# Symbolic coping in Canada's coal phaseout

## - Applying social representations dynamics to communities in transition

Linda Varekamp

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Swedish University of Agricultural Sciences, SLU
Faculty of Natural Resources and Agricultural Sciences
Department of Urban and Rural Development
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# Symbolic coping in Canada's coal phaseout – Applying social representations dynamics to communities in transition

Linda Varekamp

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| **Supervisor:** | Anke Fischer, SLU, Department of Urban and Rural Development, Division of Environmental Communication |
| **Examiner:** | Hanna Bergeå, SLU, Department of Urban and Rural Development, Division of Environmental Communication |

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Department of Urban and Rural Development
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## Abstract

The Canadian federal government has introduced policy to phase out coal-fired electricity generation by 2030, as part of its climate change mitigation commitments under the Paris Agreement. The policy plan, positioned as a *just transition*, includes funding and measures to help workers and communities manage economic difficulties arising from the coal phaseout. Sustainability transitions, however, are rarely a purely economic process, as changes in demographics, values, norms and meanings may also ensue. Understanding this process as one of *symbolic coping*, wherein coal communities must socially come to terms with the phaseout and the resulting threat to their identities, adds another dimension to the just transition concept.

This study aimed to better understand the social-psychological processes of sense-making in sustainability transitions, by investigating how coal communities are understanding and coping with the coal phaseout, and how social representations of the coal industry are transforming as a result. Social representations theory (SRT) was the main conceptual framework used, as it explores group-level common-sense understandings, which can be useful in analyzing processes of disruption or transition. Through qualitative case study research in two coal producing communities in Saskatchewan, one of four Canadian provinces affected by the coal phaseout, I explored the dynamics of the social representation of the local coal industry. Using the central core approach to SRT, I identified a core element based in shared history, stability and prosperity, which seemed to provide a foundation for making sense of the coal phaseout policy. From this foundation, I found two models of social representation transformation, *resisting* and *progressive*, implicating a split in the social representation of community life after coal. With this theoretical application, I explored social implications of the Canadian coal phaseout, illustrated a model of social representation transformation, and demonstrated a framework that can be applied to transition research in other contexts. I also discussed potential governance implications for designing just transition policies.



*Keywords:* just transition**,** resistance, transformation, social representations theory, structural approach, central core

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# Abbreviations

| | |
|---|---|
| CCS | Carbon Capture and Storage |
| GHG | Greenhouse Gas |
| SLU | Swedish University of Agricultural Sciences |
| SRT | Social Representations Theory |
| JFT | Just and Fair Transition for Canadian Coal Workers and Communities |
| MLP | Multi Level Perspective |
| PPCA | Powering Past Coal Alliance |

# 1. Introduction

## 1.1. Background

Recognised as one of the most intensive sources of greenhouse gas (GHG) emissions and a major contributor to climate change to date (IEA 2019)[1], countries around the world have pledged to phase out the use of coal-fired electricity generation, in order to meet their climate change mitigation obligations under the Paris Agreement. Accounting for approximately 37 percent of current global electricity generation (Ritchie 2020), coal is the most GHG intensive source of electricity, with life-cycle emissions up to two times greater than natural gas, and over four times greater than nuclear or renewable sources (Turconi et al. 2013)[2]. The Powering Past Coal Alliance (PPCA), consisting of 36 national governments, seeks to accelerate the phaseout of unabated[3] coal power generation around the globe (PPCA 2017). In order to meet the Paris Agreement targets, analysis shows that coal power must be phased out no later than by 2030 in OECD and EU countries, and no later than by 2050 in the rest of the world (Climate Analytics 2016).

Canada is one of the founding members of the PPCA, with approximately 7 percent of the country's total electricity currently coming from coal (Natural Resources Canada 2018). In 2018 the federal government passed amendments to its coal-fired electricity generation regulations, which require all coal power plants to shut down by December 31, 2029, unless retrofitted with Carbon Capture and Storage (CCS) technology (Canada Gazette Part II 2018). Electricity generation in Canada is a provincial responsibility, and several provinces have already phased out, or have

[1] $CO_2$ emitted from coal combustion was found to be responsible for over 0.3°C of the 1°C increase in global average annual surface temperatures above pre-industrial levels, making coal the single largest source of global temperature increase.

[2] The life cycle emissions factors (in kg of $CO_2$ equivalent per MWh) for various electrical energy sources were calculated as follows: hard coal: 660-1050, natural gas: 380-1000, nuclear: 3-35, hydro: 2-20, wind: 13-190, solar: 13-190.

[3] Unabated means electricity generated without the use of Carbon Capture and Storage (CCS) to reduce emissions released into the atmosphere.

begun to phase out coal before these regulations came into place. Currently, there are four (out of 10) provinces that generate a portion of their electricity supply from coal, including Alberta and Saskatchewan in the western prairie region, and New Brunswick and Nova Scotia in the eastern maritime region of Canada.

The impacts of a transition away from coal are of particular interest in the western provinces of Alberta and Saskatchewan, with economies that have traditionally been reliant on resource-based economic activities, such as oil and gas extraction, mining, and agriculture. There is a long and complex history of tensions between Canada's federal government and the Western provinces, who have seen themselves as the economic engine of Canada and are now facing increasing economic, social and political pressures due to the movement towards energy transition (Wyeth 2020). The coal phaseout is just one of several sources of environmental struggle in this region, where resistance movements have formed in response to economic hardships within the oil and gas sector, difficulties approving pipeline infrastructure, and a federally mandated price on carbon (Dawson & Forrest 2018; Blewett 2019; WEXIT Movement 2020).

Acknowledging the economic impacts in these provinces, the amended federal regulations are part of a larger program, which the government positioned as a "Just and Fair Transition for Canadian Coal Power Workers and Communities" (JFT). This program includes funding for affected workers and communities, as well as an independent Task Force, which consulted with coal communities and provided a number of recommendations to help to mitigate the affects of the phaseout (Canada 2019b; a; Environment and Climate Change Canada 2019).

The term "Just Transition" emerged in the 1970s by North American labour movements to respond to job losses and other labour disruptions precipitated by governmental air and water pollution regulations (Healy & Barry 2017). The concept is now increasingly associated with transition to low- or zero-emissions energy, and was included as an imperative in the Paris Agreement (United Nations 2015). While the term has developed various definitions and scopes dependent on its context (Heffron & McCauley 2018; Galgóczi 2020; Pinker 2020), according to the JFT Task Force, "Just Transition means that society shares the costs of transitioning to a low-carbon economy," and that "It would be unjust for workers and communities in affected sectors to shoulder the full cost of transition" (Canada 2019a).

The Canadian coal phaseout plan has emphasized the economic aspects of just transition, focusing on economic diversification, retraining of workers and transition to retirement programs (Canada 2019a). Through the Task Force consultations, the plan has also emphasized communication and collaboration,

adhering to norms of procedural justice, and helping to provide a sense of agency to affected communities (Frank & Girard Lindsay 2020). However, the plan has been criticized for its relatively narrow definition of justice, as it does little to address current inequalities and barriers for traditionally marginalized populations including women, Indigenous peoples, and visible minorities (Mertins-Kirkwood & Deshpande 2019). In this way, according to Stevis and Felli's (2015) definitions, the Canadian plan takes a more *affirmative* view of a just transition, operating within the parameters of the existing political economy, rather than a *transformative* view that aspires for more profound structural changes. While economic redistributive measures are a critical component of just transition, even the best policy design is likely to pose challenges for communities who have not willingly embraced the impetus for transition. In the following section, I will explore some of these challenges and implications for just transition research and governance.

## 1.2. Problem Formulation

While the coal phaseout plan will bring about technological and economic transition to coal-reliant regions, coal communities are also likely facing a process of social and cultural transition, as the make-up of the local population and economy begins to transform in response to the material changes. Transition away from fossil fuels is not necessarily a straightforward process, as these resources, beyond a source of energy and employment, are embodied with cultural values, identities and practices. Social research initiatives such as *After Oil* (Petrocultures Research Group 2016) have explored some of the ways in which fossil fuels have informed culture, and posed questions on the resulting implications on transition processes, though largely from a consumption, rather than a production perspective:

> We have tended to imagine energy as a neutral input into a society that pre-exists it. In other words, we haven't really imagined that our societies are shaped, in the deepest way possibility, by the kinds of energy we use. And so we ask the wrong kind of questions about energy (Szeman interviewed by Garrigou 2016 para. 3).

Nevertheless, within the broad field of literature on socio-technological transitions, several scholars have suggested a gap exists when it comes to understanding the impacts and affects of transition on social and cultural processes. Among these, Upham et al. (2015) argue that transition research has often viewed the public in their role as consumers or civil society activists, but has not sufficiently incorporated the role of public opinion and discourse from a social or psychological perspective. Similarly, Johnstone and Hielscher (2017) argue that transition research has placed great emphasis on the technological and material issues related to the destabilisation of unsustainable technologies, with insufficient attention paid

on the broader implications of such destabilisation processes, for example on coal communities. They refer to the coal transition underway in the U.K.:

> Here, the phasing out of coal-fired power stations is not simply about switching off 'dirty' technologies but is connected to broader changes of the social, cultural, political and material ordering of the world, influencing relationships to place, community cohesion, and labour processes encapsulated in the discontinuation of 'unsustainable' technologies (Johnstone & Hielscher 2017:459).

