

# Dominant discourses of Green Growth and the Swedish North

*A topic model of the “green” transition in Swedish news media, 2015–2023*

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## ABSTRACT

A so-called green transition is ongoing in the Swedish North, primarily driven by investments in making basic industries fossil-free. The societal impact in the region is widespread and complex, and the ecological gain is sometimes disputed. In this study, we identify topics, themes, and evolving discourses about the “green” transition in a dataset (N = 9,755 texts) comprising published texts in Swedish news media between 2015 and 2023. Discourse analysis and topic modelling are combined, and the analysis shows two intersecting dominant discourses. The Green Growth discourse included articulations of beneficial, although challenging, green growth and energy transitions. The Swedish North discourse revealed continued tensions in the understanding of the region as a centre and a periphery. Even if marginal, contestations were identified, for example, questioning the “greenness” in green growth. Taken together, the dominance of industrial and political perspectives in the news media coverage and debate limits possibilities for alternatives.

**KEYWORDS:** news media, journalism, green transition, Swedish North, topic modelling, discourse analysis

## Introduction

The news media coverage and debate concerning a so-called green transition [den “gröna” omställningen] in northern Sweden has gained momentum in the past few years. The transition marks ongoing developments within traditional industries, such as mining, steel, and energy production, as well as car manufacturing. Significant financial investments have been made in relation to climate change to decrease these industries’ heavy carbon emissions, and in order to make them (almost) fossil-free (Larsson, 2022; Näsman et al., 2023).

The so-called green transition in the Swedish North constitutes an interesting case to study since these “green” developments also impact the local societies in complex and intersecting ways. Furthermore, the ecological and social gains are both at times questioned (e.g., Amnesty International, 2025; de Leeuw, 2024). We refer to the developments as the “so-called” or “green” transition to avoid contributing to discourses that take the “greenness” for granted, and in order to highlight ongoing contestations. This particular case is also of general importance since the Swedish North is put forth as a global forerunner when it comes to the climate crisis, and the stakes are high, not only locally, but also for the nation-state and within the European Union (Eriksson et al., 2024; Larsson, 2022).

News media are important actors when it comes to making sense of the “green” transition in northern Sweden. They are central to other stakeholders, like politicians, industry leaders, and engaged citizens, and so on, who compete for influence over how to understand the ongoing development. The democratic role of journalism is imperative, and news media represent public arenas for deliberation of common issues and, in many cases, facilitate debate and provide vital information to the public on issues regarding the climate crisis (Schäfer & Painter, 2021). Journalists also present critical perspectives and investigations of institutions and people in power (Egan Sjölander, 2021). Different actors with potentially conflicting views on contentious issues can also connect and gather in media debates (Eskjær & Horsbøl, 2023).

Discourses in news media regarding complex “green” transitions, we argue, can thus be understood as pivotal sense-making, where transition processes are publicly understood and debated. This sense-making of the climate crisis can be viewed as an ongoing discursive struggle with articulations of hegemonic understandings evolving vis-à-vis contestations (Laclau & Mouffe, 2014; Nicoletta & Carpentier, 2022). Hence, we find merit in critically exploring news media as prime sites of discursive formations, contributing to the public understanding of “the commons”, in this instance, multi-faceted ongoing changes of the Swedish North.

When it comes to previous research concerning news media, the environment, and climate change, most studies have focused on content (e.g., Boykoff & Boykoff, 2004; Hase et al., 2021; Horta et al., 2017), less on journalistic production (Schäfer & Painter, 2021), and a changing media landscape (e.g., Lischinsky & Egan Sjölander, 2014). To date, this research has also mostly focused on international and national news media (Anderson, 2015; Bohr, 2020;

Egan Sjölander, 2021; Schäfer & Schlichting, 2014). This highlights a knowledge gap and a need for research that studies regional and local news media coverage and debate in studies of the environment and climate.

The “green” transition is embedded in the local setting of the Swedish North, making the geographical context important to consider. Earlier studies of media, as well as policy discourses of the Swedish North, have shown that they tend to reproduce relationships of power that depict the northernmost regions of the country as a periphery, in opposition to the centre (i.e., capital) in the Swedish South. Depopulation (Eriksson, 2010), an ageing population (Ljuslinder, 2017), and the Swedish North as a financial burden for the country (Nilsson & Lundgren, 2015) have been identified as prevalent themes in such discourses. At the same time, recurring historical perspectives of the Swedish North identify the region as “The Land of the Future” (Sörlin, 2023), particularly because of its richness in natural resources. There are few studies to date that, like we, focus specifically on the role of news media when it comes to the contemporary so-called green transition in northern Sweden. However, we have identified emerging research that bases its analysis, at least partly, on media material (e.g., Eriksson et al., 2024; Nuottaniemi, 2024; Persson & Dymitrow, 2024), even if none have such a large dataset or have covered such a long period as we do here.

This study aims to identify and analyse discourses in news media concerning the so-called green transition in the Swedish North. We use discourse analysis in combination with topic modelling to trace and interpret dominant discourses in the news media coverage and debate of the “green” transition. Our analysed corpus ( $N = 9,755$ ) consists of published news and op-eds about the “green” transition in Swedish news media (both print and online) between 2015 and 2023, hence covering the period from before any large investment took place until they increased significantly. Our research questions are as follows:

RQ1. Which topics and overarching themes are present in news media coverage and debate concerning the so-called green transition of the Swedish North, and how do the topics correlate?

RQ2. How are discourses of the “green” transition formed, which articulations are dominant, and which ones are marginalised?

## **Situating the study in the Swedish North and Sápmi**

It is not self-evident to define the Swedish North, or Norrland, as the region is often referred to in Swedish. This geographical area constitutes a large part of the country, as much as two-thirds of it, and includes five counties. By referring to this region as a homogenous place, one risks generalising a large and diverse area (Eriksson, 2010). Important to bear in mind is also that the Swedish North is part of Sápmi – Indigenous Sámi land colonised by the Swedish State (Sörlin, 2023; Össbo, 2023). There have been many instances of mistreatment against Sámi people throughout history, and also of other marginalised groups living in

the North, such as Lantalaiset, Tornedalians, and Kvens (Lantto, 2014; Persson, 2018, 2023). The impact of, for example, extractive industries on Indigenous people remains a critical issue in the “green” transition (Cambou, 2020; de Leeuw, 2024; Össbo, 2023).

The definitions of the Swedish North are discursively formed and thereby infused by interconnected ideas and particular understandings of the place that have evolved over time (Massey, 1994a, 1994b). One can identify a recurring tension between representations of northern Sweden as a national asset (Sörlin, 2023) and views of the Swedish North as something problematic and peripheral (Eriksson, 2010). The Swedish North has been seen as an internal “Other”, as a place where national resources could be easily sourced, exposing the region to long-lived injustices (Eriksson, 2010; Nilsson & Lundgren, 2015).

The present “green” development in the Swedish North is largely based on investments by traditional industrial stakeholders introducing new technologies and production processes to become fossil-free. The supply and increased use of renewable energy are crucial for this to happen. Not only does the reindustrialisation include unprecedented investments of up to 1,000 billion Swedish kronor (Näsman et al., 2023), but it also encompasses broad societal transitions, permeating multiple, not to say *all*, sectors of society. The population is meant to grow steeply, with a sizeable impact on the tax base and social welfare (Larsson, 2022). Justice issues and different conflicts, not least regarding the use and rights to land and resources, are also crucial aspects of these developments (de Leeuw, 2024; Össbo, 2023).

Persson and Dymitrow (2024: 56) recently summarised that most earlier research on the so-called green transition in Sweden has focused on “the feasibility of the planned trajectory of the green transition in general and its social consequences specifically”. Key concepts such as “green growth” and different dimensions of justice have been studied (Fischer et al., 2024; Garbis et al., 2024), as well as the impact of green colonialism in Indigenous people’s lives, traditions, and livelihoods (Cambou, 2020; Össbo, 2023).

