

Master's Thesis – Master Sustainable
Development

The Role of Identity in Coal Phase-out Transitions

For the German cases of Lusatia and North Rhine-Westphalia

M.J. Thimm, 6105955, m.j.thimm@students.uu.nl

Supervisor: James Patterson

ECTS: 30

ESG Track

SUMMARY

This research aims to address the role of identity in the coal phase-out in the German regions North Rhine-Westphalia and Lusatia. It does so by using the framework as provided by Sanz-Hernández (2020) as a guide. Interviews were conducted with eleven regional experts, among which scientists, a mining employee, and a mayor. To complement the data gathered through these interviews, news articles were consulted in a structured way. This data was analyzed with NVIVO. As a result, it was found that especially economic; territorial; social, emotional and cultural dependence; and injustice played a significant role. Additionally, the attributes of identity do not function independently, and influence each other in different ways. These insights can provide useful for future research, and help build the body of literature about sustainable energy transitions. Further research could point out to what extent the results are generalizable and may complement the findings with other identity attributes from other frameworks.

PREFACE

For five years, I have been a proud student at the University of Utrecht. Sadly, my student life in this beautiful city has to come to an end. I have gotten the chance to follow courses built by some of the best in the field of Sustainability, and have been honored to work with brilliant colleagues. Over the past five years, I have been taught so much, and have personally grown as well. After those five years, the topic of sustainability still does not cease to amaze me, and there is still much to be learnt.

My Bachelor's Thesis explored the different factors for success with regards to the possibility of imposing a meat-tax. As such, I analyzed multiple case-studies, and executed a semi-structured literature review. This provided me with a rough framework of success-factors for future reference. However, the constraints of the COVID-pandemic forced me to opt for this method of using literature rather than producing my own data. I felt that I was missing out on interesting insights that could be provided only by human interaction.

As such, for my Master's Thesis I wanted to take a different, more human-focused approach. After all, sustainability refers to a practice that is durable over time. Therefore, any sustainability governance practice or policy must take into account carrying capacity by society as well. This may sound logical, but is more difficult to include into scientific research than one may think. It is an issue for qualitative research, and is difficult to express in numbers and with objectivity. Regardless, the social aspects of sustainability governance have long drawn my attention, and may always do so.

After sparring with my thesis supervisor (James Patterson), we found that the topic of identity fits this interest very well. Additionally, it provides a challenging, yet valuable addition to the current body of literature. My family has roots in Germany, and it also happens to be a country I feel has very interesting environmental policies. One thing that springs to mind is the large presence of solar panels as soon as one crosses the border, apparently due to a surge of subsidies in previous years. Therefore, it only made sense to choose cases within this interesting country.

Once, Henry Kissinger, a German-born American politician, diplomat and geopolitical consultant stated: "A diamond is a chunk of coal that did well under pressure" (Matieu, 2022). Hopefully, so is this thesis.

Maaike Thimm

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LIST OF ABBREVIATIONS

BUND	Bund für Umwelt und Naturschutz Deutschland
LEAG	Lausitz Energie Bergbau AG
EU	European Union
IG BCE	Industriegewerkschaft Berbau, Chemie, Energie
NRW	North Rhine-Westphalia
RWE	RWE Power AG
AFD	Alternative for Germany; right-wing populist political party.

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1. INTRODUCTION

Sustainability is one of the largest challenges of this time (Fry & Egel, 2021). How come yet still less than a third of global energy provision is generated sustainably (iea.org, n.d.)? Academics suggest dimensions such as the economical, environmental and social dimensions are crucial for sustainable transitions (Dempsey et al., 2011; John & Narayananamurthy, 2015; Llorca-Ponce et al., 2021; Philis et al., 2021). However, despite the importance of social aspects such as context, emotion and identity are widely acknowledged, they are often left out of the equation (Postmes et al., 2013; Zou, Su & Wang, 2018; Adams, 2021). Regardless, **it is impossible to achieve a sustainable society without understanding the role identity plays in this.**

Identity is a crucial aspect consider to ensure a successful transition towards a sustainable society (Koller, 2021). An increased sense of community can be associated with an increased willingness to protect local environment, and environmental intentions are strengthened by localized identity (Forsyth et al., 2015). In addition to individual identity, identity can also be collective, reflecting a fundamental sameness among members of a group or category (Brubaker & Cooper, 2000). This may be objective or subjective and is expressed by collective action, solidarity or shared dispositions or consciousness (Forsyth et al., 2015).

There is much literature exploring identity. A large part of the literature focuses on further defining the aspect of identity in psychology, sociology and environmental sciences (Valera & Guardia, 2002; Cryssochou, 2003; Clayton, 2003; Salman, 2018; Brown et al., 2019). Additionally, various literature explores the role identity plays within a sustainable transitions such as sustainable infrastructure and transport (Alba-Patiño et al., 2021; Miškinis et al., 2021; Schulte, Mamberg & Rees, 2021; Becker, Bogel & Upham, 2021). There is also a substantial amount of literature exploring identity in relation to sustainable energy transitions, specifically coal phase-outs and transitioning towards renewable energy (Sanz-Hernández, 2020; Scorza et al., 2020; Mengi-Dinçer et al., 2021; Sareen, 2021).

Despite the large body of literature, there is still a pressing lack of knowledge regarding in-depth relations between identity and sustainable energy transitions. As mentioned previously, there is already much general literature regarding identity from different disciplines such as psychology, sociology and environmental sciences. Identity is crucial to understand when exploring factors for successful renewable energy projects (Pandey & Sharma, 2021). Multiple scholars emphasized the need for a larger understanding of the role of identity in relation to energy transition, and understanding the mechanisms that may help or hinder this transition (Hoicka, Conroy & Berka, 2021; Pandey & Sharma, 2021; Steg et al., 2021). This only further supports the pressing need for more scientific research exploring the link between regarding identity and energy transitions.

This research focuses on such sustainable energy transitions, more specifically: coal phase-outs. Transitions from coal-based energy towards more sustainable energy sources are taking place in different locations. Some examples of coal phase-outs are taking place in Germany, Spain, Poland and the United Kingdom (Rentier, Lelieveldt & Kramer, 2019). This paper focuses on coal phase-out areas in two German cases, this will be further explained in the methods section. These coal-transitions are especially relevant for this thesis, since they can help understand how identity influences these sustainable energy transitions. The insights that are gained from this paper, are highly relevant for future research and developments on this topic.

Therefore, the aim of this thesis is to add to the current body of literature the interplay between identity and energy transition, in relation to coal phase-outs. In addition to case-specific insights, the overall goal is to provide useful insights for future energy transitions as well as climate action in a more general sense. These insights are useful to both sustainability scholars, as well as policy makers. To reach the research aim, this thesis will aim to answer the following main research question: **"How can collective identity help or hinder coal phase-out transitions?"** This main question is subdivided into the following sub questions:

1. *How can collective identity be conceptualized with regards to sustainable energy transitions?*
2. *How does collective identity help or hinder the sustainable energy transitions in the cases of Lusatia and North Rhine-Westphalia?*
3. *What are the implications of these findings for coal phase-outs more broadly/ coal-phase outs?*

The sub-questions 1, 2 and 3 are used to guide the research. As such, the main research question are answered. The following sections will first delve more into the current available body of knowledge regarding sustainable energy transitions and the role collective identity plays therein. This will help form a preliminary theoretical framework to gather more data on this topic, which is done by conducting interviews. These interviews are complemented where needed by news articles. This is further explained in the methods section, as well as the expected results.

2. THEORY

2.1 THEORETICAL BACKGROUND AND ANALYTICAL FRAMEWORK

An increased sense of community can be associated with an increased willingness to protect local environment, and environmental intentions are strengthened by localized identity in their cases (Forsyth et al., 2015). Forsyth et al. (2015) explored the link between identity and sustainability in local contexts especially. They suggest sustainability claims must be in line with intuitive associations and be credible in order to be publicly supported. Colvin (2020) agreed, suggested that especially for cases in coal phase-out, defense of self and group identity can translate to a defense of coal. Moreover, according to Ulug et al. (2021) shared values and interpersonal connections help form collective identities for villages. These collective identities in turn may lead to collective action (Brubaker & Cooper, 2000). With relation to coal phase-outs, a strong local collective identity may also influence the amount of collective action, both in support and opposition of the transition.

Other literature supports the importance of understanding and addressing the composition and balance of motives among residents, specifically in coal regions (Svobodova, Owen & Harris (2021). Czibere, Kovach & Megyesi (2020) added that for different energy transitions in Europe, environmental self-identity, energy-provider environmental responsibility, personal norms and social norms are also crucial for the transition towards sustainable energy. Moreover, they suggesting diversity can be better understood by exploring identities, by evaluating social demographic backgrounds and attitudes. This differs greatly per country (*ibid.*). In short, for all energy transitions understanding motives of locals is crucial, especially for coal phase-outs where identity plays a crucial role of locals' acceptance of adaptations or transitions (Barnett et al., 2021).

Additionally, literature suggests that embracing sustainability requires developing an environmental identity, which results in a specific attitude (Domalewska, 2021). Thomas, McGarty & Mavor (2009) agree, suggesting commitment to collective action is dependent on social identity, which is a sum of norms for emotion, efficacy, and action. As such, they suggested exploring emotion, efficacy and action as group norms to help scholars understand theoretical connections between collective identities and subjective meaning as a result, to better understanding causality. Complementary, Domalewska (2021) also refers to the underlying core values of one's individual, social identity, and that this is of great influence for sustainable attitude. As a result, one may feel more inclined to show solidarity for future generations and others with regards to sustainable transition and bearing the costs for this.

There are many different links between identity and sustainable development. Various papers have been written exploring the attributes of identity. In 2020, Sanz-Hernández published a research exploring how resistance identities arise in mining communities in regards to the sustainable energy transition. They explain

that to reduce resistance identities, adaptive dilemmas must be addressed and resolved (*ibid.*). In 2020 Sanz-Hernández et al. provided an oversight of these attributes. A summary thereof can be found in table 1 below.

Table 1: Analytical framework to study resistance identities to energy transitions adapted from Sanz-Hernández (2020) to the current topic

Category	Identity types	Identity attributes
Work	Occupational identity & class-belonging identity	Self-identification Continuity Emotional & cultural dependence Economic dependence Social dependence Solidarity Reaffirmation
Family	Familiar identity	Economic dependence Social dependence Solidarity Continuity Reaffirmation
Life experiences in the territory	Community identity	Territorial dependence Solidarity Justice

Some literature suggests that identity can also be used as a tool to generate support for sustainable measures Paskaleva & Cooper, 2007). Urban identity evoking can thus be seen as part of a strategy to ensure citizen participation in their framework of heritage-based identity building in support of sustainable urban development (Paskaleva & Cooper, 2017). In their research, Paskaleva & Cooper (2017) explored different European cases of community identity and its influence on the sustainable urban development. However, in their research the focus shifts towards the opportunities in using urban identity as a tool to gather support for sustainable urban development- which is not exactly the purpose of this thesis. Barnett et al (2021), suggested that by giving individuals confidence in continuity for their collective identity groups, and enabling them to develop their sense of self, collective responses to climate adaptation may be more supportive. **Therefore, literature suggests for a coal phase-out, it is important consider the barriers provided by identity, as well as the opportunities.**

2.2 OPERATIONALIZATION FRAMEWORK

Identity is a very complex, layered concept that requires a framework and clear conceptualization. As previously described, the dependent variable that is explored in this thesis is sustainable energy transition, specifically coal phase-out for the cases of Lusatia and NRW. As such, the independent factor that are explored influences this outcome is the identities of the communities involved. One framework that provides more tangible, measurable attributes to identity is the one written by Sanz-Hernández (2020). Sanz-Hernández introduces four of these: *occupational identity; class belonging identity; familiar identity; and community identity* to consider for such an energy transition.

In addition, different scholars suggested **collective or social identity is a sum of norms for emotion, efficacy and action** (Thomas, McGarty & Mavor, 2009; Domalewska, 2021). Table 2 below shows the mechanisms

between the different identity attributes (see table 1), for situations in which one may expect relatively more resistance according to literature. Table 2 are used as a guiding framework to code the interview transcriptions and help guide the literature that is used to complement it. More about the application of the framework is explained in the methods section.

Table 2: Identity attributes as provided by Sanz-Hernández (2020), with added hindering mechanisms for coal phase-outs as found in literature, accompanied by examples thereof (Sanz-Hernández , 2020; Forsyth et al., 2015; Colvin, 2020; Ulug et al., 2020; Brubacher & Cooper, 2000; Svobodova, Owen & Harris, 2021). *Quotes in this column are drawn Sanz-Hernández (2020)

Identity attributes	Hindering mechanisms towards coal phase-out	Indicator (examples of statements*)
High self-identification	Self-identification as miner strong;	Work habits, sense of class belonging, " <i>I am a miner</i> "
	Strong collective identity as miner	Work relations
High continuity	Sense of belonging and continuity threatened;	Temporary uses, work habits
	Strong perception of continuity;	<i>"You never stop being a miner"</i>
	Future of working career is threatened	Temporary uses
High emotional & cultural dependence	Strong emotional and cultural bond to mine and coal	Work relations
High economic dependence	Great worries regarding economic dependence	Family lifestyles, " <i>We've always lived from coal</i> "
High social dependence	Way of life and family are threatened	Family lifestyles, habits, inter/ intra-generational, tradition
Solidarity	High: strong comradeship and collective identity between miners is threatened	Sense of trust, feeling of being part of a "group", " <i>we'll keep fighting</i> ", " <i>coal puts food on the table for all of us</i> "
	Low: lack of responsibility towards others and future generations to protect environment	Inter/ intra-generational
High reaffirmation	Proud of mining identity	
High territorial dependence	Local community identity	Place attachment (place of birth & residence), connection & rootedness, membership & sense of belonging (motivation to remain in territory)
	Community way of life is threatened	Security
Injustice	Large feeling of injustice	Expressed by protests, sense of abandonment " <i>left us in the lurch</i> ", breakdown of chains of trust " <i>neither good politics, nor governing</i> ", " <i>we don't want promises anymore</i> "

Table 2 is used as a starting point for this explorative research, and is part of an abductive approach. As is further explained in the methods section, the framework are used to guide the interview questions and their focus. Due to this approach, the interview questions are partially distinguished up front, but there is also room

for new attributes and theory. Therefore, it is important to note that the framework can be adjusted during the process.

3. METHODS

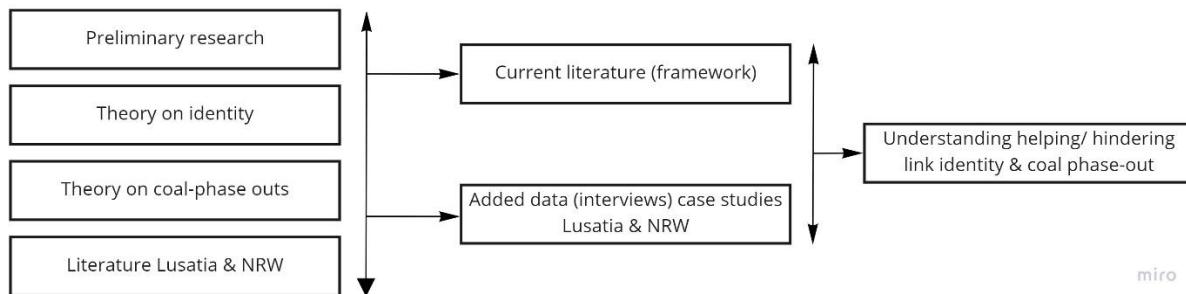


Figure 1: Research Framework inspired by Verschuren, Doorewaard & Mellion(2010). This framework summarizes what this research will aim to accomplish and how. This is further elaborated upon in this chapter.

Above, the research framework used is shown. First, preliminary research is executed, accompanied by theory on identity; coal phase outs; and background literature on the regions of Lusatia and NRW. The next steps involve finding a framework, as well as well-defining its concepts. Additionally, interviews are conducted amongst experts on the two case studies. The final result is an increased understanding of the links between identity and the coal phase-outs in these regions.

For the methods used, reliability, replicability and validity were considered. These concepts are further explained by Bryman (2016). *Reliability* refers to whether the results of a study are repeatable: if the research were to be conducted again, would it gather the same results? In order to ensure reliability, the research design was well-recorded, as well as built upon previous research. Decisions taken were noted along the process, as well as their justifications. *Replicability* refers to whether a study can be replicated by another researcher in the same way. Both of these criteria are established in this methods section, elaborating on the methods applied with support of literature. Lastly, *validity* refers to the integrity of the conclusions resulting from the research: the ability of used indicators to measure what is intended; the generalizability of results; established causality; and more (*ibid*). For this, literature is consulted in the theory section, and along the research critical thinking is applied to ensure this criteria is met. In order to secure the quality of the research, the three quality criteria are regularly considered and evaluated throughout the research process.

3.1 DATA GENERATION

3.1.1 INTERVIEWS

In addition to background literature, new data is gathered by the means of interviews. For this, for both cases at least 6-7 interviews are to be conducted with local government agencies, local citizens (initiatives) and other relevant actors more precisely defined. This is done with the guidance of the online literature previously described, which helps identify the local government officials, citizens, or relevant experts on the topic. More details on this process can be found in appendix 1.3. These stakeholders are contacted through phone calls or emails. They are asked whether they want to participate.

The interviews are semi-structured. This to both ensure some compatibility between the different interviews due to the shared basic structure, as well as allow for dialogue. As a result, there is an opportunity for additional insights that otherwise may have been excluded. An interview guide is prepared with a list of issues

to address or a rough outline of questions, leaving room for diversions (Bryman, 2016). This guide can be found in appendix 1.4. Introduction questions are asked to establish rapport with the interviewee, followed by more in-depth questions following the interview guide (Bryman, 2016). Moreover, since asking interviewees about their identity will likely be fruitless, interviews will focus on the smaller parts of identity. The questions are slightly adjusted to the interviewee, but aim to address the same core aspects of identity and their influence on the phase-out of coal in the respective case area. In table 2, the different identity attributes are listed, as well as the mechanisms identified through literature beforehand. These insights are used for the preparation of the interviews, per example for self-identification posing questions that relate to the self-identification and collective identities linked to the miners. This is done for each attribute, for each interviewee. These interviews help form an insight into how people identify (collectively) for Lusatia and NRW.