As coal mining operations often represent a significant source of employment in the small communities they are located within, it is particularly important to consider how sense of place, local culture and historical context influence a community's ability to adapt to a process of transition. Strangleman's (2001) research on deindustrialization in British coal communities provides insight into how former coal workers relied on a combination of social and historically embedded networks to make sense of and adapt to changes to their individual circumstances and the economic conditions in their communities. The research explores how networks centered around occupation, place, class and family both enable and constrain the abilities of coal workers to cope with transition, in a material sense, in adjusting to new working opportunities, as well as symbolically, in order to maintain a sense of meaning and purpose. Such research can offer insight to other transition contexts, such as the Canadian coal phaseout, although the cultural and historical factors would of course be location specific.

More insight into the social as well as the material processes of transition can be informative for the design of just transition interventions, to help enable consideration of cultural and historical context, and mitigate issues such as inequity, disenfranchisement and polarization. Such research could also contribute to the larger transition literature, which, as I have illustrated above, could benefit from more empirical examples of how communities make sense of, cope and adapt to transition processes, within different geographical, cultural and temporal contexts. With this context in mind, I will define what I aim to achieve through my study.

## 1.3. Research Aim and Questions

In order to obtain a better understanding of the ways in which groups make sense of a sustainability transition, I conducted case study research within several Canadian coal communities which will be experiencing a phaseout of their industry in the coming years. My conceptual framework was *social representations theory* (SRT), which is used to explore the processes of social thinking and communication that groups employ to make sense of a phenomenon (Moscovici 1988). SRT has been found informative in instances of collective challenge or threat (Bauer &

Gaskell 1999), which is particularly relevant for my case, as I explore how communities have taken on the perceived threat of the Canadian coal phaseout plan.

Through case study research, I aim to investigate social processes of meaning-making, resistance, coping and transformation within Canadian coal communities, instigated by the federal coal phaseout policy. Using the structural approach to SRT as a conceptual framework, this study explores several aspects of social representations of the local coal sector. The first focuses on the various understandings of the policy and their contribution to a social construction of meaning. The second looks at the ways in which these understandings overlap and diverge in order to explore their structure and function in the process of representation. The third involves implications for resistance and social change, as understandings of local coal communities begin to adapt and transform as a result of material transitions to their industrial and economic make-up. Correspondingly, I have formulated three research questions, which I will investigate through my analysis:

RQ 1: How are people living and working in coal producing regions[4] making sense of Canada's coal phaseout policy?

RQ 2: How do different ways of making sense of the policy help people cope with the process of transition?

RQ 3: How are social representations of the local coal industry becoming transformed as a result of this policy?

To explore these questions, this study draws on empirical findings from semi-structured interviews with coal workers and community representatives in two coal-producing communities in Saskatchewan, Canada. The findings are analyzed using the structural approach to SRT, which explores the organization, function and transformation processes within social representations of a phenomenon (Moliner & Abric 2015). The theoretical framework used in this study will be outlined in Section 2, followed by a description of methods in Section 3, including details on my study locations and interviewees. Key findings are presented in Section 4, highlighted with relevant excerpts from my interviews. In my Discussion (Section 5), I provide further interpretation of the findings related to the theory, implications for transition governance, and a proposal for future research. I conclude with a short final summary (Section 6).

[4] By coal producing regions, I mean communities with a large coal mining sector and/or coal power production facilities.

# 2. Theoretical Framework

## 2.1. Social Representations Theory

In this study, I use Social Representations Theory (SRT), a social-psychological framework, as a basis for my analysis. A *social representation* is an ensemble of ideas, concepts and explanations held in common by a group of people, to aid in the understanding of a particular object or phenomenon (Moscovici 1981). Used to inform individual perspectives, communicate among and between groups, and guide social practices, "Social representations are systems of knowledge, or forms of common sense, that human subjects draw upon in order to make sense of the world around them and to act towards it in meaningful ways" (Sammut et al. 2015:8). Social representations enable groups to construct a shared sense of reality, which has implications for the way individuals think, communicate and act (Rateau et al. 2011).

Formed through interactions between subjects, social representations are "a relational, collaborative and deeply political process" (Howarth 2011:5). Through discourse, both in everyday informal conversation and in more formal communication circulated or diffused by media and political institutions (Moscovici & Markova 2000), groups develop their own "common-sense" representations of a phenomenon, embedded within their unique culture, identity and history. Communities with a shared history of coal mining will thus likely have values, ideas and practices related to the coal industry that are distinct from communities without the same shared history. While such differences are matter-of-course, they can lead to tensions and turbulence, once the national impetus to reduce emissions begins to challenge the local culture of a coal community.

In this way, the coal phaseout policy can be viewed as a *disruption*, wherein a group is faced with an unfamiliar or threatening phenomenon (Moscovici 1976 see Bauer & Gaskell 1999). In SRT, the process of making sense of a new phenomenon has been called "symbolic coping," in contrast to "material coping," which deals with technological, infrastructural or economic solutions (Wagner et al. 1999:97). With the concept of symbolic coping in mind, we can begin to explore how coal

producing communities are not only coming to terms with a technical and economic transition, as coal is replaced with new energy sources and other types of employment, but they are also navigating a social transition, as they grapple with a shift in the meanings, traditions and identities associated with the coal industry.

## 2.2. Applications in Sustainability Transitions

SRT is increasingly being applied in cases of disruption related to sustainability transitions. As mentioned in my Introduction, Upham et al. (2015) had highlighted that transition literature was lacking in psychological perspectives. They sought to address this by combining SRT with the Multi-Level Perspective (MLP), a common framework used in the study of socio-technological transitions, to explore how media representations of fracking-derived shale gas exploration have evolved and differed between countries. The same theoretical framework was later used to study how the rise of anti-nuclear sentiment within the German public following the Japanese Fukushima disaster, led to a total nuclear phaseout in Germany (Upham et al. 2020). In another approach to transition research, Bertoldo and Castro (2019) used SRT in combination with the socio-cognitive approach to developing social norms, to analyze various ways in which new environmental conservation laws in Portugal progressively became incorporated into societal norms and communicative practices. While these three studies used different concepts within SRT and/or combined them with other theoretical concepts, they all portray some kind of disruption, whether instigated by a technological innovation, a nuclear disaster, or an environmental policy, followed by a process of symbolic coping, as social representations helped groups make sense of the disruptive phenomenon.

In this way, sustainability *transition* can be seen as a driver of social representation *transformation*[5], as meaning evolves or shifts both within and across social groups. Just as social representations are deeply informed by their historical legacy, they are always being contested, evolving and adapting to new conditions (Bauer & Gaskell 1999; Marková 2003; Wachelke 2012). The above cases help to illustrate the myriad ways transformation might occur, whether gradually or abruptly, partially or fully, or somewhere in between. In the first case described above, transformation was seen as an evolution of the public debate, which differed based on the cultural context, with various metaphors or objects gaining traction to help make the new phenomenon of fracking more familiar (Upham et al. 2015). The second case took a similar approach to understanding transformation, implying that

[5] In this work, I will refer to *transition*, to speak about governance-driven processes of sustainability or energy transition, such as the Canadian coal phaseout policy. I will use the word *transformation* to refer to the process of social change, especially as it relates to social representation transformation.

the processes of familiarization coupled with cultural/historical context enabled a latent anti-nuclear representation to gain hegemonic status within the larger public discourse (Upham et al. 2020). In the third case, concepts of self-image and judgement of others were related to social values, in order to explain the extent to which conservation ideas and behaviours, initially proposed by laws, become appropriated or consensual across groups (Bertoldo & Castro 2019).

In all of the above cases, the rate and extent of transformation seemed to be related not only to the material characteristics of the disruption, but to the *implication* of the disruption on the social group under study, with contextual factors of history, culture and identity playing a significant role in how meaning becomes constructed and transformed. In this way, symbolic coping is not only a process of meaning making, but also involves the protection of identity and preservation of self-esteem. It has been argued that social representations "emerge precisely in response to danger to the collective identity of the group, and consequently, a central purpose of a representation is to defend against feeling threatened" (Moscovici 1976 see Joffe 2003:66). Understanding the relationship between cultural identity and transformation then, seems to be a key aspect of the symbolic coping process.

The process by which social representations emerge, develop and transform is also an inherently political process, characterized by power, inequality, resistance and conflict, as groups, special interests and institutions struggle to constitute social reality (Elcheroth et al. 2011). Often there exist a number of social representations within a cultural arena, some more hegemonic or widely accepted than others (Jaspal et al. 2014; Bertoldo & Castro 2019). Struggles of meaning may arise when social representations change in status, for example when controversial or polemic representations such as conspiratorial thinking compete with mainstream scientific consensus (Jaspal et al. 2014). In the case of the coal phaseout, the Canadian government has introduced its policy on the basis of scientific data, transnational policy trends, and a broad representation on the need for climate action within the Canadian public. While the social representations within coal communities may differ from the representations that have given rise to the policy, they are likely to experience internal transformation as a result of the disruption brought about by the policy. In this way, meaning can be understood as constituted both within group-level social representations (e.g. within coal communities), as well as in the interactions between them, on a larger societal scale (e.g. within Canadian governance processes).

## 2.3. Social Practices

As social representations impact both thoughts and actions, a key concept is the *practices* associated with an object of representation. The concept of social practices has been interpreted in various ways, but broadly refers to behavioural systems or actions, whether physical or discursive, that are socially legitimated (Flament 2001 see Wachelke 2012). It has been suggested that social representations can enter society either *transcendently*, without associated practices – for example, in the case of a new law, or *immanently* - emerging from practices in a more bottom-up fashion (Harré 1998 see Castro & Batel 2008). The "value-action gap," a common psychological concept in environmental campaigns (Effectiviology n.d.), would be an example of a transcendent representation, wherein an ideal exists but practices fail to live up to it. Understanding how representations and practices are related can help to conceptualize the dynamics of transformation, which I will explore in more detail in the following section.

