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The contested production of tar sands spaces in Canada

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List of abbreviations

AER	Alberta Energy Regulator
APTN	Aboriginal Peoples Television Network
bbl/d	Barrels per day
BC	British Columbia
BROKE	Burnaby Residents Opposed to Kinder Morgan Expansion
CAD	Canadian Dollar
CAPP	Canadian Association of Petroleum Producers
CBC	Canadian Broadcast Corporation
CCUS	Carbon Capture Utilization and Storage
CER	Canadian Energy Regulator
CDA	Critical Discourse Analysis
CNZEAA	Canadian Net-Zero Emissions Accountability Act
CIRNAC	Crown–Indigenous Relations and Northern Affairs Canada
CO2	Carbon Dioxide
COVID	Coronavirus disease
Dilbit	Diluted Bitumen
ECCC	Environment and Climate Change Canada
EIA	Environmental Impact Assessment
ENGOS	Environmental Non-Governmental Organizations
FCA	Federal Court of Appeal
FMMPC	First Nations Major Projects Coalition
FPIC	Free Prior and Informed Consent
GHG	Greenhouse Gas Emissions
ICA	Indigenous Climate Action
IEA	International Energy Agency
IRC	Indian Resource Council
MBA	Mutual Benefit Agreement
mb/d	Thousand barrels per day
mmb/d	Million barrels per day
Mt CO2 eq	Megatonnes of carbon dioxide equivalent
NDP	New Democratic Party
NEB	National Energy Board
NETs	Negative Emissions Technologies
NSNOPE	North Shore No Pipeline Expansion
OAG	Office of the Auditor General of Canada
PIPEUP	Pro-Environment United People Network
RAVEN	Respecting Aboriginal Values & Environmental Needs
RBC	Royal Bank Canada
TMX	Trans Mountain Pipeline Expansion Project
TWN	Tsleil-Waututh Nation
UBCIC	Union of British Columbia Indian Chiefs
UNDRIP	United Nations Declaration on the Rights of Indigenous Peoples
US	United States

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Summary

This dissertation examines the uneven production of spaces for tar sands extraction, production, transportation, and consumption in Canada. Combining research on energy geographies, fossil capitalism and settler colonialism, this work conceptualizes these spaces as the physical sites and multi-scalar decision-making arenas in and through which tar sands development is realized, governed and disputed. In recent decades, tar sands expansion has led to conflicts between the Canadian state, the fossil fuel industry and Indigenous communities over the unequal distribution of its benefits, costs and risks. Despite a large body of literature on these conflicts, little theorization of their spatial dimensions has taken place. Using the concept of energyscapes here elucidates how multiple actors articulate and mobilize competing discursive-material practices (e.g., discourses, knowledge claims, future visions) to (re)shape tar sands spaces. A qualitative methodology was employed, encompassing critical discourse analysis, participant observation, and informal interviews, to examine these conflicting discursive-material practices. In particular, this dissertation argues that the appropriation of Indigenous peoples' lands and their discursive representation as empty, unproductive sites are key forces driving the spatial expansion of tar sands operations, particularly of fossil fuel infrastructures. Simultaneously, this research states that Indigenous-led movements play a fundamental role in challenging the spatial arrangements of power that sustain tar sands development. A focus on the dispute between the Canadian state and an Indigenous-led movement over the Trans Mountain pipeline expansion project (TMX) in Alberta and British Columbia (BC) exemplifies how these actors transform the physical spaces and decision-making areas through which the TMX is governed. An analysis of this case has broader implications for understanding the possibilities and limitations of dismantling the power structures underpinning tar sands spaces and building alternative energy futures.

Zusammenfassung

Diese Dissertation untersucht die ungleiche Produktion von Räumen für die Teersandgewinnung, den Transport und den Verbrauch in Kanada. Sie verbindet theoretische Ansätze aus der Energiegeographie, dem Fossilkapitalismus und dem Siedlerkolonialismus, um diese Räume sowohl als physisch-materielle Orte als auch als multiskalare, politisch-gesellschaftliche Arenen zu konzeptualisieren. Die Expansion der Teersandförderung in den letzten Jahrzehnten hat zu Konflikten zwischen der kanadischen Regierung, der Ölindustrie und indigenen Völkern um die ungleich verteilten Nutzen, Kosten und Risiken geführt. Trotz zahlreicher Studien zu diesen Konflikten mangelt es bislang an einer systematischen Theoretisierung ihrer räumlichen Dimensionen. Anhand des Begriffs der Energyscapes wird verdeutlicht, wie verschiedene Akteure konkurrierende diskursiv-materielle Praktiken z.B. Diskurse, Wissensansprüche und Zukunftsvisionen artikulieren und mobilisieren, um Teersandräume zu gestalten. Mithilfe qualitativer Forschungsmethoden wie Diskursanalyse, teilnehmender Beobachtung, informellen Interviews und Archivrecherche werden diese Praktiken analysiert. Das Hauptargument der Dissertation ist, dass die Aneignung indigenen Landes und die zugrunde liegende koloniale Vorstellung von Land als ungenutztem und leerem Ort eine treibende Kraft für die räumliche Expansion der Teersandförderung darstellen, insbesondere im Hinblick auf den Bau fossiler Infrastrukturen. Gleichzeitig spielen indigene Bewegungen eine zentrale Rolle dabei, die räumlichen Arrangements, die der Teersandförderung zugrunde liegen, herauszufordern. Am Beispiel der Auseinandersetzungen zwischen der kanadischen Regierung und der indigenen Bewegung um den Ausbau der Trans Mountain Pipeline (TMX) in Alberta und British Columbia wird veranschaulicht, wie Teersandräume transformiert werden. Der Fall ist insofern von besonderer Relevanz, als er die Möglichkeiten und Limitationen beim Abbau bestehender Machtstrukturen sowie bei der Entwicklung alternativer Energiezukünfte aufzeigt.

Introduction

Canada holds the world's largest commercially available tar sands reserves (170 billion potentially recoverable oil barrels), primarily located in the western province of Alberta (CAPP, 2018). As one of the world's largest crude oil producers and exporters, Canada has significantly increased its production over the last two decades (CER, 2022). Consequently, greenhouse gas emissions (GHG) associated with tar sands extraction, mining, production, transportation and consumption have risen to the extent that they have become the fastest-growing domestic source of GHG emissions (Environment and Climate Change Canada, 2022a). This has made Canada one of the world's largest carbon polluters per capita (Akenji et al., 2021), which is problematic considering its commitment to reducing GHG emissions (Government of Canada, 2021).

In addition to contributing to climate change, tar sands operations have produced several socio-environmental impacts. These include but are not limited to deforestation, biodiversity loss, water contamination, air pollution, health risks to Indigenous and non-Indigenous communities living nearby tar sands operation sites, the violation of Indigenous peoples' land rights and self-determination, as well as the disruption of their livelihoods (Short & Huseman, 2012; Black et al., 2014; Adkin, 2016; Westman & Joly, 2019). Conversely, tar sands activities represent a source of economic growth, tax revenues and livelihood, particularly to the province of Alberta, whose economy is highly dependent on fossil fuels (CAPP, 2018; Government of Alberta, 2018). In addition, tar sands operations have historically led to the concentration of wealth and power in a few oil corporations, banks, and institutional investors (Carroll, 2021).

The uneven distribution of the benefits, impacts, and risks of tar sands development has indeed been a central theme in environmental justice, fossil capitalism, and settler colonialism studies in Canada (Veltemery & Bowles, 2014; Rossiter & Burke Wook, 2016; Adkin, 2016; Carroll, 2021). These studies highlight that inequalities often lead to disagreements, tensions, and conflicts between the Canadian state, oil corporations, Indigenous peoples and non-governmental environmental organizations (ENGOS) (Parlee, 2016; Rossiter & Burke Wood, 2016; Barker & Westman, 2018; Veltemery & Bowles, 2014).

In the last two decades, some First Nations and Indigenous groups, along with ENGOs, have played a leading role in resisting the territorial expansion of fossil fuel pipelines, particularly in the western provinces of Alberta and British Columbia (BC) (Black et al., 2014). Through lawsuits, street demonstrations, public and media campaigns, and pipeline blockades, Indigenous-led movements have sought to stop the construction of pipeline

projects (Black et al., 2014; Janzwood, 2020; Spiegel, 2021, 2021a; Spice, 2018; see also Estes & Dillon, 2019).

In addition to environmental concerns surrounding tar sands, overlapping and divergent forms of state and Indigenous authority and jurisdiction over land are the root of pipeline conflicts (Spice, 2018). Drawing on Indigenous legal systems, Canadian legislation and international law, several Indigenous communities argue that they have formal decision-making authority over their lands targeted for fossil fuel development (see UBCIC, 1998; Napoleon, 2012; Pasternak, S., Mazer, K., & Cochrane, 2019). As a result, the Canadian state and fossil corporations need to properly consult Indigenous peoples and obtain their consent to develop tar sands projects (Manuel & Derrickson, 2015). Yet, the numerous conflicts and controversies over tar sands operations show that the protection and enforcement of Indigenous peoples' land rights remains unaddressed (Preston, 2013; Adkin, 2016; Rossiter & Burke Wood, 2016)

Although tar sands conflicts have been extensively studied (Black et al., 2014; Adkin, 2016; Estes & Dillon, 2019; Carroll, 2021), little attention has been paid to the spatial dimensions of such disputes (Wanvik, 2018). The social production of space, I argue, is central to understanding how these conflicts arise, how they unfold and what their consequences are. Connecting strands of literature on energy geographies, fossil capitalism, and settler colonialism (Huber 2015; Calvert, 2016; Coulthard, 2014; Simpson, 2017; Bridge et al., 2018; Carroll, 2021) serves as an analytical foundation for investigating the power relations underpinning spaces for tar sands extraction, mining, production, transportation, and consumption.

In particular, this dissertation aims to explore how these spaces are produced, governed and contested. Based on the concept of energyscapes, I provide a conceptualization of tar sands spaces as the existing and imagined material sites and multi-scalar decision-making arenas in and through which tar sands development is envisioned, realized, legitimized, regulated, and disputed. The main argument of this dissertation is that the concept of energyscapes elucidates how tar sands spaces are (re)made by the interplay among competing interests, discourses, energy future visions, knowledges, identities, and worldviews. In this sense, physical sites for tar sands operations and their related infrastructures are manifestations of power dynamics. Concretely, energyscapes expose how these competing material-discursive practices are articulated, deployed, and mobilized by multiple actors to encourage and contest tar sands development.

Although a similar concept, namely carbonscapes, is used by Wanvik (2018) to investigate Métis communities' involvement in tar sands activities, this research does not address the intersection of settler colonialism and fossil capitalism in the emergence of tar sands spaces. Furthermore, Wanvik's work does not explore the relevance of discursive

practices, forms of knowledge, and future visions in shaping tar sands governance. By addressing these knowledge gaps, my conceptualization of tar sands spaces contributes to broader scholarly discussions on the spatialities of fossil fuel development in Canada (LeBillon & Vandecasteyen, 2013; Wanvik, 2018; Carroll, 2021).

Thinking tar sands spaces through energyscapes also involves situating tar sands development within a historical context characterized by settler colonial claims to Indigenous peoples' lands. Through these claims, the Canadian state legitimizes access to, control over, and use of land for fossil fuel extraction and the construction of export-oriented, carbon-intensive infrastructures (Black et al., 2014; Carroll, 2021). The representation of land as empty, unproductive spaces is pivotal in facilitating the spatial expansion of tar sands activities (Spice, 2018). In this sense, this dissertation argues that the occupation and appropriation of Indigenous peoples' lands are key driving forces of tar sands spaces.

A critical examination of tar sands activities requires considering Indigenous interventions in pipeline conflicts as part of broader histories of resistance against land dispossession and physical and cultural elimination (Alfred & Corntassel, 2005; Coulthard, 2014; Simpson, 2017). Specifically, the role of Indigenous-led movements in shaping tar sands spaces has remained largely underexplored in the literature on tar sands conflicts. Although Wanvik (2018) examines the pragmatic approach of Métis communities to tar sands mining/extraction, its work does not consider how Indigenous-led resistance to pipelines has transformed the spatial arrangements of power that sustain tar sands development. A focus on critical Indigenous perspectives allows us to problematize the power structures in tar sands development and explore the possibilities and limitations of creating alternative energy futures.

To operationalize the energyscapes concept, this work employs a qualitative research design. It includes the use of different methods, including archival research, critical discourse analysis (CDA), document analysis (e.g., newspapers, online materials, and hearing sessions of the TMX project), participant observation, semi-structured and informal interviews, photography, and walking. These methods allow an exploration of competing interests, perspectives, strategies, experiences, understandings, and meanings that (re) shape tar sands spaces. In line with my main argument, I focused on land use practices and conceptions of the land articulated and mobilized by the Canadian state and the Indigenous-led movement in conflicts over tar sands development. As noted earlier, paying attention to these divergent practices is crucial to understanding the production and contestation dynamics of tar sands spaces, as well as for identifying the potential for transformation of the power structures that sustain tar sands operations.

To illustrate the contested nature of tar sands spaces, I look at the conflict over the government-owned Trans Mountain pipeline expansion (TMX), which carries bitumen from Alberta to a marine terminal in British Columbia (BC) for export to foreign markets (Trans

Mountain, 2020). The TMX deserves attention because it has become one of the most controversial tar sands pipeline projects in recent years in Canada. The Federal Government, the Alberta Government, fossil capital, and some First Nations and Métis communities have supported the project, arguing it contributes to economic development, job creation, revenues, greater access to foreign markets, and sustainability. By contrast, multi-scalar decentralized networks of environmental non-governmental organizations (ENGOs), civil society groups, and citizens led by First Nations have resolutely opposed the pipeline since its conception in 2012 and sought to stop it. A distinct attribute of the conflict is that the TMX is the only large-scale crude oil pipeline constructed during the last decade. Other major pipeline projects were cancelled mainly due to the opposition of First Nations and environmental groups.

The First Nation-led movement argues that the Federal Government has failed to fulfill its constitutional duty to consult Indigenous peoples when economic activities might affect their land rights. Moreover, it has failed to adhere to the principles of free, prior, and informed consent (FPIC) enshrined in international law (Treaty Alliance Against Tar Sands Expansion, n.a.; Indigenous Environmental Network and Oil Change International, 2021). Pipeline opponents also contend that the TMX and its related infrastructure restrict Indigenous harvesting rights, encompassing gathering, hunting, fishing, and trapping. Additional concerns include risks to fragile and stressed coastal marine ecosystems through oil spills, increased GHG emissions, and damages to culturally valuable sites for First Nations (Tsleil-Waututh Nation v. Attorney General of Canada, 2018; West Coast Environmental Law, 2019). In general, these impacts have disproportionately impacted Indigenous communities near tar sands operation sites (Black et al., 2014; Adkin, 2016; Carroll, 2021).

The controversy surrounding the TMX has attracted significant media attention and, to a lesser extent, scholarly consideration (Kraushaar-Friesen & Busch, 2020). Yet, there has been less discussion about the spatial dimensions of the power relations that shape the TMX dispute. To address this knowledge gap, this research focuses on how divergent practices (e.g., policymaking, discourses, demonstrations, fossil fuel divestment strategies, and future making) shape the physical spaces and decision-making areas through which the TMX is governed. Attention is paid here to the tensions between the Federal Government and the Indigenous-led movement as their agendas reflect opposing interests and perspectives on land governance, fossil fuel development, and climate change.

Of particular relevance are the efforts of the Indigenous-led movement to disrupt tar sands spaces. These include physically blocking the construction of the TMX, calling for meaningful consultation and comprehensive environmental assessments of the pipeline, and bringing justice claims to national and international governance scales (LeQuesne, 2019; Gobby et al., 2021:2; Hoberg, 2021; Lawson, 2021). Although social opposition to the TMX was not successful in stopping the project, it represented an attempt to disrupt the logics that

drive tar sands operations and build alternative energy future visions. Indeed, although this research focuses on the TMX dispute, it has broader implications for understanding the possibilities and limitations of dismantling the spatial power arrangements that enable the Canadian state and fossil capital to 1) own and control tar sands resources; 2) build, finance and operate fossil fuel infrastructures; 3) assess the socio-ecological impacts of tar sands development; and 4) intervene in the production and circulation of fossil fuel imaginaries.

Structure of the cumulative thesis

This dissertation consists of three peer-reviewed articles, presented in chapters 6, 7 and 8, that collectively address the overarching question of how tar sands spaces are created, governed, and contested. Each article, although thematically linked, presents a different analytical and methodological perspective to examine a specific aspect of tar sands spaces. While the first article lays the conceptual framework for understanding the uneven production of these spaces, the second and third articles operationalize this framework by focusing on the case studies of the TMX conflict and Canada's net-zero policy. Together, these articles offer a critical reflection of the inequalities arising from the spatial configuration and transformation of tar sands development.

This dissertation is organized into eight chapters. Chapter 2 gives a brief historical overview of Canada's tar sands development, emphasizing the importance of financial, institutional, and ideological support from the Canadian state and the fossil fuel industry for the expansion of tar sands activities over the last two decades. Then I describe the main socioeconomic and environmental implications of this expansion, highlighting the controversies and conflicts between the Canadian state, oil corporations, and Indigenous communities over tar sands development.

To make sense of these disputes, chapter 3 discusses the conceptual frameworks that guide this research. It begins by underlining the importance of the energy geographies perspective for exploring the unequal socio-material production of energy spaces. Specifically, this chapter introduces the notion of energyscapes as the central concept to analyze the configuration of tar sands spaces. Following this, I put energy geographies into conversation with research on fossil capitalism and settler colonialism in Canada. Doing so elucidates the historical context in which tar sands spaces emerge, particularly the significance of competing land rights claims in conflicts around tar sands development. In particular, I argue that the appropriation of Indigenous peoples' lands by the Canadian state and Indigenous-led mobilization against tar sands projects are key driving forces behind the configuration and contestation of tar sands spaces. This observation entails considering the way in which state and corporate actors discursively represent land as a commodity. At the same time, Indigenous peoples see it as a living entity central to their cultures and lifeways. The chapter then

examines these contradictory dynamics through the lenses of socio-technical imaginaries, energy justice and political ecology, focusing on the inequalities arising from tar sands activities. A look at these inequities problematizes dominant representations of these activities as sources of economic growth, job creation and sustainable development. Together, these conceptual frameworks provide a foundation for a critical analysis of uneven tar sands spaces.

The case study of the conflict over the TMX in BC is presented in chapter 4. It begins with a description of this pipeline project and the underlying reasons for the dispute, stressing the importance of this case for understanding the contested production of tar sands spaces. This is followed by a presentation of the divergent perspectives and interests of the main parties involved in the conflict. The chapter concludes with a historical account of the conflict, specifically of pivotal moments and circumstances that have shaped the dispute and determined its outcome.

The methodological approach used to investigate the political nature of tar sands spaces, and more specifically, the dispute over the TMX is outlined in chapter 5. It thoroughly describes each one of the qualitative methods employed, the rationale for choosing them, and their advantages and disadvantages. Of particular relevance for this research are critical discourse analysis (CDA), document analysis, and participant observation because they allow an examination of key material-discursive practices through which tar sands spaces are created, governed, and contested. Throughout the doctoral research journey, I mainly used these methods because the COVID-19 pandemic and wildfires in Alberta significantly affected my fieldwork. Engagement with First Nations and Indigenous-led groups that oppose the TMX project, for example, was not possible. As a result, this work is restricted to publicly accessible information on Indigenous perspectives on the TMX and data obtained through participant observation at anti-TMX demonstrations. Despite these limitations, this work supports its arguments with robust data.

Chapter 6 presents the first peer-reviewed article and offers a conceptualization of tar sands spaces through the notion of energyscapes. It examines the socio-material components of these spaces in line with the theoretical framework outlined in chapter 2. Bringing together research on energy geographies, fossil capitalism and settler colonialism elucidates the emergence, governance and contestation of tar sands spaces. To illustrate these processes, this chapter focuses on the role of fossil fuel infrastructures, particularly pipelines, in configuring spaces for tar sands development. Simultaneously, the chapter argues that Indigenous-led resistance to the expansion of these infrastructures disrupts the physical spaces of tar sands operations and reshapes decision-making processes in contested energy policy arenas.

Building upon the analysis of the power dynamics underpinning tar sands spaces, chapter 7, which is the second peer-reviewed article of this thesis, looks at the conflict over the

TMX from the energy justice perspective. Employing this perspective renders multiple forms of injustice and inequality visible that remain unaddressed throughout the planning and development of the TMX and the assessment of their impacts. In particular, land use inequalities, violence against Indigenous women by pipeline construction workers, and damage to fragile marine ecosystems were downplayed in decision-making processes concerning the TMX. In the face of criticism concerning the consequences of tar sands development, the Canadian state and oil corporations have embraced the notion of net-zero to legitimize fossil fuel expansion under the guise of sustainability.

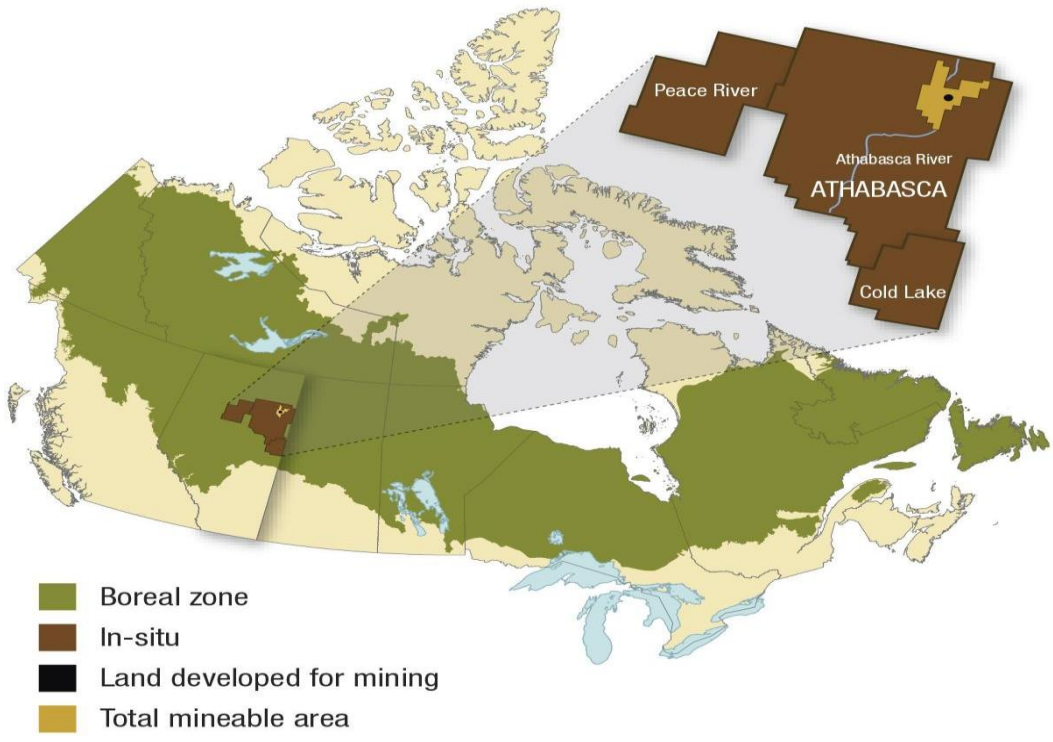
Chapter 8, which corresponds to the third peer-reviewed article, deals with this issue by examining the discursive construction of net-zero as a socio-technical future imaginary that justifies the construction of carbon-intensive infrastructure. Specifically, this chapter analyzes three net-zero storylines articulated by the Federal Government of Canada to legitimize tar sands operations: 1) potential reduction of fossil fuel-related emissions through negative emissions technologies (NETs); 2) net-zero as a driver of sustainable economic growth, and 3) contested land rights claims in net-zero projects. Through an analysis of the contradictions and limitations of net-zero storylines, this chapter shows that net-zero fails to address significant concerns related to tar sands operations. In doing so, this work stresses the need for rethinking and repurposing energy policies towards effective climate change mitigation and the protection of Indigenous peoples' land rights.

The last section outlines the contribution of this research to broadening our understanding of the production, governance, and transformation of tar sands spaces in Canada. One of the main conclusions is that, although the opposition to the TMX failed to stop the project, it was a significant attempt to problematize the dominant discourses associated with these spaces and dismantle their underlying power structures. In this sense, this section addresses the research limitations and proposes potential avenues for further investigation into tar sands development. In particular, this section points out that the US presidency under Donald Trump may reinforce Canada's push for tar sands extraction, posing challenges to Indigenous self-determination and climate change mitigation efforts.

Chapter 2. Contextualizing oil production in Canada

Canada has the world's largest commercially exploitable tar sands reserves located almost entirely in the Western province of Alberta within three deposits (Figure 2.1), namely, Athabasca, Peace River, and Cold Lake (CAPP, 2021). Together, they cover an area of approximately 142,000 square kilometers (Government of Alberta, 2018), in which 165 billion barrels of potentially recoverable oil (AER, 2025). Around 80% of tar sands reserves are recoverable through drilling methods, while 20% are mined due to their proximity to the surface (CAPP, 2018). To clarify the terminology used throughout this research, tar sands refer to a mixture of bitumen, clay, sand, and water (CAPP, 2021). Bitumen is a type of heavy crude oil, which, compared to conventional oil, is more expensive to extract and more energy and emission-intensive (Hughes, 2020). Once extracted, bitumen is transformed into usable fuels for transportation (known as diluted bitumen or "dilbit"), electricity, heating, and consumable goods (see Trans Mountain, 2021).

Figure 2.1. Alberta's tar sands reserves



Source: Canada Action, 2025

In line with critical scholarship on fossil fuel development in Canada, I use the term tar sands to underline their economic and socio-environmental implications. By contrast, oil sands is a preferred term by the oil industry and the Canadian state to dissociate it from its negative consequences and instead convey positive connotations, such as energy security, job creation, and economic growth (see Dembicki, 2011).

Once I have clarified these terms, I provide a brief historical outlook of Canada's oil industry. The identification of 'exploitable' tar sands reserves on Indigenous peoples' territories can be traced back to the Canadian state's formation process during the 19th century (Schmidt, 2020). Although oil extraction was not technically or economically viable at that time, commercial and scientific assessments (e.g., cartography and geological studies) sponsored by the Canadian state regarding the potential economic value of oil were instrumental in establishing a future tar sands frontier (Simpson, 2019). It was, however, not until the 1950s and the 1960s that the Federal and Alberta governments' reports began to regard tar sands reserves as a complementary energy source to conventional oil production. Official policy materials advocated for the need to undertake scientific studies to assess the technical and financial viability of tar sands extraction. Commercial tar sands operations began in 1967 after the federal government implemented the National Oil Policy in 1961 (Manning, 1968).

During the 1970s international energy crisis, concerns over energy security, high oil prices, and the peak of conventional oil motivated the Canadian state to spur investments in Alberta's tar sands (Longley, 2018). At the time, the Federal Government commented that "tar sand production could play a vital role in providing the reserves needed to assure future Canadian requirements and maintain an oil export potential (Federal Government officials cited in Government of Alberta, 1973). From the 1980s to the late 1990s, government efforts focused on developing a legal-institutional framework to attract national and foreign investment in the oil sector.

The 2000s global commodities boom expanded tar sands development on an international level (Hussey et al., 2021). Rising global energy demand and US-led military interventions in the Middle East, largely motivated by the control of oil resources, led to a prolonged surge in oil prices between 2004 and 2014, significantly increasing oil production and export capacity in Canada (Huseman & Short, 2012). Imbued with technocratic rationality, government assessments from the 2000s through to 2014 highlight the promises of economic development brought about by tar sands exploitation while largely downplaying its negative impacts. Indeed, during this period, the Canadian state provided major subsidies to the oil sector, dismantled environmental regulations on fossil fuel extraction, and promoted the spatial interconnection of tar sands activities to the United States (US) energy market through a

network of fossil fuel infrastructures (Carter, 2014; Dalby, 2019). Several industries there require growing and uninterrupted flows of fossil fuel energy for industrial, commercial, and military security purposes. As a result, tar sands became Canada's main export commodity (Veltmeyer & Bowles, 2014).

Tar sands extraction grew considerably, "from 1.7 million barrels per day (mmb/d) in 1990 to 4.7 million b/d in 2019" (CER, 2023), reaching 460 thousand barrels per day (mb/d) in 2024 (CER, 2024d). Within Canada, Alberta accounts for 84% of the domestic production with 4.53 mmb/d (CER, 2024e) and 85.2% of total exports, followed by Saskatchewan with 8.7% (CER, 2024). As a major crude oil exporter, Canada boosted its exports in 2023 to reach a record high of 4 mmb/d, which constituted 81% of the country's oil production and 16% of the total export value ($124 billion) (CER, 2024). Most exports went to the United States (97%), mainly to the Midwest states due to the presence of refineries designed to process dilbit, which Canada lacks, followed by the Netherlands, the United Kingdom, and Germany (CER, 2024). Current major export-oriented pipelines in Canada include Enbridge Mainline, which is the largest pipeline system in North America; Trans Mountain Pipeline and its expansion project; Keystone and Marketlink (Government of Canada, 2025a). With the completion of the TMX, an additional 590 mb/d is expected to increase Canada's export pipeline capacity by around 13% (CER, 2024g).

Indeed, Canada's network of fossil fuel infrastructures is largely designed to distribute crude oil to refineries located in the US 93.2% of crude oil exports were distributed via pipeline in 2023, primarily due to the low costs on a per-barrel basis compared to rail (CER, 2024b). This is not surprising considering that since the 1950s, tar sands deposits have been framed by the US government as a reliable and affordable source of energy (Nikiforuk, 2010) due to their geographical proximity and low transportation costs (Gonzalez, 2016). In more recent years, the shifting patterns of global industrial production and energy consumption towards Asia have begun to reshape the spatial configurations of fossil fuel development in Canadian provinces like BC, as recent pipelines, including the TMX, aim at supplying liquefied gas and crude oil to China (LeBillon & Vandecasteyen, 2013).

Canada also witnessed a slight increase in its crude oil imports in 2023, reaching a total of 490 mb/d, which represented a 4.5% rise compared to 2022 (CER, 2024c). Paradoxically, most crude oil imports (72.4%) came from the US, followed by Nigeria and Saudi Arabia via pipeline and marine shipments. This phenomenon is attributed both to the lack of Canadian refineries processing bitumen and to insufficient pipeline infrastructure connecting Alberta's tar sands to Eastern Canadian provinces, such as Ontario (Government of Canada, 2025a).

Canada has struggled to build large-scale pipeline projects during the last decade due to a combination of factors, one of the most important being the strong and sustained opposition by First Nations, environmental non-governmental organizations (ENGOs), and

citizens concerned about the socio-economic, cultural and environmental impacts of tar sands development (Black et al., 2014; Adkin, 2016). In fact, three major pipeline projects were cancelled, namely Energy East, originally planned to connect Alberta to the Atlantic Coast; Northern Gateway, which would have carried bitumen from Alberta to northern BC; and Keystone XL, which would have linked Western Canada to US Midwest and Gulf Coast refineries (Janzwood, 2020).

Social mobilization against fossil fuel pipelines has drawn significant attention to the ramifications of tar sands activities. One of the most contentious issues relates to the emissions from tar sands extraction, mining, and production. According to official data (ECCC, 2024), Canada released 708 megatonnes of carbon dioxide equivalent (Mt CO2 eq) in 2022. Between 1990 and 2022, oil and gas sector emissions grew by 83%, which was largely attributed to tar sands production (ECCC, 2024). During this period, tar sands emissions increased by 467%, which represented 12% of Canada's total GHG emissions (ECCC, 2024).

In addition to GHG emissions, tar sands operations have caused a wide range of environmental impacts, such as air pollution, deforestation, biodiversity loss, and water pollution through tailings ponds (Adkin, 2016). In general, these impacts have disproportionately impacted Indigenous communities living near tar sands extraction and mining sites, as well as infrastructures. Tar sands development poses health risks to local communities, disrupts local livelihoods, and affects Indigenous cultures. These impacts lead to tensions with tar sands project proponents and developers. Specifically, competing land claims lie at the core of conflicts over tar sands operations. To examine these power relations, I proceed in the following section to explain the conceptual frameworks and perspectives used to make sense of tar sands spaces.

Chapter 3. Conceptual foundations of tar sands spaces

This chapter presents the different analytical approaches that constitute the foundation of the analysis of tar sands spaces in Canada. I begin by explaining the importance of the energy geographies perspective for understanding the socio-material production of spaces for energy extraction, production, distribution, and consumption. In particular, I use the energyscapes concept to emphasize the centrality of uneven power relations in the configuration, governance, and contestation of these spaces. Here, I connect energy geographies with research on fossil capitalism to explore the emergence of tar sands spaces in the Canadian context. Specifically, I highlight the role of large-scale, export-oriented fossil fuel infrastructure, such as pipelines, in the constitution of physical spaces controlled by government and corporate actors at multiple governance scales. To show how tar sands spaces are also socially constructed, I draw on the concept of socio-technical imaginaries. This concept allows an exploration of how dominant future visions, meanings, and values associated with tar sands development are incorporated into energy and climate policies and discourses. Economic growth, job creation, prosperity, and environmental protection are central arguments used by the Canadian state and the fossil fuel industry to encourage tar sands development. Concretely, I focus on the discursive legitimation of tar sands through the imaginary of net-zero emissions.

After considering the material and social dimensions of tar sands spaces, I explore the significance of settler colonialism in the configuration of such spaces. Building upon Indigenous resurgence and settler colonial studies, I argue that the occupation and appropriation of Indigenous peoples' lands is a key driving force behind tar sands activities. Here, I underline the tensions and conflicts between the Canadian state, Indigenous peoples, and the fossil fuel industry over access to and control over lands used for such activities. A look at these disputes brings attention to the unequal spatial distribution of the socio-economic and environmental costs of tar sands and power imbalances in energy decision-making processes. Political ecology and energy justice are particularly relevant approaches here to analyze the multiple inequalities and injustices arising from tar sands development, as well as the contestation dynamics around tar sands projects.

3.1 The uneven production of energy geographies

This research is situated within the broader field of energy geographies, which has become in recent years an analytical entry point for studying the connections, interactions, and interdependencies between geographies of energy extraction, production, distribution, consumption, and waste. One of the main concerns of energy geographies is to develop an understanding of the underlying processes giving rise to and transforming these geographies over time (Bridge et al., 2013; Calvert, 2016; Broto and Baker, 2017; Bridge et al., 2018). From an energy geographies perspective, energy is not a merely physical phenomenon, but rather historically constituted through a myriad of socio-ecological processes, socio-spatial identities, cultural representations, and future imaginaries across geographical and historical contexts (Huber 2015; Calvert, 2016; Bridge et al., 2018). It is through these interconnections in concrete situations that energy, in its different manifestations, becomes socially beneficial, economically valuable, and politically contested (Svensson, 2021). Emphasizing the socio-material dimensions of energy allows us to look beyond dominant techno-economic notions of energy that guide mainstream energy policies to consider the role of energy in organizing social life (Dagett, 2019).

Energy geographers have indeed addressed the multifaceted ways in which energy sources and technologies/systems shape and are shaped by the intricate interplay of social actors, governance[1] arrangements, narratives, market dynamics, identities, forms of knowledge, and ecosystems (Huber, 2015; Calvert, 2016; Bridge et al., 2018; Calvert, Greerb & Maddison-MacFadyen, 2019). Viewed through the lens of energy geographies, energy systems are not only infrastructures that capture, produce, store, and deliver energy. Rather, they are constituted through social practices, meanings, and future visions embedded within spatial arrangements of power (Bridge et al., 2013; Bridge & Gailing, 2020). This relational notion of energy systems implies looking at 1) the political-economic logics through which these are imagined and managed, and 2) the spatial forms of power that such systems enable and sustain (Bridge & Gailing, 2020).

A focus on the spatial dimensions of energy development emphasizes the connections between the governance of energy sources and technologies and the production of uneven space (Frantál, Pasqualetti & van der Horst, 2014; Huber & McCarthy, 2017; Bridge & Gailing, 2020). Here, space is not understood as a physical location but rather as the outcome of social relations, which strongly influence who has access to energy resources, where energy will be

[1] Governance broadly refers to the interplay of actors, relations, narratives, processes, arrangements and institutions which influence how power, legitimacy and decisions are shaped (Reed & Bruyneel, 2010).

distributed and consumed, and who bears the costs of energy production (Bridge et al., 2018). Emphasizing the social production of space, Zimmerer (2011) bridges energy geographies and political ecology to examine how power-knowledge relations unevenly shape energy production sites and infrastructure networks.

Employing the concept of energy landscapes, a strand of literature within energy geographies offers a lens for explaining the configuration and transformation of geographical spaces, places, and scales by energy-related activities (Zimmerer, 2011; Bridge et al., 2013; Frantál, Pasqualetti & van der Horst, 2014; Bouzarovski, Bradshaw & Wochnik, 2015; Calvert, 2016). This body of research calls us to look at energy landscapes not only as material and social expressions of historical and contemporary processes, but also as drivers of future political-economic, socio-ecological, and technological changes Nadaï and Van der Horst, 2010; Calvert, Geerb & Maddison-MacFadyen, 2019). Considering the confluence of multiple temporalities in energy landscapes stresses the importance of conceiving them as both stable and dynamic spaces (Haarstad & Wanvik, 2017).

Thinking through energy geographies also means considering that energy spaces are imagined, (un)made, and experienced in contrasting ways by social actors located at different scales (Calvert, 2016; Bridge et al., 2018; Hunsberger & Larsen, 2021). Here, scale refers to the shifting and overlapping spaces of human-environment relations and perceptions (Neuman, 2011), at which energy landscapes are constructed, redefined, and challenged (Bridge & Gailing, 2020; Hunsberger & Larsen, 2021). Struggles over the control of energy sources, technologies, their geographies, and their social meanings are of particular relevance to the emergence and organization of energy spaces (Bridge et al., 2018).

The material and symbolic construction of energy spaces through power dynamics underscores the concept of territory (Bridge et al., 2018; Bridge & Gailing, 2020). This concept elucidates how multiple actors invoke and mobilize different forms of legitimacy, knowledge, and authority claims around energy resources. Through these processes, social actors shape how space is known, characterized, appropriated, governed, and experienced (Huber & McCarthy, 2017).

Closely connected to the notion of territory, territorialization describes the planning and deployment of strategies aimed at exercising control over space and its discursive representations (Bridge et al., 2018). The imposition of hegemonic representations[2] of energy spaces by certain social actors or groups over others, often presenting them as desirable and necessary (Castan Broto, 2013), results in inequalities and conflicts around energy resources and technologies (Calvert, 2016; Bauriedl, 2021).

[2] Hegemonic refers here to subtle forms of control through different mechanisms (e.g. education, media) that “constructs and represents the interests of the dominant groups as the interests of everyone in society… and are eventually taken for granted” (Kuokkanen, 2007:17).

By interrogating the political nature of energy spaces, I seek to expand scholarly discussions on the production of uneven geographies of energy development (Zimmerer, 2011). Different but related strands of energy geographies literature have used multiple concepts (e.g., energy landscapes, energyscapes, energy territories) to unravel the multi-scalar and temporal interactions between socio-ecological processes that co-constitute energy spaces (Bridge et al., 2013; Bouzarovski, Bradshaw & Wochnik, 2015; Calvert, 2016; Haarstad & Wanvik, 2017). In this research, I attend to the relatively recent notion of energyscapes, which foregrounds the unequal production of space and socio-environmental relations in processes of energy capture, production, circulation, and consumption (Bridge & Gailing, 2020). In contrast to the term energy landscapes, which tends to emphasize the spatial configurations of energy activities (Castan Broto & Calvet, 2020), energyscapes deal with the emergence of energy spaces through uneven power arrangements (Calvert, 2016; Cardoso & Thuran, 2018; Delina, 2020).

Following this line of reasoning, Cardosa and Turhan's (2018:339) definition of energyscapes as "landscapes of social, material, spatial, and discursive relations" constitutive of and constituted by energy development allows an analysis of the spatial inequalities along international coal supply chains. Delina's (2020) work on environmental justice struggles against dam projects offers a similar interpretation of energyscapes as assemblages of energy systems, ideologies, political-economic relations, and institutional frameworks. Based on this body of research, I define energyscapes as the physical, social, and imagined spaces for energy extraction, transportation, and consumption activities. Such spaces are characterized by struggles over the unequal geographical appropriation and distribution of economic benefits and socio-ecological burdens related to energy activities. Energyscapes provides, I argue, a strong analytical lens to explore how spaces of tar sands development are envisioned, made, governed, and contested through material-discursive practices and processes. These include energy governance, oil market dynamics, property rights regimes and land-tenure systems, fossil fuel technology development, and socio-cultural perceptions.

Building upon the energyscapes concept, Hein (2021) employs the term petroleumscape to scrutinize the role of global networks of oil infrastructures in creating and maintaining the built environment, social imaginaries, and political-economic structures (Hein, 2021). By contrast, Haarstad and Wanvik (2017) use the concept of carbonscapes to critique the idea of fossil fuel spaces as stable, deeply integrated, and coherent structures. Both authors suggest the need to understand fossil fuel spaces in terms of their emergent capacities for transformation and their concatenations with other processes unfolding across multiple spatio-temporal scales. Despite their differences, both concepts help identify and examine the stabilizing and destabilizing forces behind the (re)configuration of fossil fuel spaces.

In particular, carbonscapes has been used to analyze the spatialities of tar sands extraction and mining (Wanvik, 2018). Wanvik's research explores how Métis communities in Alberta influence tar sands decision-making procedures through the negotiation of land use agreements for tar sands exploitation. In doing so, this work sheds light on the often-overlooked pragmatic approaches taken by Indigenous peoples to engage in tar sands businesses. However, the role of Indigenous-led resistance to crude oil pipelines in reshaping the spatial dimensions of tar sands governance is left underexplored in this research. Furthermore, Wanvik's work does not provide a conceptualization of tar sands spaces. By addressing these knowledge gaps, I contribute to academic debates on the power asymmetries in tar sands development (Veltemery & Bowles, 2014; Rossiter & Burke Wood, 2016; Frost, 2019; Wanvik, 2018).

3.2 Fossil capitalism and the emergence of tar sands spaces

An analysis of relevant theoretical discussions on energy geographies provides a foundation for interrogating the role of fossil fuels in producing space. Bitumen connects distant places across and beyond Canada, shaping them as it is extracted, transformed into oil and other commodities, distributed through networked infrastructures, and released into the environment as GHG emissions and waste (Scott, 2014; Adkin, 2016; Bridge & LeBillon, 2013; Delgado, 2017). Energy geographies not only bring to light these spatial interlinkages but also reveal the logics of power that configure tar sands spaces.

A first step towards understanding these logics lies in considering the notion of fossil capitalism. It generally refers to a dominant form of structuring human-environment interactions around intensive fossil fuel extraction and consumption for capital accumulation (Altvater, 2006; Malm, 2012; Carter, 2014, 2020; Scott, 2014; Adkin, 2016). Fossil capitalism elucidates the pervasiveness and ubiquity of fossil fuels in social life. Not only political institutions and economic systems, but also the built environment, values (e.g., prosperity, liberty, democracy and freedom) and everyday practices (e.g., private car mobility patterns, energy services in households for refrigeration, heating, cooling, cooking, and entertainment) are shaped by fossil fuels (Zimmerer, 2011; Wilson, Carlson & Szeman, 2017; Hein, 2021).

The intricate, often hidden interrelations and dependencies among these institutional, social, and economic elements sustain large-scale fossil-fuel-based systems and their associated power structures (Bridge et al., 2018). Canada's fossil fuel sector is characterized by a high concentration and centralization of power and wealth (Carroll, 2021). The Canadian state[3] plays a central role in shaping oil policy through legislation and regulations, fiscal

[3]Also known as the Crown, the Canadian state is comprised of a network of federal, provincial, territorial and municipal governments, the Parliament (the Senate and the House of Commons), the Court system (The Supreme, federal, provincial and territorial courts), and other institutions (Government of Canada,

instruments (e.g., taxes and subsidies), land-use consultations, court resolutions, research programs, and media (Adkin, 2016). In addition to government institutions, fossil capital, that is transnational oil corporations (e.g., Suncor Energy, Cenovus, and Imperial Oil) and large banks (e.g., Royal Bank of Canada, Toronto-Dominion Bank, and Bank of Montreal) have been pivotal to tar sands expansion through investments, lending and capital raising (Carroll, 2020; Carrol & Huijzer, 2021; Gutstein, 2021).

A focus on the power relations embedded in fossil fuel development prompts us to examine the driving forces behind the formation of tar sands spaces. Despite an abundance of research on tar sands development, the spatial dimensions of the power relations in the tar sands sector have received relatively little attention (LeBillon & Vandecasteyen, 2013; Wanvik, 2018). The expansion of capitalism in search of fossil fuel resources, such as tar sands, involves their commodification through land dispossession and privatization (Watts, 2013), monetary valuation (Adkin, 2016), and financialization (Carroll, 2021). Through these intertwined processes, fossil fuels are deemed technically and economically viable, incorporated into circuits of capital and strategies of territorial control, and become embedded in everyday practices and social perceptions (Huber, 2013; Calvert, 2016).

Bringing together energy geographies and fossil capitalism elucidates the key role of fossil fuel infrastructures in making and governing tar sands spaces. Indeed, infrastructure (e.g., drilling and mining machinery, refineries, pipelines, railways, roads, storage facilities, marine terminals, and shipping routes) connects distant places and actors across and beyond Canada's territorial boundaries[4] (LeBillon & Vandecasteyen, 2013). Importantly, as observed by Scott (2014:18), fossil infrastructures are not only technical structures but rather "systems of interconnection, dependence, and exchange between built, natural, and social environments that shape patterns of production and consumption that develop around them".

This definition helps recognize that the construction of fossil infrastructures is influenced not only by economic considerations, legal-institutional frameworks, and technological advancements, but also by discourses and imaginaries. From the energy geographies perspective, the latter are central to the constitution of energy spaces. Both discourses and imaginaries legitimize decisions about where to extract energy resources and build infrastructure, who gets access to energy and at what cost, who and where benefits from energy development and bears its costs (Bridge et al., 2018). Discourses here refer to dynamic forms of communication through which identities, principles, visions, and values in energy development are constructed, legitimized, and disputed (see Wolford and Keene, 2015). By contrast, sociotechnical imaginaries are "collectively held and performed visions of desirable

2022) operating at multiple scales with complementary, overlapping, and conflicting interests, capacities, and resources.

[4] Importantly, tar sands spaces do not exist in isolation; they intersect, merge and overlap with other spaces used for different forms of energy production and natural resource exploitation (Nuttal, 2022).

futures, animated by shared understandings of forms of social life and social order attainable through, and supportive of, advances in science and technology" (Jasanoff & Kim, 2015: 33). Applying this concept to my case study, tar sands development reflects and legitimizes specific energy future visions.

Despite their differences, a common element shared by both discourses and imaginaries is their influence beyond the realm of abstract ideas. As social constructs, discourses and imaginaries are reflected in energy policy and legislative decisions and embedded in collective practices within specific historical and geographical contexts (Jasanoff and Kim, 2009; Tidwell & Tidwell, 2018; Hajer & Pelzer, 2018). In the Canadian case, discourses crafted by fossil fuel corporations and the Canadian state significantly shape the regulatory and governance frameworks governing tar sands (Gunster and Neubauer, 2018; Neubauer, 2018). Such discourses are premised on the assumption that fossil fuel expansion is necessary for economic growth, job creation, revenue generation, and, more recently, environmental protection (Black et al., 2014; Kuteleva & Leifso, 2020). Indeed, during Justin Trudeau's Liberal administration (2015- early 2025), the Federal Government's discourse around tar sands promoted the development of "clean" technologies as a measure to reduce fossil fuel-related emissions (Kraushaar-Friesen & Busch, 2020). Here, the notion of net-zero emissions, constructed as a sustainable future imaginary, gained prominence in energy policy debates and influenced the design of federal energy policy frameworks. Overall, net-zero reinforces entrenched fossil fuel interests and raises several concerns about its apparent environmental benefits.

Weaving together the material and discursive dimensions of fossil capitalism helps us see tar sands spaces as embodiments of political and economic forces, technological pathways, and social discourses and imaginaries. In this regard, physical spaces for tar sands extraction/mining, production, distribution, export, consumption, and waste are socially configured, governed, and contested.

3.3 The settler colonial foundations of tar sands spaces

Tar sands spaces cannot be understood without considering the centrality of settler colonialism to their constitution. Settler colonialism broadly refers to the elimination, replacement, cultural assimilation, and dispossession of Indigenous peoples for resource development and settlement purposes (Alfred & Corntassel, 2005; Simpson, 2017). A rich body of research on settler colonialism and Indigenous resurgence has noted that settler colonialism is not a monolithic and totalizing structure, but rather is composed of contradictory, polymorphic, and multi-scalar processes permeating all spheres of social life (Alfred & Corntassel, 2005; Coulthard, 2014; Pasternack, 2014; Simpson, 2017; Rifkin, 2017). These processes include massacres, prohibition of cultural practices and spiritual/religious beliefs, coerced sterilization

and murder of Indigenous women, neglect and inadequate access to health services, the removal of Indigenous children from their families to place them into Residential Schools, and environmental pollution. Such examples make visible the interwoven forms of domination structuring settler colonialism, namely white supremacy/racism, patriarchy, and capitalism (Preston, 2013).

The intergenerational effects of colonial violence support the argument that the physical and cultural elimination of Indigenous peoples is one of the main objectives of settler colonialism (Simpson, 2017; Palmater, 2011). Critical scholars and Indigenous groups and communities have employed the notion of genocide — defined by the United Nations (1948) as "the intent to destroy a national, ethnic, racial or religious group, in whole or in part" — to characterize the Canadian state's historical and ongoing patterns of violence towards Indigenous peoples. In this sense, genocide is not confined to the past, limited to direct forms of violence, or restricted to legal definitions, but instead is embedded and continuously enacted through everyday practices (see Woolford & Benevuto, 2015). Following this line of thinking, Short and Huseman (2012) argue that the environmental, social, and health effects of tar sands development on Indigenous peoples living near extraction, mining, and production sites can be seen as a contemporary form of genocide.

This description of settler colonialism provides entry points to scrutinize the connections between fossil capitalism and the uneven production of space. To extract tar sands, construct and operate fossil fuel infrastructure, export crude oil, and, more recently, capture and store CO2 underground, the Canadian state and fossil capital need to secure access to and control over land (Black et al., 2014; Adkin, 2016; Carroll, 2021; Alexander & Stanley, 2021). The imposition of Western conceptions about property rights has played a fundamental role in establishing territorial control (Pasternack, 2014). Before the creation of the Canadian state, the British Empire asserted sovereignty over Indigenous peoples' lands based on the Doctrine of Discovery or *terra nullius* (Mackey, 2016). Through this Doctrine, the British Empire interpreted Indigenous territories as 'legally vacant' and open to claims of ownership (Mackey, 2016). The assumption guiding this reasoning was that Indigenous peoples did not have land property rights in a Western sense and lacked a central government with authority over lands (Pasternack, 2014; Mackey, 2016). Rendering invisible the multiple pre-colonial forms of Indigenous land governance facilitated land dispossession.

The appropriation and occupation of land for fossil fuel development is deeply rooted in the signing of historical and modern treaties[5] between Indigenous peoples and the British

[5] Historical treaties signed after 1763 provided lands occupied by Indigenous peoples to the British Crown, established the territorial boundaries of reserves, and defined hunting and fishing rights. By contrast, modern treaties encompass consultation guidelines, clarification of land ownership, wildlife harvesting, self-government rights, financial settlements, and resource revenue sharing agreements. The rights, obligations, and benefits set out by historical and modern treaties are known as Treaty Rights (CIRNAC, 2024).

Crown. In general, these treaties have enabled the Canadian state to define the boundaries of land areas for Indigenous peoples, also known as reserves (Government of Canada, 2023), which represent a small fraction of their traditional territories. In this way, the Canadian state has secured access to Indigenous lands for settlement, resource extraction, industrial development, and environmental management (Pasternak, Collis & Dafnos, 2013). Indeed, under the Indian Act,[6] the Federal and Provincial Governments have jurisdiction and hold title over reserves (Shaw, 2008). However, land tenure regimes are different in most of BC and the three northern Territories, namely, Northwest, Nuvatu, and Yukon, where Indigenous peoples have never formally ceded their land titles to the Canadian state (University of British Columbia, 2009; Flanagan, Le Dressay & Alcantara, 2010).

The former situation has led to competing interpretations of land rights. While Canada's Constitution recognizes the protection of Aboriginal Rights in Section 35,[7] the Canadian state frequently sees these rights as an obstacle to asserting land claims (Coulthard, 2010; Rifkin, 2017; Barker, 2021). As expressed by the BC Treaty Commission (n/a): "*Section 35 does not define those (Indigenous) rights, and uncertainty about how and where these rights apply can discourage investment and economic development in BC. Treaties provide certainty and will clarify Aboriginal rights and title, ownership of land and resources in BC".* This quote clearly exemplifies the Canadian state's intention behind treaty negotiations.

In the case of Alberta, Treaty No. 8, which was negotiated between colonial commissioners and Indigenous Nations, including the Cree, Beaver, and the Chipewyan, explicitly articulates the settler colonial logic underpinning land appropriation:

"AND WHEREAS, the said Indians have been notified and informed by Her Majesty's said Commission that it is Her desire to open for settlement, immigration, trade, travel, mining, lumbering and such other purposes as to Her Majesty may seem meet, a tract of country bounded and described as hereinafter mentioned, and to obtain the consent thereto of Her Indian subjects inhabiting the said tract, and to make a treaty, and arrange with them, so that there may be peace and good will between them and Her Majesty's other subjects… "the said Indians DO HEREBY CEDE, RELEASE, SURRENDER AND YIELD UP to the Government of the Dominion of Canada, for Her Majesty the Queen and Her successors for ever, all their rights, titles and privileges whatsoever, to the lands included within the following limits, that is to say: And Her Majesty the Queen hereby agrees and undertakes to lay aside reserves for such bands as desire reserves, the same not to exceed in all one square mile for each family of five for such number of families as may elect to reside on reserves, or in that

[6] This is a federal law that governs several aspects of Indigenous Peoples' lives in Canada (Pasternack, 2014).
[7] These encompass "Indigenous title or ownership rights to land, rights to occupy and use lands and resources, such as hunting and fishing rights, self-government rights, and cultural and social rights" (CIRNAC, 2024).

proportion for larger or smaller families; and for such families or individual Indians as may prefer to live apart from band reserves"

Treaty No. 8 also established future conditions for the use of Indigenous lands: "such portions of the reserves and lands may at any time be required for public works, buildings, railways, or roads of whatsoever nature may be appropriated for that purpose by Her Majesty's Government of the Dominion of Canada" (CIRNAC, 2013). This practice continues to the present as the Canadian state can justify infringement on Indigenous land rights on the grounds that resource extraction projects, such as the TMX, are of national interest (see Shaw, 2008).

Providing this historical background is key to understanding the centrality of land dispossession to the production of settler colonial spaces. Representations of land as empty, available spaces holding potential surplus value play a crucial role here in erasing Indigenous jurisdictions over land and imposing colonial property regimes (Rifkin, 2017). This observation is relevant when considering that the production of tar sands spaces requires replacing and redefining the legitimacy of existing land governance structures, legal orders, and worldviews, as well as reordering space according to the logic of capital (see Black et al. 2014). Settler-colonial claims to places not yet occupied drive the creation of resource frontiers, conceived as underdeveloped sites belonging to settlers to be made valuable through their occupation (Barker, 2021). Underpinning settler colonial imagined geographies are racial notions of progress that relegate Indigenous peoples to the past and deem them incapable of productively using the land (Barker, 2021).

The imagined improvement of land through settler control has served to justify the displacement of Indigenous peoples from their ancestral territories, their confinement to reserves, and division into multiple bands and tribes (Barker, 2021). A central aspect here concerns the relationship between land control and the construction of social identities (Powell, 2018). In particular, the Indian Act has played a fundamental role in restricting Indigenous land rights through a narrow definition of Indigenous identity in terms of biological features (e.g., blood quantum), membership in a band/tribe, and residence on reserves (Palmater, 2011). This definition of Indigeneity overlooks First Nations decision-making authority over their lands, thereby reinforcing Canada's assertions of territorial sovereignty (Palmater, 2011; Rossiter & Burke Wood, 2016; Daigle, 2016).

Efforts to gain control over Indigenous land have continued through diverse policies and discourses. A prominent example is the neoliberal multiculturalist approach followed by Trudeau's liberal administration over the past decade (Manuel & Derrickson, 2015). This approach is based on the Canadian state's public commitment to reconcile with Indigenous peoples as a way to address past harms (Government of Canada, 2024). Reconciliation mainly

involves the official recognition of Indigenous peoples' distinct cultural identities and rights, including self-determination and participation in decision-making processes (Preston, 2013). Yet, as noted by Coulthard (2014), the multiculturalist approach builds upon colonial structures that continue to dispossess Indigenous peoples. A clear example is the territorial expansion of corporate and state-owned fossil fuel infrastructures on Indigenous lands, often without consent from affected First Nations and Métis, during the past decade (Spice 2018; Simpson, 2019).

Settler colonialism may appear as inevitable, but critical settlers and Indigenous scholars encourage greater attention to how it is resisted (Simpson, 2017; Powell, 2018; Barker, 2021). Indigenous peoples' legal orders and understandings of the land provide useful anchor points for questioning the legitimacy of settler sovereignty claims. Drawing on their legal traditions, First Nations have asserted their land rights to block road access to pipeline construction sites, interrupt or delay fossil fuel expansion, and disrupt the physical circulation of fossil fuels (Janzwood, 2020; Bosworth & Chua, 2021). As documented by a rich body of research (Black et al., 2014; Scott, 2014; Adkin, 2016; Carroll, 2021), social resistance to tar sands development is a response to its adverse effects, including land dispossession, health damages, air pollution, deforestation, water contamination, and increased GHG emissions. The disproportionate exposure of First Nations to the impacts and risks of tar sands operations starkly contrasts with the high concentration of wealth and power in Canada's oil industry (Carroll, 2021)

In addition to inequalities in access to land, tar sands use, and influence in energy policymaking, divergent and often irreconcilable worldviews are a constant source of conflicts around tar sands development (Spice, 2018). Settler colonial understanding of the land as a commodity, for example, clashes with diverse Indigenous interpretations of land as a "system of interdependent relations with animals, past and future generations, and other people" (Coulthard, 2010:82). These interactions inform and shape Indigenous laws, governance structures, knowledges, languages and worldviews (Daigle, 2016; Rossiter & Burke Wood, 2016; Palmater, 2011). For some First Nations, tar sands expansion thus poses significant threats to their ways of life and being in the world (Borrows, 2018; Burow, Brock & Dove, 2018). The implications of tar sands development for Indigenous peoples bring to the fore discussions around the values, knowledges, and worldviews at play in conflicts over tar sands extraction, mining, and transportation.

3.4 Energy justice considerations in tar sands development

Environmental and climate justice[8], as well as political ecology studies, have examined inequities associated with tar sands operations (Black et al., 2014; Adkin, 2016). Yet, this issue has received comparatively little attention from the energy justice standpoint. The concept of energy justice has recently gained relevance in policy and scholarly discussions due to concerns about the power imbalances in energy policymaking. Energy justice is based on five interconnected dimensions: distributional, procedural, recognition, restorative, and cosmopolitan. Overall, these dimensions point to the inadequacy of existing energy governance structures to address a wide range of concerns related to energy development.

Whilst energy justice illuminates multiple forms of injustice in energy activities, it still needs to engage with non-Western views on justice (Bombaerts et al., 2020). A major drawback of Western theoretical and conceptual frameworks of justice — upon which early energy justice studies drew — is the assumption that inequalities along the lines of race, gender, class, and ethnicity can be addressed through abstract and universal criteria of justice (Bombaerts et al., 2020). The early definition of energy justice as the universal aspiration of providing "all individuals, across all areas, with safe, affordable and sustainable energy" exemplifies this point (McCauley et al., 2013).

Such a definition may overlook the sociohistorical conditions under which energy is produced in specific places, as well as the interests and concerns of social groups affected by energy development (Sovacool et.al., 2017). Energy justice scholarship has therefore called for engaging productively with non-Western epistemologies to discuss how place-based justice principles can be applied to concrete energy policy decisions (Sovacool et al., 2017). This point is particularly pertinent in the Canadian context of Indigenous-led struggles over fossil fuel infrastructures.

Recent energy justice research has explored different responses of First Nations to existing or proposed large-scale fossil fuel infrastructures on their lands (Datta & Hurlbert, 2019; Hunsberger & Awâsis, 2019). Together, these works shed light on the inequalities between the Canadian state and First Nations in decisions regarding the approval and environmental assessment of tar sands pipelines. To address these inequities, energy justice research often highlights the need to incorporate Indigenous views in energy governance. Indigenous scholars (Whyte, 2017; McGregor, 2018), however, argue that environmental, climate, and energy justice frameworks are inadequate to capture the heterogeneous understandings and experiences of Indigenous peoples.

[8] Climate justice generally refers to the disproportionate impacts of climate change on marginalized and vulnerable communities, who have contributed the less to the climate crisis (Nicholson, 2021). While environmental and climate justice emerged from social struggles, energy justice has its origins in Western academic environments (Bombaerts et al., 2020).

These rest upon collective visions of self-determination embedded in diverse epistemologies, governance structures, identities, knowledges, political orders, place attachments, values, and worldviews (McGregor, 2019). McGregor, Whitaker, and Sritharan (2019), for example, note that Western conceptions of justice treat justice as an issue for humans, without accounting for injustices perpetrated against all forms of life. By contrast, relationships, responsibilities, and obligations with nonhuman nature are central in Indigenous worldviews.

Another criticism of Western ideas of justice concerns the historicized reading of (in)justice. For some Indigenous scholars (Whyte, 2017; Davids & Todd, 2017), contemporary global environmental change is not a relatively new phenomenon but rather a continuation and intensification of historical colonial and capitalist practices aimed at commodifying land, extracting resources, and dispossessing Indigenous peoples. This observation is critical because Indigenous peoples across North America have led the fight against the expansion of fossil fuel projects and advanced visions for an alternative energy future. Using the lens of energy justice to assess conflicts over tar sands operations requires careful consideration of the diversity of Indigenous notions of (in)justice articulated and mobilized in these disputes.

Chapter 4. The contentious Trans Mountain Pipeline Expansion Project

This section provides an overview of the controversy surrounding the TMX in BC and Alberta, Canada. It starts with a brief description of the technical characteristics of this pipeline project and key moments that shape its development. This is followed by a presentation of the main actors involved in the conflict over this project. I then offer a historical overview of the pipeline conflict, focusing on specific situations and decisions that affected its outcomes.

4.1 The TMX Project

The Trans Mountain pipeline expansion is a $7.4 billion project — previously owned by the American corporation Kinder Morgan and now owned by the Federal Government — which seeks to increase shipping capacity from 300,000 barrels per day (bbl/d) to 890,000 bbl/d of heavy and light crude oil and refined products barrels per day between Strathcona County, Alberta to a terminal in Burnaby, BC for export to the U.S. and Asian markets (Trans Mountain, 2021; Government of Canada, 2025b). This project is a twinning of the existing 1,150-kilometer (km) pipeline built in 1953 by a Canadian division of Kinder Morgan (Table 4.1). The expansion plan included 980 km of pipeline, 193 km of reactivated pipeline, 12 new pump stations, 19 new tanks, and a dock at the Westridge Marine Terminal in Burnaby (Government of Canada, 2025b).

Table 4.1. Timeline of the TMX

Date	Event
Mar 1951	Establishment of the Trans Mountain Oil Pipeline Company
Oct 1953	Starting operations of the Trans Mountain pipeline
1956 – 1957	Increase in the Trans Mountain capacity to 250,000 bbl/d
May 2016	NEB's recommendation to approve the TMX.
November 29, 2016	Issuance of Certificate of Public Convenience and Necessity for the TMX
2017-2018	Beginning of the TMX construction
August 30, 2018	Halting of the TMX by the Federal Court of Appeal
September 2018	Reconsideration of the consultation and EIA processes of the pipeline
18 June 2019	TMX approval
21 June 2019	Issuance of the pipeline certificate
2020 – 2021	Construction of the TMX
May 2024	Operations start

Source: Own elaboration based on the Government of Canada, 2024.

Looking at the TMX dispute through the theoretical framework elaborated in section 2 allowed me to identify how it is inscribed within the broader historical dynamics of land dispossession and the expansion of fossil-fuel infrastructure in Canada. The disagreements

over the TMX are thus firmly rooted in long-standing disputes related to access to and control over Indigenous traditional territories for fossil fuel expansion. Within this context, I particularly examine the power relations surrounding the TMX project through the lens of energyscapes to illustrate their role in shaping the governance of tar sands spaces, discursively and materially. Whilst I regard the TMX as a single dispute, I recognize that the pipeline construction and the transportation of bitumen across space generate unique processes of social acceptance, tension, and visible confrontation in specific places. The nature of these processes depends on geographical settings (e.g., rural, urban, and peri-urban), sociohistorical contexts, ecological conditions, and land tenure systems.

Although this research did not explore these place-based processes in depth, it identifies commonalities among them to characterize the TMX conflict (Hoberg, 2021).
An analysis of these disputes entails a description of the main actors involved, their interests at stake, and their attempts to influence tar sands governance by articulating and deploying multiple discursive-material practices (Table 4.2). Yet, to reiterate, my primary focus was on the divergent positions of the Federal Government and the Indigenous-led movement on the TMX, as these significantly affect the dynamics of the pipeline conflict.

4.2 Central actors in the TMX dispute

4.2.1 The Federal Government

The Federal Government has promoted the TMX project since Kinder Morgan submitted its application to the NEB to build the pipeline on December 16, 2013. Within the Federal Government, the Prime Minister, the Department of Finance, and the Ministry of Natural Resources have played an active role in supporting the pipeline, materially and discursively. The Federal Government justifies the TMX by framing it as an opportunity to stimulate economic growth and job creation, collect more tax revenues, and increase oil exports (Prime Minister of Canada, 2016). Despite contradictory evidence showing that the pipeline would affect First Nations, non-Indigenous communities, and marine ecosystems, Trudeau's administration approved the project in 2016. Eventually, it became its owner after Kinder Morgan decided to sell it in 2018 (Tasker, 2018). Within the Canadian state, there are divergent perspectives on the TMX rooted in competing intergovernmental land and natural resources management arrangements. Due to Canada's decentralized nature, provinces and territories have jurisdiction over land and energy resources (Adkin, 2016). This situation often gives rise to tensions over the ownership of energy resources and the regulation of interprovincial infrastructures, such as the TMX (Hoberg, 2021). To illustrate this point, let us examine the BC government's position.

4.2.2 The BC Government

The BC Liberal administration (2011-2017) endorsed the TMX project. However, it changed its position after the Liberals lost the 2017 provincial election against the New Democratic Party (NDP) and its ally, the Green Party, which had initially opposed the TMX (Hoberg, 2021). The new government adopted a discursive strategy focused on the ecological risks posed by diluted bitumen spills and on protecting Indigenous land rights.[9] The BC Government's shifting position led to tensions with both the Federal Government and the Alberta Government (Solomon, 2018). Indeed, there was an interprovincial dispute concerning jurisdiction over bitumen distribution through the TMX (Hoberg, 2021) and the economic benefits associated with oil exports (Little, 2018). The BC Government filed an appeal with the Provincial Court in 2018 to review amendments to the Environmental Management Act that would have allowed it to regulate crude oil transportation via pipelines (Hoberg, 2021). The Supreme Court of Canada, however, dismissed the BC government's appeal, arguing its proposed amendment interfered with a federally approved pipeline (Tasker, 2020a).

4.2.3 The Alberta Government

Given the economic significance of fossil fuel development in Alberta, the provincial government has historically supported tar sands extraction through a wide range of institutional, legal, political, and ideological instruments (Adkin, 2016). Tar sands development has become so central to the Alberta economy that the province highly depends on carbon-intensive infrastructure (Carter, 2020). Influenced by fossil capital, the Alberta Government has often been reluctant to adopt stringent climate and environmental regulations, arguing these pose a threat to economic prosperity and job creation potential (Adkin, 2016; Carroll, 2021). Indeed, the Alberta Government has been one of the leading advocates for the TMX, emphasizing its economic benefits while downplaying its negative impacts and risks (Solomon, 2018). Although both the Federal and Alberta Governments support the TMX, their interests diverge concerning the implementation of the net-zero emissions policy in the oil sector. Whereas the former, particularly under Trudeau's administration, actively encouraged net-zero targets, the latter opposes their adoption because it interferes with their jurisdiction over fossil fuel development (see Castillo Jara, 2025).

