the possibility of hydrogen and CCS – yet without any concrete details at this point in time.
- > The two largest G7 steel producers, **Japan and the US, are trailing far behind**, neither having any hydrogen for steel projects under way.
- > Small CCS demonstration projects are being developed in **Italy** and **France**, while in **Japan** the two major steel producers are **planning** to roll out CCS before hydrogen.
- > **None of the G7 countries have operational, large-scale hydrogen or CCS applications for steel.** This is the case globally and reflects the fact that we are still at the very beginning of the steel transition.

### 3. Providing funding for steel decarbonisation

New production processes for steel will require large-scale investments for everything from research and development to piloting and through to the building of commercial scale infrastructure. This includes direct reduction iron (DRI) capacity and electric arc furnaces (EAF), and infrastructure for hydrogen and CCS. We consider government funding to be an important part of the puzzle,

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<sup>9</sup> Ministry of the Environment, [Summary of Japan's Hydrogen Strategy](#)

<sup>10</sup> Government of Canada, [The Hydrogen Strategy](#)

<sup>11</sup> Ministero dello sviluppo economico, 2020, [Strategia Nazionale Idrogeno Linee Guida Preliminari](#)

<sup>12</sup> Department for Business, Energy and Industrial Strategy, 2021, [CCUS Supply Chains: a roadmap to maximise the UK's potential](#)



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even though the extent of government funding versus private sector funding and financing required is contested.

We here look at large-scale funding announcements, money earmarked for steel decarbonisation (including for hydrogen or CCS), and the existence of operational funding infrastructure (funds where companies can currently access support). We find that:

- > **Germany and France** come out the strongest in the funding space. They have announced industrial decarbonisation funding at the scale of €5 billion, and have operational national industrial decarbonisation funds and access to a variety of operational European Union (EU) funds. Both also have funding for steel earmarked in connection to their €5 billion, as well as funding earmarked for hydrogen.
- > **Canada** has a **number of operational national funds**, including the Net-Zero Accelerator Fund and the Clean Fuels Fund. These are set to be boosted by large budget allocations in the realm of 9 billion Canadian dollars (around €7 billion).
- > All three EU countries, **Germany, France and Italy**, are **earmarking funding for hydrogen through their NRRP funding**, and can access funding for hydrogen through a variety of other EU funds including the Innovation Fund.
- > **The UK** is the only country with a **dedicated clean steel fund on the cards**. This is however seemingly far from being operational and has only been announced with a small pot of money – £250 million.
- > **Italy and Japan** lag behind in terms of dedicated funding for industry and steel decarbonisation. Italy has made no large, official announcements, and the only national industrial decarbonisation funding available is currently through the broader Green Deal Fund for R&D. Japan on the other hand has the Green Innovation Fund (2 trillion yen; €14 billion), in which industrial decarbonisation, and explicitly hydrogen, is covered. However, there is no explicit attention on funding steel and CCS.
- > **The US** is taking a somewhat different approach to its Canadian neighbour and the other G7 countries. **Large-scale investment is emerging through acts and laws** – most explicitly through the Inflation Reduction Act (IRA)<sup>13</sup> with \$369 billion in climate provisions. The Bipartisan Infrastructure Law<sup>14</sup> also

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<sup>13</sup> US Congress, [H.R.5376 - Inflation Reduction Act of 2022](#)

<sup>14</sup> US Congress, [H.R.3684 - Infrastructure Investment and Jobs Act](#)

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brings more than \$12 billion in CCS investments and just under \$10 billion for hydrogen – though this is not explicitly for steel.

## 4. Implementing carbon pricing

Carbon pricing is one of the so called “push” mechanisms through which emitters pay a price for their emissions, incentivising a transition to zero-emission production processes. While there is a growing consensus among governments and businesses on the role of carbon pricing, this varies to some extent between different political and economic systems. There are various ways to implement carbon pricing, including through a direct carbon tax or through an emissions trading system (ETS).

Looking at the G7 countries we consider the existence of an ETS or a carbon tax applicable to the steel industry, and the relative ambition therein. We find that:

- > The three EU countries – **Italy, Germany and France** – are the front-runners thanks to the **EU Emission Trading System**. This has covered steel production since 2005, and phase-out dates for free allowances are being negotiated. Given that free allowances are still in place, these are however far from receiving a top score.
- > **Post-Brexit the UK has its own ETS**, similar in features to the EU ETS. To date, there are no indications of a phase-out of free allowances happening, and thus the UK scores lower than the EU countries.
- > **Japan is the only G7 member with a carbon tax**, however with low price levels and exemptions it is currently insignificant for the steel industry transition.
- > **Canada** has an output-based carbon price system that in practice works quite similarly to an ETS with free allocation of permits. It is however weaker than the EU ETS, as thresholds are set at the historical average emission intensity of the steel sector, rather than at the 10% best performers as in the EU.
- > **Both the US and Japan have sub-national ETSs, though with no implications for steel production**. In Japan ETSs are only found at city level, in Tokyo and Saitama. In the US state-level ETSs either only cover the power sectors (the RGGI initiative which covers 11 states) or are found in states with no steel production – such as California.