A language barrier is anticipated. For example, the news websites from Bild and Zeit are in German. This is also the case for some of the policy documents on government websites. In addition to the researcher's basic knowledge of German, a translation engine is used to assist if needed. For the interviews, the language barrier is tackled by seeking out people that speak English- such as academics and experts on this topic, as well as local government officials. It is important to take into account the limitations of not including natives that only speak German. However, due to time and capacity constraints, including them is difficult. This is partially compensated by the use of previously mentioned non-academic literature.

3.1.2 LITERATURE

Throughout the research, scientific non-scientific other literature is consulted. Non-academic literature such as government documents, news articles and videos, and opinion pieces is utilized, to help better gather background information about the local context. This provides additional insights into local identities, perceptions, and opinions that would not be accessible in only academic literature. For news articles and videos, the news site of Deutsche Welle (www.dw.com/en) is used. The Deutsche Welle is available in English, which makes it accessible for this research. Other online news sources that are used include Inside Climate News, CleanEnergyWire, Scientific American, and Ensia. All documents included are traceable to the searches conducted as shown in appendix 2.1. Searches are conducted similarly for academic literature: using broad terms, but limiting selection by setting the years of result from 2012-2022 as well as scanning results for relevance. A reference list for the readings included due to these searches is provided in appendix 2.1 as well.

Table 3: Examples of sources, search examples, and justifications thereof for the gathering of complementary documents

Source	Search	Justification
Deutsche welle (German newspaper)	“German coal mining”, “Lusatia coal mining”, “Rhineland coal mining”,...	To gather insights into the missing groups (journalists, citizens, mining employees, NGOs); This newspaper is available in English
Governmental website (bundesregierung.de)	“ending coal-generated power” → Policy document	To gather insights into missing groups (government/ policymakers); available in English/ policy documents could be translated

After the search and selection, the documents are analyzed in the same way as the interviews. They are added to the NVIVO file, and the same coding scheme is applied. This coding scheme is guided by the analytical framework as previously referred, and shown in table 3. As a result, the same aspects are explored. This is further elaborated upon in the next section.

Scientific literature may provide insights from similar research as well as additional insights and explanations. This literature is found through academic search engines Scopus and Web of Knowledge, using search words that fit with the topic, such as: “coal-phase out”, “energy transition”, “sustainable energy

transition”, accompanied with the search results should include Germany, Lusatia, North Rhine-Westphalia (Rhineland and the Ruhr area) or the German terms (Lausitz, Deutschland). Additionally, if there are many such results the search can also be extended to include “identity”, “collective identity” or related terms such as “local culture”, “self-identification”, or “collectivity”. Moreover, terms that are shown in table 2 are included into literature searches (e.g. “continuity”, and the different types of identity).

In order to compensate for the lack of response especially from local citizens, NGOs, mining companies; government and journalists, literature is used. In order to ensure all parties are represented and the research is replicable, this is done in a structured way. All searches will be logged into a detailed table. An example is shown below, in table 3. For different news websites, the same search words can be used as previously mentioned. The data gathered from the interviews is the main source of data for this report, but news articles and some literature is helpful in providing additional insights. If the target is only missed by 1-2 interviews, fewer non-academic literature and less extensively may be sufficient, whereas a larger diversion from the target will also translate into a larger compensation in non-academic literature. Academic research engines are used to find academic papers that include these stakeholders. For this, Web of Knowledge and Scopus are operationalized.

Table 3: Overview searches conducted and number of records before and after selection of relevant records. The literature that is included will be numbered so it is tracible to its search.

Engine	Search	#Records	#Relevant records (included)	Included literature
WoK/ Scopus	“citizens coal mining NRW”	A	B	1, 2, 3, 4
...
Total				

The search terms are rather general, examples include “coal mining Rhineland/ NRW/ Lusatia/ Lausitz”, “lignite mining NRW/ Lusatia”, and such. The exact searches conducted are shown in the appendix, in a table similar to table 1. In addition, the relevant search years are set from 2012-2022. All search results are screened for relevance: for this, the title and if necessary abstracts are consulted. If the search result relates to either NRW or Lusatia as well as the coal phase out thereof, in addition to some notion of the social dimension or identity, it is included as relevant.

3.2 DATA ANALYSIS

As previously mentioned, information on the coal phase-outs in Lusatia and NRW is gathered with relation to identity in two ways: interviews, and complementary literature. Literature is used more complementary to the new data gathered through the means of interview conductions. **In order to analyze the interviews, recordings are made and notes are taken.** When the interviews are completed, interview transcripts are written, to enable the analysis thereof. The transcripts are coded and analyzed, using NVIVO. To do so, the framework as shown in table 1 (and operationalized in table 2) is used for the basis division of the nodes in NVIVO. In addition to the basis framework, if new identity-related factors are found that do not fit within the categories, more codes/ nodes are added. Related nodes are grouped together in an overarching node. For the management of the data in NVIVO, the coding is done in different stages (Bryman, 2016). First, open coding is used, structuring the generated data with the predetermined framework as basis for nodes. Then, axial or thematic coding is operated, and new attributes that surfaced in the interviews can be added. The information gathered from these interviews help provide more insight into locals’ experiences and unforeseen issues related to identity. As previously mentioned, this is part of the abductive research approach. The complementary literature that is gathered as described in the previous chapter, is also added into NVIVO and analyzed in the same way as the interviews.

This way of coding adheres well to the research aim of this paper. By using the framework (table 2) there is already a basis for the structuring of the interviews. However, there will still be space for the addition of new insights, which are then added as new node during the axial or thematic coding. As such, the framework can be critically reflected upon in the end. The case studies are well-structured this way, and the research question are answered: an oversight of the helping and hindering attributes of identity in these coal phase-out cases are provided.

3.3 CASE STUDIES (GERMANY)

According to legislation adopted in 2020, Germany aims to end coal-fired power generation before 2038 (Wettengel, 2021). Oei et al. (2020) discuss different cases in Germany where lignite coal is mined, and compare them. These areas are distinguishable in three larger regions: Rhineland, Lusatia, and Central Germany. For Central Germany, not enough data could be found, thus the case was excluded. Rhineland is situated close to the Ruhr area, and both of them are situated within the North Rhine-Westphalia region. To ensure data availability, this research focuses on the NRW region as a whole. The main characteristics can be seen below in table 4. NRW has a higher population density, as well as much higher gross added value in Euros. Relatively, the amount of employees in lignite, and production thereof, is not as much larger than in Lusatia. The table also shows that both regions have a relatively high unemployment rate.

Table 4: Key figures for the lignite regions Lusatia and NRW. For Lusatia and total Germany, data was derived from Oei et al. (2020); for NRW the data was derived from Clean Energy Wire (Appunn, 2019); World Health Organization (2018); and UniCredit (2018).

	NRW₂₀₁₆	Lusatia₂₀₁₄	Germany₂₀₁₄
Population density [persons/km2]	500	106	230
Unemployment rate	7,7%	11,0%	5,7%
Gross value added [mil. Euros]	79,303	22,606	2,623,437
Employees in lignite	8961	7763	18,531
Lignite production [mill. t]	94	61	171

Two cases have been chosen to be the focus for this research, which provides multiple benefits both for practical and scientific purposes. With regards to practical issues, the use of these two cases ensures the availability of data. Both areas are located within Germany, and are challenged with the coal-phase out implemented by the government (Wettengel, 2021). Lusatia may present more challenging, due to its geographical location in the east of Germany. It may be difficult to reach local authorities or citizens, due to a possible language barrier. However, this case is discussed much in literature. NRW is often used in comparison to other areas in literature, and may provide a less of a language barrier due to a more central geographical location. This more central location may also provide interesting differences between the two areas. Therefore, the combination of these two cases will provide the most promising for research.

With regards to scientific benefits, the two cases of NRW and Lusatia are compatible, due to their geographic similarity. As a result, both areas are governed by the same national legislations. Therefore, insights may be gained on the influence these different characteristics may have on the transition towards a coal-free energy generation (Mees, 2021). Additionally, by using multiple cases, the relations that may be found between identity and coal phase-out are slightly more rigorous (Mees, 2021).

Moreover, using case studies is typical for a qualitative research, since it provides in-depth knowledge about a certain topic for a certain geographical area (Gerring, 2004). It helps understand a phenomenon within its context, and the relationship between the two (Mees, 2021). For this research, an interpretivist approach is adopted, to fit its exploratory nature. As a result, the phenomenon is explored and this knowledge is added to

existing literature without overgeneralizing to the greater whole (Mees, 2021). This method enables one to study the specific cases in great depth and understand better the role of identity whilst keeping the research understandable (*ibid.*)

The main limitation as a result of the selection of these two case studies within the same country, is that this limits the generalizability of the results. Since both areas are located within Germany, insights gained are mostly applicable to Germany, and especially for coal phase-outs. Regardless, the cases are chosen because of the previously mentioned benefits: compatibility, and in-depth knowledge. The information gathered is beneficial for Germany, as well as other compatible neighboring countries.

2.2.1 LUSATIA

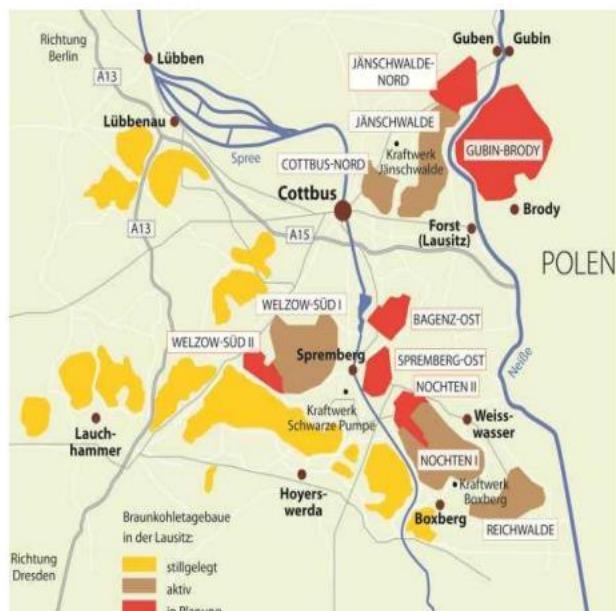


Figure 2: Map of lignite mining in Lusatia since the 19th century.
Yellow = closed; Brown = active; Red = in planning. Map derived from the European Parliament (2018).

phasing out coal can largely impact the local economy, and thus must come with structural transformation measures (Deutsche Welle, 2019). He suggests other changes such as better mobility by improving the amount of trains reaching the area can provide other work opportunities for the local community (*ibid.*). Another characteristic to take into account is that the Lusatia region has always been characterized by change. Historically, they received refugees from eastern Europe after the second World War, followed by an economic collapse which is thought to have delivered a fatal blow to social cohesion in the area (Deutsche Welle, 2021).

A coal phase-out in Lusatia is more likely to be supported in areas where land marks and cultural sites are placed (Oei, Brauers & Herpich, 2020). This helps enable a shift toward a more future oriented area, whilst celebrating local identity (*ibid.*). This was stressed by Morton & Muller (2016), whom explained that there is a struggle by Lusatians to find new narratives of home, belonging, ecological modernization, climate change, and democratic deficit. They suggested the German law, at the time called the “Energiewende” should consider these narratives and the relation to motivations and mentalities of actors (*ibid.*).

Moreover, socio-political challenges such as migration and the aging population are important issues to address (Heer et al., 2021). Heer et al. (2021) emphasize that the social aspects must be tackled timely in order for the energy transition to be successful. To sum up, for Lusatia, the transition is *normatively* accepted but *economically* and *ecologically* challenging, threatening people's collective identity (Oei, Brauers & Herpich; Heer et al., 2021).

One region in Germany grappling with the social challenges related to coal phase-out, is Lusatia (Heer et al., 2021) (See figure 2). This region is split up into two main provinces/ Bundesländer, namely Brandenburg and Saxony. In this area, many people are directly or indirectly employed by the coal industry (Staemmler, 2019). Citizens' opinions are divided due to reliance on coal-mining for local job provision ever since the 18th century (Staemmler, 2019; Bateman, 2021). For Lusatia, coal mining and energy production are a large part of the income security, local identity and overall chances in life (Bateman, 2021). Research, including interviews with locals, pointed out that democracy and justice as well as identity politics pose challenges here (Gürtler & Herberg, 2021).

One factor complicating Lusatia's coal phase out is the large economic dependence of local citizens on the mining. According to the mayor of Lusatia,

2.2.2 NORTH RHINE-WESTPHALIA

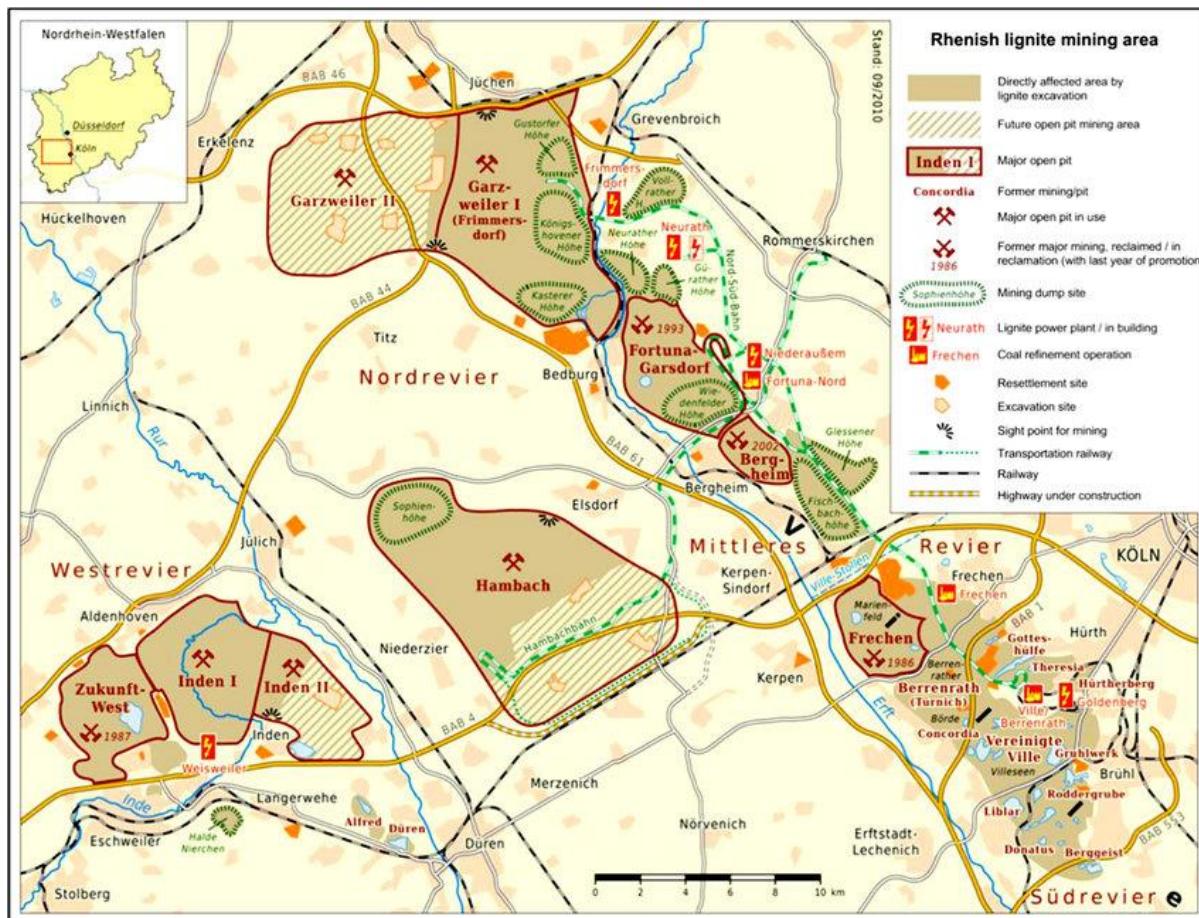


Figure 3: Map of lignite mining in NRW in 2020. Map derived from Tang, Motagh & Zhan (2020).

NRW is the largest lignite coal deposit in Europe, with three lignite mines in the region that are operated by RWE (Brock & Dunlap, 2018). All mining areas are shown in figure 3. NRW includes both the Rhine and the Ruhr area, including large cities and industries (Encyclopaedia Britannica, n.d.). For this thesis, the region was put even broader, in the context of North Rhine Westphalia (NRW) in order to include both Rhineland and part of the Ruhr area. NRW is responsible for much GHG emissions as a result of their coal fired-power plants. These plants also provide with the side product of gypsum, which is used for cement production (Abdelshafy & Walther, 2022).

Brock & Dunlap (2017) suggest NRW's Hambach coal mine takes part in counterinsurgency, securing the support of politicians, lobbying, being involved in social events, infrastructure projects, offsetting/ restoration work, and actual repressive techniques to legitimize and stigmatize their operations as well as intimidate and criminalize activists. Brock (2020) further explored this, suggesting the 'better nature' created by the mining industry is based on violent processes of classification, quantification and measuring of life- or 'ecological epistemicide' as a means to tackle resistance (Moreno et al., 2015; Brock, 2020). As a result of these coercive tactics, activists have been intensely protesting since 2010. They did so by occupying an area nearby Hambach Forest which was threatened by a mine expansion. In addition, they organized mass actions of civil disobedience by blocking roads yearly (Kalt, 2021). Such actions are increasing in frequency as a result of perceived failure of politics to address climate issues (*ibid.*). There seems to be a conflict between the public and coal industry in this area.

Some academics already explored the role of identity in the coal transition for smaller regions in the NRW area such as Hambach and Garzweiler (Bauknecht et al., 2015; Liersch, 2019; Mohr & Smits, 2022). Mohr & Smits (2022) mentioned a strong “sense of place” amongst Hambach Forest actors, which led them to protect their forest from mining expansion. This put pressure on the Coal Commission as well as the mining company RWE to leave the forest intact (*ibid.*). Similarly, for the case of Garzweiler it was also mentioned that identity and interests of different actors lead to different framings of the issue, structuring the problem (Liersch, 2019). As such, both cases confirm the importance of identity for the case of NRW.

