



**CHANGING
PLACES
OF WORK**

BODEN-LULEÅ

INTRODUCTION

KEY FACTS

- Luleå and Boden are in the region of Norrbotten, which is undergoing significant change as a result of Sweden's green industrial transition
- Two big green steel projects: Hybrit and H2 Green steel
- Hybrit is a collaboration between SSAB, LKAB, and Vattenfall - all state-owned or partially state-owned firms
- Hybrit has already produced the world's first hydrogen-reduced iron sponge in their pilot plant in Luleå
- H2 Green Steel, a private venture founded by Swedish investment company Vargas Holding, is constructing both a steel mill and a hydrogen production facility in Boden.
- The region has experienced depopulation for decades, but now faces a significant population increase.
- The anticipated increase in jobs and population brings with it significant social challenges

NJA's ironworks (currently SSAB) on Svartön, Luleå (Swedish Railway Museum)



MAPPING CHANGE

There is a broad green industrial transition happening across Northern Sweden, which includes the development and expansion of green steel manufacturing. There are currently two major green steel projects. The HYBRIT project was initiated in 2016, and plan is for their demonstration plant in Gällivare to be completed around 2025-2026. H2 Green Steel is also in the process of building the plant in Boden, which is also expected to be completed around 2025. Boden was chosen as a site for H2GS due to a closeness to the energy grid. The location for HYBRIT was chosen because LKAB has an established industrial area in Gällivare, but the HQ is in Luleå. The end goal is two major facilities manufacturing green, hydrogen-based steel.

The steel industry has been present and dominant in Luleå since 1906, while Boden has not had any steel manufacturing at all previously. The north of Sweden is particularly suitable for such projects due to an availability of fossil-free energy, particularly hydropower, while the closeness of Luleå University of Technology provides access to research expertise, e.g. the Centre for Hydrogen Energy Systems Sweden.

Both projects are in the very early stages and building has only just begun, but are expected to be completed quickly. A purchase agreement now exists for BMW to buy steel from H2 Green Steel, and for Volvo to buy steel from HYBRIT. Furthermore, the pilot plant for fossil-free sponge iron manufacture in Luleå has already produced the world's first hydrogen-reduced iron sponge.

Between 10,000 – 15,000 new jobs are projected to be generated in total in the north from the green transition, both directly and indirectly. This creates a pressing need for recruiting new workers from other locations, as well as providing local training and education. It is part of a much larger anticipated population growth, where

between 50 and 100,000 new residents are expected in Norrbotten and Västerbotten by 2040.

While this is very likely to lead to a significant expansion of local businesses and provide more income to municipalities in the form of tax revenues, it will also require the expansion of welfare and provision of more housing. Recruitment of new workers, both from other parts of Sweden and from abroad, could lead to demographic and cultural changes. Experts are overall confident in the ability of the already quite multicultural north to absorb newcomers, yet stress the importance of creating a welcoming environment where people can quickly become part of a community.



The Hybrit pilot facility in Luleå. Picture from the media archives of Hybrit.


CHANGING PLACES OF *WORK*

Considering the past, old steel mill workers we spoke to enjoyed their jobs greatly, and their reminiscence on the subject is overwhelmingly positive. Their attitude when they speak of it is enthusiastic, animated, and joyful. They found the tasks themselves interesting, and a warm and sociable environment existed between them.

Due to technological developments, work in a steel mill is much different today: safer, cleaner, and better paid. The skills needed for the future carbon-free mills include both highly educated specialists, such as engineers, but also e.g. electricians, construction workers, and machine operators. There is an interest in attracting more women to the industry, which involves industry support of education and cooperation with universities and schools to ensure that women are given the right skillsets. Yet there is also a recognised risk of drawing women away from sectors such as healthcare.

