

Preparing for a Just Transition

Meeting green skill needs for a sustainable steel industry



community



COP26 is a final opportunity to address the huge challenges presented by climate change. As a major contributor of carbon emissions, the steel industry faces a significant challenge to decarbonise its operations and contribute to COP26 ambitions. Every tonne of steel that is manufactured produces approximately 1.8 tonnes of carbon dioxide. New technologies are emerging for the decarbonisation of the steel industry, with new skill needs developing in parallel. This report draws attention to that skills challenge by drawing on expert comment

on the direction of technological innovation for decarbonisation and research on steelworkers' understandings of the skill needs emerging from the 'green' transition. The challenge is to address climate change and decarbonise the steel industry, but to do so in a way that makes for a just transition in dialogue between government, employers and trade unions.



92% of steelworkers surveyed view the green transition as necessary.

79% of respondents have **NOT** been consulted by their employer about the green transition.

55% of respondents believe they currently possess the right skills to cope with the green transition.

78% of respondents believe the Green Transition will lead to radical technological change in the UK steel industry.

Neglected training includes entrepreneurial skills (4% received this), advanced digital skills (10%), analytical thinking (16%), resilience (21%), and sustainable development (24%).

Only 41% of respondents think the green transition will improve job security and employment opportunities in the UK steel.

There is a clear need to enhance social dialogue, both at the company and sectoral level.

Ensuring that there are proper information and consultation mechanisms between employers and employees, along with workers' active participation in defining greening strategies, will help to overcome issues of mistrust and lack of confidence in the future of the industry.

Considering the increasing importance of training and skills development, employers should establish channels for workers to report systematically their training needs and concerns in relation of possible lack of skills. Giving workers more voice over training will ensure that they feel confident in facing the green transition.

A just transition requires anticipation of change both at the government and at company level.

There is a need to plan credible and quantified pathways and devise concrete mechanisms to prevent workers from being left behind.

This could also include involving regional authorities.





At a European level, Eurofer has pointed to three major challenges that the steel industry is currently facing¹:

- Recovery from the Covid-19 crisis
- Global trade
- The low-carbon transition

All of these challenges matter, but in order to meet emission targets set for 2035 and 2050, the biggest and most important for the UK steel industry is decarbonisation.

To meet such targets the industry will need to i) attract new talents and ii) meet emerging skills needs. But, *‘the population pyramid in most steel producing companies is such that more than 20% of its workforce will leave it during the next ten years, and close to 30% during the following ten years’*².

This presents the industry with a challenge, related to the capacity of vocational education and training (VET) systems to provide the skills, knowledge and competencies that companies will need, as well as for companies to secure talents in a highly competitive labour market. The industry’s success in attracting new talent will have much to do with how successfully it can convey the message that it “is not a dying fossil-based industry”³.

Estep’s Strategic Research Agenda⁴ points out that the future industry will be driven by five needs: sustainability, quality, lead time, profitability and health and safety. To reach these goals, Estep envisages a Smart Steel Factory, characterised by vertical, horizontal and transversal integration⁵, and enabled by key technologies such as Internet of Things, Cloud Computing and Big Data.

While technologies advance at a different pace, it can be assumed that the digital and green transition will be irreversible: ‘it can be said that the technological transformation of the European Industry is driven by digitalization, aiming mainly to increase the production efficiency and sustainability to reduce the industrial environmental impact’⁶. This journey includes the need to secure the right skills for the industry.

This trend towards digitisation will necessarily require a significant degree of skills improvement to handle the technical aspects of industry 4.0 applications and tools in a digitised industrial environment. Currently, this set of skills is in relatively short supply in Europe overall, and attracting candidates with the requisite abilities and aptitudes to the steel sector is an ongoing challenge⁷.

Estep foresees that safety will benefit from the minimal and remote interactions in harsh environments by means of intelligent systems and robots, while local and global monitoring of plants and workplaces will guarantee health to workers and surrounding communities. Furthermore, operator skills will be oriented more towards maintenance and monitoring, rather than manual operations. In strategic terms, ‘to ensure the ongoing competitiveness of a safer, cleaner and more technologically developed steel industry, a highly skilled workforce is required. In fact, highly skilled people are the vital resource for the industrial added value in Europe today and tomorrow’⁸.

1 Eurofer, cited in Antonazzo et al. (2021a).

2 Estep (2017).

3 Eurofer, cited in Antonazzo et al. (2021a).

4 Estep (2017).

5 Estep (2017) defines vertical integration as the integration of all IT and automation components within a plant. Horizontal integration

refers to the integration of the complete production chain, and transversal integration addresses the optimisation of technical, economic and environmental issues (Estep 2017).

6 Eurofer, cited in Antonazzo et al. (2021a).

7 Ibid.

8 Estep (2017).



The main driver of industry transformation is climate change and CO₂ reduction targets, as defined in the 2015 Paris Agreement and United Nations Agenda for Sustainable Development. More recently, the European Green Deal and, at the national level, the UK net-zero target have further strengthened the commitments to reducing greenhouse gas emissions.