Another aspect that should be noted is that NRW is often used for comparison. Harrahill & Douglas (2019) compared the coal transition in NRW to similar phase-outs in Canada and Australia. The Ruhr area was compared to America and Australia (Abraham, 2017; Coenen, 2018; Sheldon, Junankar, de Rosa, 2018; Arora & Schroeder, 2022). Rhineland’s transition was compared to the one in Lusatia, as well as international mining phase-outs in Mexico and Peru (Stognief et al. 2019; Rinscheid & Wüstenhagen, 2019; Dunlap, 2020; Kalt, 2021). However, none of them deeply explored how collective identity in this case affected the coal-phase out transition.

2.2.3 STAKEHOLDER MAP

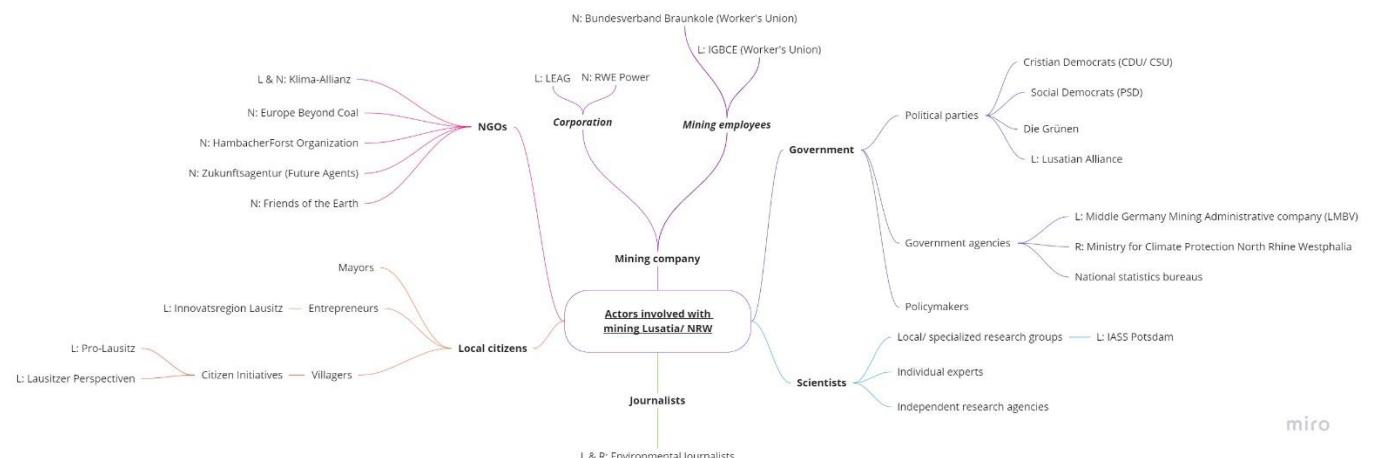


Figure 4: Stakeholder Map Coal Phase-outs in NRW and Lusatia (Germany) as inspired by literature (Rinscheid & Wüstenhagen, 2019; Bateman, 2021)

After the case studies were identified, a map of the relevant stakeholders was created to determine the interviewees to be contacted. A more precise description of the search process for identifying the interviewees and the search words used can be found in Appendix 1.3. The relevant actors can be divided into the following broad groups: local citizens; mining companies; NGOs; the government; scientists; policymakers; and journalists.

For the **mining companies**, it was found that in Rhineland, the mining company active in lignite is called RWE power. This category can be subdivided into the corporation, and its employees. For the companies, representatives could be contacted to gather insights into the industry perspective and identity. In Lusatia, LEAG is responsible for the mining operations; for Rhineland this is RWE power. In both areas, the mining

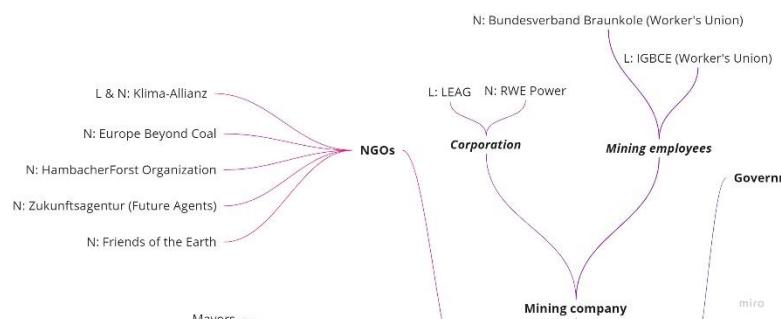


Figure 4a: Zoom in of stakeholder map to show "NGOs" and "Mining Companies"

employees are represented by workers unions; for Lusatia this is the IGBCE, for Rhineland Bundesverband Braunkohle. These Unions will be approached, and may provide insights into the identities of the mining employees.

Another group of actors active in this area, can be best described as **Non-profit Organizations (NGOs)**. They are generally in favor of a quick phase-out, and focused towards nature conservation. Such organizations active in Lusatia are European Free Alliance Lusatia; and Klima Allianz. In the NRW region, many organizations are active, such as Europe Beyond Coal; Hambacherforst Organization; Zukunftagentur; Friends of the Earth; and also Klima Allianz. These organizations can be approached to shed a light on the environmental identity, and the identity of climate-orientated locals.

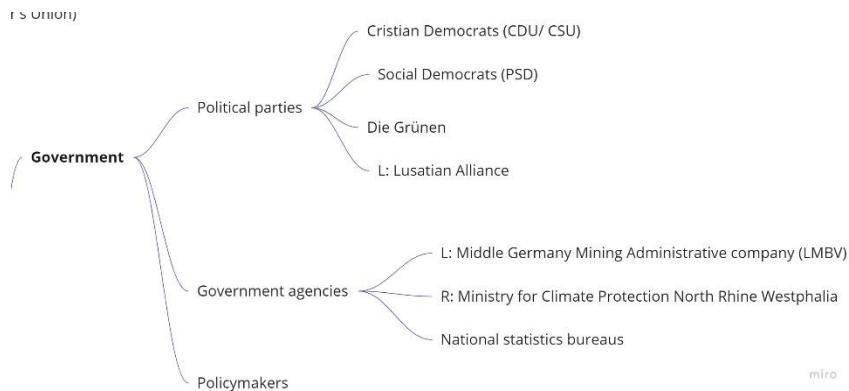


Figure 4b: Zoom in of stakeholder map to show "Government" and "Policymakers"

Additionally, the **government** is an influential actor. This can be subdivided into multiple categories: political parties; government agencies; and policymakers. Political parties that could be contacted can be chosen by studying regional voting behavior. Some examples are the Christian Democrats and Social Democrats (more conservative towards mining) and die Grünen (green party).

On the local level, there are specific politicians active in this area (e.g. Lusatian Alliance), as well as ministries and other governmental institutions. For government agencies, some examples involve the Ministry for Climate Protection NRW and the Middle Germany Mining Administrative Company (Lusatia). They may provide insights into the government perception and identity in the matter. Lastly, policymakers are also an interesting party to consider. They may already be partially incorporated in the government bodies that are contacted. Policymakers are a very influential part of the transition process, and their ideas of the local identity are therefore important to incorporate. It would be interesting to compare these ideas to the own perceptions of local citizens, mining employees, and their workers' unions.

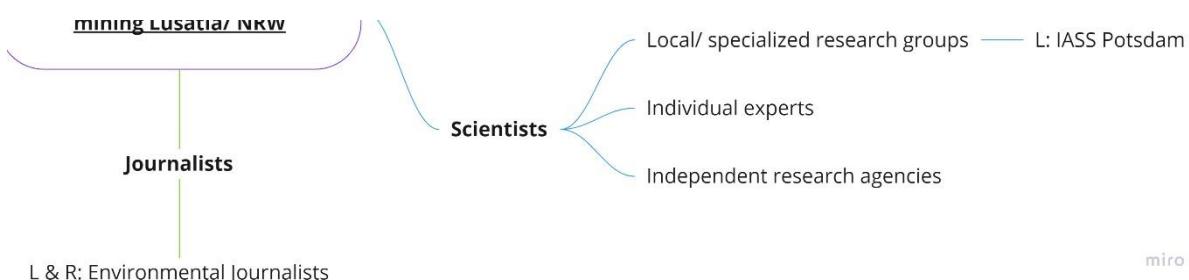


Figure 4c: Zoom in of stakeholder map to show "Scientists" and "Journalists"

Lastly, there are three more external, yet relevant actors that could be contacted: **journalists and scientists**. Journalists are active in documenting the process of the energy transition in Lusatia and Rhineland, and are often in conversation with locals. As a result, they may provide many interesting insights gathered from experience in the region, also into the local identity. This is also the case for scientists, with the addition that scientists may be able to provide a more birds' eye view, and tend to prefer an objective stance. As such, they may provide insights with empirical knowledge. For these cases, there are some local/ specialized research groups, such as IASS Potsdam. Additionally, individual experts or scientists from independent research agencies can be contacted.

3.4 ETHICS

The relevant ethical issues are considered. Bryman (2016) suggests five main domains to consider for ethical research, which are shortly elaborated upon now. Firstly, **harm** to participants or the researcher, both physical and mental, which in this research was prevented as follows. The physical health of participants in relation to COVID-related threats was considered. For this, the ‘protocol for research involving human subjects on Blackboard was consulted (Faculty of Geosciences, 2020). Additionally, mental harm as a result of personal questions or the perceived attitude of the researcher taking interviews was prevented. To ensure this, personal impact of sensitive questions was considered upfront, and a professional attitude was kept. Secondly, **informed consent** is crucial and was handled by having participants read and sign the standard informed consent form (Utrecht University, n.d.) , and ensuring they knew the intended purposes and had correct expectations of the research, as well as their right to withdraw without consequences both their participation as well as information at any point. Thirdly, preventing **invasion to privacy** was considered. As such, participants are anonymous and their information is confidential and private. Fourth, **deception** was to be prevented: honesty about the intended purposes of the research and expectations was clarified towards interviewees. Fifth, **taking sides** in research was an important concern. As previously mentioned, a professional attitude can prevent this. Unforeseen ethical issues could immediately discussed with the thesis supervisor, but did not occur.

4. RESULTS

4.1 DATA GATHERED

Regarding the interviews, the response rate was relatively low. A total of 101 stakeholders were contacted via email, of which 11 were willing to participate in an interview. The general information of those interviewees can be found below. From the table, it becomes clear that 7-8 interviewees were knowledgeable about Lusatia, and 6-7 interviewees were knowledgeable about NRW. As such, for both cases a similar amount of interviews was conducted. However, generally the responses were mostly by researchers. One mining employee, mayor, and early-retiree from the industry were also interviewed.

Table 5: General information interviewees, date, and time. The case-expertise is reflected by either L for Lusatia; NRW for North Rhine Westphalia, a G for Germany in general, or multiple.

Interviewee	Institution(s)	Function(s) respondent	Date	Duration
1	Employee mining company (L)	Providing insights from coal mining employees' point of view, Lusatia.	7-2-2022	1hr
2	Researcher (L)	Providing expert insights on cultural heritage and other aspects.	8-2-2022	1hr
3	Researcher (L)	Providing expert insights on the Lusatia area, especially politics.	10-2-2022	1hr
4	Researcher (L & NRW)	Providing expert insights on L & NRW area, especially politics and economics.	11-2-2022	1hr
5	Researcher (L & NRW)	Providing expert insights on L & NRW area, especially social.	14-2-2022	1hr
6	Researcher (L & NRW)	Providing expert insights on German coal transitions for both regions.	15-2-2022	1hr
7	Mayor (NRW)	Providing insights from locals as well as policy standpoint; especially NRW.	16-2-2022	0.5hr

8	Researcher (NRW)	Providing insights for specific area in NRW, historical especially.	22-2-2022	1hr
9	Researcher (NRW)	Providing insights for NRW area, civil action groups especially.	23-2-2022	1hr
10	Researcher (L)	Providing expert insights on coal regions in Germany; especially Lusatia.	25-2-2022	0.5 hr
11	Ex-employee mining industry; researcher (G)	Providing expert insights on coal regions in Germany and economics; both regions & Ruhr area.	28-2-2022	1hr

As for the news articles, different news websites were consulted, such as Deutsche Welle, Inside Climate News, CleanEnergyWire, Scientific American, and Ensia. All articles included were in English. A total of 28 relevant articles were found and included in the analysis. Additionally, some interviewee suggestions were substantiated through academic literature.

4.2 RESULTS

The interviews are referenced as shown in table 5, by numbers from 1-11. In appendix 3.2, a more detailed record of the searches conducted and the exact references for the related news articles can be found.

4.2.1 SELF-IDENTIFICATION

With regards to collective identities, interviewee 3 remarked: “*communities is a concept, that is not so common in Germany. You know, I know from American context, you can easily talk about the community. Or you can address a community. That is something that is kind of hard to grasp in Germany*”. However, from other this interview and other interviews it became clear that despite the lack of overarching community or collective identity, there is one clear distinguishable ethnical minority in Lusatia, **the Sorbs** (interviewee 3, 5, 8). Their agricultural land was pushed out for mining, and there have been protests taking place according to one employee due to the demolishing of many villages along the way (interviewee 3, 5).

Interviewee 3 suggested: “*You've got those who lost their villages. Which is mostly, which results mostly in a continuous painful something. It is like, someone got amputated a leg. Although it's gone, it's always there. And most of the families know someone, or they've been in these villages that have been replaced. And it's dozens. Probably in the course of history, it's hundreds. And that's especially the Sorb community.*”

This quote reflects strongly the pain of having lost their homes. Interviewee 5 added: “*Q: and who are those people that are protesting? Are that the minorities that you just mentioned, or is it more, all the local people, or also people from outside? I: Ehm, so when we're speaking about the time before 1990, then it were mostly the Sorben, so the minority*”

They have been relocated and their agricultural lands have been taken up by the coal industry. This was confirmed by Jacobs (2021), suggesting that lignite mining generally has had negative implications on this minority, by displacing the community; destroying territories; marginalizing Sorbs; and so on. Therefore, it is suggested that they are to be included into the decision-making process as well. The interviewee stated: “*and most of the families know someone, or they've been in these villages that have been in these villages that have been replaced. It's dozens. Probably in the course of history, it's hundreds. And that's especially the Sorb community*” (interviewee1) As such, the Sorben may identify as a minority group that has repeatedly fallen victim to relocation due to the coal mining. Interviewee 2 and 3 also mentioned this community.

4.2.2 CONTINUITY

Continuity was not often mentioned by the interviewees, but concerns about the future were raised. Jobs, daily practices, or housing was often mentioned (Interviewee 1, 2, 4, 5, 9, 11). Firstly, people's jobs are

threatened in both regions (interviewee 1, 2, 8). It is important to note that the situation is not the same in Rhineland as it is in Lusatia. One interviewee suggested the following: “*It’s, in Lusatia, the industry has shrunk a lot, but in Rhineland, the production is still up even though there is less employees of course.*” (...) “*I mean, the history of the Rhineland is obviously very closely tied to not only coal, but also iron ore, steel, it’s a whole conjunction of heavy industry I guess, one would say. And so, you also have a reduction.*” (Interviewee 4). As such, they compared the situation in Rhineland and Lusatia, suggesting that in Rhineland, despite the number of employees declining, production is still up. This points toward standardization and industrialization processes. They also add the job provision there is less dependent on solely lignite coal, but also on other heavy industry. For Lusatia, this is less so the case. As such, through the future of mining employees’ working career, continuity is threatened as well subsequently.

Secondly, interviewees suggested **coal mining influences the daily practices**. Interviewee 5 and 11 mentioned early retirement, which greatly changes the way previous mining industry workers spend their days. The latter suggested: “*And now they, these jobs will go away, in Germany we have solutions to do it without unemployment for the coal workers. By measures for qualification, and early retirement. I’m also an example for this, I’m on early retirement. After my work for the coal association, I’m now in the scientific area. Because I’m not, so old that I can’t do anything anymore.*” (Interviewee 11). In other words, due to the decrease in job provisions in the coal industry, part of this unemployment is dealt with through early retirement. A news article added that for generations, the east of Germany has been dependent on coal mining for jobs and stability (Osička, et al., 2020). This describes another way in which continuity is threatened: again, the future of one’s working career is changed, as well as possibly sense of belonging.

Thirdly, interviewees also mentioned **housing** being influenced by mining. People are bought out of their house, and have to resettle elsewhere (Interviewee 2, 6). In addition to the imminent loss of jobs in the coal industry consequences thereof, it was also suggested “*people who live in the villages say they lose Heimat*” (interviewee 2). Heimat refers to the feeling of home and belonging (Schulteis, 2020). As such, the loss of Heimat relates to the loss of the current way of life, due to in this case the move away from one’s home village. Interviewee 2 added: “*Yeah, so people who live in the villages say they lose Heimat when their village is going to be devastated. This is also what we’re facing if we stop coal mining, because we’ll have to resettle.*”. This was echoed by interviewee 6, about the city of Pulveritz: “*... there weren’t that many people left in the village. It was really a place where he still lived and the other houses were already empty and bought by the operator.*” They describe a lonely, abandoned village. This is exactly the scenario interviewee 2 suggests people fear. Similarly, continuity was mentioned in relation to Atterwasch, where Vattenfall wished to relocate the citizens to a new settlement in order to expand the mine. The citizens would have lost their sense of continuity, in the sense that the family house would not exist anymore, and the village spirit got lost (Friederici, 2020a).

4.2.3 EMOTIONAL, CULTURAL AND SOCIAL DEPENDENCE

Due to the large overlap between emotional and cultural dependence with social dependence, the categories were integrated. Many interviewees referred to the **cultural heritage or history** of the coal mining to some extent. As previously mentioned, before the reunification coal mining was the main energy provision for Germany. As such, it granted a high status, and was seen as “important” work. In the next two categories of “cultural heritage” and “demographics”, some of the more specific points raised are discussed.