Mediated representations of the ongoing “green” transition have also, at least in part, focused on how news media and government discourses represent Norrland as “the future” or as “a struggle” (Persson & Dymitrow, 2024). “Logics of competition” have also shaped ideas of the transition related to the large industrial establishment in the municipality of Skellefteå (Eriksson et al., 2024). Both these studies identify representations of the Swedish North as a region in transition, being weak and suffering from depopulation and stagnation. The industrial developments become articulated as beneficial solutions for change. Notions of Sweden as a trailblazer nation in climate mitigation and adaptation are also present (Eriksson et al., 2024; Persson & Dymitrow, 2024). However, conflicts of interest in the so-called green transition are revealed, and difficulties in obtaining the estimated needed population growth are highlighted.

Persson and Dymitrow (2024) concluded that the development of the “green” transition becomes discursively naturalised in news and policy. Nuottaniemi (2024) also observed that media reports of the “green” transition present it as

an essential solution to the climate crisis, vis-à-vis other “perceived issues” of the Swedish North. Eriksson and colleagues (2024) argued that the local press legitimised the industrial developments in Skellefteå and that there is a risk of colonial relations being reproduced, portraying the Swedish North as an internal Other, valuable largely by resource extraction. They also found that voices from the Sámi population were largely absent in the main local newspaper in Skellefteå, *Norran*.

Even if few in number and limited to relatively small empirical samples, these studies provide important input for comparisons. So do international studies of how news media deal with the worldwide “green”, often labelled energy transition, be it about biogas in Finland (Lyytimäki et al., 2018), Power-to-X in Denmark (Horsbøl, 2024), wind power in the UK (Batel, 2020), or renewable energy in Portugal (Valqueresma et al., 2024). All of these stress and critique media’s pivotal role and the current lack of knowledge about these mediated environmental conflicts. In this article, we aim to add to the current scope of knowledge by analysing an inclusive dataset of Swedish news and debate regarding the “green” transition in the Swedish North, published over nine years. In addition to including different types of news media (national outlets, as well as regional and local), we were able to trace dominant discursive patterns in this ongoing media coverage and debate of the “green” transition, which is important given the scale and speed of the changes.

## **Evolving environmental discourses**

Issues of the environment and climate are inherently complex and can be understood and made sense of in many ways. The multitude of perspectives that arise can, in our view, be explored with the concept of discourse understood “as a shared way of apprehending the world” (Dryzek, 2013: 9), including both objects and social practices, in this case particularly relating to the environment and climate. Discourse is, according to Laclau and Mouffe (2014), produced by articulations that link elements together and continuously change social identities. In the words of Howarth (2000: 102–103), a forest standing in the place of a suggested new motorway “may simply represent an inconvenient obstacle impeding the rapid implementation of a new road system, or it might be viewed as a site of special interest for scientists and naturalists, or as a symbol of the nation’s threatened natural heritage”. We see discourse as productive and contingent and always connected to questions of power, conflict, and the constant struggle over meaning, in which some discourses become hegemonic in specific contexts (Egan Sjölander, 2011; Foucault, 1971; Laclau & Mouffe, 2014).

Environmental discourses change over time. To begin with, there is a difference between perspectives that accept or deny the human impact on climate change and other ecological problems. Climate scepticism is characterised by the dismissal of any need for change (Anshelm & Hultman, 2015). When agreeing on the basic assumption that humans have an environmental and climate impact, another discursive demarcation concerns the view on the current system of political

and economic organisation of society, as well as the construction of problems and subsequent solutions in environmental and climate issues. In a global context, sustainable development and ecological modernisation are dominating discourses that accept the current political and economic systems (Dryzek, 2013; Hajer, 1995). Sustainable development discourse, as broadly established in the Brundtland report (WCED, 1987), is often referred to as constructed by three pillars of ecological, economic, and social sustainability and aims to overcome conflicts between these varied goals. In ecological modernisation discourse, the values of economic growth and environmental improvement are in turn considered “essentially complementary”, rather than purely feasible to achieve together (Dryzek, 2013: 16). This latter discourse is marked by a strong focus on technology, market solutions, and policymaking as central tools to mitigate climate change.

Both discourses are broad and diverse. The definition of sustainable development has, for example, been questioned, negotiated, and adapted in many iterations (Dryzek, 2013). Furthermore, ecological modernisation has been conceptualised by both strong and weak variants (Christoff, 1996).

Alternative discourses rejecting the neoliberal political and economic system can instead, for example, be conceptualised as green radicalism (Dryzek, 2013) or eco-socialist discourse (Anshelm & Hultman, 2015). These incorporate a substantial set of variations and internal debates. However, they are united by growth-critical views and often promote non-anthropocentric perspectives of human and nature relationships and power dynamics. Social justice is also a strong focus (Dryzek, 2013).

## Method

In this study, we have used discourse analysis (Egan Sjölander, 2011; Laclau & Mouffe, 2014) as the main analytical framework, combined with topic modelling based on Latent Dirichlet Allocation (LDA) using Mallet (McCallum, 2002). The combination of computational and interpretive methods for text analysis has allowed us to study discourses of the so-called green transition of the Swedish North in a large set of news media data. The approach has the potential to increase the value of both methodologies, where the study of large datasets can capture repetition, generating dominant patterns and gradual changes, whilst the theoretical basis of discourse can support the interpretation of topic models (Jacobs & Tschötschel, 2019; Törnberg & Törnberg, 2016). Several other studies of news reports on the environment and climate have used computational methods; however, many have focused on comparative analyses (e.g., Hase et al., 2021; McAllister et al., 2024; Vu et al., 2019) rather than local contexts.

Topic modelling has turned out to be very useful when creating an overview of topics or identifying thematic structures in a large text corpus (Blei, 2012; Sanford et al., 2021). In LDA topic modelling, topics are identified through calculations of probability based on Bayesian statistics relating to two main matrices defining the probability of words belonging to a topic, and the probability of a topic

belonging to a specific document (Maier et al., 2018), which in our dataset consist of one published news media text. Topics capture repetition and configurations of language use in context, which form discursive patterns (Jacobs & Tschötschel, 2019). We have applied a stepwise method inspired by practices of previous studies and guidelines for topic modelling in media and communication research (Maier et al., 2018; Meier & Eskjær, 2024) and also adapted the model to suit the discourse analytical framework. The different steps are 1) pre-processing the data, 2) model specification, and 3) interpretation, evaluation, and analysis of the model.

The empirical selection of data for analysis is texts – both editorial and op-ed pieces – that have been published in print and digital Swedish news media, both national outlets and regional and local outlets. The texts have been collected from the news media archive Retriever. The parameters of selection include the studied period, starting in 2015, when none of the major industrial investments had been made, and ending at the beginning of December 2023, at the time of data collection. Topic modelling for discourse analysis has been argued to require a thematically cohesive corpus (Jacobs & Tschötschel, 2019). We used a search string including “Northern Sweden” [Norra Sverige] and lexical variances of words or phrases such as “green transition”, “societal transition/adaptation”, and “reindustrialisation” to retrieve the empirical material. The search string is an important parameter of the method and impacts the results (for the full search string, see the Appendix). The whole corpus, or dataset, consists of 9,806 media texts. About half of the texts were published in regional and local outlets from Norrbotten and Västerbotten (see Table 1).

**Table 1** Distribution of media in corpus

	Number	Per cent
Regional and local outlets based in Norrbotten and Västerbotten	4,795	49
Regional and local outlets based in other parts of Sweden	4,030	41
National outlets	906	9
Other	24	< 1

**Comments:**  $N = 9,755$ . Texts in the “other” category include, for example, outlets in which the geographical coverage area was difficult to determine.

Pre-processing the data is another important part of topic modelling that influences the results (Maier et al., 2018). We followed a practice similar to Meier and Eskjær (2024) regarding “near-duplicates” and “exact-duplicates”: We kept the former and removed the latter. Our argument for this is that near-duplicates – similar or almost identical texts published by different news sources – are part of the production of discourse; hence, it would be wrong not to include them. This resulted in a corpus of 9,755 texts, which was subsequently tokenised

and lemmatised (Maier et al., 2018). Common Swedish stop-words were then removed (Bird et al., 2009).