The European Green Deal aims to pursue “a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use”⁹. As an intermediate target, the Green Deal aims to cut the EU’s greenhouse gas emission by at least 50% (and towards 55%) by 2030, compared to the 1990 levels. The Green Deal has represented an important trigger in the European context to move towards a net-zero steel production and policy support is deemed as crucial for the industry in this phase.

Policy is the main driver when it comes to environment and the steel industry, in particular when it comes to climate change [...] but this transformation is going to be costly for the industry, it means changing the processes that we have. It means learning new things, trying to make the same product, but with new processes and different raw materials and that is not a change that the industry would do by itself.¹⁰

Sectoral stakeholders also remarked that the green transition brings in challenges that require strong policy support to ensure that it is economically sustainable and just.

The European steel industry’s own emissions reduction goals can be achieved, provided that the enabling framework is in place, also by the policy makers¹¹.

Notably, the European Green Deal has brought to the forefront the concept of ‘just transition’, remarking that ‘the transition can only succeed if it is conducted in a fair and inclusive way’¹². Equally, the UK strategy suggests ‘levelling up’ whilst achieving the net zero target and the potential for 300,000 jobs¹³.

⁹ European Commission (2019).

¹⁰ Steel industry environmental and climate change expert.

¹¹ Eurofer, cited in Antonazzo et al. (2021a).

¹² European Commission (2019).

¹³ HM Government (2021a).





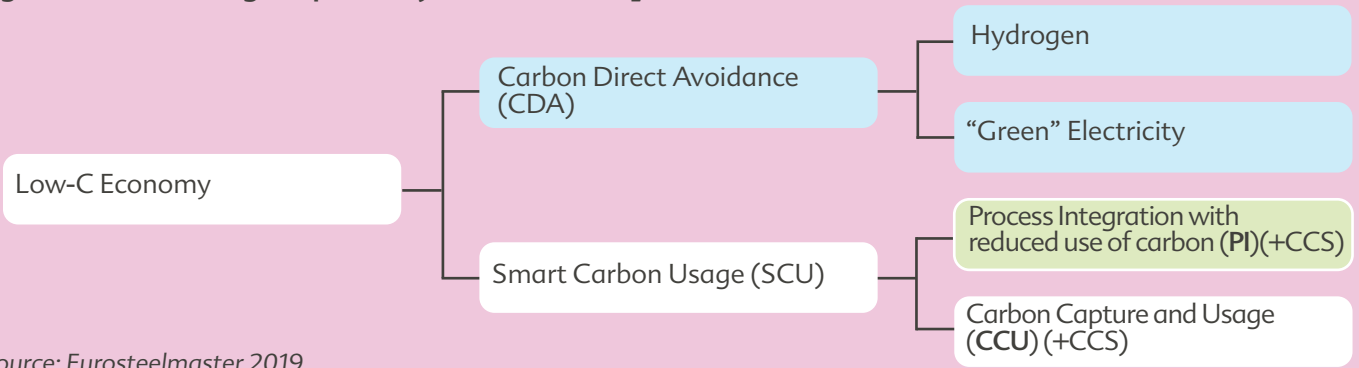
Long-term sustainability requires new industrial strategies as well as strong government support. Interviews conducted with steel industry experts suggest more than one route to decarbonisation. Technologies can be combined in different ways to reach the emission targets.

A recent review¹⁴ has shown that the application of digital technologies can be crucial for improving energy efficiency, water and wastewater management and emissions control. Pilot projects are currently implementing models of Industrial Internet of Things (IoT) that can ensure the tracking of products from primary steelmaking to delivery. Big Data analytics and Cloud Computing are also starting to be applied in steelworks for monitoring quality, raw materials supply and disposal, energy management and defects detection. Robot-assisted production will allow workers to supervise, instead of performing, processes and tasks that could be dangerous or cause physical stress.

Considering decarbonisation prospects, it is possible to distinguish in principle between three approaches:

1. Carbon Direct Avoidance: using hydrogen and/or electricity for producing iron and steel. The use of electricity directly to electrolyse iron ore¹⁵ is still at an early research stage and not ready for commercial implementation. The hydrogen-based process is potentially ready, dependent on hydrogen supply.
2. Smart carbon usage: making processes more efficient so that less energy input is required, thus partially cutting emissions. This can be complemented by carbon capture and storage (CCS), or carbon capture and usage (CCU) to transform CO₂ into byproducts for other industries.
3. Circular approach: the carbon input is substituted by utilising other byproducts as carbon carriers.

Figure 2 – Technological pathways to reduce CO₂ emissions in the steel sector



Source: Eurosteelmaster 2019

¹⁴ Murri et al. (2021).

¹⁵ See also Worldsteel (2021).