## 2.4. Central Core Theory

Within SRT, there exists a number of different approaches and concepts to aid in the understanding of representations (see Rateau et al. 2011). In order to gain insight into how coal communities navigate the process of symbolic coping, I will focus on the structural approach to SRT, which is often used to investigate the relationships between the contents and dynamics of a representation (Wolter 2018). Within the structural approach, the *Central Core Theory* contends that a social representation is made up of two main systems: a *core* and an ensemble of *periphery* elements (Moliner & Abric 2015). While social groups share many commonalities, they are also characterised by differences and variations in values and ideas about the world. People are often members of several different overlapping groups and subgroups, and boundaries between groups may not always be clear cut (Bauer & Gaskell 1999). Understanding a social representation as comprised of both a core and periphery can help delineate commonalities that define a social group, as well as explore variations and divergences within the group, especially in times of instability and change.

According to this theory, the core system of a representation is the held in common by the group, and is where many shared values and forms of knowledge are constituted. Central core theory, in the strictest sense, defines a social representation by its distinct core elements - that is, two different core systems would comprise two representations. In some cases, however, elements of core systems may be similar between representations, or overlap with the peripheries of other representations (Moliner & Abric 2015). According to Abric (1993), the core is

characterized by stability, consensus and homogeneity, as it is linked to the collective memory and social norms of the group. The core is slow to change, and not very sensitive to the immediate context, but functions to provide consistency to the representation and determine its organization. Abric further explains that the core system is responsible for bringing a sense of significance, or meaning associated with an object, to a social representation.

The peripheral system on the other hand, is where intragroup heterogeneity can be found, as well as flexibility, adaptability and responsiveness to change. Abric argues that the periphery allows for the integration of individual experiences and practices, and supports contradictions within the group. In addition, the periphery is far more sensitive to the concrete reality of the moment, which is important when exploring the affect of disruptive events, such as the coal phaseout. Together, the dual structure of the core and periphery provides a balancing function, enabling group members to preserve consensus of meaning, while allowing for flexibility for individual divergences (Moliner & Abric 2015).

The dual structure also helps to explain the dynamics by which a social representation adapts to change. Because the peripheral system is much more flexible and responsive, it serves a protective function by absorbing and contextualizing new, potentially contradictory information without challenging the core, acting as a sort of car bumper (Flament cited in Abric 1993). For example, a social representation of climate change that understands climate change impacts to be temporally and geographically distant, might experience disruption if a climate-related event such as a forest fire occurs nearby. While a temporary or partial change in values and practices may occur at the level of the periphery as the threat is perceived to be more urgent, other peripheral responses might rationalize the disruption as a one-off or unrelated event, and the core understanding of climate change as a far-away problem may persist within the social group at large.

At times however, a particularly significant event may challenge or transform a social representation, if it has profound implications for the shared history of the group, if it gives rise to new adaptive social practices, and if both the event and new practices are perceived as permanent and irreversible (Abric 1993; Guimelli 1993). Similar to the concept of immanent representations (Castro & Batel 2008), a significant event is conceptualized as imposing changes in practices, rendering those practices incompatible with the social representation, leading to a process of transformation (Flament 1994, 2001 see Wachelke 2012). In the climate change example above, if the event enables mobilization practices, such as political activism and/or behaviour change, to become sustained in a more durable way, perhaps in combination with other related events or information, the core system

could become transformed, towards an understanding of climate change as an issue of immediate and local concern, in need of resolute action.

In this way, while peripheries are flexible and constantly adapting to new information, a representation may only truly become transformed if the core is transformed, leading to a change in meaning associated with the object of representation (Wachelke 2012; Moliner & Abric 2015). Abric and Flament thus propose three possible types of transformation, all of which involve the ramifications of new practices on the significance of the core system:

- *resisting transformation* wherein new practices are contradictory to the core, but such contradictions can, for a time, be managed by the periphery. While peripheral defence mechanisms such as interpretation, justification and rationalization serve to protect the core, Abric and Flament suggest that the multiplication of these mechanisms over time eventually leads to transformation of the core, thus the representation as a whole;
- *progressive transformation* wherein new practices are not entirely contradictory, and can be progressively integrated into the core, without rupture or even in a manner that enriches the core. In this model, new practices become merged into the core, and/or the core reorganizes to accommodate the new information;
- *brutal transformation* wherein new practices cannot be absorbed by the peripheral system or managed by its defence mechanisms, and thus directly challenge the significance of the core and profoundly transform the representation (Abric 1993, 1996; Moliner & Abric 2015).

These three models conceptualize increasing levels of integration of new information and practices into the core system, thus transforming the social representation in various ways. While empirical research (especially in English) employing these models seemed to be difficult to find, I was able to refer to studies that had applied the concept of social representation transformation to understand dynamics in representations of topics such as automatic speed controls on vehicles (Pianelli & Saad 2016), HIV/AIDS (Oliveira 2013) and blood donations (Guarnaccia et al. 2016).

With its conceptualizations of stability, variation and transformation of social representations, central core theory seems well suited to study processes of symbolic coping related to sustainability transitions, such as Canada's coal phaseout. By analyzing the structural components of the social representation of the local coal industry, as well as the processes and dynamics through which this representation transforms, I aim to gain a deeper understanding of how coal communities in Canada are making sense of the phaseout policy.

# 3. Methods

## 3.1. Research Design

In order to gain a comprehensive understanding of the socio-cultural aspects of transition in the context of the Canadian coal phaseout policy, I have chosen a qualitative case study design for my study, focusing on coal producing communities in the province of Saskatchewan. Approaching my research from a relativist, constructivist worldview, I understand that people "engage with the world and make sense of it based on their historical and social perspectives" (Creswell & Creswell 2018:49). While the coal phaseout has real material implications for the economics and lived experiences of people in coal communities, it also impacts the ideologies, thought-patterns and practices that together constitute a sense of social reality. In this way, the primary motivation of my research is to develop an intensive understanding of the social impacts of the coal phaseout, based on the views and understandings of my study participants. In line with a qualitative design, I chose to conduct semi-structured interviews to gain in-depth, nuanced insights into my topic, taking into account a variety of diverse perspectives. While my sample size was smaller than if I had done a survey or focus groups, the interview format allowed me to collect more detailed, personalized information for my study. Although I recognize the localized, qualitative nature of my case study is not conducive to generalization to other contexts, I hope my findings and my application of theory can serve as a useful contribution for further transition research and in developing contextually relevant transition policy and programs.

## 3.2. Study Location

I chose Saskatchewan, one of the four provinces affected by the coal phaseout, for my case study location, because of an interest in exploring the effects of environmental policies in western Canada, as discussed in Section 1. Compared to Alberta, the other western province affected by the phaseout policy, Saskatchewan's population and coal capacity is smaller, with coal production

concentrated in two communities, both located in the southern region of the province. This allowed for a more manageable scope of research, as I was able to include participants from both communities in my sample. In addition, the coal phaseout in Saskatchewan has been largely dictated by the federal mandate, whereas Alberta had previously committed to a coal phase out several years earlier, at the provincial level. In this way, the policy can be seen as a top-down initiative, rather than a process originated (or even welcomed) by the Saskatchewan population.

Saskatchewan has a population of approximately 1.1 million (Statistics Canada 2017), and is located in the prairie region of Canada, characterized by flat topography, cold winters and an economy based on agriculture and mining (Shvili 2020). With an electricity system primarily owned and operated by the province, 31% of Saskatchewan's current electricity supply mix comes from coal generation (SaskPower 2020). The province currently derives approximately 25% of its electricity from renewable sources, and has a goal to increase that capacity to 50% by 2030 (Government of Saskatchewan 2017). Participants for my study were recruited from the regions of Estevan and Coronach, two coal mining and coal power producing communities in southern Saskatchewan, which together comprise all of Saskatchewan's current coal power capacity.

Estevan is a small city, located in the southern region of the province near the American border, with a population of approximately 11,000 (Statistics Canada 2017). Nicknamed "The Energy City," Estevan's economy is characterized by power generation, coal mining, agriculture, manufacturing, and oil and gas drilling (City of Estevan). Estevan is home to the Estevan coal mine and two coal-fired power stations, *Boundary Dam* and *Shand*. In 2014 one of Boundary Dam's units was retrofitted with CCS technology, with the help of investment from the (previous Conservative-led) federal government. Two of Boundary Dam's units will reach the end of their life in the coming years, while Shand is expected to reach its end of life around 2042, and is being evaluated by the province for a potential CCS retrofit (CBC News 2018). See Table 1 for more details on these facilities.

Also located near the American border, the town of Coronach has a population of approximately 600 (Statistics Canada 2017). Many residents were initially incentivized to move to Coronach with the development of the *Poplar River* power plant, which, together with the coal mine, is a significant source of employment for several communities in the surrounding region (Canada 2019b).