The model specification in LDA topic modelling requires the researcher to determine the number of topics ( $K$ ) of the model. This is determined by the corpus, the context, and the theoretical outset (Maier et al., 2018; Meier & Eskjær, 2024). In this study, we decided on the number of topics by running multiple models and comparing the results based on the stability of the topics and how well the topics could be interpreted discursively. Multiple iterations of models were run, with the number of topics differentiating from 20 to 200. Models with topics closer to the middle (of 20–200) were considered to provide the best results for discursive clarity. To systematise the process of further comparison, as well as to control the reliability between the interpretations of the different researchers, and the validity of the topics, the three researchers individually test-coded models with 60 and 100 topics and collaboratively coded a model of 140. The test coding showed that the researchers generally made similar interpretations of the validity of the topics, with conformity ranging from 88–96 per cent, and that models allowing more topics resulted in more precise and specific topics (Maier et al., 2018). Models with a relatively large number of topics have also been argued to be fruitful when combined with discourse studies (Jacobs & Tschötschel, 2019).

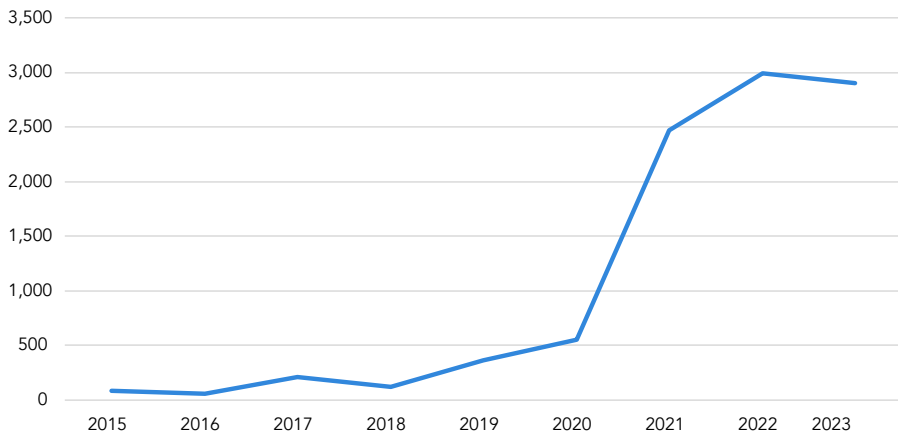
The process of labelling the topics ( $K = 140$ ) requires interpretation by the researcher, and preexisting knowledge of the empirical material is therefore crucial (Brett, 2012) to understand texts in relevant contexts, which is a core element in any discourse analysis (Egan Sjölander, 2011). Topics also allow researchers to go back to specific texts for qualitative inquiry, which we did by manually examining top-weighted texts. We also excluded topics that all three researchers found to lack “meaning” or coherence (Maier et al., 2018; Meier & Eskjær, 2024), resulting in the removal of ten topics, leaving 130 topics for further analysis. These topics were clustered into themes depending on their similarity, resulting in 13 overarching themes (presented in Table 2), which facilitated the identification of discursive patterns. To further study these patterns, we explored how different elements recurringly were connected within the media texts (Jacobs & Tschötschel, 2019), by correlations between topics, using Gephi for illustration (Bastian et al., 2009), as presented in Figure 2. The source code of the topic model and analytical tools has been made public in accordance with open data initiatives, as a GitHub repository (Humlab, 2024).

## Results and analysis

The analysis of published articles and op-eds from Swedish news media between 2015 and 2023 incorporates when the “green” investments in the Swedish North took off, which was then followed by an increased media interest, as shown in Figure 1. The coverage and debate grew significantly in 2021, shortly after the government appointed a civil servant designated to facilitate the establishment of large “green” businesses like Hybrit in northern Sweden. Another company’s, H2

Green Steel (now Stegra), decision to start fossil-free steel production in Boden was also an event that generated media attention. Generally, the 130 topics of our model followed the same pattern, although there were exceptions, and this, to some extent, indicated event-driven news reporting, in line with previous studies exploring journalism concerning environmental and climate issues (Bohr, 2020; Hase et al., 2021; Schmidt et al., 2013). For example, a topic concerning the industrial development in Skellefteå peaked in 2017, when the company Northvolt announced the establishment of a battery factory in the municipality (Eriksson et al., 2024).

**Figure 1** Number of texts in the corpus (distribution per year)



**Comments:** Collection ended 4 December 2023.

All topics identified in the corpus were clustered into 13 themes, presented in Table 2 (all individual topics, the top 15 words of each topic, and rank-1 metrics are presented in the Appendix). Multiple themes concern different aspects of the transition, and its prerequisites, as well as actors or sectors managing it. The context of the Swedish North and central places of investments was also prominent, as well as themes concerning the impact of the transition.

**Table 2** Themes

Theme #	Theme	Number of topics	Per cent
T1	Energy and energy production	23	17
T2	Politics and political administration	16	13
T3	Places (cities, municipalities, and regions)	16	11
T4	Industries and industrial actors	15	10
T5	Labour, competence provision, and migration	14	9
T6	Critique, problems, and challenges	13	8
T7	Future and development	5	6
T8	Cars and housing	8	4
T9	Infrastructure	4	3
T10	Climate and climate change	4	3
T11	Cultural and social issues	5	3
T12	Economy	4	2
T13	Education and healthcare	3	2

**Comments:** The table is comprised of all identified themes, the number of topics comprising each theme, and the proportion of the theme in relation to the corpus at large. Combined, these themes comprise 91 per cent of the corpus; the residual 9 per cent is comprised of the topics that were excluded in the processes of identifying and labelling topics.

In the following sections, we analyse how topics, topic correlations, and major themes contribute to the formation of what we conceptualise as two dominant and intersecting discourses in the news media reporting and debate about the “green” transition of the Swedish North.

First, we identify a Green Growth discourse that highlights beneficial but also challenging dimensions of the transition. Many articulations of the “green” transition concern a transition of energy and increased electrification, including a strong belief in management, technology, and market solutions when solving environmental problems.

Second, we identify a Swedish North discourse that treats the influence and tensions of place, foremost illustrated by articulations of the region as a “Land of the Future” (Sörlin, 2023) or as a problematic periphery (Eriksson, 2010). These two discourses coexist and, taken together, become dominant in the sense-making of the “green” transition.

However, we also identified marginalised articulations that contested the dominant discourses. These often highlighted ecological and social problems following increased energy use and resource extractivism. They challenged the notion of the stipulated growth, and its “greenness”, and therefore have the potential to destabilise the dominant discourses.

## **A Green Growth discourse: Energy transition as the key instrument for change**

To explore the formation of the Green Growth discourse, we examined significant themes, as well as correlations between topics. The proportionally largest theme in the corpus was *Energy and energy production* (17%), demonstrating its centrality in the news media. This might be of no surprise since the “green” transition largely presupposes that fossil fuels can be replaced or phased out completely in order to tackle climate change (Jacobson, 2023; Molek-Kozakowska, 2023), what Stegemann and Ossewaarde (2018) in turn called a “sustainable myth”. The energy theme was comprised of topics forming discursive patterns in which energy and energy production were articulated as issues related to the market and politics, such as access, distribution, prices, production, and, not least, the increased need for fossil-free energy. These were coupled with other topics in the Green Growth discourse regarding wind, nuclear, solar, and hydro power as alternative energy sources, and hydrogen as an energy carrier and innovation. In line with previous research (Djerf-Pierre et al., 2016), mediated representations of the environment and climate in a Swedish context largely frame technological development, such as the use of renewable energy sources, as key components of environmental solutions.

The prominence of the energy transition theme speaks to the pivotal role of energy and energy production as one of the most central articulations in the news media texts of the “green” transition. To use renewable or fossil-free energy sources in the Swedish energy system has become a vital driving force for beneficial change and the rapid process of increased electrification in society as a whole. This discursively formed line of reasoning fits well with how Dryzek (2013) described dominant understandings of both sustainable development and ecological modernisation, not least given its strong focus on technology in order to solve environmental problems. Similar understandings of environmental problems have also been identified in other countries, for example, the UK (Carvalho, 2005).