Historically, coal **used to play a defining role for regional identity**, in the sense that it used to be of great regional (economical) importance (interviewee 1, 2, 4, 5, 7, 8). It provided its workers with a good status as well (ibid.). There did not use to be much protest against the mining, until the 1990s (interviewee 2). After the

wall-fall and decrease of communism, increasingly people started fighting for their “Heimat” and acknowledging this possibility (Interviewee 2). One sentence that is well-known in Lusatia is: “*God built Lusatia, and the devil put coal underneath it*” (interviewee 2, 3). This quote was also echoed by news articles, and refers to the positive and negative sides to the coal mining in especially Lusatia, providing economic benefits, but also coming with social and environmental costs (interviewee 2, 3; Osička, et al., 2020; Morton, 2021).

With regards to the loss of **Heimat**, articles agree that for some villages, as long as mining is taking place, the relocation means a loss of family history (Friederici, 2020a). For example giving up the family home, and losing the village spirit (Friederici, 2020a). The lawyer of a resident in one of the villages explained it as follows: “it’s really a matter of right to a home”(Friederici, 2020a). People in Germany should be able to go where they want to, which is now limited (Friederici, 2020a). Another resident near Garzweiler’s opencast mine does not want to sell his house, because his farmers’ family has been living there for four generations (Deutsche Welle, 2022). Similarly, in Kuckum near the Immerath mine, another family does not want to sell their house because it is their home, their “homeland” (Deutsche Welle, 2019d). They also joined a Germany-wide coalition action group. Another resident suggests it is very emotional for her, because her entire family lives in the village, and their history lays there (Deutsche Welle, 2019d). These three examples all overlap in the sense that they do not wish to move out. There is a museum with pictures and stories about the communities that are already demolished, gone (Gearino, 2020). As such, fighting for one’s Heimat is an example of emotional, cultural and social dependence in which the way of life and family life are threatened; and emotional and cultural bonds to mine and coal are not so strong. This is an example in which identity can help the coal phase out.

As of today, it seems coal is still connected to **wealth** in the perception of the people (interviewee 5). There used to be little other industrial options to work at, and there still are in the case of Lusatia (interviewee 1). This is also part due to the increase in productivity and competition after the reunification (Interviewee 4). In Lusatia specifically, the unemployment numbers are higher than in the other parts of Germany (interviewee 4). It was told that many people have stories about their parents always having been unemployed: “*They became unemployed for ten years, and I think lots of people feel like they weren’t really understood by the people in west Germany. You know, that people have life histories where, you know, their parents were just unemployed, you know, their parents were just unemployed always. They didn’t have a job.*” (interviewee 4). This reflects strongly how the coal mining industry, at least in the minds of people, plays an important role for their daily life and lifestyle.

Subsequently, **with regards to working habits**, interviewees suggested not only jobs are threatened, but also the quality thereof. Regarding the coal phase-out, a mining employee stated: “*We’re not against this. We’re not against the ecological way, or the good way to a climate friendly power system. We are for that. We are for that. Clearly, we are for that. But we are also for that, that we have good jobs, and that we have good structural change*” (Interviewee 1). As such, they pointed out that the workers’ main concern currently is that they have “good jobs”, which they later explained referred to the quality thereof. Interviewee 2 suggested: “*We might have to go to other areas in Germany to work there. Because we won’t find a job that fits our qualification and our expectations of income.*”. This again, more literally points towards the concern for job quality. Another interviewee agreed, and said: “*What I want to add. Yeah, to my mind, the greatest challenge, also, relating to the identity question, is to get new adequate jobs. Not only jobs, but adequate jobs*” (Interviewee 11). Another interviewee mentioned that the lack of new jobs also influenced local political sentiments (interviewee 1, 2, 8). The frustration due to the lack of jobs fitting to qualifications is apparent (interviewee 1). They stated: “*Yeah, and this is the big problem you had, much people had good qualification here, but there’s no job offer for them, and so they get angry too.*” (Interviewee 1). Overall, these interviewees

agreed that a more pressing concern surpassing job provision, is job quality (interviewee 1, 2, 8, 11). This points towards a feeling of people's emotional, cultural, and social dependence being threatened. Work relationships, habits and family lifestyles are set to change with the changes in job provisions: e.g. the quality thereof going down.

In addition to the mining often still being perceived as a well-paying, good job, there are still many **traditions** around it as well: "*And then, a lot of people were proud of being mining people. There are a lot of traditions around mining. Miners have their own signs. They were proud to be miners, or to be miners' wife.*" (interviewee 5). However, interviewee 8 provided a different perspective, suggesting the following about their local soccer club including symbols referring to the mining history: "*I mean, it's empty, it's not like, it's not a tradition, it's an invented tradition in a way because it's, they pick what they need for their heritage, like the football club, they were very bad the last two years, they were terribly bad, and then they really developed all this coal mining tradition, so they had new editions of t-shirts with "knappe" or, with the mine on it.*" As such, it becomes clear that although the mining history is still playing a large role in the profiling of local culture in these areas, it may not always be experienced as authentic.

The **insecurity** due to the coal mining expansions was mentioned as an important concern (interviewee 5, 9). This is even more complicated due the possibility of an earlier phase-out (ibid.). This insecurity in itself is thought to negatively influences the civil society participation (interviewee 3, 9). As a final result, the process is perceived as unclear and in transparent (ibid.). One of the interviewees talked to locals, and they suggested they did not feel included in the decision making process (ibid.). Additional insecurity is experienced by younger mining workers, since the plans are even more unclear for their future: will they be re-educated, and how (interviewee 2, 10)? There is a clear need for good communication. This insecurity again, reflects a threat towards (family) lifestyles and may also negatively reflect on working relations of mining employees.

For both mining regions, an issue that was raised in multiple interviews was the aging population (interviewee 3, 4, 6, 10). For Lusatia, it was suggested that some 80.000 people were working in the industry historically, which is now decreased to some 8.000 (Interviewee 1). This large decline of working opportunities is something that people really remember (interviewee 1, 7). In NRW especially, the decreasing population as a result of lacking working opportunities is perceived as a pressing issue (interviewee 1, 5, 9). In combination with the insecurity of the future industry, this makes the future of young people unclear in both regions (interviewee 3, 4, 6, 10; Friederici, 2020a; Deutsche Welle, 2019a). As a result, many young, well-educated people have moved out of the region (interviewee 3, 5, 6, 10; Bateman, 2021). Interviewee 5 suggested: "*but today, job losses are not the main problem. The problem is, there are not a lot, not enough qualified people who can work. So it's the other way. And that, and the demographic of the regions, so a lot of old people. A lot of young people leaving the region. So even with new companies, new economy, would start up there. They need people who work for them*". Here, they describe the move away from younger, working class. This decreasing population was suggested to also take place in mining regions besides Lusatia as well (interviewee 10). One interviewee suggested that the greying population is a more pressing issue than the job losses in itself (interviewee 4, 6). News articles support this, and suggest that "there are near-empty towns with dilapidated streets and old lights, no shops, and hardly any children" (Deutsche Welle, 2019b). The region is described as weak and underdeveloped, challenged by transformation, and suffering from a brain drain and a lack of engaged people (Gearino, 2020). Structural change is needed for its future (Deutsche Welle, 2019a6). This depopulation also complicates any new investments in the industry, since there are little people left to work

for new companies (interviewee 4). Additionally, it reflects a threat to (family) lifestyle, as many younger family members migrate out.

Subsequently, the more conservative residents are left behind and become more skeptical towards the government (interviewee 2, 3, 4, 9). There are likely cultural clashes between the vastly different types of people living in the region: there is the older, more conservative inhabitants, and younger, progressive activists from outside of the region (interviewee 3, 9). Interviewee 9 suggested: *"And then, people come along, building treehouses, talk about socialism, or really different hierarchy future. And live vegan, and whatsoever. I mean, there are lots of culture clashes. So I can totally understand if locals from different culture don't like this."* News articles agree that due to the uncertainty, there are tensions in the region of Lusatia. However, it is important to note that the phenomenon of younger, more educated people moving away is less apparent in Rhineland and the rest of NRW than it is in Lusatia (interviewee 1; interviewee 5; interviewee 9). Specifically the Ruhr area, there are local colleges and schools to help youth find a future. There is a Science Park, which is more of a think tank (Bryce, 2017). Thus, there are many changes taking place regarding inter-generational relationships. This also changes the social identity of citizens.

Another topic that was oftentimes discussed, especially for Lusatia, was the role of **gender** (interviewee 5; interviewee 6). Coal is worldwide seen as a male dominated industry, but in Lusatia in the time of the DDR it was rather gender equal (interviewee 5, 6). Interviewee 5 suggested: *"So I think like one third of miners in the Lusatia were actually women. Still, it was quite linked to masculinity" (...) "after the reunification when they had to close down the mines, the first one who lost their jobs were the women".*

Similarly, interviewee 6 added: *"I think they have like 20 percent women or so overall. So there are definitely much less women, and I read an article about like, especially, exactly this, yeah, gender difference when there was this structural break after the fall of the iron curtain. There were also many women employed in the coal industry in the DDR" (...) "and women more often lost their jobs than men." (...) "and women's jobs were more like, an add-on which is not that super important"*. From both interviews, it thus becomes clear that although the mining industry was very progressive with regards to gender inclusion, women were also the first to lose their job after the reunification (interviewee 5, 6).

It was explained that the reunification, or wall fall in Berlin, caused for a sudden increase of **competition** from other countries, which phased out a large part of the less-efficient coal mining industry (interviewee 1; interviewee 3; interviewee 4; interviewee 5; interviewee 10). Female jobs quietly went away first, due to the fact that they were mostly not working as high up, and the prevailing patriarchy (interviewee 5, 6). This was explained as follows: miners were regarded as "heroes", earning enough money to sustain their families. Especially men were seen as the bread winners (interviewee 6). Another reason why more women lost their jobs, was because they were less active in workers' unions. It was suggested that this may be due to their care responsibilities for the family, and thus less opportunities to join meetings (interviewee 6). This notion of role of gender in the mining industry also influences the identity aspect of social dependence, more specifically the impact on family lifestyles. These are greatly impacted if the "bread winner" loses their job in the mining industry.

4.2.4 ECONOMIC DEPENDENCE

There were two main findings with regards to job perspectives in the region. **Firstly, both regions differ significantly:** in Lusatia, the coal mining industry seems to be perceived as the main employer (Interviewee 1, 3). Interviewee suggested: *"In the moment, we have some 7-7.500 jobs, maybe up to 8.000 jobs directly in the coal industry. And the main part that you know about is the people that work for us are earning up to 40-50 percent more money than the other people that work here in Lusatia. That means that the average is pretty higher than what is around paid in the companies that are here. So, you know, it is a very big anchor in this*

region. And, after this big company called LEAG, there's a while nothing." Interviewee 3 provided a similar number of employees: "And what we observe today is that only at the present day 7.000 people work in the coal industry. I mean, that's compared to other sectors it's a lot, compared to what it's been like, it's less than 10 percent. (...) "But they just cling on to if there's no coal, there's nothing. It's really hard to, it's a hard perception that is really hard to argue against". From these two interviews, it thus becomes clear that 7.000-8.000 jobs provide jobs, for some 10 percent of the local residents, but is the largest employer if related to other industry in the region. As a result, closing the industry down is expected to pose large challenges for local job provision and income (Interviewee 1, 3, 10, 11). The industry pays their workers relatively well, therefore loss of this income is of large impact. Interviewee 10 stated: "Well of course they really rely on it, because they really kind of, yeah, the income from the mine workers really are feeding the family" (...) "They still kind of rely on it yes, ehm, income. And they of course kind of planned, and took it as a secure job. This is now a little bit, yeah. A little bit unsure now." Interviewee 11 added: "We could not compensate the lost industrial jobs". These statements confirm that despite the low percentage of employment in the mining industry, its closing still presents many challenges. This largely impacts lifestyles in the region.

For the **NRW** area, this was deemed **less impactful**, since there are many other industries active here, and it is situated more central. Therefore, there are alternatives to a coal mine industry job (Interviewee 1, 4, 7, 8). Per example, interviewee 7 stated: "There are people working for the company, but not so many that it, the majority in the city. So we don't depend our local, our local, economy, does not depend on coal mining." According to interviewee 8, "Other cities did get universities" (...) "We have solar parks, so they try to get new industries. But more or less it's the public sector that is the main employer. So like us, the city, I think even, not maybe, the city is second biggest employer." As such, it becomes clear that local residents can work in neighboring, larger cities in universities, and other industries. As interviewee 8 suggests, the city can be seen as another big employer.

Secondly, it was suggested that for both mining regions, **the amount of people working in the coal mining industry is much smaller than it used to be**. This was mentioned by all interviewees. Firstly, about Lusatia the following statements were made. Interviewee 1 suggested: "So from the 50 up to 60.000 jobs, there was a rest of maybe 10.000 so it was a really big problem in the history of Lusatia because there are no new jobs" However, interviewee 10 suggested "It changed from 80.000 to 9.000 something like that, around that. So it was a really really decline of employment in the lignite industry". Then, interviewee 3 mentioned an even lower amount of employees: "And what we observe today is that only at the present day 7.000 people work in the coal industry" (...) "compared to what it's been like, it's like less than 10.". This variety in numbers is remarkable.

And for North Rhine-Westphalia, different statements were given about the role of mining for the local economy. Interviewee 7 stated: "Oh, in these area, there are about I guess 25.000 people working for the RWE, the company who runs the mining fields. So there is a relationship of course." (...) "we have a great history in textile, and in these decades, most people working in the textile industry, in this economical sector, so there were no jobs needed for them in the mining area". Interviewee 8 added: "So you said what's the current relation to coal mining, it's in one way, it's a very strong relationship. Because that's where everyone comes from. But it's a bitter memory in a way because the realty's that it's gone and it's not coming back and nobody really wants it to come back, but of course you wish to have work and jobs." Both these interviewees agree that the mining still plays a significant role in the NRW area as well. Interviewee 9 agreed, and stated that: "So RWE the mining company it's a pretty big employer. I mean, generally we're speaking here about, I think roughly, I would have to look the numbers up, but I think we're speaking about roughly 8.000 workplaces here, of direct mine workers and then maybe twice as much again indirect." (...) "So it's really, not a high number of

workplaces". Similar to Lusatia, the mining industry is seen as the largest employer, but still overall not as large.

Similar to the interviewees, news articles **disagree on exact numbers** of employees in the mining industry. Across Germany, 10,000 people are suggested to lose their job when coal is phased out according to KlimaAllianz, a climate activist group (Friederici, 2020a). Another article mentioned 13,000 jobs (Gearino, 2020). However, the BUND (environmental NGO) suggested that in NRW alone, 34,000 jobs would be lost, and that lignite is a vital domestic energy source (Friederici, 2020a). Another number mentioned was 40,000 employees in Brandenburg that would lose their jobs (Deutsche Welle, 2019c). One article suggested a few thousand jobs would be lost in the Ruhr area, which is only a part of the NRW region (Bryce, 2017). However, according to the German Environmental Agency, between 1990 and 1999, the mining industry had 8,000 employees (Ritzenstein, Popp, Oei et al., 2022). This has likely decreased.

Moreover, news articles add that **people working in the mining industry fear to lose their jobs**, and that there may not be replacement (Bateman, 2022). In the NRW, mining workers are insecure about their future (Deutsche Welle, 2019d). Similarly, in Lusatia the economy has long been dependent on the coal industry for job provision (Gearino, 2020). One CDU politician suggested it would be impossible to create enough job replacement, especially if the deadline is pushed forward (Wehrmann, 2021a). Some coal regions already have an unemployment rate of 10 percent (Bryce, 2017). For one of the areas in NRW that was included in this research, the unemployment rate is even at 15 percent (Bryce, 2017). Another issue is that some citizens do not get enough compensation to move out, which is also threatening their future job (Deutsche Welle, 2022). There is much insecurity for both the workers, and the local citizens that may also have another job in the region (Gearino, 2020). It is also unclear what younger workers can expect (Gearino, 2020).

It was also suggested by the SPD that the **exit date of 2038 must be respected to prevent unnecessary job loss and shocks in regions** (Meza, 2021c). An SPD politician disagreed, stating that it would be possible and a great opportunity (Wehrmann, 2021a). The federal government plans to provide 14.8 billion Euros to the Rhenish area alone to smoothen the transition (Deutsche Welle, 2019a6). Nationally, the total fund is set at 40 billion euros, in order to compensate displaced workers and coal companies (Gearino, 2020). It is however suggested that it is really challenging for the regions to apply for subsidies (Deutsche Welle, 2019a6).

Some interviewees thus raised the question about **how younger people will be addressed** (interviewee 4, 10, 11). For younger employees the question is whether they will be re-educated and can go somewhere else (interviewee 10). It is also unclear whether their apprenticeships are still useful (interviewee 10). Additionally, if the deadline is pushed from 2038 to 2030, this issue is more pressing (*ibid.*). Older workers are likely sent on early pension (interviewee 4, 5, 9, 10, 11), but for younger workers there is much insecurity (interviewee 4, 10). Interviewee 4 suggested that it is yet unclear how younger workers will be addressed: "*There's a few things that are open, for example younger workers haven't got a very obvious compensation. Most of it is early retirement. So workers can leave after 55, and for more or less benefits.*" (...) "*but for younger workers, this is not so clear*". Interviewee 10 agreed, and added the suggestion to re-educate them, or assist in finding a substitution job: "*of course the younger people kind of are a little bit uncertain and unsure on*" (...) "*what will happen to the young people. How can we re-instill, how can we re-educate them to fit in other sections or where can they find other jobs.*" . This again, emphasizes younger citizens in the mining industry are especially unsure about their future, which may change their outlook on their future in these regions to a large extent. Feeling left behind by the government may inspire more radical, protest identities to rise overall (Deutsche Welle, 2019b).