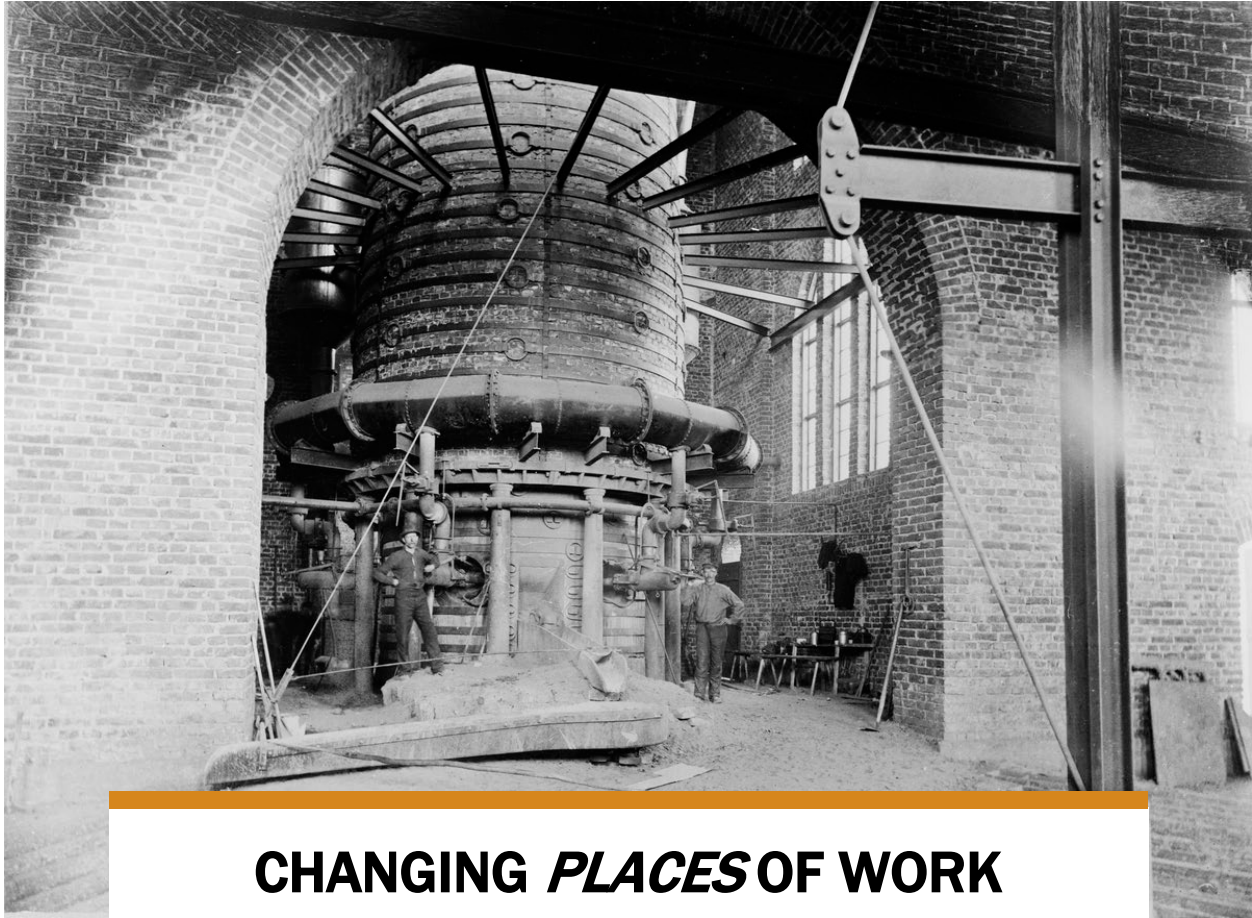
Mine workers we spoke to in Kiruna, where the iron ore that supplies Hybrit originates, seem highly satisfied with their jobs. Unlike in the past, work in a modern mine is highly automated and with a lot of focus on safety. The salaries are excellent, and the schedule – with workers getting entire weeks off regularly – allows them to pursue their hobbies freely. The workers have also negotiated additional benefits, including e.g. good dental insurance, and have opportunities for career advancement. They find the work itself enjoyable, but the camaraderie and social atmosphere emerge as the most important factors for job satisfaction.