Industry experts remarked that these approaches are not mutually exclusive and companies will likely adopt a combination of different approaches and technologies to cut their emissions:

We believe that we will need all of this. We will need to use CCS and CCU, we are going to have hydrogen in some places, renewables [...] it will depend on what kind of resources you have available. If you are in a place where there is natural gas and great storage, why not use it in forming blue hydrogen, you start to store the CO₂ [...] if you have plenty of renewables or biomass, then you should go ahead and use that¹⁶

Hydrogen-based steelmaking has a promising future, but meeting the relatively short-term target of 2035 may require other solutions:

Hydrogen probably has a role as a fuel at some point in the future when there's genuinely green hydrogen, but that is the longer term 2050 perspective. And essentially all industry has got to work on the 2035 [target], because you can't operate as you do and get your 50% reduction

As a recent report by Syndex and the Material Processing Institute has remarked, in a mid-term scenario blast furnaces and DRI furnaces will remain the main routes for European steel producers, and EAF-based steel will only reach a share of 40% of production by 2050.

At the same time, large European companies are now engaged in the development of a DRI-Hydrogen solution, including a transition from blast furnaces to Electric Arc Furnaces (EAF) over the next 20 years. The transition to a DRI/Hydrogen solution seems more adequate for the UK industry, as it could be developed gradually and would allow using blast furnaces until the end of their life, thus ensuring protection to the workforce and a smooth and just transition¹⁹.

All these new solutions will need an increased amount of CO₂-free electricity, thus the issue of energy supply and costs is an important part of the green transition. Policy support is key to provide the industry with resources and an overarching national strategy that factors in direct investments along with infrastructure and the cost of energy supply.

¹⁶ Steel industry environment and climate change expert.
¹⁷ Steel industry HR manager.
¹⁸ Syndex (2021).
¹⁹ Ibid.





Clearly, the steel industry will face a deep transformation in the coming years, but it is unclear what steelworks will look like in the future. For a greener industry, experts have pointed to a two-phase scenario. The first ‘transition’ phase can lead to an increase in employment and could last up to 2050²⁰. The second phase, however, might result in a reduced workforce, mainly because of the resizing of the plants and leaner processes.

In the transition phase, we will do something to reduce CO₂ emissions with additional efforts. For instance, we will replace part of the coal in our blast furnaces by hydrogen. [...] You have to cope with all the challenges and you don't have space, you don't have time, you have to continue to deliver the materials to your customers, and still you have to implement CO₂ emissions reduction technologies. So, this creates additional work. And you are, so to speak, operating the two facilities in parallel [...] You still have to know how to inject coal and, in addition, you have to know how to inject hydrogen. And if you capture the carbon dioxide, these are new facilities²¹.

The build phase, the transition phases, always absorbed people. So, you are going to have more assets constructed and deconstructed in the next 20 years because of the change. [...] If an asset has got a carbon footprint that's unsustainable, it's going to be replaced in the next 15 to 20, regardless²²

This brings to the forefront a need to plan ahead as much as possible. There remains high uncertainty regarding the technologies and routes that will provide the best opportunities for companies, as well as uncertainties at the policy level, but it is crucial to be proactive in anticipation of change, particularly on skills development.

We talk a lot about anticipation of change [...] what's going to happen? Not tomorrow, what's gonna happen in five years, 10 years, 20 years? What skills do we need now, what skills do we need in the future? Because remember that steel is an ageing workforce [...] if you have a huge amount of people, and they're late 50s, early 60s who retire, you may also need people have the good old-fashioned skills like welding²³

Planning ahead and **strengthening social dialogue** are key to ensure a smooth and just transition: workers need to have a clear understanding of the companies' prospects and to trust that no one is going to be left behind as the industry transitions.

20 The idea of a transition phase accompanied by an increase in jobs was maintained by two industry experts. In the experts' view, two aspects could support an increase in jobs during such phase. First, to maintain their market share while at the same time cutting CO₂ emissions, companies are likely to run in parallel traditional and more innovative steelmaking processes (e.g. operating with coal-injected blast furnaces, at the same time adding hydrogen DRI, and balancing emissions with CCS). These additions in terms of processes and assets can require additional work, thus increasing labour demand.

The second aspect is that the green transition will require companies and governments to invest in building new facilities and dismiss or modernise the old ones, which must be done to meet regulatory emission targets. This is also expected to raise labour demand in the short- to mid-term.

21 Steel industry technology expert.

22 Steel industry HR manager.

23 Trade union representative.

UK decarbonisation targets



In June 2019, the UK Parliament passed legislation amending the targets set by the 2008 Climate Change Act, which had established a reduction of at least 80% in greenhouse gases emissions by 2050 compared to their 1990 levels. The new legislation sets a more ambitious target, as recommended by the Climate Change Committee (CCC), the UK's independent climate advisory body. Aligning the UK to the European Union regulation, the Climate Change Act 2008 (2050 Target Amendment) Order 2019, establishes that the UK brings all greenhouse gas emissions to net zero by 2050.