The large focus on fossil-free energy alternatives in the discourse can also be viewed as a form of substitutionalism (Nicoletta & Carpentier, 2022), where energy production and use can stay the same, or even grow, thanks to technological advancements. These types of articulations risk ratifying an increased electricity demand. This discursive growth-logic was evident within this and adjacent themes in the whole corpus. Despite widespread agreement regarding the aim of the energy transition in the news media, more challenging articulations were also identified, including topics debating energy alternatives such as nuclear and wind power, energy forms that have been and are currently being debated in Sweden (Anshelm & Hultman, 2015; Garbis et al., 2024). The focus on energy in relation to the climate, “green” transition, and fossil-free energy alternatives, and the beneficial impact and associated challenges with an increase, can be illustrated by quotes from two opinion pieces:

In just a few years, a new green industry has emerged in northern Sweden. This includes investments in fossil-free steel, new battery factories, and enormous data centres. Additionally, the transportation sector must be electrified if we are to meet climate goals. According to some estimates, electricity demand will increase by 400 per cent by 2050 [translated]. (Heimbrand, 2021, August 2, in *Norran*)

The entire country is looking towards the Swedish North. Hundreds of billions of SEK are to be invested in hydrogen transitions, fossil-free steel, critical minerals, forest products, and industrial solutions. These investments contribute to a sustainable future and provide jobs and prosperity in the Swedish North. However, the industrial transition requires electricity, a lot of electricity [translated]. (Nordqvist et al., 2021, November 7, in *Hudiksvalls Tidning*)

Other significant themes, such as *Politics and political administration* (13%) and *Industries and industrial actors* (10%), shaped the discourse and focused on central sectors, the management, and prominent actors of the “green” transition. These results correspond with other studies that have illustrated the prominence of such actors in Swedish news about renewable energy (Djerf-Pierre et al., 2016), as well as in Finnish news regarding biogas (Lyytimäki et al., 2018). The centrality of these themes indicates discursive agency and leadership, where the “green” transition is largely articulated as a development in which these sectors and elite actors have a prominent role. Political decision-making, policy, industrial actors, and the market can therefore be seen as key components when dealing with environmental issues, which corresponds with ecological modernisation discourse (Christoff, 1996; Dryzek, 2013). This discourse centres industrial endeavours that focus on new technology and innovation, such as “green” steel production, as a desirable way of becoming fossil-free.

The *Climate and climate change* theme (3%) was relatively small in comparison to others. This surprised us at first, since the problem of climate change constitutes a fundament for the transition. But it could be precisely the hegemony of the climate crisis in Sweden that renders this relative absence. Even if climate scepticism has been identified also in Swedish public debates, these articulations are marginal in comparison (Anshelm & Hultman, 2015). In this particular study, no topic of climate scepticism appeared, which might indicate that the problem of climate change is widely accepted. Or, it might signify that the “green” transition is mainly understood as an energy transition challenge, which in turn will solve the problem of climate change.

We also examined discursive formations by exploring how topics form patterns and relate to one another (Jacobs & Tschötschel, 2019). In our analysis of topic correlations, we found that the topic of *Growth and development* stood out as central in the whole network graph (see Figure 2).



comes to sustainability recurringly found in studies on green transitions and climate discourse (Anshelm & Hultman, 2015; Eriksson et al., 2024; Persson & Dymitrow, 2024). However, such competitive logics of leading the “green” global race towards a more climate-friendly future are not unique for Sweden, but are found in other countries too, for example, Portugal (Valqueresma et al., 2024).

Persson and Dymitrow (2024: 64) described the green transition as discursively naturalised in media representations, since it is being “repeatedly proclaimed as the right way forward” and an “inevitable transition ‘for the better’”. Our analysis further shows that economic growth and development are values that hold an important position in the discursive formation, highlighting how ecological and economic developments are seen as complementary (Dryzek, 2013).

However, other types of articulations also recur, for example, regarding how sound the economy of the “green” transition is. One such topic concerns debates on “green” steel production (see the Appendix), in which the high financial risks of the ventures are discussed. This particular critique challenges the intended economic gain from the “green” investments and questions how financially stable the fossil-free steel production will be. Even so, the “green” transition as such is not contested. After our data collection ended in December 2023, there has also been substantial news media coverage and debate relating to the battery producer Northvolt’s unfolding severe financial crisis and bankruptcy on 12 March 2025 (Carlén et al., 2025, March 12, on Sveriges Television).

The Green Growth discourse is thus formed by articulations regarding the energy transition, politics, and industry. Furthermore, growth and development hold a prominent position in the discursive patterns of topics. We argue that the discourse goes in line with the characteristics of sustainable development and ecological modernisation since ecological challenges are seen as something solvable within the current societal systems, combining growth and ecological solutions by restructuring such systems (Dryzek, 2013).

### **The Swedish North discourse: (Re)articulated centres and peripheries**

The second discourse of the “green” transition is connected to the Swedish North. The *Places (cities, municipalities, and regions)* theme (11%) constituted the third largest and is central to the formation of this discourse. The theme was mainly comprised of topics concerning “green” developments in specific regions and municipalities and constructed these places as centres in the transition. These place-bound developments were often articulated by outlets based in the Swedish North, covering these specific areas. The importance of place (Massey, 1994a, 1994b) in “post carbon energy transitions” is also stressed by Batel (2020) when analysing constructions of the rural in British media.

The counties of Norrbotten and Västerbotten are central areas of “green” developments, which were illustrated by topics concerning these regions. The correlation network also shows a strong bond between a topic labelled *Norrbotten and Västerbotten* and the *Growth and development* topic (see Figure 2). The cities of Skellefteå, Luleå, and Boden are also positioned as significant centres

in the discourse of the Swedish North, linked to new “green” and expanding industrial establishments in these municipalities; several topics dealt with local transitions and the development in these places. The relatively strong focus on specific cities could be seen as part of how a “land of the future” articulation about a progressing Swedish North is not inclusive of all areas and overlooks rural and non-urban places. When new areas become important parts of the “land of the future” (Sörlin, 2023), for example, Boden and Skellefteå, new peripheries are constructed.

The *Industries and industrial actors* theme is also part of shaping the place-bound discourse. Topics concerning specific sectors, such as mining, forestry, and aviation, are also connected to the Swedish North, including its specific natural resources. Topics regarding central industrial actors, like Northvolt, H2 Green Steel, and the state-owned Hybrit (LKAB, SSAB, and Vattenfall), are also highly connected to the rearticulations of places that constitute new centres in northern Sweden. Northvolt has built a battery factory in Skellefteå, H2 Green Steel is constructing a new steel plant in Boden, and Hybrit has established a pilot plant for fossil-free steel production in Luleå. The correlations in Figure 2 also show a connection between the topics of *Growth and development*, *Societal transition in Skellefteå*, and *Northvolt*.

The *Labour, competence provision, and migration* theme (9%) also proved to be a proportionally large part of the overall corpus. The theme is linked to articulations regarding the Swedish North as a centre for expanding “green” industries, creating new jobs. This is a common theme of the “green” transition (Garbis et al., 2024; Persson & Dymitrow, 2024). The transition has been calculated to bring a steep increase in population by as many as 100,000 inhabitants, or a fifth of the total, in only 15 years (Larsson, 2022). The topics that comprise this theme concern the development of many new jobs, population, migration, and competence provision, contributing to an articulation of the Swedish North as growing. Garbis and colleagues (2024) argued that an understanding of the Swedish North as depopulated can create such an incentive for growth. The suggested increase in population caused by the “green” transition was also articulated as desired, and largely achievable through upcoming work opportunities created by new and expanding industrial establishments.

The *Infrastructure* theme (3%), including topics on the availability – or rather, lack – of railways and trains in the Swedish North, also articulated the need for progress, and dealt with infrastructure as a way of making the “green” transition possible. The *Cars and housing* theme (4%) contained topics about electric cars and different kinds of fuel, vis-à-vis housing constructions, the housing market, and, not least, the shortages of housing.

In the themes concerning labour, infrastructure, and housing, an increased need for housing and social services, and difficulties in inciting people to move to, and permanently settle, in the region were articulated. This was constructed as a major challenge and made sense of as linked to the perceived peripheral position and rurality of the Swedish North. In this sense, the Swedish North as a place of continuous struggle, also found in recent studies (Persson & Dymitrow,

2024), was reproduced in the news media, at the same time as the industrial investments were legitimised (Eriksson et al., 2024).

