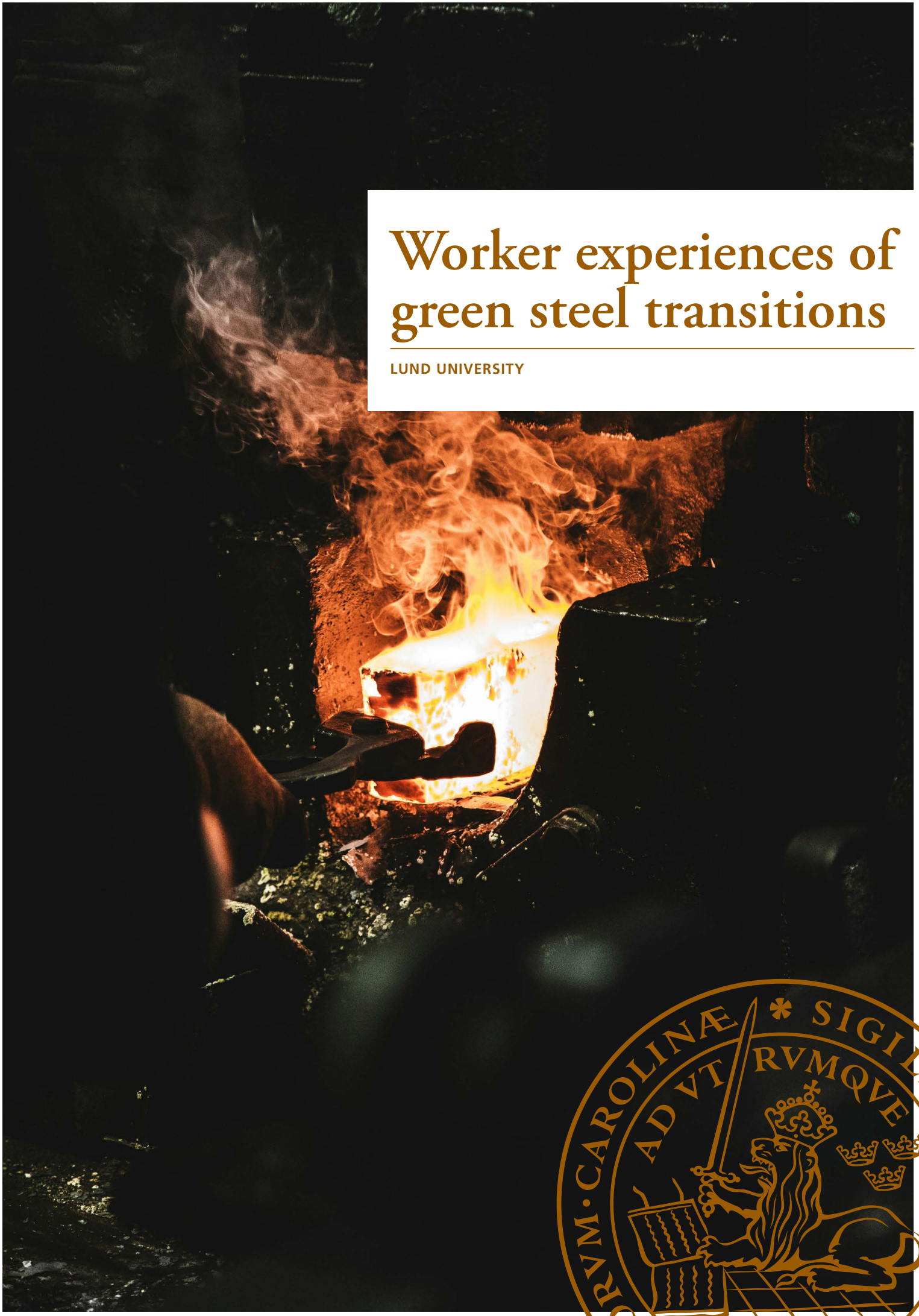

Worker experiences of green steel transitions

LUND UNIVERSITY

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Blast furnace at SSAB in Oxelösund, Sweden. 2019. Created by Viktor Macha, SSAB mediabank.
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Introduction

The transition to a low-carbon society is urgent and will require extensive industrial change. The Swedish steel industry is one key carbon-intensive sector for which there are extensive plans for change. These will have wide-ranging implications for workers and communities. The anticipated impacts are not only economic, but also social and cultural. Addressing these impacts in a context of historic and on-going industrial change is important to ensure that the low-carbon transition supports positive change for people and places, and does not exacerbate existing inequalities.