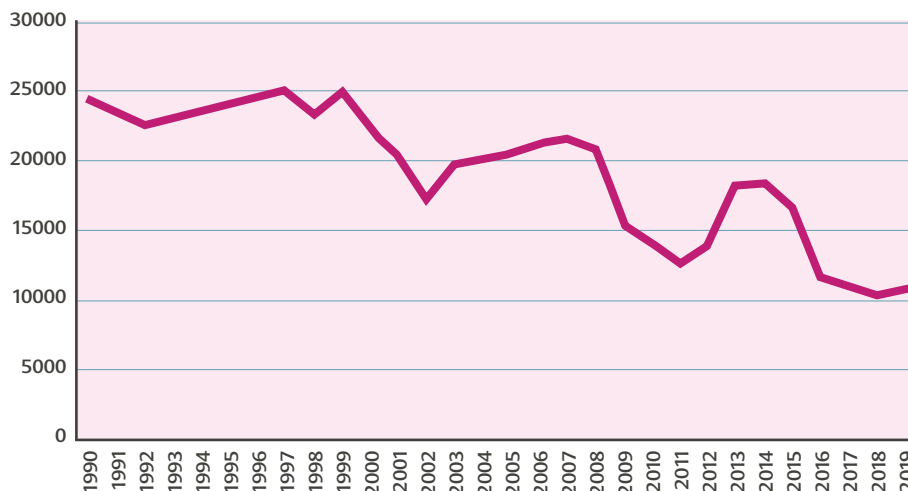
Research conducted by the Institute for Government²⁴ shows that overall emissions in the UK have already decreased steadily from 1990, and in 2018 these were 57% of the base year. The UK steel industry shows a similar trend, although with a less steady decrease (Figure 3).

is underpinned by quantified, credible pathways for sectoral decarbonisation, technology deployment and behaviour changes, and backed by specific policies. Furthermore, it must be supported by funding that distributes the costs, savings and wider benefits of decarbonisation fairly.

The Industrial Decarbonisation Strategy (IDS) published in March 2021 sets out the latest government's ambitions to reduce emissions by at least two-thirds by 2035 and by at least 90% by 2050, with 3 MtCO₂ captured through Carbon Capture, Usage and Storage (CCUS) (the same as planting 500 million trees) and around 20 TWh of fossil fuel per year replaced by low-carbon alternatives by 2030²⁷.

Notably, the IDS makes an important claim about the involvement of government in the 'delivery of large infrastructure projects for key technologies (e.g. CCUS and hydrogen networks) where there is a shared benefit and the risk or cost is too great for the private sector'²⁸.

Figure 3 – Estimated territorial emissions of carbon dioxide (CO₂) in Manufacture of basic Iron & Steel, UK 1990-2019, (ktCO₂e²⁵)



Source: Department for Business, Energy and Industrial Strategy Final UK greenhouse gas emissions national statistics, own elaboration

In its latest report on progress in reducing emissions, the Climate Change Committee²⁶ has noted an increase in the scale of Government efforts, but remarked also that this is not yet in step with the urgency of the challenge. In particular, the Committee noted a persistent gap in policy as well as in the government's ambition. Overall, the Committee recommends that the UK Net Zero strategy

²⁴ Institute for Government (2020).

²⁵ Kilotonnes of carbon dioxide equivalent.

²⁶ Climate Change Committee (2021).

²⁷ HM Government (2021b).

²⁸ Ibid.





However, some have remarked that the government's claims on supporting the industry have fallen short so far:

The one challenge I think that we've all got is that the UK government is not particularly supportive of its manufacturing sector. They're not, they're just not. And they haven't been long term either [...] how can you have a strategy of supporting manufacturers if you're not willing to support them to a level playing field on things like energy usage, energy prices, energy costs...[this] will be an example where there definitely is quite not the alignment between government speak, and government action²⁹

Two sites in the UK make up about 95% of emissions from iron and steel (and about 15% of total industrial emissions): Port Talbot in South Wales and Scunthorpe in Humberside. Decarbonisation options would include hydrogen Direct Reduced Iron (DRI) combined with Electric Arc Furnace (EAF), or Carbon Capture, Usage and Storage (CCUS). However, the IDS also remarks that coking coal is still essential for primary steel manufacturing using the basic oxygen furnace route. The government's strategy intends to take a technology-neutral approach and does not rule out the use of coking coal in an integrated steel-making process together with CCUS as a net-zero compliant option going forward³⁰.

The UK steel industry appears to be already well placed in terms of reducing emissions:

I think just the nature of the technologies we use, and the way we produce steel, we do it green anyway, we do it as green as you probably can, at this moment in time. And the idea is you get better and better at it by carbon capture technologies. [...] And I would say, because it's so difficult to compete in steel in the UK, we've been driven down things like energy efficiency, a lot more than what maybe other organisations would because we've had to do it to survive³¹

Along with decarbonising the industry, there is a strategic need to defend British steel production by imposing carbon taxes on imports and aiming to produce sufficient steel to meet domestic consumption.