One news article discussed the new Tesla Gigafactory that is coming to Lusatia as a **good new job opportunity** to follow-up the coal phase-out (Deutsche Welle, 2019a). For the NRW area, more specifically the Ruhr area, relief was provided by a training campaign for mining employees towards different careers in 1994 by the company, under pressure from the workers union. This was successful for some families (Bryce, 2017). It was also suggested that renewables and infrastructural projects may provide more opportunities for the Ruhr area (Bryce, 2017). Also, since the 1990s there has come a Science Park in Gelsenkirchen, which is a hotspot for new businesses and may return part of the local jobs (Bryce, 2017). However, it remains challenging to transition Lusatia towards renewables, due to strong ties to the coal mining industry (Stonington, 2020). Still, a large proportion of Germany's domestic energy stems from coal mining, of which almost half from hard coal and half from lignite (total of 45 percent) (Friederici, 2020a). The transition away from this, is suggested to be mostly at the cost of the company (Friederici, 2020b).

Additionally, **funding was repeatedly discussed** (Interviewee 2; interviewee 4; Interviewee 5; Interviewee 6; Interviewee 7; Interviewee 10). The government has reserved a large amount of funding for the transition, allocating subsidies to ensure a good process for most parties (*ibid.*). Examples of expenditures funded are early retirement, and the support of the local economy (Interviewee 11). Interestingly, the interviewee opinions **differed** on whether the ways in which it is to be spent is the most efficient, and whether the funding is sufficient (Interview 4; Interviewee 10).

Interviewee 4 suggested that there is a **lot of funding available for the transition**, but is unsure whether it is all used efficiently: *"And the situation is that the government has given very generous, provided generous payments for both the Rhineland and for Lusatia, for the workers, for the companies, for the regions. So, compared to other industrial transitions, there's a lot of, a lot of money to sweeten the medicine". (...) "What did happen, and would, very predictably, there were tensions about how to spend the moneys for money that wasn't directly given to workers and farms, but were given to the regions. So there was a lot of, difficult to spend money in a way that would be productive."* (Interviewee 4). They clarified that despite the mining industry only still covering a relatively small part of local economy, the government is compensating the industry very well. They are also critical of whether the money is spent productively, e.g. efficiently. Interviewee 10 partially agrees, adding that there is missed potential in investing in new economic infrastructures, and doubts whether funding will be sufficient in the end: *"And here, also the same problem which I can say in general, that if there's a transition, or a decline of coal happened, a lot of times it is not really thought through, because they have kind of stick to what they have and they try to as I said strengthen those sectors which are already there. Instead of thinking maybe, oh, what can we do, like new, or what new branches or sectors could we develop (...) But let's see, if this is enough or not, but in general if I have a look at like, the international view there are countries who do not have any money to support the region"* (interviewee 10). Both interviewees are critical of the way funding is spent.

Another aspect to the funding mentioned was that it also may **create (economic) opportunities** for the regions (Interviewee 4, 7, 10). News articles agree, but suggest that these opportunities are required for a successful phase out. Otherwise, the region will only become more isolated (Wehrmann, 2021b). For many miners and their families, it is already a time of loss and struggle, since the mining is such an important pillar to the economy in Lusatia (Gearino, 2020). Concrete examples of opportunities for economy were: new railways, universities, sustainable energy production, and the tourism sector (Interviewee 1, 5, 8, 9, 10, 11). The latter will also be discussed shortly in the cultural heritage category. New railways would especially prove helpful for the transition in Lusatia (Interviewee 3, 4). Universities are especially placed in the NRW region, and more specifically around the Ruhr area (Interviewee 8, 10, 11). Sustainable energy production is already significant in both regions. News articles added opportunities lie in creation of jobs and new infrastructure for Lusatia

(Meza, 2021b; Wehrmann, 2021b), and business investments for e.g. artists, jewelry designers, choreographers, design firms, tourism sectors and more for the NRW area (Gearino, 2020; Bryce, 2017). Additionally, it was suggested that currently the coal mining industry in Rhineland alone causes 100 million euros worth of environmental damage per day, which can be spared (Deutsche WELLE, 2019d). Interviewee 11 suggested about their own city within NRW: “*And now we are a smart city. We have solar parks, so they try to get new industries. But more or less it's the public sector that is the main employer.*” (interviewee 5). Another interviewee suggested RWE is “*on their way to become the largest company in Europe for renewable energy*”. As such, investments in renewable energy seem to play a significant role in adaptation towards a phase out by the energy company in NRW. They are actively changing their company identity, it seems.

Contrarily, for Lusatia interviewee 1 suggested: “*I don't see enough renewable energy. I think we have to build more energy, we have to build solar plants, we have to build wind systems, and maybe something we have to do in hydrogen systems*”. Interviewee 7 suggested: “*and in general, currently, I would say the region defines itself still as a kind of energy region, they try to build renewables there, and other new technologies. To replace like, lignite.*”. Again, it was stressed that the investment into other economical sectors could be easier for the NRW area, due to its geographical location and the presence of other industries already (interviewee 6, 7, 8, 10, 11). It was however also mentioned that these industries are also shrinking due to higher efficiency (Interviewee 1, 5).

Moreover, another form of funding that was mentioned is done by the mining companies themselves. They **donate** money to local sports clubs, but also finance other things at times, such as schools (Interviewee 2, 3, 4, 5, 7, 9) . About Lusatia, interviewee 2 suggested: “*You also feel the company's impact for example through sponsoring*” (...) “*Why would you go through a lengthy process of applying for funding with the, in the end the European Union, and you know, having a thousands forms to fill, when you could just go to the person that you know for, I don't know, twenty or thirty years*”. This reflects how it may be easier for residents to seek financial funding from the company, rather than the government. As such, they may identify more with the company, feel more sympathetic, identifying more to it.

In relation to North Rhine-Westphalia, interviewee 4 stated: “*So they sponsor local sport clubs. They very legally, they have their name on the back and stuff. Which is less legally, the RWE in Rhineland they also have a sort of network of mayors, of local mayors, of mayors of local cities. And they sort of pay them to come to these meetings*” Interviewee 9 added: “*They also support local football clubs etcetera*” (...) “*really really pretty football club home, they got a brand new football court with artificial grass, and also the RWE is the sponsor there*”. Similar to Lusatia, the industry is financially invested in the local community. As a result, closing down the industry will mean that these investments will be lost to local initiatives. Another source of wealth that will be lost is government income generated by owned stocks into the companies, which was also mentioned (interviewee 7). Therefore, the closing down of the industry and loss of this income as a result, can cause fear of losing part of regional wealth, thus changing identity towards a less wealthy one.

Lastly, insecurity was repeatedly mentioned (interviewee 5, 9, 10). Some people were already compensated and relocated, whereas others are still waiting and unsure of their future. About the NRW area, interviewee 9 mentioned the following about the local citizens: “*They have, they're facing a bit of insecurity whether they have to be resettled*”. Interviewee 5 agreed: “*So I think especially for Rhineland, for a lot of people the question of, we call it resettlement, is one of.. it is the biggest question. And this is something which brings insecurity on them for years and years and years.*”. Both examples suggest insecurity towards whether or not one is to be relocated as a result of a mine expansion. This threatens ??? identity. Similarly, about the eastern part of Germany, the following statement was made: “*So they still kind of rely on it yes, ehm, income. And of course*

kind of planned, and took it as a secure job. This is now a little bit, yeah. A little bit unsure now.” (interviewee 10) This is very similar to the insecurity regarding relocation that is taking place in NRW.

In conclusion, job perspectives, economic opportunities, and the different types of funding greatly impact the economic wealth and employment in the regions. As such, these factors influence family lifestyles to a large extent. As a result, not addressing this part of identity and the consequences a coal phase out may have, can cause worries in the minds of people as suggested in the analytical framework (Sanz-Hernández , 2020).

4.2.5 SOLIDARITY

Two conflicting sides of solidarity were highlighted in the interviews: the presence of it, and the absence of it (interviewee 1, 2, 4, 6, 7, 9). Firstly, solidarity was available in the following ways. There is **strong connectivity** between people working in the mines, taking care of each other on the job (interviewee 1). Additionally, the mining companies are actively sponsoring local sports clubs, schools, etcetera. This also creates a feeling of connectivity and solidarity (interviewee 2). As such, a phase out threatens this part of identity and solidarity.

On the other side, solidarity is **negatively** affected due to the lack of opportunities. Younger, more well-educated people move out, leaving behind the more conservative citizens (interviewee 10). As a result, there was suggested to be more racism, especially in Lusatia (interviewee 1, 2). There is also a feeling of non-governmentality, leading to skepticism and anger towards the government (interviewee 2). Another way in which solidarity is negatively affected is the way in which coal mining divides people (interviewee 2, 3, 10). This is supported by news articles, suggesting the transition is causing some tensions between workers and people that are opposing the mining companies, especially in Lusatia (Friederici, 2020a). As such, the village community is threatened (Friederici, 2020a).

In Mulrose, there are citizens that already sold their house and are moving away, and people that do not want their village to be demolished (interviewee 2, 5, 9). Additionally, there is a lack of connectivity between the people and companies especially in the NRW, since people are less and less working there. Interviewee 3 said: “*And one is every time a village gets raised from the cardboard, people stand up* (...) “*whereas others say, okay, I leave the village. I let myself build a new house paid by the company.*” This is an example of the division bewteen residents of villages that might be relocated: on the one side, a group that does not want to be compensated and relocated; on the other side, the group that accepts payment and relocate elsewhere. Different people have a different idea whether they are willing to ‘give up’ this part of their identity: their living space, perhaps family history.

It becomes clear from the above that there are two sides to solidarity regarding the coal phase out that may strengthen the process or weaken it. The strong connectivity shared by the employees of the industry may provide a challenge to be met, and the loss of it can be painful. However, on the other side, citizens may be content due to the halt of relocating their homes; they may feel more part of a group of citizens, and thankful of the intergenerational heritage they are now allowed to pass on (Sanz-Hernández, 2020).

4.2.6 REAFFIRMATION

A word that was mentioned multiple times, was **pride** (interviewee 3, 5, 6, 8, 9). Interviewee 5 stated: “*And then, also, a lot of people were proud of being mining people. There are a lot of traditions around mining*”. Employees are proud of being mining people, proud of keeping up their traditions (*ibid*). Interviewee 10 suggested: “*Also, they kind of also had the feeling of perceiving themselves of kind of coal mining workers, and not as kind of entrepreneurs who would like, maybe do something else. So this is really stuck to their mind*” (...) “*This is regarding, I would say, Lusatia*”. It was suggested that self-perception of coal workers may stick to mind more, than possible change towards entrepreneurship (interviewee 10). Interviewee 8 added, regarding the Ruhr area, “*That in the mentalities of the people, they are still a coal. So the whole Ruhr gebiet is very*

proud of being, having been industrial area. And the coal area. Older people always talk very proud of the smog, and the dirt lakes they used to bathe in and when they came up they were black all over, black. So they don't think about ecological aspects." (interviewee 8). This clarifies further that coal workers are high self-esteem, hard workers that produce energy for their country (interviewee 3, 8). Especially in Lusatia, this complicates a career change (interviewee 10). Older people are proud of their industry, and always working hard. If this is going away, this leaves proud identity threatened (interviewee 3, 5, 8, 11).

Interviewee 3 remarked: "And that you're now asking, I think the very pronounced and right question. What's happening with identity when coal is in decline? And I would advise you not to do the same mistake as so many people do, to think that while coal exists, and existed, that there was only one identity. It's, I know it's hard to see, and I know that coal is really a dominant thing, that either you are for coal and you profit from it, or you're against. But identity is related to coal. (...) "Lusatia, for the last thirty years, like stemming from the 90s, you have a considerable part of society that is already past-coal." This is a crucial point to take into account: not only are there various aspects to identity, but there are various identities.

The coal mining companies were suggested to **want to maintain their identity as energy companies**, and would change to stay in the business (interviewee 3, 11). This is more so the case for RWE from the NRW area, rather than LEAG from the Lusatia area (interviewee 4). However, the Lusatia area is investing in renewables and other new technologies to replace the lignite industry, and aims to still be an energy region (interviewee 4). Interviewee 4 stated: "*The Czech group, LEAG, they've been pretty poor in sort of diversifying*" (...) "*they have operations on the other side of the border, right. In the Czech republic. So yeah. That's also relevant. And they bought up, I mean. You could read up on, maybe you have already, but it's an interesting story, they've been investing in other places in Europe as well.*" According to them, LEAG does still invests in coal mining across the boarder, in the Czech Republic.

Interviewees suggested it may be more **difficult** for employees **to change**, since they may feel strongly linked to former times (interviewee 3, 10, 11). Their identity used to be that of hard-working people, with qualified jobs and a good salary (interviewee 11). Interviewee 4 mentioned: "*I think anthropologists would say pay also pays a kind of societal recognition. So, you know, people who are underpaid they also feel undervalued. And vice versa, we could also say these people felt that what they were doing was very valuable*". In other words, salary is seen as a way of societal recognition: a high salary confirms the importance of one's job (interviewee 4).

However, **not everyone identifies with the mining**. In the NRW area, more specifically the Ruhr area, there are many other industries to identify with as well (interviewee 5, 7, 8). For example, in Monchengladbach, inhabitants see themselves as "*inhabitants of a region, next to the Rhine, they perhaps talk about football, al garrussia, they will talk about carnival, they will talk about textile industry. I think textile is our real heritage here. And they will talk about the center of Europe we're living in, and the, that we're living next to the frontier, to Netherlands, to Belgium, to Luxembourg* (interviewee 7). They are city people. Generally, they do not think about mining unless it bothers them due to closeness (interviewee 7). Regardless, it has been accepted that this is a topic to be discussed. In another region, it does not play as big of a role in the daily lives (interviewee 9). Interviewee 9 stated: "*if you live in Cologne, what mine?*". This may accurately summarize the view of city dwellers, that may never in their lives have seen the mines (interviewee 7).

Another signal of **reaffirmation** is the strength of the workers unions, their activities and their members (interviewee 5). Due to the large role of mining, **working conditions** received much attention. Due to workers'

unions which will be discussed further later, working conditions are now greatly improved (interviewee 2, 6). The workers unions are still active today (Interviewee 2, 4, 5, 6, 9). Sub consequently, currently it is highly valued as a job, and protected well. Miners used to be very respected people (*ibid.*). Two other interviewees suggested that identification within mining companies is also very strong (interviewee 1, 11). Interviewee 1 explained: *"Yeah, you had a pretty high identify with the company, so the people said, there are some mining rituals, like old songs or their own connectivity between the people is very special. I can't describe that for outstanding people. But instanding, if you're there, if you feel what they feel that's so special. They work together on another level, I have to say. Everyone looks on everyone, and they get sure that you come healthy to work, and go healthy from the work."* Apparently, people have their mining rituals, old songs, and connectivity to their co-workers (interviewee 1). They take care of each other, and teams are close (interviewee 1). According to news articles, coal is still part of the foundation of the local culture, tied to generations of people working in the industry and pride thereof (Gearino, 2020). However, Lusatia is not merely coal, it is currently also known for its large amount of renewables, such as solar and wind energy (Gearino, 2020). It is important to note that the region has been forced to first give up their textile industry, and now their other vital, coal industry (Gearino, 2020). There is still a lot of sentiment in the mines by the workers (Gearino, 2020).

Regardless, it is important to note that the identification with the industry takes place in a select group of people, **and not everyone self-identifies** with the coal mining industry: *"But, today I won't say it's a part of everybody's identity here"* (interviewee 7, about Lusatia). Regarding NRW, interviewee 5 stated: *"Actually, because I haven't lived in either of these regions I am not quite sure about that. And I think especially in the Rhineland, defines itself by more than lignite. This is much more for the hard coal part, for the Ruhr Pott we call it."* Interviewee 7 added: *"I think, the average (NRW village citizen), won't say he's, he lives in a coal mining area. I think for the most people here, it's not a topic. It's not part of their identity"*. So, for both mining regions, it is clear that not everyone identifies with the mining industry to the same extent.

4.2.7 TERRITORIAL DEPENDENCE

A recurrent theme was the **dependence** of both the region and the entire country on the coal industry for its **domestic power supply**, and thus **independence** (interviewee 6, 10, 11). The other option is to import energy from other countries (interviewee 9, 11). However, the Netherlands is stopping their gas production, and Russia is currently in dispute (*ibid.*). This, in combination with the previously mentioned phase-out of nuclear energy in Germany, complicates the coal phase-out with regards to ensuring energy supply (interviewee 1, 11). It was also suggested that sustainable alternatives are not yet sufficient (interviewee 1). News articles agree that historically, coal has long played a vital role in the domestic energy supply for Germany (Friederici, 2020a). Nowadays, it is suggested that Germany's industry cannot yet be fully sustained by renewables (Friederici, 2020b). In addition to the dependence on coal mining for energy supply, it is also still crucial for job provision, especially in Lusatia (Deutsche Welle, 2019b). Here, coal has long been more valuable than real estate, and has provided the local economy with jobs and stability (Gearino, 2020). However, this dependence is set to decrease due to the transition from the region towards more renewables (Gearino, 2020). Activists are talking about re-communalizing the energy grid, which would be a large change for Berlin (Stonington, 2020). For the NRW region, there has been less mention of territorial dependence in news articles. Thus, especially for Lusatia, the local community identity of being the country's energy providers is threatened when coal is phased out.

Many interviewees mentioned **health or environmental consequences** in some way. The impact of the industry on health or the environment is part of territorial dependence, since it largely impacts the security of the communities' way of life. It is important to note that in some areas in NRW, the hard coal mining is

already closed down (interviewee 5, 8, 11). For Lusatia however, lignite mining still plays a large role (interviewee 1). In the more recent past, **opposition against the mining industry increased**, largely due to attention for consequences for both the environment as well as the local scale (interviewee 9, 11). The mining industry now has a more “dirty” image (interviewee 5, 11). Interviewee 11 stated: “*I think I must explain it, heavy problems for the environment*” (...) “*and coal is a dirty industry, and has the image of a dirty industry*”. Both interviewees that were involved with the coal mining industry suggested the environmental standards are much higher nowadays than they used to be, and there are actions taken to decrease disturbance due to e.g. dust and noise pollution (interviewee 1, 11).