In this report we focus on how work and workers in Sweden are impacted by efforts to decarbonise the steel industry. The report is informed by research undertaken as part of the Changing Places of Work project, a collaboration between Lund University, Karlstad University, and Sheffield Hallam University.

KEY FACTS

- Steel making has a long history in Sweden and the industry remains an important source of employment in many communities despite decline in output over the last 50 years
- Sweden has adopted stringent climate targets including an ambition to be completely fossil-free by 2045. This has important implications for the steel industry as a high emitting sector which also uses fossil fuels (coal and methane gas) in many of its processes
- The EU's Carbon Border Adjustment Mechanism will potentially make Swedish low-carbon steel more competitive on the European market.
- Removing fossil fuels and reducing emissions from steel-making requires changes to steel making processes
- Hydrogen-based steel manufacturing technologies are central to the Swedish green transition.
- Changes to the industry have impacts that vary between places: there is potential for re-industrialisation and growth in some places but also de-industrialisation or decline in others
- The impacts on workers will vary between places and also within firms depending on what decisions are made for investment in technologies, reskilling workers or finding new employment opportunities
- Worker experiences of change also vary. There is a renewed sense of pride in places where green steel investments are being made but also some fears about how changes might change the nature of work for some workers (such as those currently working on blast furnaces)
- These experiences are situated in the context of 50 years of industrial change which has significantly altered the nature of work and the relationship between industry and workers as well as wider communities


Metall
Bekab
Scan Arc
Arc Metal
Tim Hofors
Ovako Konserthall
Ovako Brukskontor
Ovako Norra Porten
Ovako Brukshotell
Ovako Herrgård

What is happening and where

KEY FACTS

- There has been a lot of attention paid to developments in Northern Sweden where there have been significant investments in developing capabilities for fossil-free iron and steel production…
- … But industrial places across Sweden are impacted by the steel transition, including in old industrial areas such as the Bergslagen region
- Developments encompass new hydrogen-fuelled iron and steel production plants in the north, investment in existing plants across the steel production process, and some steelworks closures or partial-closures
- The Changing Places of Work project investigated steel locations to capture a variety of iron and steel production processes, and a range of communities affected by these different changes

The *Changing Places* of Work project conducted qualitative case study research in four Swedish locations, and three locations in the United Kingdom to better understand the impacts of industrial change

on workers and communities (a separate report will consider implications for workers in the UK).

In recent years, domestic and international attention has been primarily focused on Northern Sweden, specifically the regions of Norrbotten and Västerbotten. Aside from the presence of the steel industry in Luleå, extensive iron ore extraction continues in Northern Sweden. However, industrial transformation will have much broader geographical impacts than is commonly recognised. In the Bergslagen area, with its long history of steel making, some towns are expected to benefit from the green steel transition. One example is Ludvika, where the proposed reopening of an iron ore mine, with ore suitable for green steel production, is predicted to generate around 300 new jobs. In contrast, another Bergslagen town, Borlänge, is having its old hot rolling mill phased out as a consequence of Swedish steel company SSAB's decision to utilise hydrogen-based hot rolling in Luleå.

Making 'virgin' green steel making requires iron ore as well as large quantities of renewable electricity and improved infrastructure for electric power transmission. The expansion of mining activity and renewable energy generation have implications for other communities, not least the Sami, although a detailed exploration of these effects is beyond the scope of this report.