*Table 1: Coal mines and power generating facilities in Saskatchewan*

| Facility | # of Employees (approx.) | Coal-fired units | Capacity | shut down date (or est. end of life)* | CCS retrofit under consideration? |
|---|---|---|---|---|---|
| Estevan Coal Industry | | | | | |
| Estevan Mine | 369 | | 6M tonnes / year | | N/A |
| Boundary Dam Power Station | 400 | 3 | 120 MW | ca. 2064? | Retrofitted 2014 |
| | | 4 | 129 MW | 2021 | no |
| | | 5 | 139 MW | 2024 | no |
| | | 6 | 284 MW | ca. 2028 | ? |
| Shand Power Station | | 1 | 276 MW | ca. 2042 | yes |
| Coronach Coal Industry | | | | | |
| Poplar River Mine | 167 | | 3.3 M tonnes/year | | N/A |
| Poplar River Power Station | 170 | 1 | 582 MW | ca. 2031 | ? |
| | | 2 | | ca. 2033 | ? |
| (SaskPower; Westmoreland Mining LLC; Seal 2017; CBC News 2018, 2019; McElroy 2019) | | | | | |
| **assuming an approximate lifespan of 50 years from date of commission / refurbishment. Boundary Dam units 4 and 5 have confirmed shut down dates in the coming years, with no plans for refurbishment / CCS retrofit.* | | | | | |

## 3.3. Data Collection

Outreach was done through targeted email outreach, as well as more broadly through several community discussion and garage sale Facebook pages, where I issued a call for participants, which led to interviews with several interested respondents. A few participants were also individually referred from others. In order to hear a variety of perspectives, I interviewed participants from the coal industry, the general community and municipal government or administration. A total of seven participants took part in the study, consisting of three who had worked in the coal mining industry for the majority of their careers, three who were currently working in municipal governance, and one long-time community resident, who worked in agriculture.

The participants I interviewed from the coal sector had all worked in coal mining for the majority of their careers, where they had held a variety of positions. They had also lived within the study area for most of their lives. Two were towards the end of their careers and one was recently retired. I was not successful in recruiting anyone currently working in the coal sector who was under 55 and/or at an earlier stage in their career. I did not ask participants for their gender identity, however it is notable that coal mining is a traditionally male dominated sector, with 85% of

Saskatchewan workers in “mining, quarrying, and oil and gas extraction” identified as male (Statistics Canada 2017).

The participants I interviewed within municipal governance worked either in municipal administration, or as part-time elected officials. All were involved to some extent in the economic development planning processes in response to the coal phaseout. Two out of three of the municipal participants had lived in their community for the majority of their lives, and had close family ties to the coal industry, with one who had previously worked in a coal generation plant. In contrast to the group of coal workers, the interview participants within the municipal sector were on the younger side, all under the age of 55.

One other interview participant who did not fit into these two groups was a lifelong community resident, who owned a farm near a coal power plant. While many of their views aligned with other interviewees, they also had a number of particular concerns that did not find a place with the major themes in my findings (Section 4).

Interviews with participants were one-on-one, semi-structured, with broad, open-ended initial questions, based on a flexible interview guide, in order to promote a natural conversation style and reflect their individual experiences and perspectives. Participants were sent a consent form in advance informing them how their data would be used. Interviews took place in February 2021, were an average of one hour in length, and were conducted in English, over video or phone. Interview participants were anonymous, but quotes are labelled with a number based on the order I spoke to them, in addition to a code identifying the region and sector of each participant. Region codes include: E – Estevan, C – Coronach. Sector codes include: I – coal industry, M – municipality, O – other.

## 3.4. Data Analysis

I conducted data analysis in an iterative and partly theory-driven manner. All interviews were digitally recorded and transcribed, except for one which was mistakenly unrecorded, although detailed notes were taken directly afterward. I analyzed transcripts and notes in an exploratory manner, using the qualitative data analysis software NVivo. A preliminary coding scheme was developed from a set of initial research questions, which focused on views towards governance actors and approaches as well as conceptions of justice. More codes were added and refined based on themes that emerged from the data, such as uncertainty, denial, polarization and ideas about different energy sources. After conducting a review of theory, I compared several concepts within SRT against my codes, which gave rise to a focus on social representation transformation, according to the structural

tradition of SRT (Section 2). I then developed an outline with which to organize my findings, after which I revisited and revised my research aim and questions (Section 1.3) to better reflect this theoretical focus.

## 3.5. Methodological Reflections

If I was not subject to travel restrictions and financial constraints, I would have liked to conduct my research as a field study, or perhaps a focus group, in order to meet with my participants in person, observe interactions between people, and learn more about the local culture, providing a richer data sample from which to inform my analysis on social representations of the coal sector. My small and relatively arbitrary sample of interview participants is also a limitation. More diversity in my data sample would have likely provided a broader range in perspectives, and enabled a richer analysis. Had my interview sample included more community members, new themes may have emerged that would have impacted my findings.

Relying on participants' reflections in an interview format also has limitations, as I am relying on the views of individuals in a single conversation, to make assumptions of a much wider, group-elaborated construct of reality. As an inter-subjective concept, social representations present difficulties for study, both in the extent to which a social representation can itself be represented through research methods, and in the potential for data manipulation, as the research environment itself has the potential to influence participant responses (Wachelke 2012).

Finally, it is important to recognize my own positionality in the context of this study. While participants seemed quite open and interested in speaking with me, they were aware I was from eastern Canada, a point which carries some baggage (see Section 4). This may have affected the way that participants spoke with me, due to potential underlying feelings of mistrust or assumptions of a clash in values. I am also aware that it is not possible to compartmentalize my own values and assumptions from my research, and that they had an effect on my interpretations. In line with constructionism, I understand that meaning is created from interactions between subjects and objects (Moon & Blackman 2014), and thus the subjective values I brought into my data collection and analysis are part of the process of meaning construction, in the context of this study. As my research aim was one of understanding, I have approached this study with an intention of listening and learning, and I hope I have been able to do justice to the concerns of my participants with my own representations of their situations.

# 4. Findings

Applying the structural dynamics of social representations to my case study allowed me to explore the sense-making and coping processes experienced within Saskatchewan coal communities, in relation to the coal phaseout plan. In my interviews with participants, I found a range of perspectives on the phaseout policy, the related redistributive measures, and future opportunities for moving beyond coal. While these perspectives varied, within the majority of participants, understandings of the coal phaseout policy were embedded within the collective history and values of the coal sector. Many participants placed strong emphasis on the heritage, pride and culture of the local coal industry, which has brought prosperity and stability to the region for many years. This strong shared sense of collective memory and significance points towards a core element within the social representation of the local coal industry.

From this backdrop of relative consensus, participants varied in their responses to the process of transition brought about by the coal phaseout policy. Some expressed strong feelings of anger, disbelief or skepticism, while others took a more pragmatic approach, empathizing with the losses to the coal sector and the community, but accepting the imperative to transition to a new reality. I interpret these varied perspectives as different models of social representation transformation.

In this section, I outline my interpretation of how the peripheral elements tied to the changing dynamics caused by the phaseout policy are beginning to transform the core of the social representation of the local coal sector. The two models of transformation I identified are *resisting transformation* and *progressive transformation*.

## 4.1. Defining the Central Core

In my interviews, I found that all of my participants (with the exception of the one community outlier in my sample) spoke, unprompted, of the importance of the history of coal in shaping the local economy, culture and identity. Having brought prosperity to the local community over many decades, the coal industry had become

a “way of life” for many people, closely tied to values of pride and stability. Several participants referenced a long tradition of coal mining in the region, which began with burning coal for heat, as wood was not readily available in the prairie landscape. While many changes and innovations have occurred throughout the coal industry’s history, stories were used to illustrate how the tradition of coal mining has shaped the local economy and culture:

> …coal goes back 150 years here…back to when they used to float the dig into the side of the river bank at Beinfait at Service River, and then in the high [water], in the spring, they would float it down to Winnipeg down the river. You know, it goes back a long way, so it’s ingrained pretty deep (5-EI).

The large proportion of the local workforce employed by the coal industry for many years, has impacted the make-up of the communities, and the culture of the region:

> We have a proud tradition of 150 years of coal. And we are called “the energy city.” Surrounded by oil and gas, and obviously, coal-fired power generation, it’s definitely our way of life and how we live (3-EM).

Participants told me that coal has been a steady source of well-paying work for many, with an amicable work culture that has attracted many lifelong workers. As one participant described working in a coal mine: “this stuff gets in your blood…it’s your daily dose of what you need for the day, it’s like having a coffee” (6-EI).

Closely tied to history and culture were feelings of pride, as the coal sector had been providing an important service, with an affordable and stable supply of energy and a profitable resource, to the province for many years (7-CM – no transcript).

Stability was also another value tied to the coal sector, especially in contrast to the boom-and-bust cycles of the oil industry, or the weather and price volatilities in the agricultural sector, two other major industries in Saskatchewan:

> …but us in Saskpower [energy utility]…we’re basically the steady rock that was always there, where the oil could come up and down. But we were the “always there” people. So…it didn’t matter what the price of oil is, we were always, the constant backbone, and…our wages were pretty darn good (S5-EI).

Stability was valued both at the industry level, as well as at the level of the individual worker, where many have taken long-term jobs in the coal sector: “Not many people move, once they get on at the mine or Saskpower…this is gonna be their career” (6-EI). This sense of stability was related to family and community values: “Here you’ve got a family life…you’ve got all your friends. Like you’re good for life. You know, in the oil sands, you’ve got someone new coming in today, and he’s gone tomorrow” (6-EI).

As evidenced above, the history of the coal industry was an important point of emphasis for many participants, and was associated with values of pride, stability, family and community. As a largely consensual understanding, intrinsically tied to the collective memory of the group, this sense of history and its related values seemed to comprise a core element in the social representation of the local coal industry. As I will detail more below, participants seemed to use this core element as a foundation on which to generate their understandings of the coal phaseout.