[9] This rhetorical support does not necessarily translate into the implementation of Indigenous rights in practice. An example of this is the BC government's push for natural gas pipelines crossing First Nations territories in the northern parts of the province (Spice, 2018).

4.2.4 Fossil capital

Along with the Federal and Alberta Governments, fossil capital plays a crucial role in supporting tar sands expansion through financing, research and technological development, lobbying, advertising, and education (Carroll, 2021). Large fossil fuel companies, such as Canadian Natural, Cenvious, Conoco Phillips, Imperial, and MEG Energy control almost 95% of Canada's oil production and thus exert significant influence over energy and climate policymaking at federal and provincial levels (Carroll, 2020). Likewise, large institutional investors and banks, including TD Securities, RBC Capital Markets, Canadian Imperial Bank of Commerce, BMO Capital Markets, Scotiabank, and National Bank of Canada, have played a substantial role in ensuring the construction of tar sands pipelines, such as the TMX, through lending (Benton, Connel & Cochrane, 2020; Andrews, 2022). Both fossil fuel corporations and financial institutions also legitimize tar sands operations by underscoring their contribution to Canada's economy, job creation, and sustainable energy transition (CAPP, 2018; 2020). In the case of the TMX, Trans Mountain claimed this pipeline would provide Canada "$73.5 billion over 20 years of operation and $46.7 billion in additional taxes and royalties", which could be used for social programs. Additionally, the company argued that pipelines are allegedly "the safest and most efficient to move crude oil" (Trans Mountain, 2021).

Closely related to fossil capital, decentralized networks of think tanks, private foundations, civil society organizations, and corporate-funded institutions actively encourage the TMX and propagate discourses of energy patriotism (Raso & Neubauer, 2016; Neubauer, 2018; Neubauer, Graham & Krobath, 2023). A notable example is Canada's energy citizens, a group created by the CAAP to disseminate pro-fossil fuel narratives in mainstream and social media (Hoberg, 2021). An analysis of the role of these actors in shaping energy and climate debates and policies, particularly concerning the TMX project, was beyond the scope of this dissertation.

4.2.5 Indigenous opposition to the TMX

While some First Nations in BC and Alberta have opposed the TMX, I paid more attention to those that have publicly and consistently presented a unified front against the pipeline since its beginning. These First Nations have led legal challenges to stop the TMX, played a visible role in public demonstrations and media outreach campaigns, and built cross-scalar alliances against fossil fuel infrastructures across Canada. The most vocal critics of the pipeline are: 1) *The Tsleil-Waututh Nation (TWN)*, a Coast Salish Nation, whose main reserve is located on the shores of the Burrard Inlet and close to the Westridge Marine Terminal in Burnaby, BC. Among its main concerns are increased bitumen vessel traffic and its impacts on harvesting, land rights, and cultural practices. 2) *The Squamish Nation*, also a Coast Salish Nation whose

lands include the Burrard Inlet, has criticized the TMX for the threats it poses to their harvesting rights and the endangered Southern resident killer whale, which holds a significant cultural value. 3) *The Coldwater Indian Band*, which is part of the Nlaka'pamux Nation, has manifested concerns about the pipeline risks to their sole source of drinking water (Tsleil-Waututh Nation v. Attorney General of Canada, 2018). While First Nations share concerns regarding the pipeline, these greatly vary depending on each Nation's geographical location, economic structure, livelihood activities, and notions of self-determination.

Despite their different concerns, these First Nations share the view that the Federal Government did not meaningfully consult them regarding their land rights and failed to properly assess the impacts of oil tanker traffic and oil spill risks in the Salish Sea and Burrard Inlet in BC (Tsleil-Waututh Nation v. Attorney General of Canada, 2018).

In addition to these First Nations, Indigenous-based groups, such as the Tsleil-Waututh Nation Sacred Trust, the Tiny House Warriors, Coast Protects, Union of British Columbia Indian Chiefs (UBCIC), and Indigenous Climate Action, have been actively involved in the fight against tar sands expansion. Some of these groups have blocked access to pipeline construction sites, organized rallies, marches, and online events; launched strategic communication campaigns; produced analysis and reports on the impacts of tar sands development; influenced energy/climate policymaking through lobbying; and developed community-led renewable energy projects. Concerning the latter point, the Tiny House Warriors built tiny houses powered by solar energy along the TMX route "to assert our authority over our unceded Territories, Secwepemc, and block access to this pipeline. We, the Secwepemc, have never ceded, surrendered, or given up our sovereign title and rights over the land, waters, and resources within Secwepemcul'ecw" (Tiny House Warriors, 2020).

4.2.6 First Nations and Métis advocating for the TMX

To be clear, a full analysis of the contrasting positions of First Nations on the TMX lies beyond the scope of this paper. As previously indicated, there are 140 First Nations and Métis communities located along the pipeline route. Some have signed Mutual Benefit Agreements[10] (MBAs) with first Kinder Morgan and then Trans Mountain (see Appendix 1) to reduce high levels of unemployment and dependence on federal subsidies and stimulate local economic growth. Furthermore, different Indigenous-based groups, namely Iron Coalition, the Western Indigenous Pipeline Group, and the Project Reconciliation, have explicitly stated their interest in acquiring a stake in the TMX (Varcoe, 2019; Alexis & Poscente, 2019). Chief Mike LeBourdais of the Whispering Pines Nation in BC stated: "We had wanted a piece of the

[10] MBAs are confidential agreements between an Indigenous community and an oil corporation, which includes Community education, training, and business opportunities in exchange for access to the community's land for tar sands development (Wanvik, 2016).

pipeline either in tax or equity… We are tired of watching corporations making money off our resources as they flow by… We want to protect the environment… on our terms" (LeBourdais cited in Laanela, 2018). Similarly, Stephen Buffalo, president of the Indian Resource Council (IRC), headquartered in Alberta, alluded to the potential benefits of Indigenous ownership of the TMX: "An ownership stake in the pipeline could generate enough revenues to allow these Indigenous communities to create sovereign wealth funds that themselves could finance other critical infrastructure projects" (Quesnel and Buffalo, 2019).

4.2.7 ENGOs

A wide array of ENGOs, mostly located in Vancouver and Burnaby, from well-known international entities (e.g., Greenpeace and the Sierra Club), regional groups (e.g., RAVEN Trust, Force of Nature Alliance), to small collectives (e.g., Climate Convergence), have forged alliances with First Nations and Indigenous groups. These ENGOs represent diverse interests, agendas, and values that, in certain situations, such as the proposal of the TMX, might align and overlap. This convergence of interests was particularly relevant in mobilizing collective action against the pipeline, articulating climate justice demands and supporting calls for Indigenous self-determination. The degree of ENGOs' involvement in social mobilization varies depending on several factors, including their area of expertise[11], available financial resources, organizational capabilities, experience in activism and media campaigns, and level of influence in policy-making spheres. Notably, coalitions and alliances between First Nations, Indigenous groups, and ENGOs are also characterized by contradictions[12] and tensions due to their different interests, needs, priorities, and values. A full examination of these power dynamics, however, lies beyond the scope of this paper (see also Grossman, 2017).

4.2.8 Citizen-based organizations

Small resident-based associations along the pipeline route in BC, such as Burnaby Residents Opposed to Kinder Morgan Expansion (BROKE), North Shore No Pipeline Expansion (NSNOPE), and Pro Environment United People Network (PIPEUP), also opposed the TMX, whether joining street protests and presenting evidence to the NEB (NEB, 2016). Comprised of homeowners, retirees, teachers, and students, these associations have frequently expressed concerns over the pipeline, including health damages from fossil fuel-related

[11] For example, conservation organizations, such as Raincoast Foundation and Living Oceans Society, concentrated their efforts on raising awareness about oil spill risks on endangered marine species, particularly the southern resident killer whale (see Federal Court of Appeal, 2019). Conversely, Climate Convergence was very present in organizing street mobilizations while RAVEN, Pull Together raises funding and West Environmental Coast supports legal challenges to the TMX.

[12] Some ENGOs may profess to advocate for climate/environmental justice while simultaneously receiving funding from fossil corporations. As part of a public relations campaign to label tar sands as a "dirty energy source", ENGOs were funded from American foundations with ties to the oil industry, such as the Rockefellller Foundation (Hoberg, 2021).

emissions (respiratory complications, nausea, headaches, rashes, caught, stomach problems) and oil spills from the Westridge Marine Terminal and the Burnaby Mountain tank farm (Hoberg, 2021).

Table 4.2. Main actors involved in the TMX conflict

Actor	Position	Interests	Material-discursive practices
First Nations opposing the pipeline	Rejects the pipeline Lack of meaningful consultation Environmental risks	Self-determination Land rights Climate justice	Media outreach, lawsuits, demonstrations, boycotts, public relations campaigns, fossil fuel divestment strategies, pipeline blockades, community-led energy projects
First Nations supporting the pipeline	Supports the pipeline Economic reconciliation Job opportunities.	More control over land and environmental decisions	Land-use agreements Public relations campaigns
ENGOs	Reject the pipeline Environmental risks	Raise public awareness Advocate for energy/climate policy change	Media outreach Demonstrations Public campaigns Lawsuits
Fossil capital	Support the pipeline. Job creation, Economic growth Sustainability	Control over land, tar sands reserves, and tar sands supply chains Profits Access to new markets	Land-use agreements Lobbying Technological development Fossil fuel financing Media and public relations campaigns
Federal Government	Support the pipeline Job creation, Economic growth Sustainability	Revenue recollection Economic growth	Energy policy planning and regulation Legislation Investment programs Media campaigns
British Columbia Government	Reject the pipeline Environmental impacts of marine oil shipping.	Influence on decisions over diluted bitumen transportation.	Environmental policy planning and regulation Media campaigns Lawsuits
Alberta Government	Support the pipeline Job creation, Economic growth	Influence on tar sands production Revenue collection Economic growth	Energy policy planning and regulation at the provincial level Legislation at the provincial level Investment programs Media campaigns

Source: Own elaboration

4.3 Power dynamics surrounding the TMX

The anti-TMX protests gained significant national media attention in November 2014 when land defenders and environmental activists were arrested after they blocked and occupied the Burnaby tanker terminal in Burnaby Mountain, an ecological conservation area (CBC News, 2014). Tensions surrounding the construction of the pipeline continued (Johnson, 2016; McSheffrey, 2016) as First Nations, Indigenous groups, and ENGOs complained about deficiencies in the consultation and public hearing processes carried out by the Federal Government (Wilt, 2016). Yet, the Federal Government approved the controversial pipeline project in 2016, stating: "The decision we took today is the one that is in the best interest of Canada…it is a major win for Canadian workers, for Canadian families and the Canadian economy, now and into the future" (Justin Trudeau cited in Tasker, 2016).

In response to the TMX approval, First Nations, ENGOs, the BC government, and municipalities filed lawsuits against the pipeline to force the Federal Government, the Alberta Government, and the oil industry to reconsider their support for the project (Johnson, 2016a; CBC, 2017). In addition to legal challenges, public demonstrations against the pipeline mobilized a relatively high number of people, especially in Vancouver and Burnaby, BC, between 2017 and 2019 (Waisman, 2018). During this period, the TMX conflict was highlighted as the major pipeline conflict in Canada and brought up in connection with climate justice protests spreading across Canada and the US (Laanela, 2018)

On August 30, 2018, the Federal Court of Canada (FCA) overturned the NEB´s recommendation of the pipeline and the Federal Government's project approval (Trans Mountain, 2021). The FCA found that the NEB "unjustifiably defined the scope of the Project under review not to include Project-related tanker traffic on the BC coast…. and that the Federal Government failed to meaningfully consult First Nations (Tsleil-Waututh Nation v. Attorney General of Canada, 2018: 7). Consequently, the FCA ordered the NEB to establish a hearing process to reconsider marine shipping impacts, and the Federal Government to conduct further consultation processes with affected First Nations (Proctor, 2018). First Nations welcomed the court ruling but showed reluctance for the Federal Government to comply with environmental and Indigenous rights legislation.

One day after the FCA's decision, Kinder Morgan approved the sale of the TMX to the Federal Government for CAD 4.5 billion (Tasker, 2018), arguing that rising construction costs, mainly due to sustained social opposition, affected pipeline operations (Kinder Morgan, 2018). At this time, the Federal Government sought potential investors for the TMX, targeting First Nations (Varcoe, 2019) and presenting the project as an opportunity for economic development (The Canadian Press, 2019). In parallel, First Nations groups, such as the Project

Reconciliation, announced their interest in acquiring ownership of the TMX, stating “the owners of traditional lands should own the pipeline to take Canada’s resources to market. That’s reconciliation in action, and it will improve Indigenous lives” (Delbert Wapass cited in Corbella, 2019).

The TMX purchase caused bias in energy policymaking as the Federal Government became the project’s owner and proponent (Hoberg, 2021). Nevertheless, the FCA approved the pipeline on September 4, 2019, stating the Federal Government made a genuine effort to consult First Nations and reconsider the project’s environmental risks (Tsleil-Waututh Nation v. Attorney General of Canada, 2018, para. 771). In response to the FCA’s resolution, Khelsilem, spokesperson and councilor for the Squamish Nation, said the restart of pipeline construction work was “a disregard for Nation-to-Nation relationships, genuine reconciliation, and respect for Indigenous rights…” (Khelsilem cited in McIntosh and Wood, 2019).

The public debate around the TMX project, however, quickly shifted in the context of the COVID-19 pandemic (Ljunnggren and Johnson, 2020). In the face of the economic crisis, the Federal Government adopted a stimulus package for fossil fuel companies while the Alberta Government temporarily suspended environmental regulations, including monitoring of wetlands, Indigenous consultation, and GHG emissions reporting (Ministry of Environment and Parks Alberta, 2020; Weber, 2020). Amidst the spread of the coronavirus, the Canadian state saw an opportunity to move forward with the pipeline construction without facing protests (Cecco, 2020). While First Nations and ENGOs organized online protest events, they were unable to attract a large number of participants compared to demonstrations on-site.

Opposition to the TMX further experienced a major setback after the Supreme Court dismissed the remaining lawsuits to stop the pipeline in 2020 (Tasker, 2020; Cruickshank, 2020). Chief Leah George-Wilson of the Tsleil-Waututh Nation commented, “It was a disappointing step back, not just for the fight against the pipeline but for Canada's relationship with Indigenous people… but our opposition remains unchanged” (George-Wilson cited in Cruickshank, 2020). Following the Supreme Court’s ruling, the Federal Government resumed the pipeline construction but faced several economic challenges to complete it (Bulowski, 2022) until operations started on 1 May 2024 (Varcoe, 2025). As of the time of writing, sporadic anti-TMX protests are being held, but the strong opposition to this project has significantly declined (Habib, 2024). Indeed, Trans Mountain entered into confidential mutual benefit agreements (MBA) with more First Nations, some of which were originally opposed to the pipeline (Varcoe, 2023).

Chapter 5. Methodological approaches

This chapter presents a detailed description and analysis of the different qualitative methods employed to scrutinize the production, governance, and contestation of tar sands spaces. Among these are archival research, critical discourse analysis (CDA), document analysis (e.g., newspapers, online materials, and hearing sessions), participant observation, semi-structured and informal interviews, photography, and walking. Each one of these methods offers unique insights into the role of multi-scalar power relations in shaping the socio-material dimensions of tar sands spaces. Simultaneously, these methods have certain limitations, particularly for understanding the multiple and ambivalent perspectives of First Nations and Indigenous-led groups on the TMX. In addition to these limitations, this research was subject to the influence of external variables. Due to restrictions on international travel and public gatherings during the COVID-19 pandemic, as well as wildfires in Alberta while conducting fieldwork, it was challenging to engage with groups opposed to tar sands operations over a long period of time. As a result, I relied mainly on CDA, document analysis, and archival research, which partially limited my understanding of local dynamics of social organization and resistance against tar sands operations.

Yet, the selected methods provided a strong foundation for conducting this work. Archival research, participant observation, informal interviews and conversations, photography and walking, for example, were essential for writing the article on the production of tar sands spaces (chapter 6). Photography, for example, allows a direct observation of the physical form of tar sands spaces and the impacts of tar sands activities, such as deforestation and water pollution. Similarly, walking enabled me to engage with and critically reflect on the collective perceptions of tar sands spaces. Participant observation at anti-pipeline events and informal interviews and conversations complemented these methods by underscoring the importance of Indigenous-led mobilization in shaping the decision-making arenas and physical sites in and through which the TMX is governed.

Concerning the article on the Indigenous-led opposition to the TMX in BC (chapter 7), I relied on a wide range of physical and online materials (e.g., books, peer-reviewed articles, technical and policy reports, newspaper articles, speeches, websites, online conferences). An analysis of these materials, particularly those produced by ENGOs and Indigenous-led groups, was helpful to elucidate multiple forms of inequality and injustice arising from the TMX project that often remain hidden in official assessments of the project. Similarly, CDA and an analysis of official energy policy documents were the main methods used in the article on Canada's net-zero imaginary (chapter 8). Both methods were selected because they allowed an in-depth exploration of the discursive construction of net-zero as an imaginary in Canada's oil industry.

Specifically, these methods shed light on how this imaginary legitimizes fossil fuel expansion under the rhetoric of net-zero emissions.

Before outlining each one of the methods used in this research, I provide a concise but critical account of my positionality, which informed my epistemological and methodological choices underpinning this dissertation.

5.1 Researcher positionality

A key issue within Canadian settler colonialism and Indigenous resurgence literatures concerns the uneven relations in the production of knowledge between non-Indigenous researchers and Indigenous peoples. Academic institutions and researchers have historically played a substantial role, whether in direct or subtle ways, in rendering Indigenous epistemologies invisible by exerting control over what counts as knowledge, who has access to it, and who and under which conditions produce and disseminate it (Abbot & Cavendert, 2004). Even when Indigenous knowledges are incorporated into academic spaces, programs, and research projects, these may be co-opted and marginalized as academic institutions remain rooted in colonial legacies that continue to normalize the perceived superiority of Western hegemonic scientific and technical rationalities. Instead, knowledge is produced through specific social relations in specific contexts and places (Wilson, 2008). Thus, universal, objective, and detached knowledge from specific contexts is not possible. By reflecting on the social construction of authority and legitimacy over knowledge production, scholars in the fields of settler colonialism and Indigenous resurgence seek to develop a research agenda that problematizes settler colonial epistemic dominance and establishes pathways towards decolonization of academic research (Mackey, 2016).

Broadly speaking, decolonization refers to the struggles of Indigenous peoples for political but also intellectual, economic, and cultural self-determination. It includes reclaiming rights to autonomy, land, identity, language, and worldviews. In academic research, decolonization has meant reclaiming and validating Indigenous epistemologies, methodologies, and empirical knowledges and centering Indigenous peoples' concerns and research priorities (Kuokkanen, 2007). Rather than doing research on or about Indigenous people, researchers should engage with communities, incorporating them throughout the entire research process (Wilson, 2008). This distinction places emphasis on the importance of recognizing the decision-making authority of Indigenous communities regarding the definition of research priorities and ensuring that research directly benefits a community (Wilson, 2008). Without meaningful engagement with Indigenous peoples, research can result in the appropriation of Indigenous knowledge and/or the imposition of Western theories, methods, and perspectives.

While I do not claim that my research aims to decolonize prevailing discourses and practices related to tar sands operations, Indigenous resurgence and settler colonialism studies constituted valuable theoretical approaches for reflecting on my epistemic positionality and navigating the politics of conducting research in settler colonial contexts (Wilson, 2008; Mackey, 2016). In the initial phases of my doctoral research, these reflections played a minor role as I was more interested in exploring transnational tar sands governance, particularly the European Union's attempts to import fossil fuels from Canada. However, as I increasingly read more about the history of settler colonialism in Canada, it became clear to me that I had to thoroughly think about the implications of my research on Indigenous communities.

Critical scholarship on settler colonialism indicates that it is necessary for Canadian society, which has historically benefited from the wealth extracted from Indigenous territories and resources, to confront itself with the ongoing colonization of Indigenous peoples and rethink its responsibility in building renewed settler-Indigenous relationships (Mackey, 2016). This is a complex endeavor as tensions, mistrust, prejudices, and contradictions frequently characterize these relations. As a doctoral researcher from Mexico at a German university, my position on the research topic was characterized by ambiguities, as I did not have any prior research experience in the Canadian context or any connection with potential research participants. At the same time, it was clear that even a genuine interest in Indigenous perspectives on tar sands development may reinforce power-knowledge imbalances, which admittedly generated feelings of anxiety and frustration. Despite feeling overwhelmed, I sought to rethink my research project and modify my data collection methods to avoid reproducing uneven power-knowledge relations,

Shifting the focus away from Indigenous peoples towards collective resistance to tar sands projects highlights the responsibility of scholars to remove the obstacles to Indigenous self-determination and climate/energy justice through concrete actions (Grossman, 2017). To clarify, I did not attempt to speak on behalf of Indigenous peoples or propose possible solutions to the multiple challenges they face. Rather, I was interested in understanding under what conditions Indigenous-led opposition to tar sands operations emerged and how it is expressed through different discursive-material practices. Still, I recognized that the production and circulation of my research findings took place within and were subject to the constraints of Western academic structures.

5.2 Critical discourse analysis

One of the main theoretical and methodological perspectives used in this work is critical discourse analysis (CDA), which integrates diverse strands of research from multiple disciplines. Despite these differences, CDA generally refers to a perspective that examines the (re)production, maintenance, and resistance of social relations of power within geographical-historical contexts through the use of language in its multiple forms (e.g., speech, writing, images) (Fairclough, 1995; Keller, 2011; Alvesson & Sköldberg, 2018). From this point of view, discourse is historically contingent, socially constituted, and constitutive, and has tangible consequences (Keller, 2011). In this respect, prevailing discourses reflect and actively produce power relations that legitimize specific interests, epistemologies, knowledges, worldviews, and concrete practices (Waitt, 2016). Dominant discourses might appear stable, omnipresent, and monolithic, but they are characterized by instability, contradictions, ruptures, and external pressures (Waitt, 2016). Underlining the contradictory nature of discourses makes visible how discourses are used by subaltern social actors to resist the imposition of dominant discourses. As Fairclough (1995:186) reminds us: “CDA has aspirations to take the part of those who suffer from discursive forms of domination and exploitation.” Conducting CDA thus requires paying attention to the actors, procedures, technologies, and instances through which certain discourses become dominant in concrete situations and contexts while others are excluded or rendered invisible (Keller, 2011; Waitt, 2016).

Based on these insights, CDA served as a departure point for interrogating how tar sands spaces are discursively constructed. Consider, for instance, that the production and mobilization of discourses around tar sands development by the Canadian state and fossil capital actively configure space, permeate energy policy choices, underpin discourses of Canadian nationhood, and establish social consensus around the ‘need’ to extract tar sands. Furthermore, CDA allows us to recognize major shifts in the discourses of tar sands development and their (potential) material consequences, such as the deployment of the discourse on net-zero emissions in the fossil fuel industry and its manifestation in proposed plans to build or expand existing CCUS facilities. Likewise, CDA sheds light on how net-zero is questioned on the one hand by critical scholars, Indigenous groups, and ENGOs concerned about the lack of transparency and accountability of GHG emissions, and on the other hand by conservative politicians, business people, and think tanks advocating for a pro-fossil fuel agenda.

Applying CDA to the case of the TMX, I investigated the articulation of competing discourses around the pipeline. On the one hand, this method elucidated how the construction and deployment of the dominant discourse surrounding the pipeline legitimize land occupation, subsume Indigenous conceptions of the land into settler colonial rationalities and spatialities, and shape regulatory decisions for the environmental assessment of the pipeline (Davine, Lawhon & Pierce, 2017; Gunster & Neubauer, 2018). On the other hand, CDA was a helpful tool to explore how the Indigenous-led movement mobilizes discourses around self-determination and fossil fuel divestment to contest settler colonial discursive representation of land sovereignty and tar sands. CDA, therefore, helps us conceive discursive strategies as underlying components of the power relations that (re) shape and emerge from tar sands spaces.

To apply CDA, I first systematically collected, reviewed, and analyzed a wide range of sources of information on tar sands development, including but not limited to court records, legislation, policy reports, newspaper articles, peer-reviewed papers, public hearing transcripts, and newsletters. Equally important was the need to extend beyond document analysis and consider the modes in which discourses manifest in concrete practices and space, such as public demonstrations against pipeline projects. Doing so was useful to corroborate, refute, or expand the information gathered through document analysis. Based on my research questions and objectives outlined in the introduction (Fairclough, 1995; Keller, 2011; Waitt, 2016), I identified and developed a series of recurrent themes while reviewing and (re)reading the selected materials.

The term ‘theme’ refers to abstract, generic, and repetitive expressions and attributes of data that link ideas and meanings regarding a specific subject. Themes are not given but rather are the result of the researcher’s subjective interpretation of a specific subject. (Ryan & Bernard, 2003; Graneheim, Lindgren & Lundman, 2017). After data collection, materials were organized according to different descriptive and analytical categories (Waitt, 2016; Keller, 2011; Alvesson & Sköldberg, 2018). ‘Category’ is understood here as the description of data with similar characteristics on a particular issue and the subjective meanings attributed to it (Ryan & Bernard, 2003; Graneheim, Lindgren & Lundman, 2017).

As part of the CDA, I developed the following descriptive categories: *1) Context.* This category refers to the socio-historical, ideological, and geographical conditions in which competing discourses on tar sands are (re)produced. Here, I restricted my analysis to the ongoing legacies of land occupation and fossil fuel extraction in Canada because tar sands

conflicts cannot be understood without reference to these processes. Doing so involved examining the ideological, political, and legal-institutional structures within which conflicting discourses operate; *2) Authorship and intended audience.* Contextualizing discourses meant asking who and how discourses are produced. Who are the recipients of discourses? And how are discourses disseminated? (Alvesson & Sköldeberg, 2018); and *3) Silences and contradictions*. CDA required attention to the silences, ambiguities, inconsistencies, discontinuities, and contradictions within discourses on tar sands development. In line with my research objectives, I specifically looked at how the Canadian state and fossil capital downplay concerns over tar sands development raised by First Nations, ENGOs, and citizens in public discourse and energy decision-making. In addition, I considered how state and corporate actors make certain strategic concessions to co-op tar sands opponents and thus restabilize the dominant discourse (e.g., the implementation of net-zero policy). Conversely, attention was given to the type of evidence and knowledge used by Indigenous groups, First Nations, and ENGOs to call into question the arguments employed to justify tar sands expansion.

While useful, CDA has a number of shortcomings. First, it does not enable an in-depth exploration of Indigenous perspectives on tar sands operations, which manifest through Indigenous languages, stories, and oral traditions (McGregor, 2018). Second, and related to the previous point, CDA remains a method embedded in Western academic frameworks. Consequently, it has limitations in interpreting Indigenous conceptions of the land articulated and mobilized in conflicts over tar sands development (Castillo & Bruns, 2022). Third, it is challenging to study the individual and personal experiences of research participants concerning tar sands operations through CDA (Alvesson & Sköldeberg, 2018).

5.3 Newspaper articles

Newspaper articles were useful for gaining insights into the history of the TMX conflict and reconstructing a timeline of pivotal moments and junctures of this dispute, which also helped to orient conversations with research participants (see Nicholson, 2013). In addition, reading newspapers with different political and ideological positions sheds light on how they differently inform and shape opinions on the pipeline controversy (see Way, 2011; Raso & Neubauer, 2016; Ganowski, Gaede & Rowlands, 2018; Dusyk, Axsen & Dullemond, 2018). I gathered data from four newspapers: *CBC news, the Calgary Herald, the Narwhal* and the *National Observer* based on the following criteria: 1) *political bias and representativeness of key actors involved in the TMX controversy, specifically the Federal Government and the anti-TMX movement*; 2) *the quantity of media coverage on this topic;* 3) *the accessibility of paywalls, preferring free available articles over subscription-based ones; and* 4) *representativeness of public discourse on the TMX*. Although other newspapers also reported on events related to

the TMX, I found that the aforementioned media outlets most consistently met the eligibility criteria (Appendix 1).

Yet, it is important to highlight that this sample did not represent the full spectrum of the media debate on the TMX. First, CBC News's coverage of the TMX tends to favor the views of the Liberal Party, as most of its funding comes from the Federal Government. Second, the Calgary Herald is a regional newspaper (Alberta), whose editorial position and news stories prioritize the perspectives of the fossil fuel industry and the Alberta government. Third, compared to mainstream media, the Narwhal gives extensive coverage to the voices of Indigenous communities and groups resisting the TMX. Articles published in the Narwhal consistently provide a historical context of the disagreements on the pipeline that helps understand the connections between settler colonialism and tar sands development. In this way, the newspaper puts the spotlight on the injustices (re)produced by this pipeline project. Along similar lines, the National Observer, a liberal progressive newspaper, highlights the implications of the TMX on local biodiversity, the global environment, and nearby Indigenous communities. Stories published in the National Observer commonly make reference to the inadequate federal and provincial environmental and energy legislation to address the sociocultural and ecological implications of the pipeline.

To conduct a content analysis of the newspaper articles, I performed a search using the following keywords: "TMX," "Canada", "Indigenous peoples", "First Nations", "land rights", "climate", and "environment" over the period from 2012 to 2025. This period was considered adequate to give an overall picture of the history of the TMX conflict. A total of 6000 articles were retrieved. To determine whether the TMX conflict was the main topic of each news article, I paid attention to the presence and frequency of keywords in their titles and subtitles (Raso & Neubauer, 2016; Olive & Delshad, 2017). Notes mentioning the keywords in the text body were excluded from the search. Editorials and opinion pieces were not prioritized (Ganowski, Gaede & Rowlands, 2018) because I was more interested in how general and specific information about the TMX controversy was presented rather than in particular opinions on the topic.

Doing so narrowed my sample to 2000 news items, which were subject to closer analysis during the entirety of the PhD period. Using an inductive and iterative approach (Way, 2011; Dusyk, Axsen & Dullemond, 2018; Ganowski, Gaede & Rowlands, 2018), I read the selected articles to develop coding categories that reflected important features of the TMX conflict. Each article was organized into different coding categories: the theme(s) of each news story; the main actors presented in the article; and the positions on the TMX (in favor, against, or neutral).

To code the articles, I first searched for the most prominent and recurrent themes in each article based on the frequency of keywords, ideas, and issues (Way, 2011; Olive & Delshad, 2017; Ganowski, Gaede & Rowlands, 2018). Some news stories covered several

themes that fell into more than one coding category. To determine the most appropriate category for each theme, I considered which themes showed the strongest correlation to each category and better represented their essence (Ganowski, Gaede & Rowlands, 2018). I then compared the similarities and differences between themes to develop overarching categories that delineated the boundaries of the themes (Ranacher, Ludvig & Schwarzbauer, 2019). In addition to identifying the primary themes within the selected news items, I noted which themes were absent from them (Bazeley, 2009), as the examination of silences is an essential component of CDA.

To further refine the data, I paid attention to the shifting conditions and situations in which specific themes gained traction while others became less relevant (Bazeley, 2009). The coding was then completed when no further themes emerged. Some themes were similar to those discussed in the literature on fossil fuel pipeline conflicts in Canada, while others arose that I had not previously considered. I deliberately focused on those aligned with my research questions and theoretical framework, particularly on contested land rights claims around the TMX, because it allowed me to scrutinize the role of these claims in producing, representing, and disputing tar sands spaces. After re-reading the articles and refining each theme, a representative sample of 300 news items was left, covering the study period and all relevant themes. Most of the articles were retrieved from CBC News, followed by National Observer, The Narwhal, and Calgary Herald.

The media coverage on the TMX was organized into (sub)themes (Table 5.1):

1) *Legal dispute over the TMX approval*. This theme covers articles that describe the litigation strategies used by First Nations to exercise their rights to be properly consulted on the proposed TMX on their lands and demand a comprehensive review of its environmental impacts. Additionally, articles pay attention to the Federal Government's legal rationale behind the TMX approval and the Canadian courts' rulings related to the federal review of the pipeline project.

2) *Indigenous land rights*. This theme focuses on the wide range of actions undertaken by First Nations and Indigenous groups to secure and protect their rights to their lands and resources threatened by tar sands operations, including but not limited to lawsuits, street protests, and monitoring of pipeline construction activities.

3) *Climate justice*. This theme mainly covers articles that report on the concerns of Indigenous and environmental movements about the climate consequences at the global level of continued tar sands extraction and production. Some articles also refer to the strategies used by the Indigenous-led movement to pressure the Canadian government and oil corporations to divest from fossil fuels.

4) *Ecological impacts of the TMX*. Articles in this theme specifically report on the damage caused by tanker vessel shipping oil to the US and foreign markets on marine ecosystems.

5) *Economic costs of delays in the TMX construction*. In particular, this theme revolves around the increased costs, loss of potential oil revenues, and oil overproduction caused by the delay in the development of the TMX.

Table 5.1. Main themes and subthemes in the media analysis

Themes	Subthemes
Legal dispute over the TMX approval	Litigation strategies of conflicting parties Canadian courts' decisions on the TMX
Indigenous land rights	Strategies to assert land rights
	Complaints about flawed consultations
Climate justice	Climate change Fossil fuel divestment
Ecological impacts of the TMX project	Increased tanker traffic and potential oil spills
Economic costs of delays in the TMX construction	Increased costs and revenue loss
Indigenous communities' support for the TMX	Initiatives to acquire ownership of the pipeline

Source: Own elaboration

Concerning the distribution of the themes among the selected newspapers, most of the media coverage highlighted major anti-TMX protests across BC and followed the jurisdictional conflict between the Federal Government, Kinder Morgan, and the Indigenous-led resistance movement. In CBC News, the legal dispute around the TMX was the most recurrent theme. Most articles on this topic frequently displayed a "balanced" coverage, giving the reader different viewpoints of the main actors involved in the TMX conflict and presenting quotes, both for and against the pipeline. In general, articles are descriptive rather than analytical, as they rarely name and discuss settler colonialism as the root cause of the pipeline conflict.

In the Calgary Herald, most news stories concentrated around two themes: a) the economic consequences of delays in the pipeline construction and b) the attempts of different First Nation-based organizations in Alberta and BC to acquire partial ownership of the TMX. Concerning the first theme, articles usually featured representatives of the oil industry, the Federal and Alberta governments expressing concerns over increased construction costs as a result of delays. Concerning the second theme, the stories tended to frame Indigenous

communities' interest in purchasing equity stakes in the pipeline as a move towards economic reconciliation between Indigenous peoples and the Canadian state.

Conversely, the main themes in articles within the Narwhal were the legal and social efforts of Indigenous communities and groups to assert their rights over the lands crossed by the pipeline. While reporting information about the TMX, articles also offer insights into the personal experiences of community members directly affected by the pipeline or involved in active resistance to it. News articles appearing in the National Observer also pay attention to this issue but focus mainly on the environmental consequences of the pipeline, particularly on the risk posed by increased tanker traffic along the BC coast.

In addition to identifying the main themes, I noted which actors were more frequently cited in each article and classified them according to their position in favor of or against the TMX (see Dusyk, Axsen & Dullemond, 2018; Ranacher, Ludvig & Schwarzbauer, 2019). In line with my research goals, a vital exclusion criterion here for selecting data was to focus on actors who play a significant role in shaping the pipeline conflict dynamics and thus hold opposed views on the project, namely, the Federal Government and the Indigenous-led movement.

Special attention was paid to the First Nations, Indigenous groups, and, to a lesser extent, ENGOs leading the fight against the TMX. Quotes and paraphrased quotes of these actors were retrieved from the articles to illustrate the selected themes and demonstrate their representativeness (Ganowski, Gaede & Rowlands, 2018). Rather than merely presenting these quotes as evidence of the chosen themes, they were incorporated into my research only after conducting an analysis, comparison, and interpretation of data across a wide range of documentary material (Bazeley, 2009). Of particular relevance was to establish connections between each quote and the identified themes and compare the forms of evidence used by the conflicting parties to support their arguments (Dusyk, Axsen & Dullemond, 2018; Ganowski, Gaede & Rowlands, 2018).

Some new stories quoted actors presenting their perspectives. The Federal Government frequently cited economic reasons to justify the development of the TMX project. To attribute legitimacy to its arguments, the Federal Government relied on expert knowledge reproduced by government and corporate energy and financial reports, and future scenarios. By contrast, the anti-TMX movement commonly referred to Indigenous legal and governance systems, international legislation on Indigenous peoples' rights and climate change, and scientific evidence to contest the claims that legitimized the TMX. While other actors' views, such as fossil capital, provincial and municipal governments, and pro-TMX Indigenous communities, were presented in the selected material, it was beyond the scope of this work to explore them in-depth (Raso & Neubauer, 2016).

5.4 Hearing transcripts

Before proceeding to explain why I selected transcripts and audio recordings of public hearings on the TMX as part of my document analysis, it is necessary to provide a brief context of the public inquiries on this pipeline project. In 2013, Kinder Morgan submitted an application to the National Energy Board (NEB) for approval of the proposed TMX project (Government of Canada, 2025b). From 2014 to 2016, the NEB convened a public hearing process and undertook an environmental impact assessment (EIA) in accordance with the Canadian Environmental Assessment Act of 2012 to consider whether the project was in the public interest (CER, 2024f). After going through a selection process, a wide range of actors participated in the public hearings, expressing their views on the TMX and providing evidence on the estimated, perceived, and tangible benefits, impacts, and risks of the project. The NEB reviewed a vast array of written and oral evidence, including letters, Indigenous traditional knowledge, reports, testimonies and statements, and other materials. In 2016, the NEB recommended the TMX approval, subject to the imposition of 157 conditions, some of which were related to the mitigation of environmental damages and consultation with affected Indigenous communities (CER, 2024f).

However, in 2018, the Federal Court of Appeal (FCA) found deficiencies and irregularities in the approval process, ordering a temporary cancellation of the TMX and reconsideration of the EIA. Following this resolution, the NEB held hearing sessions between 2018 and 2019, albeit more limited in scope and number of participants, to consider issues that were not thoroughly addressed during the first review process (CER, 2024f). Based on the interpretation of the evidence submitted, NEB determined that the project should proceed and issued a certificate of public convenience and necessity (CER, 2024f). Afterwards, the NEB organized hearing sessions from 2019 to 2021 to accept comments from affected parties on the proposed actions to resume the pipeline construction (CER, 2024), which did not change the original decision to approve the project.

To understand why this happened, it is important to consider the uneven power relations at play in public hearings. Examining transcripts and audio recordings of the TMX public hearings from the perspectives of CDA and critical linguistics in legislative and judicial contexts is particularly useful here because it raises crucial questions, such as whose voice(s) are represented in these documentary materials? Who owns them? How accurate are these? And how and for what purposes are they used? (Richardson, Haworth, and Deamer, 2022).

These questions provided a departure point to analyze how testimonies in support of or opposition to the TMX are expressed in the transcripts and audio recordings. Written or oral testimonies represent valuable sources of information because, as part of discourses, they reflect subjective ways of experiencing, knowing, and interpreting reality based on truth claims (Patel, 2012; see also Strejilevich, 2006). As such, testimonies are always produced within

specific socio-historical contexts, imbued with moral and political meanings, and mediated through power dynamics. Thus, paying attention to the speaker's intentionality in testimonies and to the inconsistencies, contradictions, and biases of testimonies is central to their analysis (Beverley, 2004). To ensure the credibility of the data analysis, the information provided by testimonies was compared with data collected from other sources, such as documents, interviews, and statistics (see Choi, Fox & Dodge, 2022).

Previous research in energy justice has analyzed interconnected forms of (in)justice, namely procedural, distributive, and recognition, in the hearing process of large-scale, export-oriented fossil fuel pipelines in Canada. Much of this work documents the barriers citizens and Indigenous peoples face when attempting to influence energy policy and legislative decisions (e.g., partial hearings, short time notice to submit applications to participate in hearings, withholding of information about the impacts of proposed fossil fuel projects, limited scope of participation and issues remaining outside of scope). In this regard, public hearings are often seen as sites of control, discipline, and regulation of citizen and Indigenous participation through settler colonial legal orders (Veeraraghavan, 2004).

Simultaneously, public hearings, despite their institutional-ideological restrictions, can represent spaces in which counterarguments of fossil fuel pipeline projects, including understandings and conceptions of land, sovereignty, and the environment, are articulated, mobilized, and deployed by marginalized and subaltern actors (Hurlbert & Rayner, 2018). To examine the spatial dimensions of these injustices and their significance for the analysis of the configuration of tar sands, I complement the energy justice approach with insights from Guerrieri's work (2019) on the articulation and mobilization of conceptions of space and time of Indigenous communities in the Canadian Arctic during the 1970s in hearings of gas pipelines, which counter dominant state and corporate imaginaries of the Arctic as a promising geographical region for fossil fuel development.

Drawing inspiration from this body of literature and following a similar approach to analyzing other documents, I deliberately focused on written and oral testimonies presented by members of First Nations affected by the TMX and, to a lesser extent, representatives of ENGOs opposed to its construction (Table 5.2). The purpose of selecting and analyzing this data was to obtain valuable insights into the perspectives of communities and actors frequently underrepresented in energy decision-making processes (see Whitney, Evered, Patrick, & Lee, 2024). As in other pipeline hearing processes, the NEB unilaterally defines the rules and procedures for participation in the hearings, limiting the list of issues and topics allowed to be discussed and imposing strict criteria for participants[13] (e.g., constrained speaking times). In

[13] Indeed, the NEB defined two types of categories for participants: directly affected and commenter. Concerning the first one, the NEB (2018) considered "how the person uses the area where the project will be located, how the project will affect the environment, and how the effect on the environment will affect the person's use of the area". The NEB (2018), however, did not clarify how the assessment of

making the decision to prioritize marginalized actors, other viewpoints, such as those of the representatives of Kinder Morgan and the federal government, were left unexamined. Yet, the value of looking at underrepresented voices lies in casting light on place-based political projects and future visions centered on Indigenous self-determination and climate justice that go beyond settler colonialism and fossil capitalism (see Audette-Longo, 2017).

Table 5.2. Selected materials related to the TMX public hearings

Type of material	Number Duration	Content
Oral Indigenous Traditional Evidence hearing sessions	8 Volumes 16 hours	Testimonies regarding the impacts of the TMX on Indigenous livelihoods and cultures
Hearing Transcripts	36 Volumes	Evidence on the potential negative impacts of the TMX

Source: Own elaboration

Given the large number of First Nations, Métis, and ENGOs that participated in the hearing sessions, I narrowed my focus to the First Nations and environmental groups that played a key role in the struggle against the pipeline, particularly those located in BC, namely, the Tsleil-Waututh Nation, Stk'emlupsemc te Secwepemc of the Secwepemc Nation, Stz'uminus First Nation, Stó:lō Collective, Squamish Nation, Stó:lō Tribal Council, and the Shxw'ōwhámel First Nation. Yet, it is worth noting that the selected views are not representative of the opinion of all the 144 First Nations and Métis along the proposed pipeline, as some of them signed land use agreements for the construction of the TMX. Despite the large number of Indigenous communities, only 22 Indigenous groups held meetings with the NEB, and 35 Indigenous groups or individuals presented traditional oral testimonies. It is thus plausible to assume that the eligibility criteria set by the NEB for participation in hearings, as well as community-limited financial and organizational resources and capabilities — despite

these issues was carried out and only limited to noted that if an effect was "too remote or speculative" in its view, the applicant would not be classified as directly affected, which meant that it could not submit and present evidence, comment on drafts, and ask questions about the TMX. Participants that did not meet the established requirements were categorized as commenters, meaning that they were allowed to file letters of comment but not present arguments or asks questions.

funding provided by the NEB upon approval of the application — prevented Indigenous communities from engaging in the hearings (West Coast Environmental Law, 2019).

Although each First Nation has specific concerns relating to the TMX, I paid special attention to testimonies, particularly remarks or comments, that revolved around common overarching themes aligned with my research objectives: 1) Indigenous claims to land and self-determination challenging Canada's assumed sovereignty over the lands in which the TMX project was proposed; 2) real and perceived inequalities in the distribution of the political-economic benefits and socio-environmental costs of the TMX; and 3) the inclusion and exclusion of Indigenous and non-Indigenous communities' concerns, values, and forms of knowledge in energy decision-making procedures.

The selected comments, statements, and remarks were analyzed through the following descriptive codes: 1) the speaker's identity, 2) their position on the TMX project, 3) the issues explicitly expressed or implicit in particular testimonies, and 4) proposals to address the issues and concerns related to the TMX pipeline.

In addition to written transcripts, audio recordings of the hearing sessions were chosen because they provide a more accurate representation of verbal interactions than the former. This is due to the fact that audio formats contain relevant features of spoken language, such as pace, pauses, silences, tone, and intonation, which are lost in the process of transcribing into written records (Richardson, Haworth & Deamer, 2022). In this sense, hearing the transcripts, particularly the Indigenous traditional evidence proceedings, allowed access to more personal reflections of participants and a range of multiple emotions about the proposed TMX (e.g., hope, pride, frustration, and disappointment) expressed through speech that might not have been possible with other methods, such as interviews (see Cottingham & Erickson, 2020).

Given my lack of ties with Indigenous communities along the pipeline, audio recordings of transcripts were a useful source of information on Indigenous views. Yet, they were limited in the sense that they were produced and defined within the legal-institutional and ideological frameworks of the settler state. To illustrate this point, consider that the exclusion of oral evidence presented by Indigenous intervenors in their native languages was partly due to their decision to hold it in confidence but mostly because hearing processes are essentially conducted in the official languages in Canada, that is, English and French (see Audette-Longo, 2017). This exclusion, I argue, hinders our understanding of how Indigenous heterogeneous perspectives are expressed through native languages. A Chief of the Stk'emlupsemc Te Secwepemc Nation in BC drew attention to this issue during an Oral Traditional Evidence Session:

“ I'm not allowed -- we cannot -- well, I wouldn't say I'm not allowed, but if I use my language, it's not -- it has never been recorded in any of your documents when I've used my language. And that is wrong, especially today when the -- yesterday when the Prime Minister of Canada announced that they’ve recognized in legislation there will be developed Indigenous languages across this country. I'm allowed to use French, I'm allowed to use English, but not my language. So those are the reasons that I object to this process. It does not respect us as a Nation of people. Having said that, I will engage in this process so that we don’t – are not -- we don’t lose by default as a result of non-engagement” (Ron Ignace cited in NEB, 2018)

Concerning the Oral Traditional Evidence Sessions at the NEB in 2018, I followed a slightly different approach for content analysis. This choice had to do with the format of the Sessions, which enables community members to talk more extensively and in detail about specific concerns. Some of these are unique to the history, geographical context, and livelihood sources of each First Nation. Newspaper articles and written reports, on the other hand, do not always offer these opportunities, particularly for those First Nations whose perspectives were underrepresented in the media and public debate on the TMX. Given that these sessions are based on highly personal experiences, untied to a specific theme, and do not follow a structured sequence, a keyword search proved to be an unfruitful method for identifying the main themes discussed in the sessions. An initial review of the transcripts revealed that many of the keywords used for analyzing media coverage of the TMX (e.g.,) did not appear in the hearing transcripts. A more productive approach was to prioritize those interventions held by members of First Nations actively involved in the legal fight against the TMX. This decision narrowed my sample to testimonies out of a total of 20 individual testimonies held as part of the hearings on the TMX.

Oral Traditional Evidence Sessions, despite their limitations, allow Indigenous peoples to convey their knowledge in the form of stories, beliefs, memory, and collective/individual experiences. Here, I searched for significant differences between Indigenous knowledges and the Western technical knowledge informing the Canadian state’s decisions on the TMX. While I did not assume that these forms of knowledge were irreconcilable in energy and environmental governance, I recognized that major power imbalances between First Nations and the Canadian state shape decision-making processes around the TMX, including the assessment of the potential benefits, impacts, and risks of this project.

Indeed, during the 2014 NEB hearing sessions, NEB representatives clearly stated before each intervention of First Nations members the following: “These hearings are not to hear evidence that will be filed subsequently in writing including technical and scientific information, opinions or views, advice to the Board on whether to recommend approval of the project or the terms and conditions that should be imposed, or questions to the Board or other

participants" (the Chairman cited in NEB, 2014). In addition, common complaints among First Nations included insufficient financial and human resources to review the lengthy application process to participate in the NEB hearings and prepare the evidence to present it. Despite the delegitimization of Indigenous voices in the hearing sessions, the importance of listening to and reading the transcripts lies precisely in bringing these voices to the fore in the analysis of the TMX conflict.

Connected to the previous point, I went over the transcripts without setting a predefined set of categories to identify the most frequent and consistent themes covered across the individual testimonies. After finishing the first reading, I coded the documents into three broad categories: 1) foundational stories explaining the origins of certain Indigenous communities; 2) personal memories and experiences about the close relationships between nature and communities; and 3) concerns about the effects of the pipeline project on Indigenous livelihoods, cultures, identities, and the environment. The first two categories were the most recurrent in the transcripts but were not directly related to my research questions and theoretical frameworks, which further limited my data sample to 40 testimonies.

I then conducted a closer reading of the transcripts with a focus on the third category. Rather than examining a specific impact or discussing the reliability and credibility of Indigenous oral evidence, I was interested in testimonies related to the sociocultural, economic, and ecological meanings ascribed to Indigenous lands already or potentially affected by the TMX. Based on this premise, I selected 15 testimonies and organized them around the main topics they revolve around, namely, intrinsic connections with the land, the water, and non-human beings, and their collective, inter-generational responsibility to protect the environment. A focus on these testimonies was essential to explore the contested nature of tar sands spaces because they cast light on how spaces organized around bitumen transportation are conceptualized, inhabited, and contested by First Nations members opposed to the TMX. When examining the testimonies, I did not rely on any of the theoretical frameworks used in this research, as these emerge from within particular epistemological frameworks, sociohistorical experiences, geographical contexts, and political-economic realities.

Virtually all Indigenous intervenors made clear that the Canadian state had systematically failed to engage with First Nations in meaningful conversations about the multiple implications of the TMX project on their traditional territories. As expressed by a member of the Shxw'ōwhámel First Nation: "*Shxw'ōwhámel, like other First Nations, was not consulted in the design of this process…It is not appropriate for this process to be designed unilaterally and in a hope to fulfill these obligations without first engaging in how this process would be undertaken"* (Catherine Fagan cited in NEB, 2018a).

One of the most recurrent concerns pertains to the consequences of the TMX on marine wildlife, specifically on Chinook salmon and the Southern resident killer whale, both of which are of cultural and spiritual significance for First Nations. NEB has indeed recognized that "effects from the operation of Project-related marine vessels would contribute to the total cumulative effects on the Southern resident killer whales and would further impede their recovery" (NEB, 2016: Xii). A testimony given by a Councilor of the Kwantlen First Nation in BC illustrates this point:

"We are the river. The river is us. We are connected to that river. We are responsible for the health and well-being of that river, and in turn, it is responsible for our health and well-being….We have, for generations, had longstanding connections to the river, many settlements and village sites all throughout the river, as the Fraser River connects to the ocean. It is our access way to do so many different areas that we have harvested traditional foods, medicines, our trade routes with other families and communities. It has been the provider for us of food sources that our people rely on" (Tumia Knott cited in NEB, 2018b).

On this issue, an elder of the Stz'uminus First Nation in BC mentioned:

"Our people have strong beliefs of spirits, strong belief of speaking to our spirits, our ancestors. We really strongly believe that like my grandmother said, we pray, we ask. We ask for those messages. And we believe that the killer whale is an ancestor of someone's ancestor, our ancestors. They come in many forms. And I believe that if we lose the killer whale, we lose some of our teachings, our teachers. We lose that spirit that is needed for our survival, just like we need seafood, we need the land, we need the animals. And I keep saying that they are our spirit, they are our people. We all have that strong belief" (Harris cited in NEB, 2018).

Along the same line of thought, a member of the Stk'emlupsemc te Secwepemc Nation in the interior of BC spoke about the repercussions of increased marine traffic for community members:

The Secwepemc, we predominantly fish the interior of British Columbia, including the south and north Thompson watersheds… We rely on the returning salmon species for sustenance as part of our Indigenous economy, and lifestyle, culture. We are responsible here… for the conservation of the ecosystems, the salmon species, and other stocks, including their food sources and their habitat….So we have a holistic approach to understanding our territory and the connectivity of waters, and the fish, and everything, the air, and everything that impacts it all together…So when we speak to tanker traffic and its impacts and possible

threats of spills and other types of incidents, we are extremely concerned about that happening and its impacts to the returns of the fish here that we rely on for our cultural and food fish here in the territory. And our responsibility is to speak to that as well. We cannot -- we cannot recognize a separation of a marine and freshwater area for discussions here with the National Energy Board (Travis Marr cited in NEB, 2018d).

The notion of close cultural relationships with animal species in First Nations was radically different from the NEB's approach on the EIA of the TMX. Indigenous conceptions of human-non-human interconnectedness problematize settler colonial understandings of space and space-making practices. They make visible the complex networks of multi-layered human-environmental interactions and symbolic meanings embedded in specific places. For instance, the importance of fishing to the health, subsistence, and culture of Indigenous communities was a relatively common theme covered at different hearing sessions. A member of the Musqueam Indian Band in BC, whose economy relies on fishing, expressed concerns about the impacts of a spill on " the *species that Musqueam harvest in their territory. Fishing for Musqueam is not just about food, but it's about culture, economy, and who the Musqueam people are as a people. The loss of aquatic resources cannot be adequately compensated by economic gain or opportunity"* (Aaron Wilson cited in NEB, 2018c).

The previous quotes are illustrative of the holistic approaches adopted by several First Nations when assessing the far-reaching consequences of tar sands distribution on their lands. This is exemplified in the testimony of a Chief of the Stó:lō Collective:

"One of the things, the effects on those stocks, on everything that's in the water, on the wildlife in general, the desecration of our sacred places, the places where we gather. We've seen the health of our people deteriorate. Health experts and others have pointed to causes of diabetes and other diseases amongst our people to the change in diet, the lack of access to our traditional foods, the lack of access to that which comes from the waters, and the destruction of that which comes from the waters. I think the vessel traffic that occurs now on the Salish Sea and at the mouth of the Stó:lō has already done so much damage that I don't know that we can recover from that. I don't know that the wildlife, I don't know that the fish and everything else…I don't know if that can be recovered. (Dalton Silver cited in NEB, 2018e).

Drawing attention to the influence of long-standing colonial practices on the loss and degradation of communal resources and lands, a Chief of the Squamish Nation stated:

"When you go beyond the salmon fishing heyday and the collapse of the salmon fishery due to Western management practices, you then have oil, gas, and mining, which represents another succession of a gold rush mentality to access our resources outside of treaty, atop of our Aboriginal rights and title… where we did not cede or surrender our title, our jurisdiction, and our authority to our homelands and waters…So this project and these oral submissions are directly related to that broader context of relationship and 150 years of systemic oppression…We need to move beyond the old narrative in Canada that tried to alienate us and marginalize us from decision-making, so we've continued to advocate for a framework that would look to share decision-making, economic participation, and environmental stewardship… because the state of the orca, the state of the salmon, the state of our Squamish Nation language and our culture are symptoms of Western management practices hat imposed regimes that were adversarial and detrimental to our entire way of life" (Jamie Arbeau cited in NEB, 2018e).

Through land commodification, tar sands governance frameworks tend to reduce the complexity of socio-ecological processes and relations by assuming that the impacts of fossil fuel projects can be properly managed through state or market-based mechanisms. This is not to say that energy and environmental governance frameworks are completely inadequate or that there could not be any successful examples of collaboration between Indigenous and Western knowledges in environmental management and conservation practices. Rather, the point is that an overwhelming majority of the testimonies of Indigenous inventors agree that the procedures regarding the planning and implementation of the TMX did not incorporate their knowledge of the local environment, which could have significantly contributed to improving environmental governance practices. A member of the Stk'emlupsemc First Nation explained:

There's been a series of studies done throughout Stk'emlupsemc by the FSN, the Kamloops Indian Band, Skeetchestn, and also our ancestors pre all this government recording and et cetera of -- of First Nations' recognition of rights and title... But we've -- we've always managed and monitored our stocks and the ecosystem's health through all types of -- even just oral history and speaking amongst the knowledge keepers and the fishing…There's also been studies of the impacts of marine spills, damage to salmon species not only just the species themselves, but the food chain, the part of the holistic circle that's required for their survival, both out in the marine area, which would include plankton, zooplankton and invertebrates for their food source like shrimp. Those would be impacted as well…Part of that entire life cycle is also the orcas' reliance on Chinook… We've known that for quite some time, but it's -- it's the government that will rely on that western science…but First Nations needs to

get on those -- the statements that First Nations have put forward for many years, for me for 20 years seeing the depleting stocks (Travis Marr cited in NEB, 2018d*).*

Likewise, the Tsleil-Waututh Nation conducted its own assessment about the impacts of the TMX on their land rights, concluding that "oil spill will quickly spread and affect the Burrard Inlet, render cleanup efforts ineffective and interrupt traditional subsistence harvesting practices" (Tsleil-Waututh Nation, 2016). This assessment supported the Tsleil-Waututh Nation argument to reject the project as it "would significantly interfere with Tsleil-Waututh's jurisdiction and control over its lands, waters and resources…without its consent and against its informed and deliberate decision to say no" (Scott Smith cited in NEB, 2016a).

5.5 Online events against tar sands operations

Indigenous groups and ENGOs have increasingly incorporated social media platforms into their strategies to stop the expansion of new oil and gas pipeline projects, including the TMX. Facebook, X —formerly known as Twitter—and YouTube constitute an important tool to raise awareness of the socio-environmental issues related to the construction and operation of fossil fuel infrastructures; encourage collective action against them; promote fundraising, among other activities (Thorson et al., 2013; Basch et al., 2017; Smith et al., 2023). The importance of social media becomes visible in the case of the TMX, as much of the mobilization, organization, communication, and interaction occurs through online platforms. The use of these platforms, however, is characterized by contradictions. While social media can be "a space of contention and a venue for disrupting conventional understandings of energy" (Szeman et al., 2013:2), it has limitations in challenging the power of fossil capital and the Canadian state and building alternative energy futures, as it is deeply rooted in capitalist power structures. Further, social media has a limited capacity to mobilize collective action and encourage citizen participation in energy governance (Szeman et al., 2013).

As climate strikes and protests against the TMX moved online due to the COVID-19 pandemic, digital platforms and meetings, such as webinars, became a relevant source of information and updates on the resistance movement to this pipeline. Although virtual events cannot replace direct engagement with land defenders and environmental activists and observations on site, they nevertheless offer an effective way to explore collective and individual experiences regarding the consequences of the TMX. The analysis of social media content posed significant challenges given that the discourses on the TMX circulating in digital platforms such as YouTube, Facebook, Twitter, or Instagram are mobilized by multiple users and are not as clearly structured around specific themes as those present in other media, such as newspaper articles, academic papers, and reports (Bakarjieva et al., 2018). Specifically, I focused on content posted on YouTube, with special attention to the framings of justice that

are deployed and mobilized in videos. Thus, one of the main limitations of online content analysis was the exclusion of material posted on Facebook or X accounts, which is characterized by another type of language, more accessible and emotionally charged compared to newspaper articles, webinars, and online events.

A simultaneous keyword search was performed on the video titles, tags, and descriptions using the following terms: “Trans Mountain Pipeline”, “TMX”, “oil”, “First Nations”, and “Indigenous”. Duplicated videos appearing in multiple search terms were excluded. Videos were classified in terms of their upload source, upload date, number of views, number of comments, type of content, and main themes (Table 5.3). Inclusion criteria used for the selection of videos were a) the trustworthiness of information sources, b) the representativeness of First Nations’ perspectives, and c) the timeline of the conflict. Concerning the first criterion, I chose videos uploaded by official YouTube channels rather than those uploaded by individual users because they represented a more credible source of information.

Indeed, the majority of the videos examined were posted on the CBC News channel, possibly because it is the major news broadcaster in Canada with an established presence on social media channels. Regarding the second criterion, I focused on videos featuring formal interviews, roundtables, and rallies with representatives from First Nations opposed to the TMX. Given my interest in prioritizing Indigenous critical voices, videos presenting the viewpoints of journalists, experts, government and industry representatives, and First Nations supporting the pipeline were not considered for the analysis. With respect to the third criterion, I searched for videos from 2012 to 2025 but concentrated on the periods when tensions between the conflicting parties were the most intense, namely, prior to the TMX approval in 2016 and after its temporary cancellation by the FAC in 2018. A total of 56 results were returned during this search.

Table 5.3. Analysis of TMX-related videos

Title	Year	Video upload source	Type	Number of views	Number of comments	Code
Kinder Morgan pipeline protesters arrested in B.C.	21.11.2014	CBC News	Informative report	7.442	Disabled comments	Mobilization against the TMX
Indigenous Resistance Can Stop Pipelines	02.04.2017	Coast Protectors	Roundtable discussion	551	Disabled comments	Consultations with First Nations Ecological impacts of the TMX
Violence Against the Land is Violence Against Women	02.03.2018	Indigenous Climate Action	Roundtable discussion	1047	2	Violence against Indigenous women Ecological impacts of the TMX
Protect the Inlet rally against Kinder Morgan in Burnaby	12.03.2018	National Observer	Informative report	2.865	25	Mobilization against the TMX
The First Nation that believes it can stop Kinder Morgan	13.04.2018	APTN News	Interview with the Chief of the Cold Water First Nation	1.510	Disabled comments	Consultations with First Nations
Mounting opposition to proposed Trans Mountain pipeline expansion	11.05.2018	APTN News	Roundtable discussion	2.075	Disabled comments	Consultations with First Nations Mobilization against the TMX
Opposition to pipeline still fierce in B.C	30.05.2018	CBC News	Informative report	2.916	Disabled comments	Mobilization against the TMX
Is Trudeau's pipeline buyout a betrayal?	03.06.2018	CBC News	Interview with a representative of the Squamish Nation	8.672	107	Consultations with First Nations FCA's decision to cancel the TMX
Canada Bailout of KM: Indigenous Voices from the Frontlines	12.07.2018	Indigenous Climate Action	Roundtable discussion	113	0	Mobilization against the TMX Fossil fuel divestment
B.C. First Nations celebrate Trans Mountain court decision.	31.08.2018	CBC News	Interview with a representative of the Squamish Nation	7.038	Disabled comments	Consultations with First Nations Ecological impacts of the TMX
Trudeau has a big problem ahead of him says Clayton Thomas-Muller	07.11.2018	APTN News	Interview with a representative of 350.org	178	Disabled comments	Consultations with First Nations Mobilization against the TMX
In Conversation with Kanahus Manuel.	03.09.2020	National Observer	Interview with Tiny Warriors	338	4	Mobilization against the TMX Ecological impacts of the TMX
Divestment from an Indigenous Perspective	15.02.2022	Indigenous climate action	Roundtable discussion	365	0	Mobilization against the TMX Fossil fuel divestment

Source: Own elaboration

Most of the selected videos were uploaded during 2018, probably because in that year the anti-TMX movement gained more media attention following the FCA's decision to halt the project due to inadequate and deficient consultations and EIA carried out by the Federal Government. The overall length of videos ranges from 7 to 15 minutes. With respect to the levels of user/consumer engagement, most videos were not among the most viewed and commented on the YouTube channels examined. This marginal visibility could be attributed to the limited amount of media coverage the TMX conflict received compared to other political and economic events that might have gotten more media attention at the national level. In my data sample, CBC News videos exhibited the largest number of views and comments, again, probably because of their established digital presence. Unsurprisingly, videos made by Indigenous and grassroots groups had significantly lower levels of user engagement due to the organizational and financial challenges of reaching wider audiences and raising their media visibility.

With respect to the type of content, CBC videos usually featured 3-6-minute interviews with First Nations spokespeople about their reasons for filing lawsuits against the TMX and their views on court decisions regarding the pipeline project. News anchors also confronted interviewees with counterarguments made by the Federal Government or Trans Mountain in an attempt to show no bias and portray neutrality. By contrast, videos of the Aboriginal Peoples Television Network overwhelmingly reported on the views of First Nations fighting the TMX project in the form of 20–25-minute roundtable discussions and interviews with Indigenous community organizers and frontline defenders, such as Kanahus Manuel, leader of Tiny House Warriors, and Clayton Thomas-Muller of 350.org. In a similar vein, the National Observer and grassroots organizations, such as Indigenous Climate Action, produced 45-minuted-to-1-hour videos with a less structured format than news broadcasters, allowing Indigenous participants, mainly frontline defenders such as Eriel Deranger of Indigenous Climate Action, and First Nations Chiefs such as Chief Bob Chamberlin of the UBCIC, more time to speak freely about their concerns over the TMX and explicitly call for support for their cause. Despite their flexibility, the format of the videos did not include questions from the virtual audience, which would probably have been advantageous in terms of public engagement.

Applying an inductive and iterative approach, I watched the videos and carefully read their transcripts, which in most cases were available, several times to identify the main themes and subthemes around which each video revolved, the central actors featuring in them, as well as the absent themes (see Way, 2011; Olive & Delshad, 2017; Ganowski, Gaede & Rowlands, 2018). The transcripts were then coded based on the recurrence of key issues and observable trends in First Nations members' comments about the TMX and based on their relevance to

the research questions. The central themes addressed in the videos were as follows: 1) deficiencies in the TMX consultation process, particularly the infringement of Indigenous peoples' rights to FPIC and their ancestral territories; 2) deficient preparedness and responsiveness government plan in the event of an oil spill on the BC coast and its effects on the environment, local livelihoods, and sites of cultural and spiritual value for First Nations; and 3) implementation and assessment of strategies to pressure oil corporations and financial entities to divest from tar sands projects. Other relevant topics, at least to certain Indigenous groups along the pipeline route, but less frequently mentioned or completely absent from the videos, particularly from those of CBC News, included the use of law enforcement agencies to remove land defenders from protest camps in the path of the TMX. The reasons for this omission might be the downplaying of this issue as not meriting media coverage or a deliberate decision to overlook information to avoid any potential damage to the public image of state institutions.

Through coding, I recognized explicit and implicit ideas in the transcripts, made connections between themes and subthemes, and distinguished commonalities and differences among them. Notably, many of the videos contained information already collected through an analysis of newspaper articles and other materials and, therefore, were excluded from this study in order to avoid repetition. In this sense, although no new themes were detected, I found a few additional and nuanced information related to the concerns and political interests of some First Nations. As a result, I obtained a small and manageable sample of videos, which was compatible with my research goals, particularly for examining the role of discourses by the Indigenous-led movement in confronting tar sands operations. Here, extracting quotations from the video transcripts was particularly useful for illustrating key aspects of the discursive strategies articulated and mobilized by First Nations against the TMX.

By focusing on the unifying threads that characterized Indigenous viewpoints, I sought to organize them into a coherent storyline for further analysis. Taken together, the identified themes and subthemes provided a relatively comprehensive picture of the motives underlying the First Nation-led opposition to the TMX project. First Nations frequently cited the systematic failure to recognize and respect Indigenous title and rights as a central reason for demanding a proper, fair, and thorough land-use consultation process with the Federal Government. By way of illustration, the Chief of the Cold Water First Nation said: "We raised serious issues about the adequacy of the consultation undertaken by the Federal Crown, especially in relation to clean water supply in our community and for generations to come" (APTN, 2018).

In addition to deficient consultation, the underestimated ecological risks posed by increased oil vessel traffic and oil spills to Indigenous livelihoods and ways of life were sources of concern and tensions. As indicated by the spokesperson for the Squamish First Nation (CBC, 2018): "We had a lot of serious concerns…related to the lack of a plan…for the event

of an oil spill…our position as a nation, as a government is that we have a jurisdiction to have control and influence over what happens in our territory". Overall, the above-mentioned observations are in line with the findings of the content analysis of the media coverage of the TMX, the NEB hearing transcripts, and other critical documents on the TMX dispute.