You could certainly have the same number of steel jobs in the UK. If you wanted to make more of your domestic consumption domestically. And if your electricity prices are right, and you got the infrastructure right, the government policies right to support green transition, and competitive electricity price, you would onshore steel production into the UK and create jobs, offsetting the number of jobs you lost from the previous non-green way of making steel³²

29 Steel company HR director.
30 HM Government (2021b).

31 Steel company HR director.
32 Steel company HR manager.



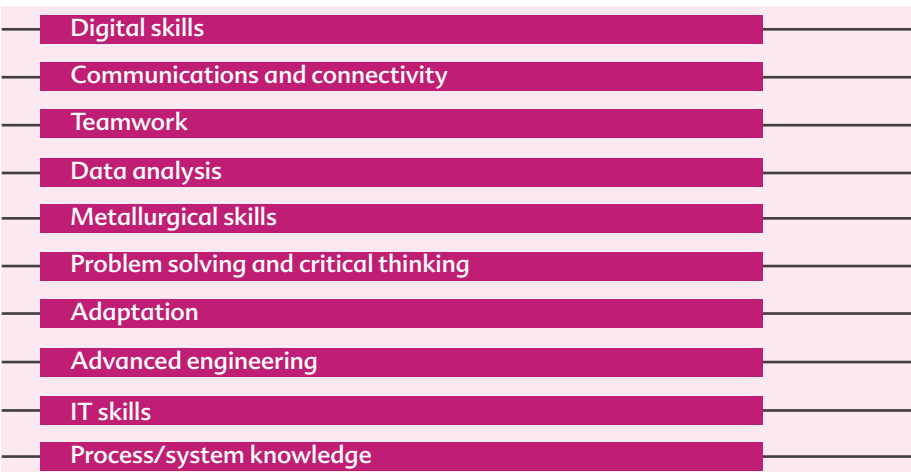
The challenges and transformations outlined above will reflect on steelworkers’ skills. A sustainable, competitive and green steel industry will require from government and employers significant investments in continuous training and skills development to make sure that workers can easily adapt to new tasks and working conditions.

The Green Jobs Taskforce³³, established by the UK Government in November 2020, acknowledged that every job has the potential to become green and that a wide range of skills will support the transition. The work undertaken by the task force has pointed to a significant increase in demand for green skills. Particularly, the Task Force remarked a need to invest in digital and data skills, communication, leadership and change management, along with STEM skills to deliver net-zero. To address

current and future skills gaps, green skills need to be embedded into the curricula at all levels of education and training. Regulatory frameworks should ensure that teachers and trainers have the expertise required to teach climate change, STEM³⁴ and other key green skills.

Research on the technological transformation of the steel industry³⁵ has highlighted that **transversal skills will play a greater role in the industry**. The ongoing European steel industry-driven project ESSA (European Steel Skills Agenda)³⁶ addresses the challenges of the industry in terms of skills needs emerging from the technological and green transition. The 10 most common skills requirements identified by the project are listed in Figure 4, which shows a predominance of transversal skills.

Figure 4 – Ten most cited skills needs in the ESSA project case study countries



Source: Antonazzo et al. (2021b)

33 Green Jobs Taskforce (2021).

34 The acronym STEM is commonly used when referring to science, technology, engineering, and mathematics skills.

35 See ILO (2019), WMF (2019), White Research et al. (2020) and Antonazzo et al. (2021a; 2021b).

36 Extended title of the project: ‘Blueprint “New Skills Agenda Steel”: Industry-driven sustainable European Steel Skills Agenda and Strategy (ESSA)’.





The ESSA project findings have underlined a need to embrace a more holistic approach to training. It appears increasingly important that transversal skills are well integrated into vocational training, complementing technical competencies. The UK fieldwork indicates the importance of skills such as problem solving, leadership, *critical thinking*, adaptation, data analytics, digital skills and lean management, along with more fundamental *steelmaking knowledge*.

The broader picture suggests that a major ‘skills leap’ is not expected – steelworkers already possess many of the skills that will be required by the digital and green transition. Skills for the transition are transferable and applicable to different contexts and processes and the UK steelworkers are well placed to navigate the technological and green transformation.

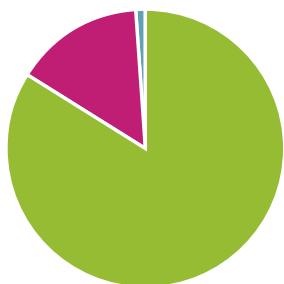


To better understand their views on green transition and skills, we surveyed 100 steelworkers across the UK. The results do not aim to be representative of the whole British steel workforce but aim to illuminate workers’ expectations and concerns regarding the green transition. The workers surveyed are predominantly male (94%), mainly between 45 and 64 years old and have mostly been employed in their current job for more than 10 years (58%). This data aligns with the concerns voiced by sectoral bodies like Estep and trade unions about retirement projections, the loss of expertise and need for knowledge transfer.