## 4.2. Dynamics of Transformation

As these communities are now grappling with a future without coal, it appeared that their understandings of that future, as well as the policy that had brought about this change, were intrinsically tied to the history, stability and prosperity that coal had brought to the region. With the core serving as a kind of foundation, some participants explained how this historical legacy had impacted understandings of the phase out policy:

> We've got fourth generation, fifth generation coal miners, it very much is kind of the consistent part of our history in our community. And so, I think people can't imagine (the end of the industry), particularly because our coal-fired plants are so big (4-EM).

While I found that although participants began from a similar basis of respecting and honouring the history of the coal industry, they diverged in their perspectives towards the transition. Within these perspectives, I identified two general transformation models – the first (Section 4.2.1) was characterized by a strong defensive stance, anger towards the government, and skepticism of support measures (but rationalizing supports for workers); while the second (Section 4.2.2) incorporated an understanding of the emotional impacts, an awareness of transition as a process, and a sense of critical pragmatism, planning ahead and looking for new opportunities arising out of the transition.

While participants with the strongest ties to the coal industry tended to align with the resistance model, and participants working in local governance tended to lean towards the progressive model, there were some contradictions within participants, and evidence that elements of either model could be held simultaneously. Thus, rather than two distinct models of transformation, I look at my data as a sort of continuum, where tensions exist between resisting and progressive transformation. In Figure 1, both models are depicted as overlapping with the core, as well as with each other, showing the relationship between these three elements.

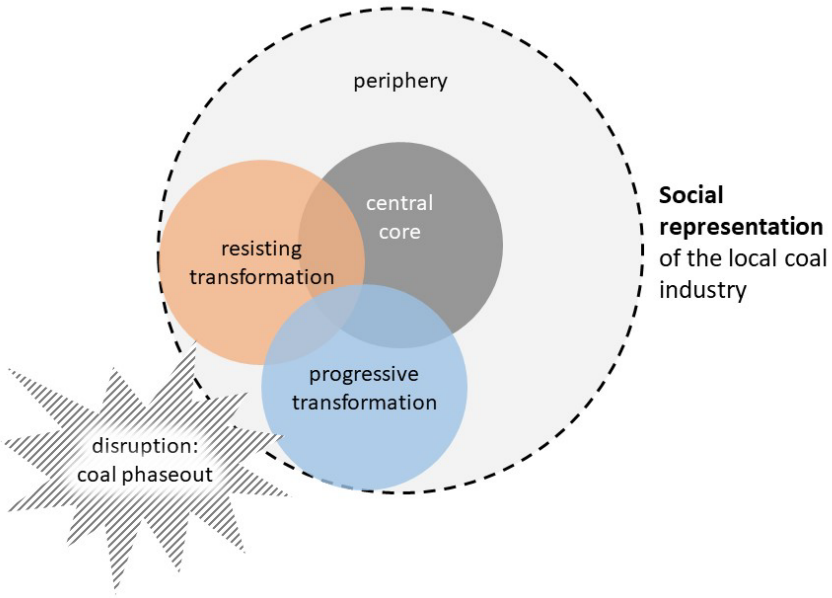


*Figure 1: The transformation process: two overlapping models*

### 4.2.1. Resisting transformation

Several participants, who tended to be those with closest ties to the coal industry, had accepted that the local coal industry was phasing out in the coming years (i.e., the situation was seen as irreversible), and in some cases were arguing for more government support, especially for the benefit of coal workers directly (i.e., contradictory practices were emerging). However, this acceptance was often counterweighted with defensive arguments, anger, blame, and skepticism.

I interpret these defensive arguments as evidence of the periphery system engaging to protect the core. Several arguments used by those resisting transformation included defending the coal industry, denouncing and blaming outside influence, skepticism that funding programs would provide sufficient remedy, and rationalization of seeking access to the same programs being criticized. I will illustrate each of these arguments below.

*Defence of the coal industry*

Building on core feelings of pride in one's work and in providing energy to the province, several participants were strongly motivated to justify and defend the coal industry, citing technological advancements that had reduced pollutants compared to historical levels, including CCS technology. Several participants characterised coal pollution as a historical problem that had essentially been overcome by technological advancements:

> Back in the day, when coal was used for heat, you'd have black exhaust, like black ash going into the air and all that that isn't happening anymore. 99% of the impurities are removed. And, like sulfur and all the bad stuff, those particles, it doesn't go in the air anymore. All it is, is 100% steam, and $CO_2$, and $CO_2$ doesn't kill (2-CI).

Some participants argued that old conceptions of dirty coal were driving misguided perceptions (on the part of urban dwellers, environmentalists, etc.) of coal pollution, which led to the coal phaseout decision:

> They got everybody so scared of, you know, coal's so dirty...They got everybody scared shitless in the big cities, right? And they have no idea what the real world is like. I mean, you can come here right now. I mean, I'm looking out at the power plant? You can't even see smoke coming out of the stacks. It's so clean…this air is clean as you want it to be (6-EI).

Inherent in this argument was a feeling that the hard work and technical advancements that have been made throughout the history of the coal industry were going unappreciated and being dismissed:

> You know, the industry has made so many strides, basically, you hear the old cliche of the goalposts moving…."Okay, you guys can't burn coal anymore because of the emissions". Okay, so we eliminated the emissions. "Oh, now you just can't burn coal". That's basically what it feels like (3-EM).

CCS was included among the advancements made to the coal industry, especially as the technology had already been employed in Saskatchewan. While there was some uncertainty among participants if new CCS retrofits were allowed under the current phaseout guidelines, and which level of government was responsible for funding such projects, several participants expressed profound disappointment and frustration that more consideration was not being made towards investing in this technology, as it could keep the industry operating into the future:

> Why kill these jobs? And this industry for no reason, when there's a solution out there? …you want to save the environment, then invest in products that are going to work, and keep the industry going. And that that's what bothers me the most. They've written off coal as dirty, and [told us we've] got to get rid of it (2-CI).

While these defences of the coal industry are perhaps related to typical political rhetoric, they could also be interpreted as a defence of the core system. By arguing against misconceptions and attempting to educate outsiders of the benefits and advancements of the coal industry, this defence seemed to serve an *external* function of promotion and advocacy in support of the continuation of the industry and further investments in CCS. It also seemed to serve an *internal* function, for the benefit of the workers and communities themselves, wherein participants can be seen as protecting their sense of tradition and pride, and defending against the erasure of the goodwill cultivated by coal workers throughout their history.

*Denouncing outside influence*

In my initial research and within several of my participants, I found a strong tendency to denigrate and disparage the current federal government for introducing the coal policy. While political anger is not surprising, it is notable that these feelings seemed to be associated with a symbolic focus on Prime Minister Trudeau, and feelings of frustration and alienation with the voting bloc of the Eastern provinces, particularly urban Ontario and Quebec.

As noted above, several participants held that misconceptions were being perpetuated about the modern coal industry, for which blame was often directed towards eastern Canada:

> Coal is not dirty. Like that is a myth - a big myth that people have, and I have to say it, it's coming from your area: Ontario, Quebec. You don't realize what coal does (2-CI).

This idea was part of a larger view that eastern Canadians, including federal politicians, based out of Ottawa (in the east), do not understand or care about Saskatchewan (in the west) and rarely visit the province to learn about local concerns first hand:

> The East has no idea. I mean, they turn on their lights. They have no idea where it's from, honest to God. If you took them by the hand and showed them exactly what's going on, I think there is a ton of people that would have a whole different perspective on where their…power is coming from. It's just, they're not in the real world. Trudeau should come out here and actually see what's going on (6-EI).

This was tied to feelings of alienation and a lack of political representation, as western voters in less populous regions have difficulty affecting the outcome of federal elections: “you know, it [voting] doesn't really matter...we just wait until the east voting comes in, and it's done” (6-EI).

There was also some sense among participants of some greater political desire or agenda to assert control over the western economy: “And they're just purposely shutting them down, because that's the way they want it, right” (6-EI)? The sense that the coal phaseout is happening because the government “wants” it to, was echoed by another participant: “They want to shut down coal. They want to shut down Saskatchewan's economy…Because they want control...He [Trudeau] doesn't like what the West stands for and wants us shut down” (2-CI).

By emphasizing that these decisions were coming from eastern voters and politicians, participants designated this influence as foreign, coming from the outside: “It just boils down to people making decisions from a faraway land is what it seems like to us now” (3-EM). By reinforcing the foreign element responsible for

the coal phaseout policy, participants seemed to be decrying their loss of autonomy and arguing for recognition of their unique identity, which was partly defined as distinct and in direct opposition to the values and desires of eastern Canada. I believe this tendency also served a function of protection of the core, as participants sought to assert and protect their identity, values and way of life.

The emphasis on a foreign object of blame also seemed to serve a secondary function of demystifying the policy, making the reasons behind the decision less abstract, as it is tied to a larger trend of unfair targeting from the eastern provinces, which has also included the oil, gas and agricultural sectors.

*Criticism of transition policies*

Participants who exhibited tendencies to defend the coal industry and blame eastern Canada, also tended to express mixed feelings about the governance measures available as part of the transition plan. There was evidence of skepticism that the supports and funding being offered through governmental programs would be a sufficient remedy towards a "just transition:"

> They call it the $8 million transition fee, which don't get me wrong, it is going a long way…but…compared to what we've contributed is almost a slap in the face at the same time…it is the way some people look at it - you contribute a lot, you get a little back (3-EM).