5.6 Interviews and informal conversations

As part of the fieldwork, I conducted interviews and informal conversations (Appendix 6). As previously mentioned, doing fieldwork within Indigenous contexts involves critically and permanently reflecting on one's positionality and its role within colonial structures of knowledge production. Approaching the tensions surrounding the TMX conflicts entailed careful thought about engagement with pipeline opponents and First Nations, given their possible reluctance to talk to foreign and outsider researchers. At the beginning of my research journey, I intended to establish collaborative relationships with Indigenous communities fighting the TMX and, if possible, work together in the definition of key aspects of the research project, attending to their concrete needs and interests.

In order to prepare myself for the fieldwork, I undertook an extensive reading of the literature on settler colonialism and Indigenous methodologies in the Canadian context. As I further read on this topic, it became clear to me that my initial plans would most likely not be realized, as I would have to spend a significant amount of time building rapport with Indigenous communities to get access to the field and then carry out the research project. Due to budget and time constraints, I abandoned the idea of contacting certain Indigenous groups and instead worked through the power structure of Band Councils of First Nations as the most appropriate method to conduct interviews.

However, I was never successful in getting a meeting with any representative of Indigenous groups. There was a combination of factors that could have played a role in why I never received a reply to my inquiries via email and phone. A critical reason might have been that several Indigenous communities have limited human and financial resources to deal with pressing issues (e.g., unemployment, high suicide rates among youth, housing conditions, and lower levels of education). Therefore, responding to an outsider researcher interested in a specific issue was probably not a high priority (see Doolittle, 2016). Even if other actors, such as ENGO members, introduced me to First Nations, it was not possible to establish contact or build long-term relationships to conduct interviews.

On a personal level, not getting direct access to potential research participants in the way I envisioned, although I knew it was going to be difficult, felt like a personal failure. At first, this presented a problem, in that if I could no longer engage with members of Indigenous groups or First Nations, then I was not sure what I would write about. Thus, I felt the only way

to move forward was to focus on the alliances between the different groups and organizations encompassing the anti-TMX movement.

The purpose of conducting interviews and informal conversations was threefold. First, explore the motivations of environmental and land defenders to oppose the TMX and their concerns about the perceived and real effects of the pipeline and its related infrastructure. To avoid restricting my inquiries to specific types of impacts, whether environmental, economic, or social, I asked open-ended questions. Second, examine protestors' views on the role of Indigenous self-determination in the TMX conflict. And third, analyze their perspectives on Canada's energy and climate policy (Appendix 5). Due to the controversial nature of the TMX project and its potential impact on the mental health of people living near the pipeline, I was cautious when designing the interview question guide. A total of 27 interviews and informal conversations were considered for this research based on different criteria: 1) their thematic relevance for this research; 2) the participants' involvement in the battle against the TMX and their expertise in Canada's net-zero policy in the oil sector; and 3) the point at which interviews and conversations began to corroborate existing findings rather than providing new insights.

Potential interview partners were primarily identified through document analysis and selected based on their affiliation with key ENGOs and groups opposed to the TMX. Securing access to them largely depended on people who acted as gatekeepers and opened doors to other research participants (Appendix 6). Among the identified groups were Respecting Aboriginal Values & Environmental Needs (RAVEN), Burnaby Residents Opposed to Kinder Morgan Expansion (BROKE), Dogwood, Greenpeace, Ocean Living, PIPE UP Network, Force of Nature, Wilderness Committee, and the David Suzuki Foundation.

In addition to ENGOs, I sought to reach representatives of the Federal and Alberta Governments, as well as Trans Mountain. Although it lies beyond the scope of my work to provide a comprehensive analysis of all actors involved in the TMX controversy, I was interested in having a more nuanced insight into their perspectives and interests regarding tar sands operations. Yet, my efforts to reach out to these actors were unsuccessful as they did not reply to my interview requests via online or telephone. Given my stance on the TMX controversy, I was aware that the likelihood of a positive response from these actors was low.

Other potential interviewees included researchers and professors at different universities in Canada, whose work on Indigenous issues and resource extraction might offer clarity and orientation for my research project. In my first and third fieldworks, I met professors at the University of British Columbia, Simon Fraser University, the University of Victoria, the University of Calgary and the University of Alberta.

Before travelling to Canada, I attempted to establish initial contact with ENGOs and groups via email and phone. In the case of Dogwood, Greenpeace, Force of Nature and the David Suzuki Foundation, they briefly mentioned that they were not as heavily involved in anti-

pipeline campaigns as they had been during the initial stages of the TMX conflict. Consequently, they could not provide much updated information on the subject. Other ENGOs and groups, such as RAVEN, BROKE and Wilderness Committee, responded positively to my requests and agreed to meet me once I arrived in BC. PIPE UP Network and Ocean Living also expressed interest in meeting me, but due to conflicting schedules, the meetings never took place while I was in Canada.

Before meetings with representatives of RAVEN and Wilderness Committee, I found out as much as I could about these ENGOs and prepared an informed consent form with detailed information about the research project (Appendix 2). In the case of the Wilderness Committee, I had an online conversation and exchanged emails with a representative before my trip to Canada. This exchange proved to be useful for gathering initial information about the overall situation of the protests against the TMX pipeline at the time and, more specifically, about the Wilderness Committee's strategies to stop the project. However, the in-person interview at the organization's offices in downtown Vancouver did not provide any further valuable information that I had not already received. Although I asked different questions, they were not designed to extract additional data, showing the importance of tailoring questions for specific situations.

By contrast, the meetings with RAVEN and BROKE unfolded in a different manner in the sense that participants shared more openly their perspectives, contributing to more fluid conversations. Both meetings were also crucial in that they provided more information about anti-TMX demonstrations, which I eventually attended to meet more people involved in the protests against the TMX. While attending these events, I met members of other ENGOs in Vancouver and Burnaby that I had no previous knowledge of. Among these were Climate Convergence and Stop TMX, which have played an active role in mobilizing collective action against the pipeline project.

An important observation regarding protests is that it was difficult to conduct interviews, as most people I spoke to requested not to be audio recorded when I asked if I could interview them, or did not want to read the informed consent form I prepared. This reluctance was probably due to my status as an outsider researcher with no prior relationship with them and to concerns about state surveillance of TMX protesters. Indeed, protestors and land defenders I met were jailed for obstructing or impeding access to the construction site of the TMX and its marine terminal in Burnaby (see Crosby & Monaghan, 2016).

A more useful approach was therefore to engage in informal conversations, which allow more 'authentic' interactions (see Swain & King, 2022; Davis & Brown, 2024; Barone & Swain, 2025). I started conversations by introducing myself as a Mexican Ph.D. student from the University of Trier in Germany and briefly explaining my project and research objectives. Then I proceeded to ask general questions about why people had joined the protest and what their

goals were. My political affinity with the protests and the composition of demonstration attendees most likely facilitated conversations. Most attendees were older people and young adults identified with progressive ideas (e.g., environmental/climate justice, cultural and gender diversity, and antiracism).

During demonstrations, I took field notes, photographs, and videos of protest locations, demographics, atmosphere, speeches, and informal conversations with attendees (see Swain & King, 2022). Informed consent for photography, video recording, and note-taking was obtained orally from participants after ensuring that any collected data would be anonymized through alphanumeric coding to maintain confidentiality and would be used solely for research purposes (see McCurdy & Uldam, 2013). During the fieldwork, I engaged in several informal interactions at demonstrations and in follow-up meetings, of which I selected 18 due to their relevance for my research goals (Appendix 6). After protests, I usually had the opportunity to ask more in-depth questions about the participants' concerns about the pipeline project and their views on how Canadian energy/climate policy should be implemented. Following the conversations, communication was maintained with some participants via email, phone, or online meetings, and participants were de-identified and referred to as representatives of their respective groups. Importantly, I found out that interactions during subsequent protest events were usually more productive than other types of communication, as some participants felt more comfortable sharing their perspectives. Furthermore, it was easier to speak to them during or right after demonstrations due to scheduling constraints.

For these reasons and given the constraints of spending more time in the field and building long-term relationships, I decided that informal conversations were a valuable method to gain insight into subjective perceptions and experiences regarding the TMX. This decision proved to be a more comfortable and less intrusive way to communicate with Indigenous individuals. In the Canadian context, it is essential to note that, in regard to Indigenous peoples, the standard procedure for obtaining consent is not the use of informed consent forms from universities. Instead, engagement with Indigenous communities is required so that they can decide if they want to collaborate with outside researchers. To ensure the veracity and trustworthiness of the conversations, I triangulate data gathered with information obtained through participant observation and document analysis.

Yet, informal conversations as a research method have several drawbacks (Swain & King, 2022; Davis & Brown, 2024; Barone & Swain, 2025). First, power-knowledge imbalances between researchers and participants remain, thus requiring careful consideration of how participants' perspectives are interpreted and represented. Second, although sometimes notes were taken during interviews, relying on memory could introduce bias and affect the veracity of results. Third, the lack of a standardized approach to data analysis limits the ability to compare participants' responses, impacting the generalizability of the findings. Given these

limitations, some of the data obtained through interviews and informal conversations were not incorporated into the articles that integrate this dissertation. A further reason for the exclusion of this data was that the focus of my research shifted in response to the challenges posed by the COVID-19 pandemic in conducting fieldwork.

As previously mentioned, I identified several themes (e.g., perspectives on the impacts and risks of the TMX and strategies against the pipeline) to explore in interviews and conversations based on my research questions and literature review. At the same time, topics that were not previously considered emerged during conversations. Most notably, attending climate justice and anti-TMX demonstrations in Vancouver, as well as following mainstream media coverage, highlighted the importance of fossil fuel divestment demands in the opposition to the TMX project. For example, calls for divestment from the TMX project were central strategies of different groups, such as Stand.Earth and Climate Convergence, which co-organized protest actions outside the offices of insurance companies that fund the TMX. Similarly, students at Simon Fraser University, which is located close to the TMX tanker farm in Burnaby, as well as at the University of British Columbia, urged these institutions to cut ties with financial companies funding fossil fuel development, including the TMX. When I approached protest attendees, I asked questions about the goals and outcomes of fossil fuel divestment campaigns, and particularly about the role of the TMX controversy in these campaigns. According to research participants, and as was observed during the protests, this issue was important to discursively frame the project as a climate threat and mobilize people.

Another topic that emerged in conversations during my second fieldwork in Vancouver was net-zero emissions in the oil sector. For the third fieldwork, I planned a series of exploratory interviews with researchers at the University of Calgary and the University of Alberta in Alberta to gain an initial understanding of the political and economic rationale of Canada's net-zero emissions policy. I identified potential interview partners based on their diverse expertise on the technical, legal, political, and environmental aspects of the net-zero policy. Obtaining access to a workspace within the Department of Geography at the University of Calgary during my fieldwork facilitated contact with researchers from different disciplines. Although much of the information collected through interviews did not uncover detailed insights into the net-zero policy, it served as a basis for writing a paper on the discursive production of net-zero as an imaginary (see chapter 8).

During the third fieldwork, I also encountered challenges in gathering empirical evidence concerning the impacts and risks of net-zero projects, particularly CCUS facilities, in Alberta. First, the relatively incipient nature of NETs makes it difficult to assess their impacts. To the best of my knowledge, there are only estimations related to the GHG emissions and economic costs of CCUS installations, but there are no comprehensive studies on the socio-environmental effects of this technology. Second, widespread wildfires in Alberta, which forced

people to leave their homes and be temporarily relocated, prevented me from engaging in conversation with members of Indigenous-led groups in Alberta, such as Indigenous Climate Action (ICA), who have openly criticized Canada's net-zero policy as a form of greenwashing. Taking these limitations into account, I opted to examine this policy using other methods, such as CDA.

5.7 Participation in anti-pipeline demonstrations

To complement archival and other methods, I conducted participant observation at public demonstrations and rallies against the TMX from 2019 through 2023 in Vancouver and Burnaby, BC, the epicenter of the resistance to the pipeline project. Other protests in different locations across BC and, to a lesser extent, Alberta, were not considered within the scope of the research due to their small scale. The logistical challenges and financial constraints of travelling across provinces by car to participate in these protests further justified this decision.

Participant observation was chosen as a method because it offered an effective way of immersing myself into the concrete dynamics of sociopolitical organization and mobilization against the TMX that could not have been accessible through other methods (see Kearns, 2016; Mansvelt and Berg, 2016). During the demonstrations, I took notes of what I observed, saw, and experienced, including descriptions of the locations and the atmosphere of the protests, the demographics of attendees, the content of activist speeches, and the meetings and conversations with attendees (see Jasper, 1998). As a complement to fieldnotes, I used a mobile phone to take pictures and record fragments of speeches in protests.

Engaging in protests allowed me to interact with land defenders and environmental activists and broaden my understanding of their motives for opposing the TMX (see Westerhoff et al., 2018; Lachapelle, Morin-Chassé & Nadeau, 2021). To reduce the risks of perpetuating power imbalances, I focused on the structures and conditions that produce inequalities and injustices around tar sands development rather than exploring the individual or collective experiences of Indigenous and non-Indigenous communities (potentially) affected by the TMX (see Yarbrough, 2020)

While interactions with land defenders and environmental activists took place at physical sites, it was also important to consider the increasing merging and intersection of digital spaces with physical sites of activism (Westerhoff et al., 2018) and the particular role of social media in the organization of the anti-TMX movement, especially during the COVID-19 pandemic. Following the Facebook and Twitter profiles of various groups and organizations protesting against the TMX was crucial to obtaining information about upcoming events, sharing information on tar sands development, and further engaging in conversation with land defenders and activists. Yet, my attention was primarily focused on demonstrations in physical settings.

Direct experience at anti-pipeline events also offered insights into the multi-scalar articulation and mobilization of discourses against tar sands operations. Such insights facilitated a comparison of the information gathered through discourse analysis, archival research, and document analysis on the socio-cultural, environmental, and economic impacts of tar sands and how concerns over these impacts manifested in practice. Furthermore, participant observation revealed the dynamics of counter-hegemonic practices and discourses aimed at challenging and disrupting the expansion of tar sands spaces and the prevailing discourses associated with them.

I arrived in Vancouver to start my initial fieldwork experience, consisting of two weeks of research. In the months leading up to my initial fieldwork, I had prepared myself for this journey as much as I could. I had contacted organizations in the Vancouver Metro Area, I made sure to stay up to date with all the local and national news concerning pipelines, and I had pinpointed some areas that were of interest for my research. Even though I had been preparing for this journey for almost a year, the moment I arrived, the only thing I felt was unprepared. My academic preparation did not seem all that helpful anymore, and the following weeks were rough.

I participated in all anti-TMX and climate justice demonstrations that took place in Vancouver and Burnaby during my fieldwork. On my first trip to Vancouver, I sought to gain a general overview of the field and start building a network that might be useful for my subsequent fieldwork. My plans to conduct a second fieldwork trip were disrupted due to the COVID-19 pandemic. As restrictions on international travel and public gatherings in Canada were implemented, all local events and rallies against fossil fuel pipelines were either cancelled or took place online. Since it was not possible to carry out field research during this time, I prioritized discourse and document analyses, which, despite their strengths as research methods, could not allow me to immerse myself in the context under study. It was also not an easy task to contact land defenders and environmental activists online, as many of them were unable and unwilling to privately meet online researchers who have not spent enough time in the field getting to know them and attending/participating in anti-TMX events.

Before traveling by ferry to Victoria, BC, to meet with a group of researchers at the University of this city, I attended an afternoon public demonstration in the Vancouver Downtown area against the TMX, organized by Climate Convergence and Extinction Rebellion. In front of a crowd of around 50 people, a community-organizer of Climate Convergence began the event by delivering a land acknowledgement to recognize the three First Nations in the Vancouver Metro Area, namely the Tsleil-Waututh Nation, the Squamish Nation, and the Musqueam Nation, as the traditional stewards of the lands on which the final segment of the TMX and the export-oriented marine terminal were developed. Shortly after, an elder from the Tsleil-Waututh Nation gave a speech in which he emphasized the long-term impacts of tar

sands activities on their homelands and the value of Indigenous knowledge and use of the land for climate change mitigation. In this sense, the elder urged participants to support Indigenous land rights and increase the pressure on the Federal Government, oil corporations, and financial institutions to immediately halt the construction of the TMX.

By the end of the speech, a larger number of protestors had gathered on the sidewalks holding up signs reading “No Trudeau pipeline, not now, not ever” and “No Trans Mountain, no consent, no pipeline” (Figure 5.1). Then, ENGOs’ community organizers coordinated the crowd to march down Burrard Street towards the offices of Teck Resources, a mining company that planned to build a large-scale tar sands extraction project in Alberta.

Figure 5.1. Protest banner displaying an anti-pipeline slogan, Vancouver

Photo credit: Emiliano Castillo Jara

Frustrated by the Federal Government’s broken promises and inaction on climate change, protestors chanted, “Hey, hey, ho, ho, Trudeau has got to go”. Once the protestors arrived at the corporate headquarters, they held a rally, where Indigenous peoples held prayers and advocated for a just transition away from fossil fuels that would enable them to assert control over and manage lands and other resources on their lands. Eventually, Teck Resources cancelled this project due to mounting pressure from Indigenous and climate justice organizations and investors, such as BlackRock, which were actively trying to increase corporate reputation and legitimacy by investing more in “environmentally friendly” technologies in the oil sector.

After my return to Vancouver, I participated in a climate strike, which was part of a global action for climate justice coordinated by Fridays for Future and several other environmental organizations. Before the protest began, hundreds of people had already

gathered near the Vancouver City Hall, carrying signs and banners with messages. According to the Vancouver Police Department, approximately 100,000 people took part in the march, making it the largest climate mobilization in the city's history (Little, 2019). Participants, predominantly young students, started the strike at 11 am with a series of speeches that overwhelmingly reflected their concerns about the irreversible effects of climate change on the planet and their demands for governments and large corporations to take concrete measures to mitigate climate change. After the rally, protestors took to the streets, walking through the downtown area and shouting, "What do we want? Climate justice! When do we want it? Now!" I joined the group Mountain Protectors and marched with them because its members were directly involved in the defense of the Coast Salish Watch House in Burnaby Mountain.

Based on the interactions I had with protestors, feelings of distress about the future of climate change, coupled with indignation towards politicians and fossil fuel companies for their inaction in addressing climate change, were the most commonly cited reasons for participating in demonstrations. Given that climate change was the most recurrent framing articulated during protests, the geographically localized concerns and risks around the TMX remained secondary and became enmeshed within this broader frame. I had the impression that anger and anxiety about climate change played an important role in mobilizing collective action and generating a sense of solidarity among protestors (see Lorenzini and Rosset, 2023). Indeed, the resistance movement to the TMX began to shift its discourse away from place-based risks arising from tanker traffic and focus more on the climate risks of the pipeline. This shift was mainly due to the emergence of global climate justice protests and the adoption of climate change discourse by both the Federal and BC liberal progressive parties, which increased their legitimacy and created new business opportunities (Hoberg, 2021).

As the march progressed, more people joined, residents shouted from windows, and cars passing by honked in solidarity with the protest. It was clearly noticeable that the atmosphere of the protest was joyful and hopeful, generating the impression that the political momentum was on the side of the climate justice movement. A critical observation of these protests, however, is that fossil fuel divestment demands drew attention away from the settler colonial structures driving tar sands expansion. Indeed, as noted by the Executive Director of Indigenous Climate Action, an organization opposed to tar sands operations:

"We cannot simply be focusing on divestment from fossil fuels as moving money from one corporate entity to another that is producing less emissions because that doesn't necessarily equate to justice for our communities. In some cases, this actually is just about moving investments from dirty fossil fuels into large solar farms which could be appropriating and taking indigenous lands and territories without our consent…our communities ask for our sovereignty, our self-determination to be respected and for corporations to stop having the

rights over our lands and territories and bullying our communities into accepting projects that not only erode our traditional lands and territories but are contributing to the climate crisis" (Indigenous Climate Action, 2018a).

Despite a focus on fossil fuel divestment, participating in the climate strikes and anti-pipeline events made it noticeable the strong commitment and genuine engagement of participants to raise awareness about the scale of the climate crisis and the need to transition away from fossil fuels. On a personal note, it was inspirational to witness the capacity and willingness of people to organize and mobilize against the efforts of fossil capital and the Canadian state to obstruct climate justice and Indigenous self-determination.

On my second visit to Vancouver in 2022, I noticed that the atmosphere of anti-pipeline protests had significantly changed from the previous times I was there. It was noticeable in a rally organized by Stand. Earth outside the offices of Liberty Mutual, a US insurance company, to demand divesting from the TMX (Figure 5.2).

Figure 5.2. Anti-TMX banner displayed in Vancouver

Photo credit: Emiliano Castillo Jara, 2022

The purpose of attending this rally was twofold: first, to gain insights into changes in the mobilization dynamics against the TMX in Vancouver from the perspective of participants, and second, to build rapport with them. Compared to other anti-fossil fuel pipeline protests I attended, there were only a few people, mostly Generation Xers and baby boomers, holding signs that read "Liberty Mutual insures climate crisis # Stop TMX". Notably, there were no

members of the student-based Friday For Futures movement or similar environmental groups among the participants, probably due to the time of the event (11 am). Representatives of First Nations or Indigenous groups opposing the pipeline project were also absent. A possible explanation for this may be that the relatively small number of members in Indigenous communities prevented them from attending all the events related to the TMX and they had to decide which were more valuable for them to attend, or it could be that they were not significantly involved in the organization of the event and chose not to participate in it.

Before the rally started, I approached a Stand. The Earth campaign organizer, whom I later found was the Canadian Oil and Gas Programs Director at this organization, introduced me as a PhD researcher at the University of Trier and asked if I could take photos and record videos of the event. At the beginning of the 40-minute rally, the organizer explained that the event aimed at strengthening community opposition to the TMX and emphasizing the need to move away from fossil fuels in the context of the climate emergency. When I asked some attendees about their motives for participating in the event, the majority responded that they had strong concerns about the climate effects of continued tar sands extraction and pipeline construction. Indeed, climate change was the most recurrent issue addressed by protestors, while the local ecological and human health risks of oil spills and the violation of Indigenous land rights were less frequently mentioned. During conversations, most participants expressed disappointment with the Liberal Government's promises to combat climate change and a sense of inevitability that the TMX would be completed despite opposition. They seemed to be relatively well informed about the TMX project, partly because they had followed the extensive media coverage of this topic, and partly because, as they reported, they had previously attended other rallies against this project. After the event finished, I engaged in conversations with the representative of Stand. Earth, a local community organizer and a biologist who had investigated the impacts of the TMX on local biodiversity.

Before returning to Germany, I attended a march against the TMX co-organized by Climate Convergence, Stop TMX, and members of the Tsleil-Waututh Nation in the Burnaby Conservation Mountain area. Compared to the fossil fuel divestment rally in Vancouver I went to, a larger number of people of varying ages gathered near the pipeline construction site carrying banners and placards to call on the federal government to stop the TMX and to build solidarity with affected Indigenous communities and motivation for community-based action against the pipeline. In fact, I observed that the atmosphere of the march was mainly characterized by enthusiasm and fervent support for the aforementioned causes, and a particular pride in collective action. It is also worth noting that rather than concentrating on a single topic, different speakers at the march talked about the multiple grievances caused by tar sands extraction and bitumen transportation.

A campaigner and community organizer at Climate Convergence, for instance, highlighted the climate and financial risks of investing private capital and taxpayers' dollars in the expansion of fossil fuel-based infrastructures. At the same time, members of the group Stop TMX informed the crowd about the local impacts posed to wild salmon by oil spills into the Fraser River or the Salish Sea in BC. A member of the local group BROKE criticized the repeated attempts by the Royal Canadian Mounted Police and a private security firm hired by Trans Mountain to surveil and criminalize TMX opponents. Furthermore, security guards inside the construction sites took photos and recorded videos of the march, which increased the level of tension for a moment. This example illustrates the securitization of energy infrastructures, which are discursively framed as strategic assets requiring surveillance and monitoring of Indigenous and environmental movements (Crosby & Monaghan, 2018).

Indigenous representatives of First Nations in BC and Alberta were indeed present at the march, making visible their key role at the forefront of the fight against the climate crisis. After performing prayers to draw attention to the interconnectedness of all living beings and their inherent responsibility to protect the land and the water threatened by tar sands operations, Indigenous speakers called for the recognition and the effective implementation of their land rights. On this point, they criticized the Canadian state's rhetoric of reconciliation as, from their perspective, it neglects Indigenous decision-making authority over proposed economic activities on Indigenous traditional territories. Taken together, all speeches framed the resistance to the TMX as part of a broader movement for climate justice and Indigenous self-determination.

Overall, participant observation allowed me to corroborate, refute, and expand previously gathered information through other methods, providing the interpretations of the research findings. Building trust was one of the most difficult challenges I faced while doing fieldwork because engagement with land defenders and environmental activists requires that researchers become involved in everyday activities, such as on-site research, coordination of campaigns, and organization of events and demonstrations.

5.8 Settler archives as expressions of power dynamics

To better understand the historical development of tar sands in Canada, I conducted archival research at the Provincial Archives of Alberta, the City of Edmonton Archives, the City of Burnaby Archives, and the City of Vancouver Archives. I visited these archives because they contain a large number of unique, sometimes unpublished, written documents (e.g., legislation, policy papers, books, academic articles), photographs, maps, and audiovisual recordings (e.g., films and recorded interviews) about the history of crude oil operations in Canada. In particular, these materials cover the period from the late 1800s and early 1900s, when the potential use of tar sands was initially recognized (Schmidt, 2020). Whilst some of the archival materials

have been digitized, others, particularly clippings, photographs, and audiovisual recordings, can only be consulted within the archives and are not available anywhere else.

I also visited libraries at the Canada Energy Regulator (CER), the University of British Columbia, the University of Calgary, the University of Alberta, Simon Fraser University, and the Vancouver Public Library. However, I did not include these visits as part of archival research because these libraries, despite their useful, specialized collections, contain published materials that are almost available anywhere else. The Calgary Public Library was an exception to this situation, as it holds cartographic resources detailing fossil fuel infrastructure throughout Canada that were not available at the other libraries and public archives I visited.

The aim of examining archive materials was threefold: 1) identify key moments and junctures that shaped tar sands development, prioritizing the periods in which commercial operations started (1960-1970) and significantly expanded (from 2010 onwards); 2) pay attention to the influence of sociopolitical, economic, and environmental factors in framing tar sands use; and 3) uncover the power relations within documents on tar sands operations.

To conduct archival research, I drew inspiration from strands of literature on settler colonial and critical Indigenous studies, [14]which challenge prevailing notions of archives as physical places of neutral and objective historical knowledge. Instead, these works propose to think of archives as dynamic assemblages of sites, practices, institutions, imaginaries, and objects that (re)produce and simultaneously conceal specific facts and truths about settler societies (Stoler, 2002; Adams-Campell, Glassburn Falzetti, & Rivard, 2015; Davis & Todd, 2017; Huang & Weaver-Hightower, 2019). This body of literature traces the origins of archives to the establishment and expansion of settler colonial states, such as Canada, through the systematic gathering, categorization, and interpretation of data on populations and the environment, especially land. Through these practices, archives were and still are fundamental to maintaining the existence of the settler state, particularly through the legitimization of its territorial sovereignty claims (Adams-Campbell, Glassburn, Falzetti, & Rivard, 2015). As a result, archives tend to obscure the histories of dispossession of Indigenous peoples or place them within unified, homogenous nation-state narratives and spatial orders.

The subjugation and erasure of Indigenous views from archives have been deliberate, as demonstrated by the Canadian state's efforts to prioritize the creation of written documents over Indigenous oral traditions to legitimize its land rights claims while marginalizing Indigenous peoples' territorial claims from Canada's official nation-building story (Ghaddar, 2020). Using this interpretation as a departure point, I analyzed archival materials as manifestations of uneven power-knowledge dynamics that predominantly reflect the

[14] To the best of my knowledge, research on fossil fuel capitalism and energy geographies, despite relying on archive materials, rarely engages in explicit debates about the political character of archives as a source of information.

perspectives of the Canadian state and the oil industry, influence present tar sands operations, and shape fossil fuel futures. Although archival records may include Indigenous viewpoints, these are often relegated to a distant past, (mis)interpreted through a settler colonial lens or discredited, as in the case of cultural meanings attached to places affected by extractive activities, such as tar sands (see Davis & Todd, 2017). At the same time, it is crucial to stress that despite the exclusion and/or subordinate inclusion of Indigenous views and lived experiences in archives, they still exist outside the ideological and institutional confines of archives in the form of ceremonies, stories, prayers, teachings, governance structures, and law. Taken together, these elements constitute acts of refusal to the ongoing settler colonial imperative to erase Indigenous peoples from the land (Simpson, 2017).

Prior to visiting the archives, I did some preliminary research to see if the archives held materials related to the history of tar sands development. If so, I made appointments, indicating to the staff the date of my intended visit and the type of documents I needed so that they could prepare them before my arrival. However, archival research did not always proceed according to plan. This contingency was evident during visits to the City of Calgary Archives and the City of Vancouver Archives, where no relevant information on my topics of interest was found. These experiences showed the necessity for detailed planning to avoid unnecessary journeys. Depending on the number of materials to be reviewed, I either completed my research on one visit or had to return to the archives for further examination of the materials requested. When visiting the archives, I adopted an open-minded approach to looking for clues in the materials that could point to other documents or information I had not previously considered. Before reviewing each item, I established a set of questions to guide my reading, including: who produced the material? What is its aim? Who is the intended audience? What issues are not mentioned or discussed in the material? And how does it fit with the rest of the reviewed documents?

As the materials were delivered to me by the archive staff, I looked through them, taking notes of essential information, such as date, author, subject, and file ID, organizing them, accordingly, taking photos if allowed, or identifying which parts could be photocopied. Based on this first reading, I selected and prioritized certain items for closer inspection while discarding others. Subsequently, I proceeded to examine the selected items to detect the recurrence of central themes and the correlation between them (Bazaley, 2009). Following this, the items were organized through the assignment of codes to sentences and paragraphs indicative of the themes predetermined by the research goals (environmental pollution and Indigenous land rights), as well as emergent themes.

Most information deemed irrelevant was discarded, although in some instances, documents were revisited to reassess and modify the coding structures accordingly. In the following paragraphs, I describe my approach to archival research, the types of documents I

reviewed, and their relevance for understanding historical aspects of the discursive and material constitution of tar sands spaces.

I visited the *Provincial Archives of Alberta* (Figure 5.3) because they contain a large number of materials (approximately 30,000) on the oil industry, dated from the early 1900s, which provided a general historical overview of Alberta's oil production (Provincial Archives of Alberta, 2025). A preliminary catalogue search using the keywords "oil sands", "Alberta", and "history" retrieved 18,000 results, including field diaries, maps, correspondence, photos, official reports, government/corporate agreements, and financial records, most of which cover the period from the 1900s through the 1930s. Given the large size of the potential data sample, I searched for the most frequently mentioned words and issues in the description of the main collections containing the materials, namely the Alberta oil sands equity, the Oil Sands Exploration, and the Karl Clark fonds.

Based on this search, 7,000 items were categorized according to overarching themes: the location and composition of tar sands; pictures of fossil fuel facilities and surrounding landscapes; the scientific and technological advancements in oil extraction and processing; the activities of companies operating oil fields; and the biographies of politicians, businesspeople, and scientists who played key roles in the development of tar sands. However, as many of these themes were not relevant to my work, I narrowed my search to 1) materials offering basic information about pivotal moments or major phases in the historical development of tar sands; and 2) early cartography of oil reserves and pictures of tar sands operation sites prior to the advent of commercial operations (1978) as these items may elucidate the spatial knowledge employed in mapping oil reserves and reflect the spatialities of tar sands. A total of 1,500 items met these inclusion criteria, of which 1420 were pictures and thus categorized as potentially relevant.

Figure 5.3. Provincial Archives of Alberta

Photo credit: Emiliano Castillo Jara, 2023

In the sample of 80 records, consisting mostly of correspondence, accounts, diary notes, and briefing papers, considerable attention is given to major events in the early history of Alberta's tar sands. These include the first recordings of colonial explorers in 1714, attesting to the existence of bitumen and its use by Indigenous peoples for waterproofing their canoes. It was, however, not until the late 1910s and early 1920s that the Federal and Alberta Governments, as well as private business people, became more involved in promoting research on oil extraction methods and the construction of oil facilities near Fort McMurray, such as the Bitumount plant in 1929. From the 1930s through the 1950s, several pilot tar sands projects were developed until it was possible to build the first large-scale mine in 1967, operated by Sunoco (Government of Alberta, 1968). A common thread in these records is the framing of Alberta's tar sands development as a success story characterized by the combined efforts of private entrepreneurship and resolute government actions to create wealth and bring prosperity to Alberta, despite significant challenges, through oil extraction.

Concerning the 1420 pictures, I discarded the majority of them after a quick review because they depict industrial equipment used in the oil industry. Only 40 photos, dated from 19210 to 1960, were deemed suitable for closer inspection as they show oil facilities and their surrounding landscapes. Rather than just looking at what was represented in the pictures, I

sought to reflect on the implicit settler colonial motivations behind their production and circulation. A shared characteristic among these photos is the portrayal of uninhabited and pristine landscapes “discovered” by colonial explorers and businesspeople put to the service of economic development and progress, while making invisible any sign of environmental disruption caused by oil exploitation and the presence of Indigenous peoples living near oil exploration and extraction sites.

This colonial logic was also vividly present at early maps of oil resources, many of which were commissioned by the Canadian state to colonial explorers and scientists to document the physical features, the properties, potential economic value, and applications of oil reserves (Schmidt, 2020). As part of a settler colonial technique of political control, the mapping of natural resources serves (and continues to do so) to portray Indigenous lands as empty and erase Indigenous existence from the landscape, normalizing permanent land occupation (Simpson, 2017). The overwhelming presence of this sort of maps and pictures in the archival material suggests the pivotal role of settler institutions, such as archives, in perpetuating discourses of frontier expansion and thus justifying settler land sovereignty.

At the library of the *Legislative Assembly of Alberta*, I found some of the most valuable government reports on Canada’s and, more specifically, Alberta’s oil policy. The initial search retrieved 250 documents covering the period from the 1950s to the mid-2010s, with the majority documenting specific policies, procedures, and strategies in the oil sector. While skimming and scanning the introduction, summary, and conclusions of each document, I searched for the main ideas of the text and the presence of frequent themes based on the number of times these appear in a document (Bazeley, 2009). Following the initial screening and coding processes, 30 materials were classified as relevant and reserved for subsequent analysis based on their content. In particular, I selected documents that describe central objectives of Canada's oil policy, the legal-institutional framework for tar sands operations, and the assessment of socio-environmental impacts of tar sands projects.

The City of Edmonton Archives was another valuable source of historical information. Specifically, I reviewed clipping files created by the City of Edmonton, which consist of newspaper articles from 1810 to 2013 related to several topics, including the oil industry. Some of these records were valuable for illustrating how the reporting of events of Alberta’s oil industry in major provincial news outlets, such as the Edmonton Journal and the Calgary Herald, evolved. In the initial search, I looked at files containing 1,530 clippings. To efficiently extract relevant information from large batches of documents, I quickly looked into each headline and subheadline. I then grouped them according to the themes they conveyed and, if applicable, to a priori established themes (Bazeley, 2009). After primary screening, 1480 newspaper articles were not deemed pertinent to my research aim as they dealt with very

specific government and corporate plans for developing new oil wells and building energy infrastructure across Alberta.

Notably absent from the articles was any reference to the TMX project. I then proceeded to screen the remaining 50 articles for relevance, capturing how the news story was framed and which themes were discussed in the coverage. The majority of the 50 articles under consideration, dated from 1940 to 1970, deal with the promises of economic growth, job creation, and foreign business opportunities brought by the discovery of oil reserves and the construction of fossil infrastructures. An article from 1955 (Figure 5.4), for example, is particularly revealing of the settler colonial logic molding tar sands development as it portrays oil extraction and construction sites as empty, inhabited, and wild. From 1970 to 2000, I observed a decline in the media coverage of tar sands activities, most likely attributed to the relatively small role of tar sands in Canada's energy mix during this period.

Figure 5.4. Representation of 'empty' spaces for tar sands development

Popular Science Feb. 1950

Digging Oil out of the Wilderness

This open-pit mine yields oil—but a new kind of plant is needed to separate oil from sand.

ONE of the world's greatest treasure chests was discovered long ago in Canada, but never opened. It is a bed of sand full of oil. Power shovels can scoop it up, but gas pressure does not force this oil into wells—and getting it out of the sand has been prohibitively expensive.

Last summer the Research Council of the Province of Alberta began to extract oil from this rich black sand in a pilot plant at Bitumount, where these pictures were taken. In this new plant, the sand is mixed with hot water and agitated so that the oil rises and can be skimmed off. The sand sinks and is pushed out at the bottom of the separation tank by a screw conveyer.

Dr. Karl A. Clark, of the University of Alberta, believes that this is likely to prove to be the simplest and cheapest of the various methods that engineers have suggested; but difficult engineering problems may have to be solved to keep such a plant going economically. By operating the Bitumount plant, Alberta authorities expect to determine the cost of further efforts to obtain this oil on the earth's surface.

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Scores of billions of barrels of oil are locked in sand beds in the vast, cold, and desolate Athabasca River valley of northern Alberta, Canada, shown in the map below.

Source: Edmonton Archives (1950)

Another set of articles from 2000 to 2013 covers the ecological costs of leaking tailings ponds, stressing how oil spill events drew significant media attention and criticism to the oil industry. In fact, these articles feature the opinions of oil industry representatives and conservative political commentators complaining about ENGOs' campaigns directed towards

undermining the public image of fossil fuel companies. Notably, almost none of the materials made mention of Indigenous views on tar sands operations.

The City of Burnaby Public Archive. Although my research did not intend to give a full account of the TMX's history, it was important to briefly look into the background of the project to better understand the contemporary power dynamics around it. It was for this reason that I decided to visit the City of Burnaby Public Archive and search for information about the historical background of the TMX. In contrast to the research conducted at archives in Alberta, the research at the City of Burnaby archives proceeded differently, insofar as my search was narrowly focused on the TMX project, especially on its impacts and the divergent social perceptions thereof. As a result, the number of documents I reviewed was significantly lower than that at the archives in Calgary and Edmonton. In fact, the City of Burnaby Archive holds approximately 150 materials concerning the TMX in the City Council and the Office of the City Clerk collections, spanning from 1950 to 1990. Most of these materials were considered irrelevant as they contain information related to the pipeline permit approval and its technical specifications.

Only 15 items, dated from 1980 to 1989, were selected and reviewed, despite covering a relatively short period of time. These items comprise minutes of council meetings regarding the safety of the pipeline project and letters from citizens articulating concerns regarding the ecological risks associated with the oil tank farm expansion in the Burnaby Mountain area and increased tanker loadings at the Westridge Marine Terminal. According to the records, residents appealed to the NEB against the Federal and BC governments' decision to approve the pipeline expansion in Burnaby on the basis that it was designed and constructed according to all regulations (Burnaby Municipal Council, 1987). Whilst the reviewed materials were admittedly insufficient to reconstruct historical episodes of the conflict around the TMX, they did nevertheless offer a glimpse of how residents have previously expressed concerns regarding this project, and of how the Federal and Provincial Governments have sought to minimize the potential impacts.

5.9 Museums

Although museums are different than public archives, I decided to include them as part of the archival research because their collections can be seen as archives reflecting certain discourses, values, and memories related to the oil industry. In particular, I visited two small science energy museums, namely the Oil Sands Discovery Centre in Fort McMurray and the Canadian Energy Museum in Edmonton, dedicated to the historical and technological development of the Canadian oil industry. The purpose of attending both museums was to explore the ways in which these shape public perceptions and experiences of tar sands development.

The Canadian Energy Museum, located in a rural landscape outside of Edmonton, is primarily devoted to the history of the first oil field discovered in Alberta, the Leduc # 1, displaying an extensive collection of old machinery and equipment used for oil extraction. Before visiting the museum, I conducted preliminary online research into its collection, but I could not find much information about it. For this reason, I contacted the museum staff and informed them about the purpose of my fieldwork. Although they told me that the museum's collection was mainly confined to the exploitation of Alberta's first oil well and may not entirely align with my research aim, I nevertheless decided to schedule an appointment because I thought the visit might offer some glimpses into the past of Alberta's oil industry. On arrival at the museum, I was greeted by a member of staff and escorted to a small cinema, where a short film about the story of the Leduc oil well was shown. The film's message was that the discovery of the Leduc represented the beginning of Alberta's transformation from a rural economy to an urbanized one, emerging as a hub of refineries and pipeline systems.

By portraying this transformation as a story of success, the film replicates a discourse around the promises of technological innovation, modernization, and economic growth brought by the oil industry. After the film ended, I took a 25-minute guided tour, which chiefly revolved around the relevance of the Leduc field for Alberta's nascent oil industry in the late 1940s, the technological and scientific advancements in oil extraction and processing, and the lives of oil workers and their families living near the Leduc well. When I asked the museum guide questions about the socio-environmental impacts of the Leduc well and, more broadly, of tar sands operations, the guide replied that, whilst these issues received minimal attention, there have been improvements in the environmental governance of oil resources in recent decades due to technological advancements. Indeed, the museum features a dedicated section showing how technological innovation has addressed deforestation, air pollution, and water contamination. Notably, there was no mention of the shortcomings of these technologies.

As part of the tour, I also visited a small library at the museum, but I did not find any relevant information, as much of it was concerned with technical specifications of crude oil industrial machinery. After the tour finished, I had the opportunity to observe oil drilling operations of the Leduc well near the museum (Figure 5.5). In comparison to oil wells in Fort McMurray, the Leduc is a small-scale well with significantly lower levels of barrels extracted and minimal noticeable impacts on the surrounding areas from my standpoint.

Figure 5.5. Leduc oil field, Alberta

Photo Credit: Emiliano Castillo Jara, 2023

Another museum I visited was the Oil Sands Discovery Centre, located in Fort McMurray, and dedicated to documenting the historical, scientific, and technological aspects of Alberta's tar sands. Compared to the Energy Museum, the Oil Sands Discovery Centre is a larger science museum that displays more recent objects and equipment and machinery used in the oil sector and presents relatively updated information about tar sands operations. After arriving at the museum, I attended a short presentation about the physical and chemical characteristics of bitumen, where I had the opportunity to observe it from a close distance. Once the presentation finished, I walked through the different sections of the museum without a guide, as this service was not available. However, I did not perceive this as a disadvantage because the interactive exhibitions, including multimedia, replicas, and hands-on exhibits, offered a more immersive experience than the Canadian Energy Museum.

Consequently, this facilitated a better understanding of the technical processes of tar sands extraction, mining, refining, and transportation. Perhaps the most remarkable piece of equipment was a large excavator displayed at the outdoor exhibition, as it serves as a symbol of the magnitude of large-scale tar sands operations and their wider implications. A small section of the museum, indeed, presents information about the environmental impacts of the oil industry, highlighting government and corporate efforts to remediate them and engage local First Nations and Métis communities in developing tar sands.

I paid close attention to this section because it exemplifies how fossil capital seeks to generate and maintain legitimacy for ongoing tar sands extraction without significant

sociopolitical and economic disruptions. Key aspects of this strategy are the portrayal of technological innovation as an optimal solution to the environmental effects of tar sands use and the promises of inclusion of affected communities in energy governance processes. This overly positive image of the oil industry, however, conflicts with plenty of accumulated evidence showing the numerous impacts of tar sands use that remain unaddressed.

To conclude this section, visiting public archives and museums allowed me to reflect on their role in the production, circulation, and legitimation of dominant knowledges and discourses underpinning tar sands spaces. These visits required grappling with questions, such as who and how produces, gathers, stores, disseminates, and assesses historical evidence of events regarding tar sands activities. The archival research clearly shows that the overwhelming majority of the historical records documenting the historical origins and development of tar sands spaces reflect the perspectives, visions, and interests of the Federal and Alberta Governments and fossil capital. By contrast, the viewpoints of Indigenous peoples and other non-Indigenous communities affected by tar sands expansion are underrepresented. This marginalization is not surprising, considering that the acquisition and preservation of archival collections is funded by fossil fuel corporations and federal/provincial governments.

While the views of these actors may not always align and may indeed change over time, archival records demonstrate a consistent pattern of presenting, both in subtle and blatant ways, the prevailing notion that tar sands development is an essential activity that promotes economic growth, job creation, tax revenues, and sustainability. This notion does not imply a complete absence of contrary solid archival evidence; instead, it highlights the role of archives in mediating and downplaying information that may call into question the dominant views on the oil industry. Archives tend to marginalize critical voices in the debates over tar sands and exclude Indigenous forms of knowledge in the social (re)construction of historical events related to Canada's oil sector.

Such observations are particularly true for archival materials consulted from the early 1900s through the mid-2010s, in which critical perspectives on tar sands are practically nonexistent. Given that most of the available archival records cover the period up to 2014, more recent information, characterized by presenting divergent perspectives on tar sands, was missing. This observation is relevant in light of the significant shift in the public debate on tar sands development during the last decade (Black et al., 2014; Adkin, 2016). This shift can be attributed to mounting concerns over the climate impacts of increased crude oil extraction and social opposition to proposed pipeline projects across Canada. Consequently, news media outlets, academic articles, policy papers, social media, and other informational sources have increasingly reported on these issues, providing counter perspectives to the dominant view that dominates in archives.

The stronger presence of Indigenous and critical settler voices in debates surrounding tar sands raises the questions of how historically marginalized perspectives should be represented in archives, for what purposes, and who should define this. These questions should encourage us to think beyond the mere incorporation of Indigenous views within the institutional confines of archives and consider the possibilities of rewriting the historical narrative of tar sands spaces. Simultaneously, consideration must be given to the possibilities of redefining the purposes of archives in view of the fact that the perspectives of fossil capital and the Canadian state continue to exert considerable influence on the collective memory and public debate on tar sands.

5.10 Seeing tar sands spaces from above

To examine visual representations of tar sands spaces, I drew on human geography, environmental humanities, and anthropology literatures that have explored the role of photography as a research method to visually represent, interpret, and produce geographical knowledge about human-altered landscapes, including resource extraction sites (Gatlin, 2015; Thomsen, 2015; Spiegel, 2019; Reszitnyk, 2021). A common thread linking these studies is the notion that photography is not a “neutral” and individual practice, but rather deeply ingrained in power dynamics, values, identities, and worldviews in specific historical and geographical contexts. By underscoring the political nature of photography, these investigations point out that acts of visual representation inevitably prioritize certain perspectives, agendas, ideas, and knowledges while marginalizing others (Spiegel, 2019). Surprisingly, the importance of photography as a research method in empirical studies within energy geographies, fossil fuel capitalism, and energy justice remains relatively underexplored, despite widespread use of photographs to illustrate socio-ecological changes of energy landscapes. Indeed, several photographic works showing the contemporary repercussions of tar sands operations can be described, to the best of my knowledge, as photojournalism and not academic research (see Linnit, 2014; Helbig, 2015).

Methodological reflections on the politics of knowledge around photography (Spiegel, 2019) required first asking myself what type of photographs would be relevant to depicting tar sands spaces, for whom, and why? What emotions would these photographs evoke? And what viewpoints and aspects would be obscured in the photos? Such reflections represented a useful starting point, considering that colonial conceptions of space through photography and other practices (e.g., maps and techno-economic assessments of resource development) have indeed rendered invisible the people, relations, identities, and places that co-constitute landscapes, leading to uncritical interpretations of space and shaping favorable public perceptions towards intensive resource development (Spiegel, 2019; Spady & Angus, 2020).

Yet, photography also has the potential to challenge hegemonic representations of “frontier” spaces, raise awareness about the socio-environmental ramifications of extractive industries, and interrogate the root causes of landscape transformation (Thomsen, 2015) Indigenous resurgence studies in the Canadian settler colonial context have precisely critiqued that government-and corporate-sponsored resource extraction, such as tar sands development, frequently overlooks Indigenous peoples’ ways of seeing, knowing, and being with the land through the commodification and appropriation of land (Coulthard, 2014; Simpson, 2017). Drawing inspiration from this body of literature, my methodological approach attempted to i) critique settler colonial representations of space through photos of tar sands mining, extraction, and production sites (see also Spady and Angus, 2020); ii) draw attention to the consequences of tar sands activities in the context of the climate crisis; and iii) reflect on the inequalities and injustices embedded in tar sands spaces.

To take pictures, I traveled to Fort McMurray (the epicenter of the tar sands industry) and took a 50-minute aerial tour over Alberta’s tar sands extraction and mining sites. Even though I had watched documentaries and viewed aerial pictures of tar sands sites prior to my fieldwork, it was only during and after taking the aerial tour that it became clear to me the magnitude, scale, and impacts of tar sands operations. Aerial photographs of refineries (Figure 5.6) and tailings ponds (Figure 5.7), for example, vividly reflect the pervasiveness of fossil fuels and the idea of “emptiness” of Indigenous lands, instrumentalized by the Canadian state and fossil capital to occupy land and erase the presence of plural Indigenous legal orders and governance structures.

Figure 5.6. Syncrude refinery in Alberta

Photo Credit: Emiliano Castillo Jara, 2023

Figure 5.7. Tailings ponds in Alberta

Photo Credit: Emiliano Castillo Jara, 2023

Beyond the visible aspects of landscape change, when contemplating these pictures, it is vital to think of tar sands extraction and mining operation sites (Figure 5.8) as material manifestations of multiple temporalities that (re)configure settler colonial and Indigenous pasts, presents, and futures in divergent ways (see Prouxl & Jon Crane, 2019). For instance, these

photographs make visible the state-and corporate-based fossil fuel future visions embodied in tar sands spaces, and these representations serve their interests.

Figure 5.8. Mining extraction site in Alberta

Photo Credit: Emiliano Castillo Jara, 2023

Images of landscape transformation through tar sands operations may be also perceived as geographically distant and disconnected from personal experiences, evoking emotional responses at the individual level (e.g., anger, fear, surprise) or normalizing environmental degradation instead of prompting a reflection on the broader factors and forces that make tar sands spaces possible (see Gatlin, 2015) and motivating collective action to address the socio-ecological changes caused by tar sands development (Thomsen, 2015). Indeed, the aerial tour I took advertised mining and extraction landscapes as “beautiful”. During the tour, the small plane’s pilot, whose family worked several years in the *Patch* (colloquial term for the tar sands industry), pointed to the visible deforestation caused by wildfires and commented on their economic effects on Alberta’s oil sector without establishing a connection between intensive tar sands extraction and drastic environmental changes.

Furthermore, decontextualized photos mediated through colonial and neoliberal lenses can reinforce dominant ways of portraying space (Gatlin, 2015) and deny the agency of communities, particularly Indigenous peoples, living near and working in tar sands development sites, to develop their spatial-political projects on land and energy governance. While taking landscape photographs, I sought to avoid the reproduction of both ideas of the

inevitability of large-scale tar sands extraction and dystopian notions of environmental destruction propagated through mainstream media images, as these tend to conceal the long-standing history of settler interventions on Indigenous peoples' homeland. Despite my intentions, it is worth noting that these pictures do not reflect the heterogeneous and divergent views of Indigenous peoples on the ground on tar sands operations (Rose-Redwood et al., 2020). Collaborative, community-based research methods, such as counter-mapping and photovoice, could have provided more accurate representations of place-based understandings of and emotional attachments to the land, and shed light on alternative futures to tar sands operations (Thomsen, 2015). Notwithstanding these limitations, photographs, following Reszitnyk (2021), can interrupt and disrupt hegemonic visualizations of degraded landscapes by refusing environmental pollution, land dispossession, and climate injustice to be normalized.

5.11 Walking across tar sands spaces

In combination with photography, walking was another suitable research method to observe, experience, and reflect on the socio-material characteristics of tar sands spaces. To do so, I drew upon the literature on the politics of walking within critical geography, which posits that walking, alone or with company, is both a research method and a political practice that allow researchers to engage with and unpack the political dimension of space and place (Mason et al., 2023). A focus on the politics of walking entails asking who, why, and where moves and with whom, which brings attention to both individual and collective experiences and perceptions of space in specific contexts and under certain conditions (Mason et al., 2023). In addition to its embodied and subjective character, walking is entangled with multi-scalar power relations inscribed in space and territories (Middleton 2010; Mason et al., 2023), bringing into sharper focus the (re)production of inequalities through movement in and across space.

The previous observation demands a reflection on the researcher's epistemological and political positionality when planning, conducting, and assessing walking as a research practice, as well as the type of relationships, or the lack thereof, with the spaces under study and the people who inhabit them (Macpherson, 2016). Subjective and intersubjective experiences then play a key role in designing walking methods. Rather than offering a unique answer on this issue, strands of literature on the politics of walking advocate for flexible, unstructured, and experimental approaches to walking (O´Neill & Roberts, 2019). Yet, other strands warn against the uncritical adoption of these approaches due to risks of deficient scientific rigor and reliability (Kowalewski & Bartlomiejski, 2020). With this debate in mind, I decided that a flexible approach was the most suitable for my research, given the circumstances that forced me to readjust my fieldwork.

In the initial stages of my research, I set the aim of conducting transect walks with members of First Nations to explore culturally, economically, and environmentally significant areas or locations already or potentially affected by the TMX. Doing so would have provided a nuanced understanding of their concerns over these places and the meanings attributed to them. However, my plan was ultimately unsuccessful due to a combination of several factors, including the inability to gain full access to the research field, the gathering restrictions imposed by COVID-19 regulations, and the government-issued evacuation orders as a result of massive wildfires in Alberta.

Due to these circumstances, some of them unpredictable, I opted for undertaking solitary walks along tar sands infrastructure sites. Whilst the practice of conducting solitary walks can offer a valuable means of scrutinizing the spatial configuration of tar sands spaces as a physical expression of power-knowledge relationships, it is important to name some of its major drawbacks. A disadvantage arises from the fact that the researcher's understanding of how tar sands operations shape individual and collective perceptions and experiences of space is limited due to the lack of social interaction. Another shortcoming relates to the researcher's status as an outsider to the spaces under study, which, in my case, makes it difficult to immerse myself in the everyday life of tar sands spaces.

In what follows, I describe the rationale behind selecting and undertaking three walks in Calgary, Edmonton, and Burnaby, the spatial knowledge gained from them, and the challenges I encountered during these walks. When conducting walks, I tried not only to describe and reflect on the particular characteristics of each walkable space but also to find connections between them to make sense of the heterogeneous constitution of tar sands spaces. I walked along the *Refinery Row* in Strathcona County, Edmonton, because it is one of the largest concentrations of networks of refineries, storage facilities, rail terminals, pipelines, and oil-related businesses in Canada (Figure 5.8).

Figure 5.8. Storage facility in the Refinery Row industrial corridor

Photo Credit: Emiliano Castillo Jara, 2023

In this sense, the Refinery Row vividly exemplifies the materialization of tar sands spaces. Given that this refinery complex spreads across large areas, many of which are not walkable, I delimited my walking route to the Petroleum Highway along which several fossil fuel facilities are located. My walk began at the intersection of 50 Street Northwest and 101 Avenue Northwest in the Gold Park neighborhood because I considered it the safest starting point for pedestrians based on a search on Google Maps. Then I continued straight through this area until I reached Goldstick Park, right next to the Imperial refinery.

Seeing gas flaring from this refinery made the environmental impacts of air pollution noticeable and made me wonder about the health effects of prolonged exposure to pollutants. Refineries in this area are among the largest contributors to air pollution in the province (see Anderson, 2022). After taking photos of the refinery (Figure 5.9), I continued my walk through the middle-class, car-centric suburban neighborhoods of Gold Park and Rundle Heights, noticing the embeddedness of fossil fuel facilities into urban spaces. When walking towards the Strathcona Science Park Bridge over the North Saskatchewan River, I observed the blending of refineries, parks and recreation facilities, apartments and houses, which prompted me to think about the significance of refinery operations to suburban communities' daily experiences.

Figure 5.9. Imperial Refinery, Edmonton

Photo Credit: Emiliano Castillo Jara, 2023

After crossing Strathcona Science Provincial Park, I reached the Petroleum Highway. Large-scale fossil fuel infrastructure dominated the landscape here, standing in stark contrast to the places I had just passed through. It was almost as if these were completely different spaces. Although these fossil fuel landscapes seem desolate, they are inextricably linked to railways, roads, and pipelines through which crude oil is distributed across Canada. The walk finished after passing the Suncor refinery because it was challenging to continue my journey along high-speed motorways adjacent to the rest of the infrastructure that is part of the Refinery Row. Given that tar sands production sites in Fort McMurray, the epicenter of Canada's tar sands, are located along high speedways, it was challenging to reach them on foot. Overall, walking along the Petroleum Highway enabled direct engagement with the object of research, namely tar sands spaces, providing empirical insights into the heterogeneity, fragmentation, and (in)visibility of such spaces.

I opted to traverse segments of the *TMX, the Burnaby Terminal, and the Westridge Marine Terminal in Burnaby* to explore and experience contested spaces for tar sands transportation, some of which were sites of anti-pipeline protests. Other sections of the pipeline were not considered during the walking either because they were underground or protected by security fences and video detection equipment to prevent unauthorized access. I started my journey at Simon Fraser University in Burnaby due to its proximity to the Burnaby Terminal, a tanker farm with a storage capacity of 5.5 mbpd from which they are distributed to the Parkland refinery, the Westridge Marine Terminal, and local terminals (Trans Mountain, 2021).

To get there, I walked down Gaglardi Way to the intersection with Burnaby Mountain Parkway, from which I tried to find a spot along the road to take pictures of the Burnaby Terminal. This task, however, was complicated due to the vegetation and high fences obstructing a clear view of the tank farm (Figure), as well as the presence of personnel securing the facility's perimeter. While some parts of the tank farm may remain hidden from the public, the potential of a fire at the Burnaby Terminal has been a constant source of concern among surrounding communities, including members of Simon Fraser University and the Burnaby Conservation Area.

Once I took some pictures, I continued down Gaglardi Way and then turned right to walk along the Trans Mountain Trail, where *Kwekwecnewtxw*, a Coast Salish watch house, is located. As described elsewhere, members of the Tsleil-Waututh First Nation built this watch house in the pipeline path to monitor operations at the Burnaby Terminal. While at first sight the *Kwekwecnewtx* might look like a small, wooded cabin in the middle of a forested area, it symbolizes the overlapping and conflicting settler colonial and Indigenous jurisdictions over land in a specific place. Unfortunately, I could not find any of the activists and land defenders who regularly look after the watch house. However, I was later able to meet them at some anti-TMX protests, which would have provided an excellent opportunity to discuss place-based strategies to confront tar sands operations. Disappointed, I then continued my journey along the Trans Mountain Trail until I reached the entrance gate of the Trans Mountain company. One of the most remarkable features I observed during my walk was the presence of large fence banners, which read: "Any person who obstructs access to this site is in breach of an injunction order and may be subject to immediate arrest and prosecution" (Figure 5.10).

Figure 5.10. Formal injunction notice posted at a TMX construction site

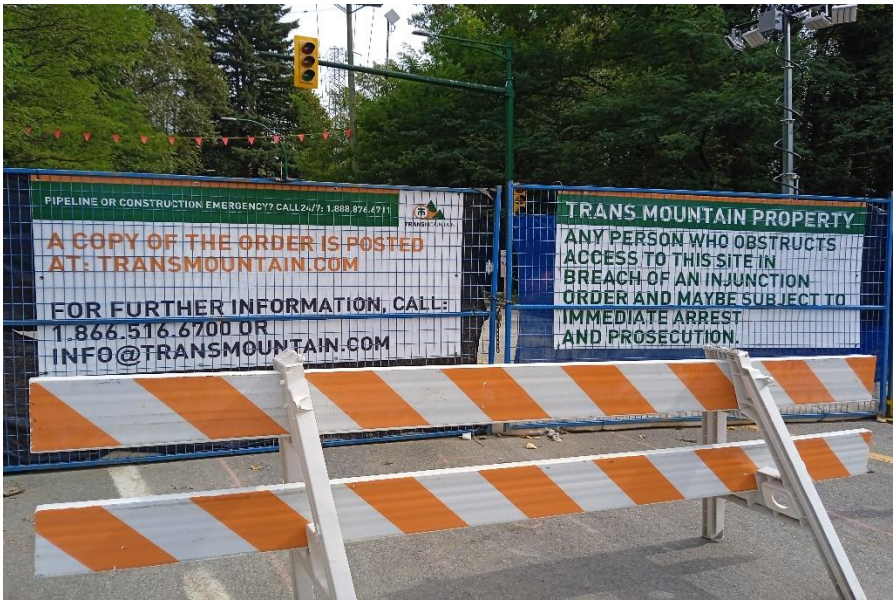

Photo Credit: Emiliano Castillo Jara, 2023

Ceric (2020:354) writes that "an injunction is a court order issued by a judge after an application is filed by a party to a lawsuit and is meant to protect the interest or rights of that applicant while the case is pending". State institutions and private corporations frequently use injunctions against protesters and land defenders who target infrastructures for disruption (Dafnos, 2023). Referring to the specific legal context of BC, Ceric (2020) points out that disobeying or ignoring an injunction order brought by Trans Mountain Pipeline has led to the arrest of individuals charged with civil contempt of court (see also Hermes, 2021). As read in a 2018 injunction order issued by the Supreme Court of British Columbia:

"The defendants and any other person having notice of this order, are hereby restrained and enjoined from: a) physically obstructing, impeding or otherwise preventing access by Trans Mountain, its contractors, employees or agents to, or work in, any of the sites or work areas as set out below: the Westridge Marine Terminal, the Burnaby Terminal, any other project or operations site of Trans Mountain or its affiliates, contractors or subcontractors...any police officer hereby authorized to arrest and remove any person who the police office has reasonable and probable ground to believe is contravening or knowing has contravened the provisions of this Order". (Supreme Court of British Columbia, 2018).

Injunction orders can thus be seen as a legal technique to secure a settler colonial regime of land ownership and criminalize social opposition to tar sands infrastructures (Ceric, 2020). Reflecting on the presence of fossil fuel facilities and the implementation of injunction

orders sheds light on the tensions between settler and indigenous orders of land use laws, which were particularly visible to me when taking part in anti-TMX protests. I will return to this issue in the participant observation section. After passing by the Trans Mountain facilities, I headed north towards the Westridge Marine Terminal through the Lochdale and Westridge suburban neighborhoods, noticing the merging of urban landscapes and fossil fuel infrastructures as I approached the terminal. Just as in the case of the TMX, high fences, security personnel, and injunction warning signs made it difficult to take pictures from a short distance, so I had to find a spot where I could not be seen. When looking at the terminal and its surroundings, I immediately thought about the protest events held near the terminal dedicated to raising awareness about the threats of oil shipping to marine ecosystems and nearby residents. In general, the purpose of undertaking a walk along the TMX pipeline and related infrastructure, despite the shortcomings, was fulfilled as it allowed me to establish connections between the uneven geographies of tar sands activities, particularly their spatially uneven socio-environmental consequences.

I also documented my walks in Calgary's downtown because it is home to Canada's largest fossil fuel corporations. Due to the relatively large size of the downtown area, I planned a walking route along the headquarters of Exxon Mobil, Suncor, TC Energy, Shell, and the Calgary Petroleum Club, located along 4th and 6th avenues southwest and between 4 Street Southwest and Centre Street. The urban landscape of this area is characterized by the presence of tall modern corporate buildings, which symbolize the economic power and prestige of the fossil fuel industry. Since energy companies did not reply to my interview requests, I could not get inside their office buildings and therefore continued my walk across this corporate area, noticing other features and everyday objects showing a correlation between fossil fuels and the Alberta economy and cultural identity.

Examples of this include a street mural on 4th Avenue Southwest showcasing the historical relevance of the oil industry for Alberta, as well as fossil fuel advertising on commercial establishments and public transport with the message "I love fossil fuels". This perception of the pervasiveness of fossil fuel in urban landscapes starkly contrasts with other parts of Calgary's downtown, where numerous vacant office buildings reflect the economic depression Alberta had experienced in the past decade as a result of the COVID-19 recession and the bust of the oil boom cycle in 2014. These contradictory perceptions of space exemplify the uneven geographical dynamics of Alberta's oil-dominated economy.

A further salient observation made during the walks, not only in the downtown area, but particularly at universities in Alberta, was the practice of naming buildings, such as libraries and research centers, after energy corporations or individuals associated with the fossil fuel industry. The preponderant role of fossil capital in shaping higher education through R&D funding and sponsorship has been well documented (Carroll, 2021). Some of these issues

were raised during conversations with research staff of the University of Calgary and the University of Alberta on Canada's net-zero policy, as well as with students at the University of British Columbia and Simon Fraser University demanding their respective institutional boards divest from fossil fuel corporations. Taken together, these examples clearly illustrate the various modes in which norms, values, beliefs, and visions around fossil fuels are deeply immersed in everyday urban spaces (see Hein, 2020).

A central observation that emerged from my walks was the difficulty of fully grasping, as a PhD researcher geographically located far away from Canada and without any personal or emotional attachment to the different places I visited, the implications of space transformation through tar sands operations for communities living near fossil fuel infrastructures. One of the main reasons for this lies in the physical, cognitive, and emotional disconnections from the spaces where tar sands are extracted, transformed into oil and distributed, even though my perception and knowledge of tar sands operations before conducting fieldwork were heavily informed by studies drawing attention to both the conflictual character of tar sands use and its adverse consequences. As observed by Hein (2020) and Antadze (2021), the invisibility of oil is not accidental. A wide range of state, private, and civil society actors deliberately highlight beneficial aspects of fossil fuels and make others invisible to legitimize dominant ideas, values, and practices around fossil fuel extraction (Wilson, Carlson & Szeman, 2017). Walking as a research method was precisely chosen because it is one of the most practical ways to experience the tensions between the visibility and invisibility of oil in tar sands spaces, as well as to uncover the connections between seemingly distant spaces through oil.

Drawing on the methodological approach outlined above, I now turn to the individual research papers that form the cumulative thesis. The first article conceptualizes tar sands spaces through the lens of energyscapes, operationalizing this framework by examining the case study of the TMX dispute.

Chapter 6. The production of unequal energyscapes: contested colonial spaces for tar sands development in Canada

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Abstract

This article further develops the concept of energyscapes to examine the production, governance, and transformation of socio-material spaces for tar sands extraction, distribution, and consumption in Canada. We argue that energyscapes is a helpful concept to understand the key but understudied role of competing material-discursive practices in shaping tar sands spaces. Connecting research on energy geographies, fossil capitalism and settler colonialism, and political ecology, this work considers settler and Indigenous assertions of jurisdiction over land as key drivers of tar sands spaces. Through the lens of energyscapes, we analyze the dispute over the controversial Trans Mountain Pipeline Expansion Project (TMX) in British Columbia and Alberta between the federal government and a First Nations-led movement. Using document analysis and participant observation, we discuss the influence of conflicting land claims, discourses on fossil fuels, and knowledge systems in (re)producing and disrupting the physical spaces and sociopolitical arenas through which the TMX is governed. A focus on the political ecology of struggles against tar sands infrastructures opens research avenues to explore the challenges of dismantling the colonial and capitalist logics underpinning tar sands spaces.

Keywords: Energyscapes, tar sands spaces, Canada, fossil fuel infrastructures, land dispossession

Resumen

Este artículo profundiza el concepto de energyscapes para examinar la producción, gobernanza y transformación de espacios socio-materiales para la extracción, distribución y consumo de petróleo de arenas bituminosas en Canadá. Nuestro argumento central es que energyscapes constituye un concepto útil para entender el papel clave, pero poco estudiado, de diversas practicas discursivo-materiales en la configuración de espacios de arenas bituminosas. Vinculado a la investigación en geografías energéticas, capitalismo fósil y colonialismo de colonos y ecología política, este artículo considera reivindicaciones coloniales e indígenas territoriales como fuerzas motrices detrás de dichos espacios. Mediante el concepto de energyscapes, analizamos el conflicto entre el gobierno canadiense y un movimiento de resistencia liderado por Primeras Naciones en torno a la expansión del oleoducto Trans Mountain (TMX) en Columbia Británica y Alberta. Empleando análisis documental y observación participante, debatimos la influencia de reinvindicaciones territoriales, discursos sobre combustibles fósiles y sistemas de conocimiento en la reproducción y disrupción de espacios físicos y arenas sociopolíticas para la gobernanza del proyecto TMX. Un énfasis en la ecología política de los conflictos en torno a infrastructuras de arenas bituminosas abre vías de investigación para explorar los retos que plantea el desmantelamiento de las lógicas coloniales y capitalistas que sustentan los espacios de arenas bituminosas.