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## 5. Adopting a green steel definition with an emissions intensity threshold and a measurement standard

To create a market for green steel there needs to be agreement on what green steel is, providing clarity to both consumers and producers. A definition for green steel should include an emission intensity threshold and a standard for measuring emissions.

There is currently no internationally agreed definition of green steel. We here therefore consider whether the G7 countries are taking part in initiatives that are pushing for a common definition, and the extent to which they are announcing or showing any other intention towards the adoption of a green steel definition. We find that:

- > **None** of the G7 countries have formally adopted a green steel definition, with emission intensity thresholds and a measurement standard.
- > As a collective the **G7 has made a small step in the right direction** when they formally recognised the definition proposed in the latest IEA report (2022) as a robust starting point.<sup>15</sup>
- > Another indication of movement in the right direction is seen through membership of the **Industrial Deep Decarbonisation Initiative (IDDI)**. **Canada, Germany and the UK** are members of the IDDI, which aims to set and adopt a common definition and standards.
- > The **US, Japan** and the **UK** are partners to the **First Movers Coalition (FMC)**, an international initiative angled towards the private sector, through which companies commit to purchasing set volumes of green steel based on an already established definition. How this already established definition will play into the broader adoption of a formal definition is however not clear.

## 6. Creating lead markets through green steel public procurement

Governments and state-owned enterprises purchase goods, services and works. Given the scale of public procurement – 12% of GDP in OECD countries<sup>16</sup> – it can be used strategically to create substantial market demand in desired areas, such

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<sup>15</sup> G7, 2022, **Conclusions regarding the Industrial Decarbonisation Agenda – Annex to the Climate, Energy and Environment Ministers' Communiqué**

<sup>16</sup> UN Environment, 2017, **Factsheets on sustainable public procurement in national governments**



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as green steel. By committing to purchasing a certain amount of green steel, or by setting green steel requirements within procurement processes, government can create substantial demand and provide security for companies.

Investigating the extent to which G7 countries are actively building green steel market demand through public procurement, we found that:

- > **The US and Germany** are the front-runners, taking the first steps in the right direction. Through its Sustainability Action Programme **Germany** is due to have concrete **minimum requirements for building materials**, including green steel, ready by the first half of 2023.<sup>17</sup> In the **US the Buy Clean Task Force** is currently developing recommendations on materials, including steel, for federal procurement.
- > **Green public procurement policies** of various forms are in place **in all the G7 countries**, with steel covered either explicitly or implicitly – generally through buying environmentally preferable goods or emphasis on greenhouse gas emissions related to building materials.
- > **Canada, Germany** and the **UK** are all members **of the IDDI**, co-led by the UK and India. There have been high expectations on the IDDI setting green steel public procurement targets, however these are still to materialise. IDDI announcements, including an expanded membership and possibly a timeline for the setting of targets, is anticipated in September 2022.
- > Though not a near-zero carbon steel public procurement target, **Italy** does have the requirement that **70% of steel used in public construction needs to come from the Electric Arc Furnace (EAF)** production route.

## 7. Policy direction on material efficiency and circularity

Technology shifts are not adequate for reaching net zero in 2050. Reducing the demand and building steel circularity – including increasing material efficiency, steel reuse and recycling – thus also play an important role in the emission reduction puzzle. The corresponding policy responses are embedded in a wide spread of policies and regulations, from waste and recycling policies, to building standards and product design regulation. Oversight is thus challenging, and action on this lever has so far been scarce.

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<sup>17</sup> German Federal Government, 2021, **Maßnahmenprogramm Nachhaltigkeit – Weiterentwicklung 2021**



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Here we take an overarching approach by considering the setting of a clear agenda for circularity and engagement in international circularity initiatives. We find that:

- > **Germany, Japan, France and Italy** all have circular economy strategies or plans, yet with no evident focus on steel.
- > **The EU countries** – Germany, Italy, France – are all part of the EU Circular Economy Action Plan<sup>18</sup> through which the ongoing **revisions of** the Ecodesign directive<sup>19</sup> could have important implications for steel.
- > There is a great **lack of international circularity and material efficiency initiatives**. Only **Canada** and **Japan** are formally supporting the Platform for Accelerating the Circular Economy (PACE).

## About E3G

E3G is an independent climate change think tank with a global outlook. We work on the frontier of the climate landscape, tackling the barriers and advancing the solutions to a safe climate. Our goal is to translate climate politics, economics and policies into action.

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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<sup>18</sup> European Commission, 2020, [Circular Economy Action Plan](#)

<sup>19</sup> European Commission, [Ecodesign for sustainable products](#)