Fossil-free energy is, as previously discussed, articulated as an outset for the industrial transition's "greenness". It was in the news media, similarly to previous research (Garbis et al., 2024), seen as an abundant resource of the Swedish North, while at the same time understood as in need of expansion to suffice. Natural resources of the Swedish North were, as they have been historically (Sörlin, 2023), seen as an integral prerequisite for the transition (see also Eriksson et al., 2024). Noticeable is also a tension between the North and South of Sweden that was (re)articulated in many of the studied texts, reproducing asymmetrical power relations within the nation (Eriksson, 2010; Nilsson & Lundgren, 2015). Multiple topics within the *Energy and energy production* theme were also found to articulate energy in terms of North–South relationships. We observed that news media tended to focus on the dual need for increased energy production on the whole, and tensions created because of a lack of energy in the South, whilst more was being used where it is produced (in the North). The following news report illustrates this tension:

However, according to the new report from Norrbotten, southern Sweden cannot expect to receive more electricity from Norrbotten and Västerbotten, as the surplus there is expected to decrease significantly in the coming years. The reduced electricity surplus is primarily due to large industrial investments, such as the Northvolt battery factory and HYBRIT, which plans to produce steel without coal [translated]. (Jensen, 2020, September 23, in *Sveriges Radio*)

Taken together, we – in agreement with other research (Eriksson et al., 2024; Persson & Dymitrow, 2024) – found that an overarching tension in the discourse of the Swedish North being articulated both as a "land of the future" and a peripheral, problematic, and weak region that is struggling, persisted in the context of the "green" transition. The news media coverage and debate were, in other words, largely influenced by the context of place (Eriksson et al., 2024; Massey, 1994a, 1994b). And somehow paradoxically could these articulations of the Swedish North as a land of the future that embraced ideas of a much-needed "green" transition or shift, also naturalise the understandings of this particular place as a weak or problematic region in need of moving from one state of being into another (see also Eriksson et al., 2024; Persson & Dymitrow, 2024).

### **Marginalised articulations: Challenging the "greenness" in green growth**

The dominating discourses of the "green" transition presume that continued economic growth and ecological solutions go hand in hand and can coexist, a win–win situation according to ecomodernist logics (Dryzek, 2013). However, challenges and negative impacts of the "green" transition are also recognised. In the relatively large, although diverse theme *Critique, problems, and challenges*

(8%), there are different topics, for example, related to critiques of “green” steel production, social issues of the transition such as increased criminality, and crises, like ongoing wars and safety issues. These topics concern problems related to the impact of the “green” transition or challenges that need to be overcome in order to achieve it. Even so, the “green” transition is not explicitly questioned.

However, in a small number of topics, there were articulations of resistance that did not take the current economic and political system for granted. They included a more profound critique of the current “green” transition driven by industrial developments and increased extraction of natural resources. These show similarities with characteristics of green radicalism (Dryzek, 2013) or eco-socialist (Anshelm & Hultman, 2015) discourses, which could potentially threaten the stability of the dominating ones (Laclau & Mouffe, 2014).

These marginalised articulations are mostly visible in topics concerning land use conflicts, critique of the exploitation of the Swedish North, and similar rural perspectives, where alternative voices to the otherwise more dominating ecological modernisation views were articulated. Conflicts of interest, often in the form of land use conflicts, were occasionally portrayed in the news, like when addressing the impact on and resistance of the Indigenous Sámi communities (de Leeuw, 2024). The following green conflicts example illustrates this:

In the name of climate transition, the exploitation of land is also increasing because the large industrial investments will require vast amounts of energy. Different interests often clash, especially regarding land traditionally used by Sweden's Indigenous Sámi people for reindeer herding, hunting, and fishing [translated]. (TT, 2022, March 19, in *Aftonbladet*)

However, these articulations and similar issues concerning justice in the “green” transition were, as also observed in previous research on news media and policy (Eriksson et al., 2024; Össbo, 2023), marginal perspectives in the news media at large.

Another type of contestation combines a belief in the need for a fossil-free society with growth-critical views that question the new industries' massive need for electricity. The prime example of this is found in the publications by the Swedish journalist Arne Müller (2023), who specialises in this area and is sometimes interviewed in the news. Müller also observes the need for more holistic transformations that involve behavioural changes, less consumption, and decreased exploitation of natural resources. His critical standpoint is shown in the following news article:

What I lack in the discussion in Sweden is someone saying, “this new technology is good, and we should use it. But it is equally important that we hold back”. We need to use less electricity and metals [translated]. (Vikström, 2022, August 20, in *Norrländska Socialdemokraten*)

## Concluding discussion and final remarks

The topics, their correlations, and the overarching themes in the analysed news media coverage and debates about the “green” transition of the Swedish North show the formation of two contingent and dominant discourses concerning the ongoing “green” transition: a Green Growth discourse and a Swedish North discourse. These, in turn, intersect, vis-à-vis other marginal articulations that contest, for example, increased resource extraction for renewable energy use and the continuous pressures put on Sámi communities.

Despite these patterns, it is also evident that the dominant discourses include a large span of themes, topics, and different perspectives. However, the development of the “green” transition was generally shown to be naturalised as the way forward, or as phrased by Nuottaniemi (2024), to be both a solution to the environmental and climate crisis and the perceived issues of the Swedish North as a periphery. The viewpoint that industrial or technological implementations are leading to both environmental improvement and local progress has also been prominent in Danish (Horsbøl, 2024) and Finnish (Lyytimäki et al., 2018) news media. This combination is powerful, and mimics when the “Ethanol Dream” was articulated as the fuel of the future within the same so-called Biofuel Region about twenty years ago (Egan Sjölander et al., 2014). Then, it was the forest-rich Swedish North that would solve the global climate crisis through the production and exportation of second-generation biofuels for cars. This mega-project eventually “failed” but was initially boosted by both local and national news media.

That the “green” transition is again being articulated as an instrument for progress in the Swedish North reproduces the region as an asset or a struggle, including centre and periphery tensions between North and South (Eriksson, 2010), here largely present in debates about energy. New centres in the Swedish North are also formed in the discourses, implying that other places at the same time get “left behind”.

The analysed discourses are shown to largely follow the logics of sustainable development and ecological modernisation discourse (Dryzek, 2013; Hajer, 1995). Alternative and more radical discourses were at the same time marginalised, since the “green” transition largely meant “business as usual”, at least beyond the replacement of fossil fuels and extensive electrification. The constant strive for economic growth as an inherent dimension of capitalist societies is seldom questioned in the discourses, even if it is the main drive of natural resource exploitation. Many critical viewpoints concern *how* the political and economic systems work, but not the structures themselves. This inevitably increases the risk of legitimising interests and structures that lead to continued environmental degradation (Dias et al., 2020; Hajer, 1995) and unjust developments (Cambou, 2020). However, a radical transformation to sustainability, Temper and colleagues (2018: 761) argued, must be based on “values and ideologies that overtly reject hegemonic economic and political practices, that aims to confront and subvert hegemonic power relations, that is

multi-dimensional and intersectional, balancing ecological concerns with social, economic, cultural and democratic spheres”.

The aim of this study was not only to identify and discuss dominant discourses of the “green” transition, but also to try to identify what possible articulations appeared marginal. We identified some contestations akin to green radicalism or eco-socialist discourse (Anshelm & Hultman, 2015; Dryzek, 2013). But different justice perspectives (Eskjær & Horsbøl, 2023; Valquaresma et al., 2024) that are otherwise often understood as crucial to consider in relation to “green” transitions are largely missing in the media. There are also few examples of Indigenous voices regarding the “green” transition in the corpus, and it appears as if Sámi perspectives are mainly lifted in relation to reindeer-herding and land-use conflicts. This reproduces stereotypical portrayals of Sámi issues in news media, also found in previous research (J:son Lönn, 2017).

We argue for the need for more variations in the journalistic coverage and public debates to better include other views on the “green” transition than industrial and political actors’ (Horsbøl, 2024; Valquaresma et al., 2024). In the words of Mouffe (2000: 104), “we have to accept that every consensus exists as a temporary result of a provisional hegemony, as a stabilization of power, and that it always entails some form of exclusion”. We also lack variations when it comes to alternative ways of understanding and treating nature beyond the hegemonic anthropocentric worldview, which positions humans above nature (Dryzek, 2013). Citizen perspectives in general, and social movements like environmental and climate activism, also had a marginal position in the studied discourses that render critique from justice perspectives (Temper et al., 2018; Valquaresma et al., 2024). This is problematic in our view, given the all-encompassing societal changes that the current reindustrialisation entails, and the large impact on local communities. In this sense, the news media seem to partly fail to engage their publics, hence not fulfilling their democratic role (Eskjær & Horsbøl, 2023; Schäfer & Painter, 2021). The Northvolt bankruptcy in March 2025 and the widespread consequences of that, both locally and nationally, illustrate the high risks involved.