To analyse how green transitions in the steel industry impact on workers we conducted fieldwork in four locations, chosen based on their different roles in the steel supply chain and differences in anticipated impacts. While some places (Luleå-Boden, Blötberget) expect to see industrial growth, others (Hofors, Oxelösund) primarily hope to maintain current levels of industrial activity. These places are shown in Figure 1

Figure 1: Swedish Case Study Locations

Implications for work and employment

KEY POINTS

Green steel restructuring has a range of implications for work and employment. These changes must also be understood within historic processes of change for work and employment in the industry. These historic changes include:

- Specialisation of steel industry, related to changing international geography of production of bulk steel towards more recently industrialised nations
- Overall reduction in workforce across the Swedish steel industry
- Technological change and implementation of new working practice resulting in changes in job roles
- Changing conditions of work related to modernisation and changing ownership in some parts of the sector

Implications of green steel transitions include:

- Differential change between places depending on investment choices and types of steel processes involved, and roles within steel plants
- Continuation of trends towards lean production, automation and digitisation

Green steel changes include a range of implications for workers, which differe between places and roles within the steel industry. Impacts of green steel restructuring must also be understood in the context of on-going changes including volatile international steel markets, specialisation, and technological change (e.g. automation and digitisation).

Changes will differ significantly between places depending on the types of technological changes and their positions within steel production processes. An increase in workforce is likely required to meet growing demands in some places, especially in Norrbotten. Jobs will be created in a range of professions including construction and operations as well as more specialist roles such as geologists, mining engineers, metallurgists, various technicians, and environmental managers. A sizeable proportion of this work will be temporary in the build phase of new plant/mines, which creates its own challenges, but in some places the anticipated longer-term job requirements are significant (e.g. 10-15,000 in Norrbotten).In these places, labour migration, both internal and external, is a likely requirement. This relies on being able to attract workers to relocate to the north and competition over workers is to be expected.

Spatial planning and the provision of amenities, particularly housing, is important to attract the needed workforce and maintain social cohesion in growth towns. Close cooperation between industry, municipalities and government at other levels is essential for ensuring action is coordinated, but is proving to be a key challenge. Rapid action might be needed to provide amenities for new workers in places where large numbers of new workers are required.

The steel industry of the future is expected to continue its emphasis on lean production and increased automation/digitalisation. Education, and attracting young people to acquire the relevant skills for the industry, is also important. Both Hofors and Oxelösund have developed collaborations with industry and local educational institutions to identify and raise awareness of key competences required in future local industry. To achieve a just transition, it will also be particularly important to support marginalised groups in affected places – both in growth areas and those potentially facing decline as a result of steel transformations

Different roles in the steel industry will experience different impacts. Workers in rolling mills are unlikely to see much change in their jobs. In contrast, switching from blast furnaces and related processes (e.g. coking plants) to hydrogen-based iron reduction for electric arc furnaces implies a reduction in labour force: fossil-free production is less labour intensive. In Oxelösund, SSAB is seeking to find new roles for affected workers in other divisions within the business, but this might not always be possible. Therefore, engagement with affected workers should happen early, and continuously, with the aim of securing alternative employment locally. If this is not possible, there is need for effective social and economic policy to support affected workers.

Trade unions should continue to have an important role in social dialogue with firms and government organisations, even in new ventures. Concerted efforts should be made to ensure that green jobs are also good jobs, but a general decline in trade union membership can make this challenging. For example, in Hofors, the unions indicated they had no ability to affect the green transition, and are facing a steady decline in membership and activity. Instead, their focus is on daily issues and problems, with safety concerns given the potentially explosive nature of hydrogen being a priority. Unions in other existing steelworks, like in Oxelosund, had more positive experiences of engagement throughout decision-making processes. For the new development in Boden, Stegra has entered into a cooperation agreement with construction trade union Byggnads in Norrbotten. The agreement ensures that contractors use collective bargaining agreements, and places limits on the use of subcontractors, in an attempt to ensure good working conditions. There is also a role here for municipalities to make demands of industry to ensure the safety and well-being of workers.

Collectively, these implications show that the impacts of green steel transformation for workers will vary within firms in specific locations, across types of job, and between firms and locations. Currently, compared to the UK, where green steel has become associated with large numbers of job losses, Swedish steel firms appear to offer a more positive future vision for workers.

Workers experiences of change

KEY POINTS

- Work is important to the wellbeing, social status and identity of many steelworkers
- The role of work in workers' lives has changed over time, becoming safer but with fewer opportunities to develop social connections
- For those working in places where fossil-free steel is being developed, this supports a renewed sense of pride in the industry but also prompts fears for those whose jobs are directly affected, like those working on blast furnaces
- Our research suggests some differences between 'white collar' and 'blue collar' workers: white collar workers are more likely to feel positively about green steel transitions while blue collar workers' views are often shaped by negative experiences of restructuring over the last 50 years.