Palabras clave: Energyscapes, espacios de arenas bituminosas, Canadá, infrastructuras fósiles, despojo de tierras.

Zusammenfassung

Dieser Beitrag entwickelt das Konzept der Energyscapes weiter, um die Produktion, Governance und Transformation sozio-materieller Räume für den Abbau, Transport und Verbrauch von Teersanden in Kanada zu untersuchen. Wir argumentieren, dass das Konzept der Energyscapes zu einem tieferen Verständnis der wichtigen, aber noch zu wenig erforschten Rolle konkurrierender materieller und diskursiver Praktiken bei der Gestaltung von Teersandräumen beitragen kann. Dazu werden Ansätzen der politischen Ökologie und der Energiegeographie mit einer Analyse des fossilen Kapitalismus und des Siedlerkolonialismus in Kanada verbunden. Der Fokus liegt dabei auf dem Einfluss der Landansprüche der First Nations und der kanadischen Regierung auf die Produktion von umkämpften Teersandräumen. Dies illustrieren wir anhand des Konflikts um das Trans Mountain Pipeline Expansion Project (TMX) in British Columbia und Alberta zwischen der kanadischen Regierung und einer von den First Nations angeführten Bewegung. Mittels Dokumentenanalyse und teilnehmender Beobachtung wird veranschaulicht, wie widersprüchliche Landansprüche, energiepolitische Diskurse und Wissenssysteme physische Räume und sozio-politische Arenen transformieren, in denen Auseinandersetzungen um die TMX stattfinden. Die Fokussierung auf die politische Ökologie der Teersandinfrastrukturen eröffnet Perspektiven für die Transformation der zugrundeliegenden kolonialen und kapitalistischen Strukturen der Teersandräume.

Schlagwörter: Energyscapes, Teersanderäumen, Kanada, fossile Infrastruktur, Landenteignung

1. Introduction

Spaces for tar sands[1] development across Canada are connected through networks of physical infrastructures that provide abundant crude oil to the Canadian and the United States economies and constitute vital components for the organization of everyday life (Wilson, Carlson & Szeman, 2017). Infrastructures for tar sands extraction, mining, production, transportation, consumption, and waste are not only technical systems but rather created and maintained by political-economic and ideological forces (Haarstadt & Wanvik, 2016). Transnational oil corporations, financial institutions, and the Canadian state[2] have played a key role in consolidating Canada's position as a major oil producer and exporter, primarily to the United States (US), and in the geographic expansion of tar sands operations (Black *et al.*, 2014), particularly in the province of Alberta, which holds the world's third largest proven unconventional oil reserves (Government of Canada, 2020). Through legislation, energy policymaking, finance, media framing, and technological development, corporate and state actors have significantly shaped the decision-making processes and the hegemonic meanings

[1] Tar sands refer to heavy crude oil made of bitumen, clay, sand, and water (CAPP, 2021), which is more emission-intensive than conventional oil (Hughes, 2020). In this article, we prefer the term 'tar sands' to 'oil sands' because the former underlines the economic and socio-environmental implications of tar sands while the latter, used by the oil industry and the Canadian state, downplays tar sands adverse effects (Huseman & Short, 2012). Tar sands are classified as 'unconventional' oil, which, compared to 'conventional' oil, is more heavy, difficult to extract and produces more toxic byproducts (Adkin, 2016). The authors acknowledge the use of grammar software to assist in improving the manuscript's clarity and grammatic precision.

[2] The term 'Canadian state' makes reference to Canada's major political-legal institutions, including the monarch, the federal government, the 13 provincial, territorial, and municipal governments, the Parliament, and the judiciary. By contrast the term 'federal government' describes the body responsible for the federal administration of the country, which includes the Prime Minister and the Ministers (Government of Canada, 2023a). of.

associated with tar sands (e.g., economic growth, job creation, sustainability) (Adkin, 2016; Carroll, 2021). The concentration of decision-making power and corporate ownership in the oil industry has not only reinforced carbon-intensive path dependencies but has also (re)produced a wide range of socio-environmental impacts and inequalities at all stages of the tar sands supply chain (Adkin, 2016).

A large body of literature has examined the essential role of tar sands development[3] in driving greenhouse gas emissions (GHG), deforestation, biodiversity loss, surface and groundwater, and soil pollution, public health, violations of Indigenous peoples[4]' rights, and the disruption of Indigenous livelihoods (Nikiforuk, 2010; Huseman & Short, 2012; Black *et al*., 2014; Veltemery & Bowles, 2014; Westman & Joly, 2019). However, political ecology scholarship has paid relatively little attention to the contested politics of tar sands (Adkin, 2016). In particular, the significance of uneven power-knowledge relations for the configuration of spaces of tar sands development and their discursive representation remains largely underexplored (Wanvik, 2018). A focus on discursive-material practices brings to the fore the networks of physical spaces and governance scales that enable continued fossil fuel extraction and the normalization of discourses of fossil fuel dependence.

This article aims to provide a better understanding of the production and transformation of tar sands spaces by bringing political ecology into conversation with research on energy geographies and settler colonialism (Veltemery & Bowles, 2014; Rossiter & Burke Wook, 2016). Drawing on energy geographies research, we primarily use the concept of energyscapes because it allows us to explore how these spaces are constituted, governed, and disrupted through divergent material-discursive practices (e.g., land claims, discourses, knowledge production, representations of space). Our analysis is informed by the framework of settler colonialism, which serves as a supportive approach to elucidate the historical tensions over land claims in the Canadian oil sector. Here, our main argument is that the production and contestation of tar sands spaces are driven by the Canadian state's assertions of land ownership and Indigenous land rights contestations. By uncovering these underlying power dynamics, this work seeks to advance scholarly discussions on the political ecology of conflicts over fossil fuel infrastructures in Canada.

To illustrate these contested dynamics, we look at the conflict over the government-owned Trans Mountain pipeline expansion (TMX) in British Columbia (BC) and Alberta

[3] We use 'tar sands development' and 'tar sands operations' as synonyms to describe extraction, mining, production, refining, distribution, consumption, and waste management activities.
[4] 'Indigenous peoples' are the original inhabitants of what is now known as Canada and their descendants. Despite their different cultures, socio-economic situations, legal orders, and political organization, Alfred and Corntassel (2005: 597) note that: "the struggle to survive as distinct peoples is what is shared by all Indigenous peoples, as well as the fact that their existence is in large part lived as determined acts of survival against colonizing states' efforts to eradicate them culturally, politically and physically".

between the federal government and a social movement comprised of First Nations,[5] local and international environmental organizations and groups, and citizens with overlapping and contrasting agendas. Combining document analysis and participant observation at anti-pipeline demonstrations, this article shows how these actors articulate and mobilize competing land and knowledge claims and discourses to produce, (de)legitimize, and (de)stabilize tar sands spaces.

Our analysis begins by further developing the notion of energyscapes and underscoring its importance for conceptualizing tar sands spaces. We then highlight the centrality of fossil capitalism and settler colonialism to the constitution of these spaces. Next, we explore how the federal government expands tar sands spaces by exerting control over the lands crossed by the TMX and their discursive representation. At the same time, we look at how the First Nations-led movement[6] unsettles the physical spaces and socio-political arenas for this project by confronting settler territorial sovereignty. The article concludes with a discussion of the possibilities and limitations of dismantling the power-knowledge structures embedded in tar sands spaces.

2. Constructing energyscapes

Although scholarship on environmental justice, settler colonialism, and fossil capitalism has examined conflicts between Indigenous peoples, fossil capital[7], and the Canadian state over tar sands development (Black *et al.*, 2014; Veltmeyer & Bowles, 2014; LeQuesne, 2019; Mazer *et al*., 2019; Carroll, 2021; Spiegel, 2021), political ecology has surprisingly paid little attention to this issue (Adkin, 2016). We argue that political ecology research on energy development (Watts, 2013; Huber, 2015; Castán-Broto & Calvet, 2020) helps understand the production of socio-spatial inequalities in access to and control over lands where tar sands are extracted and fossil fuel infrastructures (e.g., pipelines) are built. This observation is relevant as there has been little research on the configuration of uneven spaces for tar sands operations (Le Billon & Vandecasteyen, 2013; Wanvik, 2018). Connecting political ecology with energy geographies provides a useful analytical starting point for examining energy spaces not as fixed locations, but rather as historically constituted through a myriad of socio-environmental relations, processes, narratives, knowledge systems, and worldviews in specific contexts

[5] First Nations are one of the three groups of Indigenous peoples along with Inuits and Métis, which are "officially recognized" by the Canadian state. While it may be more appropriate to refer to each Nation by its name, 'First Nations' is used here as an umbrella term to refer to sovereign Indigenous peoples with inherent territorial rights and their own distinct legal systems, governance structures, and identities (Frost, 2019).

[6] The movement consists of heterogenous, decentralized, and polycentric networks of First Nations, Indigenous groups, international and local environmental non-governmental organizations (ENGOs), and citizens. While ENGOs may play a significant role in organizing and funding anti-fossil fuel campaigns and public communication strategies, some First Nations have been at the forefront of the fight against tar sands expansion. We explore this issue in more detail in sections 5 and 6.

[7] This concept refers to the transnational fossil fuel and financial corporations that dominate Canada's oil sector (Carroll 2020, 2021).

(Watts, 2013; Huber, 2015; Calvert, 2016; Bridge *et al.,* 2018; Cederlöf, 2019). Energy spaces are thus (re)made and experienced by multiple actors in divergent and often competing ways (Calvert, 2016; Broto & Baker, 2017; Bridge *et al.,* 2018; Hunsberger & Larsen, 2021).

Within energy geographies, the concept of energy landscapes has been used to scrutinize the physical, socio-cultural, political-economic, and environmental transformations of landscapes brought about by energy systems (Zimmerer, 2011; Calvert, 2016). This literature underscores how landscapes shape and are shaped by the interplay of energy technologies, policy frameworks, market dynamics, geopolitical arrangements, and sociocultural meanings (Haarstadt & Wanvik, 2016; Calvert, Greerb & Maddison-MacFadyen, 2019; Kirshner, Castán Broto & Baptista, 2019). Of particular relevance are the overlapping governance scales at which the legitimacy and authority over the uses and representations of energy landscapes are redefined and challenged (Bridge *et al.,* 2018; Bridge & Gailing, 2020; Van Neste & Couture-Guillet, 2022). Stressing the dynamic nature of energy landscapes helps us to see them as fragmented and unstable socio-material spaces subject to (re)configuration processes (Haarstad & Wanvik, 2016). Yet, as outcomes of historical processes, energy landscapes also maintain existing energy technologies and reinforce power relations (Nadaï & Van der Horst, 2010).

Whereas the term energy landscapes tends to concentrate more on the spatial (re)configuration of energy-related activities (Castán Broto, 2019), the more recent concept of energyscapes emphasizes the unequal production of space and socio-environmental relations in energy development processes (Howard *et al.,*2013; Wanvik, 2018; Bridge & Gailing, 2020). For example, Cardosa and Turhan (2018:339) define energyscapes as "landscapes of social, material, spatial, and discursive relations" to analyze multidimensional inequalities along international coal supply chains. Along this line of thinking, other studies conceive energyscapes as assemblages of energy systems and competing political-economic arrangements, institutional-legal frameworks, and values (Delina, 2020; Harlan and Baka, 2024). Inspired by the notion of energyscapes, studies have used the terms 'carbonscapes' (Haarstad & Wanvik, 2016; Jordhus-Lier, Houeland & Ellingvåg, 2022; Müller & Sareen, 2024) and 'petroleumscapes' (Hein, 2021) to scrutinize the spatial configurations of power relations in fossil fuel extraction, processing, distribution, and consumption activities.

Building upon these connected strands of literature, we conceptualize energyscapes as socio-material spaces of energy extraction, production, transportation, consumption, and waste, characterized by multi-scalar struggles over the unequal appropriation and distribution of the political-economic benefits and socio-ecological costs of such activities. Energyscapes, we argue, constitute a more appropriate framework than energy landscapes for analyzing how different actors legitimize, shape, and contest tar sands spaces through multiple material-

discursive practices (e.g., land claims, policymaking, discourses,[8] and knowledge production)[9]. A similar study explores the contested oil spaces in Canada, focusing on the pragmatic engagement of Métis communities in tar sands activities (Wanvik, 2018). Still, it leaves the role of Indigenous-led movements in destabilizing tar sands spaces underexplored. Our research on the contentious spatial politics of the TMX illustrates this point. Attention here to the colonial dimension of tar sands development fosters convergence of political ecology and energy geographies with settler colonial studies (Adkin, 2016; Spice, 2018; Carroll, 2021). Settler colonialism refers to the appropriation of Indigenous peoples' lands for resource extraction and settlement, and the forced assimilation, replacement and elimination of the Indigenous population (Alfred & Corntassel, 2005; Simpson, 2017). As a polymorphic process, settler colonialism permeates several dimensions of social life, from the prohibition of cultural practices, the systematic neglect of health education and housing, to the forced removal of children and gendered violence (Rifkin, 2017). These manifestations reveal the interwoven structures of white supremacy, patriarchy, and capitalism at the core of the settler colonial project (Preston, 2013; Coulthard, 2014). A key observation here is that the presence of Indigenous peoples poses an inherent challenge to the Canadian state's land claims, requiring the perpetual assertion of territorial control and jurisdiction over Indigenous lands (Simpson, 2017).

In the Canadian case, the imposition of private land rights since the 16th century — premised upon the assumption that Indigenous peoples had no land rights —has normalized the dispossession of Indigenous peoples through physical violence, policy interventions, and legislation (Alfred & Corntassel, 2005; Pasternak, 2014; Mackey, 2016). Looking at the settler colonial foundations of tar sands development (Preston, 2013) provides insights into the power-knowledge structures that govern unequal access to, control over, and ownership of land, tar sands reserves, and oil infrastructures (Huseman & Short, 2012; Adkin, 2016; Carroll, 2021). Such infrastructures enable and sustain fossil capitalism, a historical mode of

[8] Discourses are broadly understood as dynamic assemblages of identities, objectives, visions, and meanings entwined in power struggles (Wolford & Keene, 2015).

[9] We also distinguish energyscapes from related conceptual frameworks, such as Industrial Political Ecology (IPE) (Huber, 2017) and Political-Industrial Ecology (PIE) (Baka, 2025). In general, IPE examines the influence of economic and sociopolitical forces in shaping the flows of energy, raw materials and other resources of industrial systems (Huber, 2017). By contrast, PIE underscores how flows of energy and natural resources are politically mediated and unevenly distributed, giving rise to inequalities in terms of access to, use and profit from these resources (Baka, 2025). In contrast to these frameworks, energyscapes offers an advantage for exploring the material-discursive practices through which spaces for energy development are configurated, governed and contested. The notion of energyscapes also elucidates the uneven socio-spatial distribution of the impacts of energy extraction, production, transportation and consumption activities (Calvert, 2016; Bridge et al., 2018).

conceptualizing and organizing society-nature relations that relies on intensive fossil fuel extraction and consumption for capital accumulation (Malm, 2012; Carter, 2014).

An analysis of settler colonialism and fossil capitalism entails considering how tar sands expansion has turned Indigenous peoples' homelands into 'sacrifice zones' through air pollution, toxic waste discharge (e.g., tailings ponds), and deforestation (Black *et al.*, 2014; Westman & Joly, 2019). Such analysis also involves looking at the long-standing struggles of Indigenous peoples against tar sands operations expressed through their land governance structures, laws, knowledges of places, and worldviews (Alteo, 2020). Examining the contested politics of tar sands spaces, we argue, advances theorizations of the political ecology of struggles against hydrocarbon infrastructures (Watts 2013; Willow & Wylie 2014; Brock 2020; Llavero-Pasquina et al., 2024).

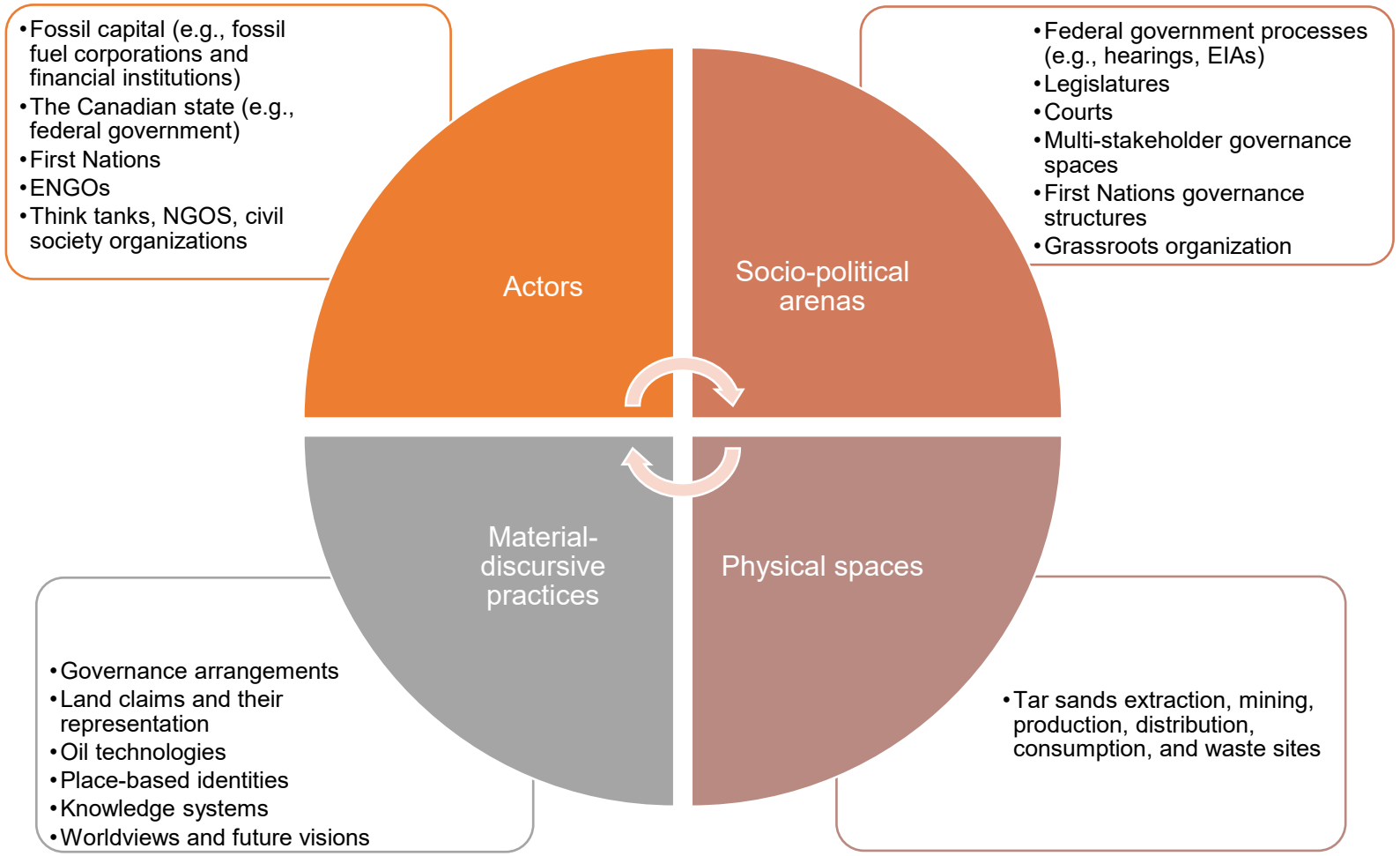
3. The historical production of tar sands spaces in Canadian settler colonialism

Viewed through the prism of energyscapes, tar sands spaces can be understood as dynamic sociopolitical arenas and physical places for tar sands extraction, mining, production, distribution, consumption, and waste. These spaces influence and are influenced by multi-scalar interactions of political-economic arrangements, fossil fuel technologies, place-based identities, discourses, knowledge systems, and future visions. Figure 6.1 shows the components of tar sands spaces and highlights key actors, practices, and arenas. Fossil fuel infrastructures play a central role in this assemblage as they form the material foundation of tar sands spaces. By infrastructures, we refer to drilling and mining machinery, refineries, pipelines, railways, roads, storage facilities, marine terminals, and shipping routes that connect Alberta's tar sands to oil consumption areas in Canada and foreign markets (LeBillon & Vandecasteyen, 2013; Scott, 2014; Pickern, 2019). Through these spatial interconnections, tar sands are extracted and transformed into everyday products, used for transportation and heating, and eventually released into the environment as waste and GHG emissions (Scott, 2014). Rather than operating in isolation, tar sands infrastructures are entwined into transnational networks of conventional oil, shale gas, coal, and mining projects that require large amounts of land, water, energy, and raw materials (Lokman, n.a). Here, energyscapes extend our view of fossil infrastructures beyond their technical characteristics to consider them as "systems of interconnection, dependence, and exchange between built, natural, and social environments that shape patterns of production and consumption that develop around them" (Scott, 2014:18).

Central to fossil capitalism in Canada is the commodification and appropriation of land and tar sands reserves and their incorporation into transnational circuits of capital (Pineault, 2018; Simpson, 2019; McCreary, 2021). Our main argument here is that the constitution of tar sands spaces rests on the settler state's claims to Indigenous lands and its authority to lease

the rights to extract, produce, and distribute crude oil to private corporations. Put differently, we see land appropriation and dispossession as key drivers of the constitution of tar sands spaces. The identification of 'exploitable' tar sands can be traced back to the 19th century, when Canadian state-sponsored commercial and scientific assessments (e.g., cartography and geological studies) were central to the creation of a future tar sands frontier (Simpson, 2019; Schmidt, 2020). Yet, large-scale tar sands extraction was not technically or economically feasible at the time. After the federal government implemented the National Oil Policy in 1961, commercial tar sands operations started in 1967 (Manning, 1968). During the 1970's international energy crisis, concerns about energy security, high oil prices, and the peak of conventional oil motivated Canada to encourage further investments in the Alberta tar sands (Longley, 2018). It was, however, not until the 2000s commodities boom that tar sands development expanded internationally (Hussey *et al.*, 2020), leading to a prolonged rise in oil prices between 2004 and 2014 and increased oil production and export capacity (Huseman & Short, 2012; Veltmeyer & Bowles, 2014).

Figure 6.1. The production of tar sands spaces

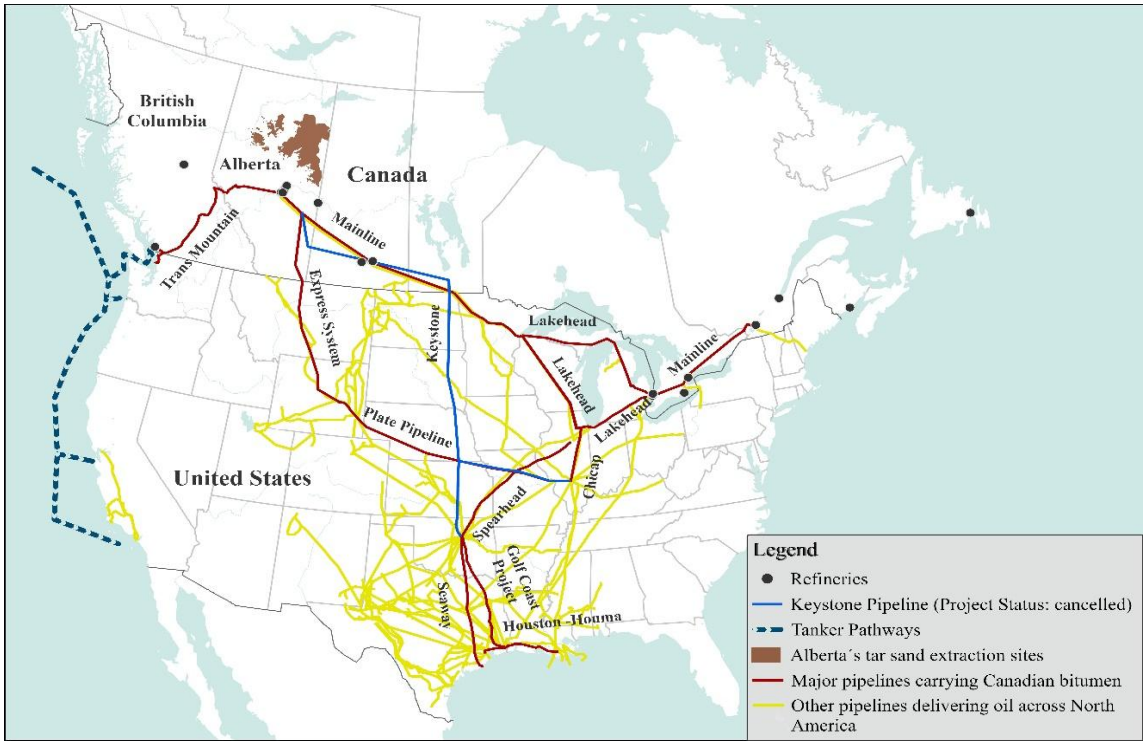


Source: Own elaboration

During the tar sands boom (2000-2014), former conservative Prime Minister Stephan Harper proclaimed Canada as an "energy superpower" to accelerate tar sands extraction, providing subsidies to oil corporations, dismantling environmental regulations, and implementing legal and financial barriers to public participation in energy decisions (Carter, 2014, 2020). These actions have increased the concentration of corporate ownership in the oil industry, which is currently dominated by companies such as ExxonMobil and Royal Dutch Shell, and large financial services companies, particularly Canadian banks such as the Royal Bank of Canada, Toronto-Dominion Bank, and Bank of Montreal (Carroll, 2020). As a result of economic growth in the oil industry, tar sands became Canada’s major export commodity, representing 14.1% of the country’s total exports (CER, 2022). In fact, Canada is the world's third major oil exporter with 8% of the total exports, and the fourth largest oil producer with 5.6% of the global output (IEA, 2022).

Tar sands spaces cannot be analyzed without considering cross-border energy development with the US. Indeed, 98% of Canada's oil exports go to the US market (CER, 2020), which is not surprising given that the US government has historically framed tar sands as a reliable and affordable energy source due to their geographical proximity and low transportation costs (Nikiforuk, 2010) historically. Indeed, almost all existing and proposed fossil fuel pipeline projects in Canada (Figure 6.2) are designed to meet US fossil energy needs (LeBillon & Vandecasteyen, 2013; Mazer *et al.*, 2019). Canada's oil trade with the US is uneven, with Canada's eastern provinces still dependent on foreign oil imports, particularly from the US, due to various factors, including limited pipeline access to Alberta's tar sands, high oil transport costs by rail, and proximity to US oil refineries (Carter, 2014; Benton-Connell & Cochrane, 2020). The country's dependence on crude oil exports and imports illustrates its subordinate integration into the US energy security strategy (Black *et al.*, 2014). In the case of the TMX (at the upper left corner of Figure 6.2), most of the oil transported through the existing pipeline is delivered to the US. In contrast, the expansion project will carry 900,000 oil barrels per day (bpd) from Edmonton, Alberta, to a marine terminal in Burnaby, BC, from where 120,000 tonnes (t) of oil will be exported to Asian markets every month (Trans Mountain, 2021).

Figure 6.2. Tar sands infrastructure network across Canada and the US



Source: Own elaboration with assistance of Isis Kahlis

Fossil fuel trade is not the only factor in reshaping the spatialities of tar sands operations. The volatility of oil markets (e.g., boom-bust cycles), economic changes (e.g., the COVID-19 pandemic), and the geopolitics of climate change (e.g., the US-Canadian dispute over the climate impacts of the cross-border Keystone pipeline) are also important (Hussey et al., 2021). Our focus, however, is on the role of First Nations,[24] Indigenous-led groups (e.g., Indigenous Climate Action and the Tiny Warriors), and ENGOs (e.g., Stand. earth and West Environmental Law) in delaying the construction of tar sands pipelines, such as the TMX, one of the most controversial pipeline projects in Canada in recent years. (Black et al., 2014; LeQuesne, 2019; Mazer et al., 2019). These groups have expressed concerns about the negative impacts of tar sands operations (Figure 6.3), including oil spill risks on fragile marine ecosystems and wildlife endangered

[24] The *Tsleil-Waututh* Nation, the *Squamish* Nation, the Coldwater Indian Band, the Upper Nicola Band, the *Stz'uminus* Nation, *Ts'elxweyeqw* Tribes, the *Shxw'owhamel* First Nation, the Upper Nicola Band, and the *Stk'emlupsemc te Secwepemc* Nation (West Coast Environmental Law, 2019).

species, GHG emissions, disruption of Indigenous peoples' livelihoods (e.g., limitation and/or loss of access to land for hunting, fishing, and holding ceremonies), and land rights violations (Tsleil-Waututh Nation v. Attorney General of Canada, 2018; West Coast Environmental Law, 2019).

Figure 6.3. Alberta's tar sands mines

Photo credit: Emiliano Castillo Jara, 2023

With respect to Indigenous peoples, there are 140 First Nations and Métis along the TMX route, who have contrasting and shifting approaches depending on several factors, including their location relative to the pipeline, their economic base, and the environmental risks posed by the project (Owen, 2018; Purdon & Palleja, 2019). Even those First Nations opposed to the TMX have different concerns and agendas (West Coast Environmental Law, 2019). Conversely, other First Nations and Indigenous groups, including Iron Coalition, the Reconciliation Project, and the Western Indigenous Pipeline Group (WIPG), have expressed support for the TMX, often viewing the project as a vehicle for economic self-determination, equity ownership, and land sovereignty (Atleo, 2020; Westman, Joly & Gross, 2020). A full exploration of the complex and diverse Indigenous perspectives on the TMX is beyond the scope of this article.

Regarding ENGOs, a multi-scalar network exists that connects transnational groups like Greenpeace to regional organizations, such as the RAVEN Trust, and

grassroots collectives like Climate Convergence. While these groups have aligned their interests in mobilizing against the TMX project, their levels of engagement vary significantly, ranging from rhetorical support to direct protests and grassroots mobilization (Hoberg, 2021). Furthermore, these ENGOs navigate internal contradictions and competing interests with Indigenous people. Tensions, for example, arise where environmental protection goals clash with First Nations jurisdiction over their territories and their visions of economic development (see Grossman, 2017). A full examination of these power dynamics, however, lies beyond the scope of this paper.

In addition to the anti-pipeline movement, there are multiple actors (e.g., the federal, Alberta, BC, and municipal governments, and fossil capital) involved in or affected by the TMX project. In this paper, we paid special attention to the federal government and the First Nations-led movement, as their diametrically opposing positions lie at the heart of the pipeline conflict. Within the federal government, we focused on the key role of the Prime Minister and the Ministry of Natural Resources in approving the TMX and implementing consultation processes with Indigenous people along the pipeline route. Although distinct from the federal government, we also included the National Energy Board (NEB, now known as the Canada Energy Regulator) and the Federal Court of Appeal as relevant state actors. Their roles are central to legitimizing the TMX through environmental impact assessments (EIAs) and judicial rulings. Importantly, the federal government and these state institutions are not a unified block; they frequently pursue contradictory and competing policy objectives, creating institutional frictions that result in a fragmented tar sands governance (Carroll, 2021).

Another important actor in tar sands governance is the Alberta government, which has historically prioritized fossil fuel development as a cornerstone of the provincial economy (Carter, 2020). This support is institutionalized through a combination of favorable regulatory frameworks, research funding, and a corporate and state-driven narrative that fosters a collective identity deeply tied to it (Adkin, 2016). In this sense, the Alberta Government has been a strong proponent of the TMX, highlighting the project's economic and employment benefits while downplaying its environmental and social impacts (Solomon, 2018).

Despite a united front on the TMX, the interests of both the Alberta and federal governments sometimes diverge. This friction manifested when legal challenges delayed the TMX construction due to inadequate federal consultation processes, which frustrated Alberta's projected revenues (Hoberg, 2021). Furthermore, tensions have intensified as the federal government, particularly under Justin Trudeau (2015-2024), adopted a

climate change discourse, proposing regulations such as emissions caps and net-zero goals (First Author, 2025). These initiatives clash with Alberta's preference for a deregulated oil sector and its defense of provincial jurisdiction over fossil fuel resources (Adkin, 2016; Carroll, 2021).

This tension also extends to intense interprovincial disputes over the regulation of crude oil distribution. The BC government, for instance, citing ecological risks of oil spills, attempted to stop the TMX by submitting a reference to the BC Court of Appeal in 2018 (Lawson, 2021). This legal maneuver sought to decide whether the province had the authority to amend the Environmental Management Act. This change would have granted the province the power to regulate crude oil transportation via pipeline (Hoberg, 2021). This legal challenge was ultimately unsuccessful, as the Supreme Court of Canada dismissed the BC government's appeal because it sought to regulate a pipeline project that fell under federal jurisdiction (Tasker, 2020a). While the BC government's rhetoric promoted environmental protection, a stance partially shaped by electoral motives, its energy policy remains contradictory. It actively supports natural gas pipelines despite a lack of consent from some affected First Nations (Hoberg, 2021). Having identified the primary actors involved in the TMX conflict, we now turn to the methodology employed to examine, among other factors, the role of these actors in shaping and contesting tar sands spaces.

4. Methodology

Our research employs a qualitative methodological approach that combines archival research, participant observation, and document analysis, specifically newspaper articles, public hearings of the TMX, and reports. Collectively, these methods provide a robust foundation for exploring the contested nature of tar sands spaces. Navigating such spaces required a reflexive engagement with our own positionality, acknowledging our privileged position in the structures of academic knowledge production and the historical role of Western research in subjugating Indigenous epistemologies (Tuck & Wayne, 2012; Mackey, 2016). This marginalization means that even when included in research designs, Indigenous views are frequently co-opted by academic institutions and practices that remain rooted in colonial hierarchies of knowledge (Abbot & Cavendert, 2004).

To address these challenges, we situated our work within the frameworks of settler colonialism and Indigenous resurgence. This allowed us to problematize colonial

structures of knowledge production and explore pathways toward more critical scholarship (Mackey, 2016). This approach shifts the focus away from 'studying' Indigenous people and toward the responsibility of scholars to highlight the injustices that obstruct Indigenous self-determination (Grossman, 2017). Here, we do not claim to speak on behalf of Indigenous communities or propose solutions to the challenges they face. Instead, we aim to understand the conditions under which tar sands spaces are produced and how Indigenous-led oppositions emerge to contest tar sands operations (Black *et al.*, 2014; Adkin, 2016; Spice, 2018). Yet, we acknowledge that the production and circulation of our research findings remain constrained by the very Western academic structures we critique. Following our reflection on research positionality, we outline the methodological approach that guided our study.

4.1 Archival research

The first author conducted archival research at the Provincial Archives of Alberta, the City of Edmonton Archives, the City of Burnaby Archives, and the City of Vancouver Archives. These sites were selected for their extensive records on Canada's oil industry history, covering the period from the late 1800s to the early 2000s, including legislation, federal court records, policy papers, books, maps, and audiovisual recordings. A catalogue keyword search, including 'oil sands', 'Alberta', 'oil industry', and 'federal government', retrieved 35,000 results. Given the large size of the dataset, the selection was narrowed to federal and Alberta policy records that document pivotal phases in Canada's oil sector, particularly the onset of commercial operations (1960–1970) and their major expansion (2010–2014). Following an initial review of 247 documents, 68 items were selected for closer examination due to their relevance to understanding major events that shaped the production of tar sands spaces. In particular, we paid attention to federal court documents on the TMX as these capture the official perspective on the project and the specific legal arguments deployed throughout the TMX controversy.

We also prioritized the selection of cartographic records of crude oil reserves and photographs of oil facilities, including aerial shots of tar sands mine extraction and mining sites in Alberta. From an initial sample of 1,420 images, only 40 items dating from 1880 to 2023 were selected because these provided insights into the settler colonial logic underlying the mapping of oil resources and the physical transformation of spaces designed for tar sands operations. To examine both visual materials and policy documents, we draw inspiration from strands of literature on settler colonial studies,

which consider archives as institutionalized sites of power. In this view, archives are not neutral repositories but rather sites of practices and imaginaries that reproduce colonial truths and conceal Indigenous peoples' stories and perspectives (Davis & Todd, 2017; Huang & Weaver-Hightower, 2019).

4.2 Document analysis

Reports, newspaper articles and media releases on the TMX conflict served as a primary source for reconstructing the historical trajectory of this dispute, which subsequently informed and oriented some conversations with demonstration attendees (Dusyk, Axsen & Dullemond, 2018). Specifically, data were collected from newspapers, such as The National Observer and The Narwhal, whose coverage of the TMX controversy prioritizes the perspectives of groups opposing the pipeline. Additionally, our research incorporates reports and media releases from prominent pipeline antagonists, including the Tiny House Warriors and the Tsleil-Waututh Nation. To do so, we conducted a keyword search within Google, including 'TMX'. 'Indigenous people', 'First Nations', 'land rights', and 'federal government', for the 2012-2025 period. This timeframe was selected to capture the historical development of the TMX project from its initial proposal throughout its various political and legal shifts.

From an initial retrieval of 1,359 items, we narrowed the sample to 652 items by first looking at the prominence and recurrence of the keywords within the titles and subtitles of each item (Raso & Neubauer, 2016), ensuring that the TMX conflict was the central topic rather than a tangential mention. Adopting an inductive and iterative coding approach (Way, 2011; Ganowski et al., 2018), we reviewed the materials and categorized them into primary thematic clusters. Among these, we deliberately paid attention to the litigation strategies used by some First Nations to exercise their land and consultation rights concerning the TMX approval. Furthermore, our analysis considers the discourses used by First Nations and ENGOs to sustain their opposition. Rather than conducting a formal discourse analysis, we treat discourse in a broader sense, focusing on its relevance to counter-frame tar sands development. After reviewing the items, a final sample of 148 was selected to investigate the role of contested land claims in producing and contesting tar sands spaces.

4.3 Transcripts of the TMX

Following a similar procedure, we analyzed transcripts and audio recordings of public hearings conducted by the National Energy Board (NEB) between 2014 and 2020 to assess whether the TMX served the public interest (CER, 2024). These records include testimonies regarding the projected and perceived benefits, impacts, and risks of the TMX. Hearings regulate citizen participation by imposing restrictive eligibility criteria and predefined themes (CER, 2024). Despite these institutional constraints, public hearings are also spaces where counter-hegemonic arguments against tar sands development are articulated by First Nations and ENGOs. Examining the TMX transcripts thus was essential for understanding them as contested arenas of competing knowledge claims, specifically between Indigenous knowledge systems and state-sanctioned expertise (Patel, 2012; Richardson et al., 2022).

To narrow our sample, we focused on the testimonies from members of the main First Nations involved in the legal challenges against the TMX, as their perspectives have been historically marginalized and subordinated within official energy decision-making processes (see Whitney, Evered, Patrick, & Lee, 2024). We then examined the transcripts to identify the most consistent and recurrent themes across the testimonies. Our analysis centered here on testimonies detailing the effects of the pipeline on Indigenous peoples' livelihoods, cultures and lands. From an initial sample of 35 testimonies, we selected 15 that explicitly challenge colonial notions of land as a space designed for tar sands operations, given the centrality of land claims to the TMX dispute. Rather than scrutinizing individual histories or personal narratives, our study interrogated whether these testimonies were considered legitimate evidence within the pipeline approval process.

4.4 Participant observation

To complement document analysis, the first author conducted participant observation at climate justice and anti-TMX demonstrations in Vancouver and Burnaby, BC in 2022, the epicenter of the opposition to the pipeline project. This method was particularly important for gathering information on this project not accessible through document analysis (see

Kearns, 2016; Mansvelt & Berg, 2016) and for gaining first-hand insights into the mobilization dynamics against the TMX. During demonstrations, the first author took field notes, pictures and videos of the protests' locations, demographics, the atmosphere, speeches, and informal conversations with attendees (see Swain & King, 2022).

Informed consent for photography, video recording, and note-taking was obtained orally from participants only after ensuring that any collected data would be anonymized through alphanumeric coding to maintain confidentiality. Furthermore, a commitment was made to use all data solely for research and publication purposes (see McCurdy & Uldam, 2013). Some participants declined to be recorded, citing concerns regarding state surveillance, which has been documented in the context of pipeline opposition in Canada (see Crosby & Monaghan, 2016). To ensure that participant voices, including those of members of First Nations, were ethically represented, we avoided direct quotes from field observations, as the research timeframe, COVID-19 restrictions on public gatherings and wildfires in Alberta did not allow for the process of building long-term reciprocal relationships. Consequently, we relied on informal conversations, observations and publicly available declarations authorized by the participants themselves.

Before fieldwork, the first author contacted spokespersons and members of TMX-oppositional groups in Vancouver and Burnaby via email. During these initial interactions, he disclosed his status as a researcher and expressed his solidarity with their opposition to tar sands projects. To build rapport with organizers and demonstration attendees, the first author engaged in conversations regarding participants' motivations, their strategies against the TMX, and Canada's energy and climate policies (see Westerhoff et al., 2018; Lachapelle, Morin-Chassé & Nadeau, 2021).

During the fieldwork, the first author engaged in 27 informal interactions at demonstrations and in follow-up meetings. Following the identification of key thematic threads in these interactions, 18 of them were selected for further examination based on their relevance to understanding the discursive articulation of climate concerns regarding tar sands expansion and demands for meaningful consultation of First Nations concerning tar sands pipeline projects on their lands. To mitigate the risk of perpetuating power imbalances between the researcher and participants, we avoided extracting personal or collective experiences of those affected by the TMX (see Yarbrough, 2020). Rather, we were interested in investigating the structures that (re)produce inequalities and injustices, notably the assertion of settler sovereignty over Indigenous lands for the construction of tar sands infrastructures.

Drawing on the empirical materials outlined above, we operationalize the concept of energyscapes to examine competing discursive-material practices through which the TMX project is governed. Specifically, we analyze three intersecting practices: 1) contested land claims and their spatial representations, pivotal to the (de)legitimization of tar sands projects (Rossiter & Burke Wook, 2016); 2) discursive framings of tar sands operations, used to manufacture social consensus and fuel counter-narratives (Davine, Lawhon & Pierce, 2017; Spiegel, 2021a); and 3) knowledge hierarchies in energy decision-making that determine who has the authority to speak and decide on tar sands development (Barker & Westman, 2018; see Foucault, 2019). We examine these practices across sociopolitical arenas (e.g., courts, public hearings, consultation processes, demonstrations and protests), and geographies of the TMX pipeline, including tanker routes.

5. Land dispossession through tar sands expansion

To understand the colonial roots of tar sands spaces, we consider that the expansion of tar sands operations embodies the Canadian state's claims to territorial sovereignty[25] (Pasternak, Mazer & Cochrane, 2019; Castillo Jara & Bruns, 2022). In this sense, land appropriation and commodification require rendering Indigenous lands as empty and governable spaces, detached from their political, cultural, and socio-ecological meanings (Rossiter & Burke Wood, 2016; Spice, 2018; Simpson, 2019). One of the main practices to structure and govern tar sands spaces has been the negotiation of treaties to define land and resource rights, particularly in provinces such as BC, where land ownership is an unresolved issue as First Nations have never ceded their land title (UBCIC, 1998; Manuel & Derrickson, 2015; Rossiter & Burke Wood, 2016). While treaties may allow First Nations to assert some control over land and benefit from resource revenue-sharing agreements (Government of Canada, 2023), the Canadian state institutions often interpret Indigenous land rights narrowly and justify their infringement because tar sands projects, such as the TMX, contribute to economic growth (see Shaw, 2008). Tar sands development affects not only Indigenous rights recognized under Canadian and international law, but also plural Indigenous legal orders embedded in languages, worldviews, knowledges, stories, and land-use practices that have governed and

[25] While there are competing land claims over the TMX within the Canadian state, these do not problematize settler territorial sovereignty.

regulated Indigenous peoples' lives before settler colonialism (Napoleon, 2012). First Nations mobilize these legal orders to navigate the contradictory dynamics of tar sands development and defend their rights.

Other mechanisms for accessing land for tar sands operations include Impact Benefit Agreements (IBAs), through which the federal, provincial, and territorial governments delegate to oil corporations their constitutional duty to consult with Indigenous peoples on proposed tar sands projects (Stendie & Adkin, 2016). Companies usually negotiate land use with First Nations in exchange for training and employment opportunities and other incentives (e.g., monetary compensation for environmental damages) that do not compensate for the impacts of tar sands on First Nations' livelihoods and cultural heritage (Wanvik, 2016; Barker & Westman, 2018).

According to critics (Black *et al.*, 2014; Urquhart, 2018), both treaties and IBAs allow the Canadian state and fossil capital to "fabricate" consent to energy projects and disarticulate social opposition to them and create or exacerbate divisions between and within First Nations. Due to their socio-economic conditions,[26] levels of social cohesion, and limited legal and financial resources, some First Nations and Métis are forced to enter into negotiations with corporate and state actors to defend their land rights and obtain certain benefits even if they have strong concerns about tar sands (Barker & Westman, 2018; Atleo, 2020). Regardless of First Nations approaches to tar sands, evidence shows that they still face significant challenges in addressing the colonial legacies of tar sands operations (Black *et al.*, 2014; Adkin, 2016). Indeed, the transformation of landscapes for corporate and state fossil energy needs (Figure 6.4) has disrupted Indigenous livelihoods and ways of perceiving and being on the land (Black *et.al.*, 2014; Treaty Alliance Against Tar Sands Expansion, n.a).

[26] Indigenous peoples in Canada are disproportionately affected by unemployment, poverty, violent crime, and food insecurity (Government of Canada, 2021).

Figure 6.4. Syncrude refinery and tailing ponds

Photo credit: Emiliano Castillo Jara, 2023

Energyscapes brings into view how tar sands spaces are inextricably linked to discourses that (de)legitimize decisions about why and where to extract oil and build hydrocarbon infrastructures, and how to distribute the benefits and costs of their operation. This informs our assumption that the federal government's discourse justifies land occupation by claiming tar sands projects are in the national interest, despite being designed to meet foreign energy needs. Prime Minister Trudeau, for example, insisted that the TMX contributes to job creation, tax revenue generation, economic growth, and oil exports (Prime Minister of Canada, 2016, 2019). In characterizing tar sands as a "vital source" of national income (Kuteleva & Leifso, 2020), the federal government associates tar sands with a Canadian identity and notions of economic development, and more recently, sustainability (Davine, Lawhon & Pierce, 2017). These ideas remain entrenched, irrespective of the government in power and its ideological orientations. While the liberal administration has rhetorically encouraged a more environmentally friendly policy than its conservative predecessor, it has continued to promote tar sands extraction (Carter, 2020). Any attempt to question tar sands is then perceived by state institutions as an obstacle to economic prosperity, which in turn normalizes the

surveillance, detention, and prosecution of opponents blocking hydrocarbon infrastructures (Crosby & Monaghan, 2018; Mazer *et.al.*, 2019). These criminalization measures portray Indigenous and environmental movements as threats to national security to delegitimize their concerns about tar sands (Huseman & Short, 2012; Spiegel, 2021a).

By framing tar sands as a matter of national interest, the settler state also subsumes Indigenous peoples' diverse identities into a "unified national identity" based on fossil fuels (Davine, Lawhon & Pierce, 2017). Although the Canadian government has pursued a policy of cultural recognition of Indigenous peoples, its fossil fuel discourse replicates a colonial conception of Indigenous identity defined in terms of blood descent, legal status, and official membership to a specific community located in a reserve (Shaw, 2008; Palmater, 2011). Such a conception has significant ramifications for the exercise of Indigenous jurisdiction because it does not regard Indigenous peoples as sovereign nations with decision-making authority over their territories (Rossiter & Burke Wood, 2016; Davine, Lawson & Pierce, 2017). Rather, it spatially restricts Indigenous rights within reserves, reinforcing settler assertions of sovereignty and the erasure of Indigenous law (Daigle, 2016). Yet, as discussed in the next section, First Nations assert their rights to challenge tar sands expansion.

6. Resistance to tar sands infrastructures

Tar sands spaces are transformed as Indigenous-led movements resist tar sands expansion in the extraction zones, in the path of pipelines, or near refineries across Canada. Geographically localized protests are interconnected as they seek to stop the physical and financial flows of tar sands (Veltemery & Bowles, 2014; Gobby & Gareau, 2019). These movements represent an obstacle to settler sovereignty and capital accumulation, given that Canada, particularly the province of Alberta, requires ongoing land appropriation and the spatial circulation of crude oil to sustain its economy (LeQuesne, 2019; Pasternak, Mazer & Cochrane, 2019). As Stendie and Adkin put it (2016:447): "The greatest obstacle to tar sands expansion is the effort of Indigenous and environmental movements to block every new route to market". Pipelines have been targeted for disruption given their strategic importance for international oil trade (Janzwood, 2020; Lawson, 2021). Through multiple strategies, including blockades and permanent camps at fossil fuel infrastructure sites, lawsuits, street demonstrations, and fossil fuel divestment and media campaigns, First Nations and allies have played a

crucial role in the cancellation of three of four major proposed pipeline projects in Canada — Keystone XL, Energy East, and Northern Gateway —except for the TMX (Gobby & Gareau, 2019).

Despite pipeline delays and cancellations, crude oil continues to be transported by rail, truck, and existing pipelines. This persistence, exemplified in the case of the TMX, exposes the tensions between the Indigenous-led resistance movement and entrenched fossil fuel interests. While this movement sought to stop the pipeline, citing a wide range of socioeconomic and ecological impacts (Lawson, 2021), the federal government, the Alberta government, and private companies like Kinder Morgan — the former owner of the pipeline—framed this project as necessary to the Canadian economy (Prime Minister, 2016; Trans Mountain, 2021). Using the notion of energyscapes, we explore these conflicting dynamics, underscoring the discursive-material practices mobilized by the main antagonists, namely the federal government and the First Nations-led movement (Table 6.1).

Table 6.1. Discursive-material practices and spaces related to the TMX

Actor	Land claims	Discourses	Knowledge systems	Sociopolitical arenas	Physical spaces
The Canadian government	Treaties land-use consultations IBAs	Economic development Job creation Decarbonization	Hegemonic scientific/ technical knowledge informing energy policies	Federal court NEB hearing sessions EIAs Consultation and accommodation process Parliament sessions Mainstream media	Construction and operation of the pipeline and related infrastructure from Alberta to BC.
First Nations-led resistance movement	Land reoccupation Pipeline blockades Lawsuits Demonstrations	Climate justice Fossil fuel divestment	Indigenous knowledges Critical academic research	Community meetings and decision-making processes Protests on streets, squares, and outside government/corporate buildings Social media and other communication channels Physical and online events	Blockades and construction of watch houses along the pipeline, specifically in Blue River and Burnaby, BC.

Source: Own elaboration

1) Contested land claims and their representations

Informed by the findings gathered through archival research and document analysis, our study shows that the TMX controversy is part of broader historical conflicts between the Canadian state and Indigenous peoples over claims to lands and resources (Frost, 2019; Atleo, 2021). Although these conflicts unfold over multiple sociopolitical arenas, legal disputes constitute key arenas where the Canadian state legitimizes and maintains the settler colonial land property regime, while First Nations exercise their land rights within the limits and constraints of state institutions. Drawing on its unilateral assumption of land title, the federal government approved the TMX in 2016, declaring it properly consulted Indigenous communities along the pipeline and assessed its environmental risks (Prime Minister, 2016). In contrast, a group of First Nations filed lawsuits in the Federal Court of Appeal (FCA), contending that the federal government infringed their unceded land rights by not addressing their concerns about the project's impact on their lands and by predetermining the outcomes of land-use consultation (NEB, 2016; Figure 6.5).

Figure 6.5. Placard used at a protest against the TMX in Vancouver

Photo credit: Emiliano Castillo Jara, 2022

Contrary to the plaintiffs' expectations, the FCA rejected the TMX approval in 2018, arguing that the federal government failed to fulfill its constitutional duty (section 35 of the Constitution Act, 1982) to consult, accommodate, and seek consent from affected First Nations (*Tsleil-Waututh* Nation v. Attorney General of Canada, 2018: 7-8). While the FCA's verdict

ordered the Trudeau administration to stop the TMX and conduct further consultation, illustrating the divergent viewpoints within the Canadian state on this project, it did not question settler jurisdiction over land, as it only established the conditions needed for the future pipeline approval (*Tsleil-Waututh* Nation v. Attorney General of Canada, 2018, para. 771).

Following the FCA's resolution, the federal government purchased the TMX after Kinder Morgan abandoned the pipeline project, citing legal and economic reasons (Kinder Morgan, 2018; USSEC, 2018). This created a conflict of interest because the government became the pipeline owner (Hoberg, 2021). After the new round of consultations, the FCA determined that there was no bias in the TMX decision-making as the federal government did consult and attempt to accommodate First Nations concerns and "was under no obligation to obtain consent before approving the project" (Coldwater Indian Band *et al.* v. Attorney General of Canada *et al.,* 2020:28; Pasternak, Mazer & Cochrane, 2019).

This ruling was accompanied by a more pronounced shift in the federal government's discourse, one characterized by an emphasis on reconciliation and the pursuit of a 'nation-to-nation' relationship (Frost, 2019). By framing First Nations as 'partners', the federal government sought to manufacture a sense of inclusion and consent (Hoberg, 2021). However, this conciliatory tone masked the federal government's pre-determined commitment to complete the TMX and its use of the consultation process as a procedural mechanism to legitimize its assertion of land jurisdiction (Coldwater Indian Band et al. v. Attorney General of Canada et al., 2020). Indeed, the Supreme Court validated in 2020 the TMX approval by rejecting an appeal from affected First Nations (Hoberg, 2021), removing any legal obstacle to the construction of the pipeline, which began operations in 2024 (Williams, 2024). This legal dispute shows the importance of settler legal procedures and restrictive interpretations of Indigenous land rights in (re)producing and sustaining tar sands spaces. These restrictive legal procedures render Indigenous lands as fragmented parcels, clearing the path for transforming spaces into industrial corridors, articulating the TMX with cross-scalar networks of infrastructures designed to facilitate oil exports.

Despite the construction of the TMX, First Nations have maintained their opposition both inside and outside the courtroom. For instance, the Tiny House Warriors of the Secwepemc Nation built tiny houses on wheels in the Secwepemc territory (Kamloops, BC) to reassert jurisdiction and block access to the TMX construction sites (Tiny House Warriors, 2020). Similarly, members of the Tsleil-Waututh Nation (TWN) and supporters built a watch house in the Musqueam, Squamish, and Tsleil-Waututh territories (Vancouver, BC) to monitor operations at the TMX marine terminal on Burnaby Mountain (TWN, 2021). While other First Nations have adopted different strategies against this pipeline (Atleo, 2020), these examples illustrate attempts to problematize colonial interpretations of Indigenous land as empty spaces

and undo the territorial arrangements that enable state and corporate actors' access to and control over land for tar sands activities.

To visualize how these colonial interpretations are physically manifest, we looked at aerial photographs depicting tar sands extraction, mining, production, and distribution sites in Alberta. These images capture hegemonic meanings embedded in tar sands spaces: the "emptiness" of land claimed by the Canadian state to justify extractive operations, and the subsequent normalization of environmental destruction (Spady & Angus, 2020). While illustrative, we acknowledge that these photographs, as well as the map of tar sands infrastructures (Figure 6.2), are inherently limited by their Western cartographic perspective. As Rose-Redwood et al. (2020) indicate, such visual representations often fail to reflect Indigenous ways of perceiving space and risk erasing the presence of Indigenous people and their diverse geographies In direct opposition to colonial abstractions of land, First Nations mobilize heterogenous understandings of the land as a system of responsibilities to past and future generations and the non-human world that sustains and revitalizes their cultures (Coulthard, 2010; Daigle, 2016; Aleck, 2020). These responsibilities are not abstract; they manifest through grassroots resistance. In protests, First Nations articulated these conceptions of the land, stressing the threat the TMX poses to their land rights, ways of life and self-determination.

2) Discourses on fossil fuel production

Based on participant observation at TMX protests and our analysis of documents featuring the perspectives of pipeline opponents, we identified prominent discursive elements mobilized against the TMX. Among these are critiques related to the climate impacts of tar sands operations and the historical inequalities it perpetuates (Spiegel 2021; the authors, 2022). In particular, First Nations and ENGOs have criticized the federal government for approving the TMX without conducting a comprehensive and independent assessment of the pipeline's lifecycle emissions (Coast Protectors, 2020). While the emissions from a single pipeline may be relatively small, the main issue is that tar sands-related emissions have increased by 85% since 2005[27] (Government of Canada, 2019), becoming the fastest-growing polluting source in the country (Al-Aini, Severson-Baker & Gorski, 2022). Tar sands development thus obstructs Canada's ability to meet its climate goals (Gooderham, 2016; Hughes, 2020).

[27] It is important to note that Canada's official oil statistics exclude emissions from crude oil exports and consumption abroad, which account for a large proportion of total oil-related emissions (Al-Aini, Severson-Baker & Gorski, 2022).

Building on this critique, TMX opponents mobilize discourses of climate justice that transcend local concerns, linking specific pipeline struggles to the historical responsibility of fossil capital and the Canadian state for climate change (INET, 2017). Divestment campaigns have been one of the main strategies adopted in this regard, as evidenced during demonstrations against the TMX in Vancouver, where participants called on Prime Minister Trudeau, the oil industry, banks, and insurance companies[28] to divest from the TMX (Figure 6.6). These discourses reveal the multi-scalar nature of tar sands spaces. The TMX case connects the material sites of the pipeline to national debates over Canada's commitment to reduce its GHG emissions and global concerns regarding the need to phase out fossil fuel production and consumption. This connectivity shows that the TMX is not merely a local pipeline project but a socio-material node that links fossil fuel extraction to the global environmental crisis.

Evidence from field observations and document analysis reveals three major intersecting concerns among pipeline opponents: contradictions between fossil fuel expansion and climate commitments, the concentration of corporate power in the oil industry, and the disproportionate exposure of First Nations to environmental burdens of tar sands operations (Black *et al.,* 2014; LeQuesne, 2019; Spiegel, 2021a). By foregrounding these issues, the First Nations-led movement reframed the TMX debate, shifting focus away from economic growth arguments towards climate justice and Indigenous self-determination. In doing so, this movement emphasizes that Indigenous land sovereignty is fundamental to limit tar sands expansion and rebuild relationships with nature.

[28] A list of these companies can be found in Insurance our Future (2022)

Figure 6.6. Banners in a protest against the TMX in Vancouver, BC

Photo credit: Emiliano Castillo Jara, 2022

Demonstrations, however, lost momentum in the context of COVID-19 as public gatherings were restricted and attention focused on measures to support the oil sector amid the economic crisis (Forrest, 2020). The post-COVID recovery of the oil industry reinforced this trend, providing the federal and Alberta governments and fossil capital an opportunity to advance fossil fuel discourses. Indeed, although some institutional investors limited or stopped financial support for the TMX (Benton-Connell & Cochrane, 2020), most continued to fund this project. Due to inadequate regulation of fossil fuel financing, even those who withdrew assets from the TMX could have reinvested them in fossil fuel projects labeled as 'carbon neutral' (Graham, 2019). In this vein, Prime Minister Trudeau (2019) announced that “every dollar the federal government earns from this project will be invested in Canada's clean energy transition". The rhetorical reconciliation between tar sands extraction and climate protection is part of corporate and state strategies to promote the oil industry’s decarbonization (Parson & Ray, 2018; Kraushaar-Friesen & Busch, 2020).

These discursive strategies are materially supported by regulatory frameworks, policy initiatives, research programs and technological systems designed to reduce GHG emissions in the oil industry (Graham, 2024). Through these mechanisms, the federal government and fossil capital attempt to discipline and co-opt counter-hegemonic discourses that consider tar sands development as unsustainable (Graham, 2019). By reframing this activity as carbon neutral, fossil fuel proponents make strategic concessions to secure the 'social license' needed

to ensure continued access to Indigenous lands for tar sands operations (Parson & Ray, 2018). Although this issue was not particularly prominent in the attended demonstrations, First Nations and ENGOs have expressed concerns about greenwashing as the Canadian state and fossil capital increasingly turn to net-zero plans to 'reduce' GHG emissions (Carroll, 2020; RAN *et al.,* 2022). In the face of opposition to tar sands, we see decarbonization initiatives within the oil sector as an attempt to stabilize tar sands spaces through the renewal and expansion of capital accumulation.

3) Knowledge hierarchies in energy policy

Our analysis of the TMX public hearings and EIAs reveals the politics of knowledge and its relevance to the production and circulation of meanings attributed to tar sands spaces. Some First Nations presented oral and documentary evidence to the NEB about the potentially irreversible impacts of oil spills and increased marine tanker traffic on their livelihoods, land rights, and ecosystems (TWN, 2016; NEB, 2016; NEB, 2018). Drawing on conceptions of land as co-constructed through complex human-nonhuman interactions (Powell, 2018), First Nations like the *Tsleil-Waututh* Nation spoke of their cultural and spiritual connections with killer whales and salmon on the BC coast and emphasized their responsibility to protect non-human nature endangered by the transport of oil by tanker (NEB, 2018: para. 3980).

The NEB, however, disregarded Indigenous viewpoints, alleging that stricter environmental management measures would reduce oil spill risks and other ecological damages (NEB, 2016). Based on the assumption that hegemonic scientific and technical knowledge provided 'objective' and 'reliable' information concerning the risks of tar sands (Barker & Westman, 2018), the NEB concluded that the TMX would not "cause significant adverse environmental effects" and recommended its approval (NEB 2016:18). This decision was problematic because it reflected a narrow understanding of the environmental repercussions of tar sands and an oversimplification of First Nations relationships with the land.[29] At its core, the NEB's technocratic approach dismisses Indigenous knowledges as less legitimate compared to the purported 'objectivity' of Western hegemonic scientific knowledge (Barker & Westman, 2018). While the FCA certainly determined in 2018 that the NBE failed to properly assess the TMX risks after the First Nations-led movement demanded a reassessment of the project (*Tsleil-Waututh Nation* v. Attorney General of Canada, 2018), the FCA validated the EIA in 2019, claiming that the federal government complied with environmental legislation (Coldwater Indian Band v. Attorney General of Canada, 2020).

[29] This pattern can be seen in other hearings of pipeline projects, where First Nations declarations did not count as evidence-based recommendations to approve or reject pipeline projects (Carroll, 2021).

Disputes over the legitimacy of knowledge claims are central to the materiality of tar sands spaces. By underscoring the ecological implications of the TMX, some First Nations foreground the socio-material connections of their cultures with the health of both local ecosystems and the global environment. In doing so, these First Nations translate environmental risks into tangible risks, arguing that tar sands infrastructure constitutes a threat to their livelihoods and distinct cultures. Indigenous knowledges challenged the NEB's technocratic expertise, which minimized the socio-ecological risks of crude oil transportation, prioritizing 'national interest' concerns and oil production and export outputs.

In our view, the rationale behind the NEB and FCA's decisions reflects knowledge hierarchies of oppression created and sustained by the Canadian state to delegitimize Indigenous experiences and conceptions of the land. Our intention here is not to reproduce essentialist notions of Indigenous peoples, but rather to emphasize the failure of legislation, public hearings, and EIAs to engage with Indigenous forms of knowledge and address concerns about the implications of the pipeline. This leads us to argue that the (re)production of tar sands spaces rests on the reinforcement of technocratic and authoritative knowledge claims and the subordinate inclusion and exclusion of Indigenous knowledges in energy policymaking. Viewed through the lens of settler colonialism, this marginalization not only functions as a form of epistemic erasure but also facilitates land appropriation and the disruption of Indigenous peoples' livelihoods and cultures.

7. Conclusions

Bringing together research on political ecology, energy geographies, fossil capitalism, and settler colonialism, we further theorize energyscapes to examine the (re) production, governance, and contestation of tar sands spaces in Canada. Energyscapes provide insights into key competing material-discursive practices through which physical spaces and socio-political arenas for tar sands development are configured, (de)legitimized, and disrupted. We show that conflicting settler colonial and First Nations assertions of jurisdiction over land are central to these processes. In doing so, we seek to advance debates on the political ecology of disputes over unconventional fossil fuels in Canada.

Through energyscapes, we analyze the divergent land claims, discourses, and knowledges of the federal government and a First Nation-led movement to structure, maintain, and challenge the socio-material spaces of the TMX project. The TMX case elucidates that the materialization of tar sands spaces is inseparable from Indigenous land appropriation, the discursive legitimation of fossil fuel expansion, and hegemonic scientific-technical knowledge claims. Together, these aspects reflect and materialize the interests of fossil capital and the Canadian state, transforming local spaces into extractive sites that marginalize Indigenous

territorial sovereignty while integrating them into global networks of crude oil circulation. Simultaneously, this case study sheds light on the importance of Indigenous-led resistance in confronting settler territorial jurisdiction and physically obstructing the circulation of tar sands. By grounding their struggle in the defense of the land, this movement sought to disrupt the material basis of tar sands spaces and rearrange the territorial agreements upon which these rest.

Given that the TMX will continue to undermine Indigenous land rights, disproportionately expose communities to environmental hazards, and exacerbate fossil capitalism, energy policy-making must be restructured around Indigenous self-determination and climate justice. For the federal government, this necessarily involves engaging in meaningful dialogue with diverse Indigenous forms of land governance and knowledge systems. Future studies should explore how tar sands decision-making processes could draw on Indigenous discursive-material practices to address land-use conflicts, climate change and community participation in energy governance. In doing so, more attention is needed to place-based forms of social resistance to investigate further the obstacles and possibilities of dismantling the colonial and capitalist foundations of tar sands spaces.

While energyscapes offer a critical reading of tar sands spaces, political ecology has yet to address crucial questions, such as under what socio-political conditions might it be possible to slow down tar sands expansion? Or what tar sands development might look like under forms of Indigenous sovereignty? These questions are relevant in the context of Canada's energy transition, as decarbonization efforts in the oil sector may accelerate resource extraction and produce new forms of injustice rather than addressing the climate crisis and settler colonialism. This requires political ecology scholars to rethink and reformulate the analytical and empirical tools with which they attempt to make sense of how energy spaces are imagined, produced, and transformed.

CRediT authorship contribution statement

ECJ: Conceptualization, research design, data collection, analysis and interpretation, and manuscript drafting. AB: Supervision of study conception, design and data collection. All authors: Manuscript revision and final approval.

Declaration of Competing Interests

The authors report no declarations of interest.

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References

Adkin L. (Ed.). (2016). *First World Petro-Politics: The Political Ecology and Governance of Alberta*. University of Toronto Press.

Aleck, C. (2020, October 19). *The TMX Pipeline Threatens First Nations People. It Must Be Stopped*. Truthout. https://truthout.org/articles/the-tmx-pipeline-threatens-first-nations-people-it-must-be-stopped/

Alfred, T., & Corntassel, J. (2005). Being Indigenous: Resurgences against Contemporary Colonialism. *Government and Opposition*, 40 (4), 597-614. https://doi.org/10.1111/j.1477-7053.2005.00166.x

Al-Aini, E., Severson-Baker, C., & Gorski, J. (2022). *Getting on Track*. *A primer on challenges to reducing carbon emissions in Canada's oilsands*. Pembina Institute. https://www.pembina.org/reports/getting-on-track.pdf

Alteo, C. (2020). Between a Rock and a Hard Place: Canada's Carbon Economy and Indigenous Ambivalence. In Carroll, W. (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (pp. 355-376). Athabasca University Press.

Baka, J. (2025). Cracking Appalachia: A Political-Industrial Ecology Perspective. *Annals of the American Association of Geographers*, *115*(4), 743–763. https://doi.org/10.1080/24694452.2025.2452554

Barker, J. M., & Westman, C.N. (2018). Extracting knowledge: Social science, environmental impact assessment, and Indigenous consultation in the oil sands of Alberta, Canada. *The Extractive Industries and Society,* (5) 1, 144-153. https://doi.org/10.1016/j.exis.2017.12.008

Benton-Connell, K., & Cochrane, D.T. (2020).“Canada Has a Pipeline Problem”: Valuation and Vulnerability of Extractive Infrastructure. *South Atlantic Quarterly*, 119(2), 325–352. https://doi.org/10.1215/00382876-8177783

Black, T., D'Arcy, S., Weis, T., & Kahn Russell, J. (Eds.). (2014). *A Line in the Tar Sands: Struggles for Environmental Justice*. Between the Lines Press.

Bridge, G., Barr, S., Bouzarovski, S., Bradshaw, M., Brown, E., Bulkeley, H., & Walker, G. (2018). *Energy and Society*. Routledge.