Skepticism was particularly apparent towards initiatives of economic development at the municipal level, as many expressed concerns that these types of projects inherently generate high levels of waste and inefficiency for little relative (or intangible) benefit:

> I know the government has given the city some money. But it seems like they turn around and they're going to do a study - well the study costs X number of dollars, and then all of a sudden, they come back and it's like, "well, that guy got X number of dollars, and we're no further ahead" (5-EI).

There was a sense that coal workers, being more directly impacted, were more entitled to the funding being offered:

> We've only got a short window, the government's only funding this here. And, and then other people got their fingers in this money too…The city of Estevan, they're doing projects and all of a sudden, guess what - the money will get blown and, and who's left in the dust? The person that lost his job, where the money was meant to be for, in the first place" (6-EI).

While understanding that the loss of coal will have wider economic impacts on the community, and not only coal workers will be affected, this was rationalized with the claim that supporting coal workers (ideally by sustaining the industry with

CCS), would lead to spin off benefits for the community. Within this conception, wider redistributive justice measures, such as providing assistance for support workers, tended not to be considered by the participants I spoke to.

I believe this tendency to be skeptical of funding not directly benefiting coal workers, also serves a protective function for the core system, as participants emphasized that the coal industry has traditionally provided great value to the community, and is thus deserving of compensation in the attempt to maintain a certain standard of living, and continue to provide indirect benefit to the community. This seemed to be a much more tangible benefit, when contrasted against abstract and uncertain alternative economic models, that will likely never live up to current expectations.

### 4.2.2. Progressive Transformation

Another approach to dealing with the changing economy was evident in my data. In this approach, participants were often empathetic and understanding of the resistance, anger and skepticism exhibited by many in the community, but their own reactions were more balanced, pragmatic and open. While the core element of honouring the history and pride of the coal industry was emphasized and highly valued by these participants, their relative acceptance of change did not seem to be completely at odds with this element. I interpret this dynamic according the model of "progressive transformation", as participants were able to integrate new practices without a great disturbance to the core system of their social representation.

*Understanding and compassion*

Within this model, I found participants were not necessarily expressing the same level of anger as in the "resistance" model, but were nevertheless concerned and compassionate about the changes arising out of the coal phase out, including the broader impact on the community:

> My biggest concern is how our community gets used to less cash running through it...So, the lifestyle that is common…may not be the lifestyle moving forward. And that's going to mean a loss of jobs. But it also has broader impacts. The coal mine sponsors civic centers and play parks and they have scholarships for high school students. And they…make hundreds of thousands of dollars in donations…that then support every facet of community life. And just when you're going to need more community supports, more counseling, more places to meet with people, you're going to have less funding to do it (4-EM).

As many of the participants within this model were responsible for helping to implement new ideas and bring change to their communities, they highlighted the importance of respecting people's livelihoods and feelings, as part of the change

management process (7-CM). Participants understood that anger and resentment were natural responses to the threat of change, and part of the process that needed to be worked through:

> That's been the big transition over the past couple of years is promoting change, and, we do need to think differently and all that sort of stuff. So that's obviously the biggest challenge you get, the people that don't want to change are the ones that are going to yell at you and stuff like that. So, you've just got to take it, do what you can, suck it up, and, you know, try to help them through it (3-EM).

Beyond the economic impacts of the transition, participants also acknowledged the importance of having a sense of purpose and meaning, which was a challenge, especially if people did not understand or believe the purpose behind the phaseout:

> I think more than economics, people need to have something they can believe in. And now, they believe in their jobs. And they don't believe in the federal government, they don't believe in the pressing necessity for climate change. And so, until the conversation can include a future worth hoping for, worth working towards; something that's worth that economic uneasiness, it's really hard to think about what it's going to look like. Because I think what people need most is some reassurance, and that's not necessarily something that the government or even government funding can provide them (4-EM).

One participant also stressed the importance of recognizing the historical contributions that coal workers had made in the community and for the province, noting that a true just transition could not be achieved if the value and significance of that work was not recognized (7-CM).

By acknowledging the range of emotions associated with a process of transition, and considering the impacts of losing a sense of purpose, pride and tradition, I believe this alternative approach to transformation also served a function of honouring and respecting the values, history and pride of the coal sector, and thus was compatible with the core element.

*Awareness of transition process*

Within this model, there seemed to be an awareness of transition as a cognitive or emotional *process* that individuals (and the community as a whole) needed to go through. Participants felt that their communities were still relatively early in the process, with many individuals in the denial and anger stages, but they were hoping to come full circle towards acceptance and revitalization (7-CM).

Several participants expressed frustration that a number of people were in denial about the coal phaseout, as this made it difficult to engage workers and community members in collaborative planning, to ensure sufficient preparations are made in

advance of plant shutdowns. Some participants expressed the difficulty of moving this conversation forward when many were not willing to engage or even acknowledge the transition was happening:

> Well right now, it's not really resonating, because they got their heads stuck in the sand…And we've got to get these young people to start thinking...We've got the program, let's use it now. We've got to get on this (6-EI).

While participants were somewhat frustrated with the levels of denial and anger in the community, they believed that resolution would happen eventually, though it would likely be a long process:

> But they refuse to listen [to climate science]. So, it'll be the same with this coal. You know, they'll refuse to listen to it until it's done. And then they'll carry on the anger wherever they go. And it'll take a while after it sinks in…to get over it…it'll take a generation or two before that disappears from here (5-EI).

Acknowledging the difficulties that lay ahead, some participants expressed that the planning process should become easier as it becomes more visible and concrete:

> I think once we get to the end of 2021, the end of 2024 [planned shutdown dates], it's going to be easier to talk about. Because it's the lived experience at that point. And unfortunately, there's never going to be like a stepwise process…Because if we could, that would make it easier for people too, because there's very tangible practical steps. And we haven't started that yet. Nothing has closed. So, we can we can kind of pretend that the problem isn't here yet (4-EM).

Others were optimistic that this concretizing process was already beginning: "I think we're through the denial stage. And it's, you know, that this is really happening right? So, it's really starting to hit with a lot of people" (3-EM).

Understanding that transition was a process seemed to be another way of honouring the history, by acknowledging that change was uncertain and unfamiliar, compared to the history that people were more accustomed to, and that people needed time to process and come to terms with the idea of change. In this way, I believe this "meta" conception of the processual nature of societal change itself enabled a gradual, undisruptive transformation of the core system.

*Planning ahead*

In addition to expressing frustration with the current levels of denial and non-participation, some participants also expressed that they thought it was unfortunate that more advance planning or community investments were not done sooner, particularly as the community had the financial means to do so:

> There are better things we could have done. But Estevan I think was so wrapped up in itself that nothing would ever go wrong…everything was gonna last forever, basically. But we live big dreams. And it's starting to not come true. Or their fallacy is falling apart (5-EI).

This sentiment seemed to take direct aim at the coal industry's legacy, claiming its emphasis had been misguided and overinflated. However, perhaps this could be seen as another kind of protection mechanism, by arguing for a more progressive approach to change. That is, if more effort had been made earlier to diversity, and invest in alternative modes of economic development, the "break" between the core and transformation process would not be as severe.

*Opportunities*

While all participants spoke of the challenges posed by the transition process, some also balanced this with some positive aspects coming out of the current situation, as it challenged them to think creatively and explore new opportunities: "The positive out of it is, instead of moping around, people took the initiative and we are finding that we will come out stronger...There's two sides" (3-EM).

While understanding that future economic opportunities would likely never meet historical expectations, several participants had a pragmatic outlook, maintaining that all job opportunities were valid, even if they only employed a small number of people at a lower rate of pay (7-CM).

There was evidence that some participants believed the coal phaseout could be compatible with the values which I have interpreted as belonging to the core system. One participant spoke of the Covid-19 pandemic, an additional challenge in the current economic landscape, as a catalyst to maintain the sense of community and stability that the coal industry had fostered:

> And I think, particularly now that we have had this global pandemic, it has really emphasized the value of those connections. And so perhaps people that initially thought when the coal mine closed, they would pick up and move elsewhere, might actually be willing to re-examine the role of having family and friends close by, and it might actually strengthen the community moving forward, simply because the decision is no longer purely economic (4-EM).

Another participant spoke of ideas for developing an "eco-park" that would provide historical interpretation and information to help honour the legacy and maintain the sense of pride and heritage in the coal industry, connecting it with future technologies and ways of living (7-CM). In this way, it seemed that some participants were beginning to be able to integrate new perspectives and practices into the social representation of what it means to be a coal community, while maintaining the significance of the core system.

# 5. Discussion

Through my findings, I have highlighted some of the challenges faced by people working and living in coal communities as they undergo a process of *symbolic coping*, in parallel with a process of material transition. While the material side of transition might include aspects such as availability of work, cost and availability of energy, changes in population, and standard of living; symbolic concerns might include maintaining a sense of meaning and purpose, adapting to changes in shared values and norms, and reimaging the historical legacy of coal. As Johnstone and Hielscher (2017) argue, "understanding how community cohesion and social networks in areas will be reconfigured and sustained as new energy futures emerge is crucial as part of fostering more just transitions" (p. 460). My study has contributed to building such an understanding, by exploring the structure, function and transformation of the social representation of the local coal industry in Saskatchewan. In this section, I will provide some more interpretative detail on my findings and theoretical model, followed by a discussion on how my findings can be used to help foster principles of just transition, and potential for further research.