And finally, since this study provides a first overview of a relatively large set of news media texts treating a complex process over a long period, the presented results need to be complemented with additional in-depth analysis of different dimensions and intersections articulated in these complex discourses. We therefore propose future research in this area that investigates specific news media topics and themes, and work that includes other forms of media dealing with the “green” transition, for example, podcasts and social media content. Multimodal approaches and visual analysis of the “green” transition are also key to undertake. The journalistic production process at large also deserves more attention from scholars (Schäfer & Painter, 2021). This is crucial if we intend to better grasp how the global climate crisis is played out both nationally and locally, and how discourses in news media of a “green” transition take shape in the Swedish North.

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## Appendix

### Search string:

‘Northern Sweden’ [Norra Sverige] and lexical variances of any of the words or phrases ‘green transition’, ‘societal transition’, ‘re-industrialisation’, ‘new industrialisation’, ‘industrial/industry boom’, ‘industrial development/endeavour’, ‘industrial revolution’, ‘industrial investment’, ‘industrial establishment’, ‘Nordic boom’, ‘battery factory’, ‘fossil-free’, ‘industrial/industry wave’, ‘industrial project’.

### Topics, top words, and rank-1 metrics

#### Energy and energy production

Topic label	Top words (15)	Rank-1
Electricity – South & North	sweden; electricity; electricity production; south; swedish; electricity supply; electricity shortage; north; situation; year; electricity price; fossil-free; country; company; industry	0,1822
Electricity – Supply & Distribution	aurora; line; new; finland; north; sweden; swedish; build; powerline; industry; construction; data center; node; freelance; electricity intensive	0,3071
Electricity Price	sweden; electricity price; electricity; price; south; north; swedish; year; percent; electricity area; low; penny; winter; country; household	0,1973
Electricity Shortage in Skåne	skåne; swedish; mw; sweden; new; south-west link; year; electricity shortage; malmö; power grid; facility; barsebäck; build; electricity; operation	0,2435
Electricity – South & North	electricity; south; sweden; north; skåne; country; electricity supply; electricity shortage; year; electricity production; produce; new; transmission capacity; percent; increase	0,1947
Electricity Supply	energy company; twh; year; pettersson; electricity; electricity demand; industry; åsa; sweden; nuclear power; increase; society; new; want; north	0,4862
Electricity Distribution	swedish; new; power grid; need; green; industry; electricity; electricity network; sweden; gustafsson; succeed; megawatt; signify; want; explain	0,3726
Investments in the North – Industry & Power Grid	swedish; power grid; new; north; billion; electricity network; government; electrical line; 8,4; invest; lotta; farmanbar; station; investment; build	0,4157
Development Needs of Fossil-free Electricity	electricity; wind power; sweden; build; electricity production; north; year; new; industry; twh; fossil-free; expansion; require; energy; nuclear power	0,1137

Electricity & Electricity Distribution – Development Needs	new; gustafsson; swedish; hydrogen; power grid; year; electricity; billion; power generation; ten-year plan; production; place; sweden; approximately; expensive	0,3600
Industries Electricity Demands (Allocation & Distribution)	swedish; power grid; vattenfall; north; luleå; output; mw; sweden; new; steel; project; h2; green; year; electricity	0,3639
Increasing Electricity Demand	sweden; new; transition; build; increase; electricity demand; electricity; need; energy company; electricity network; twh; electricity production; political; time; to welcome	0,2909
Nuclear Power	nuclear power; new; build; sweden; electricity; reactor; wind power; want; conservative; nuclear power plant; electricity production; energy policy; electricity system; south; party	0,2225
Solar & Wind Power	electricity; energy; sweden; produce; build; wind power; renewable; solar panel; want; use; fossil-free; nuclear power; country; whole; swedish	0,1651
Wind Power Debates	eriksson; wind power; kaxås; peter; hotel; sweden; build; green; verdict; nature; jämtland; petter; maria; stordalen; feeling	0,2913
Transition Prerequisites – Wind Power & Export	wind power; municipality; sweden; new; year; lkab; company; strategy; require; at the same time; whole; create; transition; fossil-free; emissions	0,4565
Wind Power – Establishment Difficulties	new; wind power; year; swedish; twh; wind farm; sweden; build; difficult; electricity production; nuclear power; badman; daniel; act; show	0,3583
Wind Power – Local Perspectives	municipality; wind power; government; sweden; inquiry; country; municipal; veto; proposal; local; north; whole; new; incentive; expansion	0,1921
Hydro Power	hydro power; vattenfall; build; water; river; sweden; power station; mw; power plant; pumped storage power station; operation; lake; electricity; year; place	0,3967
Wind Power – Electricity Prices	wind power; year; new; electricity production; stop; electricity price; municipality; kwh; electricity; sweden; crown; build; push; penny; electricity cost	0,413
Wind Power – Criticism & Debate	wind power; wind turbine; sweden; wind farm; build; north; year; swedish; markbygd; area; company; electricity; own; agreement; twh	0,2456
Wind Power – Offshore	project; wind power; offshore; build; skyborn; sweden; sea; west; government; meter; wind turbine; swedish; electricity; wind farm; offshore	0,33
Hydrogen	hydrogen; energy; luleå; want; sweden; north; university; green; build; technical; plan; ltu; new; different; company	0,3189

## Politics and political administration

Topic label	Top words (15)	Rank-1
Government Agreement 2019	new; inquiry; implement; increase; execute; löfven; strengthen; sweden; proposal; löf; school; appoint; legislation: annie; year	0,1408
Ebba Busch (KD) & Local News in English	busch; sweden; area; ebba; norran; transition; press conference; assignment; year; enterprise and industry sector; labour; north; new industrialisation; the swedish agency for economic and regional growth; new	0,5103
National Politics & Policy Issues	swedish; sweden; should; stand; country; political; problem; politician; write; time; question; future; state; new; act	0,0871
Government Coordinator for the Transition in the North	larsson; peter; government; coordinator; north; new; sweden; västerbotten; development; norrbotten; assignment; municipality; housing; infrastructure; state	0,1479
Government & Political Parties	party; sweden; government; want; green party; sd; mp; north; politics; election; social democrat; parliament; conservative; green; issue	0,1181
Politicians and Political Actors	government; helena; center party; time; lindahl; ygeman; proposal; new; isak; permit; parliament; power grid; lars; energy minister; want	0,2128
EU Politics & Regional Influence	eu; region; sweden; north; think; budget; jämtland; gotland; regional; netherlands; denmark; hold; example; regional politician; elise	0,3967
Environmental Law & Licensing	sweden; cementa; gotland; cement; swedish; threaten; lkab; stop; climate; foundation; application; baylan; problem; requirement; new	0,3098
Coordination Assignments – Government & Regions	assignment; government; north; sweden; issue; county governor; västerbotten; municipality; labour; knutsson; hellmark; employment agency; helene; support; want	0,1637
Energy Policy	government; sweden; electricity price; farmanbar; minister for energy; nuclear power; wind power; south; reactor; khashayar; year; shutdown; ringhals; close; low	0,2896
Government Parties & Politicians	government; sweden; busch; ebba; north; kristersson; minister; kd; live; ulf; chairman; karkiainen; member of parliament; minister for business and industry; social democrat	0,1477
Labour Market Policy	jobs; new; labour market; sweden; nordmark; eva; swedish; minister for employment; year; future; green; unemployment; government; create; transform	0,2621
Environmental Assessments & Permit Processes	county administrative board; land; new; permit process; lotta; government agency; talga; sundström; mine; finstorp; environmental court; year; process; operation; environmental assessment	0,251
Magdalena Andersson (S)	andersson; magdalena; social-democrat; conservative; require; new; politician; liberal; economic; minister for finance; social democratic; want; aid; chairman; country	0,2905
Party Politics – Stefan Löfven (S)	sweden; north; löfven; new; industry; norrbotten; government; prime minister; stefan; year; new industrialisation; green; politics; speak; example	0,253
Aviation Tax	aviation; tax; sweden; government; aviation tax; inquiry; swedish; country; center party; jobs; report; alternative; implement; åkesson; investigator	0,3487