Bridge, G., and Gailing, L. (2020). New energy spaces: Towards a geographical political economy of energy transition. *Environment and Planning A: Economy and Space,* 52 (6), 1037-1050. https://doi.org/10.1177/0308518X20939570

Brock, A. (2020). 'Frack off': Towards an anarchist political ecology critique of corporate and state responses to anti-fracking resistance in the UK. *Political Geography,* 82, 102246. https://doi.org/10.1016/j.polgeo.2020.102246

Canadian Association of Petroleum Producers (CAPP). (2021). *What Are the Oil Sands*? CAPP. https://www.capp.ca/oil/what-are-the-oil-sands/

Canada Energy Regulator (CER). (2020). Market Snapshot: Canadian exports of crude oil to destinations other than the United States are mainly from Newfoundland and Labrador's offshore. CER. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2020/market-snapshot-canadian-exports-crude-oil-destinations-other-than-united-states-are-mainly-from-newfoundland-labradors-offshore.html

Canada Energy Regulator (CER). (2022). *Canadian Crude Oil Exports: A 30 Year Review*. CER. https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/crude-oil-petroleum-products/report/canadian-crude-oil-exports-30-year-review/

Calvert, K. (2016). From 'energy geography' to 'energy geographies': Perspectives on a fertile academic borderland. *Progress in Human Geography,* 40 (1), 105-125. https://doi.org/10.1177/0309132514566343

Calvert, K., Greer, K., & Maddison-MacFadyen, M. (2019). Theorizing energy landscapes for energy transition management: insights from a socioecological history of energy transitions in Bermuda. *Geoforum,* 102, 191-201. https://doi.org/10.1016/j.geoforum.2019.04.005

Canada Energy Regulator (CER). (2024f). Trans Mountain Pipeline ULC – Trans Mountain Expansion Project. https://www.cer-rec.gc.ca/en/applications-hearings/view-applications-projects/trans-mountain-expansion/index.html#wb-info

Cardoso, A., & Turhan, E. (2018). Examining new geographies of coal: Dissenting energyscapes in Colombia and Turkey. *Applied Energy,* 224, 398-408. https://doi.org/10.1016/j.apenergy.2018.04.096

Carter, A. (2014). Petro-Capitalism and the Tar Sands. In Black, T., D'Arcy, S., Weis, T., & Kahn Russell, J. (Eds.). *A Line in the Tar Sands: Struggles for Environmental Justice* (pp. 23-35) Between the Lines Press.

Carter, A. (2020). *Fossilized. Environmental Policy in Canada's Petro-Provinces.* UBC Press.

Carroll, W. (2020). Fossil Capitalism, Climate Capitalism, Energy Democracy: The struggle for hegemony in an era of climate crisis. *Socialist Studies / Études socialistes*, 14 (1), 1-26. https://doi.org/10.18740/ss27275

Carroll, W (Ed.). (2021). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy*. Athabasca University Press.

Castán Broto, V.C., & L.I. Baker, L. (2017). Spatial adventures in energy studies: an introduction to the special issue. *Energy research and social science,* 36, 1-10. https://doi.org/10.1016/j.erss.2017.11.002

Castán Broto, V.C., & Sanzana Calvet, M. (2020). Sacrifice zones and the construction of urban energy landscapes in Concepción, Chile. *Journal of Political Ecology,* 27 (1), 279-299. https://doi.org/10.2458/v27i1.23059

Castillo Jara, E., & Bruns, A. (2022).Contested notions of energy justice and energy futures in struggles over tar sands development in British Columbia, Canada. *Futures*, 138, 102921. https://doi.org/10.1016/j.futures.2022.102921

Castillo Jara, E. (2025). Making fossil fuel futures: The discursive formation of Canada's net-zero imaginary. Energy Research & Social Science, 127,104182, https://doi.org/10.1016/j.erss.2025.104182

Cederlöf, G. (2021). Out of steam: Energy, materiality, and political ecology. Progress in Human Geography, 45(1), 70-87. https://doi.org/10.1177/0309132519884622

Coast Protectors. (2020, June 16). *Indigenous Leaders and Environmental Groups Demand Independent Investigation into Safety of Existing TMX Pipeline After Latest Oil Spill.* https://www.coastprotectors.ca/indigenous_leaders_and_environmental_groups_demand_independent_investigation_into_safety_of_existing_tmx_pipeline_after_latest_oil_spill

Coldwater Indian Band *et al.* v. Attorney General of Canada *et al.* (2020). FCA 34. https://decisions.fca-caf.gc.ca/fca-caf/decisions/en/item/460815/index.do

Coulthard, G. (2010). Place against Empire: Understanding Indigenous Anti-Colonialism. *Affinities: A Journal of Radical Theory, Culture, and Action,* 4 (2), 79-83. https://ojs.library.queensu.ca/index.php/affinities/article/view/6141

Crosby, A., & Monaghan, J. (2018). *Policing Indigenous Movements. Dissent and the Security State*. Fernwood.

Daigle, M. (2016). Awawanenitakik: The spatial politics of recognition and relational geographies of Indigenous self-determination. *The Canadian Geographer / Le Géographe Canadien,* 60, 259-269. https://doi.org/10.1111/cag.12260

Davine, T., M. Lawhon & J. Pierce. (2017). Place-making at a national scale: Framing tar sands extraction as "Canadian" in The Globe and Mail. *The Canadian Geographer,* 61 (3), 428-439. https://doi.org/10.1111/cag.12392

Delina, L.L. (2020). Indigenous environmental defenders and the legacy of Macliing Dulag: Anti-dam dissent, assassinations, and protests in the making of Philippine energyscape. *Energy research and social science,* 65, 101463. https://www.sciencedirect.com/science/article/pii/S2214629620300402

Doolittle, A. (2016). The best of many worlds: methodological pluralism in political ecology. In Bryant, R.L., (Ed.). *The International Handbook of Political Ecology* (pp. 515-529) Edward Elgar Publishing.

Dusyk, N., Axsen, J., & Dullemond, K. (2018). Who cares about climate change? The mass media and socio-political acceptance of Canada's oil sands and Northern Gateway Pipeline. *Energy Research and Social Science*, 37, 12-21. https://doi.org/10.1016/j.erss.2017.07.005

Foucault, M. (2019). Power/knowledge. In Siedman, S., & Alexander, J.C. (Eds.). *The new social theory reader* (pp. 73-79). Routledge.

Forrest, M. (2020, April 29). Environmental activists take pipeline protests online during Covid-19. *Politico*. https://www.politico.com/news/2020/05/29/environmental-activists-take-pipeline-protests-online-during-covid-19-289245

Frost, K. (2019). First Nations sovereignty, Environmental Justice, and Degrowth in Northwest BC, Canada. *Ecological Economics,* 162, 133-142. https://doi.org/10.1016/j.ecolecon.2019.04.017

Graham, N. (2019). Canadian Fossil Capitalism, Corporate Strategy, and Post-Carbon Futures. *The Canadian Review of Sociology*, 56 (2), 224-250. https://doi.org/10.1111/cars.12244

Gobby, J., & Gareau, K. (2019). Understanding the crisis, uncovering root causes and envisioning the world (s) we want. Conversation with the anti-pipeline movements in Canada. In Jafry, T. (Ed). *Routledge Handbook of Climate Justice* (pp. 449-465) Routledge.

Gooderham, D. (2016). *The Kinder Morgan Pipeline and Canada's chances of cutting total emissions by 2030.*http://dagooderham.com/wp-content/uploads/2016/10/Submission-KinderMorgan-DavidGooderham-160923.pdf

Government of Canada. (2019). *Greenhouse gas emissions. Canadian Environmental Sustainability Indicators*.https://www.canada.ca/content/dam/eccc/documents/pdf/cesindicators/ghg-emissions/2020/greenhouse-gas-emissions-en.pdf

Government of Canada. (2020). *What are the oil sands?* https://natural-resources.canada.ca/our-natural-resources/energy-sources-distribution/fossil-fuels/crude-oil/what-are-oil-sands/18089

Government of Canada. (2021). *Building Understanding: The First Report of the National Advisory Council on Poverty*. https://www.canada.ca/en/employment-social-development/programs/poverty-reduction/national-advisory-council/reports/2020-annual.html#h2.06

Government of Canada. (2023). *Treaties and agreements*. https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231

Government of Canada. (2023a). *Structure of government*. https://www.canada.ca/en/government/system/how-government-works/structure.html

Grossman, Z. (2017). Unlikely Alliances: Native Nations and White Communities Join to Defend Rural Lands. Seattle: University of Washington Press.

Haarstad, H., Wanvik, T. (2016). Carbonscapes and beyond conceptualizing the instability of oil landscapes. *Progress in Human Geography,* 41 (4), 432-450. https://doi.org/10.1177/0309132516648007

Harlan, T., & Baka, J. (2024). Stacked energyscapes: Conceptualizing fossil fuel and renewable energy entanglements in low-carbon transitions. *Energy Research & Social Science*, 115, 103648. https://doi.org/10.1016/j.erss.2024.103648

Hein, C. (Ed.). (2021). *Oil Spaces. Exploring the Global Petroleumscape*. Routledge.

Hoberg, G. (2021). *The Resistance Dilemma. Place-Based Movements and the Climate Crisis*. MIT

Howard, D. C., *et al*. (2013). Energyscapes: Linking the energy system and ecosystem services in real landscapes. *Biomass and Bioenergy*, 55, 17-26. https://doi.org/10.1016/j.biombioe.2012.05.025

Huang, Y., & Weaver-Hightower, R. (2019). Introduction: Settler colonialism and its cultural archives- ways of reading. In Y. Huang, & R. Weaver-Hightower (Eds.). *Archiving settler colonialism. Culture, space, and race. Empires and the Making of the Modern World, 1650-2000* (pp.1-16) Routledge. https://doi.org/10.4324/9781351142045

Huber, M. (2015). Energy and Social Power: From Political Ecology to the Ecology of Politics. In Perrault, T., Bridge, G., and McCarthy, J (Eds). *The Routledge Handbook of Political Ecology* (pp.481-492) Routledge.

Hughes, D. (2020). *Reassessment of Need for the Trans Mountain Pipeline Expansion Project*. CCPA, Parkland Institute.https://www.policyalternatives.ca/sites/default/files/uploads/publications/BC_Office/2020/10/ccpa-bc_reassessment-of-need-for-TMX-FINAL.pdf

Hunsberger, C., & Kløcker Larsen, R. (2021). The spatial politics of energy conflicts: How competing constructions of scale shape pipeline and shale gas struggles in Canada. *Energy Research & Social Science,* 77, 102100. https://doi.org/10.1016/j.erss.2021.102100

Hussey, I., Pineault, É, Jackson, E., & Cake, S. (2021). Boom, Bust, and Consolidation: Corporate Restructuring in the Alberta Oil Sands. In Carroll, W. (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (pp.35-61) Athabasca University Press.

International Energy Agency (IEA). (2022). *World Energy Outlook*. IEA. https://iea.blob.core.windows.net/assets/830fe099-5530-48f2-a7c111f35d510983/WorldEnergyOutlook2022.pdf

Indigenous Network on Economies and Trade. (2017). *Standing Rock of the North. The Kinder Morgan Trans Mountain Pipeline Expansion Secwepemc Risk Assessment.* https://a08637c9-0413-4126-9c382f405deeeb45.filesusr.com/ugd/934d11_6d9408803da54d24a2d6b650f14e6125.pdf

Insurance our Future. (2022). *Final-Open-Letter-to-Trans-Mountain-Insurers*.https://us.insure-our-future.com/wp-content/uploads/sites/3/2022/07/Final-Open-Letter-to-Trans-Mountain-Insurers-%E2%80%93-July-14-2022.pdf

Janzwood, A. (2020). Explaining Variation in Oil Sands Pipeline Projects. *Canadian Journal of Political Science/Revue canadienne de science politique,* 53 (3), 540 – 559. https://doi.org/10.1017/S0008423920000190

Jordhus-Lier, D., Houeland, C., & Ellingvåg, T. H. (2022). Alienating assemblages: Working the carbonscape in times of transformation. *Progress in Human Geography*, *46*(2), 319-338. https://doi.org/10.1177/03091325211018730

Kearns, R. (2016). Placing Observation in the Research Toolkit. In I. Hay (Ed.). *Qualitative research methods in Human Geography* (pp.313-333). Oxford University Press

Kinder Morgan. (2018, May 29). https://ir.kindermorgan.com/news/news-details/2018/Trans-Mountain-Pipeline-System-and-Expansion-Project-to-Be-Sold-for-C45-Billion/default.aspx

Kirshner, J., Broto, V. C., & Baptista, I. (2020). Energy landscapes in Mozambique: The role of the extractive industries in a post-conflict environment. *Environment and Planning A: Economy and Space*, 52(6), 1051-1071. https://doi.org/10.1177/0308518X19866212

Kraushaar-Friesen, N. & H. Busch. (2020). Of pipe dreams and fossil fools: Advancing Canadian fossil fuel hegemony through the Trans Mountain pipeline. *Energy Research & Social Science,* 69,101695. https://doi.org/10.1016/j.erss.2020.101695

Kuteleva, A., & Leifso, J. (2020). Contested crude: Multiscalar identities, conflicting discourses, and narratives of oil production in Canada. *Energy Research & Social Science*, 70, 101672. https://doi.org/10.1016/j.erss.2020.101672

Lawson, J. (2021). Lines of Work, Corridors of Power: Extraction, Obstruction, and Counter-obstruction Along Fossil Fuel Production Networks. In Carroll, W. (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (pp. 61-91) Athabasca University Press.

Lachapelle, E., Morin-Chassé, A., & Nadeau, R. (2021). "Framing the Energy East pipeline debate in Canada: Public opinion is sensitive to public safety and economic considerations", *Energy Research and Social Science*, 77, 102091. https://doi.org/10.1016/j.erss.2021.102091

Le Billon, P., & Vandecasteyen, R. (2013). (Dis) Connecting Alberta's Tar Sands and British Columbia's North Coast. *Studies in Political Economy. A Socialist Review,* 91(1), 35-57. https://doi.org/10.1080/19187033.2013.11674981

LeQuesne, T. (2019). From Carbon Democracy to Carbon Rebellion: Countering Petro-Hegemony on the Frontlines of Climate Justice. *Journal of World-Systems Research*, 25(1), 15-27. https://doi.org/10.5195/jwsr.2019.905

Llavero-Pasquina, M., Navas, G., Cantoni, R., & Martinez-Alier, J. The political ecology of oil and gas corporations: Total Energies and post-colonial exploitation to concentrate energy in industrial economies. *Energy Research & Social Science*, 109, 103434. https://doi.org/10.1016/j.erss.2024.103434

Lokman, K. (n.a.). *Canada's Carbon Corridor*. The University of British Columbia. https://sala.ubc.ca/work/canada%E2%80%99s-carbon-corridor

Longley, H. (2021). Conflicting Interests: Development Politics and the Environment Regulation of the Alberta Oil Sands Industry, 1970-1980. *Environment and History,* 27 (1), 97-125. https://doi.org/10.3197/096734019X15463432086919

Mackey, E. (2016). *Unsettled expectations: Uncertainty, land and settler decolonization*. Fernwood Publishing.

Malm, A. (2016). *Fossil capital: the rise of steam power and the roots of global warming*. Verso.

Manning, E. (1968). *Oil Sands Development Policy*. Legislative Assembly of Alberta.

Mansvelt, J., & Berg, L. D. (2005). Writing qualitative geographies, constructing geographical knowledges. In D. DeLyser, S.Herbert, S.Aitken, M. Crang, & L McDowell. Qualitative research methods in human geography, (pp-248-265). Sage

Manuel, A. & Derrickson, R.M. (2015). *Unsettling Canada: A National Wake-Up Call*. Between the Lines.

Mazer, K., Danyluk, M., Huchuck., E, & Cowen, C. (2019). Mapping a many-headed hydra. Transnational infrastructure of extraction and resistance. In Estes, N., & Dhillon, J. (Eds.). *Standing with Standing Rock. Voices from the # NoDALP Movement* (pp. 354-381) University of Minnesota Press.

McCurdy, P., & Uldam, J. (2013). Connecting Participant Observation Positions: Toward a Reflexive Framework for Studying Social Movements. *Field Methods,* 26 (1). https://doi.org/10.1177/1525822X13500448

McCreary, T. (2021). Crisis in the Tar Sands: Fossil Capitalism and the Future of the Alberta Hydrocarbon Economy. *Historical Materialism,* 30 (1), 31-65. https://doi.org/10.1163/1569206X-12341971

Napoleon, V. (2012). Thinking about Indigenous Legal Orders. In Provost, R. & Sheppard, C. (Eds.) *Dialogues on Human Rights and Legal Pluralism* (pp.229-245). Springer

National Energy Board (NEB). (2016). *National Energy Board Report - Trans Mountain Expansion Project.* https://www.ceaa-acee.gc.ca/050/documents/p80061/114562E.pdf

National Energy Board (NEB). (2018). *Trans Mountain Pipeline ULC. Hearing Order MH-052-2018.*https://docs2.cer-rec.gc.ca/lleng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3615225/3635474/3718913/A96430%2D2_Statement_of_Written_Evidence_of_Living_Oceans_Society_2018_%2D_Final_%2D_A6L5S1.pdf?nodeid=3718238&vernum=-2

Nadaï, A.& van der Horst, D. (2010). Introduction: Landscapes of Energies. *Landscape Research,* 35 (2), 143-155. https://doi.org/10.1080/01426390903557543

Nikiforuk, A. (2010). *Tar sands: Dirty oil and the future of a continent*. Greystone Books.

Owen, B. (2018, July 3). We've got new Trans Mountain data and we're sharing it. *The Discourse*. https://thediscourse.ca/environment/new-trans-mountain-data-were-sharing

Palmater, P. (2011). *Beyond Blood: Rethinking Indigenous Identity.* Purich Publishing.

Parson, S &. E. Ray. (2018). Sustainable Colonization: Tar Sands as Resource Colonialism, *Capitalism Nature Socialism,* 29 (3), 68-86. https://doi.org/10.1080/10455752.2016.1268187

Pasternak, S. (2014). Jurisdiction and Settler Colonialism: Where Do Laws Meet? *Canadian Journal of Law and Society,* 29,145 - 161. https://doi.org/10.1017/cls.2014.5

Pasternak, S., Mazer, K., & Cochrane, D.T. (2019). The Financing Problem of Colonialism. How Indigenous Jurisdiction is Valued in Pipeline Politics. In Estes, N., & Dhillon, J. (Eds.). *Standing with Standing Rock. Voices from the # NoDALP Movement*. (pp. 222-234) University of Minnesota Press.

Patel, I. (2012). The role of testimony and testimonial analysis in human rights advocacy and research. *State Crime Journal*, 1, 235, https://www.jstor.org/stable/41937909

Powell, D. (2018). *Landscapes of power. Politics of energy in the Navajo Nation*. Duke University Press.

Pickern, G. (2019). The frontiers of North America's fossil fuel boom: BP, Tar Sands, and the re-industrialization of the Calumet Region. *Journal of Political Ecology,* 26 (1), 38-56. https://doi.org/10.2458/v26i1.23106

Pineault, E. (2018). The capitalist pressure to extract: the ecological and political economy of extreme oil in Canada. *Studies in Political Economy. A Socialist Review,* 99(2), 1-21. https://www.tandfonline.com/doi/full/10.1080/07078552.2018.1492063

Prime Minister of Canada. (2016). Prime Minister Justin Trudeau's Pipeline Announcement. https://pm.gc.ca/en/news/speeches/2016/11/29/prime-minister-justin-trudeaus-pipeline-announcement

Prime Minister of Canada. (2019). *Trans Mountain Expansion will fund Canada's future clean economy.*https://pm.gc.ca/en/news/news-releases/2019/06/18/trans-mountain-expansion-will-fund-canadas-future-clean-economy

Preston, J. (2013). Neoliberal settler colonialism, Canada and the tar sands. *Race & Class,* 55 (2), 42–59. https://doi.org/10.1177/0306396813497877

Purdon, N., & Palleja, L. (2019, October 5). Trans Mountain pipeline: Why some First Nations want to stop it — and others want to own it. *CBC News*. https://www.cbc.ca/news/canada/trans-mountain-pipeline-first-nations-purchase-1.5279387

RAN. *et al.* (2024). *Banking on Climate Chaos: Fossil Fuel Finance Report 2024*. Banking on Climate Chaos.https://www.bankingonclimatechaos.org/wpcontent/uploads/2024/05/BOCC_2024_vF1.pdf

Richardson, E., Haworth, K., & Deamer, F. (2022). For the Record: Questioning Transcription Processes in Legal Contexts. *Applied Linguistics*, 43(4), 677–697. https://doi.org/10.1093/applin/amac005

Riel Müller, A. & Saaren, S. The maintenance of carbonscapes: Enacting Net Zero in Stavanger, Norway. *Geoforum*, 153, 104040. https://doi.org/10.1016/j.geoforum.2024.104040

Rifkin, M. (2017). Beyond settler time. Temporal sovereignty and Indigenous self-determination. Duke University Press.

Rose-Redwood, R., Blu Barnd, N., Hetoevėhotohke'e Lucchesi, A., Dias, S., & Patrick, W. (2020). *Cartographica Fall*, 55(3), 151-162. https://doi.org/10.3138/cart.53.3.intro

Rossiter, D., & P. Burke Wood. (2016). Neoliberalism as Shape-Shifter: The Case of Aboriginal Title and the Northern Gateway Pipeline. *Society & Natural Resources*, 29 (8), 900-915. https://www.tandfonline.com/doi/full/10.1080/08941920.2015.1095378

Schmidt, J. (2020). Settler geology: Earth's deep history and the governance of in situ oil spills in Alberta. *Political Geography,* 78, 102132. https://doi.org/10.1016/j.polgeo.2019.102132

Scott, D. N. (2014). The Networked Infrastructure of Fossil Capitalism: Implications of the New Pipeline Debates for Environmental Justice in Canada. *Revue Générale de Droit,* 43, 11–66. https://doi.org/10.7202/1021210ar

Shaw, K. (2008). *Indigeneity and Political Theory: Sovereignty and the Limits of the Political*. Routledge.

Short, D. & J. Huseman. (2012). A slow industrial genocide: tar sands and the indigenous peoples of northern Alberta. *The International Journal of Human Rights,* 16 (1), 216-237. https://doi.org/10.1080/13642987.2011.649593

Simpson, L. (2017). *As We have always done. Indigenous Freedom through Radical Resistance*. University of Minnesota Press.

Simpson, M. (2019). Resource desiring machines: The production of settler colonial space, violence, and the making of a resource in the Athabasca tar sands. *Political Geography,* 74, 102044. https://doi.org/10.1016/j.polgeo.2019.102044

Solomon, L. (2018, May 29). The political calculus of Rachel Notley, John Horgan and Justin Trudeau. *The National Observer*. https://www.nationalobserver.com/2018/05/29/opinion/political-calculus-rachel-notley-john-horgan-and-justin-trudeau

Spady, S., & Angus, S. (2020). *Histories of the Present: Tar Sands Photography and Colonial Cultural Production*. In Mišík, M., and Kujundžić, N. Energy Humanities. Current State and Future Directions (pp.127–148) Springer.

Spice A. (2018). Fighting Invasive Infrastructure. Indigenous Relations against Pipelines. *Environment and Society,* 9 (1), 40-56. https://doi.org/10.3167/ares.2018.090104

Spiegel, S. (2021). Climate injustice, criminalisation of land protection and anti-colonial solidarity: Courtroom ethnography in an age of fossil fuel violence. *Political Geography,* 84, 102298. https://doi.org/10.1016/j.polgeo.2020.102298

Spiegel, S. (2021a). Fossil fuel violence and visual practices on Indigenous land: Watching, witnessing and resisting settler-colonial injustices. *Energy Research & Social Science*, 79, 102189. https://doi.org/10.1016/j.erss.2021.102189

Stendie, L., &. Adkin, L. (2016). In the Path of the Pipeline: Environmental Citizenship, Aboriginal Rights, and the Northern Gateway Pipeline Review. In Adkin L. (Ed.). *First World Petro-Politics: The Political Ecology and Governance of Alberta* (pp. 417-455). University of Toronto Press.

Swain, J., & King, B. (2022). Using Informal Conversations in Qualitative Research. *International Journal of Qualitative Methods,* 21. https://doi.org/10.1177/16094069221085056

Trans Mountain. (2021). *Expansion Project*. https://www.transmountain.com/project-overview

Tsleil-Waututh Nation (TWN). (2016). Assessment of the Trans Mountain Pipeline and Tanker Expansion Proposal. https://twnsacredtrust.ca/assessment-report-download/

Tsleil-Waututh Nation *et al.* v. Attorney General of Canada *et al.* (2018). *FCA 153*. Federal Court of Canada. https://decisions.fca-caf.gc.ca/fca-caf/decisions/en/item/343511/index.do

Tuck, E., & Yang., K.W. (2012). Decolonization Is Not a Metaphor. Decolonization: Indigeneity, *Education and Society*, 1 (1), 1–40. https://jps.library.utoronto.ca/index.php/des/article/view/18630/15554

Union of the BC Indian Chiefs (UBCIC). (1998). *Aboriginal Title: Implementation*. https://www.ubcic.bc.ca/aboriginal_title_implementation_ubcic_1998

United States Securities and Exchange Commission. (2018). *Schedule 14 A. Proxy Statement Pursuant of Section 14 (a) of Securities Exchange Act of 1934. Kinder Morgan Canada Limited*. https://www.sec.gov/Archives/edgar/data/1714973/000104746918005465/a2236353zdefm14a.htm

Treaty Alliance Against Tar Sands Expansion. (n.a.). *Treaty Alliance Against Tar Sands Expansion*. http://www.treatyalliance.org/

Urquhart, I. T. (2018). *Costly fix: Power, politics, and nature in the tar sands*. University of Toronto Press.

Van Neste, S. L., & Couture-Guillet, A. (2022). The urban politicization of fossil fuel infrastructure: Mediatization and resistance in energy landscapes. *Environment and Planning C: Politics and Space*, *40*(8), 1801-1818. https://doi.org/10.1177/23996544221111657

Veltmeyer, H., & Bowles, P. (2014). Extractivist resistance: The case of the Enbridge oil pipeline project in Northern British Columbia. *The Extractive Industries and Society,* 1, 59-68. https://doi.org/10.1016/j.exis.2014.02.002

Yarbrough, D. (2020). "Nothing About Us Without Us": Reading Protests against Oppressive Knowledge Production as Guidelines for Solidarity Research. *Journal of Contemporary Ethnography*, 49(1), 58-85. https://doi.org/10.1177/0891241619857134

Wanvik, T.I. (2016). Governance transformed into Corporate Social Responsibility (CSR): New governance innovations in the Canadian oil sands. *The Extractive Industries and Society* 3: 517-526. https://doi.org/10.1016/j.exis.2016.01.007

Wanvik, T.I. (2018). *Contested Energy Spaces. Disassembling Energyscapes of the Canadian North*. Springer International Publishing.

Way, L. (2011). An energy superpower or a super sales pitch? Building the case through an examination of Canadian newspapers coverage of oil sands. *Canadian Political Science Review*, 5(1), 74–98. https://doi.org/10.24124/c677/2011250

Watts, M. (2013). Oil Talk. *Development and Change,* 44 (4),1013–1026. https://doi.org/10.1111/dech.12007

West Coast Environmental Law. (2019, August 19). *Trans Mountain and the Honour of the Crown: Indigenous legal challenges, round two*. https://www.wcel.org/blog/trans-mountain-and-honour-crown-indigenous-legal-challenges-round-two

Westerhoff, L., Sheppard, S.R.J., Mathew Iype, D., Cote, S., & Salter, J. (2018). Social mobilization on climate change and energy: An evaluation of research projects in British Columbia, Canada. *Energy Research & Social Science,* 46: 368–380. https://doi.org/10.1016/j.erss.2018.07.022

Westman, C.N., & Joly, T. (2019). Oil Sands Extraction in Alberta, Canada: A Review of Impacts and Processes Concerning Indigenous Peoples. *Human Ecology,* 47, 233–243. https://doi.org/10.1007/s10745-019-0059-6

Westman, C.N., Joly, T. & Gross, L. (Eds.). (2020). *Extracting home in the oil sands. Settler colonialism and environmental change in subarctic Canada*, Routledge.

Whitney, C., Evered, J., Patrick, B., & Lee, G. (2024). Whose Um Voice is it Anyway? Leveraging "Thick Transcription" to Promote Inclusion in Qualitative Research Through Transcript Alignment. *International Journal of Qualitative Methods*, 23. https://doi.org/10.1177/16094069241256548

Williams, N. (2024, May 2). Canada's long-delayed Trans Mountain oil pipeline starts operations. *Reuters*.https://www.reuters.com/business/energy/canadas-long-delayed-trans-mountain-oil-pipeline-set-start-operations-2024-05-01/

Wilson, S., Carlson, A., & Szeman, I. (Eds.). (2017). *Petrocultures: Oil, politics, culture*. McGill-Queen's Press.

Willow, A., & Wyle, S. (2014). Politics, ecology, and the new anthropology of energy: exploring the emerging frontiers of hydraulic fracking. *Journal of Political Ecology*, 21(1), 222-236. https://doi.org/10.2458/v21i1.21134

Wolford, W., and Keene, S. 2015. Social movements. In Perrault, T., Bridge, G., and McCarthy, J (Eds). *The Routledge Handbook of Political Ecology*. (pp.573-584). Routledge.

Zimmerer, K. S. (2011). New geographies of energy: Introduction to the special issue. *Annals of the Association of American Geographers,* 101 (4), 705-711. https://doi.org/10.1080/00045608.2011.575318

Chapter 7. Contested notions of energy justice and energy futures in struggles over tar sands development in British Columbia, Canada.

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Abstract

This paper explores the articulation and mobilization of competing notions of energy (in) justice and energy future visions in the struggle over the Trans Mountain pipeline expansion project (TMX) in British Columbia, Canada. The TMX is a controversial fossil fuel project because it leads to the appropriation of First Nations lands, gender violence, and the unequal distribution of the socio-environmental costs of tar sands operations. Despite these impacts, the Canadian state argues that the TMX contributes to economic growth, job creation, and increased tax revenues, thereby legitimizing tar sands expansion on Indigenous lands. Drawing upon literature on Indigenous climate/energy justice, we problematize conventional understandings of energy justice and energy futures by examining multiple, interconnected, and often neglected dimensions of justice in the TMX conflict. Through critical discourse analysis, this paper explores how First Nations opposing this pipeline mobilize different notions of justice to envision alternative energy futures. Our study shows how they challenge Canada's fossil fuel future vision by asserting jurisdiction over the lands crossed by the TMX and demanding the cancellation of this pipeline. Centering counter-hegemonic perspectives in discussions about tar sands development provides a starting point for imagining and building more just energy futures.

Keywords:
Energy justice
Energy futures
Indigenous
Trans Mountain Pipeline
Tar sands
Canada

1. Introduction

Since the mid-2000s, Canada has increased the extraction of the world's largest tar sands deposits[1] — located in the western province of Alberta—and its oil exports to the United States (US) via pipelines, thereby deepening its reliance on fossil fuels (Canadian Association of Petroleum Producers, 2018; Government of Canada, 2019a). In 2020, for example, tar sands represented 63% of the national oil production (Government of Canada, 2020), 15.7% of the country's exports (The Observatory of Economic Complexity, 2020), and $100 billion of Canada's gross domestic product (GDP) (Canadian Association of Petroleum Producers, 2020). Tar sands extraction and crude oil pipeline construction across Canada have been highly contested issues because of their environmental impacts, including air pollution, water contamination, and biodiversity loss (Adkin, 2016). Among these, tar sands extraction and combustion are particularly controversial activities, as they represent 12% of Canada's greenhouse gas emissions (GHG) and 1.6% of the world's emissions (Government of Canada, 2019b).

Tar sands activities have also met resistance from Indigenous peoples, particularly First Nations, who argue that their land rights have been systematically ignored by the Canadian state and oil corporations when planning tar sands projects (Short & Huseman, 2012). Some First Nations have forged cross-scalar alliances with environmental organizations to stop the approval of new tar sands pipelines, drawing attention to their negative socio-environmental impacts and risks. In some instances, however, the Canadian state has approved pipelines, highlighting their contribution to economic development and even environmental protection (Kraushaar-Friesen & Busch, 2020; Kuteleva & Leifso, 2020). By framing pipelines as projects of "national interest" (Prime Minister of Canada, 2019), Canada justifies tar sands extraction, the occupation of First Nations lands, and the criminalization of pipeline opponents. In this way, it imposes an energy future vision based on intensive fossil fuel extraction and consumption (Crosby & Monaghan, 2018; Dafnos, 2020; Kinder, 2021).

The socio-environmental consequences of tar sands have been extensively studied in environmental and climate justice research (Black et al., 2014; Scott, 2014; Temper, 2019). This body of research has analyzed how tar sands operations have consolidated state control over energy policymaking and economically benefited the oil industry while disproportionately affecting ecosystems and Indigenous peoples. More recently, energy justice studies have

[1] Tar sands are a mixture of bitumen, clay, sand, and water. Bitumen is heavy oil extracted through drilling and mining techniques that must be diluted before it can be transported through pipelines (Canadian Association of Petroleum Producers, 2018). Following Short and Huseman (2012), we use the term tar sands instead of oil sands because it highlights the social and environmental costs associated with their extraction. By contrast, the term oil sands, preferred by the oil industry and Canada, tends to conceal the negative consequences of tar sands development.

focused on contested perceptions of justice in regulatory reviews for tar sands pipelines, elucidating how First Nations perspectives, knowledges, and values are constantly delegitimized in these processes (Datta & Hurlbert, 2019; Hunsberger & Awaˆsis, 2019; Hurlbert & Rayner, 2018). Yet, these studies have not fully explored how Indigenous perspectives are mobilized outside regulatory processes to challenge the approval of pipelines and propose alternatives to fossil fuel development. This is important because Indigenous approaches to justice constitute a relatively new research area in energy justice (Sovacool et al., 2017), as Indigenous-led struggles against the expansion of fossil fuel infrastructures in Canada and the US have recently gained scholarly attention (Norgaard, 2020).

In response to calls for engagement with non-dominant ideas of energy justice, we examine the articulation and mobilization of First Nations discourses of (in) justice and future visions in the struggle over the Trans Mountain Pipeline Expansion Project (TMX) in British Columbia (BC). The TMX is a state-owned pipeline that, if completed, would carry 890.000 crude oil barrels per day from Alberta to a marine terminal in BC for export to the US and potentially China (Trans Mountain, n.a.). This pipeline has become one of the most controversial energy projects in recent years in Canada, as a group of First Nations, environmental organizations, the BC government, and local governments have demanded its cancellation, raising concerns about its impacts on Indigenous land rights, climate change, and marine biodiversity (Spiegel, 2021; Tsleil-Waututh Nation v. Attorney General of Canada et al., 2018). Although there are several actors involved in the TMX battle, First Nations play a key role in opposing this pipeline project. Indeed, this conflict is illustrative of how Indigenous-led mobilization disrupts tar sands pipeline operations by contesting Canada's claims to land sovereignty. While previous research has investigated how social resistance to the TMX advances climate justice (LeQuesne, 2019), there is little engagement with how First Nations-led movements call into question Canada's idea of justice and envision alternative energy futures (Kinder, 2021). To address this gap, this paper seeks to answer the following questions: How do affected First Nations deploy diverse discourses of (in) justice in the TMX conflict? And how do they use these discourses to articulate visions of energy futures? Using the case of the TMX dispute as an entry point, we aim to contribute to debates about just energy futures by scrutinizing how Indigenous-led resistance to tar sands development paves the way for building energy futures based on plural understandings of justice.

This paper is organized as follows. It begins with a discussion of the role of (in) justice in the making of energy futures. We discuss how non-Western conceptions of the future, such as those of Indigenous peoples, have been marginalized in the design and planning of future energy systems. This discussion provides the basis for critically examining how Canada's energy future is premised on the expansion of tar sands infrastructures on unceded Indigenous lands. We then turn to our case study to examine how some First Nations employ

heterogeneous notions of justice to contest the TMX. Through critical discourse analysis (CDA), we show how these notions unsettle Western conventional viewpoints of justice to include overlooked dimensions, such as Indigenous self-determination, gender justice, climate justice, and justice for non-human nature (Awaˆsis, 2020; McGregor, 2018; Whyte, 2017). We illustrate this by analyzing how some of the most vocal opponents to the TMX, namely the Sacred Trust Initiative of the Tsleil-Waututh Nation (TWN) and the Tiny House Warriors of the Secwepemc Nation, articulate future imaginaries around these dimensions. The paper concludes with a reflection of how Indigenous perspectives open up possibilities for imagining and constructing just energy futures.

2. Placing justice at the center of energy futures

An examination of contested energy futures requires defining the concept of energy. Approaching energy from a critical perspective allows us to see it as socially and materially constructed, negotiated, and disputed through political, economic, and cultural processes (Calvert, 2016; Huber, 2015). This definition stands in contrast to mainstream approaches to energy, which conceive energy technologies and energy policies as detached from their socio-historical contexts. We[2] agree with Bridge et al., (2018) observation that traditional understandings of energy fail to take into account the role of competing actors, narratives, knowledges, and values in shaping energy resources and systems. A focus on the political nature of energy then helps us understand the key role of energy in transforming society-nature relationships within specific historical and geographical contexts (Calvert, 2016; Bridge et al., 2018).

A growing strand of critical literature on energy futures has examined the socio-material processes by which certain future visions of energy systems are incorporated into energy policies while others are marginalized (Delina & Janetos, 2018; Longhurst & Chilvers, 2019; Stoddart et al., 2020). This fruitful line of inquiry has served as an anchor point for discussing how imagined energy futures are shaped, maintained, and contested through future-oriented practices, such as energy forecasts and scenarios (Tidwell & Tidwell, 2018; Konrad & Böhle, 2019). Following this line of thought turns our attention to the unequal capabilities of social actors to envision and enact energy futures, as well as the specific

[2] The authors of this paper are not Indigenous and do not live on the unceded lands of First Nations in what is today known as Canada. As scholars based in the global North, we acknowledge our privileged position in the production and circulation of academic knowledge, as well as the need to remain vigilant of the risks of reinforcing epistemic violence. Our research interests lie at the intersection of critical geography, energy/climate justice, and sustainable futures. By critically engaging with anti-colonial perspectives on energy justice, we seek to problematize the dominant epistemological, ideological, and political/economic structures that shape tar sands expansion. This research is part of a broader PhD research project, which one of the authors is conducting on the multi-scalar production of tar sands spaces in Canada.

contexts and scales in which these future visions are constantly made and remade (Jasanoff & Kim, 2009; Hajer & Pelzer, 2018). Such an approach enables us to understand energy futures as constituted by multi-scalar networks of energy technologies, power relations, and worldviews (Delina & Janetos, 2018; Stoddart & McLevey, 2020a).

Critical energy futures studies have highlighted the dominance of the Western techno-economic perspective in shaping future-oriented energy policies (Stoddart et al., 2020). This perspective is based on the assumption that market dynamics and technological innovation are the key drivers of energy future pathways, thereby overlooking the role of power relations and sociocultural perceptions in imagining and building energy futures (Delina & Janetos, 2018). By noting this limitation, critical energy futures scholarship advocates the need to engage with subaltern discourses, knowledges, and geographies to disrupt the Western dominance in energy policymaking (Delina, 2018; Longhurst & Chilvers, 2019; see also Sardar, 2010). Calls for the inclusion of non-dominant energy futures imaginaries emphasize the primacy of power imbalances in the making of energy futures and thus provide the basis for questioning Canada's energy future vision.

The Western techno-economic approach underpins the expansion of tar sands pipelines. We illustrate this point by looking at Canada's Prime Minister Justin Trudeau's remarks on the approval of the TMX in 2016. In his speech, Trudeau stated the TMX would "get Canadian energy resources to international markets… create 15,000 new, middle-class jobs… meet the strictest of environmental standards, and fit within our national climate plan" (Prime Minister of Canada, 2016). Canada's[3] perspective on the TMX not only legitimizes tar sands operations but also envisions a fossil fuel future while downplaying their socio-environmental impacts and risks. A critical look at Canada's energy future imaginary requires us to situate the TMX conflict within the context of settler colonialism, which is characterized by the ongoing removal of Indigenous peoples from their lands for "settlement and resource extraction purposes" (Simpson, 2017, p.42). By examining the settler colonial rationale undergirding tar sands expansion, we seek to engage with the views of those First Nations that resist the imposition of the TMX.

An emphasis on First Nations-led resistance[4] to the TMX draws attention to Indigenous understandings of energy futures (Kinder, 2021), which are rooted in multiple human-environment relations, knowledges, languages, narratives, places, and political-legal orders (Norgaard, 2020). This holds true for the 140 First Nations and Métis along the TMX route (Figure 7.1), who have contrasting and shifting views on this pipeline depending on

[3] In this paper, we employ the terms Canada and Canadian state as synonyms.
[4] First Nations is one of the three major Indigenous groups formally recognized by Canada, along with the Métis and Inuit. The words First Nations, Indigenous Peoples, as well as the names of specific Indigenous communities or groups are capitalized for two reasons. First, these are proper names. Second, it is a sign of respect (Indigenous Foundations, 2009).

several factors, including their socioeconomic conditions or the historical experiences with oil development (Owen, 2018). As noted by scholars examining Indigenous-led resistance movements to fossil fuel projects in North America, while Indigenous conceptions of the future are remarkably different from each other, they share a commonality: the past and the present are inseparable from the future, as opposed to the Western linear notion of time (Awaˆsis, 2020; Estes, 2019). Drawing on their histories of resistance to land dispossession and resource extraction, Indigenous peoples inform their present practices against fossil fuel infrastructures and visualize a range of potential futures (Estes, 2019). This opens up new lines of inquiry regarding the dismantling of the power structures underpinning tar sands development (Kinder, 2021; Spice, 2018; Temper, 2019) and provides a point of departure for thinking about energy futures in terms of justice (Szolucha, 2018).

Seeing energy futures through the lens of justice brings attention to the concept of energy justice, which is often defined as "the provision of safe, affordable, and sustainable energy to all individuals" (Jenkins, Sovacool, & McCauley, 2018; McCauley et al., 2013). Dominant energy justice approaches are based on three dimensions of justice: distributive, procedural, and recognition (Heffron & McCauley, 2017). Distributive justice deals with the socially and geographically unequal distribution of the socio-economic and environmental benefits and costs of energy development (Healy, Stephens, & Malin, 2019; Hernández, 2015). Procedural justice refers to the fairness and transparency of energy decision-making processes while recognition as justice is concerned with the inclusion/exclusion of social actors, interests, and knowledges from these processes (Bombaerts et al., 2020). By connecting these dimensions of justice, energy justice constitutes a useful framework for addressing the role of uneven power-knowledge relations in (re) producing injustices associated with energy activities.

While energy justice brings into view multiple dimensions of injustices linked to energy development, it has been criticized for predominantly relying on Western hegemonic perspectives and overlooking alternative interpretations of justice (Bombaerts et al., 2020; Sovacool et al., 2017). In pointing out these theoretical and empirical shortcomings, critical energy justice scholars have acknowledged the need to consider non-Western epistemologies and worldviews in discussions about just energy futures (Castán Broto et al., 2018; Sovacool et al., 2017). Energy justice studies, for example, have paid attention to how Indigenous land rights, intergenerational justice, and climate justice issues are systematically excluded from regulatory reviews for tar sands pipeline projects in Canada (Hunsberger & Awaˆsis, 2019; Hurlbert & Rayner, 2018). These studies, however, have not addressed how Indigenous interpretations of justice mobilized outside Canada's institutional, legal, and ideological framework advance alternative approaches to energy justice (except for Awˆasis, 2020, and Spiegel, 2021).

Figure 7.1. The TMX project and the location of First Nations opposing it

Source: Own elaboration with assistance from Isis Khalis

In contrast to existing Western energy justice approaches, we find that Indigenous views on environmental, climate, and energy justice provide a helpful entry point for exploring the plurality of interpretations of justice in conflicts over tar sands development (Awˆasis, 2020; McGregor, 2018; Whyte, 2017). This pushes us to look beyond the three dimensions of energy justice mentioned earlier and consider that First Nations conceptions of justice are embedded in diverse epistemologies, legal norms, identities, political structures, and worldviews (Powell, 2018; Whyte, 2017). Such conceptions, for example, go beyond demands for economic compensation for environmental damages arising from fossil fuel development (Manuel & Derrickson, 2015), inclusion in pre-determined energy decision-making processes (Urquhart, 2018), and limited recognition of land rights (Coulthard, 2010). Rather, Indigenous understandings of justice entail asserting self-determination[5] and upholding responsibilities to protect the environment (McGregor, Whitaker, & Sritharan, 2020).

[5] Self-determination broadly describes the right of Indigenous Peoples to freely determine their forms of sociopolitical, economic, and cultural organization (UN, 2007).

Bringing together Indigenous conceptualizations of justice and the future provides a solid framework for exploring alternatives to the settler colonial and fossil fuel future envisioned by Canada (Kinder, 2021; Temper, 2019). In the following section, we describe our methodological approach to engage with these perspectives.

3. Methodological approach to alternative conceptions of energy justice and energy futures

We followed a case study design and employed a qualitative methodological approach based on critical discourse analysis (CDA). CDA understands discourses as socio-historical practices shaped by the interactions between language in speech and writing (e.g., conversations, interviews, statements, and written texts), broader geographical contexts, and power relations (Foucault,1980; Alvesson & Sköldberg, 2018; Fairclough, 1995; Keller, 2011). CDA deals with how discourses emerge from and are (re) configured by power struggles and ideologies within particular contexts (Fairclough, 1995), highlighting the processes through which certain discursive practices become dominant while others are excluded or silenced (Keller, 2011; Waitt, 2016).

Although CDA is not rooted in Indigenous epistemologies, it constituted a useful method to examine competing discourses of justice and future visions around the TMX. It provided insights into how TMX opponents, such as the TWN Sacred Trust Initiative and the Tiny House Warriors, navigate the power dynamics underlying the injustices associated with this pipeline (Fig.1) and imagine energy futures beyond tar sands development. We focused on these groups for the following reasons. First, they were specifically created to stop the TMX and are key actors in the fight against this project, as they have forged strong alliances with other Indigenous Nations[6] resisting fossil fuel infrastructures across North America. Second, they have directly challenged Canada by asserting jurisdiction over the lands crossed by the TMX. Third, given their strong media presence, they make information about their attitudes towards the TMX available to the public.

Some research limitations must be considered here. First, the perspectives of other First Nations[7] that reject the TMX were not included in our analysis due to the limited information available online. Second, given the challenges of conducting fieldwork during the Covid-19 pandemic, our analysis mostly focused on written documents. Third, because of the prominent role of First Nations in the TMX dispute, we did not examine the perceptions of

[6] We use this umbrella term to refer to Indigenous Peoples in Canada and the US asserting their rights to self-determination in the face of tar sands expansion (Treaty Alliance Against Tar Sands Expansion, n.a).

[7] For example, the Coldwater Indian Band, Squamish Nation, Stk'emlupsemc te Secwepemc Nation (SSN), and Ts'elxw´eyeqw tribes (Tsleil--Waututh Nation v. Attorney General of Canada et al., 2018).

environmental organizations and citizens who also oppose this project (Frost, 2019; Grossman, 2017). Fourth, we acknowledge the historical role of academia in undervaluing, misrepresenting, and appropriating Indigenous knowledges, as well as the limitations of research methods like CDA to explore First Nations understandings of justice (Abbot & Cavender, 2004).To challenge these uneven power-knowledge relations and attempt to overcome the shortcomings of CDA, we centered the experiences of affected First Nations without seeking to speak on their behalf, but to amplify their voices. This, however, does not mean that we hold a romanticized view of Indigenous perspectives. Rather, we recognize the colonial contexts in which contradictory, ambivalent, and shifting Indigenous notions of justice emerge and are mobilized (Nakata et al., 2012).

Drawing inspiration from Fairclough (1995), Keller (2011), and Waitt (2016), we carried out CDA in the following way. First, fifty materials related to the TMX conflict were selected according to different criteria (Table 7.1). Second, data were organized around the following descriptive categories (Alvesson & Sköldberg, 2018; Keller, 2011; Waitt, 2016). *1) The socio-historical and geographical contexts of the materials.* This entailed contextualizing Indigenous-led resistance to the TMX within colonial processes of land dispossession and increased tar sands extraction. *2) Authorship of materials*. This involved examining the shifting positionalities and situatedness of key actors in the Indigenous-led opposition to the TMX. *3) Contradictions between perceptions of justice and the future*. This enabled us to identify the roots of the conflict between First Nations and Canada over the TMX project. *4) Silences in discourses*. This required being attentive to how Canada imposes its energy future vision and definition of justice.

Third, analytical categories (Keller, 2011; Waitt, 2016) were developed to examine the intersections between placed-based conceptions of energy justice and energy futures. 1) *Discourses of (in) justice*. Here, we focused on how injustices in the TMX dispute are conceptualized by key affected First Nations across spatio-temporal scales. 2) *Visions of energy futures.* We then analyzed how multiple notions of justice are mobilized against the TMX to envision and materialize proposals to address injustices.

Table 7.1. Selection criteria for materials regarding the TMX project

Type of materials	Criteria	Examples
Official reports of the TMX	Reflect Canada's energy future vision and its interpretation of justice.	1. Federal government reports on the TMX. 2. TMX public hearing sessions. 3. Canada's Prime Minister's speeches regarding the TMX.
Press releases written by First Nations. Materials were searched from 2012(a) to 2021 with a focus on particular moments that significantly influenced the development of the TMX.	Allow exploration of Indigenous conceptions of justice and the future.	1. International Treaty to Protect the Salish Sea. 2. Treaty Alliance Against Tar Sands Expansion. 3. Women's Declaration against Trans Mountain Man Camps.
Environmental impact assessments of the TMX.	Call into question the arguments used by Canada to justify the TMX construction by providing detailed information about its impacts and risks.	1. Impact assessments developed by the Secwepemc and the TWN Nations.
Online events(b) against the TMX.	Offer insights into the strategies used against the TMX.	1. Webinars organized by Indigenous-led groups

a. This year, the TMX project was officially announced (Trans Mountain, n.a.).

b. As climate strikes and protests against the TMX moved online due to the COVID-19 pandemic, digital platforms became relevant sites for disseminating and sharing information regarding the TMX among pipeline opponents.

Source: Own elaboration

4. Competing notions of energy (in) justice and energy futures around the TMX

In this section, we present the notions of (in) justice and future imaginaries that emerged from applying CDA to the case of the TMX conflict. Our findings (Table 7.2) are organized around the three most frequent issues raised by the TWN Sacred Trust Initiative and the Tiny House Warriors: Indigenous self-determination, relational conceptions of the land, and gender violence. They provide an appropriate starting point for exploring the potential of diverse understandings of justice for building anti-colonial energy futures.

Table 7.2. Heterogeneous discourses of justice and future visions around the TMX conflict

Discourses of (in) justice	Root causes of injustices and their implications	Canada's approach to justice	Alternative energy futures
Indigenous self-determination	Canada failed to consult First Nations about the impacts and risks of the TMX, thereby violating their land rights.	Economic compensation for affected First Nations and participation in tar sands businesses.	Assertion of Indigenous jurisdiction
Relational conceptions of the land	Tar sands operations contribute to climate change and expose First Nations to environmental risks. Specifically, oil spills threaten their livelihoods, health, cultural values, future generations, and the environment.	'Clean' technologies and environmental monitoring programs can reduce the risks of oil spills.	Development of small-scale community-led renewable energy projects according to Indigenous laws. Environmental assessments of tar sands projects need to consider First Nations priorities, needs, values, and worldviews.
Gender violence	Housing facilities for male pipeline workers (man camps) increase violence towards Indigenous women.	No concrete action to prevent gender violence was found in the TMX documents.	Cancellation of the TMX and man camps. The lives of Indigenous women are crucial to the future of First Nations.

Source: Own elaboration

4.1. Alternative notions of energy justice

4.1.2. Indigenous self-determination

Conflicting discourses emerged concerning the TMX. While Canada claimed that it adequately informed First Nations about the impacts and risks of this pipeline (Coldwater Indian Band v Attorney General of Canada et al., 2020), some of them contended that Canada, as the owner of the project, predetermined the outcome of land-use consultations (Tsleil-Waututh Nation Sacred Trust, 2013). By approving the pipeline, Canada did not address First Nations concerns about the TMX effects on their land rights, livelihoods, cultural practices, and the environment. Among these, the violation of Indigenous jurisdiction over the land (also known as Aboriginal title in Canadian law) is the most contested issue. This is particularly important in the case of BC, where land-use agreements between Indigenous peoples and Canada were never signed or are still being negotiated (Shaw, 2008). As a result, First Nations call into question Canada's territorial sovereignty, arguing that they still have decision-making authority over their lands. TWN members, for example, built a Watch House along the TMX route in Burnaby, BC as a way of asserting control over their lands and blocking the pipeline construction (Coast Protectors, 2018).

Land claims are also deployed across multiple governance scales. The Secwepemc Nation and the TWN have brought their justice claims to international levels by pointing out that the TMX constitutes a violation of the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), which Canada has not fully implemented (Karim, 2020). For these First Nations, the UNDRIP is the international minimum standard of consultation, as it stipulates the obligations of national states, such as Canada, to respect the inherent rights of Indigenous peoples to self-determination, their lands, and resources (United Nations, 2007). Specifically, they assert that Canada did not adhere to the principles of free, prior, and informed consent (FPIC), as it ignored their right to withhold consent to the TMX, affecting the fairness and impartiality of land-use consultations (Tiny House Warriors, 2020a; Tsleil-Waututh Nation Sacred Trust, 2013). The infringement of national and international legislation on Indigenous peoples' rights also interferes with Canada's commitment to establishing a "nation-to-nation relationship with Indigenous peoples based on recognition of rights and respect," as stipulated by the Truth and Reconciliation Commission of Canada (2021). Overall, this raises the crucial question of how, and if, the TMX can be compatible with First Nations rights.

Extending our analysis beyond the national and international legal frameworks on Indigenous peoples' rights brings into sharper focus the role of Indigenous laws in shaping the TMX controversy. In contrast to Aboriginal title, which is recognized in Canadian law, Indigenous laws are ingrained in the diverse languages, governance land structures, and worldviews of First Nations, including their relationships with other communities and the environment. The legitimacy of Indigenous laws then derives from community-oriented decision-making processes rather than Canadian institutions (Napoleon, 2007). Within anti-TMX discourses, the discrepancy between Canadian law and Indigenous laws is seen as one of the key drivers of the TMX conflict, as Canada does not recognize these laws. This is reflected in the Tiny House Warriors' discourse against the TMX: "The Secwepemc have never ceded, surrendered, or given up our sovereign title and rights over the land, water and resources" (Tiny House Warriors, 2020). Such a statement is relevant in the context of long-standing conflicts over decision-making power within First Nations (Indigenous Foundations, 2009). As the Tiny House Warriors (2020a) have reiterated, Band Councils[8] of the Secwepemc Nation in favor of the TMX "have no right to speak for the people who are the rightful titleholders of the land". Although examining these contrasting viewpoints lies beyond the scope of this paper, it is important to note the role of Canada in creating and exacerbating conflicts between and within First Nations, as it often misinterprets the support of some Band Councils for the TMX as consent of a whole Nation to this project.[9]

Focusing on Indigenous laws brings attention to how First Nations assert sovereignty[10] over their unceded lands in the face of increased tar sands development to envision alternative futures. A clear example of this is the Treaty Alliance Against Tar Sands Expansion, an anti-fossil fuel coalition of Indigenous Nations in Canada and the US, including the TWN, whose aim is to "prohibit the pipeline, trains, and tankers that will feed the expansion of the Alberta tar sands" (Treaty Alliance Against Tar Sands Expansion, n.a.). As "an expression of Indigenous law," this Treaty reflects a discourse on Indigenous "inherent legal authority and responsibility" to protect the land from tar sands projects and "build a more equitable and sustainable future." Similarly, this discourse is reflected in the International Treaty to Protect the Salish Sea in Canada and the US. Signed by several First Nations, including the TWN, this Treaty bans the traffic of tar sands tankers in the Salish Sea on the

[8] These Councils were established by Canada to replace Indigenous peoples' forms of governance.
[9] This support, however, does not automatically mean that First Nations entirely agree with tar sands operations. In many instances, they are forced to sign land-use agreements due to their adverse socioeconomic conditions, such as poverty and unemployment (Manuel & Derrickson, 2015), and the legal/financial barriers to fight tar sands projects in courts (West Coast Environmental Law, 2019).
[10] Broadly speaking, Indigenous sovereignty refers to the inherent rights of Indigenous peoples over their lands, traditional territories, and resources. Given the diversity between First Nations, there are multiple conceptions and practices of sovereignty (see Shaw, 2008; Manuel & Derrickson, 2015; Simpson, 2017).

basis that it is “incompatible” with Indigenous laws and Indigenous peoples’ rights in national and international law (Tsleil-Waututh Nation Sacred Trust, 2020). The prominent role of Indigenous laws within anti-pipeline discourses serves as the basis for exploring the socially and geographically uneven distribution of environmental costs of the TMX in the following section.

4.1.3. Relational conceptions of the land

The TMX was overwhelmingly portrayed by pipeline opponents as a project that: a) further contributes to climate change; b) leads to climate injustice; and c) locks Canada into a carbon-intensive future. A major critique focuses on Canada’s refusal to conduct a comprehensive assessment of the TMX’s life cycle GHG emissions (Coast Protectors, n.a.; Hughes, 2020). While Canada did estimate the emissions resulting from the pipeline construction and oil production stages (Environment & Climate Change Canada, 2016; Government of Canada, 2019), it did not consider emissions from land-use change, distribution, and oil consumption (Jaccard & Hoffele, 2014). Additionally, it excluded this evidence from the pipeline review process and court cases against the TMX (Raincoast Conservation Foundation v Attorney General of Canada, 2019). By ignoring scientific evidence linking tar sands operations to climate change, Canada failed to meet its international commitment to reduce its GHG emissions under the Paris Agreement (Gooderham, 2016; Tsleil-Waututh Nation Sacred Trust, 2019).

Furthermore, the exposure of First Nations to the environmental risks of the TMX is another recurrent critique. As manifested in the Treaty Alliance Against Tar Sands Expansion (n.a): “the expansion of the tar sands would also lead to the increased destruction and poisoning of the lands, waters, and air of the Indigenous Peoples directly on the frontlines and downstream of the tar sands.” This is an injustice because First Nations that have historically contributed the least to climate change are the most affected by tar sands projects (Indigenous Network on Economies & Trade, 2017). The environmental costs of tar sands have been extensively documented by the TWN Sacred Trust Initiative and the Tiny House Warriors in their independent assessments of the TMX. Based on Indigenous laws and knowledges, these assessments concluded that tar sands operations pose unacceptable risks to several First Nations by significantly increasing the likelihood of oil spills that could irreparably damage their lands, waters, livelihoods, cultural sites, and ecosystems (Indigenous Network on Economies and Trade, 2017; Tsleil-Waututh, 2016). These concerns, however, were either significantly downplayed or excluded by Canada from decisions about the TMX. The discussion about the risks of oil spills on the endangered southern resident killer whale (also known as orca) on the coast of BC illustrates this point. Some First Nations emphasized their responsibility to protect

the orcas given their cultural and spiritual ties with them (National Energy Board, 2018). In contrast, Canada delegitimized notions of justice to non-human nature and ignored evidence indicating that increased tanker traffic could threaten the survival of orcas, arguing that TMX did not pose significant threats to the environment (National Energy Board, 2016).

Statements about the impacts of oil spills on future generations are also found within anti-TMX discourses. The TWN, for instance, points out: "The TMX threatens our vision for the future… Oil spills will cause catastrophic and long-term damage… Trans Mountain will destroy the future our youth are fighting for" (Aleck, 2020). Similar views are expressed in the International Treaty to Protect the Salish Sea: "our ancestral laws place upon us the sacred responsibility to safeguard this place… so that future generations can be sustained" (Tsleil-Waututh Nation Sacred Trust, 2020). Importantly, some First Nations stress that they also fight for the future generations of all Canadians, calling on them "to raise their voices in opposition" to the TMX (Tsleil-Waututh Nation Sacred Trust Initiative, 2013). There are indeed environmental groups and citizens across Canada taking part in resistance actions against the TMX, fundraising anti-tar sands campaigns, and providing legal help to First Nations (Coast Protectors, n.a.; West Coast Environmental Law, 2019).

Climate and intergenerational justice issues were also brought up by affected First Nations in discussions about the federal government's purchase of the TMX in 2018 (The Canadian Press, 2018)[11] and the approval of an economic stimulus package for the oil industry amid the COVID-19 pandemic in 2020 (Riley, 2020). Both decisions were seen as a reflection of Canada's commitment to deepen its economic dependence on tar sands extraction. Considering the socio-environmental injustices associated with the TMX, members of the Treaty Alliance Against Tar Sands Expansion have repeatedly called on oil corporations, international investors, and Canada to divest from the TMX, and more broadly, to impose a moratorium on all proposed tar sands projects (Treaty Alliance Against Tar Sands Expansion, n.a). To advance their visions of energy futures, First Nations have developed small-scale renewable energy projects according to their own needs, priorities, and values. For instance, the Tiny House Warriors built tiny houses equipped with off-grid solar panels along the TMX route to "assert Secwepemc Law and jurisdiction and block access to this pipeline" (Tiny House Warriors, 2020). Similarly, based on its laws, the TWN developed two community solar projects aimed at inspiring "a different vision of the future" and advancing "alternatives to fossil fuels and a high-risk project", referring to the TMX (Tsleil-Waututh Nation Sacred Trust, 2014). Overall, these discourses reflect future imaginaries based on Indigenous sovereignties and

[11] In this year, the federal government of Canada purchased the TMX from its previous owner, the American-based energy company Kinder Morgan. After years of strong Indigenous-led opposition to the pipeline, this company abandoned the TMX project, and the government decided to buy it at the expense of taxpayers (The Canadian Press 2018).

community-led renewable energy development. In the next section, we show how gender justice is also a central theme within these discourses.

4.1.4. Gender violence

The relation between gender violence and the expansion of tar sands infrastructures on Indigenous lands was a prominent issue brought up by the Tiny House Warriors (Secwepemcul'ecw Assembly, n. a). This women-led group has constantly denounced threats and physical violence against Indigenous women who live near housing facilities for pipeline workers (also known as man camps) and led the resistance to TMX (Tiny House Warriors, 2020a). Rather than being isolated incidents, these attacks reflect broader patterns of colonial violence. This was confirmed by national reports documenting how resource extraction leads to increased violence against Indigenous women and 2SLGBTQQIA people[12] (National Inquiry into Missing and Murdered Indigenous Women and Girls, 2019). Situating their opposition to the TMX within this context, the Tiny House Warriors (2020) have repeatedly demanded the cancellation of this pipeline, as stated in the Women's Declaration against Trans Mountain Man Camps: "We have never provided and will never provide our collective free, prior, and informed consent to the TMX or the Man Camps." Within this discourse, the TMX is perceived as incompatible with the Tiny House Warriors' concept of self-determination.

The occupation of Indigenous lands by the TMX was overwhelmingly seen by the Tiny House Warriors as a continuation of settler colonial violence aimed at undermining the key role of women in the socio-cultural reproduction of First Nations (Tiny House Warriors, 2020; see also Simpson, 2017). Gender violence wrought by tar sands development can be conceptualized as part of Canada's continued efforts to eliminate Indigenous Peoples physically and culturally through land appropriation. As read in the Women's Declaration Against Trans Mountain Man Camps: "The colonial corporate system of resource extraction relies on the connected violences of destroying our lands and violating our bodies" (Secwepemcul'ecw Assembly, n. a). This explains why the TMX is considered by the Tiny House Warriors as a threat to their existence.

The uneven distribution of the environmental impacts of the TMX was also interpreted as another form of violence towards Indigenous women. This brings into view that the TMX poses a disproportionate risk for Indigenous women whose livelihoods depend on the waters and lands threatened by this pipeline. A critical examination of the intersections of gender violence and climate/ environmental injustice is particularly helpful in revealing why Indigenous women are often at the frontline of the resistance against tar sands pipelines in Canada

[12] This term refers to Two-Spirit, lesbian, gay, bisexual, transgender, queer, questioning, intersex, and asexual people (National Inquiry into Missing and Murdered Indigenous Women and Girls, 2019).

(Indigenous Climate Action, 2020). The connections between gender violence and increased fossil fuel development, however, have been largely overlooked by Canada. In the TMX documents, for example, there was virtually no mention of violence against Indigenous women. This highlights the need to question Canada's approach to the TMX and engage with multiple lived experiences of injustice arising from tar sands development.

5. Visions of energy futures

Our research has shown that the TWN Sacred Trust Initiative and the Tiny House Warriors formulate future visions around interconnected dimensions of justice, that is, Indigenous self-determination, relational conceptions of the land, and gender justice. By critically examining how they are deployed in the TMX conflict, we offer a more nuanced understanding of just energy futures than is usually described in mainstream energy justice approaches, which tend to focus on the distributional, procedural, and recognition dimensions of justice. So far, most energy justice research on conflicts over tar sands pipelines in Canada has rather scrutinized competing discourses of justice between First Nations and Canada in pipeline regulatory reviews than investigating the production of non-dominant discourses outside institutional processes (Hunsberger & Awaˆsis, 2019; Hurlbert & Rayner, 2018). Looking at the TMX struggle through the lenses of Indigenous climate/energy justice enables us to explore the centrality of counter-hegemonic conceptions of justice in envisioning and making alternative energy futures (Kinder, 2021).

As illustrated through our case study, the systematic infringement on Indigenous land rights is one of the most contentious issues surrounding the TMX project. This observation resonates with previous studies on Indigenous environmental, climate, and energy justice, which suggest that Indigenous sovereignties lie at the heart of the controversies over the construction of fossil fuel pipelines in North America (Estes, 2019; Whyte, 2017). Our analysis focused here on how the TWN Sacred Trust Initiative and the Tiny House Warriors refuse Canada's assertion of land sovereignty by blocking the TMX and mobilizing discourses of self-determination. A key issue emerging from this analysis was that the TMX conflict is not just about the pipeline itself, but also about land rights, meanings of justice, and future visions (Ellis, 2019). Viewed this way, the TMX brings to the fore the question of what justice would look like for First Nations. Although there are multiple interpretations of justice, our research makes clear that energy justice goes beyond monetary compensation, involvement in oil businesses, and limited participation in tar sands governance. In contrast to Canada's vision, we argue that justice cannot be achieved within the existing energy decision-making framework, as it replicates Indigenous land dispossession and reinforces the imperative for extracting tar sands. While the full implementation of the UNDRIP could represent here a

significant step towards respectful relationships between First Nations and Canada, justice would also entail transforming energy governance structures, acknowledging Indigenous laws, and accelerating a transition away from tar sands. This could also benefit Canadians, as tar sands development has several negative socio-environmental impacts and prioritizes state and corporate interests.

Our findings support the idea that the TMX turns Indigenous homelands into “energy sacrifice zones” by exposing First Nations and their lands to the environmental damages of tar sands development (Hernández, 2015). These results match those of earlier work on Indigenous environmental and climate justice, documenting the uneven distribution of the socioeconomic and environmental costs and benefits of tar sands projects (Black et al., 2014; Estes, 2019; Whyte, 2017).

Furthermore, these results call into question dominant energy justice and energy futures frameworks by considering often neglected dimensions of justice, such as the adverse effects of the TMX on First Nations worldviews, future generations, and non-human nature. Giving attention to these dimensions has important implications for designing just energy futures, as it highlights the need to make energy decisions based on Indigenous points of view rather than including them in state-led energy policies. Planning just energy futures entails discussing, before implementing any tar sands project, what energy options can protect First Nations rights to self-determination and preserve the environment for future generations (Stendie & Adkin, 2016).

In this paper, we make clear that the Tiny House Warriors and the TWN Sacred Trust Initiative emphasize the role of Indigenous laws in exercising decision-making authority over the lands crossed by the TMX, upholding responsibilities to the environment, and developing alternative energy projects. This is reflected in the international treaties under Indigenous laws to prohibit tar sands projects. As shown in our research, the TMX fight cannot be understood in isolation from transnational struggles against fossil fuel infrastructures in North America (Whyte, 2017). Several First Nations are at the forefront of grassroots movements calling for fossil fuel divestment and exerting pressure across national and international governance levels to protect Indigenous land rights.