## 5.1. Interpreting the Findings with SRT

I begin my interpretation by revisiting my first two research questions, which focused on how communities are making sense of and coping with Canada's coal phaseout plan. Using the central core theory of SRT as a framework, I have explored how the processes of sense-making and coping seemed to be guided by a stable, relatively consensual core, wherein the historical legacy of the coal industry and associated values of pride, stability, and community relationships were emphasized. Participants coming from both the coal and municipal governance sectors recognized that the coal industry was more significant than simply a source of employment, as it had constituted and shaped the social fabric and cultural identity of their communities. In this way, the core seemed to equip participants with a sense of meaning and purpose, as well as a mechanism for symbolic coping, enabling participants to connect the changes being brought about by the coal phaseout, to their prior understandings and values.

This core element also seemed to provide a foundation from which participants made sense of the coal phaseout. While perspectives about the policy varied across participants, as is typical with peripheral elements, they also seemed to provide some sort of connection or protection to the core system. In some cases, this protective function was quite apparent, as demonstrated by participants who made strong arguments in defence of the coal industry, and denounced outside influence into their communities. However, other perspectives that were more open to change could also be seen as protective of the core system, as they sought to reconcile the changes brought about by the phaseout with their social reality, by understanding transition as a gradual process, and exploring new opportunities that may not have been considered in the absence of the phaseout. In this perspective, challenges were acknowledged, but it was possible to re-imagine the evolution of their communities, without losing the sense of meaning and purpose provided by the core. In this way, the dual elements (core and periphery) of the social representation allowed participants to cope with the transition process in ways that were sensitive to their own individual contexts.

Responding to my final research question, I explored how the processes of sense making and symbolic coping were related to a process of transformation within the social representation of the local coal industry, as participants began to grapple with defining their community identity without the coal industry. In my findings, I presented two models of social representation transformation – *resisting* and *progressive*, in line with the central core theory. Within my sample, I did not find evidence of the *brutal transformation* model (Abric 1993), although it is possible that it exists within these communities, or that it may emerge at a later date.

The two models I found were somewhat correlated with the roles of participants, as those with backgrounds in the coal sector had tendencies towards resisting transformation, while those in municipal governance had tendencies towards the progressive model. It could be argued then that their perspectives were largely rhetorical, or motivated by vested interest, in line with their occupations. As an intrinsic part of individual and social identity, it is not surprising that occupation would have a strong influence on how peripheries are shaped and expressed. It is thus only natural that long-time workers would be inclined to defend and argue for the industry that they have devoted much of their career towards.

Similarly, local government officials and staff are employed to problem-solve and engage with new economic development opportunities, so it is reasonable they might embody a representation that is more receptive to change. However, all participants were also speaking as long-time, in most cases lifetime members of their communities, and as I have presented, held a similar core understanding. Participants who had not worked directly in the coal sector still shared ties to the

industry through family and friends. Responsible for the well-being of the community as a whole, the municipal representatives often spoke not only from their own perspective but also as community representatives, with a broader awareness of the various dynamics that I have related to social representation transformation. In this way, all participants seemed to have a similar stake in the outcome of the phaseout plan and the ongoing success of their communities, and were speaking in this capacity as well as in their occupational role.

As I mentioned in my findings, I found a spectrum of transformation within my participants, rather than a clear split. While some were quite strongly aligned with one model of transformation, others exhibited tendencies towards aspects from each model. I have illustrated this above (see Figure 1), arguing that it was possible for participants to hold more than one model of transformation. In this way, I have demonstrated how two models of transformation – resisting and progressive, might exist within the same group and even within the same individuals. While the existence of simultaneous and overlapping social representations has been discussed (Bauer & Gaskell 1999), I was not able to find, within the central core theory literature or empirical examples, a similar conception that two models of transformation might overlap within a single representation. Further testing and analysis of this concept would be helpful to determine its verifiability and usefulness in other contexts.

In my findings, I had initially defined a single social representation of the local coal industry, consisting of a unified core with a varied periphery. However, the dynamics of transformation I have illustrated in my findings implicate a divergence of core elements between the resisting and progressive transformation models, as they have each transformed in different ways.

In the resisting model, I have presented evidence of defence mechanisms protecting against core transformation, implying that the representation would avoid transformation. However, the central core theory contends that the multiplication of such mechanisms inevitably leads to transformation (Abric 1993). For example, with the defence of “foreign influence”, the representation of the local coal industry might become transformed from one that emphasizes community pride to one that focuses on outside interference.

In the progressive model, new practices, such as pursing new community opportunities, are seen as becoming integrated into the central core. This process might look more like a reorganization or enrichment of the existing core, rather than a complete transformation to a new core. However, when the impacts of the two different transformation models are contrasted against each other, a redefinition of the resulting core systems seems appropriate.

As the central core theory delineates social representations by their core elements, the divergence of the core elements thus gives rise to a split in the social representation of the local coal industry as I had originally conceptualized it. In fact, the object being represented has also transformed through this process, as the cessation of the coal industry has required a reimagination of community life beyond coal.

Figure 2, which builds off of Figure 1, shows how the resisting and progressive transformation models, originally located in the periphery of the social representation of the local coal industry, transform the core in two different ways. These two separate cores are then depicted inside two new social representations (larger dotted circles), of community life after coal. However, as the essence and significance of the original core is still maintained, the new cores are depicted as overlapping with the original core. As transformation progresses however, they might move closer or further apart, and/or new transformation models might emerge.

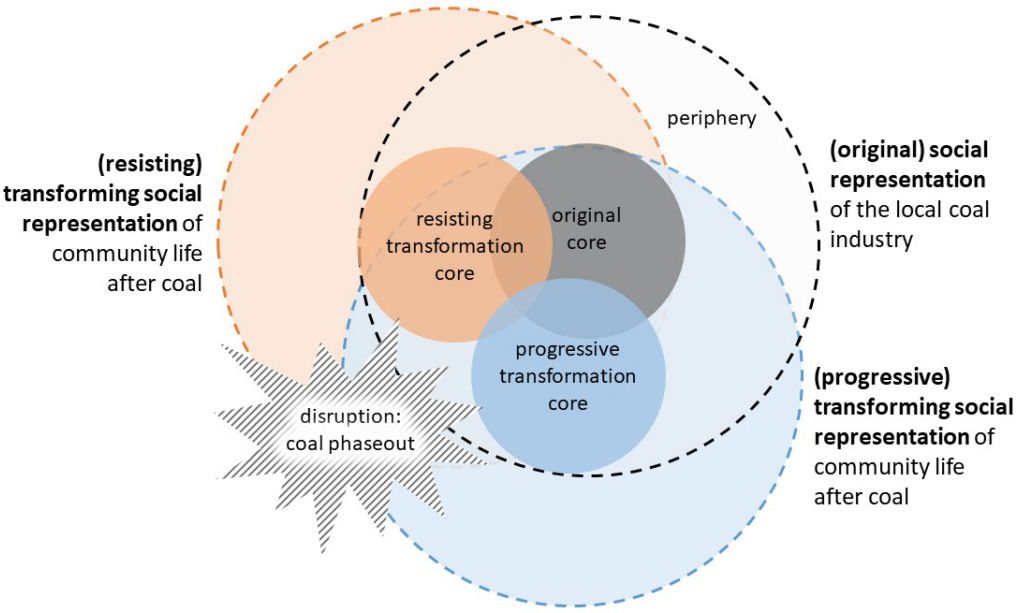


*Figure 2: The transformation process: division of social representations*

The transformation of a social representation, like the transition away from coal, can be seen as a *process*, and thus, it is conceivable that social representations in coal communities will continue to transform as the coal phaseout plan moves ahead. The snapshot in time in which my study took place was relatively early in the transition process, as no coal producing units had officially closed yet. As the transition away from coal progresses, one transformation model may become more dominant over time, or the new transformed cores may become more polarized. The

success of the redistributive measures provided through the phaseout plan will likely play a role in the how social representation transformation evolves. The coal industry has held a hegemonic status in Saskatchewan communities for many years, and as such, it is understandable that the coal phaseout would lead to struggles over meaning, as communities determine how they will agree to make sense of their world (Jørgensen & Phillips 2002).

Political and power dynamics are also important influences in the evolution of a social representation, as some actors undoubtably wield more influence than others in the shaping of meanings related to the coal transition (Castro & Batel 2008). While I have focused on the potential of a social representation to help communities make sense of and cope with change, representations are also comprised of and deeply impacted by wider discourses in the public sphere, where media, politicians and other powerful actors compete to constitute the social reality, influencing what becomes common sense knowledge within the population (Wagner et al. 1999). The dynamics of politics and power within social representations are important to highlight, although these concepts were not explicitly within the scope of my study.

In my conceptual framework, I had positioned the coal phaseout policy as a "disruption", impacting the social representation of the local coal industry. Using central core theory as my framework, this conception provided useful for exploring the dynamics in my case. Another possible approach, following a common empirical application of SRT (e.g. Upham et al. 2015, 2020), would have been to explore the emerging social representation of coal phaseout, as a new phenomenon to be understood. While a different object of representation might have shifted the focus of my study, Pianelli and Saad (2016) found that social representations are often located in inter-related "networks", with construction of meaning in emerging representations (e.g. the phaseout policy), triggering transformation in related, established representations (e.g. the local coal industry, community).

With the above theoretical conceptualizations, applied to the case of Saskatchewan coal communities, I have demonstrated the applicability of the central core theory in instances of sustainability transition, contributing towards an understanding of the social and psychological sides of transition, which Upham et al. (2015) argue is lacking in the transition literature.