Regardless of the remnants of **pollution**, economical benefits are given more attention (interviewee 2, 3, 5, 6, 7, 9, 11). Interviewee 3 stated: “*and we’re not just producing energy, we even pay a price. And the price is: we destroy our own landscape. And they know that.*”. Similarly, interviewee 8 added: “*but when they talk about it they don’t see that mining is also lung cancer, heat danger, accidents and all.*” From this, it becomes clear that it used to be heroic to provide the country with domestic energy supply, and there was a tendency for neglect towards pollution (interviewee 3, 5, 8). News articles suggest that the coal power plant in Lusatia is the second-largest single **source of CO2 emissions** in Germany, and the third largest in the EU. As such, it is responsible for 1.5-2.6 billion dollars of health and environmental damage per year (Friederici, 2020a). Years ago, in the Lusatian village Atterwasch, there was very bad air pollution, and agricultural land was taken up by mining (Friederici, 2020a). Historically, mining companies have never had to pay royalties on what they extracted from the ground, both coal and groundwater (Friederici, 2020a). There have been landslides since the closing of the mines, also providing challenges long after the mining (Friederici, 2020a). Environmental groups fear that coal mines will stay open much longer, since they can simply pay compensation to the government (Deutsche Welle, 2016). Lusatia is slowly attempting to build a new economy on capitalizing on their natural beauty (Gearino, 2020).

Interviewees mentioned that **noise and dust** is still very much an issue despite the technical efforts taken to minimize this (interviewee 2, 5, 6, 7, 9). According to interviewee 5, “*some people living close to the mines they say for example, oh, yes, when I go out on my terrace, and sit on my garden table, of course first they have to clean it because there’s a dusty, it’s always, it’s dusty*”. Interviewee 2 added that in Lusatia, in an attempt to decrease this dust, “*What they do is, they take a mix of glue and water and grass seeds and they push that onto the sides of the open cut mines, to have a greening in-between. This is just one example of how they try to reduce the dust.*” This shows the difficulty in addressing these problems correctly.

Moreover, **water resources** are influenced in different ways. Firstly, the **water quantity** is threatened. The groundwater level has lowered due to mining in both Lusatia as well as in the NRW area (interviewee 3, 7) . However, if the mining company stops pumping the water in the region of Lusatia, Berlin also does not get this water (interviewee 3). Interviewee 3 stated the following about the Lusatia area: “*the water that they pump from the pit mines eventually comes to berlin. And they’re kind of holding berlin hostage, because they say if we stop pumping the water of the pit mines, you don’t get any water for your river. So they’ve really messed up the water*”. However, not only Lusatia is coping with water quantity issues. In the NRW region, “*you can see that our groundwater is lower and lower, and that we have problems in some gardens, with the trees, because they won’t get to the water anymore because of our groundwater losses (...) But the problem is that actually we don’t have enough water because of water scarcity, this region is really dry*” (interviewee 7)

Secondly, in addition to water quantity issues, water **quality issues** also occur. The water is polluted, and turns grey or brown (interviewee 3, 5). Interviewee 3 suggested: “*all the water that turns into a brown, red-ish, kind of something. They call it, I think it’s iron dioxide. So, the water gets something out of the pit mine that is usually under the ground and stays there, and all the water is turned grey*”. Interviewee 5 merely stated: “*It’s also, contaminating the water and it’s destroying the environment*” Another factor that was mentioned was

local wildlife. Birds and other animals living near the polluted water are affected. In the future, the plan is to turn the old, closed mines into lakes. However, one of the interviewees mentioned that the Lusatia region may be too dry for this.

In addition to environmental consequences, the mining also has an effect on local **health** (interviewee 3, 5). During the interviews, the following issues were mentioned: asthma, increasing chances for lung cancer, generating heat, and danger for accidents in the mines themselves (interviewee 3, 8). *Interviewee 3 mentioned: "if you really ask people, even people that are pro coal at the moment, then they say but my son has really strong asthma, has really strong repercussions, that's all around. But it's not, but the dots are not connected. You know, they see, the secure jobs in the long run are more important than, than overall better living conditions"* Additionally, interviewee 8 stated: "*They don't see that mining is also lung cancer heat, danger, accidents, and all.*" So, despite undeniable externalities, employees are not necessarily thinking about these health or ecological effects (interviewee 8). Currently, there is much attention by climate activism groups for coal regions (interviewee 5). This is further elaborated upon later in the section about protest identity. Interviewee 5 made the remark: "*And the interesting thing is, that it can only be a blessing in our current economic system. Because, if you would then take the cost of coal, like the health cost and the environmental cost seriously, then the price for coal would be much higher than the price you get from the energy*". This sums up the overall focus on economic benefits that prevails.

News articles confirm the Ruhr area suffered much coal-polluted air, and many diseases and early deaths as a result of the mining (Bryce, 2017). However, the air seems clear nowadays (Bryce, 2017). Noise pollution is still an issue nowadays in the NRW area, due to pumping systems (Deutsche Welle, 2019d). Another problem in the NRW region is that older people that are relocated tend to die earlier (Deutsche Welle, 2019d). Even mining employees however will admit to climate protection being crucial (Deutsche Welle, 2019e). Additionally, one mayor from NRW suggested that it is simply part of their responsibility toward the next generation (Deutsche Welle, 2019e).

The **opinions** about health or environment by citizens are **different** per region and even per village (interviewee 2). In the interviews there were people working in the mining industry, skewing more towards positive attitudes (interviewee 1, 11). Interviewee 1 stated: "*And let me add this: we're not against this. We're not against the ecological way, or the good way to a climate friendly power system. (...) But we are also for that, that we have goo jobs, that we have good structural change.*" As such, for the mining workers in Lusatia, it seems the prevailing attitude is acceptance towards the phase out, as long as their futures are secure. Interviewee 11 added about both regions: "*And personally, I would look it a little bit different, because we have high environmental standards in our coal power plants. But of course, there's a climate problem. We, there's no discussion. And we want to have a climate neutral future. There's no place for coal*". As such, both mining industry interviewees that were included were not necessarily against the phase out.

In some areas the mining started at a later stage, and less people are involved or working with it (interviewee 7). As such, they seem more focused on the negative effects, and may have a more pessimistic view. An example of this is the village of Monchengladbach (ibid). Interviewee 7 commented: "*in the 1980s, people here opposed against mining because of the mining area, and I think there are a lot of issues for the environment, something like this. So here, there's a very pessimistic view on the topic*" This may also be the case for other regions. As a result of the above, one may conclude that the perceptions of the possible threat that coal mining presents to local security differ greatly.

In Lusatia and the eastern part of Germany, it was suggested that the coal phase out is more **challenging** than in the NRW area **due to a lack of urban centers** surrounding it (interviewee 4, 10, 11). This causes fear for the future implications by local residents. Many financial resources are necessary to support the transition (ibid.). The energy company here, LEAG, is investing in coal in Poland and the Czech republic, taking from the same coal reserves as Germany (interviewee 4, 11). This may lead to skepticism towards politics (ibid.). There has historically been disappointment in politics, which lasts in the minds of people, and affects their mindset towards politics in the future (interviewee 1). According to interviewee 10, "*it was a big disappointment about the politics, and this is a thing that lasts in the brains of the people In the mindset of the people. It's today, it presents what happened there to this time.*" Interviewee 1 echoed this view. As such, skepticism and regional disappointment towards the government plays an important role in people's view of the world around them, and their self-perception of identity; e.g. as victim, or abandoned citizen. This lack of job alternatives in the region as well as perceived governance neglect may negatively affect local community identity, more specifically place attachment and belonging since incentives to move elsewhere and built a better life are increasing.

Additionally, it was suggested that the move away from coal companies may also lead to a **decrease in opportunities** for younger people, forcing them to move or get a less fulfilling, well-paying job as previously mentioned (interviewee 1, 4). Interviewee 1 suggested the following about mining employees: "*They had good jobs and the politics says after this wall fall in Berlin "ahh, we care about you, we bring jobs, we bring jobs to you" but nothing of them happened. So, it was a big disappointment about the politics, and this is a thing that lasts in the brains of the people.*". In the Rhineland, the RWE is already on their way to become a renewable energy company, providing more future perspective for workers (interviewee 11). It was stated: "*Rhineland is not, also, in the Rhineland the great company RWE, you know, it's also in the Netherlands, and they're on their way to become the largest company in Europe for renewable energy*" (interviewee 11). RWE is situated in NRW, as previously mentioned. As such, their transition towards sustainable energy production provides their employees with more future perspectives. A lack of perspectives may lead to a decrease in belonging, thus decreasing the motivation to remain in the territory. Additionally, there may be a decreased experience of security and ability to preserve the way of life.

4.2.8 INJUSTICE

It was also noted **that justice is not necessarily an end to be achieved, but something to improve** (interviewee 3). When redistribution of income or access takes place, there are often feelings of injustice (ibid.). They also suggested people working in the coal industry may feel the transition is more unjust than the people that have long been suffering from the industry (ibid.). Some people feel repeatedly victimized, cannot find a job, find themselves in personal problems, and with much anger (interviewee 1). For Lusatia, the unemployment rate is relatively high, and some people feel they are the losers of the reunification again (interviewee 4). This sense of abandonment is one example of feelings of injustice as mentioned by interviewee 9.

Subsequently, for the NRW area, it was suggested that by asking the region to close another industry, **an important issue is to also give back to the region** (Bryce, 2017). It is questioned why only the coal sector must phase-out, and some other sectors are not considered (Deutsche Welle, 2019e). There is political hesitation as to not add to the past mistakes, but this also hinders a structured, fade-out plan for lignite (Bryce, 2017). Opposition parties do not hesitate to capitalize on these disputes (Gearino, 2020). There **must be attention for what comes next** (Gearino, 2020). Economical investments, early pensions, and a healthy economy (Gearino, 2020). Moreover, concerns are raised about the **transparency and participation** in decision-making by the government (Gearino, 2021).

Additionally, a question to be addressed is who is **responsible** to pay. The polluter-pays principle was mentioned, but there will still be tensions about who gets money, and who pays for what (interviewee 4, 9). Another important thing to mention is that much of the government funding gets lost in the administrative chains (interviewee 4). There has been a lawsuit where mining rights are pitted against citizens' rights (Friederici, 2020a). It was suggested that the government must take precautions to protect the environment and future generations (Deutsche Welle, 2022). Climate groups hold the industry responsible (Deutsche Welle, 2016). Related, for the NRW region, it was suggested that the uncertainty provides a heavy social cost; conflicts rise between workers and those against the industry (Friederici, 2020a). The Rhenish part of the region will receive 14.8 billion euros to transition away from coal, and have structural change. Regardless, the help may already be too late according to critics (Deutsche Welle, 2019a). Additionally, warnings have been given by the Economic Research Institute that the economic transformation will fail if the subsidies are not better targeted in the near future (Deutsche Welle, 2019a). Consumer advocates are calling for a fair distribution of the energy transitions' costs, such as higher energy prices as a consequence (Nijhuis, 2021). They stress that not only the industry, but also households must be compensated (Nijhuis, 2021).

An interesting point that was mentioned was the central mining area in Lusatia is being owned by a check company, using a **grasshopper system**: by buying up dying coal mine companies, the investor bets they will either get a lot of government subsidies, or that their company stays open longer than expected, either of the options providing them benefits (interviewee 2). This is however rather unfair towards the workers in the industry, since the investment company may leave with most of the money (interviewee 2). Interviewee 4 confirmed that this is happening in Lusatia, but it will not happen like this in NRW.

Another related issue is the **democracy of the process** (interviewee 3, 6, 9). For Lusatia, it was suggested by interviewee 3 that: "*they don't even have a common political representation besides the German government. But there's some other 18 million people. If you look at the lander level, you have Brandenburg, and then you have Nieder-Lausitz, which is like, lower Lusatia*". Lusatia encompasses Brandenburg and Saxony (ibid.). However, they do not represent the whole area and are fragmented (ibid.). Therefore, it is difficult to get a majority vote for Lusatia's political preferences (ibid.). For some parts of the NRW, such as the Ruhr area, people do not vote the green party much due to their main concerns being about their income rather than the environment. It was suggested that many people vote social democrats, traditionally stemming from the communist times and mining culture. Similar to Lusatia, there are also significant amounts of AFD votes. An interviewee interpreted these votes may indicate political discontent.

News articles added that energy cost increases led to a decrease in support for the coal exit especially in the eastern part of Germany, so Lusatia (Bateman & Wehrmann, 2022). Additionally, the possibility of an earlier phase-out has led to conservative opposition parties encouraging people in coal areas to protest against this (Bateman, 2021). The CDU has encouraged labor unions to protest as well (Wehrmann, 2021a). Since, there has also been an increasing support for the AFD in Lusatia (Deutsche Welle, 2019b). Statistics have shown that economic struggles often lead to an increasing support for this party (Deutsche Welle, 2019b). This is mostly the case in Saxony and Brandenburg above other areas (Deutsche Welle, 2019b; Deutsche Welle, 2019c; Gearino, 2020).

The democracy and inclusiveness of the decision-making process is a more general problem. Previously, with the involvement of many relevant parties, the coal commission decided upon a coal phase out in 2038, which the government is now discussing to push forward to 2030 (interviewee 1, 2, 3, 4, 5, 6, 7). This is not

appreciated by everyone, and causes more insecurity (*ibid.*). It is yet unclear what this will exactly look like (interviewee 1, 4, 5, 6, 7, 10). Interviewee 1 stated: “*We make it 2030. We say, okay, pretty interesting, uh, we think when we try this the next 17 years it would be a very hard way to do this to get this in the right ways, and you say we have 8 years. We now have 8 years less.*” (...) “*Yeah, and we don't know how it should work.*” Similarly, interviewee 6 also wondered what this earlier phase out would look like: “*Like the traffic light government said that they would like to phase out the coal even earlier in 2030, and I really agree with that because due to the climate crisis we need to phase out earlier, and it's also possible to do that. But I think there's lots of uncertainty now in the region how like, what this means for the structural change process.*” Interviewee 10 added that especially younger people are insecure about their future because of this: “*Ideally 2030, so this is 8 years earlier than expected, of course the younger people kind of are a little bit uncertain and unsure on*”. Overall, according to interviewee 9 this sudden change of plans may cause people to feel unheard: “*But, so, if you would ask that justice question, I think to the people I'm doing the interviews with, I would assume that people say hey, yeah, this feels unjust. I want to participate in this, and I don't have the chances for equal participation and participation in the way of being part of decision making.*” News articles added the plans to push the phase out may cause the **mining regions to feel unheard and “run over”**; making citizens more skeptical towards the government; and sending the “wrong signal” to especially Lusatia’s mining region (Bateman, 2021; Meza, 2021c; Wehrmann, 2021b). Moreover, in Lusatia there is still the feeling of being abandoned by the federal government (Deutsche Welle, 2019b). This issue may be worsened due to lobbying by some mining companies into politics was also mentioned (interviewee 4), as well as the tendency of the government to invest in supporting existing infrastructure rather than changing it at its root (interviewee 10). Previously in the case of NRW, decisions were made that were not the most environmentally friendly, in order to prevent bigger political splits in cities (Friederici, 2020b). The director of the Berlin-based Institute for Applied Ecology suggested that the German government should be more clear with regards to implementing their goals (Friederici, 2020c).

As a result of many factors, among which the ones above, **political discontent** plays a role. In Lusatia, a couple of interviewees mentioned the strong right wing political movement due to the high unemployment rate, or fear thereof (interviewee 11). It was also suggested that the perception of government neglect after the wall fall, or the broken promises then, plays a role (interviewee 2, 6). There is quite some skepticism towards the government, which translates into a relatively high number of votes for the AFD (interviewee 3, 5, 6, 8). Interviewee 5 stated: “*And the main story is always that, okay, the poorer regions they lost such a lot of job, people moved away, people got frustrated, this is why people are voting for the AFD, like, Lusatia has got a big problem with their image*” (interviewee 5).

In the interviews two movements were discussed: **climate activism and pro-mining movements** (interviewee 1, 2, 4, 6, 9, 10). It was explained that due to the **socialist history**, early in the mining industry history, there were **not as many large protests** (interviewee 2, 5). Protesting was not a regular practice as it is now (*ibid.*). Only after 1990 it became more apparent (interviewee 2, 5). For Lusatia, climate activism is practiced by a mix of insiders and outsiders, often forming coalitions (interviewees 2, 5, 9). At times, they are successful in inspiring governments (interviewee 7). Especially when a symbolically important change occurs, such as the demolishing of a new village, demonstrations may take place (interviewee 3). Another point that was mentioned for Lusatia was that due to young people moving toward cities, conservative people tend to stay behind (interviewee 3). As a result, activism comes more from the outside (*ibid.*). Not all interviewees describe this process the same. The role of the Sorbs in climate activism is also not generally agreed upon: one interviewee suggested they are often protesting due to losing their agricultural grounds; another suggested they are well-off due to selling of their ground to mining (interviewee 2).

Climate activists are in favor of the earlier phase-out, and suggest it can work economically (Deutsche Welle, 2019b). Environmental organizations encouraged the German government to take fast and decisive action to protect the climate, including the phase out of coal in 2030 (Gearino, 2020; Meza, 2021b). In addition to these calls for action, there have also been protests taking place, also in the form of civil disobedience and area occupation (Deutsche Welle, 2016; Deutsche Welle, 2022; Gearino, 2020; Gearino, 2021). This is done both by foreign climate activists, as well as locals that do not want to leave their homes (Deutsche Welle, 2016; Deutsche Welle, 2022; Deutsche Welle, 2019d; Gearino, 2020; Gearino, 2021). Currently, more attention is drawn also due to the international momentum (Gearino, 2021). However, in national politics there is also much attention to the dangers of an earlier phase-out by the coal regions (Deutsche Welle, 2019a6). Conservative politicians in Lusatia have criticized this as well, encouraging their citizens to protest against this (Bateman, 2021; Wehrmann, 2021b). In 2019, when the coal commission decided upon 2038, one dissenting vote came from a member representing Lusatia, whom was worried about the economical consequences (Gearino, 2020).