Regarding the gendered impacts of tar sands infrastructures, we surprisingly find that most energy justice studies on pipeline conflicts in Canada have not devoted enough attention to this issue (Hunsberger & Awˆasis, 2019; Hurlbert & Rayner, 2018). A focus on gender violence extends these studies by vividly illustrating the overlapping of gender oppression, Indigenous land dispossession, and tar sands development. As demonstrated by the case of the Tiny House Warriors’ resistance to the TMX, attention to gender injustice elucidates how tar sands expansion renders Indigenous women’s lives and First Nations lands exploitable (Indigenous Climate Action, 2020). Advancing gender justice requires centering Indigenous

women's experiences and conceptions of (in) justice in energy policymaking, given that gender violence has been overlooked in the TMX decision-making processes. Equally important, it involves protecting Indigenous peoples' rights to self-determination.

What kind of alternative energy futures are envisioned? In calling for the cancellation of the TMX, the TWN Sacred Trust Initiative and the Tiny House Warriors not only stress the need to phase out tar sands but also to assert jurisdiction over their lands. A look at their small-scale community-led solar projects reveals how conceptions of self-determination outside the confines of Canadian law are central to their futures. These projects aim to develop renewable energy according to Indigenous decision-making processes, laws, values, priorities, and needs. In this way, they are part of First Nations efforts to strengthen their land rights and revitalize their relationships with the lands and waters threatened by tar sands transportation (Kinder, 2021; Tiny House Warriors, 2020). Importantly, solar projects only represent one aspect of Indigenous energy futures. First Nations standpoints on other alternative technologies, such as hydropower, wind energy, or electric vehicles, while important, were not examined because the reviewed documents do not provide information on this issue. Several reasons could explain this situation. First, although some First Nations are involved in renewable energy projects across Canada (Indigenous Clean Energy, 2020), many communities probably still face significant financial, legal, and administrative obstacles to developing energy initiatives. Second, First Nations that oppose the TMX have focused more on blocking the TMX construction sites, defending their unceded lands, and organizing anti-tar sands campaigns than planning renewable energy development. While alternative energy technologies can advance the anti-tar sands agenda, we argue that it is more important to look at the uneven power relations that shape their use.

Underscoring the centrality of self-determination in Indigenous futures encourages us to expand our view of energy futures beyond the replacement of fossil energy systems to consider the transformation of colonial legacies of gender violence, land dispossession, and environmental exploitation as key components of just energy futures. In doing so, we advance understandings of energy futures that problematize the settler colonial and extractive foundations of Canada's fossil fuel future. Rather than advocating for the incorporation of Indigenous futures within conventional energy policy frameworks, we seek to contextualize these visions within struggles for self-determination and energy justice. This contextualization also requires attention to the contradictions and limitations of these struggles, as they are embedded within broader political-economic processes that shape their trajectories. Consider, for example, the control of transnational corporations over global renewable energy supply chains or the socio-environmental impacts of extracting raw materials for the production of solar panels or wind turbines (Sovacool et al., 2017). In light of climate change, it remains

urgent to critically address potential injustices arising from fossil fuel and renewable energy projects (Kinder, 2021).

6. Conclusions

In this paper, we have examined contested notions of energy (in) justice and energy futures in the TMX conflict in BC, Canada. Approaching this dispute through Indigenous energy justice perspectives implies locating the TMX within the broader context of Indigenous land dispossession, violence towards Indigenous women, and environmental destruction through tar sands development. Using CDA, we illustrate how the TWN Sacred Trust Initiative and the Tiny House Warriors draw attention to these interconnected and often neglected dimensions of (in) justice in tar sands governance. In making visible these injustices, they reframe the terms of the debate on this pipeline, shifting focus away from Canada's arguments on economic growth and redirecting the conversation towards Indigenous jurisdiction, climate/energy justice, and responsibilities to the land. In doing so, they envision and enact alternatives to Canada's hydrocarbon future vision. Underscoring the key role of Indigenous critical interpretations of justice in articulating energy future visions problematizes and expands existing energy justice literature on conflicts over tar sands infrastructures, which often restricts the notion of energy justice to three dimensions, namely, distributive, procedural, and recognition.

Our study suggests that energy justice extends beyond 'inclusion' in energy governance, economic compensation for environmental damages associated with tar sands development, or Indigenous partnerships in the oil sector. Rather, it means asserting Indigenous sovereignties, reducing Canada's reliance on fossil fuels, and protecting the environment, livelihoods, and cultures for future generations. This leads us to argue that First Nations decision-making authority over their unceded lands, the TMX cancellation, and community-led renewable energy development are key elements of just energy futures. Canada thus must adequately consult First Nations according to their institutions and national/international legislation on Indigenous peoples' rights. This requires a respectful engagement with diverse Indigenous conceptions of justice and future visions.

Considering that there are several First Nations along the TMX, further research could investigate their different views on this pipeline through research methods like CDA. However, Indigenous methodologies could provide richer understandings of the specific epistemologies, land governance structures, and worldviews that shape First Nations perceptions towards tar sands operations. More comprehensive and accurate analyses of Indigenous interpretations of energy justice and energy futures require forging relationships with First Nations and conducting research in consultation with them. Despite the limitations of using CDA, we have

sought to question dominant energy justice approaches by amplifying critical voices in the TMX controversy. A closer engagement with anti-tar sands perspectives helps us look beyond the settler colonial and carbon-intensive future envisioned by Canada and open new avenues for imagining and building other futures. Future research could examine the potential of Indigenous visions to materialize their energy futures, paying attention to the contested perceptions of energy use among First Nations and the sociopolitical and economic challenges for developing energy projects according to Indigenous laws, values, and worldviews. More importantly, we encourage researchers to critically examine the power dynamics underlying fossil fuels and alternative energy operations.

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CRediT authorship contribution statement

ECJ contributed to the study conception and design, data collection, analysis, and interpretation of results, and draft manuscript preparation. AB supervised study conception and design and data collection and contributed to analysis and interpretation of data and draft manuscript preparation. All authors contributed to the manuscript revision and approved the submitted version.

Declaration of Competing Interest

The authors report no declarations of interest.

Data Availability

Data will be made available on request.

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References

Coast Protectors. (2020, June 16). *Indigenous Leaders and Environmental Groups Demand Independent Investigation into Safety of Existing TMX Pipeline After Latest Oil Spill.* https://www.coastprotectors.ca/indigenous_leaders_and_environmental_groups_demand_independent_investigation_into_safety_of_existing_tmx_pipeline_after_latest_oil_spill

Abbot, D., & Cavender, A. (2004). Indigenizing the Academy. *Transforming scholarship and empowering communities*. Lincoln: University of Nebraska Press.

Adkin, L. (2016). Democracy and the Albertan Petro-State. In L. Adkin (Ed.), *First World Petro-Politics: The Political Ecology and Governance of Alberta* (pp. 561–600).

Toronto; Buffalo; London: University of Toronto Press.

Aleck, C. (2020). The TMX Pipeline Threatens First Nations People. It Must Be Stopped. Truthout. October 19. Accessed March 3, 2021. Alvesson, M., & Sköldberg, K. (2018). Reflexive Methodology. New Vistas for Qualitative Research (3rd ed.). London: SAGE.

Awˆasis, S. (2020). Anishinaabe time: temporalities and impact assessment in pipeline reviews. *Journal of Political Ecology, 27*(1), 830–852. https://doi.org/10.2458/ v27i1.23236

Black, T., D'Arcy, S., Weis, T., & Russell, J. K. (Eds.). (2014). *A Line in the Tar Sands: Struggles for Environmental Justice*. Toronto: Between the Lines Press. Bombaerts, G., Jenkins, K., Sanusi, Y. A., & Guoyu, W. (2020). Expanding Ethics Justice Across Borders: The Role of Global Philosophy. In G. Bombaerts, K. Jenkins,

Y. A. Sanusi, & W. Guoyu (Eds.), *Energy Justice Across Borders* (pp. 3–21). Cham: Springer International Publishing. https://doi.org/10.1007/978-3-030-24021-9_ 1.

Bridge, G., Barr, S., Bouzarovski, S., Bradshaw, M., Brown, E., Bulkeley, H., & Walker, G. (2018). *Energy and Society.* London: Routledge.

Calvert, K. (2016). From 'energy geography' to 'energy geographies': perspectives on a fertile academic borderland. *Progress in Human Geography, 40*(1), 105–125. https://doi.org/10.1177/0309132514566343

Canadian Association of Petroleum Producers. (2018). *Canada's oil sands Fact Book*. https://www.capp.ca/publications-and-statistics/publications/316441.

Canadian Association of Petroleum Producers. (2020). *Canadian Economic Contribution.* Accessed https://www.capp.ca/economy/canadian-economic-contribution/. Castán Broto, V., Baptista, A., Kirshner, J., Smith, S., & Neves Alves, S. (2018). Energy justice and sustainability transitions in Mozambique. *Applied Energy, 228*,

645–655. https://doi.org/10.1016/j.apenergy.2018.06.057

Coast Protectors (2018). Thousands Gather to Protect the Inlet from Kinder Morgan. 3 March. (Accessed 7 April 2021). Coast Protectors. (n.a). *Trans Mountain is a major climate problem*. Accessed February 16, 2021.

Coldwater Indian Band et al. v Attorney General of Canada et al. 2020. Federal Court of Appeal (FCA). FCA 34. Accessed February 20, 2021.

Coulthard, G. (2010). Place against empire: understanding indigenous anti-colonialism. *Affinities A Journal of Radical Theory, Culture, and Action, 4*(2), 79–83. https:// ojs.library.queensu.ca/index.php/affinities/aricle/view/6141.

Crosby, A., & Monaghan, J. (2018). *Policing Indigenous Movements*. Dissent and the Security State. Fernwood. Halifax.

Dafnos, T. (2020). Energy futures and present threats: critical infrastructure resilience, accumulation, and dispossession. *Studies in Political Economy, 101*(2), 114–134. https://doi.org/10.1080/07078552.2020.1802832

Datta, R., & Hurlbert, M. A. (2019). Pipeline Spills and Indigenous Energy Justice. *Sustainability, 12*(1), 47. https://doi.org/10.3390/su12010047

Delina, L. (2018). Whose and what futures? Navigating the contested coproduction of Thailand's energy sociotechnical imaginaries. *Energy Research & Social Science, 35*, 48–56. https://doi.org/10.1016/j.erss.2017.10.045

Delina, L., & Janetos, A. (2018). Cosmopolitan, dynamic, and contested energy futures: Navigating the pluralities and polarities in the energy systems of tomorrow.

Energy Research & Social Science, 35, 1–10. https://doi.org/10.1016/j.erss.2017.11.031

Ellis, E. (2019). Centering Sovereignty. How Standing Rock changed the conversation. In N. Estes & J. Dhillon (Eds.), Standing with Standing Rock. Voices from the #NoDAPL Movement (pp. 172–197). University of Minnesota Press.
Environment and Climate Change Canada. (2016). Trans Mountain Pipeline ULC - Trans Mountain Expansion Project. *Review of Related Upstream Greenhouse Gas* Emissions Estimates, 2021. Accessed February 5.
Estes, N. (2019). *Our History is the Future. Standing Rock versus the Dakota Access Pipeline, and the Long Tradition of Indigenous Resistance*. Verso. London and New York. Fairclough, N. (1995). *Critical discourse analysis: The critical study of language*. Longman. London and New York.
Foucault, M. (1980). *Power/Knowledge. Selected Interviews and Other Writings 1972-1977*. New York: Pantheon.
Frost, K. (2019). First Nations sovereignty, Environmental Justice, and Degrowth in Northwest BC, Canada. *Ecological Economics, 162*, 133–142. https://doi.org/ 10.1016/j.ecolecon.2019.04.017
Gooderham, D. (2016). The Kinder Morgan Pipeline and Canada's chances of cutting total emissions by 2030, 2021. Accessed January 10.
Government of Canada. (2019). *Greenhouse gas emissions from the Trans Mountain project*. Accessed January 10, 2021. Government of Canada. (2019a). *Crude oil facts*. Accessed January 10, 2021.
Government of Canada. (2020). *National inventory report: greenhouse gas sources and sinks in Canada: executive summary 2020*. https://www.canada.ca/en/ environment-climate-change/services/climate-change/greenhouse-gas-emissions/sources-sinks-executive-summary-2021.html.
Grossman, Z. (2017). *Unlikely Alliances: Native Nations and White Communities Join to Defend Rural Lands*. Seattle: University of Washington Press.
Hajer, M. A., & Pelzer, P. (2018). 2050—An energetic odyssey: understanding 'techniques of futuring' in the transition towards renewable energy. *Energy Research &*
Social Science, 44, 222–231. https://doi.org/10.1016/j.erss.2018.01.013
Healy, N., Stephens, J. C., & Malin, S. A. (2019). Embodied energy injustices: Unveiling and politicizing the transboundary harms of fossil fuel extractivism and fossil fuel supply chains. *Energy Research & Social Science, 48*, 219–234. https://doi.org/10.1016/j.erss.2018.09.016
Heffron, R. J., & McCauley, D. (2017). The concept of energy justice across the disciplines. *Energy Policy, 105*, 658–667. https://doi.org/10.1016/j.enpol.2017.03.018
Hernández, D. (2015). Sacrifice Along the Energy Continuum: A Call for Energy Justice. *Environmental justice (Print), 8*(4), 151–156. https://doi.org/10.1089/
env.2015.0015
Huber, M. (2015). Energy and Social Power: From Political Ecology to the Ecology of Politics. In T. Perrault, J. McCarthy, & G. Bridge (Eds.), *The Routledge Handbook of Political Ecology* (pp. 481–492). London: Routledge.
Hughes, D. (2020). Reassessment of Need for the Trans Mountain Pipeline Expansion Project. *CCPA, Corporate Mapping Project* (p. 2021). Canada: Parkland Institute. Accessed February 5.
Hunsberger, C., & Awaˆsis, S. (2019). Energy Justice and Canada's National Energy Board: A Critical Analysis of the Line 9 Pipeline Decision. *Sustainability, 11*(Article
783), 10.3390/su11030783.
Hurlbert, M., & Rayner, J. (2018). Reconciling power, relations, and processes: The role of recognition in the achievement of energy justice for Aboriginal people.
Applied Energy, 228, 1320–1327, 10.1016/j.apenergy.2018.06.054.
Indigenous Clean Energy. (2020). (Accessed 12 March 2022).
Indigenous Climate Action. (2020). *Violence Against the Land is Violence Against Women*. March 19. Accessed April 20, 2021. Indigenous Foundations. (2009). (Accessed 20 January 2021).
Indigenous Network on Economies and Trade. (2017). Standing Rock of the North. *The Kinder Morgan Trans Mountain Pipeline Expansion Secwepemc Risk Assessment*
Accessed February 24, 2021.
Jaccard, M., & Hoffele, J. (2014). Impact on GHG emissions and climate targets of the trans mountain expansion project. *MK Jaccard and Associates* (Accessed 20 February 2021).
Jasanoff, S., & Kim, S. H. (2009). Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea. *Minerva, 47*, 119–146. https://doi.org/10.1007/s11024-009-9124-4
Jenkins, K., Sovacool, B., & McCauley, D. (2018). Humanizing sociotechnical transitions through energy justice: an ethical framework for global transformative change. Energy Policy, 117, 66–74. https://doi.org/10.1016/j.enpol.2018.02.036
Karim, A. (2020). Carbon cuts, not job cuts. Toward a Just Transition in Canada. In P. E. Perkins (Ed.), Local Activism for Global Climate Justice. The Great Lakes Watershed (pp. 15–35). London and New York: Routledge.
Keller, R. (2011). *Diskurs-Forschung. Eine Einführung für Sozialwissenschaftlerinnen (4 Auflage)*. VS Verlag. Deutschland.
Kinder, J. (2021). Solar infrastructure as media of resistance, or, indigenous solarities against settler colonialism. *The South Atlantic Quarterly, 120*(1), 63–76. https:// doi.org/10.1215/00382876-8795718
Konrad, K., & Bo¨hle, K. (2019). Socio-technical futures and the governance of innovation processes—An introduction to the special issue. *Futures, 109*, 101–107. https://doi.org/10.1016/j.futures.2019.03.003
Kraushaar-Friesen, N., & Busch, H. (2020). Of pipe dreams and fossil fools: advancing Canadian fossil fuel hegemony through the Trans Mountain pipeline. Article
Energy Research & Social Science, 69, Article 101695. https://doi.org/10.1016/j.erss.2020.101695.

Kuteleva, A., & Leifso, J. (2020). Contested crude: multiscalar identities, conflicting discourses, and narratives of oil production in Canada. *Energy Research & Social Science, 70*, Article 101672. https://doi.org/10.1016/j.erss.2020.101672
LeQuesne, T. (2019). From carbon democracy to carbon rebellion: countering petro-hegemony on the frontlines of climate justice. *Journal of World-Systems Research, 25*(1), 15–27. https://doi.org/10.5195/jwsr.2019.905
Longhurst, N., & Chilvers, J. (2019). Mapping diverse visions of energy transitions: co-producing sociotechnical imaginaries. *Sustainable Science, 14*(4), 973–990. https://doi.org/10.1007/s11625-019-00702-y
Manuel, A., & Derrickson, R. M. (2015). *Unsettling Canada: A National Wake-Up Call*. Toronto: Between the Lines.
McCauley, D., Heffron, R., Stephan, H., & Jenkins, K. (2013). Advancing energy justice: the triumvirate of tenets and systems thinking. *International Energy Law Review, 32*(3), 107–116. http://hdl.handle.net/10023/6078.
McGregor, D. (2018). Mino-Mnaamodzawin. Achieving Indigenous Environmental Justice in Canada. *Environment and Society, 9*(1), 7–24. https://doi.org/10.3167/ ares.2018.090102
McGregor, D., Whitaker, S., & Sritharan, M. (2020). Indigenous environmental justice and sustainability. *Environmental Sustainability, 43*, 35–40. https://doi.org/ 10.1016/j.cosust.2020.01.007
Nakata, M., et al. (2012). Decolonial goals and pedagogies for Indigenous studies. *Decolonization. Indigeneity, Education & Society, 1*(1), 120–140. https://jps.library. utoronto.ca/index.php/des/article/view/18628/15551.
Napoleon, V. (2007). Thinking about indigenous legal orders. National Centre for First Nations Governance, June, 18. Accessed March 21, 2021.
National Energy Board. (2018). National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-117.
Hearing Order MH-052-2018 (Volume 8)(December 3) Accessed April 20, 2021.
National Energy Board (2016). National Energy Board Report - Trans Mountain Expansion Project - 2016. (Accessed 4 January 2021).
National Inquiry into Missing and Murdered Indigenous Women and Girls. (2019). *Reclaiming power and place. Final Report of the National Inquiry Into Missing and* Murdered Indigenous Women and Girls (Volume 1a). Accessed March 8, 2021.
Norgaard, K. M. (2020). Whose energy future? Whose imagination? Revitalizing sociological theory in the service of human survival. *Society & Natural Resources, 33*
(11), 1438–1445. https://doi.org/10.1080/08941920.2020.1733720
Owen, B. (2018). We've got new Trans Mountain data and we're sharing it. *The Discourse*. https://thediscourse.ca/environment/new-trans-mountain-data-were- sharing. (Accessed 5 January 2021).
Powell, D. (2018). *Landscapes of power. Politics of energy in the Navajo Nation*. Durham and London: Duke University Press.
Prime Minister of Canada (2018). Trans Mountain Expansion will fund Canada's future clean economy. (Accessed 18 February 2021). Prime Minister of Canada. (2016). Prime Minister Justin Trudeau's Pipeline Announcement. Accessed (18 February 2021).
Raincoast Conservation Foundation v Attorney General of Canada, 2019. Federal Court of Appeal (FCA). FCA 224. (Accessed 4 March 2021).
Riley, S. (2020). A bailout for the oil and gas industry? Here's why experts say it's not a long-term solution. *The Narwhal*. https://thenarwhal.ca/a-bailout-for-the-oil- and-gas-industry-heres-why-experts-say-its-not-a-long-term-solution/. (Accessed 12 March 2022).
Sardar, Z. (2010). The Namesake: Futures; futures studies; futurology; futuristic; foresight—What's in a name? *Futures, 42*(3), 177–184. https://doi.org/10.1016/j. futures.2009.11.001
Scott, D. N. (2014). The networked infrastructure of fossil capitalism: implications of the new pipeline debates for environmental justice in Canada. *Revue G´en´erale de*
Droit, 43, 11–66. https://doi.org/10.7202/1021210ar
Secwepemcul'ecw Assembly. (n.a.). *Women's Declaration Against Trans Mountain Man Camps*. Accessed March 1, 2021. Shaw, K. (2008). *Indigeneity and Political Theory: Sovereignty and the Limits of the Political*. New York: Routledge.
Short, D., & Huseman, J. (2012). A slow industrial genocide: tar sands and the indigenous peoples of northern Alberta. *The International Journal of Human Rights, 16*(1), 216–237. https://doi.org/10.1080/13642987.2011.649593
Simpson, L. (2017). *As We have always done. Indigenous Freedom through Radical Resistance*. Minneapolis and London: University of Minnesota Press.
Sovacool, B. K., Burke, M., Baker, L., Kumar Kotikalapudi, C., & Wlokas, H. (2017). New frontiers and conceptual frameworks for energy justice. *Energy Policy, 105*, 677–691. https://doi.org/10.1016/j.enpol.2017.03.005
Spice, A. (2018). Fighting invasive infrastructure. indigenous relations against pipelines. *Environment and Society, 9*(1), 40–56. https://doi.org/10.3167/ ares.2018.090104
Spiegel, S. (2021). Fossil fuel violence and visual practices on Indigenous land: Watching, witnessing and resisting settler-colonial injustices. *Energy Research & Social Science, 79*, Article 102189. https://doi.org/10.1016/j.erss.2021.102189

Stendie, L., & Adkin, L. (2016). In the Path of the Pipeline: Environmental Citizenship, Aboriginal Rights, and the Northern Gateway Pipeline Review. In L. Adkin (Ed.), *First World Petro-Politics: The Political Ecology and Governance of Alberta* (pp. 417–455). Toronto; Buffalo; London: University of Toronto Press.

Stoddart, M. C. J., McCurdy, P., Slawinski, N., & Collins, C. G. (2020). Envisioning energy futures in the North Atlantic oil industry: Avoidance, persistence, and transformation as responses to climate change. Article *Energy Research & Social Science, 69*, Article 101662. https://doi.org/10.1016/j.erss.2020.101662.

Stoddart, M. C. J., McLevey, J., Schweizer, V., & Wong, C. (2020a). Climate change and energy futures - theoretical frameworks, epistemological issues, and methodological perspectives. *Society & Natural Resources, 33*(11), 1331–1338. https://doi.org/10.1080/08941920.2020.1830456

Szolucha, A. (2018). Introduction. Conceptualising energy impacts and contested energy futures. In A. Szolucha (Ed.), Energy, Resource Extraction and Society (pp. 1–19). Routledge.

Temper, L. (2019). Blocking pipelines, unsettling environmental justice: from rights of nature to responsibility to territory. *Local Environment, 24*(2), 94–112. https:// doi.org/10.1080/13549839.2018.1536698

The Canadian Press. (2018). 5 Things: the next steps for getting the Trans Mountain project done. *CBC News*. May 29. https://www.cbc.ca/news/politics/five-things- kinder-morgan-pipeline-1.4682580

The Observatory of Economic Complexity. (2020). *Canada Trade Products*. https://oec.world/en/profile/country/can#trade-products.

Tidwell, J. H., & Tidwell, A. S. D. (2018). Energy ideals, visions, narratives, and rhetoric: Examining sociotechnical imaginaries theory and methodology in energy research. *Energy Research & Social Science, 39*, 103–107. https://doi.org/10.1016/j.erss.2017.11.005

Tiny House Warriors. (2020). *Shut down the man camps*. April 1. Accessed March 5, 2021.

Tiny House Warriors. (2020a). *The TMX pipeline will never be built*. May 13. Accessed March 5, 2021. Trans Mountain (n.a.). *Expansion Project*. Accessed January 3, 2021.

Treaty Alliance Against Tar Sands Expansion (n.a). Treaty Alliance Against Tar Sands Expansion. Accessed March 9, 2021.

Truth and Reconciliation Commission of Canada. (2021). Truth and Reconciliation Commission of Canada. Accessed 12 December 2021.

Tsleil-Waututh Nation et al. v. Attorney General of Canada et al. (2018). *Federal Court of Appeal (FCA). FCA 153*. Accessed February 14, 2021. Tsleil-Waututh Nation Sacred Trust Initiative. (2013). *Tsleil-Waututh Nation asks "where will it end? "* January 10. Accessed May 20, 2021.

Tsleil-Waututh Nation Sacred Trust Initiative. (2014). *Coast Salish Nations sign international treaty to protect the Salish Sea*. September 23. Accessed February 23, 2021.

Tsleil-Waututh Nation Sacred Trust Initiative. (2019). *Tsleil-Waututh Nation granted leave to appeal the federal decision on the trans mountain pipeline and tanker expansion project*. September 4. Accessed February 23, 2021.

Tsleil-Waututh Nation Sacred Trust initiative. (2020). *TWN say yes to Renewable Energy*. Accessed February 23, 2021.

Tsleil-Waututh Nation. (2016). *Assessment of the Trans Mountain Pipeline and Tanker Expansion Proposal*. Accessed 4 March 2021. United Nations (2007). *United Nations Declaration on the Rights of Indigenous Peoples*. Accessed June 2, 2021.

Urquhart, I. T. (2018). *Costly fix: Power, politics, and nature in the tar sands*. Toronto: University of Toronto Press.

Waitt, G. (2016). Doing Foucauldian Discourse Analysis-Revealing Social Realities. In I. Hay (Ed.), *Qualitative Research and its Place in Human Geography* (pp. 288–312). Oxford University Press.

West Coast Environmental Law. (2019). Trans Mountain and the Honour of the Crown: Indigenous legal challenges, round two. August 19.

Whyte, K. (2017). Indigenous climate change studies: indigenizing futures, decolonizing the anthropocene. *English Language Notes, 55*(1), 153–162. https://www. muse.jhu.edu/article/711473.

Chapter 8. Making fossil fuel futures: The discursive formation of Canada's net-zero imaginary

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Abstract

Canada, one of the world's largest oil producers, plans to achieve net-zero emissions in the oil sector by 2050 by relying on Carbon Capture, Utilization and Storage (CCUS). The Government of Canada and the fossil fuel industry frame net-zero as a solution to address climate change, advance the energy transition, and achieve reconciliation with Indigenous peoples. Yet, this framing is contested by Indigenous and environmental groups that draw attention to the risks, impacts, and inequalities of net-zero. Although research has examined Canada's contradictory climate policy, little attention has been paid to the production and contestation of the net-zero future vision. Connecting research on socio-technical imaginaries and the geographical political economy of energy transitions, this paper explores the discursive configuration of the net-zero imaginary and its spatial dimensions in a settler-colonial context characterized by intensive fossil fuel extraction. Based on Hajer's argumentative discourse approach, this work elucidates the role of key storylines in shaping the net-zero imaginary. A critical analysis of these storylines reveals the contradictions and limitations of net-zero. In particular, it shows that net-zero 1) reinforces fossil fuel expansion by relying on unproven CCUS and voluntary net-zero targets, and 2) consolidates colonial land claims by portraying Indigenous peoples' lands as being available for net-zero projects. These findings extend discussions about the making of net-zero futures, highlighting the need to place justice issues at the heart of the energy transition.

Keywords:
Net-zero Canada
Fossil fuel industry
Socio-technical imaginary Storylines
Land

1. Introduction

Net-zero has emerged as a “solution” to curb greenhouse gas emissions (GHG) in international and national climate agendas [1]. Rooted in techno-economic approaches, net-zero describes the hypothetical balance between GHG emissions released and those removed from the atmosphere through negative emissions technologies (NETs) and market- based mechanisms [2]. Governments, corporations, and institutions worldwide have committed to adopting — mostly voluntary — future- oriented net-zero targets to combat climate change [3]. For example, Canada, one of the world's top oil producers and carbon polluters per capita [4,5], passed the Canada Net-Zero Emissions Accountability Act (CNZEAA) in 2021 to set an emissions reduction target of 40–45 % by 2030 [6]. The Federal Government[1] considers net-zero as a desirable energy future, claiming it presents “a significant opportunity to grow the economy, create jobs and economic prosperity now and into the future” [7].

While Canada's net-zero plans span across a range of economic sectors and industries, this paper focuses specifically on the oil sector because of its potential significance for climate change mitigation. In the net-zero vision for this sector, the development and deployment of Carbon Capture, Utilization, and Storage (CCUS)[2] play a key role in reducing GHG emissions. Reaching net-zero, however, presents challenges and limitations due to the unproven nature, costs, impacts, risks, and power relations associated with CCUS and emissions targets [9]. The Canadian case merits attention because it precisely illustrates the contradictions of net-zero.

In contrast to the emerging literature on Canada's net-zero policy [10,11], which mostly focuses on techno-economic aspects, this paper expands scholarly discussions of net-zero as a socio-technical imaginary [12] produced through the interplay of energy policy decisions, climate discourses, and energy systems [13–15]. Although net-zero largely remains a future vision, this paper argues that its discursive construction, legitimation, and contestation by multiple social actors are essential to enabling and foreclosing certain energy futures.

The geographical political economy approach to energy transitions [16,17] is helpful here to understand how competing and overlapping discourses on net-zero are mobilized across decision-making arenas and physical spaces to (de)legitimize energy future visions e. The net-zero imaginary arises in a settler-colonial context characterized by intensive crude oil extraction, particularly in the province of Alberta, which holds the world's largest tar sands reserves [18], and the construction of export-oriented hydrocarbon infrastructures on

[1] The term ‘Federal Government’ refers here primarily to the Canadian Prime Minister and the Cabinet Ministers

[2] CCUS describes the capture of CO2 from industrial facilities, its uses in different applications, and its storage in geological formations [8].

Indigenous peoples'[3] lands [19,20]. Fossil fuel operations have historically led to the concentration of corporate wealth and power and the disproportionate exposure of Indigenous peoples and other communities to multiple burdens, such as deforestation, water and air pollution, and land rights violations [21,22]. In this context, it is therefore crucial to interrogate what kind of net-zero future is being imagined, how it is made and by whom, and with what implications. Exploring these questions contributes to discussions about the making of energy futures in Canada.

Using Hajer's argumentative discourse analysis as a methodological approach [23], this paper identifies and develops key storylines [24,25] through which the net-zero imaginary is configured, sustained, and disputed. Based on an analysis of policy documents, energy scenarios, official speeches, and other materials, this paper examines three storylines articulated by the Federal Government to justify net-zero: 1) GHG emissions reductions through CCUS, 2) net-zero as a driver of sustainable economic growth and the low-carbon transition and 3) contested land claims around net-zero projects.

Contrasting these storylines with arguments against net-zero from the Government of Alberta, think tanks, Indigenous groups, environmental nongovernmental organizations (ENGOs), and critical scholars [26,27] unveils the tensions and discrepancies surrounding the net-zero imaginary. Specifically, this paper shows that net-zero reinforces the imperative to extract fossil fuels by relying on unproven technologies and voluntary emissions targets. By downplaying historical inequalities in terms of responsibility for causing and mitigating climate change, net- zero perpetuates fossil fuel vested interests [28].

These disparities are manifested in the colonial representation of land that underpins net-zero [29]. The construction and expansion of fossil fuel infrastructures, including CCUS facilities, to achieve net-zero, normalize colonial land claims and the notion of Indigenous peoples' lands as empty and available spaces for fossil fuel development, thereby ignoring Indigenous land jurisdiction. In response to the net-zero policy, Indigenous communities have adopted divergent strategies, ranging from opposition to participation in and ownership of net-zero projects. Despite their different approaches, Indigenous communities overall seek to assert self-determination and increase decision-making power over energy development on their lands.

This paper proceeds as follows. Section 2 outlines the analytical value of connecting research on socio-technical imaginaries and the geographical political economy of energy transitions to explore the net- zero imaginary. The third section sets out the methodology employed to investigate the discursive storylines underlying the net-zero imaginary. Following this, the paper discusses the role of these storylines in (de) legitimizing the net-zero imaginary,

[3] I use “Indigenous peoples” as an umbrella term to describe to the original peoples of what is now called Canada and their descendants.

highlighting the contradictions between fossil fuel expansion and climate change mitigation efforts, and Indigenous self-determination. The concluding section reflects on the significance of addressing the multiple concerns over net-zero in energy transition policy debates and decision-making processes.

2. Conceptualizing the net-zero imaginary

Energy transition literature often employs the concept of socio- technical imaginaries to investigate the co-production of energy policies and their associated future visions [30–33]. Sociotechnical imaginaries are defined as “collectively held, institutionally stabilized, and publicly performed visions of desirable futures” underpinned by social orders and achieved through scientific knowledge production and technological innovation [12]. This concept provides a useful lens for exploring how energy transition visions are produced, legitimized, institutionalized, and disputed [14,15] by social actors with divergent interests and perspectives [34–36]. Several studies have underscored here the centrality of competing discourses about energy resources and technologies in the emergence and exclusion of energy imaginaries [37–39].

Net-zero is an example of a socio-technical imaginary because it is already enacted through and inscribed in government and corporate discourses, energy scenarios, emissions targets, legislation, and scientific knowledge claims centered around technological fixes and corporate- owned fossil fuel systems. Critical research on NETs has explored how net-zero, carbon neutrality, and other low-carbon-related policies, regardless of their specificities and differences, are dominated by discourses of technological innovation and sustainable economic growth [40,41]. By critiquing discourses and policies that promote NETs as an adequate response to climate change, this strand of literature problematizes the uneven power relations at play in the development of these technologies, highlighting their often-concealed risks [42,43]. In doing so, this body of research suggests that policies and discourses on NETs frequently perpetuate business-as-usual approaches that delay climate action and reinforce carbon lock-in rather than addressing the root causes of climate change [44]. Seeking to contribute to scholarly discussions about uneven power dynamics in the making of low-carbon energy futures, this paper explores the contradictions, tensions, and disparities of Canada's net-zero imaginary.

Energy transitions and their related imaginaries are space-making processes as they are intrinsically tied to spaces of energy extraction, distribution, storage, consumption, and waste [45,46]. Rather than being fixed physical locations, these spaces are manifestations of multi- scalar, society-nature relationships through which energy sources, technologies, and infrastructures are framed, developed, and governed [17,47]. Here, a geographical political

economy perspective on energy transition is valuable for understanding the central role of socio- technical imaginaries in the configuration of energy spaces and their associated meanings [16] [46,48]. This observation entails considering the governance scales and places at which imaginaries are envisioned, realized, and disputed [46,49,50]. Bringing together research on socio- technical imaginaries and the geographical political economy of energy transitions then sheds light on the importance of space for the discursive and material constitution and contestation of the net-zero imaginary.

State and corporate-driven energy transition imaginaries, for instance, tend to conceive and organize space around the logic of capital accumulation, legitimizing its commodification and appropriation for energy development [17]. This, in turn, leads to struggles over space, as the benefits and burdens of energy transition policies are unevenly distributed, socially and geographically [51,52]. In this regard, recent research has shown that colonial legacies shaping energy transition policies frequently increase resource extraction, land grabbing, forced displacement of local communities, and environmental destruction [53,54]. Mainstream low-carbon transitions can be partly seen as a form of climate delay and obstruction in the sense that they prolong the lifespan of the fossil fuel-based global economy [42,55]. Considering the colonial dimensions of energy transitions helps elucidate the underlying assumptions and driving forces behind net-zero.

In the Canadian case, the net-zero imaginary emerges at the intersection of fossil fuel extraction and settler colonialism. Claiming land ownership, the Canadian government at all levels has historically implemented policies to organize Indigenous peoples' lands around private property rights [56] and erase Indigenous governance systems and cultures [57,58]. These policies have facilitated state and corporate access to and control over Indigenous lands for developing large-scale, export-oriented fossil fuel infrastructures (e.g., oil drilling and mining sites, pipelines, railroads, highways, and maritime export ports) [59]. A large body of research on fossil capitalism and Indigenous resurgence has extensively documented the ramifications of fossil fuel development, emphasizing its role in perpetuating land dispossession by constraining Indigenous land rights [60–62]. More recently, this work has been attentive to the disparities arising from state and corporate-led climate initiatives [63]. Yet, engagements with debates on socio-technical imaginaries and their spatial dimensions remain relatively underexplored. Fostering convergence between socio-technical imaginaries and the geographical political economy of energy transitions provides fertile ground for scrutinizing the interconnected discourses and spaces in and through which net-zero futures are imagined, articulated, mobilized, and disputed. The next section presents the methodological approach used to do this.

3. Methodological approach to the discursive dimension of net- zero

Energy imaginaries studies often employ discourse analysis to explore the role of discourses in the construction of energy futures [15,64]. As a methodological approach, discourse analysis considers language as performative in the sense that it shapes and is shaped by social institutions, relations, knowledges, and worldviews within and across geographical and historical contexts [65,66]. Within discourse analysis, Hajer's argumentative discourse approach [23] features prominently in research on contested energy transition discourses [64]. Discourses here refer to heterogeneous assemblages of meanings, principles, arguments, and visions through which topics and issues, such as net-zero, are framed and acted upon [23]. A key question concerns how social actors highlight, combine, and condense particular aspects of discourses into storylines to produce common understandings of socio- material phenomena [23]. Storylines are articulated, mobilized, and disputed by actors to position themselves in discourses, obtain support for their definition of reality, and influence practices, including future- making [14]. Competition for discursive dominance leads to the configuration of discourse coalitions, which bring together diverse actors around storylines that justify certain ways of thinking about, knowing of, and acting upon the future at the expense of others [23].

To discern the storylines underlying the net-zero imaginary, I compiled a set of materials consisting of energy policy documents, legislation, academic articles, policy briefs and reports, energy scenarios, and newspaper articles. These documents were analyzed as expressions of power-knowledge relationships rather than considering them as neutral and objective materials. The selection process was based on a keyword search over government databases (Open Government Portal, Canada Energy Regulator (CER), and Justice Laws), academic search engines (Web of Science, Science Direct, and Google Scholar), newspaper and broadcast-related websites (CBC News, Calgary Herald, the Narwhal, and National Observer), and standard search engines (Google and Bing). The terms ‘net-zero’, ‘Canada’, ‘GHG emissions’, CCUS’, ‘fossil fuels’, ‘climate change’, ‘Indigenous peoples’, and ‘land’ were combined using AND and “OR” operators in each database and search engine. Synonyms for given terms, such as ‘emissions reduction’ and ‘climate crisis’, were also used to improve the quality of the search query. Searches across all information sources yielded a total of 5000 results.

To select relevant materials, the following inclusion criteria were applied (see [67]): 1) The frequency of keywords and synonyms in the title, subtitle, headline, subheading, abstract, summary, table of contents, or body of the text. Duplicate searches were discarded, and information deemed irrelevant was removed; 2) Timeframe. The search was primarily

narrowed from 2020, the year the Federal Government announced its net-zero plan, through 2025; 3) Authorship. I paid special attention to the Federal Government, particularly the Prime Minister and Environment and Climate Change Canada (ECCC). Both actors play a central role in the formulation and implementation of Canada's climate policy. Yet, I sought to represent, as far as possible, the multiple competing and overlapping interests shaping public debates and policies around net-zero. Purposive sampling [68] was used to select materials from the Alberta government, Indigenous-led groups, ENGOs, and think tanks based on their position on net-zero. I intentionally prioritized the views of Indigenous-led and environmental groups (e.g., Indigenous Climate Action, Sacred Earth Solar, and West Coast Environmental Law) that have raised awareness about the impacts of net-zero. A total of 400 documents were identified during this process.

To choose a final manageable set of materials, I narrowed the eligibility criteria to (see [67]): i) energy scenarios laying out net-zero future visions; ii) net-zero legislation; iii) net-zero policy documents; iv) critical documents of net-zero. A review of the selected documents led to the further exclusion of those that did not align with the research objectives. Studies exclusively focusing on the current state and future pathways of NETs, as well as on provincial and municipal net-zero strategies were not considered. The final sample for analysis consisted of 42 documents that address central issues around net-zero, represent divergent perspectives, and encompass diverse types of materials (Table 8.1, Appendix 3).

Table 8.1. Materials for the discourse analysis

Type of materials	Criteria selection	Examples
Legislation	Description of the principles guiding the net-zero policy	CNZEAA
Policy documents	Institutionalization of the net-zero	2030 Emissions Reduction Plan
Speeches	Discursive framing of net-zero	Canada's Prime Minister's speeches
Scenarios	Conception of the net-zero imaginary	CER scenarios
Reports	Analysis of the implications of the net-zero policy	Canada's Net-Zero Future The Only Road to Net Zero Runs Through Indigenous Lands
Newspaper articles	Current/updated information on the net-zero policy	CBC News The Narwhal

Source: Own elaboration

Based on an iterative approach [69–71], I manually coded data according to the main themes in the selected documents and grouped the data into subthemes (Appendix 4). These were identified through an analysis of core arguments, projections, and statements (e.g., quotes and paraphrases) on net-zero [72]. I then placed these discursive elements into categories [73]: i) the actor's identity, ii) the actor's role in the discursive (de)legitimation of net-zero, and iii) the issues explicitly expressed or absent in discourses. Through textual analysis and interpretation, the coded categories were organized into storylines and reviewed to test whether they accurately reflected the selected arguments, projections, and statements [70]. Modifications were made until I produced a final set of storylines consistent with my research aim, namely 1) GHG emissions reduction through CCUS, 2) net-zero as a driver of sustainable economic growth and the low-carbon transition, and 3) contested land rights claims around net-zero projects (Table 8.2) (see [74]). Overall, these storylines are not meant to be exhaustive, but rather indicative of key dimensions, contradictions and ambiguities of the net-zero imaginary.

The analytical and methodological choices outlined above were mediated by my position as an outside researcher conducting fieldwork in British Columbia and Alberta on conflicts over oil pipeline projects. Experiences of participating in anti-pipeline protests motivated me to produce academic knowledge that could challenge the implicit assumptions and claims made about net-zero.

Table 8.2. Storylines of the net-zero imaginary

2.

Storylines	Advocates	Arguments	Legitimation mechanisms	Opposing actors	Counter-arguments
GHG emissions reduction through CCUS	The Federal Government The Pathways Alliance Canada's largest banks	CCUS and similar technologies abate emissions in the oil sector	Net-zero scenarios, targets, and legal-institutional mechanisms.	ENGOs, critical scholars, and Indigenous communities	Unsubstantiated claims about the emissions reduction potential of CCUS
Net-zero as a driver of sustainable economic growth and the low-carbon transition	The Federal Government The Pathways Alliance Canada's largest banks	Sustainable economic growth Job creation Transparency and accountability of net-zero	Net-zero targets, regulatory framework, public-private funding schemes, and multi-scalar governance initiatives.	Indigenous communities, ENGOs, and critical scholars The Alberta Government Think tanks	Lack of credibility and reliability of emissions reduction targets Historical climate injustices Intergovernmental disputes over energy and land governance Negative economic impacts of net-zero
Contested land claims around net-zero projects	The Federal Government	Reconciliation with Indigenous peoples. Indigenous participation in climate action.	Climate and land rights partnership initiatives	Indigenous communities	Indigenous land appropriation for fossil fuel expansion Multiple socio-ecological and economic costs of net-zero

Source: Own elaboration

4. The net-zero storylines

The key storylines that emerged from the discourse analysis are shown in Table 2.

4.1 GHG emissions reduction through CCUS

The potential mitigation of GHG emissions is the most prominent storyline in the net-zero imaginary. All official documents examined cite emissions abatement as the main reason for adopting net-zero targets. As stated in Canada's official definition of net-zero: “achieving net-zero emissions means our economy either emits no greenhouse gas emissions or offsets its emissions, for example, through actions such as tree planting or employing technologies that can capture carbon before it is released into the air” [75]. Based on a techno-optimistic belief, this storyline emphasizes that reaching “significant additional emissions reductions will require further innovation and a massive scaling-up of emerging technology and infrastructure solutions” [8], especially CCUS.[45] This storyline assumes that these technologies will be available in the future to decrease emissions while maintaining oil and gas production levels [77].

As noted by the Federal Government, “there is no viable path to net- zero emissions without carbon management technologies, but their deployment must be rapid and immense, scaling up by nearly 200 times by 2050” [4]. To propagate and sustain this storyline, the Federal Government has elaborated energy scenarios that lay out its net-zero vision and attempt to demonstrate Canada's progress in reducing oil- related emissions through NETs.

This storyline is clearly articulated in the first official long-term energy future projections developed by the CER, in which the country achieves the net-zero target by 2050 [78]. Although CER forecasts state that they do not provide policy recommendations, a closer look at them reveals that they implicitly prefigure certain energy technological trajectories while foreclosing others. Guided by the assumption that innovation and market mechanisms translate into lower technology costs and pollution levels, net-zero scenarios assume that CCUS will play a crucial role in reducing “GHG emissions from producing and processing oil and natural gas…approximately 90% by 2050 compared to 2021” [78].

In the case of tar sands, emissions are estimated to decrease from 94% to 76 % of 2005 levels by 2050. This represents a decline from 87 megatons of carbon dioxide equivalents (MT CO_2 e) to 8–4 MT CO_2 e annually by 2050 [79]. Notably, CCUS is expected to capture

[45] In 2024 there were two large-scale CCUS projects in Canada, representing an investment of 1.24 billion Canadian dollars, namely the Shell's Quest and the Alberta Carbon Trunk Line pipeline in Alberta [76].

and store 12–15 MT of CO2 per year by 2030, increasing to 40–45 MT by 2040, and then declining to 25 MT by 2050 [79]. To build and leverage the credibility, authority, and legitimacy of this storyline, the Federal Government draws on scientific arguments and expert knowledge claims, stating that net-zero aligns with the "best available science" and "legally binding" climate treaties, such as the Paris Agreement [80].

This deterministic, optimistic, and apolitical vision of a net-zero future, however, is contradicted by government data and studies from ENGOs, scholars, and independent agencies. According to official statistics, the oil and gas industry accounted for 217 MT CO_2 e or 31 % of Canada's emissions in 2022 [81]. The largest contribution (40 % or 87 MT CO_2 e) came from tar sands development, which is the country's fastest-growing source of GHG, increasing by 467 % between 1990 and 2022 [81]. Contrary to the Federal Government's net-zero discourse, official energy scenarios acknowledge that it is not possible to reduce all emissions largely because of predicted steady oil production and consumption levels. Indeed, as recognized by the CER, hydrocarbons will continue to "play an important part in the energy system, with much of the fossil fuel in 2050 used at industrial facilities outfitted with CCS" [78]. Net-zero scenarios estimate that tar sands production will grow between 4 % and 7 % by 2030 due to the expansion of existing oil projects and then experience a relative decline [79]. Yet, it remains uncertain whether this fall may occur due to expected growing oil production trends in Alberta, as documented in other official reports [82].

Relatedly, an analysis of GHG emissions conducted by experts of the Pembina Institute, a think tank critical of the fossil fuel industry, reveals that reaching net-zero is particularly difficult in the context of increased fossil fuel extraction [82]. Concerning tar sands, Canada would need to decrease its emissions by "approximately 2.7 Mt CO2e each year" by 2050 ([82]:18). Achieving this goal, however, seems unlikely given lax regulations on new fossil fuel investments and unaccounted fossil fuel- related emissions [84]. Indeed, emissions associated with fossil fuel exports and end-use consumption, estimated at 939 Mt. CO2e in 2022 [85] and accounting for 80 % of life-cycle fossil energy emissions [83], are not included in net-zero scenarios. This incomplete picture of Canada's emissions is problematic because 98 % of domestic crude oil production is exported to the United States, mainly via pipelines [86].

Furthermore, studies from critical scholars and ENGOs point out that even if large-scale CCUS were implemented at all tar sands production and processing sites, these would not remove or capture significant CO2 emissions because most emissions occur after crude oil extraction and production[46] [77,83,87]. In addition, it is necessary to consider the emissions involved in the construction and operation of CCUS facilities, which are often overlooked in government net-zero assessments [83]. In this sense, the Auditor General of Canada's (OAG)

[46] The capacity of geological formations to store CO2 remains controversial and uncertain [77].

report on the CNZEAA suggested the need to involve independent experts to increase the transparency and credibility of net-zero scenarios [88].

4.2 Net-zero as a driver of economic growth and the low-carbon transition

The storyline around emissions reduction is interwoven with arguments about economic growth and employment. As the Federal Government puts it: “Achieving net-zero emissions by 2050 is not just a plan for the environment, it is also a plan to build a cleaner, more competitive economy. Canada is well-positioned to provide the world with the cleanest products and services that create good jobs for Canadians” [89]. This storyline links the imperative of economic growth with climate protection rhetoric by stating, for example, that the CNZEAA “provides the long-term confidence and certainty required to attract investments and ensure that Canadians are delivering products and services that will be in high demand now and well into the future” [89]. In this sense, the CNZEAA considers climate change as “the biggest long-term threat of our generation but also as the greatest economic opportunity” [89].

Regarding job creation opportunities in the net-zero transition, the Federal Government claims, “we don't have to choose between clean air and good jobs. The argument that protecting the environment and growing the economy don't go hand in hand is an old – and failed – way of seeing things” [13]. This idea is reflected in various federal plans and laws, including the 2023 Sustainable Job Plan, the Sustainable Jobs Act, and the CNZEAA, which, despite their differences, rhetorically converge around the need to create “well-paying and inclusive jobs compatible with Canada's path to net-zero emissions” [90]. In the Federal Government's view, the development of NETs has the potential to “create thousands of well-paying jobs[47] that will enable the oil and gas sector to decarbonize…and enhance its global competitiveness” [82].

The Federal Government plays a central role in making the net-zero imaginary by establishing emissions reduction targets, climate programs, a legislative framework, and instruments to stimulate investments in NETs [82]. Federal support for net-zero, however, does not automatically translate into local implementation, as there are several actors involved in discussions and decisions about net-zero [93]. This draws attention to the multi-scalar assemblages of institutional-legal frameworks, discourses, and governance arrangements through which the net- zero imaginary is constructed, negotiated, and challenged (Table 8.3). Most notably, the fossil fuel-dependent province of Alberta, led by the Conservative Party, has

[47] Official data shows that the oil sector provided 150,000 direct jobs in 2023 [91]. Promises of jobs, however, overlook that employment in the sector will decline over the next years as a result of increased automation [92].

been reluctant to adopt federal net-zero regulations on electricity grids. It argues these are incompatible with provincial emissions reduction plans and violate its jurisdiction over energy development [94]. As Alberta Premier Danielle Smith put it: “These regulations make desperately needed investments in new natural gas generation almost impossible… Alberta's government will protect Albertans from these unconstitutional federal net-zero regulations. They will not be implemented in our province – period” [95]. Commenting on the Federal Government's proposal to reduce oil and gas production by 75 % by 2050, the Alberta Premier added: “This belief does not align with any credible forecast of future world energy consumption, which continues to see oil and gas dominating the energy supply mix for decades to come” [96]. The Alberta Government's position deserves attention because the province leases oil mineral rights to companies for oil exploration and development [97] and thus exerts influence on the implementation and enforcement of net-zero targets at the provincial level.

In addition to government actors, corporations play a significant role in legitimizing net-zero. Major oil firms — Canadian Natural, Cenvious, Conoco Phillips, Imperial, and MEG Energy — formed the Pathways Alliance in 2021 to promote the image of a climate-neutral fossil fuel industry [98]. Accounting for 95 % of tar sands production, this organization promises to cut 68 Mt. CO2e by 2030 through the investment of $16.5 billion [99] in “safe, proven and reliable” CCUS and CO2 pipelines [98]. Imbued with notions of ecological modernization, the Pathways Alliance's discourse reconciles increased fossil fuel extraction and sustainability. For example, it frames the oil industry as a “key economic driver for Alberta and Canada, contributing billions to the economy annually[48]…supporting Canada's high standard of living by creating thousands of jobs and generating significant revenue to governments that help fund essential services, including health care, education, and roads” [98]. Promises of job creation are also a dominant theme in the Pathways Alliance's discourse, with estimates of 35,000 new jobs via the construction of CCUS facilities in the oil sector [98].

Similarly, the compatibility between fossil fuel development and climate change mitigation is also a central component in the discourses of large Canadian banks financing fossil fuel operations. Banks, such as RBC, TD, Scotiabank, BMO, and CIBC, have announced emissions targets by 2050 and joined global net-zero investment initiatives (e.g., Net-Zero Banking Alliance and the Glasgow Financial Alliance for Net-Zero) [100]. At the same time, these banks poured $44 billion into tar sands operations between 2016, the year in which Canada signed the Paris Agreement, and 2023 [101]. As stated by the Royal Bank of Canada: “oil and gas production in Canada could rise by 500,000 barrels per day without compromising the country's climate targets” [102].

[48] The fossil fuel industry only contributed to 3.2 % of the country's nominal Gross Domestic Product in 2022 [83].

Constellations of privately funded civil society organizations, foundations, universities/research centers, and ENGOS also intervene in the discursive construction and contestation of the net-zero imaginary. For instance, conservative-libertarian think tanks and advocacy groups pushing pro-fossil fuel and climate denial discourses have spoken out against net-zero [93,94]. The Fraser Institute, for example, has recommended policymakers "turning Canada's economy away from a net-zero future and back on a growth heading" [103], citing "the rise of the cost of power, particularly in provinces dependent on fossil fuels" as a major concern [104]. In the same vein, the Macdonald-Laurier Institute has expressed concerns about the federal plans to "eliminate fossil fuels" through the adoption of net-zero targets [105].

The assumption of net-zero as a driver of inclusive and sustainable economic development has also been criticized by ENGOs, think tanks, and some scholars. In particular, the voluntary nature of net-zero targets has raised questions about their transparency and accountability [9]. ENGOs, such as Friends of Earth and Indigenous Environmental Network, for example, critique these targets because they allow fossil fuel companies and governments to project an image of social responsibility, regardless of whether their emissions reduction commitments are met [26,27]. Such a perspective contrasts starkly with government and corporate framings of net-zero targets as transparent, science-based, and credible mechanisms [75,99].

Another predominant theme within counter-discourses on net-zero pertains to the inadequacy of current net-zero legislation to enforce fossil fuel-related emissions reduction. One frequently expressed criticism concerning the CNZEAA is the absence of obligations on the part of the Federal Government to meet its zero targets. Indeed, this legislation merely states the need to report on why targets were not met and what actions are needed to achieve them [106]. This contradicts government statements on the legally binding character of this piece of legislation [89]. On this issue, the OAG found that "Canada had consistently failed to meet its emission reduction targets," citing "missing and inconsistent information" on milestones and deadlines, "delays in implementing measures," and "fragmented accountability" as the main reasons for this failure [88].

Table 8.3. Main components of the net-zero imaginary

Actors	Strategies	Discourses	Technologies	Knowledges	Scales	Temporalities
The Federal Government	Fiscal instruments (e.g., subsidies and taxes)	Net-zero as a solution to climate change	CCUS	Expert technical and scientific knowledge informing net-zero policy instruments	Transnational multi-stakeholder net-zero initiatives	Settler colonialism
Pathways Alliance	Legislation	Sustainable economic growth		Government-sponsored and private research and development	Federal and provincial legal-institutional framework for net-zero governance.	Fossil capitalism
Canada's largest financial institutions	Net-zero targets	Economic relevance of the fossil fuel industry			Local negotiation and contestation dynamics around fossil fuel development	Techno-optimistic future vision
Provincial governments	Political arrangements	Reconciliation and Indigenous climate leadership				The urgency of climate action
Civil society organizations	Corporate lobbying					
Think tanks	Media framing and social construction of net-zero					
Universities and research centres						
International and local ENGOs						
Indigenous Nations						

Source: Own elaboration

Allegations of deceptive and untruthful sustainability claims are another major criticism of Canada's net-zero policy. Indeed, the CNZEAA “does not include a requirement to consider life-cycle emissions“, failing “to account for all of the greenhouse gas emissions (of a certain project) that will be released into the atmosphere” [107]. This includes emissions related to land-use change, tailings ponds (petrochemical wastewater) [22], fossil fuel exports, and final consumption abroad [83,107]. These unaccounted emissions represent a serious problem because they occur, regardless of the methodology used to calculate them, and thus contribute to climate change [107].

Deficiencies of this nature strengthen the arguments made by ENGOs and think tanks that net-zero is a form of greenwashing [108]. The temporary removal of information regarding the accuracy of net-zero claims from the Pathways Alliance website, following the introduction of amendments to Bill C-59 to enhance “rules around false or misleading environmental claims”, serves to illustrate this point [108]. Importantly, not all ENGOs and think tanks that have highlighted the shortcomings of net-zero have completely rejected it. The Canadian Climate Institute and the Pembina Institute, for instance, reconcile net-zero with economic growth and sustainable development [109]. This exemplifies the flexibility of net-zero as a concept, which facilitates, in certain instances, the convergence of actors with different ideological-political stances around it.

4.3 Contested land rights claims around net-zero projects

Closely intertwined with the previous storylines is the discursive construction of land for the development of net-zero projects in the oil sector. Analyzing this storyline involves considering the emergence of the net-zero imaginary in a context conditioned by settler colonial legacies of investment in fossil fuel extraction and export-oriented, carbon-intensive infrastructures [22,61]. Net-zero builds upon colonial structures characterized by resource extraction [21], settler territorial claims and conceptions of Indigenous peoples as governable subjects inhabiting empty and unproductive lands [56]. These claims have allowed the Canadian Government (including both the Federal and provincial governments) to establish authority over and regulate access to land and oil resources [22]. In doing so, they frequently violate Indigenous peoples' rights to self-determination and their traditional territories, as recognized by national and international legislation and Indigenous laws [20]. Although land rights claims are not explicitly articulated in net-zero discourses, they are implicit in them, serving as core assumptions that underpin the Canadian Government's assertions of land sovereignty [19].

Indigenous communities have challenged fossil fuel projects by asserting their land rights, often leading to project delays and cancellations. In several cases, Indigenous peoples

remind the Federal Government of its constitutional duty to consult and accommodate them when economic activities, such as fossil fuel development, may affect their land rights [110]. Here, the Federal Government has publicly committed to building a nation-to-nation relationship with Indigenous peoples based on the recognition of their rights [111].

In the case of net-zero, the official discourse states that “supporting Indigenous climate leadership and co-developing solutions to address climate change in First Nations' communities is central to advancing reconciliation and self-determination” [112]. In this storyline, Indigenous peoples are portrayed as equal partners and leaders in climate action. The CNZEAA, for example, mentions that Canada must take into account the United Nations Declaration on the Rights of Indigenous peoples (UNDRIP), including the principles of free, prior, and informed consent (FPIC), and Indigenous knowledges when establishing net-zero targets [106:10].

Along the same lines, corporate actors financing and developing fossil fuel projects have embraced a reconciliation narrative. The Pathways Alliance, for instance, noted that “an open and collaborative relationship with Indigenous groups is vital as we progress our ambitious path towards net zero CO2 emissions from oil sands operations” [113]. Relatedly, RBC, one of Canada's largest fossil fuel financiers, stated that “an Indigenous-led approach to the climate transition, and economic opportunities toward Net Zero,” particularly through Indigenous partnerships and ownership, “will be essential to economic reconciliation…and will lead to more profitable outcomes.” In its vision of a net-zero future, RBC acknowledges that Indigenous lands “hold vast resources” needed to develop “green energy systems” and “unlock green economic growth” [114].

A different approach is offered by First Nations and Indigenous groups strongly opposed to net-zero plans. Indigenous Climate Action, for example, points out: “To date, Canada lacks a substantive process to ensure the rights of Indigenous peoples will be respected or upheld in development of climate plans and policies to achieve net zero, or to ensure that Indigenous knowledge and solutions are utilized in devel- oping and framing these policies and plans” [115]. A similar critique about inadequate consultation processes was raised by the OAG, noting that while the Federal Government “sought input from Indigenous peoples” in the elaboration and approval of the CNZEAA, they still faced significant barriers to influence climate policy outcomes, such as “insufficient time to provide comments” on net-zero plans [88].

Concerns over the potential negative impacts of net-zero projects are also a central theme in discourses against net-zero. As Indigenous Climate Action puts it: “Carbon offset programs put Indigenous lands and territories at risk of being taken up by corporations as ‘offsets’ and further marginalizes our abilities to freely access our traditional territories while perpetuating the power of corporations and colonial governments” [115]. Likewise, the

Athabasca Chipewyan, Beaver Lake Cree, and Mikisew Cree Nations in Alberta indicated that “reliance on carbon dioxide removal (CDR) to achieve net-zero will allow oil sands pro- duction to continue…. which means the continuation of the impacts that have devastated our lands and waters, impaired the health of wildlife and our communities, and impaired the exercise of our Aboriginal and Treaty rights” [116:2,8]. These First Nations also pointed out that net- zero will exacerbate the disproportionate impact of climate change on Indigenous peoples [116].

A similar criticism was voiced by the Tsleil-Waututh Nation in British Columbia, which insisted that “emissions reduction plans must be developed through the inclusive lens of social, gender, racial, and environmental justice and equity, as well as the recognition, respect and protection of Indigenous rights” [117:3]. Even the OAG observed that the Federal Government “did not identify how vulnerable people would be disproportionately affected (by net-zero)” [88]. In response to Canada's net-zero policy, a coalition of Indigenous and climate organizations, such as Sacred Earth Solar, Indigenous Climate Action, and the David Suzuki Foundation, has presented their visions for a just energy transition rooted in Indigenous self-determination, values, and notions of climate justice [118].

It is important to note that there are ambivalent, divergent, and shifting approaches to fossil fuel extraction within and between Indigenous communities [119–121]. A clear example of this is the notion of Indigenous Net-Zero Future formulated by the First Nations Major Projects Coalition (FMMPC), an Indigenous-led organization in the United States and Canada. The FMMPC discursively frames net-zero as a “unique opportunity” for addressing climate change and the legacies of colonialism “through Indigenous self-determination and economic reconciliation" [122]. This vision includes Indigenous ownership and co- development of net-zero projects; decision-making power over project approval and life-cycle assessment of projects; and access to capital and resources to participate in and negotiate the terms of energy projects [122].

Concerning CCUS, the FMMPC highlights the potential for Indigenous communities located in favorable geological conditions and those with ties to the fossil fuel industry to participate in the development of these technologies through subsidies and equity ownership, as exemplified by the CCUS projects led by the Frog Lake First Nation and Kehewin Cree Nation in Alberta [122]. The Chief of the Frog Lake First Nation commented on its proposal to operate a CCUS facility: “This is our traditional territory, and we're looking for prosperity, revenue sharing, and of course, ownership in the project” [123].

5. Making fossil fuel futures through net-zero storylines

Concerning the storyline on GHG emissions reduction through CCUS, this research highlights that net-zero scenarios are a key policy instrument through which the net-zero imaginary is produced and legitimized. Scenarios provide the technical and economic rationale that justifies the adoption of net-zero targets, presenting them as an optimal solution to curb GHG emissions and combat climate change. As shown by the discourse analysis, net-zero scenarios tend to overestimate the emissions reduction potential of CCUS and related technologies while overlooking a wide range of concerns associated with them. Among these are their life-cycle emissions, environmental risks (e.g., water and soil pollution), high economic costs, and social acceptability. This finding is in line with scholarly and grey literature on net-zero that illustrates how flawed GHG assessments of NETs offer misleading information about net-zero and thus hinder the formulation and implementation of strong climate policies [26].

The discrepancies and inconsistencies found across government data on estimated GHG emissions reduction reveal major contradictions between net-zero goals and continued reliance on fossil fuel extraction. In this regard, one of the main observations that emerges from the analysis of the dominant storyline is the systematic lack of consideration of cumulative GHG emissions and fossil fuel per capita consumption patterns in official net-zero scenarios. This observation is consistent with those of previous studies, which show that net-zero conceals the historical responsibility of national governments and large corporations for climate change [9]. In addition, this work draws attention to the uneven dynamics of knowledge production at play in the making of the net-zero future, further supporting the claim that Indigenous knowledges are excluded from government energy/climate policymaking [118,124]. Here, further research needs to examine more closely the mechanisms of inclusion/exclusion of knowledges in the planning, implementation, and assessment of Canada's net-zero policy.

With respect to the storyline of net-zero as a driver of sustainable economic growth and the low-carbon transition, research results did not provide empirical evidence to assess employment and economic projections of net-zero. Yet, results provide essential insights into the political-economic logics behind net-zero. Specifically, this work illuminates the predominant role of the Federal Government, fossil fuel corporations, and large banks in shaping net-zero debates and policy frameworks. This is problematic for several reasons. First, the attempts to reconcile fossil fuel extraction and climate change through net-zero may leave untouched political, economic, and ideological structures that lie at the core of climate change [125]. Even the disputes between the Federal Government and the province of Alberta are over the regulation of net-zero rather than over a primary socio-ecological trans- formation of

the fossil fuel industry [93]. Further work is required to better understand how different visions of net-zero are negotiated.

Second, the limitations and contradictions of net-zero targets serve state and corporate agendas by obstructing and delaying policies aimed at restricting fossil fuel expansion. Third, net-zero may amplify vulnerabilities already faced by Indigenous peoples and other communities affected by fossil fuel operations across Canada, as earlier studies have also reported [21,26,27]. Taken together, these results align with previous scholarly discussions on the politics of net-zero emissions, which show that corporate and state actors prioritize NETs development over structural changes to mitigate climate change [41,125].

Regarding the storyline on contested land rights, this paper elucidates that in dominant net-zero discourses, land-use conflicts around fossil fuel development are concealed and managed through the rhetoric of reconciliation and climate partnerships. Ignoring Indigenous land rights is fundamental to the materialization of the net-zero imaginary, as it reinforces a colonial conception of space as an empty container where future net-zero projects take place. As the construction of CCUS facilities requires new land areas for fossil fuel expansion, net-zero turns lands, the atmosphere, and subterranean ecosystems into financial speculative assets that allegedly compensate for fossil fuel-related emissions. As spatial expressions of the net-zero imaginary, these infrastructures play an essential role in consolidating settler territorial claims. This finding matches those of studies that criticize decarbonization strategies in Canada that reinforce the imperative to extract fossil fuels on Indigenous peoples' lands [29,126–128].

An analysis of the geographical implications of the net-zero imaginary demands attention to the potential intensification of inequities in access to and control over land for fossil fuel operations and in the distribution of their socioeconomic and environmental effects. Inequalities in net-zero decisions raise questions about who gets to imagine energy futures and who can influence where net-zero infrastructural projects are planned. The latter point is relevant because it brings to the fore the discrepancies between settler notions of land as a commodity and Indigenous representations of land. As expressed by Indigenous groups, First Nations, and critical scholars, Indigenous peoples, in general, see and experience the land as a system of relationships and responsibilities to past and future generations as well as non-human nature through which they build and maintain their diverse lifeways and governance structures [129]. Such perspectives disrupt the idea of Indigenous homelands as “sacrifice zones” for achieving Canada's net- zero goals

Indigenous representations and experiences of land are diverse, as Indigenous communities [120] are deeply integrated into economic and political structures that restrict their decision-making authority over their lands [121]. Under these conditions, Indigenous communities engage in consultations and partnerships with governments and fossil fuel

corporations not only to seize economic opportunities but also to assert collective self-determination and gain leverage over decisions affecting their lands [20,120]. This logic is reflected in the Indigenous- led net-zero initiatives, which advocate for a leadership role of Indigenous communities in the net-zero transition according to their worldviews.

Given the existing power dynamics around fossil fuel development in Canada [26,27,115], it is essential to ask whether Indigenous-led visions of net-zero, even if they may offer more benefits than government- or corporate-led net-zero proposals, could represent significant opportunities for communities to exercise self-determination on their own terms and address historical injustices linked to fossil fuel extraction.

6. Conclusions

This paper contributes to research on the production of net-zero imaginaries by analyzing the discursive construction of Canada's net-zero imaginary in the oil sector and its spatial dimensions concerning fossil fuel development. It elucidates that net-zero is a socio-technical imaginary (re)shaped by the dynamic interplay of climate discourses, energy policy decisions, and NETs. Doing so extends our view of net-zero beyond its focus on emissions reduction via technological development and illuminates the central role of uneven power relations in producing and contesting net-zero future visions. A geographical political economy perspective underscores here the scales and spaces in and through which net-zero is imagined, governed, and disputed. It specifically highlights the influence of the Federal Government and the oil industry in discursively articulating, mobilizing, and legitimizing the net-zero imaginary in multi-scalar policy arenas.