An important focus of our research has been on workers' experiences of change and their perceptions of future industrial change. These experiences and perceptions are not unique to green transitions but are rooted in historical processes of change in the industry over the last 50 years. They also interact with changes now happening in moves towards fossil-free steel. Reflecting this, this section is organised in two parts: first, to show how workers have experienced change over time; and second how they are experiencing and perceive green steel transitions.

HISTORIC AND ON-GOING CHANGES TO HOW STEEL-WORK IS EXPERIENCED

Work holds significant importance in the lives of many steel workers, contributing to personal wellbeing, identity formation, and social status within society and the labour market. Workers of all ages talk about many positive aspects of their work. These include: camaraderie and social cohesion; pride in their work; the varied nature of the job; and the possibility to learn new skills and take on new responsibilities within the same company.

Many of the workers we interviewed also identify closely with the industry, but while blue-collar workers tend to identify with their specific role, white collar workers feel connected to the steel industry more generally. In Hofors, blue-collar workers lean towards pride in their products and the town, and have a great deal of knowledge about their products. White collar workers in both Hofors and Oxelösund lean more towards pride in the industry and company.

Older and retired workers often hold a nostalgic view of working in the mining and steel industries. The work in the industry and its supply chain was often hard and even dangerous in the past, and some of this continues today, despite improvements. Retired workers nonetheless are often nostalgic, emphasising that the work required a high level of individual responsibility as well as collaboration with close colleagues. Additionally, relatively stable and reliable employment with union support contributed to strong expressions of job satisfaction. One retired participant in Hofors even argued that they thrived more when conditions were harder: hard work and greater demands created strong bonds and good friendships. Retired miners from Grängesberg, near Blötberget, similarly enjoyed bragging about the difficulty of the work whilst nostalgically longing for it.

Kris för SKF — nu fattas det folk

Förr var det brist på jobb vid SKF Steel i Hofors, nu är det brist på arbetskraft. SKF Steel behöver nyanställa 30 personer i produktionen omedelbart och befinner sig i något av ett krisläge. Företaget lånar bl a ungdomar från den egna industriskolan.

— Vi har varnat för den här utvecklingen, säger Metall och hävdar att det är det tidigare anställningsstoppet som spökar.

— Det är den allmänna konjunkturuppgången inom stålindustrin som slår igenom, menar företaget.

Informationsträff 18 maj

För dig som vill flytta dit jobben finns

Just nu sker många stora etableringar i norra Sverige. Skellefteå är en plats som växer i rekordfart – här beräknas 10 000 nya jobb skapas de närmaste åren! Den som går en 6 månader lång Automationsoperatörsutbildning har stora möjligheter att få jobb hos batterifabriken Northvolt. Även Skellefteå kommun söker många nya medarbetare, bland annat inom måltid, vård, omsorg och skola.

Kom på informationsträff så får du veta med om vilka jobbmöjligheter som finns och hur det är att bo och leva i Skellefteå.

Tid: Onsdag 18 maj klockan 14.00–16.00
Plats: Vuxenutbildningens lokaler på Nedre Åkargatan 67A

Anmäl dig via skelleftea.se/relocate/deltagare

Changes in the workplace have had economic, but also significant social impacts. Work in iron ore mines and steel mills has changed significantly over the years due to structural factors, including legislation, economic pressures, and technological improvements. Overall employment numbers have declined but it has become a much safer industry to work in. Automation and digitisation means fewer people work on the mill floors, but it is still a heavy industry and can be dirty, very hot and physically uncomfortable at times. Workers claim to enjoy the work nonetheless, accepting these conditions as unavoidable. Some workers think that the work has become more stressful, but also physically easier and requiring less immediate cooperation, resulting in a decrease in social cohesion and camaraderie.

Attitudes to work vary by location. In Hofors there is a prevailing reputation of the mill as a dirty workplace; somewhere to be avoided if you have other options. This was shared across generations, though the reputation has improved over the years. Residents and workers say that young people are instead encouraged to pursue a different kind of education and get another kind of job. Still, workers seem to enjoy their work and find their tasks interesting. Retired Blötberget mine-workers on the other hand feel that everyone respected the work in the mines, even if they did not work there personally. The work itself was difficult and dangerous, but as mentioned above this seems to have led to an increased pride. In Luleå, the attitude is closer to that of Blötberget, while Oxelösund presents a mixed picture.