Places (cities, municipalities, and regions)

Topic label	Top words (15)	Rank-1
Societal Transition in Skellefteå	skellefteå; municipality; northvolt; battery factory; tell; burman; year; power; lorents; sweden; establishment; city; northvolt's; new; north	0,1365
Municipalities in Västerbotten	umeå; municipality; västerbotten; lycksele; year; vilhelmina; city; storuman; new; county; local; skellefteå; nordebo; norrland; vk	0,0951
Västernorrland – Industrial Establishments	sundsvall; västernorrland; county; timrå; torsboda; municipality; region; new; härnösand; pieces; battery factory; sweden; chairman; region of sundsvall; volvo	0,2197
Municipal Investments & Perspectives	municipality; new; municipal commissioner; establishment; year; municipal; housing; inhabitants; million; berg; mats; area; build; crown; stand	0,0449
Societal Transition in Kiruna, Gällivare & Luleå	kiruna; lkab; new; city; move; year; gällivare; freelance; johan; society; sweden; old; zacke; mine; meter	0,2662
South & North (Tidholm & Energy Market)	tidholm; po; area; brandin; sweden; production; north; janus; moderator; swedish; south; norrland; electricity price area; norrbotten; market	0,3878
Industry & Transition in Boden & Luleå	boden; nordmark; claes; municipal commissioner; king; municipality; sweden; luleå; engineer; h2gs; issue; north; steel; green; salary	0,1766
Industry & Transition in Luleå	luleå; sammeli; new; lkab; port; industrial park; carina; municipality; build; robert; svartön; eriksson; want; project; ssab	0,1932
Regional Perspectives – Gender Equality & Forest Grazing Damage	woman; county; north; society; sweden; county governor; prostitution; sexual; require; want; gender equality; demand; girl; service; societal transition	0,4217
Societal Transition in Boden, Skellefteå & Luleå	boden; skellefteå; luleå; green; h2; municipality; steel; year; new; build; gällivare; work; north; northvolt; company	0,0316
Societal Transition in Luleå	luleå; new; city; architect; want; north; place; housing; build; thought; house; create; sweden; skanska; job	0,3022
Västerbotten & Norrbotten	västerbotten; region; regional; county; sweden; north; lindfors; carstedt; regional politician; norrbotten; nils-olov; rickard; crown; transition; project	0,1564
Transition in Dalarna	ludvika; dalarna; municipality; borlänge; new; company; state; hitachi; abb; industry; whole; place; energy; sweden; employee	0,2292
Urban Development & the Future – Northvolt/Skellefteå & Gällivare	skellefteå; municipality; palm; anja; year; build; northvolt's; education; new; production; grow; battery factory; workforce; create; housing	0,3793
Transition – Norrbotten & Västerbotten	sweden; north; norrbotten; green; transition; västerbotten; investment; industry; whole; county; government; new; luleå; happen	0,0413
Center/Periphery – Rural Places, the Nation & the World	sweden; stockholm; dn; north; city; country; emma; luleå; familiy; gonzalo; article; year; news room; question; engelmark	0,2678

## Industries and industrial actors

Topic label	Top words (15)	Rank-1
Industrial Actors & International Environments	lkab; h2; company; green; steel; north; ssab; luleå; johansson; boliden; northvolt; project; karin; operation; hallstan	0,1354
Forestry, Fertilizers, Biogas & Chemicals – New Establishments	örnsköldsvik; new; production; facility; sca; factory; use; year; build; fossil-free; project; investment; ton; company; green	0,2246
Forestry	forest; holmen; north; sweden; year; forestry; forest owners; sveaskog; henrik; sjölund; swedish; diversity; million; government; industry	0,288
Electric Aviation & Corporate Leadership	development; aviation; manager; heart; stockholm; ceo; gothenburg; electric; plane; eneroth; aerospace; electric aircraft; transform; prince; fly	0,4434
Aviation	aviation; airport; fly; sweden; airport; aviation tax; traveling; electric aircraft; year; north; traveller; percent; fossil-free; bromma; government	0,3463
H2 Green Steel (Stegra)	h2; green; steel; boden; electricity; steel; build; factory; henrik; new; henriksson; north; year; sweden; ceo	0,2654
Forestry, Hunting & Grazing Damage	forest; grazing damage; elk; north; county; damage; olof; falkeström; pine; forestry industry; reduce; reach; sweden; goal; consequence	0,4554
Transition Actors	sweden; north; new; jonsson; mix; build; wind power; mattias; year; housing; south; swedish; electricity; finland; plan	0,3636
Hybrit	lkab; steel; fossil-free; ssab; hybrit; new; hydrogen; production; project; sweden; electricity; vattenfall; produce; sponge iron; use	0,094
Hybrit – UN Climate Summit	hybrit; steel; lindqvist; ssab; un; industry; fossil-free; martin; state; world; transform; lövin; stand; hydrogen; ceo	0,2609
Vattenfall	anna; borg; vattenfall; ceo; new; sweden; pace; increase; much; country; imbalance; electricty; stand; believe; project	0,2597
Northvolt	northvolt; factory; battery factory; peter; carlsson; northvolt's; build; skellefteå; volvo; battery; europe; new; ceo; scania; billion	0,1452
Mining Industry – Metals & Minerals	mine; metal; sweden; mineral; new; deposit; cobalt; to mine; north; copper; mining industry; boliden; critical; battery; year	0,1832
New Industrial Establishments & Electricity – South & North	north; sweden; norrland; south; investment; new; electricity; green; build; battery; factory; want; country; time; forest; stockholm	0,1983
Mining Industry – Uranium Mining & Rare Earth Metals	rare earth elements; rare; uranium; uranium mining; to mine; ban; kiruna; prevent; deposit; certain; mining; sweden; bedrock; explain; want	0,375

## Labour, competence provision, and migration

Topic label	Top words (15)	Rank-1
Guest Workers, Migration, Population & Housing	want; company; worker; jokkmokk; sweden; foreign; pettersson; municipality; guest worker; jörn; building; union; increase; västerbotten; life	0,2045
New Jobs, Population & Migration	jobs; steel; new; h2; green; north; steel; company; want; sweden; fossil-free; employment agency; northward; lkab; turn	0,2803
Labor Migration & Wage Requirements	pehrson; wage requirement; sd; want; government; sector; exception; johan; di; manager; impose; public; industry; source; point	0,5161
New Jobs, Population & Migration	new; jobs; person; north; skellefteå; build; factory; norrbotten; year; green; steel; h2; boden; housing; industry	0,4621
Jobs & Competence Provision	year; skellefteå; jobs; northvolt; work; markus; sweden; lkab; municipality; want; svensson; person; gustafsson; minddig; chana	0,3103
New Jobs, Population & Migration	jobs; north; move; sweden; new; workforce; employment agency; norrbotten; västerbotten; skellefteå; percent; attract; unemployment; create; human	0,2105
Population Statistics, Development & Migration	year; municipality; skellefteå; inhabitant; person; eriksson; sweden; scb; move; umeå; north; population; rikard; university; new	0,2194
Job Listings & Investments in the North	assignment; stimo; piteå; different; work; position; company; management consultant; north; team; green; competence; consultant; sweden; project management	0,5978
Population, Immigration & Living Environments in the North	municipality; north; jonas; lundström; sweden; inhabitant; skellefteå; västerbotten; year; move; luleå; green; county; piteå; enterprise and industry sector	0,2095
Job Listings in Skellefteå	skellefteå; museum; ceo; ltd; develop; sweden; apply; operation; role; and; create; assignment; anna; lead; culture	0,2471
New Industrial Establishments, Living Conditions, Family & Housing	family; life; child; live; house; move; municipality; jobs; new; want; friend; north; tell; place; sweden	0,1393
Employment Agency - Demand	prognosis; employment agency; jobs; require; ingrid; viklund; ros; carpenter; healthcare; education; doctor; need; year; profession; assess	0,3874
Labor Migration & Wage Requirements	swedish; labour migration; government; sweden; proposal; requirement; wage; workforce; stricter; labour market; think; new; country; enterprise and industry sector; ceo	0,311
Job Listings, Positions & Business Development	work; company; employee; skellefteå; office; almi; and; sustianable; operation; experience; new; region; boliden; develop; work	0,1818