Adopting Hajer's argumentative discourse approach, this work offers valuable insights into key storylines underpinning Canada's net-zero imaginary. Taken together, these storylines reflect the assumptions that CCUS and future-oriented net-zero targets can significantly contribute to climate change mitigation. A closer examination of the power dynamics at play in the net-zero policy initiatives exposes the limitations and contradictions of these storylines. Techno-optimistic projections of net-zero prefigure a fossil fuel future, downplaying the need to constrain fossil fuel expansion. Limited transparency and enforcement of compliance with net-zero targets also obstruct and delay climate action. Net-zero goals allow the Canadian government and the fossil fuel industry to avoid accountability for their historical emissions, further imposing burdens on communities already impacted by fossil fuel operations, particularly Indigenous peoples. These observations illustrate the challenges that Canada and potentially other governments may face when attempting to tackle climate change under net-zero approaches. To address inequities, the net-zero policy framework must include at least

life-cycle emissions at the project level and require government and private actors to report and reduce their overall emissions in the present and not in a hypothetical future.

The persistence of climate inequalities in Canada's net-zero discourses and policies underlines the importance of settler colonialism in configuring the spatial dimensions of the net-zero imaginary. Structured by colonial logics, net-zero normalizes settler claims to authority over Indigenous peoples' lands by conceiving them as empty spaces available for fossil fuel extraction, including CCUS facilities. Despite the official rhetoric of reconciliation with Indigenous peoples through net-zero projects, these could perpetuate their exclusion from relevant climate and land use decisions. To protect and uphold Indigenous land rights, the Canadian Government must ensure meaningful engagement with Indigenous peoples in the planning, development, and assessment of net-zero scenarios, targets, legislation, and projects. This is key to redefining the conceptual underpinnings of net-zero and developing alternative energy transition approaches.

Divergent views of Indigenous communities regarding net-zero call for further research into how they pursue their energy future visions. The concept of socio-technical imaginaries is limited here to capture such visions as these emerge from distinct epistemological, geographical, and sociohistorical contexts. Studies thus should engage here with Indigenous conceptual and methodological frameworks. A further line of scholarly inquiry concerns a deeper exploration of the contestations around net-zero by provincial governments, ENGOs, think tanks, and other groups. Of critical importance here is to put justice issues at the center of net-zero policies and discussions. While improving the transparency and accountability of net-zero policy instruments and public participation in energy decisions is necessary, the main challenge lies in transforming the fossil fuel and settler colonial structures upon which net-zero rests. An important step in this direction is to design energy policy frameworks that prioritize Indigenous self-determination and address inequalities around fossil fuel development.

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Data availability

I have shared my data at the Attach File step.

References

[1] International Energy Agency (IEA), Net Zero by 2050. https://www.iea.org/repor ts/net-zero-by-2050, 2021 (accessed 17 February 2024).
[2] S. Fankhauser, et al., The meaning of net-zero and how to get it right, Nat. Clim. Change 12 (2022) 15–21, https://doi.org/10.1038/s41558-021-01245-w.
[3] Net Zero Tracker, Net Zero Stocktake 2023, NewClimate Institute, Oxford Net Zero, Energy and Climate Intelligence Unit and Data-Driven EnviroLab. https://ca1nzt.edcdn.com/Reports/Net_Zero_Stocktake_2023.pdf?v=1689326892 (accessed 4 April 2024).
[4] Natural Resources Canada, Energy Factbook 2023–2024. https://energy-informa tion.canada.ca/sites/default/files/2023-10/energy-factbook-2023-2024-secti on6.pdf, 2023 (accessed 10 May 2024).
[5] L. Akenji, et al., 1.5-degree lifestyles: towards a fair consumption space for all, Hot or Cool Institute, Berlin, 2021.
[6] Government of Canada, Canadian Net-Zero Emissions Accountability Act. https://www.canada.ca/en/services/environment/weather/climatechange/climate-plan/net-zero-emissions-2050/canadian-net-zero-emissions-accountability-act. html, 2022 (accessed 1 February 2024).
[7] Government of Canada, Canada's 2030 Emissions Reduction Plan. https://www. canada.ca/en/services/environment/weather/climatechange/climate-pla n/climate-plan-overview/emissions-reduction-2030/plan/chapter-2.html, 2022 (accessed 10 March 2024).
[8] Government of Canada, Options to cap and cut oil and gas sector greenhouse gas emissions to achieve 2030 goals and net-zero by 2050 – discussion document.

https://www.canada.ca/en/services/environment/weather/climatechange/cli mate-plan/oil-gas-emissions-cap/options-discussion-paper.html, 2022. (Accessed 28 June 2022).
[9] Corporate Accountability, et al., The big con: how big polluters are advancing a “net zero” climate agenda to delay, deceive, and deny. https://www.corporatea ccountability.org/wp-content/uploads/2021/06/The-Big-Con_EN.pdf, 2021 (accessed 25 March 2024).
[10] S. Langlois-Betrand, Unpacking Canada’s oil and gas dilemma: international leadership challenges on the road to net-zero, Can. Foreign Policy J. 28 (2022) 249–264, https://doi.org/10.1080/11926422.2022.2118139.
[11] K. Zhang, H. Chung Lau, Z. Chen, The contribution of carbon capture and storage to Canada's net-zero plan, J. Clean. Prod. 404 (2023), https://doi.org/10.1016/j. jclepro.2023.136901.
[12] S. Jasanoff, S.-H. Kim, Containing the atom: sociotechnical imaginaries and nuclear power in the United States and South Korea, Minerva 47 (2) (2009) 119–146, https://doi.org/10.1007/s11024-009-9124-4.
[13] L. Delina, A. Janetos, Cosmopolitan, dynamic, and contested energy futures: navigating the pluralities and polarities in the energy systems of tomorrow, Energy Res. Soc. Sci. 35 (2018) 1–10, https://doi.org/10.1016/j. erss.2017.11.031.
[14] J.H. Tidwell, A.S.D. Tidwell, Energy ideals, visions, narratives, and rhetoric: examining sociotechnical imaginaries theory and methodology in energy research, Energy Res. Soc. Sci. 39 (2018) 103–107, https://doi.org/10.1016/j. erss.2017.11.005.
[15] T.J. Rudek, Capturing the invisible. Sociotechnical imaginaries. The critical overview, Sci. Publ. Policy 49 (2) (2022) 219–245, https://doi.org/10.1093/ scipol/scab076.
[16] G. Bridge, L. Gailing, New energy spaces: towards a geographical political economy of energy transition, Environ. Plan. A 52 (6) (2020) 1037–1050, https:// doi.org/10.1177/0308518X20939570.
[17] G. Bridge, S. Barr, S. Bouzarovski, M. Bradshaw, E. Brown, H. Bulkeley, G. Walker, Energy and Society, Routledge, London, 2018.
[18] Government of Alberta, Oil sands facts and statistics. https://www.alberta. ca/oil-sands-facts-and-statistics#:~:text=Reserves%20and% 20production,158.9%20billion%20barrels%20(bbl) (accessed 20 February 2024).
[19] D. Short, J. Huseman, A slow industrial genocide: tar sands and the indigenous peoples of Northern Alberta, Int. J. Hum. Rights 16 (1) (2012) 216–237, https:// doi.org/10.1080/13642987.2011.649593.
[20] C. Westman, T. Joly, Oil sands extraction in Alberta, Canada: a review of impacts and processes concerning indigenous peoples, Hum. Ecol. 47 (2019) 233–243, https://doi.org/10.1007/s10745-019-0059-6.
[21] L. Adkin (Ed.), First World Petro-Politics: The Political Ecology and Governance of Alberta, University of Toronto Press, Toronto; Buffalo; London, 2016.
[22] T. Black, S. D'Arcy, T. Weis, J. Russell (Eds.), AA Line in the Tar Sands: Struggles for Environmental Justice, Between the Lines Press, Toronto, 2014.
[23] M. Hajer, The Politics of Environmental Discourse Ecological Modernization and the Policy Process, Oxford Univ. Press, Oxford, 2005.
[24] L. Tozer, N. Klenk, Discourses of carbon neutrality and imaginaries of urban futures, Energy Res. Soc. Sci. 35 (2018) 174–181, https://doi.org/10.1016/j. erss.2017.10.017.
[25] M. Bollman, Frames, fantasies, and culture: applying and comparing different methodologies for identifying energy imaginaries in American policy discourse, Energy Res. Soc. Sci. 84 (2022), https://doi.org/10.1016/j.erss.2021.102380.
[26] Friends of Earth, et al., Chasing carbon unicorns: the deception of carbon markets and “net zero,” Friends of Earth International, 2021. https://www.foei.org/publication/chasing-unicorns-carbon-markets-net-zero/.
[27] Indigenous Environmental Network, Oil change international, indigenous resistance against carbon. https://www.ienearth.org/wp-content/uploads/2021/ 09/Indigenous-Resistance-Against-Carbon-2021.pdf, 2021 (accessed 13 May 2024).
[28] W. Carroll (Ed.), Regime of Obstruction. How Corporate Power Blocks Energy Democracy, AU Press, Athabasca University, Edmonton, 2021.
[29] D. Robb, P. Le Billon, K. Bakker, Landscapes of recarbonization: carbon neutrality, settler colonialism, and cumulative environmental effects in the Peace River region, Canada, Ann. Am. Assoc. Geogr. 114 (9) (2024) 1930–1947, https://doi.org/10.1080/24694452.2024.2369599.
[30] K. Calvert, From ‘energy geography’ to ‘energy geographies’: perspectives on a fertile academic borderland, Prog. Hum. Geogr. 40 (1) (2016) 105–125, https:// doi.org/10.1177/0309132514566343.
[31] B. Sovacool, D.J. Hess, S. Amir, F. Geels, L. Rodriguez Medina, et al., Sociotechnical agendas: reviewing future directions for energy and climate research, Energy Res. Soc. Sci. 70 (2020), https://doi.org/10.1016/j. erss.2020.101617.
[32] D.J. Hess, B. Sovacool, Sociotechnical matters: reviewing and integrating science and technology studies with energy social science, Energy Res. Soc. Sci. 65 (2020), https://doi.org/10.1016/j.erss.2020.101462.
[33] A.S.D. Tidwell, J.M. Smith, Morals, materials, and technoscience, Sci. Technol. Hum. Values 40 (5) (2015) 687–711, https://doi.org/10.1177/01622439155776.
[34] H. Knappe, A.K. Holfelder, D. Lo¨w Beer, P. Nanz, The politics of making andunmaking (sustainable) futures: introduction to the special feature, Sustain. Sci. 14 (4) (2019) 891–898, https://doi.org/10.1007/s11625-019-00704-w.
[35] N. Longhurst, J. Chilvers, Mapping diverse visions of energy transitions: co- producing sociotechnical imaginaries, Sustain. Sci. 14 (4) (2019) 973–990, https://doi.org/10.1007/s11625-019-00702-y.
[36] L. Mayo, S. Veenman, M. Kaufmann, Making and using futures: using anticipation to reframe justice and responsibility to govern societal transformations, World Futures 80 (6–7) (2024) 548–571, https://doi.org/10.1080/02604027.2024.2340774.

[37]S. Asayama, I. Atsushi, Selling stories of techno-optimism? The role of narratives on the discursive construction of carbon capture and storage in the Japanese media, Energy Res. Soc. Sci. 31 (2017) 50–59, https://doi.org/10.1016/j. erss.2017.06.010
[38]A. Carvalho, M. Riquito, V. Ferreira, Sociotechnical imaginaries of energy transition: the case of the Portuguese roadmap for carbon neutrality 2050, Energy Rep. 8 (2022) 2413–2423, https://doi.org/10.1016/j.egyr.2022.01.138.
[39]J. Marquardt, N. Nasiritousi, Imaginary lock-ins in climate change politics: the challenge to envision a fossil-free future, Environ. Polit. 31 (4) (2022) 621–642, https://doi.org/10.1080/09644016.2021.1951479.
[40]N. Markusson, D. McLaren, D. Tyfield, Towards a cultural political economy of mitigation deterrence by negative emissions technologies (NETs), Glob. Sustain. (2018) e10, https://doi.org/10.1017/sus.2018.10.
[41]W. Carton, A. Asiyanbi, S. Beck, H.J. Buck, J.F. Lund, Negative emissions and the long history of carbon removal, WIREs Clim. Change 11 (2022), https://doi.org/ 10.1002/wcc.671.
[42]W. Carton, Fixing climate change by mortgaging the future: negative emissions, spatiotemporal fixes, and the political economy of delay, Antipode 51 (3) (2019) 750–769, https://doi.org/10.1111/anti.12532.
[43]W. Carton, K. Edstedt, Making, and remaking, a world of carbon. Uneven geographies of carbon sequestration, in: H. Himley, E. Havice, G. Valdivia,
[44]H. Himley, E. Havice, G. Valdivia (Eds.), The Routledge Handbook of Critical Geography, Routledge, 2021, pp. 401–411.
[45]W.F. Lamb, et al., Discourses of climate delay, Glob. Sustain. 3 (17) (2020) 1–5, https://doi.org/10.1017/sus.2020.13.
[46]G. Bridge, S. Bouzarovski, M. Bradshaw, N. Eyre, Geographies of energy transition: space, place and the low-carbon economy, Energy Policy 53 (2013) 331–340, https://doi.org/10.1016/j.enpol.2012.10.066.
[47]Z. Chateau, P. Devine-Wright, J. Wills, Integrating sociotechnical and spatial imaginaries in researching energy futures, Energy Res. Soc. Sci. 80 (2021), https://doi.org/10.1016/j.erss.2021.102207.
[48]M. Huber, Theorizing energy geographies, Geogr. Compass 9 (6) (2015) 327–338, https://doi.org/10.1111/gec3.12214.
[49]J. Baka, S. Vaishnava, The evolving borderland of energy geographies, Geogr. Compass 14 (2020), https://doi.org/10.1111/gec3.12493.
[50]C. Hunsberger, R. Kløcker Larsen, The spatial politics of energy conflicts: how competing constructions of scale shape pipeline and shale gas struggles in Canada, Energy Res. Soc. Sci. 77 (2021), https://doi.org/10.1016/j. erss.2021.102100.
[51]S. Siddharth, J.K. Fisker, S. Shokrgozar, T. Sattich, Making low-carbon places, Norw. J. Geogr. 77 (3) (2023) 133–142, https://doi.org/10.1080/00291951.2023.2233967.
[52]B. Sovacool, B. Turnheim, A. Hook, A. Brock, M. Martiskainen, Dispossessed by decarbonisation: reducing vulnerability, injustice, and inequality in the lived experience of low-carbon pathways, World Dev. 137 (2021), https://doi.org/ 10.1016/j.worlddev.2020.105116.
[53]B. Sovacool, Who are the victims of low-carbon transitions? Towards a political ecology of climate change mitigation, Energy Res. Soc. Sci. 73 (2021), https:// doi.org/10.1016/j.erss.2021.101916.
[54]F. Sultana, The unbearable heaviness of climate coloniality, Polit. Geogr. (2022) 118–124, https://doi.org/10.1111/geoj.12417.
[55]G.K. Bhambra, P. Newell, More than a metaphor: climate colonialism in perspective, Glob. Soc. Chall. J. 2 (2) (2022) 179–187, https://doi.org/10.1332/ EIEM6688.
[56]C. Armstrong, D. McLaren, Which net zero? Climate justice and net zero emissions, Ethics Int. Aff. 36 (4) (2022) 505–526, https://doi.org/10.1017/ S0892679422000521.
[57]S. Pasternak, Jurisdiction and settler colonialism: where do laws meet? Can. J. Law Soc. 29 (2014) 145–161, https://doi.org/10.1017/cls.2014.5.
[58]L. Simpson, As We Have Always Done. Indigenous Freedom through Radical Resistance, University of Minnesota Press, Minneapolis and London, 2017.
[59]T. Alfred, J. Corntassel, Being indigenous: resurgences against contemporary colonialism, Gov. Oppos. 40 (2005) 597–614, https://doi.org/10.1111/j.1477- 7053.2005.00166.x.
[60]D.N. Scott, The networked infrastructure of fossil capitalism: implications of the new pipeline debates for environmental justice in Canada, Rev. Ge´n. Droit 43 (2014) 11–66, https://doi.org/10.7202/1021210ar.
[61]S. Spiegel, Climate injustice, criminalisation of land protection and anti-colonial solidarity: courtroom ethnography in an age of fossil fuel violence, Polit. Geogr. 84 (2021), https://doi.org/10.1016/j.polgeo.2020.102298.
[62]A. Spice, Fighting invasive infrastructure. Indigenous relations against pipelines, Environ. Soc. 9 (1) (2018) 40–56, https://doi.org/10.3167/ares.2018.090104.
[63]J. Preston, Neoliberal settler colonialism, Canada and the tar sands, Race Cl. 55
(2) (2013) 42–59, https://doi.org/10.1177/0306396813497877.
[64]M. Aronczyk, P. McCurdy, C. Russill, Greenwashing, net-zero, and the oil sands in Canada: the case of pathways alliance, Energy Res. Soc. Sci. 112 (2024), https:// doi.org/10.1016/j.erss.2024.103502.
[65]K. Isoaho, K. Karhunmaa, A critical review of discursive approaches in energy transitions, Energy Policy 128 (2019) 930–942, https://doi.org/10.1016/j. enpol.2019.01.043.
[66]T. van Dijk, Political discourse analysis: what is it? Belg. J. Linguist. 11 (1) (1997) 11–52, https://e-l.unifi.it/pluginfile.php/909651/mod_resource/content/1/Van%20Dijk%20Waht%20is%20political%20discourse%20analysis.pdf (accessed 24 April 2024).
[67]Fairclough, N. Critical Discourse Analysis: the Critical Study of Language. Longman. London and New York.
[68]M. Arnold, M. Goldschmitt, T. Rigotti, Dealing with information overload: a comprehensive review, Front. Psychol. 14 (2023) 1122200, https://doi.org/ 10.3389/fpsyg.2023.1122200.

[69]S. Campbell, S.M. Greenwood, S. Prior, et al., Purposive sampling: complex or simple? Research case examples, J. Nurs. Res. 25 (8) (2020) 652–661, https:// doi.org/10.1177/1744987120927206.
[70]J. Markard, A. Rincheid, L. Widdel, Analyzing transitions through the lens of discourse networks: coal phase-out in Germany, Environ. Innov. Soc. Transit. 40 (2021) 315–331, https://doi.org/10.1016/j.eist.2021.08.001.
[71]J.P. Tilsted, A. Mah, A. Nielsen, D. Tobias, G. Finkill, F. Bauer, Petrochemical transition narratives: selling fossil fuel solutions in a decarbonizing world, Energy Res. Soc. Sci. 94 (2022), https://doi.org/10.1016/j.erss.2022.102880.
[72]R. Gunderson, D. Stuart, B. Petersen, The fossil fuel industry's framing of carbon capture and storage: faith in innovation, value instrumentalization, and status quo maintenance, J. Clean. Prod. 252 (2020), https://doi.org/10.1016/j. jclepro.2019.119767.
[73]D. Rosenbloom, Framing low-carbon pathways: a discursive analysis of contending storylines surrounding the phase-out of coal-fired power in Ontario, Env. Innov. Soc. Transit. 27 (2018) 129–145, https://doi.org/10.1016/j. eist.2017.11.003.
[74]R. Shukula, P. Swarnakar, Energy justice in post-Paris India: unpacking consensus and conflict through storylines and discourse coalitions, Ener. Res. Soc. Sci. 91 (2022), https://doi.org/10.1016/j.erss.2022.102687.
[75]K.L. Thompson, N.C. Ban, "Turning to the territory": a gitga'at Nation case study of indigenous climate imaginaries and actions, Geoforum 137 (2022), https://doi. org/10.1016/j.geoforum.2021.11.006.
[76]Government of Canada, Net-zero emissions by 2050. https://www.canada.ca/en /services/environment/weather/climatechange/climate-plan/net-zero-emission s-2050.html, 2023 (accessed 12 February 2024).
[77]D. Anderson, Governments are investing billions into carbon capture in the Prairies. Here's what you need to know, The Narwhal, 2022. https://thenarwhal. ca/carbon-capture-explainer/ (accessed 17 May 2024).
[78]D. Gooderham, Oil and Gas Sector Emissions: Subsidies and emissions reduction goals. The case of the oil sands sub-sector and CCUS subsidies. https://www. ourcommons.ca/Content/Committee/441/ENVI/Brief/BR11670245/br-externa l/GooderhamDavid-e.pdf, 2022 (accessed 20 June 2024).
[79]Canada Energy Regulator, Canada's energy future, executive summary. htt ps://www.cer-rec.gc.ca/en/data-analysis/canada-energy-future/2023/execut ive-summary/?=undefined&wbdisable=true#:~:text=In%20the%20Canada% 20Net%2Dzero%20Scenario%2C%20almost%2080%20MT%20of,produce% 20oil%20and%20natural%20gas, 2024.
[80]Canada Energy Regulator, Canada's energy future, results. https://www.cer-rec. gc.ca/en/data-analysis/canada-energy-future/2023/results/#a4, 2023.
[81]Environment and Climate Change Canada, 2030 emissions reduction plan. Canada's next steps for clean air and a strong economy. https://www.canada.ca/ en/environment-climate-change/news/2022/03/2030-emissions-reduction- plan–canadas-next-steps-for-clean-air-and-a-strong-economy.html, 2022.
[82]Environment and Climate Change Canada (ECCC), National inventory report 1990–2022: greenhouse gas sources and sinks in Canada. Canada's submission to the united nations framework convention on climate change, part 1. https://publ ications.gc.ca/collections/collection_2024/eccc/En81-4-2022-1-eng.pdf, 2022.
[83]Government of Canada, Roadmap for the decarbonization of Canada's oil and gas sector. https://www.canada.ca/en/natural-resources-canada/news/2023/12/r oadmap-for-the-decarbonization-of-canadas-oil-and-gas-sector.html, 2023 (accessed 6 May 2024).
[84]E. Al-Aini, C. Severson-Baker, J. Gorski, Getting on Track. A primer on challenges to reducing carbon emissions in Canada's oilsands, 1–68, https://www.pembina. org/reports/getting-on-track.pdf, 2021 (accessed 2 March 2024).
[85]D. Hughes, Production forecasts, pipelines and net-zero promises: Canada's recipe for climate failure, Policy Note, 2020, December 16. https://www.policynote.ca/canada-climate-failure/.
[86]J. Bernstein, Canada's uncounted emissions, CBC News, 2024. https://newsinter actives.cbc.ca/features/2024/emissions/.
[87]Canada"s Oil & Natural Gas Producers (CAPP), Canadian exports of crude oil and natural gas. https://www.capp.ca/wp-content/uploads/2024/03/Canadian-E xports-of-Crude-Oil-and-Natural-Gas.pdf, 2023 (accessed 5 March 2024).
[88]West Coast Environmental Law, Net Zero or Net Reckless? What is the appropriate role for negative emissions technologies in meeting Canada's climate targets? https://www.wcel.org/sites/default/files/publications/nets_final_report-_march_2022_0.pdf, 2022.
[89]Office of the Auditor General of Canada, Report 6—Canadian Net-Zero Emissions Accountability Act—2030 Emissions. https://www.oag-bvg.gc.ca/internet/E nglish/parl_cesd_202311_06_e_44369.html (accessed 22 June 2024).
[90]Government of Canada, Government of Canada legislates climate accountability with first net-zero emissions law. https://www.canada.ca/en/environment-cli mate-change/news/2021/06/government-of-canada-legislates-climate-accoun tability-with-first-net-zero-emissions-law.html, 2021 (accessed 16 May 2024).
[91]Government of Canada, The Canadian sustainable jobs act becomes law. https://www.canada.ca/en/natural-resources-canada/news/2024/06/the-canadian-sustainable-jobs-act-becomes-law.html, 2024 (accessed 20 July 2024).

[92] L. Kaplan, The oil and gas sector's contribution to Canada's economy. https://www.canadianenergycentre.ca/the-oil-and-gas-sectors-contribution-to-cana das-economy-2/, 2023, April 4 (accessed 1 June 2024).
[93] Government of Canada, Canadian occupational projections. https://occupations. esdc.gc.ca/sppc-cops/l.3bd.2t.1ilshtml@-eng.jsp?lid=27&fid=1&lang=en, 2023 (accessed 5 May 2024).
[94] N. Graham, Think tanks and climate obstruction: atlas affiliates in Canada, Can. Rev. Sociol. 61 (2024) 110–130, https://doi.org/10.1111/cars.12467.
[95] R. Neubauer, N. Graham, H. Krobath, Defending "Canadian energy": connective leadership and extractive populism on Canadian Facebook, Env. Commun. 17 (6) (2023) 634–652, https://doi.org/10.1080/17524032.2023.2235919.
[96] Central Alberta, Premier Danielle Smith responds to clean energy regulations. htt ps://centralalbertaonline.com/articles/premier-danielle-smith-responds-to-clean-energy-regulations, 2023 (accessed 23 December 2024).
[97] P. Tran, Alberta will not recognize federal net-zero mandates: premier Danielle Smith. https://globalnews.ca/news/9834937/alberta-premier-net-zero-mandate s-reaction/, 2023 (accessed 28 December 2024).
[98] N. Viens, Racing to the last barrel: linking oil and gas industry interests to climate inaction in Canada, Energy Res. Soc. Sci. 91 (2022), https://doi.org/10.1016/j. erss.2022.102748.
[99] Pathways Alliance, Our plan. https://pathwaysalliance.ca/our-plan/#initiatives, 2022 [accessed 10 January 2024]. Prime Minister, Prime Minister's remarks on the Canadian net-zero emissions accountability act. https://www.pm.gc.ca/en/news/speeches/2020/11/19/pr ime-ministers-remarks-canadian-net-zero-emissions-accountability-act, 2020.
[100] N. Bulowski, What the heck is carbon capture? The pollution-cutting technology that's got Canada investing billions, National Observer, 2023. https://www.nationalobserver.com/2023/02/01/explainer/what-is-carbon-capture (accessed 5 May 2024
[101] Rainforest Network Alliance, et al., Banking on climate chaos: fossil fuel finance report 2024. https://www.bankingonclimatechaos.org/wp-content/uploads/2024/05/BOCC_2024_vF1.pdf, 2024 (accessed 17 June 2024).
[102] J. Woodside, Canada's banks are making net-zero pledges — and billions in fossil fuel deals, National Observer, 2022. https://www.nationalobserver.com/2022/ 04/27/explainer/canada-banks-funding-climate-change-fossil-fuels (accessed 6 April 2024).
[103] K. Green, Net-zero—the pathway to Canadian decline. https://www.frase rinstitute.org/commentary/net-zero-pathway-canadian-decline, 2022 (accessed 19 December 2024).
[104] K. Green, Ottawa should abandon unfeasible and damaging 'net-zero' plan. htt ps://www.fraserinstitute.org/commentary/ottawa-should-abandon-unfeasible- and-damaging-net-zero-plan, 2024 (accessed 19 December 2024).
[105] F. Sankey, Feds 'net-zero' agenda is an anti-growth agenda: Chris Sankey for Inside Policy. https://macdonaldlaurier.ca/net-zero-agenda-is-anti-growth-a genda/ (accessed 27 December 2024
[106] Government of Canada, Canadian net-zero emissions accountability act. https://laws-lois.justice.gc.ca/eng/acts/c-19.3/fulltext.html, 2021 (accessed 7 March2024).
[107] N. Dusky, Does Canada's net-zero math add up? The emissions we count and where we count them matters in the strategic assessment of climate change, Pembina Institute, 2021. https://www.pembina.org/pub/does-canadas-net-zero-math-add.
[108] E. Belliveau, Why did the Pathways Alliance scrub its website? New greenwashing rules explained. https://environmentaldefence.ca/2024/07/23/why-did-the-path ways-alliance-scrub-its-website-new-greenwashing-rules-explained/, 2024 (accessed 21 December 2024).
[109] Canadian Institute for Climate Choices, Canada's Net-Zero Future. https://clima techoices.ca/wp-content/uploads/2021/02/Canadas-Net-Zero-Future_FINAL-2. pdf, 2021 (accessed 6 January 2025).
[110] Government of Canada, Principles respecting the Government of Canada's relationship with Indigenous peoples. https://www.canada.ca/en/departmentjust ice/news/2017/07/government_of_canadasetsaprincipledfoundationforadvancin grenewed.html, 2017 (accessed 8 June 2024).
[111] Government of Canada, Canada's partnership with indigenous peoples on climate. https://www.canada.ca/en/environment-climate-change/services/climate-change/indigenous-partnership.html, 2024.
[112] Environment and Climate Change Canada, Government of Canada and assembly of first nations chart a joint path for new and updated priorities on climate action. https://www.canada.ca/en/environment-climate-change/news/2023/06/govern ment-of-canada-and-assembly-of-first-nations-chart-a-joint-path-for-new-and- updated-priorities-on-climate-action.html, 2023 (accessed 17 May 2024).

[113] Calgary Chamber, Pathways Alliance presents fostering indigenous inclusion and economic empowerment in the business community. https://www.calgarycham ber.com/pathways-alliance-indigenous-inclusion-empowerment, 2023 (accessed 22 December 2024).
[114] RBC, 92 to Zero: how economic reconciliation can power Canada's climate goals. https://thoughtleadership.rbc.com/92-to-zero-how-economic-reconciliation-can -power-canadas-climate-goals/, 2022 (accessed 17 December 2024).
[115] Indigenous Climate Action, Accountable to who? ICA's perspective on the Canadian net zero emissions accountability act. https://www.indigenousclimatea ction.com/entries/accountable-to-who-icas-perspective-on-the-canadian-net-zero -emissions-accountability-act, 2021 (accessed 20 May 2024).
[116] Athabasca Chipewyan First Nation, Beaver Lake Cree Nation, Mikisew Cree First Nation, Indigenous concerns with using carbon dioxide removal to achieve Canada's net-zero target. https://www.ourcommons.ca/Content/Committee/ 432/ENVI/Brief/BR11369348/br-external/Jointly3-e.pdf, 2021.
[117] Tsleil-Waututh Nation, Tsleil-Waututh nation written submission on bill C-12. htt ps://www.ourcommons.ca/Content/Committee/432/ENVI/Brief/BR11309579/ br-external/Tsleil-WaututhNation-e.pdf, 2021 (accessed 1 June 2024).
[118] Sacred Earth Solar, et al., Just transition guide. https://sacredearth.solar/just -transition-guide, 2023 (accessed 26 December 2024).
[119] Assembly of First Nations, Study on An Act respecting transparency and accountability in Canada's efforts to achieve net-zero greenhouse gas emissions by the year 2050 (Bill C-12). https://www.ourcommons.ca/Content/Committee/432/ENVI/Brief/BR11355346/br-external/AssemblyOfFirstNations-e.pdf, 2021.
[120] C. Atleo, '13 Between a Rock and a Hard Place'. Regime of Obstruction: How Corporate Power Blocks Energy Democracy, 2021.
[121] A. Curley, T'´a´a hwo´ ají t'e´ego and the moral economy of Navajo coal workers,Ann. Am. Assoc. Geogr. 109 (1) (2019) 71–86, https://doi.org/10.1080/24694452.2018.1488576.
[122] S. von der Porten, M. Podlasly, P. Csicsai, Indigenous leadership and opportunities in the net zero transition. FNMPC-Conference-Primer-Indigenous- Leadership-and-Opportunities-in-the-Net-Zero-Transition-April-25-26-2022-Vanc ouver-BC.pdf, 2022 (accessed 2 January 2025).
[123] K. Bakx, Indigenous coalition goes head-to-head against oil giants to build Alberta carbon capture complex, CBC News, 2022. https://www.cbc.ca/news/business /bakx-frog-lake-ccs-1.6331191 (accessed 20 June 2024).
[124] First Nations Major Projects Coalitions, "The only road to net zero runs through indigenous lands": indigenous equity ownership of major projects. https://fnmpc. ca/wp-content/uploads/FNMPC_Post-Conf_11022022_web.pdf, 2022 (accessed 21 December 2024).
[125] W. Carroll, Fossil capitalism, climate capitalism, energy democracy: the struggle for hegemony in an era of climate crisis, Soc. Stud. 14 (1) (2020) 1–26, https://doi.org/10.18740/ss27275;
[126] (b) H.J. Buck, Ending fossil fuels: why net zero is not enough, Verso Books, New York, 2021.
[127] C. Alexander, A. Stanley, The colonialism of carbon capture and storage in Alberta's tar sands, Environ. Plan. E: Nat. Space 5 (4) (2021) 2112–2131, https:// doi.org/10.1177/25148486211052875.
[128] G. Reed, J. Gobby, R. Sinclair, R. Ivey, H.D. Matthews, Indigenizing climate policy in Canada: a critical examination of the Pan-Canadian framework and the Ze´N roadmap, Front. Sustain. Cities 3 (2021), https://doi.org/10.3389/ frsc.2021.644675.
[129] Influence Map, The Canadian oil sands playbook: an analysis of Pathways Alliance. https://influencemap.org/briefing/Pathways-Alliance-28367, 2024 (accessed 18 December 2024).
[130] G. Coulthard, White Masks. Rejecting the Colonial Politics of Recognition, University of Minnesota Press, 2014.

9. Conclusions

This research examines the production, governance and contestation of physical and sociopolitical spaces for tar sands development in Canada. It defines these spaces as multi-scalar interactions of competing and conflicting discourses, land claims, knowledge systems, values and worldviews. Combining strands of literature on energy geographies, socio-technical imaginaries, political ecology, energy justice and settler colonialism, this work analyzes the unequal production of tar sands spaces. Specifically, it examines the inequalities and injustices embedded in these spaces. The work's main argument is that the appropriation of Indigenous lands for fossil fuel development and the Indigenous-led resistance to it constitute the driving forces of the configuration and contestation of tar sands spaces. To illustrate this point, I look at the conflict over the TMX project in BC and Alberta, focusing on the tensions between the Federal Government and the Indigenous-led movement. In doing so, I elucidate the discursive and material practices articulated and mobilized by these social actors to shape and disrupt the spaces through which the TMX is governed. An analysis of this case study contributes to scholarly discussions about the multi-scalar and spatial dimensions of fossil fuel operations in Canada.

9.1 Research summary

This dissertation began by underscoring the significance of exploring the social and environmental effects of tar sands development in Canada from a spatial perspective. It followed a brief review of the existing body of research on tar sands within human geography, political economy of oil and Indigenous studies. By focusing on how spaces for tar sands extraction, distribution and consumption are socially and materially configured, this dissertation aimed to extend current knowledge of and address key gaps in the critical literature on tar sands. In particular, the overarching objective of this research was to analyze the uneven production of these spaces, emphasizing the different forms of inequalities and injustices arising from this process. To illustrate this point, the dissertation explored the conflict over the TMX, which was the latest prominently visible dispute over tar sands infrastructure projects in Canada. After explaining the importance of this case for understanding how tar sands spaces become and transform, the introductory section briefly presents the methodology employed to conduct this analysis, as well as the overall structure of the thesis.

Following this introduction, chapter 2 contextualized this research by describing the relevant political, economic and social background in which tar sands development takes place and unfolds. This description included data about the geographical location of tar sands reserves, key economic indicators of the oil industry (e.g., crude oil production, transport, consumption and export levels), main actors involved in tar sands governance, and pressing environmental concerns surrounding tar sands operations. The most relevant observations in this chapter were that 1) the presence of large-scale fossil fuel infrastructures is deeply rooted in colonial legacies of land appropriation, and 2) accelerated tar sands extraction poses challenges for addressing climate change.

With this contextual background, chapter 3 outlined the theoretical foundations that informed this thesis. Drawing on strands of literature on energy landscapes, energy justice, fossil capitalism, settler colonialism and sociotechnical imaginaries, the chapter presented the key terms that guided the conceptual and empirical analysis of tar sands spaces. Of these, the notion of energyscapes was particularly relevant for exploring the material and social elements of tar sands spaces. In addition, both settler colonialism and fossil capitalism provided a strong conceptual basis for understanding the historical forces driving changes in these spaces. To complement this analysis, the concept of sociotechnical imaginaries illustrated the emerging changes and the enduring structures of tar sands spaces under the discourse of net-zero. By zooming in on the case of the TMX conflict, the idea of energy justice proved helpful to shed light on a wide range of inequalities tied to tar sands development.

Having established the theoretical framework, chapter four presented the case study that forms the empirical basis of this dissertation. It outlined the relevance of the conflict over the TMX project in BC, focusing on the tensions between the Federal Government and an Indigenous-led movement over land rights and environmental issues. A focus on this dispute served to both illustrate the concepts discussed in the previous chapter and provide an empirical examination of the contentious character of tar sands spaces. The description of this case study thus served as a point of reference for the analysis of the methodological approach employed in this research.

Chapter Five then offered a detailed description and a critical analysis of the methods used to examine the constitution and governance of tar sands spaces. Through a combination of CDA, archival research, participatory observation, document analysis and semi-structured and informal interviews, this dissertation paid attention to the discursive-material practices that shape tar sands spaces. Together, these methods were effective for capturing the articulation and mobilization of these practices within physical fossil fuel geographies and energy policy arenas. At the same time, the limitations of each one of these methods were acknowledged and discussed. Among these, the most important was the inability to conduct in-depth interviews to gain deeper insights into the motivations, experiences, and expectations of land

defenders and environmental protestors. In addition, this chapter emphasized the role of the global COVID-19 pandemic and wildfires in Alberta in hindering my fieldwork in Canada. Building on the established analytical framework and methodological approaches, the next chapters center around the three peer-reviewed articles that comprise this thesis.

The first article (chapter six) laid the theoretical foundation for understanding the driving forces underlying the production of uneven tar sands spaces. Combining insights from the strands of literature on energy landscapes, settler colonialism, and fossil fuel capitalism in Canada, I provided a conceptualization of tar sands spaces. Specifically, I highlighted the interdependence and intersection of fossil fuel technologies, governance structures, policies, legal frameworks, and discourses in shaping the production of these spaces.

To examine the key driving forces of tar sands spaces, I historically situated their emergence within the context of settler colonialism. In particular, I advanced the argument that the Canadian state's claims to Indigenous peoples' land are essential for legitimizing access to tar sands, controlling their development, and building fossil fuel infrastructures. To sustain this argument, I documented how historical processes of land dispossession and appropriation for resource extraction continue to inform Canada's contemporary fossil fuel policies. Archival research and policy document analysis provided evidence in support of the idea that tar sands development is rooted in a colonial discourse that erases Indigenous land jurisdiction to justify fossil fuel expansion further.

I then moved on to analyze the contradictions of tar sands spaces by focusing on the Indigenous-led resistance to the construction and/or expansion of export-oriented oil pipeline projects across Canada, particularly the TMX project. Through a combination of participant observation, interviews, informal conversations, and document analysis, I demonstrated that social mobilization, despite its limitations, is fundamental to reshaping tar sands spaces. Concretely, it plays a central role in influencing energy policymaking and public discourses, and in rethinking the geographies of tar sands development.

Chapter Six ends with the argument that the dynamics of land appropriation for tar sands expansion and social opposition to it are central to the production and transformation of tar sands spaces. Transformation does not mean here a radical, abrupt change of the existing power structures in the fossil fuel sector; rather, it denotes shifts occurring across different levels that lead to new energy governance arrangements.

Building on the insights of the previous chapter, the second article (chapter seven) further investigated the dispute over the TMX from an energy justice perspective. It specifically focuses on the tensions between the Federal Government and an Indigenous-led movement because it allowed an identification of the conflict's origins and dynamics. Of particular interest were the different forms of injustices (re)produced by the construction of the TMX project that often remain unaddressed in official assessments of this pipeline. Employing analysis of policy

documents, reports from ENGOs and Indigenous groups, newspaper articles, interviews and grassroots online events, the chapter sheds light on overlooked dimensions of energy injustice around the TMX project. These included violence against Indigenous women through pipeline workers, deterioration of marine ecosystems through increased oil tanker traffic and oil spills, and land dispossession.

Analyzing these injustices proved valuable in revealing the underlying settler colonial power structures embedded in fossil fuel systems and historical land grievances from First Nations. Such insights reinforced a central premise of this dissertation, namely, that ongoing land occupation for fossil fuel development drives the production of tar sands spaces. A recurring theme in chapter 7 is thus related to land rights disputes, particularly to First Nations assertions of their rights to consultation and self-determination. The emphasis on these rights was also instrumental in illustrating the importance of land access for the implementation of Indigenous-led ecosystem management practices and the preservation and revitalization of Indigenous ways of life. It was particularly significant to focus on these issues, given that they remain largely unaddressed in decisions concerning the TMX. Disregard of Indigenous forms of knowledge and the marginalization of Indigenous cultural practices can be understood as expressions of energy injustice.

Chapter 7 also emphasized the capacity of a group of First Nations, Indigenous groups, ENGOs and citizens to disrupt the construction of the TMX. Through street protests, lawsuits, pipeline blockades, fossil fuel divestment initiatives and public relations campaigns, the Indigenous-led movement brought attention to climate change and influenced public discourse on land use and energy development. Furthermore, grassroots opposition to the pipeline led to the development of Indigenous community-managed renewable energy projects, which, despite their limited scale, are crucial to articulating counter-hegemonic visions of energy futures. At the core of these visions lie demands to redress long-standing injustices related to land dispossession and end fossil fuel expansion. Although social opposition to the TMX was not able to stop the project, the chapter's findings illustrated the role of Indigenous political agency in advancing the construction of alternatives to state-or corporate-owned fossil fuel systems. In this sense, the findings supported one of the thesis's main arguments, namely, that Indigenous-led mobilization against fossil fuel expansion both challenges and undermines the settler colonial foundations of tar sands spaces.

While the findings of chapter 7 emphasized the existing injustices arising from the construction of tar sands infrastructures, chapter 8 highlighted the emergence of new forms of inequalities associated with the development and implementation of NETs, particularly CCUS, in the oil sector. Adopting the perspective of sociotechnical imaginaries, this chapter conceptualized the notion of net-zero emissions as an energy imaginary constructed through the multi-scalar interplay of climate discourses, energy policymaking and energy systems. Due

to the emerging nature of net-zero, I focused on its discursive dimension, particularly on three interconnected storylines: 1) the potential reduction of GHG emissions through NETs; 2) net-zero as a driver of economic growth and the low-carbon transition; and 3) contested land rights claims around net-zero projects. Rather than striving for a comprehensive overview of the net-zero imaginary, the selection of the storylines aimed to highlight the uneven power-knowledge dynamics of Canada's net-zero policy.

Concerning the first storyline, the chapter's findings showed that government methods to track and measure fossil fuel-related emissions often fail to take into account those linked to crude oil extraction, exports and consumption abroad. As a consequence, official net-zero scenarios and assessments usually provide an incomplete picture of the GHG emissions along fossil fuel supply chains, resulting in misguided climate policy decisions. Regarding the second storyline, the chapter raised doubts about the role of net-zero in transitioning towards a low-carbon economy. In particular, the high concentration of power and ownership in the fossil fuel sector undermines the transparency and accountability of net-zero targets and thus constrains effective climate action. The Canadian government, fossil fuel corporations and large banks exert considerable influence on the formulation of the net-zero policy so that it is unlikely to conflict with their political and economic interests. Related to this point, the analysis of the third storyline demonstrated that the settler colonial logic of land occupation is deeply embedded in the net-zero policy, exacerbating tensions and conflicts over land rights.

A focus on these storylines expanded the line of inquiry explored in previous chapters concerning the uneven production of tar sands spaces. Through the net-zero imaginary, these spaces are envisioned by the Canadian government, fossil capital and Indigenous groups as central to advancing the energy transition. Spaces for crude oil extraction, production, transport and consumption are intended to be transformed through the large-scale incorporation of NETs into existing fossil fuel facilities and the construction of "carbon neutral" infrastructures. Doing so entails legitimizing the commodification and financialization of land, underground reservoirs and air, particularly for the development of CCUS. Due to their privileged position within power structures in the oil sector, the Federal Government and fossil capital can significantly influence the use and control of space, particularly land and energy resources, as well as their associated meanings. Shedding light on the spatial arrangements of power surrounding net-zero projects, chapter eight underscored how net-zero (re)produces inequalities through land occupation and its representation as empty space available for fossil fuel expansion.

Collectively, the three articles provided a compelling case for thinking and exploring tar sands spaces as (re)configured by multi-scalar interactions between energy governance structures, geopolitics, climate discourses, energy future visions, knowledge systems, and land property regimes. Through this conceptualization, this thesis has developed and proposed new analytical insights to explore the forces driving the emergence, persistence, and transformation

of tar sands spaces. A focus on the controversy over the TMX illustrated how the construction of this pipeline actively produces these spaces by connecting infrastructures and sites for fossil fuel development and consolidating state and corporate control over energy policymaking. At the same time, this case study showed that social resistance to the TMX temporarily disrupted the physical connections between tar sands spaces and reframed the public Canadian debate on climate change and fossil fuel pipelines. The completion and operation of the TMX project, however, demonstrated how power imbalances between the Canadian state, fossil capital and grassroots movements restabilize tar sands spaces, reinforcing and potentially giving rise to new inequalities and injustices. Overall, this analysis extended ongoing debates on fossil fuel development in Canada by shedding light on the opportunities and constraints for shaping tar sands governance and the development of energy systems in ways that dismantle fossil fuel-entrenched interests.

9.2 Research contribution

Theoretically, this research contributes to energy geographies debates on energyscapes by providing a general conceptualization of tar sands spaces in Canada. Connecting strands of literature on energy geographies and fossil capitalism serves as an analytical foundation for critically examining and interpreting the constitution, governance, and contestation of spaces for tar sands operations. Based on the concept of energyscapes, I define these spaces as the existing and imagined material sites and multi-scalar decision-making arenas in and through which tar sands development is realized, legitimized, regulated, and disputed.

A key insight of this research is that tar sands spaces are made and remade by the interplay among competing interests, discourses, energy future visions, knowledges, identities, and worldviews. The notion of energyscapes allows for an examination of how multiple actors (e.g., the Canadian state, fossil capital, First Nations, ENGOs, and citizens) articulate and mobilize a wide range of material-discursive practices to envision, actively configure, and challenge spaces for tar sands activities. Seeing the TMX conflict through the lens of energyscapes unveils the overlapping and competing material-discursive practices that (re)configure the spaces through which the pipeline is governed.

A focus on the TMX case emphasizes the importance of fossil fuel infrastructures, particularly pipelines, in making tar sands spaces. Power dynamics through the TMX produce, rearticulate, and transform different, overlapping territories characterized by conflicting forms and sources of legitimacy. Adopting the energyscapes perspective enables us to think of crude oil pipelines not merely as technical infrastructures but rather as the spatial expressions of power relations and the materialized visions of energy futures, as well as sites of contestation.

Bringing studies on settler colonialism into dialogue here exposes the centrality of struggles over decision-making authority over land for the creation and transformation of tar

sands spaces. One of my main arguments is that the constitution of these spaces rests on the ongoing occupation and dispossession of Indigenous peoples' lands. Throughout this research, I have shown that tar sands development requires the systematic design and implementation of policies, legislation, and discourses aimed at commodifying land. Taken together, these practices have been historically embedded in the underlying assumption that the Canadian state holds sovereignty over Indigenous peoples and the consequent imposition of settler colonial land property rights regimes at the expense of Indigenous forms of land governance.

This historical background allowed me to identify how efforts to secure access and control over Indigenous land for tar sands mining, extraction, and transportation, such as land-use consultations and the negotiation of IBAs, are deeply grounded in colonial understandings of land as empty and unproductive spaces. My work offers an exploration of how colonial appropriation of land underpins the assumption that Indigenous lands are available for the tar sands frontier expansion. It is precisely this assumption that makes it possible for the Canadian state to conceive land as a commodity, disrupting its multiple socioecological and cultural meanings and integrating it into transnational circuits of capital accumulation. Adopting this view helps to explain why Indigenous land dispossession serves as the basis for the configuration of tar sands spaces. Bringing energy geographies and energy justice research into dialogue here, I emphasized that tar sands operations turn Indigenous lands into energy sacrifice zones, thereby producing inequalities and injustices.

To support this argument, this research illustrates how the construction of the TMX serves the Canadian state's and fossil capital's interests by embodying settler jurisdiction over Indigenous lands and rendering invisible Indigenous ways of perceiving, knowing, and experiencing land. The rationale behind consultations and land-use negotiations between project proponents and Indigenous peoples further strengthens this idea. Through these land governance mechanisms, the Canadian state and fossil capital see Indigenous peoples as economic agents potentially interested in participating in tar sands businesses rather than sovereign Nations with their political-economic aspirations, energy future visions, and, more importantly, territorial orders.

Viewed this way, land governance mechanisms act as tools of power for deactivating potential social contestation and incorporating First Nations into decision-making arenas defined and controlled by state and corporate actors. In insisting on the economic advantages for First Nations of signing land-use agreements, the Canadian state and fossil capital seek to secure land deals within settler legal-institutional frameworks that restrict Indigenous claims to traditional territories beyond the limits of reserves.

As demonstrated by the TMX case study, inadequate state-led consultations over land use raise fundamental questions about what kind of consultation procedures First Nations

expect, what meaningful consultation entails, and what outcomes would be acceptable or unacceptable for them. In the case of First Nations fighting the TMX, it is clear that increased tar sands operations are incompatible with their political projects and lifeways. Conversely, those who enter into negotiations do not necessarily embrace tar sands operations but rather seek to negotiate the terms and conditions of land-use agreements, mitigate the environmental risks of tar sands, and advance their projects of self-determination. Still, First Nations face considerable challenges in dealing with the cumulative impacts of tar sands activities on their homelands, livelihoods, and cultures.

A key methodological observation is that CDA enabled me to appreciate the role of energy discourses and future visions in the production, governance, and transformation of tar sands spaces. The use of CDA also prompted me to critically examine the underlying values and worldviews that support these discourses. CDA also illuminated the multi-scalar processes through which state and corporate discourses on tar sands become hegemonic, while subordinating or marginalizing discourses of Indigenous and environmental justice movements.

While the frames of tar sands activities have varied over time, some central characteristics have remained consistent. Irrespective of the political and ideological orientations of the federal and Alberta governments, conventional understandings of tar sands operations have been strongly associated with notions of public interest, economic development, prosperity, liberal democracy, and, more recently, sustainability (Prime Minister of Canada, 2019).

An emphasis on the contested discourses surrounding tar sands operations also allows us to appreciate the articulation and rescaling of counter-hegemonic discursive strategies centered on Indigenous land sovereignty, self-determination, and climate justice. Concerning the third aspect, calling for a just energy transition encourages us to expand our view beyond simply replacing fossil-fuel-powered systems. It instead advocates for a more explicit consideration of the intertwined forms of gender, racial, socio-economic, and epistemic oppression created and sustained by tar sands projects, such as the TMX. This approach is particularly relevant because multiple forms of injustice associated with tar sands operations have been largely overlooked in Canada's mainstream energy policy discourse.

A salient example of this is the discursive construction of the TMX as a project that contributes to direct job creation, tax revenue generation, economic growth, and increased crude oil exports. The official discourse surrounding this project advances and reinforces the idea that this pipeline and, more broadly, tar sands activities serve the national interest and are therefore desirable. The operationalization of the hegemonic tar sands discourse, however, carries important consequences for Indigenous peoples and a large number of Canadian citizens.

Of particular significance are the overt and subtle ways in which this discourse reinforces the coercive authority of settler institutions over land, secures the spatial circulation of crude oil, and, ultimately, protects the powerful vested interests in the oil industry. To illustrate this point, consider the discursive construction of national and provincial identities around fossil fuel extraction. By equating an imaginary national identity with tar sands operations, including the TMX, the Federal and Alberta Governments, and fossil capital, subsume diverse Indigenous peoples' identities into a broader homogenous discourse. This discourse has significant implications for Indigenous communities' jurisdiction over their lands and their existence as distinct Nations from the Canadian state. Put succinctly, tar sands expansion and the discursive erasure of multiple Indigenous identities are closely intertwined.

A more visible form in which the prevailing discourse normalizes settler control over land and (de) legitimizes social opposition to tar sands operations is the portrayal of environmental activists and land defenders blocking critical fossil fuel infrastructures as obstacles to economic progress and threats to national security. Such a perspective, in turn, justified the surveillance, arrest, and prosecution of land defenders and environmental activists blocking access to the TMX and Westridge Marine Terminal construction sites. In this regard, the hegemonic tar sands discourse actively produces settler colonial spaces and their representations of land as a domain of the Canadian state, foreclosing any alternatives to the territorial expansion of tar sands operations.

Tar sands spaces are also created and maintained through the marginalization of Indigenous peoples' interests, perspectives, and knowledges in energy and environmental decision-making processes. Specifically, this research elucidates the modes in which the Canadian state legitimizes the perceived superiority of Western hegemonic technocratic knowledge over Indigenous knowledges in public hearings and environmental assessments of the TMX. Despite the participation of affected First Nations and citizens in energy and environmental policy deliberations, the Canadian state over-relied on settler legal frameworks and technocratic forms of knowledge to make decisions regarding the project. Indeed, the NEB and FCA acted as the sole authorities to assess the validity of the evidence submitted and presented by pipeline opponents, the legitimacy of their concerns about the risks of the project, and the accuracy and comprehensiveness of the environmental review of the pipeline. Indigenous knowledge and belief systems, thus, were frequently dismissed in assessments of the potential costs of the pipeline on communities already facing constraints to exercise their land rights and on stressed ecosystems. The TMX case vividly illustrates the inadequacy of state mechanisms to incentivize an open dialogue with affected communities and concerned citizens and consider their interests, approaches, and concerns.

As the TMX case demonstrates, tar sands infrastructure development is actively resisted by decentralized multi-scalar networks of First Nations, Indigenous-led groups,

ENGOs, resident-based associations, and citizens. While resistance takes multiple forms along the pipeline route and revolves around different concerns, it overall seeks to challenge entrenched power structures in the oil industry and open avenues for transforming the political-legal and socio-economic conditions under which tar sands development is governed.

This dissertation argues that the construction of the TMX itself is not what lies at the heart of the conflict. Instead, the competing forms of authority and legitimacy over land, discourses, and future visions on energy sources and systems, and knowledge and worldviews are the issues at stake in such a struggle. The rejection of the project is particularly rooted in long-standing struggles for Indigenous self-determination and land rights, as well as contemporary transnational fights for climate justice across Canada.

This research provides noteworthy insights into how the Indigenous-led mobilization against tar sands distribution disrupts settler representations of land as empty spaces and challenges the Canadian state's claims over Indigenous lands. It does so by reasserting Indigenous jurisdictions on land and obstructing crude oil circulation through pipeline blockades and lawsuits. Attention to the collective resistance to tar sands development invites critical reflection on its transformative potential, particularly regarding the extent to which it can significantly reshape the decisions, institutional frameworks, discourses, imaginaries, and knowledge systems through which tar sands spaces are (re) produced and governed.

Whilst the predominant focus of this research is on the conflict between the Federal Government and the Indigenous-led movement over the TMX, I also draw attention to the perspectives of First Nations along the pipeline route seeking equity ownership in the project. Pro-pipeline approaches offer an illustration of attempts to produce different tar sands spatial configurations characterized by Indigenous involvement in energy and land policy design. Yet, a closer look at these initiatives reveals that the foundations upon which these rest are still cemented in settler logics of land control and structural economic dependency on fossil fuel extraction. Seeing the Indigenous-led TMX purchase proposals in this light demands consideration of how the Federal Government and fossil capital use proposals to deactivate social protest; economically control First Nations and Métis via the distribution of revenues generated by the TMX; and limit their land claims.

By centering Indigenous perspectives in the debate about the TMX conflict, this thesis contributes to energy justice literature, illustrating the lack of meaningful consultation with First Nations on land use, the restricted participation in public hearings, the inadequate assessment of the environmental impacts of bitumen transportation via pipeline and tankers, among other issues. In this sense, the TMX case is exemplary of failure in the application of all principles of energy justice, namely, distributive, procedural, recognition, restoration, and cosmopolitan. More importantly, this research exposes the limitations of energy justice theoretical

frameworks to address the multiple interconnected forms of historical and contemporary injustices inflicted upon First Nations through energy development. In particular, this investigation uncovers the interplay of capitalist, settler colonial, racial, and patriarchal logics at work in the expansion of fossil fuel infrastructure. It shows, for example, that violence against Indigenous women, harms to non-human living beings, and disproportionate exposure of Indigenous communities to environmental risks are neglected dimensions of (in)justice in policy decisions concerning the planning, development, and assessment of crude oil pipeline projects.

Tar sands spaces and their related imaginaries have undergone discursive-material transformations as exemplified by the relatively recent adoption of climate change measures in the oil sector, particularly net-zero. Combining insights from energy geographies, fossil capitalism, and sociotechnical imaginaries studies brings into sharper focus the question of how and to what extent tar sands spaces are (re) imagined, discursively constructed, and physically transformed through net-zero. My research makes a contribution to discussions on Canada's energy transition by examining the discursive production of a net-zero imaginary in the oil sector by the Federal Government and, to a lesser extent, fossil capital. This analysis helps us to explore net-zero beyond the seemingly apolitical development of NETs to consider its role in the construction and legitimation of a fossil fuel future vision. Such an analysis differs notably from existing literature on Canada's net-zero policy, which predominantly assesses it from techno-economic viewpoints. A key finding of this research is that the net-zero imaginary can be examined as a discourse based on the simplified assumption that the use of NETs significantly reduces fossil fuel-related emissions. As opposition to fossil fuel projects across Canada grows and public scrutiny on the oil industry's practices intensifies, the Federal Government and fossil capital have been increasingly promoting the implementation of NETs, mainly CCUS, as a strategy to reconcile fossil fuel extraction with environmental protection. To justify the adoption of net-zero targets, these are portrayed as a credible, scientifically grounded, and legitimate response to climate change.

Looking beyond climate change rhetoric, this work reveals that net-zero serves to maintain and reproduce political-economic structures predicated upon fossil fuel extraction and consumption. It does so by documenting how net-zero fails to impose restrictions on new fossil fuel investments and to account for the life-cycle emissions of tar sands operations, thereby obstructing and delaying efforts to meet GHG emissions targets. In this sense, net-zero represents a missed opportunity to increase climate action transparency and hold fossil capital and the Canadian state accountable for their cumulative emissions. As shown by previous research, net-zero perpetuates business-as-usual approaches that benefit those who historically have produced more GHG emissions while imposing environmental burdens on Indigenous communities already affected by tar sands activities. I add to this argument by

illustrating that federal net-zero scenarios, policy instruments, legislation, emissions targets, funding schemes, and discourse are predominantly shaped by the Federal Government and fossil capital without meaningful input from Indigenous communities and citizens.

Viewing net-zero as a vehicle for advancing entrenched fossil fuel interests sheds light on the land requirements for building new energy facilities and for storing CO2 underground. My specific contribution to discussions on Canada's net-zero strategy is to show that the net-zero imaginary operates as a discursive device for naturalizing the ongoing territorial expansion of fossil fuel infrastructure on Indigenous lands. Achieving net-zero emissions as proposed by the Federal Government and fossil capital entails the commodification of land and its incorporation into capital accumulation dynamics. This approach translates into the discursive representation of land as available for increased fossil fuel development, and the assertion of the Canadian state's sovereignty claims to land. As net-zero advances the fossil fuel frontier, existing tensions between Indigenous peoples, the Canadian state, and fossil capital over land use may lead to Indigenous land rights violations. Simultaneously, net-zero gives rise to the (re)negotiation of land use agreements, as Indigenous communities seek to participate in net-zero projects as owners and business partners. An exploration of the net-zero imaginary offers compelling lessons on how Indigenous communities seek to reconfigure institutional arrangements and power relations to advance their energy future visions.

Focusing on the Canadian case, this thesis also contributes to scholarly debates on the configuration and governance of contested net-zero imaginaries. In line with previous work, it elucidates that the emergence of net-zero can be understood as a strategy of fossil capital and core nation-states to restructure the conditions of capital accumulation under constraints imposed by global environmental change.

In parallel, this work illustrates the strategies and future visions articulated and mobilized by First Nations to challenge the settler colonial and capitalist logics underpinning tar sands operations. Indigenous resistance highlights the centrality of community-based, decentralized renewable energy projects to the realization of Indigenous visions of self-determination. A look at this issue allows me to demonstrate that conceptions of justice articulated by First Nations do not circumscribe to 'inclusion' in energy decision-making processes, partial or complete ownership of energy projects, formal recognition of their land rights, and monetary compensation for environmental harms. Thus, I advocate for extending intellectual efforts beyond the theoretical confines of energy justice (McCauley et al., 2013) towards more productive engagement with Indigenous place-based interpretations and practices of justice. Doing so opens lines of inquiry into political interventions that transcend generic principles of justice and account for the place-specific conditions and contexts in which different types of injustice in energy development emerge.

Engaging with Indigenous notions of justice grounded in particular legal orders, land governance structures, epistemologies, and cultural values is a daunting task for the Canadian state and private project proponents. Yet, as illustrated by the TMX case, Canada has the responsibility and duty to protect and enforce Indigenous peoples' land rights. An important step in this direction is to place Indigenous diverse interpretations of justice at the center of conversations and decisions on tar sands development. Although each interpretation is inextricably linked to particular realities and thus may not be appropriated in other contexts, when considered as a whole, they invite critical reflection on how to dismantle the intertwined forms of domination and oppression (re)produced by tar sands projects.

Although the Indigenous-led opposition did not lead to the cancellation of the TMX project, my work suggests that it constituted a significant, sustained effort to implement effective land-use consultation mechanisms, redefine environmental governance priorities, and reaffirm the existence of anti-colonial political projects. This finding extends our knowledge of how Indigenous-led resistance movements reshape energy decision-making spaces and deconstruct the discourse underpinning the territorial expansion of fossil fuel infrastructures. The significance of this is that it can help us better understand the possibilities and limitations of dismantling the colonial and capitalist logics that produce and sustain tar sands spaces. In doing so, I have attempted to contribute to the existing and growing body of research on conflicts around unconventional fossil fuel development across Canada.

9.3 Future research directions and practical implications

To conclude, I outline fields of further research and the practical implications of the findings of this study.

9.3.1 Reducing fossil fuel dependence

Demands for fossil fuel divestment and restrictions on domestic fossil fuel exploration and production bring into question the issue of how to slow down and/or stop tar sands extraction (Clarke et al., 2013). As we have seen throughout this research a progressive transition away from tar sands goes beyond technological innovation to encompass a wide arrayal of multi-scalar changes in the material basis of the Canadian economy and its ties with the global economy, the sociocultural perceptions around fossil fuels, land ownership, environmental governance and public spending (Adkin 2016; Wilson, Carlson & Szeman, 2017; Carter 2020; Carroll, 2021). Admittedly, the present study does not discuss what an energy transition in the oil sector would look like. Further research should therefore be directed towards exploring questions about the extent of social and political support in Canadian society for alternative approaches to intensive tar sands exploitation and new land-use agreements under which tar sands reserves can be managed more equitably.

Considering the economic relevance of fossil fuels for Canada and, more specifically, to communities dependent on the oil industry, it is neither realistic nor practicable to stop tar sands production in the short term (Clarke et al., 2013). One of my main criticisms of climate justice and anti-TMX protests in this regard is the insufficient attention to the implications of a radical shift from fossil fuels towards alternative energy. To clarify, I recognize that calls for fossil fuel divestment are an effective way of galvanizing collective action against tar sands development and undermining the legitimacy of fossil capital and the Canadian state. Yet, these calls overlook that phasing out tar sands would disrupt a range of essential daily services and activities reliant on the continued use of fossil fuels, such as electricity supply, household heating and cooking, public transport, education, and healthcare. Consequently, any plans to reorient the national economy away from crude oil exports and accelerate the adoption of less carbon-intensive forms of energy should consider their implications for government revenue collection from fossil fuels, people's livelihoods, and everyday basic activities (see Wilson, Carlson & Szeman, 2017). Equally pertinent are considerations relating to existing inequalities in energy access, supply, and consumption across the country and in multi-level energy decision-making processes.

Furthermore, it is necessary to thoroughly assess the implementation and effectiveness of concrete policy instruments and actions at the federal, provincial, and municipal levels. These include stricter regulations on life cycle GHG emissions of tar sands development, restrictions on fossil fuel financing, reduction of fossil fuel subsidies, crude oil production limits, and a temporary moratorium (Adkin, 2016; Carter, 2020; Caroll, 2021). Such measures, while useful, should be seen as transitory, as they are insufficient to address the historical and ongoing inequalities and injustices arising from crude oil extraction, combustion, and transportation. Rather, a more productive approach is to discuss, for example, who should own tar sands resources and fossil fuel systems, for what purposes tar sands production should be designed, and according to whose priorities or needs. This discussion provides opportunities to rethink the articulation and implementation of place-based strategies to progressively overcome the entrenched political-economic and ideological structures that hinder Indigenous communities, ENGOs, and citizens from gaining more leverage in energy and land decision-making.

9.3.2 Community-led energy development

From an energy justice perspective, the TMX conflict raises crucial questions about the ownership of fossil fuel infrastructure. As this research shows, neither private nor state ownership of the TMX has led to meaningful land-use consultations with First Nations or to effective citizen participation in environmental governance. Indeed, since the COVID-19 pandemic, the Federal and Alberta Governments and fossil capital have consolidated their

influence over fossil fuel policy and discourses (Ljunnggren & Johnson, 2020). In contrast, Indigenous and climate justice movements have lost political momentum. In this context, a topic worthy of scholarly scrutiny is how these movements rethink and restructure their strategies against tar sands operations. A key strategy is the development of community-owned energy systems because these could encourage more democratic forms of decision-making and strengthen energy security at the local level (Castillo Jara & Bruns, 2022).

At the same time, community-led energy proposals may depoliticize fossil fuel development. The encouragement of Indigenous ownership in the TMX and, more recently, in CCUS facilities under institutional arrangements set by the Canadian state and fossil capital illustrates this point. In promoting Indigenous participation in energy governance, state institutions publicly avoid difficult conversations about Indigenous land jurisdiction and the disproportionate exposure of Indigenous communities to environmental risks of fossil fuel projects. Indigenous-state/corporate partnerships on net-zero projects may leave untouched existing power structures and conditions that exacerbate land use and environmental/climate/energy inequalities (Castillo Jara, 2025).

Further investigations should extend the analytical focus beyond dichotomies of public vs private and/or Indigenous vs public/private ownership of fossil fuel resources, technologies, and projects. A more productive approach would be to reevaluate the interventions and outcomes of Indigenous and climate justice movements and reflect on the lessons these may offer for dismantling power structures in tar sands development and advancing self-determination and climate and energy justice (Castillo Jara & Bruns, 2022).

9.3.3 Energy security in a geopolitical shifting landscape

Global geopolitical and geoeconomic conditions have swiftly changed in recent years due to COVID-19-related supply chain disruptions, the war in Ukraine, and Donald Trump's arrival in the U.S. presidency in early 2025. In particular, the U.S threats to impose tariffs on Canadian goods and services and annex Canada as the 51st state have put energy security and supply at the top of the Federal and Provincial Governments' agendas (Zimonjic, 2025). Politicians and energy experts have indeed begun to consider the need to search for alternative markets for Canadian crude oil, build new fossil fuel pipelines connecting Western and Eastern Canada, and even impose a tariff on fossil fuel exports to the U.S. as a retaliatory measure (Dyer, 2025).

Tensions in U.S.-Canada relations raise questions about potential spatial reconfigurations of tar sands operations and their associated rearrangement of power dynamics. The design of a new energy security architecture, for example, necessarily involves a critical assessment of Canada’s subordinated position as a supplier of crude oil to the U.S. (Gonzalez, 2016; Carroll, 2021). Such a position has been consolidated through the North American Free Trade Agreement (NAFTA) and its successor, the United States-Mexico-

Canada Agreement (USMCA). The renegotiation of the USMCA or the establishment of a new bilateral trade agreement between Canada and the US in 2025 (Armstrong, 2025) offers an opportunity to redefine Canada's domestic and international energy policy.