Write in bold capital letters, transferable skills [...] It is very important that people understand that the green revolution doesn't mean starting again. Yes, there will be some new skills, yes there will be some new roles. But it's not that there is loss of people... [they are]... are clever and trained... [and]... will easily transition to those skills if people know what's required³⁷

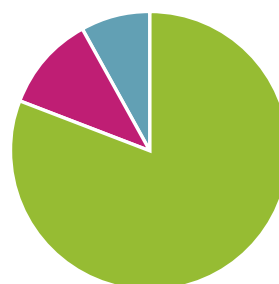
Figure 5 – Respondents’ awareness of green transition

Are you aware of the so-called Green Transition of the UK steel industry?



■ Yes ■ No ■ Not sure/can't remember

Do you believe that a Green Transition of the UK steel industry is necessary?



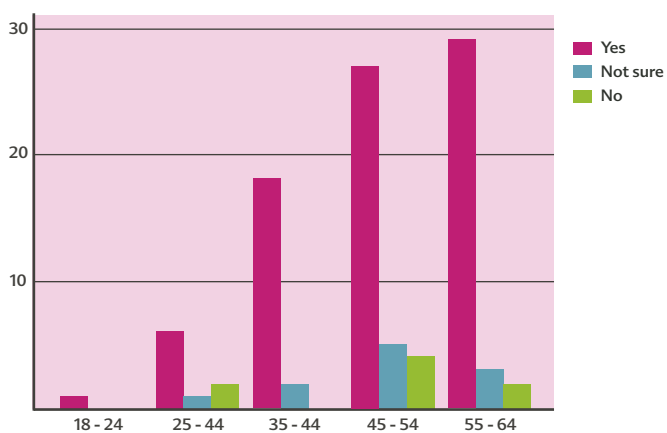
■ Yes ■ Not sure ■ No

³⁷ Steel company HR director.



As shown in Figure 5, most of the workers (84%) who participated in the survey have a good awareness of the green transition. Furthermore, Figure 5 indicates that most judge it as a necessary step forward for the industry (only 8% did not consider it necessary). There is a positive attitude towards greening in each age class, with a slightly higher presence of workers who do not deem it necessary in the 45-54 group (Figure 6).

Figure 6 – Attitude towards the green transition by age class



As regards the consequences and implications of the green transition, the three most common remarks are that:

- the Green Transition will lead to radical technological change in the UK steel industry (78% of respondents)
- it will significantly reduce the amount of Green House Gases (69%)
- it will significantly change the skills and qualifications required for steelmaking in the UK (57%).

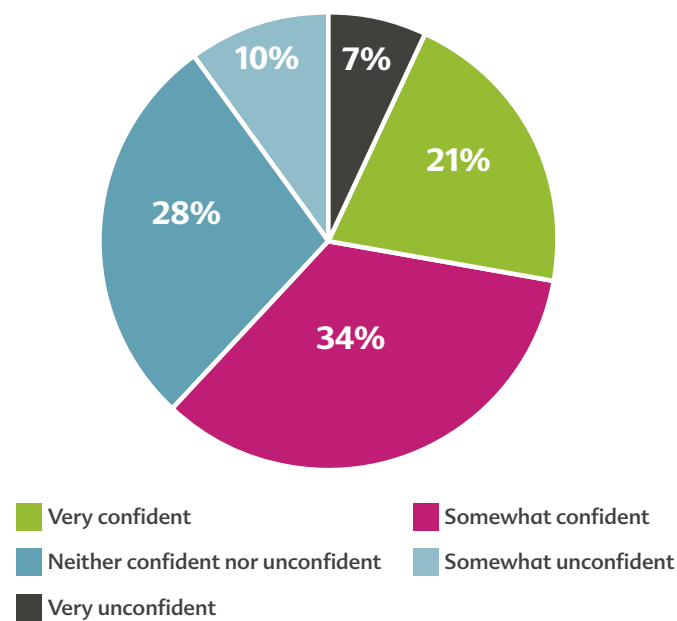
Nevertheless, only 41% of the workers think that the green transition will improve job security and employment opportunities in the UK steel industry. This is an important finding that shows the need to establish a stronger social dialogue, both at the company and sectoral level, to overcome workers' concerns.

Indeed, when it comes to consultation and social dialogue, 79% of the respondents have not been consulted by their employer about the green transition.

Another important finding is that only 17% of the workers expressed some lack of confidence in possessing the right skills to cope with the green transition of the industry. Instead, more than half (55%) were confident in possessing the right skills and the remaining 28% was neither confident nor unconfident (Figure 7).

This suggests that most workers appear already well placed to face the transformation with only a small share of them expressing concerns with regards to their skills, but employers need to support workers to adapt their skills where necessary.

Figure 7 – Expressed confidence in the possession of the skills needed for the green transition



Age is one factor to consider. Levels of confidence remain high, but the 25-34 group appears to have a slightly higher number of workers who are neither confident nor unconfident, compared to other groups.