The connection between work and social life has change over time, as firms have reduced their involvement in social life. The workplace used to act as a meeting place for the formation of friendships and networks. This occurred through bonds formed during the work itself. People worked in close physical proximity and did potentially dangerous work that required cooperation and trust. This encouraged social cohesion, especially among teams that worked together, and shift workers with irregular schedules. Team parties and social activities outside of work were more common in the past, though people still do spend time outside of work with their colleagues. Second, social bonds were also forged at social activities arranged or supported by the industry, such as dances or concerts at local Folkets Hus (community centres historically associated with the labour movement), as well as local sports teams. Third, there were social activities arranged by the unions. Grill parties, movie nights, skiing trips, and so on are still arranged by the union in Hofors (for example), though union activists lament that both union membership and social activity has declined over time.

There is substantial variation in how these changes are experienced. While there is a general sense that the ways people connect with the steel industry has changed over time, it is important not to overstate the uniformity of either contemporary or historical experiences. These bruksorter are characterised by high levels of social cohesion, but we also identified differences based on class (e.g. manual versus managerial workers), gender, and 'localness', with migrant workers both from elsewhere in Sweden and overseas talking about the challenge of integrating in the workplace and wider community both now and in the past.

EXPERIENCES OF AND ATTITUDES TOWARDS GREEN STEEL TRANSFORMATIONS

Being a frontrunner in the production of fossil-free steel contributes to a renewed sense of pride in the industry and perceived social status for workers, which in turn fuels support for the green transition. But workers are also concerned that the green transition will continue longer term trends of increased automation and lean working, potentially reducing the sense of camaraderie and job satisfaction among workers. These trends are also expected to further reduce the overall workforce over time. This concern is especially strong among workers whose jobs (e.g. in blast furnaces) are directly impacted by the green transition

Green steel transformations are seen as part of on-going and continual change processes. Changes in the iron and steel sector have taken place over decades. Workers and residents who have lived through these changes therefore tend to view change as an ever-present part of work. In Hofors, older residents summarise the many developments and changes over time as being "up and down"; adding that "a lot was demolished, but even more was built up." This is reminiscent of the attitude in /Boden-Luleå, where the past failure of Stålverk 80 has actually improved confidence of residents in their city's resilience. There has been continual structural change within the industry, which has impacted workers' identities. Experiencing, dealing with, and surviving change has become part of workers' identities.