One limitation of my study is that I was not able to hear perspectives from younger coal workers, which is notable as they will be more affected by the coal phaseout policy, in contrast to the older workers I spoke to, who all acknowledged they will be retired by the 2030 phaseout deadline. Several participants expressed that many younger workers were currently in denial, and were not engaging in conversations about job retraining or community development. It is plausible that this population

saw the coal phaseout as a reversible event, with the potential to be overturned in a future election, and/or with further investments in CCS. In line with the central core theory, social representation transformation occurs only in a superficial way within a social representation, if the situation instigating transformation is considered to be reversible (Abric 1993; Guimelli 1993). More research into this population could help to explore how and if social representations are affected in those expressing tendencies towards denial of the coal phaseout process.

Another limitation in my methodology is that I did not follow an established design or data collection tools, such as a free association task, to enable the identification or verification of core and peripheral elements, as suggested in the literature on the structural approach to SRT (Wachelke 2012; Dany et al. 2015; Moliner & Abric 2015; Wolter 2018). While I used the structural approach as a basis for my analysis, I had not initially planned my methodology or interview guide with this approach in mind, and my small sample size did not allow for verification on the same level as established techniques. Furthermore, while the basis for my interpretation was on the transformation of social representations, I acknowledge the inherent limitations of my methodology, as my study represents only one snapshot in time, rather than a longitudinal comparison of a *before* and *after* state of social representations. I would suggest that my research methodology allowed for a surface level scan, or a tentative illustration, rather than a systematic analysis of the structural components of the social representation of the coal sector.

## 5.2. Implications for transition governance

While there is no one-size-fits all approach for managing transition, understanding the dynamics of social representations can be beneficial in anticipating how the process of symbolic coping might unfold, and how to mitigate any potential negative impacts. Considering the function and significance of the core system when designing transition measures could help with maintaining a sense of meaning and purpose for coal communities in transition. In the Saskatchewan communities I studied, finding ways to uphold core values such as stability, community and historical pride could assist in maintaining a sense of continuity within the social representation of the local coal industry, enabling it to transform gradually and smoothly. One of my participants expressed a similar sentiment, arguing that a just transition must include principles of respect and recognition of the coal industry's historical legacy, which should underscore new community investments (7-CM).

The Canadian JFT Task Force's report outlined a number of recommendations for ensuring workers have access to supports and training, as well as investing in community infrastructure and diversification (Canada 2019a). These are important

considerations, developed through community consultations. While these recommendations deal primarily with the more material side of coping, if well implemented, it is conceivable that they could also positively impact the more abstract symbolic aspects of coping. With promising options for employment and community development, communities may develop a more positive view of transition policy, enabling progressive transformation of the social representation over time.

Governance messaging and initiatives should also consider how to foster a sense of historical recognition and pride. While it is important that communities understand the rationale behind the coal phaseout, emphasizing the negative aspects of coal power perpetuates the risk of coal communities feeling stigmatized or unfairly punished. Balancing such communication with positive stories incorporating the historical legacy of the community with its future potential could be beneficial in helping communities reimagine their legacies in a new way. While communications from media and government sources are helpful in building this narrative, local government and community initiatives are also important, such as the eco-park being considered in Coronach (7-CM), which would aim to highlight the historical significance of the coal industry in the community, while drawing parallels to new and future technological developments.

Bolstering and honouring the core system through measures such as those described above, could be supportive to communities in their process of symbolic coping. A goal of such measures may be to move communities towards further adoption of the progressive transformation model, providing a sense of political stability and consensus along the path to transition. In contrast, proliferation of the resisting transformation model is more likely to lead to protest and political unrest, and as such, it is understandable that this model would be less desirable from a governance perspective. However, the resisting transformation model can play an important role in opening space for diverse perspectives and highlighting issues of concern. According to *agonistic* perspectives of dialogue, conflict and protest should not necessarily be considered detrimental, but rather as natural and important components of the democratic process, which stimulate conversation on issues of power relations, identity and justice (Mouffe 1999; Ganesh & Zoller 2012). In this way, we can view resistance arising out of the coal phaseout as an important avenue for advancing discourse. Even if the progressive transformation model becomes more prevalent in coal communities over time, it is likely that the resisting transformation model will remain a force to contend with throughout the period of transition. Thus, I suggest it is more productive to find ways to work with protest and conflict, by acknowledging it as valid and important to the conversation, rather than ignoring or seeking to eliminate it.

While there are many factors to balance in implementing a just transition, such as empowering communities to participate and collaborate on policy measures (Frank & Girard Lindsay 2020), and considering indirect affects of transition on marginalized populations (Mertins-Kirkwood & Deshpande 2019), my findings suggest that gaining an understanding of social processes of symbolic coping and social representation dynamics, could be another consideration to enabling a just transition. By considering policy measures, community initiatives and communications that recognize and honour the significance of core values, appreciate the plurality of transformation models, and understand conflict and protest as a discursive tool, communities can be supported in symbolically coping and constructing new social realities in preparation for a future without coal.

## 5.3. Further research

Several avenues of further research are possible to extend my findings. Building on this study with a larger, broader sample size would allow for exploration of more diverse peripheries and/or models of transformation within the social representation(s) under study. As I mentioned above, it would be beneficial to hear more perspectives from younger workers to better understand the characteristics and functions of transition denial. A larger sample would also enable a more systematic, verifiable methodology to determine the definitions and characteristics of core and peripheral elements with the social representation (Wachelke 2012; Wolter 2018).

Since I have highlighted the processual nature of social representation transformation, a follow up study, after several years, would also be interesting to gain a better understanding of the coping and transformation processes, as the coal phaseout progresses and becomes more embedded into social reality. A comparison study involving several provinces could also contribute to a broader understanding of the various ways that different coal communities (or perhaps even communities without a coal sector) are making sense of the phaseout policy. Given the prominence placed within the resisting transformation model on how eastern Canada's views and assumptions have precipitated the phaseout, it could be interesting to compare "western" and "eastern" social representations on coal. Finally, while I have focused my research on the common sense or "layperson" understandings of the coal phaseout within the community, I have acknowledged the important role of media and political actors in influencing how social representations are constructed and shaped. Exploring these sources in greater detail could allow for further exploration of how factors such as power dynamics, conflict or framing techniques contribute to the process of social representation.

# 6. Conclusion

With my research aim, I set out to gain an understanding of how Canada's coal phaseout policy was affecting processes of sense-making, coping and transformation within coal communities in Saskatchewan. Using the central core theory of social representations as a conceptual framework, I have explored how a shared core of historical pride and community stability has provided a foundation for symbolic coping related to the process of transition, leading to two alternate, but overlapping, models of social representation transformation.

Through my study, I have explored the concept of symbolic coping, as a process of sense-making and identity protection, as communities respond to the threat of disruption brought about by the transition away from coal. I have also proposed how multiple models of transformation might precipitate a structural split from a single representation with a shared core and a varied periphery, to multiple representations, as the core transforms differently with each model.

As coal plants begin to shut down and workers move away or find new sources of employment, the social character of these communities is likely to transform, spurring further evolution of the social representation of the local coal industry. In my research, I have presented a small snapshot of this representation, as characterized by my sample of interview participants, but I have also demonstrated how it is both deeply influenced by the past and subject to ongoing transformation in the future.

In this way, I have tentatively begun to sketch out a conceptual framework for understanding transformation of meaning within sustainability transitions. Such a model can provide insights for the study of sustainability transition dynamics, as well as lessons for (just) transition governance, with processes such as the coal phaseout continuing to unfold in Canada and around the world, as the impetus to reduce emissions accelerates. Understanding and addressing the symbolic as well as the material challenges related to transition, will be crucial for success in transitioning to a sustainable future in a just and equitable way.

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# Appendix – Interview Guide

For this research, I conducted semi-structured, conversational interviews, guided by the interviewees' personal experiences. My interviews were guided by a broad interview guide, which I have included below. However, as interviewees came from different backgrounds, with differing personalities and perspectives on the coal phaseout, the number of questions, and which particular questions I focused on differed between interviews. Sometimes additional follow-up questions were added that were not within the guide. This allowed for a natural flow of conversation, and allowed me to focus on the topics of most relevance to each participant.

**Personal background / experiences**

Can you tell me a little bit about yourself?

Coal workers:

- Can you tell me about your job?
- How long have you worked there?
- What do you like about your job?

Community members:

- How long have you lived in (community name)?
- How would you describe your community?

**Coal transition / governance**

Overall, what are your thoughts on the federal government's decision to phase out coal by 2030?

What do you understand about *why* this decision was made?

*How* do you think it is being handled? (consultation process, planning, etc.)

The federal government (and unions) has used the phrase "just and fair transition" for the coal phase out policy. What does that term mean to you?

- What would a just and fair transition look like in your view?

How do you think the phaseout will affect you personally?

Are you doing anything now to prepare for this transition?

How do you think it will affect your community?

Do you see any potential benefits to your community from phasing out coal?

Are there others that are particularly vulnerable, aside from coal workers?

Change: what is it that makes change difficult would you say?

What is your understanding of the supports that are being offered to aid in the transition?

What are your biggest concerns?

How do you think the current pandemic / economic situation will impact the coal transition initiatives?

- How does justice and fairness play into determining who gets support?

Overall, would you say you are hopeful or pessimistic that the community will recover from this transition?

**Conclusion**

Thank you!

Would you like to add something I may have forgot to ask about?

Do you have any questions for me?

Can you suggest anyone else I should speak to?