Drawing on previous research, the survey has focused on 10 transversal skills (Box 1) considered particularly important in the context of the industry's green transition. The importance of these skills derives from the technological and organisational transformations that will accompany the green transition. While STEM skills will remain important, flatter organisational structures and greater autonomy for work teams will require well-developed social skills. In addition, since digitalisation is an enabler of the green transition, digital skills ranging from basic to advanced and analytical skills will be of high importance.

Box 1: skills for the green generation

- Environmental awareness
- Sustainable development
- Teamwork
- Resilience
- Communication and negotiation
- Entrepreneurship
- Basic digital skills (e.g. use of software)
- Advanced digital skills (e.g. programming)
- Process knowledge
- Analytical thinking

Most of the workers surveyed possess, to a good extent, skills related to teamwork (93%), environmental awareness (83%), communication and negotiation (75%), process/system knowledge (65%), basic digital skills (62%), and resilience (60%). However, 73% of the respondents believe they lack the right entrepreneurial skills and adequate advanced digital skills (79%).

As for sustainable development and analytical thinking skills, the picture is less clear-cut: 50% of the respondents believe to possess sustainable development skills (against 30% who consider themselves lacking them) and only 35% believe they possess analytical thinking skills.

Teamwork is the most common training received (63%), followed by environmental awareness (55%) and negotiation and communication skills (46%). The most neglected areas appear to be training in entrepreneurial skills (only 4% have received such training), advanced digital skills (10%), analytical thinking (16%), resilience (21%), and sustainable development (24%). Addressing these areas with more dedicated training will be of strategic importance, especially considering how environmental awareness and sustainability will increasingly spread across different roles in the industry.

We're also seeing how the climate and sustainability topics are spreading wider into different functions. So, it's not just the environmental manager or the sustainability person who is involved in our discussions, it's sort of spreading across the organization in quite a different way than I've certainly seen it in the past. And you know, people in procurement or in their finance departments have to become aware of these issues³⁸

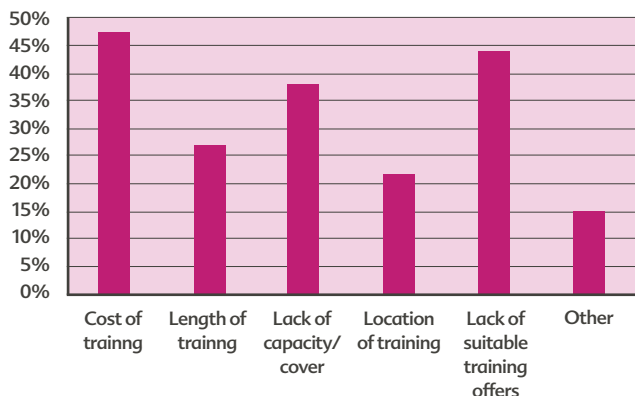
However, despite the lack of training in some areas, the survey has pointed out that almost 60% of the workers judged their employers to be very to somewhat supportive about their training needs.

The cost of training, lack of suitable training offer, and lack of capacity appear to be the most relevant barriers to training among the workers surveyed (Figure 8).

³⁸ Steel industry environment and climate change expert.



Figure 8 – Barriers to training



As regards time per year spent on training and skills development, 28% of the respondents had no time allocated for training, and 18% had less than one day. Overall, 66% of the respondents had no more than three days allocated for training and continuous development in one year. Only 15% of the respondents have had the opportunity to train for more than two weeks. It has to be considered that the pandemic has strongly impacted training practices in some companies, but there appears a need for companies to invest more time in developing workforce skills.

Some final remarks expressed by the workers give a sense of their main concerns when asked about the green transitions. These can be summarised in three main points:

1. There is a strong belief that a stronger policy response is needed: without government action and a proper industrial strategy a green and just transition will be difficult to achieve.

The UK steel industry, especially our Arc furnace plants, are perfectly placed to be world leaders in green steel. Unfortunately, the current government has no interest in the environment or advancement of UK manufacturing whatsoever

2. There is a need for major investments on the company side: workers need to see companies taking action urgently and devise a long-term strategy to believe they are serious about the green transition.

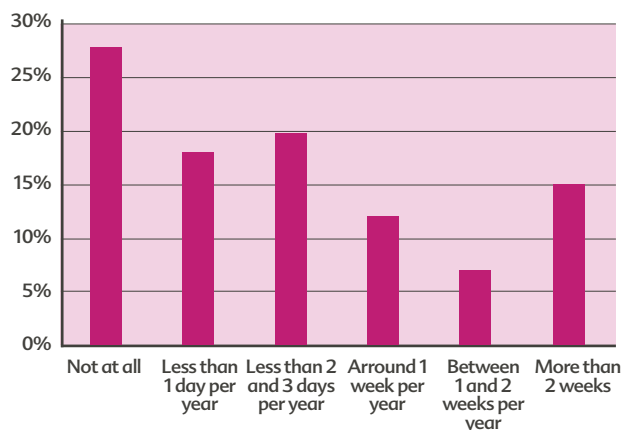
I don't see how it's possible without major spend, which the owners don't seem to be ready for

Feels like [the company] just goes along with current thinking because it looks good. Very little actually done by a very poor management at local level and above

3. Some workers still appear sceptical about the green transition and concerned about the consequences, which stresses the importance of training in skills such as environmental awareness and sustainable development.