Another point that was raised, was that in Lusatia, more specifically in Mulrose, there is sometimes **unrest** between an active extremist climate activism group on one side, and the coal workers on the other (interviewee 3). Interviewee 3 explained: *"And another symbolically important thing is, when green inspired civil society movements occupy pit mines" (...) "And this is a moment when we're really close to something like civil unrest. You have coal workers on the one side, and you have the activists."* Climate activists run into the mine for a protest, disturbing the work (ibid). This is when, according to the interviewee, the two groups are very close to civil unrest (ibid). In the Rhineland, protests started earlier, in 1980 (interviewee 7). This was especially the case in one of the villages closest to the mine (ibid.). The activist groups active there now are similar to the ones in Lusatia, and the conflicts between the different groups as well (interviewee 3; interviewee 5; interviewee 7).

The coal community is represented by **unions and mayors**, who protect its interests (interviewee 3). Both in Lusatia and NRW the workers unions are active (interviewee 3, 4, 5, 9). Interviewee 3 stated for Lusatia: *"Then you had the coal community organized by the unions and by the mayors, to rally in demonstrations in Berlin, but also locally, to say: hey, this is important, it's our life, we just cannot go through another transformation"* (interviewee 3). It was repeatedly suggested by interviewees that new jobs are also fine, but new workers unions would also be required to ensure good working conditions in the newer industries as well. Additionally, the **working conditions** are relatively good in the mining industry due to the strong workers' unions, which are lacking still in the newer working areas of sustainable energy: *"And, one thing that is really true for the energy transition, and this is a problem, is that the jobs in renewable energies, they are not unionized" (...) "So this would be important that also the new jobs, are, like what we call good jobs where people can participate and so."* (interviewee 5). This interviewee suggests new industries should look to the mining industry for an example of good working conditions, and well-functioning workers' unions.

Interestingly, it was suggested **difficult for women to access** the coal unions, especially in relation to Lusatia (interviewee 6). This may be due to their care responsibilities in the family (ibid). The same interviewee made a remark that in other, women-dominated sectors, it is typical to find less workers unions (ibid). However, a learning point from the mining industry is that such workers unions can be very helpful and effective (ibid.).

5. DISCUSSION

This research aimed to answer the following main question: ***How can collective identity help or hinder coal phase-out transitions?***. In order to do so, three sub questions were raised. Subsequently, interviews were conducted and complemented by literature, both academic and non-academic articles. This section will link the results to the sub questions. The sub questions are divided into the chapters 5.1; 5.2; and 5.3. Next, limitations will be discussed. Lastly, implications are explained for future policy as well as the broader field of sustainability transitions. The main question will be answered in the conclusion.

5.1 CONCEPTUALIZING IDENTITY

The first sub-question was as follows: "*How can collective identity be conceptualized with regards to sustainable energy transition?*". The methods section of this research built upon the framework by Sanz-Hernández (2020). The following categories were used as analytical framework for the structuring of interview questions and the coding scheme to analyze it later on: self-identification; continuity; emotional, cultural, and social dependence; economic dependence; solidarity; reaffirmation; territorial dependence; injustice. It was found during the research, that generally the framework was applicable. In this section, the most important aspects of identity regarding the coal phase out are explained. Throughout, important interlinkages or overlaps will be explored.

From the interviews, the following categories were stressed relatively more: emotional, cultural and social dependence; economic dependence; and injustice. Firstly, the sections for **emotional, cultural and social dependence** gathered many insights. It became clear that cultural heritage plays an important role for both regions (interviewee 1, 2, 4, 5, 7, 8). Coal has long been the main energy source, also in the time of the DDR and coal miners used to have a good status as well as good pay (*ibid.*). As such, the coal industry is still often perceived as connected to wealth (interviewee 1, 4, 5). Its working unions are still active today (*ibid.*). After the wall fall, outside competition vastly increased and energy demand shifted elsewhere (interviewee 1, 2, 3, 4, 5, 6, 10). As a result, provision of jobs in the mining industry greatly declined (interviewee 1, 3, 4, 5, 10). Female jobs first disappeared (interviewee 5, 6). During this time, the largest part of the phase-out already took place (interviewee 1, 3, 4, 5, 10). In addition to less women workers, many younger, well-educated people moved elsewhere (interviewee 3, 5, 6, 10). This was the case for both regions (interviewee 10), but provides more challenges in Lusatia than in the NRW region (interviewee 1, 5; Bryce, 2019). Currently, a pressing issue is how to address younger people's futures (interviewee 1, 4, 10). Especially young mining workers have an insecure future (*ibid.*).

Interestingly, **emotional, cultural and social dependence do not stand alone, but are influenced by many other categories in the framework**. The aforementioned work relations, e.g. the taking care of each other as mentioned by interviewee 1, is also linked to self-identification, solidarity, and reaffirmation. With regards to self-identification, the lack of identifying with the industry and actually more so identifying as victim of relocation seems to have influenced the bond to mine and coal in a negative way. As such, many locals that do not work in the industry experience either neutral or negative feelings towards it, providing a helping factor for the phase-out. However, regarding reaffirmation there was a notion of pride by the miners. This contrarily may provide a hindering factor of proud workers and workers' unions fighting against a faster phase out (interviewee 1, 3, 4, 5, 6, 7, 8, 9, 11). Lastly, one could say solidarity is also linked. On the one hand, mining employees still have a strong connectivity (interviewee 1), on the other hand the lacking working opportunities beyond mining force younger people to move out, providing tensions between workers and other people, as well as anger towards the government (interviewee 1, 2, 3, 10; Friederici, 2020a). As such, the way of life and family are threatened, which feeds back into the emotional, cultural and social dependence.

Secondly, for **economic dependence**, with regards to **job perspectives** both regions differ significantly: Lusatia is more dependent on the mining industry for their local economy and job provision than NRW (Interviewee 1,

3). This is likely due to the presence of other industries and the central geographical position of the NRW area (interviewee 1, 4, 7, 8). However, for both regions, the job provision in the mining industry is much less than previously (interviewee 1, 3, 7, 8, 9, 10). It is clear mining employees are concerned about their job (Bryce, 2017; Deutsche Welle, 2019d; Gearino, 2020; Wehrmann, 2021a; Bateman, 2022; Deutsche Welle, 2022). The possibility of an earlier phase-out raises more concerns about job losses and economic shocks (Meza, 2021c). Additionally, many statements were made around **regional wealth**. The first aspect of regional wealth interviewees mentioned was funding (interviewee 2, 4, 5, 6, 7, 10). The government allocates funding for the phase out, which can be used to create (economic) opportunities for the coal regions (interviewee 4, 7, 10). Examples include new railways, universities, sustainable energy production, and the tourism sector (interviewee 1, 5, 8, 9, 10, 11; Bryce, 2017; Deutsche Welle, 2019d; Gearino, 2020; Meza, 2021b; Wehrmann, 2021b). It should be noted that in comparison, Lusatia would require mostly infrastructure in addition to new job provision, whereas the NRW area is already central and has good infrastructure (ibid.). Another factor to take into account is the loss of funding of the local economy by the mining industry (interviewee 2, 3, 4, 5, 7, 9). They sponsor local initiatives in both regions (ibid.).

Similar to the previous category, **economic dependence also does not stand on its own**: it is at least linked with the previous social, emotional and cultural dependence; territorial dependence, and injustice. The latter is explained in the injustice section. Firstly, with regards to social, emotional and cultural dependence: both are influenced to a large extent by the job provisions by the coal industry (interviewee 1, 3, 10, 11). Namely, coal mining can greatly influence family lifestyles, as well as work relationships. This cannot be seen separately from the influence income has on the lifestyles and working relationships. Secondly, with regards to territorial dependence, interviewees mentioned health and environmental consequences (interviewee 1, 2, 3, 5, 6, 7, 8, 9, 11). Economic benefits seem more important than the environmental and health costs, which hinders the phase out partially (ibid.). One reason for this could be that the region and country are dependent on coal mining for domestic energy supply and thus independence (interviewee 6, 9, 10, 11).

Thirdly, the aspect of **justice/injustice** is very broad, and difficult to define. However, in the interviews the following aspects were highlighted. For Lusatia, unemployment rates are relatively high, and it was suggested people feel left behind by the government (interviewee 1, 4; Deutsche Welle, 2019b). Another challenge is presented by the question of responsibility for paying and regulating a good transition (interviewee 4, 9; Deutsche Welle, 2016; Deutsche Welle, 2019a; Friederici, 2020a; Nijhuis, 2021). In Lusatia more so than NRW, it is crucial to prevent companies from getting a disproportional share of subsidies (interviewee 2, 4). It is also crucial to give back to the regions (Bryce, 2017; Deutsche Welle, 2019e). Political discontent is expressed by strong right wing political movement, especially in Lusatia (interviewee 2, 6, 11). This reflects increasing skepticism toward the government in both regions (interviewee 2, 3, 5, 6, 8). In addition to top-down democracy, interviewees suggested the democracy of the process must also be considered more (interviewee 3, 6, 9). Failure to address concerns and compensate for welfare loss is a recurring issue, especially in the east (Deutsche Welle, 2019b; Deutsche Welle, 2019c; Gearino, 2020; Wehrmann, 2021a; Bateman & Wehrmann, 2022). One way in which this was already attempted was through the coal commission, but its decisions are reconsidered by the government causing unrest (interviewee 1, 2, 3, 4, 5, 6, 7, 10). As a result, mining reasons tend to feel unheard and run over (Bateman, 2021; Meza, 2021c; Wehrmann, 2021b).

Perceptions of **injustice** were expressed by different parties. The two main groups that were discussed in the interviews were climate activists, and people involved with the mining industry (interviewee 1, 2, 4, 6, 9, 10). Historically, there were not many large protests (interviewee 2, 5). However, since 1980-1990 protests in both regions have become increasingly frequent by both local and non-local climate activists (interviewee 2, 5, 7, 9). Climate activists favor an earlier phase-out (Deutsche Welle, 2019b; Gearino, 2020; Meza, 2021b). At times, there is unrest between active extremist climate activist groups and coal workers (interviewee 3; interviewee

5; interviewee 7). For the coal community, unions and mayors protect their interests (interviewee 3). Workers unions are active in both regions (interviewee 3, 4, 5, 9). Historically, these unions have greatly improved the working conditions in the industry, and providing learning points for future industries (interviewee 5). An interesting point that was raised is the lack of women activity in these unions, especially in Lusatia (interviewee 6). Another topic that must be acknowledged is the role of the Sorb minority in Lusatia, which was repeatedly relocated due to mining (interviewee 3, 5, 8).

Similarly, **injustice is also interlinked to other factors**. It links back into economic dependence in different ways. It was questioned who should pay for the transitions and compensation (interviewee 4, 9), and the challenges that come with this funding, such as making sure it ends up in the right hands (interviewee 2, 4). If these economic questions are not considered, injustice may take place. Additionally, solidarity and justice may also influence each other. As younger people move out, and more conservative people stay behind, feeling left behind (interviewee 1, 2, 3, 10), feelings of injustice may rise. Tensions grow between those willing to sell their house or land, and those who do not wish to do this, racism may occur (interviewee 2, 5, 9). People may find it unjust that they have to give up their family history, their cultural heritage (*ibid.*).

To sum up, it became clear that identity consists of different sub-categories, which are complex and interlinked. The most relevant ones for the sustainable energy transition cases in this research were emotional, social, and cultural dependence; economic dependence; and justice/ injustice. The different attributes influenced each other, as well as the other attributes to identity. Another important lesson drawn from this chapter is that although theoretically, these are separate attributes, due to the interlinkages they have with each other, they cannot truly be seen as separate. This will be elaborated upon in the limitations section.

5.2 HELPING AND HINDERING ROLE OF IDENTITY

The second sub-question was as follows: *"How does collective identity help or hinder the sustainable energy transitions in the cases of Lusatia and NRW?"* Firstly, it is important to note that this sub question should be critically reflected upon: interviewees did not mention collective identity as much, at times referring to solidarity among mining industry workers (interviewee 1). One interviewee even suggested there is no such thing as one single identity, and one should be very careful to not generalize this (interviewee 10).

Regardless, it became inherently clear from this research that, in fact, **identity does play a major role** with regards to the coal phase out in Lusatia and NRW. As was mentioned in the methods section, with regards to the analytical framework, the following presence of factors could negatively or positively influence the coal phase out: self-identification; continuity; emotional, cultural and social dependence; economic dependence; solidarity; reaffirmation; territorial dependence; and injustice. These factors are all previously discussed. The ones that were generally regarded as most helping or hindering for the current state are now shortly highlighted.

First of all, the main **hindering and helping** factors seem to be ***continuity; emotional, cultural & social dependence; economic dependence; reaffirmation; territorial dependence; and injustice***. With regards to both **continuity** and **economic dependence**, the most pressing topic was job provision and the resulting income. Especially in Lusatia, many citizens depend upon their income some way on the mining industry (interviewee 1, 3). It was suggested that for both regions, this decrease in jobs also may further negatively impact social and cultural life quality due to e.g. brain drain (interviewee 3, 5, 6, 10). Research confirms that the mining industry is the most important employer in Lusatia currently (Agora Energiewende, 2018). Other issues related to economic dependence that were mentioned were related to the regional wealth (Agora Energiewende, 2018). However, the coal phase out may, in addition to lose jobs, also provide economic opportunities for the coal regions (interviewee 4, 7, 10). There is much funding coming in, which may be used in many different ways (Interviewee 2; 10). This may be seen as more of a helping factor.

In addition, with regards to **emotional, cultural and social dependence**, especially cultural heritage is still very much alive in the mining industry (interviewee 1, 2, 4, 5, 7, 8). Similarly, within the category of **reaffirmation** it was suggested that there is still much pride in the minds of people regarding the industry (interviewee 1, 3, 5, 6, 7, 8, 9, 11; Gearino, 2020). Challenging this pride or threatening the cultural heritage may cause conflict (interviewee 3, 5, 8, 11). Moreover, the mining industry is often still mentally connected to **regional wealth**, as well as important domestic energy source and is protected as such by mayors, workers, and unions (interviewee 1, 2, 4, 5, 6, 9).

Moreover, **territorial dependence** and **economic dependence** can be seen as relatively important in hindering the coal phase out. As mentioned in the previous section already, it is still often seen as an important domestic energy source to protect Germany's independence from other suppliers (interviewee 7, 9, 10, 11; Deutsche Welle, 2019b; Friederici, 2020a; Friederici 2020b; Gearino, 2020; Stonington, 2020). As such, by phasing out this energy supply sector, Germany would also trade-in a large part of their independence. However, negative effects on health and the environment also fit into this category, which actually provides a helping factor for the coal phase out (interviewee 1, 2, 3, 5, 6, 9, 7, 8, 9, 11). This reflects that the coal mining is perceived as problematic for local health and environment. Both of these issues feed back into the economic dependence: despite the negative consequences, energy supply is simply something a country needs to keep the industry and thus economy running; and the negative externalities as driven by the coal mining are not actually monetized (also economical).

In addition, various interviewees **suggested job provision and local wealth** as a source of worry for residents (Interviewee 1, 3, 10, 11). This affects identity, by changing family lives and lifestyles. As previously mentioned, economical worries cause younger, more educated people to move out (interviewee 1, 2, 4, 5, 6, 7, 8, 9, 11). As a result, the emotional, cultural and social situation and identity is changed as well. Relations between residents may change, their habits and daily lives are likely affected as well.

5.3 IMPLICATIONS OF THE FINDINGS

The third sub-question was as follows: "*What are the implications of these findings for coal phase-outs more broadly/coal phase outs?*" The previous sections of this discussion firstly aimed to conceptualize identity, and secondly find its hindering and helping factors towards a coal phase out. As such, the different attributes of identity were explored in relation to the two cases.

The first implication thereof is that **identity is a factor that should be taken into account when undergoing an energy transition** such as the one in Lusatia and NRW. Identity can have hindering or helping properties, and thus significantly influences the process of the coal phase-out. It is thus a factor that should be taken into account in the decision-making process for policy. One must be aware however, that this notion of identity may also bring with it risks of societal polarization. If notions of identity are emphasized throughout the decision-making process, this may lead to stereotypes or artificial dichotomies. As a result, the transition process could be complicated further. Therefore, one should meticulously consider *how* identity can best be included.

Secondly, the **different attributes to identity are largely interlinked**. In the previous sub chapter, it was explained that many attributes influence each other. Per example, economic insecurity could cause a threat for the field of social, emotional and cultural identity. Other interlinkages were also found. As such, a lesson drawn is that identity must not be only seen in separate attributes, but in interlinked attributes. It is a complex, dynamic concept. It is influenced by different attributes and other factors that may lay outside of the framework as well. Therefore, the concept of identity is not to be underestimated in complexity.

Thirdly, identity is **an inherently subjective, complex topic**. The choice to explore the topic in itself is already political and subjective. That being said, the topic itself can be defined in many different ways. This research

chose the framework by Sanz-Hernández (2020) as a basis. However, another basis framework may also be suitable. In addition, the interlinkages between the different aspects are open to subjectivity as well.

The above all reflects the influence that different aspects of identity can have on coal-phase outs for the regions of NRW and Lusatia, which may lead one to wonder: **how can this be transferred to other cases, or other sustainability transitions?** It is challenging to transfer such specific cases and such a specific process into other cases and similar processes without risks. Regardless, the research can prove useful for future research in different ways.

Firstly, **this research can provide a useful starting point for (geographically) similar countries.** Other countries that were mentioned in previous research that are in a coal phase-out influenced by identity are Australia, America, Canada, Spain, and the UK (Carley, 2018; Della Bosca & Gillespie, 2018; Blondeel, Graaf & Haesebrouck, 2020; Cha, 2020; Sanz-Hernández, 2020; Perez-Sindin & Van Assche, 2020; Mayer, 2022). These countries may be similar to Germany due to their democratic political system; their awareness of sustainability as pressing issue; and perhaps shared treaties through the EU or other initiatives. However, it is important to note that in order to make such a comparison, one must justify this elaborately. There may also be cases of coal phase-outs that are hard to relate back to this research, such as non-OECD countries in Asia, Latin America, and Africa. Per example, in Asia and Africa the coal market is actually growing (Spencer et al., 2018; Auger, 2021; Chen, 2021; Hanto et al., 2021; Semelane et al., 2021; Winkler et al., 2021). In other words, the findings by this research are relevant for other, compatible countries with coal phase-outs. However, one must carefully examine what countries actually *are* compatible.