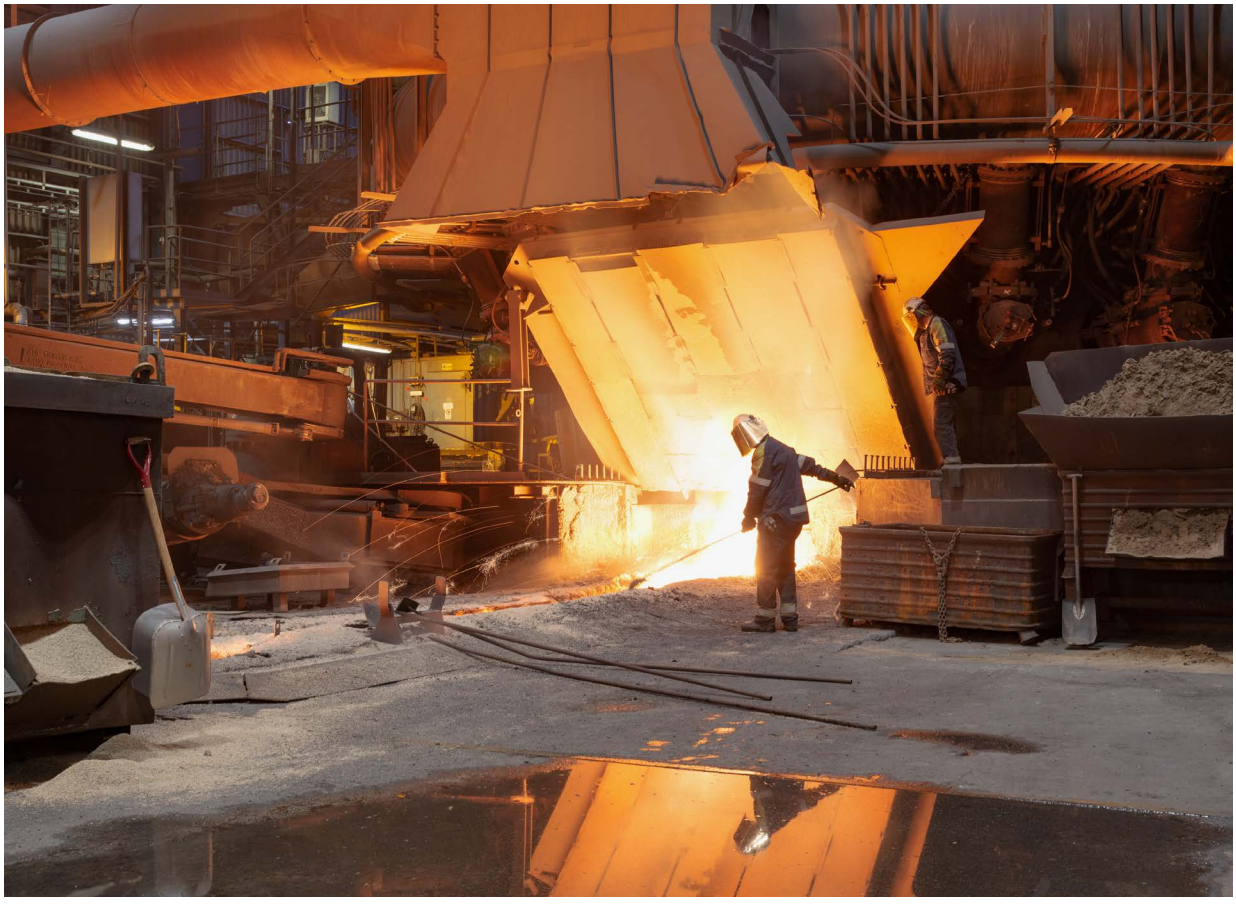
Workers feel that they have become adaptable to change, making them more resilient to the structural changes anticipated with the green steel transition. A consistent theme over time and place is the resilience

of communities and workers towards change, and the mechanisms for coping with it. Chief among these is personal adaptation and building an understanding of why changes occur. In Hofors, workers we spoke to take a pragmatic approach to change: they deal with anticipated changes by trying to stay informed, and focusing on what the change might mean for them personally, centring on the practicalities of their day-to-day work. The workers are also knowledgeable about the global demands the industry has faced, and at times even sympathetic to the decisions that the company has made, even when it has made their working life harder. In Blötberget, residents feel more uncertain about how to adapt to the change, given that the project is only in the planning stage. They are managing the anticipated changes by trying to stay informed where possible.

Workers' views differ between types of job. White-collar workers who strongly identify with the steel industry typically show positive attitudes towards the transition. Conversely, blue-collar workers, whose job satisfaction and occupational identity is more likely tied to their specific roles, are more likely to feel their identities were compromised by past structural changes, and tend to express negative or sceptical sentiments if their past experiences had been negative.

Hofors workers, for example, facing a relatively stable situation and a tough but mainly manageable past, generally have neutral or weakly positive attitudes. They do not expect much to change to their material position. By contrast, blue-collar workers in Oxelösund worry about how the transition will further reduce the status of manual labour and their practical skills, through increased standardisation and automation. They fear this will make their work less meaningful.

Older and retired participants do not see green steel transformations as connected to their livelihood and identity. Older and retired participants in Boden-Lulea, Blötberget and Hofors convey a complex relationship with the many changes that the years have brought. The past was at times uncertain, although they can often laugh about it all looking back now. They prefer to remember the good times, the friendships, and fun activities of their youths, and the adventures they had. They view the future as uncertain but exciting, believing that they themselves are perhaps too old to be directly impacted by what happens, but are interested in the future rather as an extension of the past and a continuation of an old narrative. What anxieties they have, they manage by focusing on the present, their community, and the social and family life that they have.



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