I don't believe global warming is solely because of industry. I think the earth is going through a natural cycle of warming up, our politicians will jump on any old bandwagon, to look good in the eyes of people who believe in it. They're willing to sacrifice jobs like mine without a second thought

Figure 9 – Time per year spent on training and professional development



Concerning the forms of delivery, in-company small group training and online training appear to be the most suitable and most appreciated by the respondents, preferably in half to two days training blocks. The three main motivations for retraining and upskilling appear to be improving transferable skills and employability (77%), achieving higher job satisfaction (76%), and getting a healthier and safer job (75%).



The research findings described in the previous sections can be summarised in the following points:

- a. The UK steel industry, along with the broader European industry, is currently facing important challenges related to global market competition and recovery from the Covid-19 pandemic.
- b. Decarbonising the industry can be considered the main challenge and there is an urgent requirement for companies to plan and take action and governments to give support through investments and policies.
- c. **84%** of the surveyed workers have reported being aware of the green transition. And 81% judge it as a necessary step forward for the industry.
- d. The steel industry workforce is ageing. Projections estimate that more than **20%** of the current workforce will retire during the next ten years, and close to **30%** during the following ten years. This brings about opportunities and challenges related to the capacity of vocational training to deliver the right skills and of employers to attract talents in a competitive labour market.
- e. Digitalisation is an ongoing process in the industry and is considered, along with skills, an important enabler of the green transition.
- f. While meeting the UK carbon reduction targets for 2035 and 2050 will require a deep transformation of the industry, there is no pre-defined route to them.
- g. While technical skills will always play an important role in the industry, the digital and green transition is bringing to the forefront a wider skillset. Transversal skills, in particular, will help workers to adapt to more digitalised and integrated processes and flatter organisational structures. They will also help workers to better understand the impact of production on the environment and natural constraints.
- h. Environmental awareness and sustainability skills are now required across a wider set of roles and functions within companies, thus training in these areas is of great importance for all the workforce.
- i. Workers are confident in possessing most of the skills needed, particularly in the areas of teamwork, environmental awareness, communication and negotiation, process and system knowledge, basic digital skills, and resilience.
- j. Skills gaps have emerged in the areas of entrepreneurship, advanced digital skills, sustainability and analytical thinking, with little training provided.
- k. **79%** of the surveyed workers had not been consulted by their employer about the green transition of the UK steel industry and only 41% of the workers think that the green transition will improve job security and employment opportunities in the UK steel industry. This points to the need to reinforce social dialogue to raise workers' trust in employers' strategies.
- l. While jobs, tasks and processes are likely to change in the future, the skillset that workers will need is not expected to change extensively. Transferability of skills is key, and steelworkers will be able to deal with the changes affecting their job with a little support in training and upskilling from their employers.



Based on these findings, we consider that the following actions need to be taken:

- 1** To secure talent and address issues of skill shortage and the loss of workers to retirement it is important to improve the quality of work. This requires investing more resources in training, especially in establishing continuing development plans, and including workers to a greater extent in decision-making processes.
- 2** Transversal skills that are deemed important for navigating the green transition, like advanced digital skills, entrepreneurship, sustainable development and analytical thinking are underdeveloped. Training needs to address such skills areas to fill the gaps and empower workers.
- 3** Government support is key to a green and just transition. Several of the surveyed workers and experts have expressed doubts about the capacity of the government to support the industry throughout the transition. The government is urged to address its policy ambitions to raise both workers and employers' trust and confidence in the future of British industry.
- 4** Employers should engage more with universities and research networks that can help them rethink their business model, improve their training offer and better account for environmental sustainability in their industrial ecosystems.
- 5** While most of the surveyed workers are aware and have a positive attitude towards the green transition, there remains some scepticism about climate change. It is key that employers invest more resources in training on environmental awareness.
- 6** There is a clear need to enhance social dialogue, both at the company and sectoral level. Ensuring that there is proper information and consultation mechanisms between employers and trade unions, along with workers' active participation in defining greening strategies, will help to overcome issues of mistrust and lack of confidence in the future of the industry.
- 7** Considering the increasing importance of training and skills development, employers should establish channels for workers to report systematically their training needs and concerns in relation of possible lack of skills. Giving workers more voice over training will ensure that they feel confident in facing the green transition.
- 8** A just transition requires anticipation of change both at the government and at company level. There is a need to plan credible and quantified pathways and devise concrete mechanisms to prevent workers from being left behind. This can include also involving regional authorities.





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