Secondly, **this research can provide a useful starting point for similar sustainable energy transitions.** Within Germany, examples of such energy transitions could include the transition towards wind energy; phase-out of nuclear energy and fossil fuels (Grossi, Heim & Waterson, 2017; David, 2018; Markewitz, Robinius & Stolten, 2018; Follert, Gleißner & Möst, 2021; D.Löhr & Mattes, 2022). Many other European countries also transitioning away from fossil fuels, “decarbonizing”, and aiming to achieve “CO₂ net neutrality” (Elavarasan et al., 2022; Malec, 2022; Rempel & Gupta, 2022; Rodrigues et al., 2022). There may be certain aspects of identity similar in these transitions. Per example, job provision due to a change in local industrial employment or injustice of consequences could also be worries elsewhere. However, there will also likely be significant differences to identity, such as the cultural heritage of an industry. Therefore, one may conclude that there *may* be similarities, as well as differences when comparing Germany’s coal phase-out to other sustainable transitions.

Thirdly, it has become clear that **identity is without a doubt a factor that should be taken into account throughout any sustainable energy transition.** Exploring identity helps understand the context of an area. As such, the mentality of the area to be governed, and the issues that are prioritized by its people become clearer. Therefore, identity research is a step towards smoother process of change. This research provided insights on the role of identity, and thus added to the total body of literature of environmental sciences and social sciences. It provided an example of the application of the pre-existing framework by Sanz-Hernández et al. (2020). As such, it can prove very useful for future reference in other research for the role of identity in sustainable energy transitions, and research for sustainable transitions in general, if one takes into account the limitations of generalizability.

5.4 LIMITATIONS

Although this study has provided many useful insights for future reference, like all other scientific research, it comes with limitations. These will be shortly explained in this section. First of all, the **generalizability is limited.** The research was focused on the two cases of Lusatia and North Rhine-Westphalia as well as the specific issue of the coal phase out here. As such, it is unclear in how far the findings can be transferred to other geographical regions abroad. Additionally, it is unclear to what extend the findings apply to other

sustainable transitions. However, the focus on the cases was chosen to ensure the feasibility of the research, as well as availability of experts and literature.

Secondly, the framework provided consisted of **predefined categories**. As such, other important categories may have been excluded. Another framework limitation is the isolation of categories and lack in guidance for finding interlinkages and overlaps between them. Using such a framework may lead to an artificial separation between the categories, whereas in reality these distinctions are not always as clear. Per example, the factor of pride touches upon self-identification; solidarity; and reaffirmation. Additionally, the feeling of pride may be strengthened due to cultural history, which is part of the category emotional, cultural and social dependence. Nonetheless, it is crucial to note that frameworks are simply a way to structure processes, and cannot be expected to be perfect.

6. CONCLUSIONS

This research aimed to add to the body of literature more knowledge regarding the interplay between identity and sustainability transitions. As such, two specific cases in Germany that are currently going through a coal phase out were chosen. Literature provided a basic framework to guide the rest of the research and help define identity. Next, regional experts were interviewed. To complement these interviews, news articles were analyzed. As a result, the main research question "**How can collective identity help or hinder coal phase-out transitions?**" was answered. Previously, the different parts of this question were answered. Altogether, it has become inherently clear that identity in practice plays a large role in the perceptions of involved actors for the regions Lusatia and NRW, with regards to the coal phase out.

Firstly, it was found that **for most of the different attributes of identity, there was a great relevance**. The attributes that were suggested hindering the transition were mostly self-identification; continuity; emotional, cultural and social dependence; solidarity; reaffirmation; and territorial dependence. These different attributes of identity are all interlinked. As such, they influence each other.

The aspects that were most **emphasized in this research** are *continuity, economic dependence, emotional, social and cultural dependence, reaffirmation, territorial dependence, and injustice*. The coal phase out may threaten the way of life of those that depend on it, thus threatening their sense of continuity. Additionally, local economics inevitably change, causing fear of job loss and loss of local wealth. However, identity goes deeper than wealth, habits and lifestyle. Within the factor of emotional, social and cultural dependence lies a more complex attribute of identity: that of cultural heritage and familiar history. Both coal regions have long depended on coal mining for employment, and it has been seen as an important, worthwhile job. It provided the region and the country with domestic energy. As such, in addition to history, both pride (affirmation attribute) and regional independence (territorial dependence) play a pivotal role. These factors all influence each other, and are not as separate as they might seem.

Consequently, the complex attributes of **identity inevitably influence** the process of the coal phase-out. Several attributes of identity can have a **hindering effect** on the coal phase out. These will now be shortly addressed. Firstly, pride, cultural heritage and familiar history may provide workers and other residents with strong sentiments against the coal phase out. This is further strengthened by the workers unions, as well as perceived the economic and territorial dependence on the coal industry. A related factor is the threat to continuity, which accompanies and encompasses the other parts of identity as well. The disturbance of habits and family life can cause tension and decreased support for the coal transition as well. Moreover, regarding injustice, interviewees explained history can shape the overall mood in the region. Additionally, the inclusiveness of the decision-making process can cause people to feel the process is unjust.

In addition to hindering attributes, identity also **provides helping attributes of identity** towards the coal phase out. Firstly, with regards to continuity and emotional, social and cultural dependence, there are also residents that face insecurity regarding their livelihoods and homes as a result of possible relocation due to mining expansions. As such, the phase out of coal in these regions may benefit those people, and could count on support from them. This also means preservation of cultural heritage and family traditions. Additionally, injustice towards people that have not benefited from the mining is also a factor that may help the phase out. An example is the relocations of the Sorbs in the Lusatia area, which led to them being disproportionately disadvantaged (interviewee 3, 5). As such, they may help the coal phase out transition take place.

6.1 SUGGESTIONS FOR FUTURE WORK

For all research, it is important to set clear boundaries: for this research the boundaries were set to the two cases of Lusatia and NRW, explored through a specific framework. As such, future research could complement this paper by both exploring other cases, and exploring different frameworks. Firstly, there are many different cases of coal phase-outs as mentioned in the previous sections. By **exploring identity in other cases**, more insights can be gathered on its importance, and the relevance of the framework as applied in this paper. Secondly, since there is no general consensus on identity and frameworks to explore this, it would be useful to **apply other frameworks** or ideas to phase outs. It would be useful to assess whether different frameworks lead to vastly different results, or additional insights.

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APPENDICES

APPENDIX 1. INTERVIEWS

APPENDIX 1.1 MASTER THESIS PROJECT INFORMATION SHEET



**Utrecht
University**

MASTER THESIS PROJECT INFORMATION SHEET

THE ROLE OF COLLECTIVE IDENTITY IN COAL PHASE-OUT TRANSITIONS *FOR THE GERMAN CASES OF LUSATIA AND RHINELAND*

I would like to invite you to participate in my research. However, before taking this decision it is important to understand why the research is being conducted, and what participation means for you. If any of the information is unclear to you, feel free to ask for clarification or more information.

Overview

This research aims to better understand the links between identity and energy transition regarding coal phase-outs. Identity plays a crucial role in the way one views such transitions. In order to explore this, interviews are conducted with a variety of stakeholders to explore aspects such as the relationship between people and mining over time. This will hopefully inform future research and policy making.

Approach

In this thesis I am exploring the question: "**What is the role of collective identity in the transition away from coal in Lusatia and Rhineland?**"

To answer this question, I will conduct semi-structured **interviews with key actors in Lusatia and Rhineland**, such as scientists, representatives for workers' unions, and politicians. The interviews will focus on exploring the way identities and coal phase-outs are linked. **These interviews will be conducted online, through Microsoft Teams, from 1 February until 28 February 2022.** I am also happy to negotiate another time if that is more suitable.

Your Participation in this Research

Your participation in this research will involve **an interview of around 45-60 minutes**, which can be shortened or extended according to your preference. If you **agree**, the interview will be recorded to support analysis. Participation in the interview is fully voluntary, and you may withdraw from the interview and research at any time without any consequences. The information you provide will be handled **securely and will remain confidential at all times**. All data from the interviews is fully anonymized when presented and will not be attributed to any specific person. **Benefits of participating in this research include contributing to research**

about identity and its influence on sustainability transitions, possibly influencing future policies and transitions. A copy of the final thesis can be provided if requested.

Contact for Further Information

If you have any questions about the research project, please contact:

Master Thesis Researcher

Maaike Thimm
Master Sustainable Development
Earth System Governance (ESG) Track
Utrecht University, The Netherlands

Email: m.j.thimm@students.uu.nl
Phone number: +31640744883

Master Thesis Supervisor

James Patterson
Assistant Professor
Copernicus institute of Sustainable Development
Utrecht University, The Netherlands

Email: j.j.patterson@uu.nl
Phone number: +31302531509

This research is conducted as a Master Thesis project under the requirements of the Master Sustainable Development of Utrecht University. Therefore, it adheres to the ethical procedures related to interviewee participation as well as storage and use of provided data. You may discuss your participation at any time with the Master researcher (Maaike Thimm) and her supervisor (Dr. James Patterson) as provided above.

APPENDIX 1.2 INTERVIEW PARTICIPATION CONSENT FORM



**Utrecht
University**

INTERVIEW PARTICIPATION CONSENT FORM

THE ROLE OF COLLECTIVE IDENTITY IN COAL PHASE-OUT TRANSITIONS
FOR THE GERMAN CASES OF LUSATIA AND RHINELAND

Researcher: Maaike Thimm
Master Sustainable Development, Earth System Governance
Utrecht University

Supervisor: James Patterson
Faculty of Geosciences
Utrecht University

I agree to take part in this interview.

An audio recording may be made of this interview:

Yes

No

- I have fully read the Master Thesis Project Information Sheet
- I understand that my participation is entirely voluntary and that I am free to withdraw from the study at any moment without any consequences, and
- I understand the privacy, confidentiality, and security of the information that I will provide

Name: _____

Date: _____

APPENDIX 1.3 SELECTION PARTICIPANTS

For this research, purposive sampling is used (Bryman, 2016). The cases were selected on certain criteria, and the interviewees are selected within these cases to help answer the research question and complement current research. It is crucial to note that in choosing participants purposively, the researcher cannot generalize the results for the entire population (*ibid.*). The interviewees are selected on their relevance to the case.

The interviewees were identified using the general stakeholder map as shown in the methods section of this paper. For finding the names and contact information of the different stakeholders, general search engine (Google) was used. Examples of searches conducted are “Lusatia coal”, “Lusatia coal research”, “Rhineland coal”, “Rhineland coal research”, “NRW coal”, For members of organizations such as NGOs, government bodies, political parties and others, the organization website was consulted for contact information. If no personal email could be found, these organizations were contacted. Additionally, for some cases social media was also consulted. Examples include Facebook and LinkedIn. In addition, interviewees were asked for additional persons to contact. In appendix 2.4, a table can be found of the type of stakeholders that were interviewed.

APPENDIX 1.4 INTERVIEW GUIDE

Date	
Interviewee	
Institution	
Role of interviewee	

Hello! It is nice to meet you. How are you?

As you know, this interview is part of my research to explore the link between identity and coal mining in Lusatia and Rhineland.

I have to first start with the formalities: namely the informed consent.

- Did you have the time to take a look at the Project Information Sheet?
 - o Good!
 - o If not: no problem. Here's the main things to know.
 - ***Your participation to this research may be withdrawn at all times without any consequences to you. Your participation will be anonymized as well.***
 - ***It is okay if you do not wish to be recorded. The recording is merely used for analysis. After the interview, it can help with transcription, ensuring that the full conversation can be used.***
 - ***The recording is done through teams, but the video part of it will be stripped using a secure converting program (VLC).***
 - ***Do you agree to take part in this interview, and be recorded?***

Introduction question

1. Could you tell me briefly about your current relation to coal mining?

Identity exploring questions

Guiding Question / follow up
2. How would you describe the Lusatia/ Rhineland community's historical relation to coal mining?
3. How would you describe Lusatia/ Rhineland's current relation to coal mining?

a. Social? b. Cultural? c. Economic?
4. In your opinion, how far does coal mining define the sense of being a Lusatian/ Rhineland citizen? a. How do you think this citizen identity influences opinions about the energy transition? b. Family traditions (e.g. different generations working in the mining sector)?
5. How would you describe the influence of coal mining on daily practices? a. Habits, the way they live their lives?
6. How might a phase-out change the current relation to coal mining? a. Justice/ injustice? b. Social? c. Cultural? d. Economic?

Closure

7. Is there anything else you would like to add that we may have missed regarding coal mining or its influence on identity?
8. Is there anyone else that you suggest I should contact for an interview?

Thank you so much for your time! This has been of great help. Have a nice day.

APPENDIX 2: COMPLEMENTARY DOCUMENTS

APPENDIX 2.1 COMPLEMENTARY NEWS ARTICLES

Table Ax: Overview searches conducted on Deutsche Welle (www.dw.com); Inside Climate News and included. Additionally, searches were limited from 2012-2022.

Source	Search	#Records	#Relevant records (included)	Included literature	Comments
DW.com	Lusatia coal	19	4	1, 2, 3, 4	Seem more like background
DW.com	Rhineland coal	20	3	5, 6, 7	
Inside Climate News	German Coal Transition	76	6	8, 9, 10, 11, 12, 13	
Clean Energy Wire	Germany Coal Transition	1153	11	14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	*could only see last year; collection of many German

					n papers
ENSIA	Germany Coal transition	7	2	26, 27	
Interview LK	-	-	-	28	Article previou s experie nces region (L)
	Total				

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APPENDIX 2.2 COMPLEMENTARY SCHOLARLY ARTICLES

Table Ax: Overview searches conducted and number of records before and after selection of relevant records. The literature that is included will be numbered so it is tracible to its search. Additionally, searches were limited from 2012-2022

Engine	Search	#Records	#Relevant records (included)	Included literature	Comments
Sco R	TITLE-ABS-KEY (coal AND mining AND nrw)	6	1	1	Excluded: technical/ not available English
Sco R	TITLE-ABS-KEY (coal AND mining AND rhineland)	6	2	2, 3	

Sco R	TITLE-ABS-KEY (lignite AND rhineland)	19	2	L&R: 12 R: 13	
Sco R/ L	TITLE-ABS-KEY (germany AND coal)) AND ((phase AND out)) AND (lusatia OR rhineland)	14	7	L&R/ G: 14, 15, 16, 17, 18, 19 L: 20	
Sco R/ L	(TITLE-ABS-KEY (germany AND lignite AND mining)) AND (lusatia OR rhineland)	51	6	R: 4 L: 5, 6, 7 G: 8, 9	Excluded technical; some duplicates
Sco L	TITLE-ABS-KEY (coal AND mining AND lusatia)	23		10, 11	Some duplicates
Sco L/ R	(TITLE-ABS-KEY (german AND coal AND transition)) AND (identity)	7		R: 21 G: 22, 23	
Total					

1. Rafaty, R., Srivastav, S., & Hoops, B. (2020). Revoking coal mining permits: an economic and legal analysis. *Climate policy*, 20(8), 980-996.
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3. Brock, A., & Dunlap, A. (2018). Normalising corporate counterinsurgency: Engineering consent, managing resistance and greening destruction around the Hambach coal mine and beyond. *Political Geography*, 62, 33-47.
4. Liersch, C., & Stegmaier, P. (2022). Keeping the forest above to phase out the coal below: The discursive politics and contested meaning of the Hambach Forest. *Energy Research & Social Science*, 89, 102537.
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11. Morton, T. (2021). Contesting Coal, Contesting Climate: Materializing the Social Drama of Climate Change in Australia and Germany. *Environmental Communication*, 15(4), 465-481.
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 15. Kalt, T. (2021). Jobs vs. climate justice? Contentious narratives of labor and climate movements in the coal transition in Germany. *Environmental Politics*, 30(7), 1135-1154.
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 21. Mohr, A., & Smits, M. (2022). Sense of place in transitions: How the Hambach Forest Movement shaped the German coal phase-out. *Energy Research & Social Science*, 87, 102479.
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APPENDIX 2.3 ADDITIONAL ARTICLES

In addition to the structured searches conducted as shown in **table Ax**, more general searches were conducted to increase the collection of relevant news articles to be included. This is shown in **table Ax+1**.

Table 4: Overview searches conducted on Google and included. Additionally, searches were limited from 2012-february 2022.

Source	Search	#Records	Included literature	Comments
Google	German Coal Commission	4.190.000 → check first 10 pages	L&R: 1, 3 L: 2	Thinktanks/ research institutions' reports
Interview PW	-	-	4	Only available in German: compares views of interviewees: open pit powerplant employees; head office; experts; environmentally active and affected by mines; other respondents

1. Agora Energiewende und Aurora Energy Research. (2019). *A Roadmap for a Just Transition from Coal to Renewables*. The German Coal Commission. 158/03-A-2019/EN.
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<https://www.rff.org/documents/3189/21-13-Nov-22.pdf>
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APPENDIX 3: CODING SCHEME

Codes			
	Name	Files	References
	Continuity	11	17
-	Economic dependence	0	0
	Job perspectives	23	72
	Regional wealth	26	71
-	Emotional, social & cultural dep	3	5
	Cultural heritage	19	69
	Demographics	13	30
	Health or environmental depen	16	47
	Interesting quotes	15	33
-	Political identity	6	7
	Political preferences	19	35
	Protest identity	17	40
	Unions	8	14
	Self identification and pride	11	36
	Social Recognition	24	63
	Solidarity	9	11
	Territorial dependence	12	26

Figure A1: Screenshot coding scheme NVIVO used for both the interviews and news articles, included on the right the amount of files and references the different codes were applicable to. The basis for this coding scheme was the analytical framework, but it was to a large extent adjusted during the process. New categories were added, categories were integrated or changed.