## Critique, problems, and challenges

Topic label	Top words (15)	Rank-1
Land Use Conflicts	sami village; reindeer; gällivare; land; persson; forest sami village; sami; path; interest; use; reindeer husbandry; green; area; transition; sweden	0,2605
Conflict/ Challenges – Mining Debates & Population	year; mine; jobs; want; move; government; beowulf; sweden; jokkmokk; new; survey; kallak; imagine; land; give	0,3537
Exploitation of the Swedish North & Rural Perspectives	sweden; municipality; countryside; million; country; north; give; crown; should; whole; investment; build; rural area; money; norrland	0,1314
Rural & Regional Challenges	sweden; new; sami; countryside; signify; alta; north; growth; struggle; film; marie; want; isaksen; hætta; minister for rural affairs	0,3647
Transition & Crime	company; police; sweden; crime; government agency; person; collective agreement; risk; work; control; criminality; foreign; worker; subcontractor; north	0,3917
Critical Perspectives	swedish; sweden; conservative; proposal; project; problem; want; organisation; new; alternative; sweden democrat; report; enterprise and industry sector; question; north	0,2092
Criticism & Debate – Green Steel	henrekson; magnus; green; h2; steel; north; criticism; lkab; risk; time; project; report; h2gs; company; wait	0,2959
Arne Müller – Criticism & Debate	müller; arne; green; industry; sweden; book; build; electricity; require; want; new; metal; north; wind turbine; author	0,3383
Food Production	whole; sweden; food; own; grow; stefan; country; many; tomato; build; power; human; sundström; act; year	0,381
Crisis – War, Conflict & Military	russia; sweden; europe; ukraine; country; war; china; russian; military; dependence; norway; nato; usa; eu; affect	0,1621
Green Industry & Electricity – Criticism & Debate	sweden; lkab; north; hybrit; consider; johansson; electricity; vattenfall; project; henrekson; criticism; wind power; state; magnus; actor	0,2917
Crisis – Climate & Security	sweden; snow; alps; emissions; skistar; year; rice; harald; europe; warm; climate change; swedish; question; winter; want	0,3151
Crisis – War, Conflict & Military	sweden; swedish; north; russia; actor; industry; company; power; goal; security; information; johan; different; espionage; wiktoria	0,3947

## Future and development

Topic label	Top words (15)	Rank-1
Future & Development	new, volvo; sweden; generation; north; way; society; future; build; give; battery; car; nycander; gustavsson; future	0,3538
New Technology & Marketing	ai; campaign; new; different; freelance; renström; project; show; andy; area; sweden; green; job; turner; factory	0,2881
Growth & Development	sweden; new; development; whole; company; opportunity; country; create; region; prerequisite; growth; want; contribute; north; industry	0,085
Investment & Increase – Electricity, Wind Power & Education	sweden; new; year; swedish; prognosis; south; wind power; kulin; wind energy; twh; north; daniel; electricity production; increase; approximately	0,3784
Opportunity, Innovation & Leadership	green; sweden; transition; north; sustainable; create; new; society; world; develop; solution; technical; university; industry; challenge	0,0848

## Cars and housing

Topic label	Top words (15)	Rank-1
The Housing Market & Electric Cars	year; eu; country; villa; sweden; rent; communally owned housing; buy; difference; ledin; eneroth; believe; realtor; although; wait	0,5263
Housing & Construction	housing; municipality; build; year; construction; sweden; north; residential construction; new; construction company; apartment; small house; skellefteå; investment aid; housing shortage	0,2793
Housing, Housing Shortage & Construction	housing; person; north; gällivare; year; skellefteå; new; northvolt; start; green; jobs; fossil-free; steel; boden; many	0,4234
Fuel & Reduction Obligation	reduction obligation; farmanbar; percent; gasoline; diesel price; diesel; increase; electricity price; minister for energy; sweden; year; increased; biofuel; reach; south	0,2621
Biofuels & Hydrogen as Fuel	biogas; hydrogen; sweden; use; fossil-free; hvo; year; fuel; skoog; propellant; diesel; vehicle; heavy; biofuel; future	0,3892
Electric Cars & Charging Infrastructure	car; electric car; sweden; year; rechargeable; percent; vehicle; gasoline; charge; rural area; new; drive; diesel; increase; road	0,2852
Residential Construction	tor; borg; build; demand; hermannsson; cecilia; problem; housing; swedish; household; at the same time; increase; inflation; percent; lack	0,4306
Construction Industry – Economy	economy; crisis; construction industry; time; private; stenbeck; economic; public; sweden; build; investment; sector; kinnevik; cristina; whole	0,4778

## Infrastructure

Topic label	Top words (15)	Rank-1
Infrastructure, Railways & Norrbottenbanan	norrbottenbanan; swedish transport administration; government; railway; build; billion; north; sweden; crown; luleå; skellefteå; infrastructure; route; new; umeå	0,2833
Infrastructure, Railways & Inlandsbanan	inlandsbanan; road; sweden; railway; north; billion; track; transport; infrastructure; restoration; investment; swedish transport administration; county; inland; maintenance	0,2816
Infrastructure – Government Decisions, Investments & Fees	sweden; north; eneroth; swedish transport administration; advance in time; tomas; investigate; assignment; government; industry; västerbotten; industrial investment; norrbotten; fossil-free; green	0,4396
Infrastructure, Railways & Ostkustbanan	new; swedish transport administration; ostkustbanan; sweden; railway; government; double track; north; investment; Gävle; whole; train; region; plan; proposal	0,2603

## Climate and climate change

Topic label	Top words (15)	Rank-1
Climate Change & Extreme Weather in the Mountains	degree; 1,5; time; animal; arnbom; extreme; snow; warming; food; climate change; land; tom; world; bad; snow crust	0,4034
Climate Transitions & Fossil-free Futures	sweden; emissions; reduce; fossil-free; percent; eu; transition; climate; green; fossil; year; sustainable; at the same time; increase; require	0,0728
Climate Change & Climate Politics	year; climate; emissions; future; sweden; degree; politics; world; global; earth; warming; warm; country; party; climate issue	0,2564
Animals, Health & Nature	animal; human; pandemic; diversity; biological; predator; infection; wild; environment; at; risk; sl; sweden; different; virus	0,1867

## Cultural and social issues

Topic label	Top words (15)	Rank-1
Culture, Gender Equality & Sports	culture; north; society; build; municipality; human; sweden; work; enterprise and industry sector; girl; quartey; boliden; act; want; francesca	0,3281
Arctic Art	north; anders; artist; iceland; jansson; umeå; start; art; usa; canada; sweden; investment; arctic; world; identity	0,6327
Gender Equality, Family & Activism	for; is; on; sweden; anshu; chavhan; future; women; amanda; air; india; siddharth; want; kashvi; pai	0,4848
Literature & Authors – Norrland	book; sörlin; sverker; write; karin; sweden; land of the future; author; north; polarbröd; norrland; smirnoff; society; story; new	0,335
Meetings & Meeting Places	sweden; meeting; tell; municipality; luleå; participate; north; place; preeschool; linda; norrbotten; arrange; transition; green; open	0,177

## Economy

Topic label	Top words (15)	Rank-1
Regional Effects of the Economic Recession	sweden; region; percent; wait; nordea; norrland; north; småland; development; most; very; weak; susanne; spector; county	0,2899
Companies, Economy & Investments	ldt; company; year; ceo; crown; company; million; billion; sweden; percent; ceo; founder; operation; own; daniel	0,1831
Economy – Recession	recession; year; believe; unemployment; percent; household; robert; interest rate; tough; sector; sure; different; people; chief economist: the national institute of economic research	0,2928
Economy, the Market & USA	usa; bolund; sweden; meeting; year; kerry; handelsbanken; fossil-free; john; economist; green; transition; anna; swedish; politician	0,4262

## Education and healthcare

Topic label	Top words (15)	Rank-1
Universities, Research & Education	university; education; luleå; new; technical; school; sweden; ltu; teacher; student; competence; research; need; increase; north	0,2301
Welfare – Education & Healthcare	school; welfare; östersund; want; children; healthcare; young; opportunity; give; sweden; education; time; care; work; jobs	0,1948
Healthcare & Welfare	region; sweden; healthcare; year; municipality; increase; medical care; staff; human; västerbotten; person; left party; welfare; want; stand	0,1733

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