Returnees, i.e. those originally from the north who have moved away, are regarded as an important target group for attracting new workers, as are other Europeans. Many are expected to be 'lifestyle migrants', enticed by the prospect of changing their lifestyle and living closer to nature that Northern Sweden offers.



*"It's a big challenge,
and a big
opportunity. This is
a completely crazy
challenge, I must
say that! And it
also means that
there is a certain
freedom. No one has
done this before on
this scale..."*

*- Stina Almkvist, Region
Norrbotten*



CHANGING *PLACES* OF WORK

One of the key challenges is creating a welcoming environment, both socio-culturally and socio-economically, for new arrivals. The north of Sweden must offer people a complete life and a welcoming and inclusive place, where people have access to the amenities they need to live and thrive, as well as have an opportunity to form new networks and make new friends and acquaintances.

What sets Luleå and Boden apart from other similar communities facing the prospect of industrial transformation, is that they are already dealing with many of the practical issues. The establishment of the industries, while not complete, is well under way. On the industry side, deals are being made and negotiations are occurring regarding supply, transport, delivery, and purchases. On the political and regulatory side, routines are being updated and adapted, with e.g. Svenska Kraftverk recently chang-

-ing the rules for electricity allocation. H2GS has established collective agreements with the unions that represent the workers that will build and work at their factory. At the same time, local police is preparing for an anticipated rise in crime as an increased population and greater amount of prosperity is expected to attract illicit activities.

The key to success is combining a vibrant city life with a closeness to nature, and providing cultural activities that can create meeting-places and contact areas between people that allow them to form bonds to one-another. The north of Sweden is, in many ways, already a multicultural society, and has been for a long time, with Tornedalish, Finnish, Swedish, and Sami cultures having all having a strong presence.

The vision for the future that is shared among participants is one that combines a successful fossil-free steel industry with a strong welfare system and a rich cultural and leisure life. Life will not look radically different, and Luleå will remain Luleå and Boden remain Boden – but perhaps they can become a better version of themselves? Yet there are potential problems: the industries will likely displace some aspects of outdoor life, such as hunting and fishing, and also impact the Sami and reindeer husbandry. There is worry that new arrivals may end up in socially vulnerable situations due to lacking social networks, as well as a possible increase in crime. The cost of living, e.g. for homes and electricity, is also likely to increase.



"It's easier to arrive into this cultural melting pot that Norrbotten already is today, than to arrive into a very uniform culture."

*- Petter Sundkvist,
conductor and
professor at LTU*

MANAGING CHANGE

There is extensive cooperation primarily between Region Norrbotten, the municipalities affected, and the leading industries. Together they work towards solving issues such as skill supply, infrastructure, and environmental impacts. The chief struggle is to find workable solutions for the housing issue. Northern Sweden has experienced a steady population decline for years. While the population is now anticipated to grow, there are no guarantees that the projected numbers will materialise. As a result, construction firms are hesitant to take the risk and invest substantial sums in new housing.

Criticism has emerged that the government is not doing enough to support the transition or coordinate the various efforts. Work routines are outdated or not adapted to new challenges, rules for prioritisation in case of conflicting interests are lacking, and many of the relevant processes are too decentralised. Additionally, H2GS has voiced concerns that the state is both favouring the HYBRIT project in e.g. allocation of electricity, and that state-owned companies are not taking enough social responsibility.

The challenge faced is unique in its scope and scale. Overall confidence is nonetheless high: employees of the industries, representatives of local governments, and ordinary people we spoke to all have a largely positive view of the changes coming.

This snapshot is a part of the communication efforts of the the research project *Changing places of work: A place-based approach for re-imagining work in fossil free industrial towns of the future*. It presents a brief picture of one of the study sites examined within the scope of project. For more information, see:

<https://portal.research.lu.se/en/projects/changing-places-of-work-a-place-based-approach-for-re-imagining-w>

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The photograph on the front page from the Luleå Industrial Park media bank.

The photographs on pages 1 and 6 from the Technical Museum's digital museum.

The photograph on page 3 from Hybrit's media bank.

The photograph on page 5 from SSAB's media bank.

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