Policy and public discussions on energy security direct greater attention towards proposals to reorient export-oriented crude oil pipeline projects, such as the TMX, to meet domestic energy needs. The rise of Canadian nationalism in the face of U.S. aggressive rhetoric, however, could potentially serve to justify the appropriation and occupation of Indigenous lands (Deer, 2025), including the development of infrastructural projects deemed to be in the public interest. Such proposals should thus seriously consider the multiple and often divergent interests of First Nations and Métis living near fossil fuel extraction, production, and distribution sites. Future research could explore how Indigenous communities navigate the complex intersections of competing US and Canadian settler colonial sovereignties. For example, some representatives of Indigenous groups and communities who initially opposed fossil fuel pipelines have reconsidered their positions and expressed openness to the construction of new pipelines (Chiang, 2025).

The federal approval of the TMX, however, is a cautionary tale about the pitfalls of relying on business-as-usual approaches for the planning, implementation, and assessment of large-scale pipeline projects. Failure to acknowledge First Nations rights and connections with their traditional territories will most likely result in prolonged social resistance to proposed energy projects. Similarly, overreliance on top-down techno-economic approaches to environmental assessments of tar sands activities will draw severe criticism from Indigenous communities, ENGOs, and citizens. Opposition may manifest in pipeline blockades, street mobilizations, and court battles, as evidenced by the TMX and other cases, leading to delays, cancellations, and increased project costs.

Mainstream policy and academic debates on fossil fuel development and energy security, however, have so far neglected long-standing concerns about tar sands operations (Baker, 2025). This situation risks perpetuating entrenched inequalities and injustices in energy and climate governance. Redefining Canada's energy security strategy, thus, should not occur at the expense of already affected Indigenous and non-Indigenous communities and endangered ecosystems. Admittedly, this task poses significant challenges as Canada seeks to navigate the tensions between its climate commitments and (potentially) reorganize fossil energy supply and demand flows around internal needs. These tensions are visible in the case of the TMX. Shipping more bitumen to Asian markets to diminish dependence on oil exports to the US not only increases GHG emissions but also could intensify social tensions. It is thus insufficient to provide a strong basis for developing a long-term energy security strategy attentive to energy justice principles and Indigenous forms of energy sovereignty, as demonstrated by renewable energy projects led by First Nations opposed to the TMX.

9.3.4 Net-zero in a shifting global context

An analysis of the production of tar sands spaces sheds light on the transformations of Canada's discourse on tar sands development and their spatial implications. During the tar sands boom (2004-2014), this discourse was essentially centered around economic growth and job creation, encouraging the territorial expansion of tar sands operations. While these arguments were present in the Trudeau government's tar sands approach (2015-2025), sustainability issues occupied a more prominent role in it. Net-zero, for instance, represents an attempt by the Federal Government and fossil capital to reconcile climate change and fossil fuel development discursively. Yet, net-zero reinforces carbon-intensive tar sands operations by promoting the construction of fossil fuel-powered CCUS facilities on Indigenous peoples' lands and failing to consider their life-cycle emissions. Despite this, some First Nations frame net-zero as an opportunity to advance their energy future visions and promote economic development in their communities. Future research could explore how they seek to navigate Canada's net-zero contradictory landscape and assert self-determination (see Reed et al. 2021; Cimellaro, 2022).

Attention to the power dynamics around net-zero raises the questions of why it is prioritized over other decarbonization pathways and what other energy future visions are possible. These questions are particularly relevant in the context of Donald Trump's US presidency and its focus on positioning fossil fuel expansion as a policy priority despite climate change concerns. Indeed, major US fossil fuel companies and financial institutions involved in tar sands operations that previously endorsed net-zero commitments have now abandoned them (Aliakbari & Mejía, 2025). This shift in US energy politics has already impacted Canada's energy policy, leading the recently elected Prime Minister, Mark Carney, to announce an end to the federal carbon tax (Major, 2025). While the Federal Government has not embraced a pro-fossil fuel approach, it is clear that climate-related initiatives, such as net-zero, are not a policy priority for this Administration. Under the Trump Presidency, the significance of net-zero as a response to the climate crisis may diminish. As a result, further research could provide valuable insights into how the Federal Government, fossil capital, the Alberta Government, and other actors adapt to significant shifts in the geopolitics of energy in North America and attempt to (de)legitimize tar sands development.

References

Abbot, D., & Cavender, A. (2004). Introduction. In D. Abbot & A. Cavander (Eds.) *Indigenizing the Academy. Transforming scholarship and empowering communities* (pp.1-15). University of Nebraska Press.

Adams-Campbell, M., Falzetti, A. G., & Rivard, C. (2014). Introduction: Indigeneity and the work of settler archives. *Settler Colonial Studies*, *5*(2), 109–116. https://doi.org/10.1080/2201473X.2014.957256

Adkin, L. (Ed.). (2016). *First World Petro-Politics: The Political Ecology and Governance of Alberta*. University of Toronto Press.

Alberta Energy Regulator (AER). (2025). *Oil sands*. https://www.aer.ca/providing-information/news-and-resources/enerfaqs-and-fact-sheets/enerfaqs-oil-sands

Alexander, C., & Stanley, A. (2021). The colonialism of carbon capture and storage in Alberta's Tar Sands. *Environmental Planning and Space,* 5(4), 2112–2131. https://doi.org/10.1177/25148486211052875[

Alexis, T., & Poscente, P. (2019, July 25). The Trans Mountain pipeline – and Indigenous ownership – is too important to get wrong. *The Globe and Mail.* https://www.theglobeandmail.com/opinion/article-the-trans-mountain-pipeline-and-indigenous-ownership-is-too/

Alfred, T., & Corntassel, J. (2005). Being Indigenous: Resurgences against Contemporary Colonialism. *Government and Opposition*, 40, 597-614. https://doi.org/10.1111/j.1477-7053.2005.00166.x

Aliakbari, E., & Mejía, J. (2025, January 2). Trump's promises should prompt major rethink of Canadian energy policy. Fraser Institute. https://www.fraserinstitute.org/commentary/trumps-promises-should-prompt-major-rethink-of-canadian-energy-policy

Altvater, E. (2006). The social and natural environment of fossil capitalism. In L. Panitch & C. Leys (Eds.), *Coming to Terms with Nature, Socialist Register 2007*. The Merlin Press. https://socialistregister.com/index.php/srv/article/view/5857/2753

Alvesson, M., & Sköldberg, K. (2018). *Reflexive Methodology. New Vistas for Qualitative Research* (3rd ed.). SAGE.

Anderson, D. (2022, April 30). On Edmonton's fringe, refineries are just one part of a larger air pollution puzzle. *The Narwhal*. https://thenarwhal.ca/edmonton-air-quality-oil-refineries/

Andrews, A. (2022, June 8). Canada's banks and pension funds are financing a climate disaster. *Ecojustice.* https://ecojustice.ca/news/canadas-banks-and-pension-funds-are-financing-a-climate-disaster/

Antadze, N. (2021). The selective invisibility of oil and climate injustice in the Anthropocene and beyond. In S. Ryder, et al., (Eds.). *Environmental Justice in the Anthropocene. From (Un)just Presents to Just Futures* (pp.19-39). Routledge.

APTN. (2018, May 11). *Mounting opposition to proposed Trans Mountain pipeline expansion*. [Video]. Youtube. https://www.youtube.com/watch?v=nH8P1DuXu2w

APTN. (2018, April 13). *The First Nation that believes it can stop Kinder Morgan*. [Video]. Youtube. https://www.youtube.com/watch?v=43r0-XJTzxQ

APTN. (2018, November 7). *Trudeau has a big problem ahead of him says Clayton Thomas-Muller*. [Video]. Youtube. https://www.youtube.com/watch?v=iYjnvpIFdcc&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=32

Armstrong, P. (2025, May 07). Is CUSMA the best path out of the trade war with the U.S.? *CBC News*. https://www.cbc.ca/news/business/armstrong-free-trade-cusma-usmca-1.7528276

Audette-Longo, P. H. (2017). Prayers on the Record: Mobilizing Indigenous Futures and Discourses of Spirituality in Canada's Pipeline Hearings. Resilience: A Journal of the Environmental Humanities 4 (2-3). https://doi.org/10.5250/resilience.4.2-3.0066

Bakarjieva, M., Felt, M., & Teruelle, R. (2018). Framing the Pipeline Problem: Civic Claimsmakers and Social Media. *Canadian Journal of Communication*, 43(1), 147-166. https://doi.org/10.22230/cjc.2017v43n1a3316

Baker, R. (2025, February 7). Trump tariff threat a Trojan horse for B.C.'s fossil fuels. *The National Observer*. https://www.nationalobserver.com/2025/02/06/news/trump-tariff-threat-trojan-horse-bcs-fossil-fuels

Barker, A. (2021). *Making and Breaking Settler Space: Five Centuries of Colonization in North America*. University of British Columbia Press. https://doi.org/10.59962/9780774865425

Barker, J. M., & Westman, C.N. (2018). Extracting knowledge: Social science, environmental impact assessment, and Indigenous consultation in the oil sands of Alberta, Canada. *The Extractive Industries and Society,* 5 (1), 144-153. https://doi.org/10.1016/j.exis.2017.12.008

Barone, S., & Swain, J., (2025). Using informal conversations in qualitative social research with people in situations of marginalization and vulnerability. In *Sage Research Methods: Data and Research Literacy*. SAGE Publications, Ltd., https://doi.org/10.4135/9781036221799

Basch, C., Menafro, A., Mongiovi, J., Hillyer, G.C., & Basch, C.E. (2017). A Content Analysis of YouTube Videos Related to Prostate Cancer. *American Journal of Men's Health*, 11 (1),154–157. https://pubmed.ncbi.nlm.nih.gov/27694554/

Bauriedl, S. (2021). Politische Ökologie der Energieversorgung. In S. Becker, B. Klagge, & M. Naumann (Eds). *Energiegeographie. Konzepte und Herausforderungen* (pp.54-64). UTB

Bazeley, P. (2009). Analysing qualitative data: More than 'identifying themes'. *The Malaysian Journal of Qualitative Research*, 2(2), 6-22. https://www.researchsupport.com.au/Bazeley_MJQR_2009.pdf

Benton-Connell, K., & Cochrane, D.T. (2020). "Canada Has a Pipeline Problem": Valuation and Vulnerability of Extractive Infrastructure. *South Atlantic Quarterly*, 119 (2), 325–352. https://doi.org/10.1215/00382876-8177783

Beverley, J. (2009). Testimonio. On the Politics of Truth. University of Minnesota Press.

Black, T., D'Arcy, S., Weis, T., & Kahn Russell, J. (Eds.). (2014). *A Line in the Tar Sands: Struggles for Environmental Justice*. Between the Lines Press

Bombaerts, G., Jenkins, K., Sanusi, Y. A., & Guoyu, W. (2020). Expanding Ethics Justice Across Borders: The Role of Global Philosophy. In G. Bombaerts, K. Jenkins, Y.A. Sanusi, & W. Guoyu (Eds.), *Energy Justice Across Borders* (pp.3-21). Springer International Publishing. https://doi.org/10.1007/978-3-030-24021-9_1

Bouzarovski, S., Bradshaw, M., & Wochnika, A. (2015). Making territory through infrastructure: The governance of natural gas transit in Europe. *Geoforum*, 64, 217-228. https://doi.org/10.1016/j.geoforum.2015.06.022

Borrows, J. (2018). Earth-Bound: Indigenous Resurgence and Environmental Reconciliation. In M. Asch, J. Borrows, & J.J. Tully (Eds.). *Resurgence and Reconciliation- indigenous-Settler Relations and Earth Teachings* (pp. 49-81). University of Toronto Press.

Bosworth, K., & Chua, C. (2021). The Counter-Sovereignty of Critical Infrastructure Security: Settler-State Anxiety versus the Pipeline Blockade. *Antipode*, 55, 1345-1367. https://doi.org/10.1111/anti.12794

Bridge, G. & Le Billon, P. (2013). *Oil*. Point Press.

Bridge, G., Bouzarovski, S., Bradshaw, M., & Eyre, N. (2013). Geographies of energy transition: Space, place and the low-carbon economy. *Energy Policy*, 53, 331-340. https://doi.org/10.1016/j.enpol.2012.10.066

Bridge, G., Barr, S., Bouzarovski, S., Bradshaw, M., Brown, E., Bulkeley, H., & Walker, G. (2018). *Energy and Society*. Routledge.

Bridge, G., & Gailing, L. (2020). New energy spaces: Towards a geographical political economy of energy transition. *Environment and Planning A: Economy and Space,* 52 (6), 1037-1050. https://doi.org/10.1177/0308518X20939570

Bulowski, N. (2022, October 6). Taxpayers likely to eat $17 billion of Trans Mountain's debt, report says. *National Observer*. https://www.nationalobserver.com/2022/10/06/news/taxpayers-likely-eat-17-billion-trans-mountain-debt-report

Burnaby Municipal Council. (1988). 7-Mar-1988 Meeting. City of Burnaby Archives, British Columbia, Canada.

Burow, P. B., Brock, S., & Dove., M.R. (2018). Unsettling the land: Indigeneity, ontology, and hybridity in settler colonialism. *Environment and Society: Advances in Research,* 9(1),57–74. https://www.jstor.org/stable/26879578

Calvert, K. (2015). From 'energy geography' to 'energy geographies'. *Progress in Human Geography*, 40 (1), 105-125. https://doi.org/10.1177/0309132514566343

Calvert, K., Greer, K., & Maddison-MacFadyen, M. (2019). Theorizing energy landscapes for energy transition management: insights from a socioecological history of energy transitions in Bermuda. *Geoforum*, 102, 191-201. https://doi.org/10.1016/j.geoforum.2019.04.005

Canada Action. (2025). Oil and Gas in Canada:40 Facts & Statistics. https://www.canadaaction.ca/oil-natural-gas-facts

Canada Energy Regulator (CER). (2023). *Canadian Crude Oil Exports: A 30 Year Review*. https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/crude-oil-petroleum-products/report/canadian-crude-oil-exports-30-year-review/index.html

Canada Energy Regulator (CER).(2024, August 21). *Almost all Canadian crude oil exports went to the United States in 2023*. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-almost-all-canadian-crude-oil-exports-went-to-the-united-states-in-2023.html

Canada Energy Regulator (CER). (2024a, March 07). *Annual crude-by-rail volumes continued to decline in 2023, despite monthly increases in the second half of the year*. , https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-annual-crude-by-rail-volumes-continued-to-decline-in-2023-despite-monthly-increases-in-second-half-of-the-year.html

Canada Energy Regulator. (2024b, August 5). *Canada's oil pipeline capacity in 2024*. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-canadas-oil-pipeline-capacity-2024.html

Canada Energy Regulator. (2024c, December 6). *Crude oil imports rose slightly in 2023, for the first time since 2019*. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-crude-oil-imports-rose-slightly-2023-first-time-since-2019.html

Canada Energy Regulator. (2024d, November 13). *Existing projects largely responsible for continued production growth from Alberta oil sands*. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2024/market-snapshot-existing-projects-largely-responsible-for-continued-production-growth-from-alberta-oil-sands.html

Canada Energy Regulator. (2024e). *Provincial Territorial Energy Profiles-Alberta*. https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/provincial-territorial-energy-profiles/provincial-territorial-energy-profiles-alberta.html

Canada Energy Regulator (CER). (2024f). Trans Mountain Pipeline ULC – Trans Mountain Expansion Project. https://www.cer-rec.gc.ca/en/applications-hearings/view-applications-projects/trans-mountain-expansion/index.html#wb-info

Canada Energy Regulator (CER). (2024g) Trans Mountain Expanded System https://apps.cer-rec.gc.ca/PPS/en/pipeline-profiles/trans-mountain-expanded-system#1

Canadian Association of Petroleum Producers (CAPP). (2018). *Canada's Oil Sands Fact Book*. https://www.capp.ca/publications-and-statistics/public ations/316441

Canadian Association of Petroleum Producers (CAPP). (2021). *What Are the Oil Sands*? https://www.capp.ca/oil/what-are-the-oil-sands/

Cardoso, A., & Turhan, E. (2018). Examining new geographies of coal: Dissenting energyscapes in Colombia and Turkey. *Applied Energy,* 224,398-408. https://doi.org/10.1016/j.apenergy.2018.04.096

Carroll, W. (2020). Fossil Capitalism, Climate Capitalism, Energy Democracy: The struggle for hegemony in an era of climate crisis. *Socialist Studies / Études socialistes*, 14 (1),1-26. https://doi.org/10.18740/ss27275

Carroll, W. (Ed.). (2021). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy*. Edmonton: AU Press, Athabasca University.
Carroll, W., & Huijzer, J. (2021). Who Owns Big Carbon? Mapping the Network of Corporate Ownership. In W. Carroll (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (pp. 111-142). Athabasca University Press.
Carter, A. (2014). Petro-Capitalism and the Tar Sands. In T. Black, S. D'Arcy, T. Weis, & K. J. Russell (Eds.). *A Line in the Tar Sands: Struggles for Environmental Justice* (pp.23-35). Between the Lines Press.
Carter, A. (2020). *Fossilized. Environmental Policy in Canada's Petro-Provinces.* UBC Press
Castán Broto, V.C., & Baker, L I. (2017). Spatial adventures in energy studies: an introduction to the special issue. *Energy research and social science,* 36, 1-10. https://doi.org/10.1016/j.erss.2017.11.002
Castán Broto, V.C. (2019). *Urban Energy Landscapes*. Cambridge University Press.
Castán Broto, V.C., & Sanzana Calvet, M. (2020). Sacrifice zones and the construction of urban energy landscapes in Concepción, Chile. *Journal of Political Ecology,* 27 (1), 279-299. https://doi.org/10.2458/v27i1.23059
Castillo Jara, E., & Bruns, A. (2022). Contested notions of energy justice and energy futures in struggles over tar sands development in British Columbia, Canada. *Futures,* 138, 102921. https://doi.org/10.1016/j.futures.2022.102921
CBC News (2014, November 20). Kinder Morgan pipeline protesters resist police efforts to move them RCMP arrest 24 protesters for violating court order on Burnaby Mountain. *CBC News*. https://www.cbc.ca/news/canada/british-columbia/kinder-morgan-pipeline-protesters-resist-police-efforts-to-move-them-1.2841957
CBC News (2017, January 11). Trans Mountain pipeline expansion granted environmental certificate by B.C. government. *CBC News*. https://www.cbc.ca/news/canada/british-columbia/trans-mountain-environmental-certificate-1.3931489
CBC News (2017, October 2). First Nations begin court challenge against Trans Mountain pipeline. *CBC News.* https://www.cbc.ca/news/canada/british-columbia/trans-mountain-kinder-morgan-court-first-nations-1.4316928
CBC.News (2018, June 3). *Is Trudeau's pipeline buyout a betrayal?* [Video] You Tube. https://www.youtube.com/watch?v=KonjVek30iI&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=127
CBC.News (2018, August 31). *B.C. First Nations celebrate Trans Mountain court decision* [Video] You Tube.https://www.youtube.com/watch?v=F0Ptf3nOhrg&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=70
CBC.News (2018, May 30). *Opposition to pipeline still fierce in B.C*. [Video] You Tube. https://www.youtube.com/watch?v=-ujhmwiYYDI&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=103
Cecco, L. (2020, May 26). Canada: minister says Covid-19 lockdown a 'great time' to build pipeline. *The Guardian.* https://www.theguardian.com/world/2020/may/26/canada-coronavirus-alberta-energy-minister-oil-pipeline
Ceric, I. (2020). Beyond Contempt: Injunctions, Land Defense, and the Criminalization of Indigenous Resistance. *The South Atlantic quarterly*, 119(2), 353-369. https://doi.org/10.1215/00382876-8177795
Chiang, C. (2025, January 21). First Nations leader reconsidering stance on Northern Gateway pipeline after Trump's tariff threats. *The Canadian Press.* https://globalnews.ca/news/10970516/first-nations-leader-northern-gateway-pipeline-tariffs/
Choi, Y., Fox, A.M., & Dodge, J. (2022). What counts? Policy evidence in public hearing testimonies: the case of single-payer healthcare in New York State. *Policy Science*, 55, 631–660. https://doi.org/10.1007/s11077-022-09475-1
Cimellaro, M. (2022, November 23). Carbon trading: A tool for reconciliation or colonization? *National Observer*. https://www.nationalobserver.com/2022/11/23/news/carbon-trading-tool-reconciliation-or-colonization
Clarke, T., Gibson, D., Haley, B., & Stanford, J. (2013). *The Bitumen Cliff Lessons and Challenges of Bitumen Mega-Developments for Canada's Economy in an Age of Climate Change*. Canadian Centre for Policy Alternatives. https://www.policyalternatives.ca/wpcontent/uploads/attachments/Bitumen%20Cliff_0.pdf
Corbella, L. (2019, July 9). Project Reconciliation Indigenous TMX deal now on Trudeau's desk. *Calgary Herald*. https://calgaryherald.com/news/local-news/corbella-project-reconciliation-indigenous-tmx-deal-now-on-trudeaus-desk
Cottingham, M. D., & Erickson, R. J. (2020). Capturing emotion with audio diaries. *Qualitative Research*, 20(5), 549-564. https://doi.org/10.1177/1468794119885037
Crosby, A., & Monaghan, J. (2018). *Policing Indigenous Movements. Dissent and the Security State*. Fernwood.
Coulthard, G. S. (2010). Place against Empire: Understanding Indigenous Anti-Colonialism. *Affinities: A Journal of Radical Theory, Culture, and Action,* 4 (2), 79-83. https://ojs.library.queensu.ca/index.php/affinities/article/view/6141
Coulthard, G.S. (2014). Red skin, white masks : rejecting the colonial politics of recognition. University of Minnesota Press.
Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2013). *Treaty No. 8* https://www.rcaanc-cirnac.gc.ca/eng/1100100028813/1581293624572
Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC). (2024, June 26). *About treaties*. https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231
Cruickshank, A. (2020, March 9). Supreme Court rejects Trans Mountain legal challenges. So, what's next? *The Narwhal*. https://thenarwhal.ca/supreme-court-rejects-trans-mountain-legal-challenges-so-whats-next/

Daggett, C. N. (2019). *The Birth of Energy: Fossil Fuels, Thermodynamics, and the Politics of Work*. Duke University Press.
Daigle, M. (2016). Awawanenitakik: The spatial politics of recognition and relational geographies of Indigenous self-determination. *The Canadian Geographer,* 60, 259-269. https://doi.org/10.1111/cag.12260
Dalby, S. (2019). Canadian geopolitical culture: Climate change and sustainability. *The Canadian Geographer*, 63(1), 100-111. https://doi.org/10.1111/cag.12472
Datta, R., & Hurlbert, M. A. (2019). Pipeline Spills and Indigenous Energy Justice. *Sustainability*, 12(1), 47. http://dx.doi.org/10.3390/su12010047
Davine, T., Lawhon, M., & Pierce., J. (2017). Place-making at a national scale: Framing tar sands extraction as "Canadian" in The Globe and Mail. *The Canadian Geographer*, 61 (3), 428-439. https://doi.org/10.1111/cag.12392
Davis, H., & Z. Todd. (2017). On the importance of a date or decolonizing the Anthropocene. *ACME: An International E-Journal for Critical Geographies*,16(4), 761–780. https://doi.org/10.14288/acme.v16i4.1539
Davis, L., & Brown, A. E. (2024). Advocating the Use of Informal Conversations as a Qualitative Method at Live Events. *International Journal of Qualitative Methods 23.* https://doi.org/10.1177/16094069241270428 ,
Deer, F. (2025, April 8). As Canada is threatened, it's urgent to revisit Indigenous sovereignty and nationhood. *The Conversation*. https://theconversation.com/as-canada-is-threatened-its-urgent-to-revisit-indigenous-sovereignty-and-nationhood-253199
Delgado, E. (2017). Conflictive Energy Landscapes: Petrocasas and the Petrochemical Revolution in Venezuela. In S. Bouzarovski, M.J. Pasqualetti, & V.C. Broto. *The Routledge Research Companion to Energy Geographies* (pp.330–346). Routledge.
Delina, L.L. (2020). Indigenous environmental defenders and the legacy of Macli-ing Dulag: Anti-dam dissent, assassinations, and protests in the making of Philippine energyscape. *Energy research and social science* 65, 101463. https://www.sciencedirect.com/science/article/pii/S2214629620300402
Dembicki, G. (2011, April 25). 'Tar sands' vs 'Oil sands'. Political Flap Misguided? *The Tyee*. https://thetyee.ca/News/201 1/04/25/TarVsOil/
Doolittle, A. (2016). The best of many worlds: methodological pluralism in political ecology. In R.L. Bryant, (Ed.)*The International Handbook of Political Ecology* (pp. 515-529). Edward Elgar Publishing.
Dusyk, N., Axsen, J., & Dullemond, K. (2018). Who cares about climate change? The mass media and socio-political acceptance of Canada's oil sands and Northern Gateway Pipeline. *Energy Research and Social Science*, 37, 12-21. https://doi.org/10.1016/j.erss.2017.07.005
Dyer, E. (2025, January 24). Trump's threats reveal the trouble with Canada's pipelines running through the U.S. *CBC News*.
https://www.cbc.ca/news/politics/canada-oil-pipelines-trump-tariffs-1.7438889
Edmonton Archives. (1950, February). [Clipping from Popular Science, Alberta, Canada, magazine].
Environment and Climate Change Canada (ECCC). (2024). *Greenhouse Gas Emissions*. https://www.canada.ca/en/environment-climate-change/services/environmental-indicators/greenhouse-gas-emissions.html#oil-gas
Fairclough, N. (1995). *Critical discourse analysis: The critical study of language*. Longman.
Federal Court of Appeal (FCA). (2019). *Raincoast Conservation Foundation v Attorney General of Canada.* FCA 224. Accessed March 4, 2021. https://www.canlii.org/en/ca/fca/doc/2019/2019fca224/2019fca224.html
Flanagan, T., Le Dressay, A., & Alcantara, C. (2010). *Beyond the Indian Act: restoring aboriginal property rights*. McGill-Queen's University Press.
Frantál, B., Pasqualetti, M., & van Der Horst, D. (2014). New trends and challenges for energy geographies: Introduction to the special issue. *Moravian Geographical Reports,* 22(2), 2-6.
Frost, K. (2019). First Nations sovereignty, Environmental Justice, and Degrowth in Northwest BC, Canada. *Ecological Economics*, 162, 133-142. https://doi.org/10.1016/j.ecolecon.2019.04.017
Ganowski, S., Gaede, J., & Rowlands, I.H. (2018). Hot off the press! A comparative media analysis of energy storage framing in Canadian newspapers. *Energy Research & Social Science*, 46, 155-168. https://doi.org/10.1016/j.erss.2018.06.011
Gatlin, J. (2015). Toxic Sublimity and the Crisis of Human Perception: Rethinking Aesthetic, Documentary, and Political Appeals in Contemporary Wasteland Photography. *ISLE: Interdisciplinary Studies in Literature and Environment*, 22(4), 717–741. https://doi.org/10.1093/isle/isv032
Ghaddar, J. (2021). Total archives for land, law and sovereignty in settler Canada. *Archival Science*, 21, 59-82. https://doi.org/10.1007/s10502-020-09353-w
Gobby, J., & Gareau, K. (2019). Understanding the crisis, uncovering root causes and envisioning the world (s) we want. Conversation with the anti-pipeline movements in Canada. In T. Jafry (Ed). *Routledge Handbook of Climate Justice* (pp. 449-465). Routledge.
Gonzalez, G. (2016). *American Empire and the Canadian Oil Sands*. Palgrave Macmillan
Government of Alberta. (1968). *Oil Sands Development Policy*. https://librarysearch.assembly.ab.ca/client/en_CA/search/asset/176302/0
Government of Alberta. (1973). *Emerging North American Oil Balances. Considerations to a Tar Sands Development Policy*. Legislative Assembly of Alberta. https://librarysearch.assembly.ab.ca/client/en_CA/public/search/detailnonmodal/ent:$002f$002fSD_ILS$002f0$002fSD_ILS:70422/ada?qu=north+america+oil+1973&d=ent%3A%2F%2FSD_ILS%2F0%2FSD_ILS%3A70422%7EILS%7E0&h=8
Government of Alberta. (2025). *Oil sands*. https://www.alberta.ca/oil-sands-overview

Government of Canada (2021). *Government of Canada legislates climate accountability with first net-zero emissions law.* https://www.canada.ca/en/environment-cli mate-change/news/2021/06/government-of-canada-legislates-climate-accoun tability-with-first-net-zero-emissions-law.html.
Government of Canada (2022). *About the Crown*. https://www.canada.ca/en/canadian-heritage/services/crown-canada/about.html
Government of Canada. (2023). *Treaties and agreements*. https://www.rcaanc-cirnac.gc.ca/eng/1100100028574/1529354437231
Government of Canada (2024). *Principles respecting the Government of Canada's relationship with Indigenous peoples.* https://www.canada.ca/en/departmentjustice/news/2017/07/government_of_canadasetsaprincipledfoundationforadvancingrenewed.html.
Government of Canada (2025a). *Pipelines across Canada.* https://natural-resources.canada.ca/energy-sources/fossil-fuels/pipelines-across-canada
Government of Canada (2025b). *Trans Mountain Expansion Project*. https://www.canada.ca/en/campaign/trans-mountain.html
Graham, S. (2016). Vanity and violence: On the politics of skyscrapers. *City*, 20(5), 755–771. https://doi.org/10.1080/13604813.2016.1224503
Graneheim, U., Lindgren, B.M., & Lundman, B. (2017). Methodological challenges in qualitative content analysis: A discussion paper. *Nurse Education Today*, 56, 29-34. https://doi.org/10.1016/j.nedt.2017.06.002
Grossman, Z. (2017). *Unlikely Alliances: Native Nations and White Communities Join to Defend Rural Lands*. University of Washington Press.
Guerrieri, V. (2019). *Not there and (not) yet. The spatio-temporal politics of oil and gas development in the Canadian North*. [Unpublished doctoral dissertation]. Københavns Universitet.
Gunster, S. & Neubauer, R. (2018). (De) legitimizing extractivism: the shifting politics of social licence. *Environmental Politics,* 28 (4), 1-21. https://doi.org/10.1080/09644016.2018.1507290
Gutstein, D. (2021). *Fossilized Finance How Canada's banks still enable oil and gas production.* Corporate Mapping Project and Parkland Institute. https://www.policyalternatives.ca/news-research/fossilized-finance/
Haarstad, H., & Wanwik, T. (2016). Carbonscapes and beyond: Conceptualizing the instability of oil landscapes. *Progress in Human Geography*, 41 (4), 432-450. https://doi.org/10.1177/0309132516648007
Habib, A. (2024, April 30). The new Trans Mountain pipeline is now flowing. Could an Indigenous Rights case impact operations? *The Narwhal*. https://thenarwhal.ca/trans-mountain-launch-indigenous-rights/
Hajer, M. A., & Pelzer, P. (2018). 2050—An Energetic Odyssey: Understanding 'Techniques of Futuring' in the transition towards renewable energy. *Energy Research & Social Science*, 44, 222–231. https://doi.org/10.1016/j.erss.2018.01.013
Hein, C. (ed.). (2021). *Oil Spaces. Exploring the Global Petroleumscape*. Routledge.
Helbig, L. (2015, August 3). Canada's tar sands landscape from the air – in pictures. *The Guardian*. https://www.theguardian.com/environment/gallery/2015/aug/03/canadas-tar-sands-landscape-from-the-air-in-pictures
Hermes, K. (2021, January 19). How Canada is targeting Indigenous resistance to TMX. *Briarpatch Magazine*. https://briarpatchmagazine.com/articles/view/how-canada-is-targeting-indigenous-resistance-to-tmx-trans-mountain-pipeline
Hoberg, G. (2021). The Resistance Dilemma. Place-Based Movements and the Climate Crisis. MIT.
Huang, Y., & Weaver-Hightower, R. (2019). Introduction: Settler colonialism and its cultural archives- ways of reading. In Y. Huang, & R. Weaver-Hightower (Eds.). *Archiving settler colonialism. Culture, space, and race. Empires and the Making of the Modern World, 1650-2000* (pp.1-16) Routledge. https://doi.org/10.4324/9781351142045
Huber, M. (2013). *Lifeblood. Oil, Freedom, and the Forces of Capital*. University of Minnesota Press.
Huber, M. (2015). Energy and Social Power: From Political Ecology to the Ecology of Politics. In T. Perrault, G. Bridge, & J. McCarthy (Eds). *The Routledge Handbook of Political Ecology*. (pp. 481-492). Routledge.
Huber, M., & McCarthy, J. (2017). Beyond the subterranean energy regime? Fuel, land use and the production of space. Transactions of the Institute British Geography, 42, 655-668. https://doi.org/10.1111/tran.12182
Hughes, D. (2020). *Reassessment of Need for the Trans Mountain Pipeline Expansion Project*. Corporate Mapping Project, Parkland Institute. https://www.policyalternatives.ca/sites/default/files/uploads/publications/BC Office/2020/10/ccpa-bc_reassessment-of-need-for-TMX-FINAL.pdf
Hunsberger, C., & Awâsis, S. (2019). Energy Justice and Canada's National Energy Board: A Critical Analysis of the Line 9 Pipeline Decision. *Sustainability*, 11, 783. http://doi:10.3390/su11 030783
Hunsberger, C., & Kløcker Larsen, R. (2021). The spatial politics of energy conflicts: How competing constructions of scale shape pipeline and shale gas struggles in Canada. *Energy Research & Social Science,* 77, 102100. https://doi.org/10.1016/j.erss.2021.102100
Hurlbert, M., Rayner, J (2018). Reconciling power, relations, and processes: The role of recognition in the achievement of energy justice for Aboriginal people. *Applied Energy,* 228, 1320–1327. https://doi.org/10.1016/j.apenergy.2018.06.054
Hussey, I., Pineault, E., Jackson, E., & Cake, S. (2021). Boom, Bust, and Consolidation: Corporate Restructuring in the Alberta Oil Sands. In W. Carroll. (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (35-61). Athabasca University Press.
Janzwood, A. (2020). Explaining Variation in Oil Sands Pipeline Projects. *Canadian Journal of Political Science,* 53 (3), 540-559. https://doi.org/10.1017/S0008423920000190

Indigenous Climate Action. (2017, April 2). *Indigenous Resistance Can Stop Pipelines*. [Video] You Tube. https://www.youtube.com/watch?v=ix6nejW89lo&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=24
Indigenous Climate Action. (2018, July 12). *Canada Bailout of KM: Indigenous Voices from the Frontlines*. https://www.indigenousclimateaction.com/entries/canada-bailout-of-km-indigenous-voices-from-the-frontlines
Indigenous Climate Action. (2018a, February 15). *Divestment from an Indigenous Perspective Webinar*. [Video] You Tube. https://www.youtube.com/watch?v=z_nJPKkmmSM&list=WL&index=178
Indigenous Climate Action. (2018b March 2). *Violence Against the Land is Violence Against Women*. https://www.indigenousclimateaction.com/entries/violence-against-the-land-is-violence-against-women
Jasanoff, S., & Kim, S-H. (2009). Containing the Atom: Sociotechnical Imaginaries and Nuclear Power in the United States and South Korea, *Minerva,* 47 (2), 119–146, https://doi.org/10.1007/s11024-009-9124-4
Jasper, J. M. (1998). The Emotions of Protest: Affective and Reactive Emotions in and around Social Movements. *Sociological Forum*, 13(3), 397–424. http://www.jstor.org/stable/684696
Johnson, L. (2016, November 29). First Nations, environmentalists vow 'long battle' on approved Kinder Morgan pipeline. *CBC News.* https://www.cbc.ca/news/canada/british-columbia/kinder-morgan-approval-bc-1.3873267
Johnson, T. (2016a, May 20). First Nations say they have the power to stop Trans Mountain expansion. *CBC News*. https://www.cbc.ca/news/business/first-nations-react-transmountain-1.3590134
Kearns, R. (2016). Placing Observation in the Research Toolkit. In I. Hay (Ed.). *Qualitative research methods in Human Geography* (pp.313-333). Oxford University Press.
Keller, R. (2011). *Diskurs-Forschung. Eine Einführung für Sozialwissenschaftlerinnen* (4 edition). VS. https://www.springer.com/de/book/9783531173528
Kinder Morgan. (2018, May 29). *Trans Mountain Pipeline System and Expansion Project to Be Sold for C$4.5 Billion*. https://ir.kindermorgan.com/news/news-details/2018/Trans-Mountain-Pipeline-System-and-Expansion-Project-to-Be-Sold-for-C45-Billion/default.aspx
Kowalewski, M., & Bartłomiejski, R. (2020). Is it research or just walking? Framing walking research methods as "non-scientific." *Geoforum*, 114, 59–65. https://doi.org/10.1016/j.geoforum.2020.06.002
Kraushaar-Friesen, N., & Busch, H. (2020). Of pipe dreams and fossil fools: Advancing Canadian fossil fuel hegemony through the Trans Mountain pipeline. *Energy Research & Social Science*, 69, 101695. https://doi.org/10.1016/j.erss.2020.101695
Kuokkanen, R. (2007). Reshaping the University: Responsibility, Indigenous Epistemes, and the Logic of the Gift. UBC Press.
Kuteleva, A., & Leifso, J. (2020). Contested crude: Multiscalar identities, conflicting discourses, and narratives of oil production in Canada. *Energy Research & Social Science*, 70, 101672. https://doi.org/10.1016/j.erss.2020.101672
Laanela, M. (2018, August 30.). 'We are winning': Several B.C. First Nations celebrate Trans Mountain victory. *CBC News*. https://www.cbc.ca/news/canada/british-columbia/trans-mountain-first-nations-federal-court-1.4804734
Lachapelle, E., Morin-Chassé, A., & Nadeau, R. (2021). "Framing the Energy East pipeline debate in Canada: Public opinion is sensitive to public safety and economic considerations," *Energy Research and Social Science*, 77, 102091. https://doi.org/10.1016/j.erss.2021.102091
Lawson, J. (2021). Lines of Work, Corridors of Power: Extraction, Obstruction, and Counter-obstruction Along Fossil Fuel Production Networks. In W. Carroll (Ed.). *Regime of Obstruction. How Corporate Power Blocks Energy Democracy* (pp-61-91) Athabasca University Press.
Le Billon, P., & Vandecasteyen, R. (2013). (Dis) Connecting Alberta's Tar Sands and British Columbia's North Coast. *Studies in Political Economy. A Socialist Review,* 91(1), 35-57. https://doi.org/10.1080/19187033.2013.11674981
LeQuesne, T. (2019). From Carbon Democracy to Carbon Rebellion: Countering Petro-Hegemony on the Frontlines of Climate Justice. *Journal of World-Systems Research*, 25(1), 15-27. https://doi.org/10.5195/jwsr.2019.905
Linnitt, C. (2014, July 2). Famed Photographer Alex MacLean's New Photos of Canada's Oilsands are Shocking. *The Narwhal*. https://thenarwhal.ca/photos-famed-photographer-alex-maclean-s-new-photos-canada-s-oilsands-are-shocking
Little, S. (2019, September 27). 120K people pack Vancouver, Victoria streets for Climate Strike, marches held around B.C. *Global News*. https://globalnews.ca/news/5962218/vancouver-climate-strike-2/
Ljunnggren, D., & Johnson, K. (2020, April 1). Canada offers C$2.5 billion in aid for hard-hit energy sector; death toll hits 1,250. *Reuters.* https://www.reuters.com/article/us-health-coronavirus-canada-energy-idUSKBN21Z2AX
Longley, H. (2021). Conflicting Interests: Development Politics and the Environment Regulation of the Alberta Oil Sands Industry, 1970-1980. *Environment and History*, 27 (1), 97-125. https://doi.org/10.3197/096734019X15463432086919
Lorenzini, J., & Rosset, J. (2023). Emotions and climate strike participation among young and old demonstrators. *Social Movement Studies*, 23(1), 39–55. https://doi.org/10.1080/14742837.2023.2178406
Macpherson, H. (2016). Walking methods in landscape research: moving bodies, spaces of disclosure and rapport. *Landscape Research*, 41(4), 425–432. https://doi.org/10.1080/01426397.2016.1156065
Mackey, E. (2016). *Unsettled expectations: Uncertainty, land and settler decolonization*. Fernwood
Major, D. (2025, March 14). Carney kills consumer carbon tax in first move as prime minister. *CBC News*. https://www.cbc.ca/news/politics/mark-carney-drops-carbon-tax-1.7484290

Malm, A. (2016). *Fossil capital: the rise of steam power and the roots of global warming*. Verso.
Manning, E. (1968). *Oil Sands Development Policy*. Legislative Assembly of Alberta.
Manuel, A,. & Derrickson, R.M. (2015). *Unsettling Canada: A National Wake-Up Call*. Between the Lines.
Mason, O., Sarma, J., Sidaway, J., Bonnett, A., Hubbard, P., Jamil, G., et al. (2023): Interventions in walking methods in political geography. *Political geography*, 106, 102937. https://doi.org/10.1016/j.polgeo.2023.10293
Mansvelt, J., & Berg, L. D. (2005). Writing qualitative geographies, constructing geographical knowledges. In D. DeLyser, S.Herbert, S.Aitken, M. Crang, & L McDowell. *Qualitative research methods in human geography*, (pp-248-265). Sage
McCauley, D., Heffron, R., Stephan, H., & Jenkins, K. (2013). Advancing energy justice: the triumvirate of tenets and systems thinking. *International Energy Law Review*, 32 (3), 107-116. http://hdl.handle.net/10023/6078
McGregor, D. (2018). Mino-Mnaamodzawin. Achieving Indigenous Environmental Justice in Canada. *Environment and Society,* 9 (1), 7-24. https://doi.org/10.3167/ares.2018.090102
McGregor, D., Whitaker, S., & Sritharan, M. (2020). Indigenous environmental justice and sustainability. *Environmental Sustainability*, 43, 35-40. https://doi.org/10.1016/j.cosust.2020.01.007
McIntosh, E. & Wood, S. (2019, August 21). Trans Mountain to restart pipeline construction within 30 days. *National Observer*. https://www.nationalobserver.com/2019/08/21/news/trans-mountain-restart-pipeline-construction-within-30 days?utm_source=First+Peoples+Law+Blog&utm_campaign=49ffc87d9d-EMAIL_CAMPAIGN_2019_07_10_09_19_COPY_01&utm_medium=email&utm_term=0_84105b31a3-49ffc87d9d-107047953
McSheffrey, E. (2016, May 19). First Nations vow to kill Kinder Morgan pipeline expansion with lawsuits. *National Observer*. http://www.nationalobserver.com/2016/05/19/news/first-nations-vow-kill-kinder-morgan-pipeline-expansion-lawsuits
Middleton, J. (2010). Sense and the city: exploring the embodied geographies of urban walking. *Social & Cultural Geography*, 11(6), 575–596. https://doi.org/10.1080/14649365.2010.497913
Ministry of Environment and Parks Alberta. (2020) .*M.O.17/2020*. Government of Alberta. https://open.alberta.ca/dataset/0cc78dea-655e-4a28-8128-5f0310399b74/resource/d26172b7-7109-418c-bfbe-e9b049076581/download/aep-ministerial-order-17-2020.pdf
Nadaï, A., & van der Horst, D. (2010). Introduction: Landscapes of Energies. *Landscape Research* 35 (2): 143-155. https://doi.org/10.1080/01426390903557543
National Energy Board (NEB). (2014, October 22). *Hearing Order OH-001-2014. Trans Mountain Pipeline ULC Expansion Project*. Vol. 10. Retrieved 20 January 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2498240/2538949/14%2D10%2D22_%2D_Volume_10_%2D_A4D5T4.pdf?nodeid=2538188&vernum=-2
National Energy Board (NEB). (2016, May). *National Energy Board Report - Trans Mountain Expansion Project - May 2016*.
National Energy Board (2016a, January 26). *Hearing Order OH-001-2014. Trans Mountain Pipeline ULC Expansion Project*. Vol. 32. Retrieved 25 January 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2498240/2909731/16%2D01%2D26_%2D_Volume_32_%2D_A4X8C7.pdf?nodeid=2908928&vernum=-2
National Energy Board (NEB). (2018, December 03). *Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177. Hearing Order MH-052-2018*. Vol. 8. Retrieved 18 February 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3689831/3716720/A96350%2D1_18%2D12%2D03_%2D_Volume_8_%2D_PUBLIC_%2D_A6L3Z1.pdf?nodeid=3716721&vernum=-2
National Energy Board (NEB). (2018a, December 04). *Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177. Hearing Order MH-052-2018* Vol. 06. Retrieved 15 February 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/2498240/2538113/14%2D10%2D16_%2D_Volume_6_%2D_A4D3E6.pdf?nodeid=2538772&vernum=-2
National Energy Board (NEB). (2018b, November 26). *Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177. Hearing Order MH-052-2018*. Vol 04. Retrieved 17 February 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3689831/3713004/A96127%2D1_18%2D11%2D26_%2D_Volume_4_%2D_A6L0H9.pdf?nodeid=3713005&vernum=-2
National Energy Board. (2018c, December 05). Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177 Hearing Order MH-052-2018. Vol. 10. Retrieved 20 February 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3689831/3719379/A96488%2D1_18%2D12%2D05_%2D_Volume_10_%2D_A6L7T8.pdf?nodeid=3718553&vernum=-2
National Energy Board (NEB). (2018d, December 06.). *Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177. Hearing Order MH-052-2018*. Vol.11. Retrieved 4 March 2023, from: https://docs2.cer-rec.gc.ca/ll-

eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3689831/3719120/A96521%2D1_18%2D12%2D06_%2D_Volume_11_%2D_A6L8J4.pdf?nodeid=3719588&vernum=-2
National Energy Board (NEB). (2018e, November 29). *Trans Mountain Expansion Project. National Energy Board reconsideration of aspects of its Recommendation Report as directed by Order in Council P.C. 2018-1177. Hearing Order MH-052-2018*. Vol. 07. Retrieved 7 March 2023, from: https://docs2.cer-rec.gc.ca/ll-eng/llisapi.dll/fetch/2000/90464/90552/548311/956726/2392873/3614457/3689831/3716786/A96243%2D1_18%2D11%2D29_%2D_Volume_7_%2D_A6L2F4.pdf?nodeid=3716347&vernum=-2
National Observer. (2018, March 12). *Protect the Inlet rally against Kinder Morgan in Burnaby*. [Video] You Tube. https://www.youtube.com/watch?v=i7PIirZyuH4&list=PL8h6MuUztpCwoNrB9vC5TacLI6IK-YmPB&index=21
National Observer. (2020, September 30). *In Conversation with Kanahus Manuel*. [Video] You Tube. https://www.youtube.com/watch?v=U5ny3zvCMlk
Neubauer, J. R. (2018). Moving beyond the petrostate: northern gateway, extractivism, and the Canadian petrobloc. *Studies in Political Economy*, *99*(3), 246–267. https://doi.org/10.1080/07078552.2018.1536369
Neubauer, R., Graham, N., & Krobath, H. (2023). Defending "Canadian Energy": Connective Leadership and Extractive Populism on Canadian Facebook. *Environmental Communication*, 17(6), 634–652. https://doi.org/10.1080/17524032.2023.2235919
Neumann, R. P. (2011). Political ecology III: Theorizing landscape. *Progress in Human Geography*, 35 (6): 843–850. https://doi.org/10.1177/0309132510390870
Nicholson, B. (2013). The Digital Turn. Exploring the methodological possibilities of digital newspaper archives. *Media History*, 19(1), 59-73. http://dx.doi.org/10.1080/13688804.2012.752963
Nicholson, S. (2021). Carbon Removal and the Dangers of Extractivism. In J. Shapiro, & J.A. McNeish. (Eds.). *Our Extractive Age: Expressions of Violence and Resistance* (pp.189-203). Routledge. https://doi.org/10.4324/9781003127611
Nikiforuk, A. (2010). *Tar sands: Dirty oil and the future of a continent*. Greystone Books.
Nuttal, M. (2022). Environmental Change. In L. D'Angelo, & R. Pijers (Eds.). *The Anthropology of Resource Extraction.* (pp.59-77). Routledge.
Olive, A., & Delshad, A. B. (2017). Fracking and Framing: A Comparative Analysis of Media Coverage of Hydraulic Fracturing in Canadian and US Newspapers. *Environmental Communication*, 11(6), 784–799. https://doi.org/10.1080/17524032.2016.1275734
O'Neill, M., & Roberts, B. (2019). *Walking Methods: Research on the Move*. Routledge. https://doi.org/10.4324/9781315646442
Palmater, P. (2011). *Beyond Blood: Rethinking Indigenous Identity.* Purich Publishing.
Parlee, B. (2016). Mobilizing to Address the Impacts of Oil Sands Development: First Nations in Environmental Governance. In L. Adkin (Ed.). *First World Petro-Politics: The Political Ecology and Governance of Alberta*. (329-355). University of Toronto Press.
Pasternak, S. 2014. Jurisdiction and Settler Colonialism: Where Do Laws Meet? *Canadian Journal of Law and Society,* 29, 145 - 161. https://doi.org/10.1017/cls.2014.5
Pasternak, S., Collis, S., & Dafnos, T. (2013). Criminalization at Tyendinaga: Securing Canada's Colonial Property Regime through Specific Land Claims. *Canadian Journal of Law and Society, 28*(1), 65–81. https://muse.jhu.edu/article/517395
Patel, I. (2012). The role of testimony and testimonial analysis in human rights advocacy and research. *State Crime Journal*, 1, 235, https://www.jstor.org/stable/41937909
Powell, D. (2018). *Landscapes of power. Politics of energy in the Navajo Nation*. Duke University Press.
Preston, J. (2013). Neoliberal settler colonialism, Canada and the tar sands. *Race & Class,* 55 (2), 42–59. https://doi.org/10.1177/0306396813497877
Prime Minister of Canada Justin Trudeau. (2016, November 29). *Prime Minister Justin Trudeau's Pipeline Announcement*. https://pm.gc.ca/en/news/speeches/2016/11/29/prime-minister-justin-trudeaus-pipeline-announcement
Prime Minister of Canada Justin Trudeau. (2019, June 18). *Trans Mountain Expansion will fund Canada's future clean economy*. https://pm.gc.ca/en/news/news-releases/2019/06/18/trans-mountain-expansion-will-fund-canadas-future-clean-economy
Proctor, J. (2018, April 12). 'A tough lesson': Do First Nations hold trump card on Trans Mountain debate? *CBC News*. https://www.cbc.ca/news/canada/british-columbia/first-nations-kinder-morgan-transmountain-1.4615263
Prouxl, G., & Jon Crane, N. (2020). "To see things in an objective light": the Dakota Access Pipeline and the ongoing construction of settler colonial landscapes. *Journal of Cultural Geography*, 37(1), 46-66. https://doi.org/10.1080/08873631.2019.1665856
Provincial Archives of Alberta. (2025). https://provincialarchives.alberta.ca/
Quesnel, J., & Buffalo, S. (2019, June 25). Time Is Ripe for Indigenous Ownership of Trans Mountain Pipeline. *The Epoch Times*. https://www.theepochtimes.com/time-is-ripe-for-indigenous-ownership-of-trans-mountain-pipeline_2977999.html
Ranacher, L., Ludvig, A., & Schwarzbauer, P. (2019). Depicting the peril and not the potential of forests for a biobased economy? A qualitative content analysis on online news media coverage in German language articles. *Forest Policy and Economics*. 106, 101970. https://doi.org/10.1016/j.forpol.2019.101970
Raso, K., & Neubauer, R. J. (2016). Managing Dissent: Energy Pipelines and "New Right" Politics in Canada. *Canadian Journal of Communication*, 41(1), 115–133. https://doi.org/10.22230/cjc.2016v41n1a2777

Rose-Redwood, R., Blu Barnd, N., Lucchesi, A. H. E., Dias, S., & Patrick, W. (2020). Decolonizing the map: Recentering Indigenous mappings. *Cartographica: The International Journal for Geographic Information and Geovisualization*, *55*(3), 151-162. https://doi.org/10.3138/cart.53.3.intro

Rossiter, D., & P. Burke Wood. (2016). Neoliberalism as Shape-Shifter: The Case of Aboriginal Title and the Northern Gateway Pipeline. *Society & Natural Resources*, 29 (8), 900-915. https://www.tandfonline.com/doi/full/10.1080/08941920.2015.1095378

Reed, M., & Bruyneel, S. (2010). Rescaling environmental governance, rethinking the state: A three-dimensional review. *Progress in Human Geography*, 24 (5), 646-653. https://doi.org/10.1177/0309132509354836

Reszitnyk, A. (2021). Disastrous Photography and the Anthropocenic Imaginary. *Interdisciplinary Studies in Literature and Environment,* 28(1), 230–251. https://doi.org/10.1093/isle/isaa070

Richardson, E., Haworth, K., & Deamer, F. (2022). For the Record: Questioning Transcription Processes in Legal Contexts. *Applied Linguistics*, 43(4), 677–697. https://doi.org/10.1093/applin/amac005

Rifkin, M. (2017). *Beyond settler time. Temporal sovereignty and Indigenous self-determination*. Duke University Press.

Ryan, G. W., & Bernard, H. R. (2003). Techniques to Identify Themes. *Field Methods*, 15(1), 85-109. https://doi.org/10.1177/1525822X02239569

Schmidt, J. (2020). Settler geology: Earth's deep history and the governance of in situ oil spills in Alberta. *Political Geography* 78 102132. https://doi.org/10.1016/j.polgeo.2019.102132

Shaw, K. (2008). *Indigeneity and Political Theory: Sovereignty and the Limits of the Political*. Routledge.

Short, D., & Huseman, J. (2012). A slow industrial genocide: tar sands and the indigenous peoples of northern Alberta. *The International Journal of Human Rights*, 16(1), 216–237. https://doi.org/10.1080/13642987.2011.649593

Scott, D. (2013). The Networked Infrastructure of Fossil Capitalism: Implications for the New Pipeline Debates for Environmental Justice in Canada. *Revue générale de droit*, 43, 11-10.7202/1021210ar

Simpson, L. (2017). As We have always done. Indigenous Freedom through Radical Resistance. University of Minnesota Press.

Simpson, M. (2019). Resource desiring machines: The production of settler colonial space, violence, and the making of a resource in the Athabasca tar sands. *Political Geography* 74 102044. https://doi.org/10.1016/j.polgeo.2019.102044

Smith, M.J., Buckton, C., Patterson, C., & Hilton, S. (2023). User-generated content and influencer marketing involving e-cigarettes on social media: a scoping review and content analysis of YouTube and Instagram. *BMC public health,* 530. https://doi.org/10.1186/s12889-023-15389-1

Solomon, L. (2018, May 29). The political calculus of Rachel Notley, John Horgan and Justin Trudeau. *The National Observer*. https://www.nationalobserver.com/2018/05/29/opinion/political-calculus-rachel-notley-john-horgan-and-justin-trudeau

Spady, S., & Angus, S. (2020). *Histories of the Present: Tar Sands Photography and Colonial Cultural Production*. In M. Mišík, & N. Kujundžić. Energy Humanities. Current State and Future Directions (pp. 127–148). Springer.

Spice, A. (2018). Fighting Invasive Infrastructure. Indigenous Relations against Pipelines. *Environment and Society*, 9 (1), 40-56. https://doi.org/10.3167/ares.2018.090104

Spiegel, S. J. (2019). Visual Storytelling and Socioenvironmental Change: Images, Photographic Encounters, and Knowledge Construction in Resource Frontiers. *Annals of the American Association of Geographers*, 110(1), 120–144. https://doi.org/10.1080/24694452.2019.1613953

Spiegel, S. (2021). Climate injustice, criminalisation of land protection and anti-colonial solidarity: Courtroom ethnography in an age of fossil fuel violence. *Political Geography,* 84, 102298. https://doi.org/10.1016/j.polgeo.2020.102298

Spiegel, S. (2021a). Fossil fuel violence and visual practices on Indigenous land: Watching, witnessing and resisting settler-colonial injustices. *Energy Research & Social Science*, 79, 102189. https://doi.org/10.1016/j.erss.2021.102189

Stoler, A.L. (2002). Colonial Archives and the Arts of Governance. *Archival Science*, 2, 87-109. https://doi.org/10.1007/BF02435632

Strejilevich, N. (2006). Testimony: Beyond the Language of Truth. *Human Rights Quarterly*, 28(3), 701-713. https://dx.doi.org/10.1353/hrq.2006.0038.

Supreme Court of British Columbia. (2018, June 1). *Court File No. S-183541*. Vancouver Registry. Trans Mountain Pipeline UCL. http://terminalcitylegal.org/wp-content/uploads/2018/07/Injunction-Order-Amended-2018-06-01.pdf

Svensson, O. (2021). The matter of energy emerges: Bridging the divide between conflicting conceptions of energy resources. *Energy Research & Social Science*, *72*, 101895. https://doi.org/10.1016/j.erss.2020.101895

Swain, J., & King, B. (2022). Using Informal Conversations in Qualitative Research. *International Journal of Qualitative Methods*, *21*. https://doi.org/10.1177/16094069221085056

Szeman, I., et al. (2013, May 13). *Final Report. On the Energy Humanities: Contributions from the Humanities, Social Sciences, and Arts to Understanding Energy Transition and Energy Impasse*. SSHRC Imagining Canada's Future initiative Knowledge Synthesis Grants: Energy and Natural Resources. https://era.library.ualberta.ca/items/a8240115-d3df-42c7-bdf4-28164f772a8b

Tasker, J. P. (2016, November 29). Trudeau cabinet approves Trans Mountain, Line 3 pipelines, rejects Northern Gateway. *CBC News*. https://www.cbc.ca/news/politics/federal-cabinet-trudeau-pipeline-decisions-1.3872828

Tasker, J.P. (2018, August 30). After Federal Court quashes Trans Mountain, Rachel Notley pulls out of national climate plan. *CBC News*. https://www.cbc.ca/news/politics/tasker-trans-mountain-federal-court-appeals-1.4804495
Tasker, J.P. (2020, February 5). In a major victory for Trans Mountain, Federal Court dismisses Indigenous appeal of project's approval. *CBC News.* https://www.cbc.ca/news/politics/federal-court-appeal-trans-mountain-1.5450748
Tasker. J.P. (2020a, January 16). Supreme Court dismisses B.C.'s bid to save bill blocking Trans Mountain project. CBC News. https://www.cbc.ca/news/politics/supreme-court-bc-reference-trans-mountain-1.5429423
Tidwell, J.H., & Tidwell, A. S.D. (2018). Energy ideals, visions, narratives, and rhetoric: Examining sociotechnical imaginaries theory and methodology in energy research. *Energy Research & Social Science*, 39, 103–107. https://doi.org/10.1016/j.erss.2017.11.005
Tiny House Warriors. (2020, May 13). *The TMX pipeline will never be built*. http://www.tinyhousewarriors.com/2020/05/the-tmx-pipeline-will-never-be-built/
The Canadian Press. (2019. August 10). Experts to advise Ottawa as it consults First Nations that want stake in TMX. *Calgary Herald*. https://calgaryherald.com/pmn/news-pmn/canada-news-pmn/experts-to-advise-ottawa-as-it-consults-first-nations-that-want-stake-in-tmx/wcm/7385185b-b750-49c2-b62e-474fe8439218
Thomsen, D. C. (2015). Seeing is questioning: prompting sustainability discourses through an evocative visual agenda. *Ecology and Society*, 20(4). http://dx.doi.org/10.5751/ES-07925-200409
Thorson, K., Driscoll, K., Ekdale, B., Edgerly, S., Thompson, L.G., Schrock, A., et al. (2013). Youtube, Twitter and the Occupy Movement. *Information, Communication & Society,* 16 (3), 421–451. https://doi.org/10.1080/1369118X.2012.756051
Trans Mountain. (2021). *Expansion Project*. https://www.transmountain.com/project-overview
Treaty Alliance Against Tar Sands Expansion (n.a). *Treaty Alliance Against Tar Sands Expansion*. http://www.treatyalliance.org/
Tsleil-Waututh Nation (TWN). (2016). *Assessment of the Trans Mountain Pipeline and Tanker Expansion Proposal*. https://twnsacredtrust.ca/assessment-report-download/
Tsleil-Waututh Nation et al. v. Attorney General of Canada et al. (2018). *FCA 153*. Federal Court of Appeal.
United Nations (1948). *Convention on the Prevention and Punishment of the Crime of Genocide*. https://www.ohchr.org/en/instruments-mechanisms/instruments/convention-prevention-and-punishment-crime-genocide
The University of British Columbia. (2009). *Indigenous Foundations. First Nations and Indigenous Studies*. https://indigenousfoundations.arts.ubc.ca/about/#:~:text=Indigenous%20Foundations%20has%20been%20developed%20by%20First%20Nations,issues%20relevant%20to%20Aboriginal%20histories%2C%20peoples%2C%20and%20cultures.
Varcoe, C. (2019, June 5). New Indigenous coalition aims to buy a piece of Trans Mountain pipeline. *Calgary Herald*. https://calgaryherald.com/business/energy/varcoe-new-indigenous-coalition-aims-to-buy-a-piece-of-trans-mountain-pipeline
Varcoe, C. (2023, December 22). 'Cross my fingers' — Alberta's premier concerned about potential two-year delay of Trans Mountain expansion. *Calgary Herald*. https://calgaryherald.com/opinion/columnists/varcoe-danielle-smith-concerned-possible-trans-mountain-delay
Varcoe, C. (2025). Trans Mountain eyes capacity increase, expects to move more oil abroad if U.S. tariffs hit. *Calgary Herald*. https://calgaryherald.com/opinion/columnists/varcoe-us-tariff-threat-proves-value-trans-mountain-expansion-canada
Veltmeyer, H., & Bowles, P. (2014). Extractivist resistance: The case of the Enbridge oil pipeline project in Northern British Columbia. *The Extractive Industries and Society*, 1, 59-68. https://doi.org/10.1016/j.exis.2014.02.002
Veeraraghavan, L. (2024). " What is "heard" at a pipeline hearing? The gerrymandering of aurality in British Columbia, Canada." *American Anthropologist,* 126, 248–259. https://doi.org/10.1111/aman.13965
Waisman, D. (2018, March 10). Thousands rally against Kinder Morgan after court injunction. *National Observer* .https://www.nationalobserver.com/2018/03/10/news/thousands-rally-against-kinder-morgan-after-court-injunction
Waitt, G. (2016). Doing Foucauldian Discourse Analysis-Revealing Realities. In I. Hay (Ed.), *Qualitative research methods in Human Geography* (pp.288-313). Oxford University Press.
Wanvik, T.I. (2016). Governance transformed into Corporate Social Responsibility (CSR): New governance innovations in the Canadian oil sands. *The Extractive Industries and Society* 3:
517-526. https://doi.org/10.1016/j.exis.2016.01.007
Wanvik, T.I. (2018). *Contested Energy Spaces. Disassembling Energyscapes of the Canadian North*. Springer.
Watts, M. (2013). Oil Talk. *Development and Change,* 44 (4), 1013–1026. https://doi.org/10.1111/dech.12007
Way, L. (2011). An energy superpower or a super sales pitch? Building the case through an examination of Canadian newspapers coverage of oil sands. *Canadian Political Science Review*, 5(1), 74–98. https://doi.org/10.24124/c677/2011250
Weber, B. (2020, May 21). Alberta Energy Regulator suspends environmental monitoring for oilpatch over COVID-19. *CBC News*. https://www.cbc.ca/news/canada/edmonton/alberta-energy-regulator-suspends-environment-monitoring-for-oilpatch-over-covid-1.5578994
Westerhoff, L., Sheppard, S.R.J., Mathew Iype, D., Cote, S., & Salter, J. (2018). Social mobilization on climate change and energy: An evaluation of research projects in British Columbia, Canada. *Energy Research & Social Science,* 46: 368–380. https://doi.org/10.1016/j.erss.2018.07.022

West Coast Environmental Law. (2019, August 19.). *Trans Mountain and the Honour of the Crown: Indigenous legal challenges, round two*. https://www.wcel.org/blog/trans-mountain-and-honour-crown-indigenous-legal-challenges-round-two

Whitney, C., Evered, J., Patrick, B., & Lee, G. (2024). Whose Um Voice is it Anyway? Leveraging "Thick Transcription" to Promote Inclusion in Qualitative Research Through Transcript Alignment. *International Journal of Qualitative Methods*, 23. https://doi.org/10.1177/16094069241256548

Whyte, K. (2017). Indigenous Climate Change Studies: Indigenizing Futures, Decolonizing the Anthropocene. *English Language Notes,* 55(1), 153-162. https://www.muse.jhu.edu/article/711 473

Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Fernwood.

Wilson, S., Carlson, A., & Szeman, C. (2017). On Petrocultures: Or, Why We Need to Understand Oil to Understand Everything Else. In S. Wilson, A. Carlson, & C. Szeman, C. (Eds.), *Petrocultures. Oil, Politics, Culture* (pp. 3- 19). McGill-Queen's University Press.

Wilt, J. (2016, November 5). Ministerial Panel on Kinder Morgan Pipeline Actually Nails It. *The Narwhal.* https://thenarwhal.ca/ministerial-panel-kinder-morgan-pipeline-actually-nails-it/

Wolford, W., & Keene, S. (2015). Social movements. In T. Perrault, G. Bridge, & J. McCarthy, (Eds.). *The Routledge Handbook of Political Ecology*. (pp. 573-584). Routledge.

Woolford, A., & Benvenuto, J. (2015). Canada and colonial genocide. *Journal of Genocide Research*, 17(4), 373-390. http://doi.org/10.1080/14623528.2015.1096580

Yarbrough, D. (2020). "Nothing About Us Without Us": Reading Protests against Oppressive Knowledge Production as Guidelines for Solidarity Research. *Journal of Contemporary Ethnography*, 49(1), 58-85. https://doi.org/10.1177/0891241619857134

Zimmerer, K. S. (2011). New geographies of energy: Introduction to the special issue. *Annals of the Association of American Geographers,* 101 (4), 705-711. https://doi.org/10.1080/00045608.2011.575318

Zimonjic, P. (2025, February 7). Trump's threat to annex Canada 'real' and motivated by access to critical minerals, Trudeau tells crowd. *CBC News.* https://www.cbc.ca/news/politics/trudeau-trump-economy-summit-1.7452748

Appendix 1. Newspaper analysis of the TMX conflict

Article title	Author	News media	Year	Link
Kinder Morgan pipeline protesters resist police efforts to move them	n/a	CBC News	2014	https://www.cbc.ca/news/canada/british-columbia/kinder-morgan-pipeline-protesters-resist-police-efforts-to-move-them-1.2841957
Trudeau cabinet approves Trans Mountain, Line 3 pipelines, rejects Northern Gateway	Tasker, J.P.	CBC News	2016	https://www.cbc.ca/news/politics/federal-cabinet-trudeau-pipeline-decisions-1.3872828
First Nations still wary of supporting Trans Mountain pipeline expansion	Johnson, T.	CBC News	2016	https://www.cbc.ca/news/business/transmountain-first-nations-support-1.3866324
'We are winning': Several B.C. First Nations celebrate Trans Mountain victory	Larsen, K	CBC News	2016	https://www.cbc.ca/news/canada/british-columbia/trans-mountain-first-nations-federal-court-1.4804734
Trans Mountain pipeline expansion granted environmental certificate by B.C. government	n/a	CBC News	2017	https://www.cbc.ca/news/canada/british-columbia/trans-mountain-environmental-certificate-1.3931489
Buying and expanding Trans-Mountain pipeline not a violation of Indigenous rights, says minister	Barrera, J	CBC News	2018	https://www.cbc.ca/news/indigenous/trans-mountain-pipeline-bc-first-nations-1.4682395
We are winning': Several B.C. First Nations celebrate Trans Mountain victory.	Laneela, M.	CBC News	2018	https://www.cbc.ca/news/canada/british-columbia/trans-mountain-first-nations-federal-court-1.4804734
In a major victory for Trans Mountain, Federal Court dismisses Indigenous appeal of project's approval.	Tasker, J.	CBC News	2018	https://www.cbc.ca/news/politics/federal-court-appeal-trans-mountain-1.5450748
Will First Nations in B.C. benefit or suffer from the Trans Mountain buyout? Depends on who you ask	McCue, D.	CBC News	2018	https://www.cbc.ca/radio/checkup/will-first-nations-in-b-c-benefit-or-suffer-from-the-trans-mountain-buyout-depends-on-who-you-ask-1.4690132

'A tough lesson': Do First Nations hold trump card on Trans Mountain debate?	Proctor, J	CBC News	2018	https://www.cbc.ca/news/canada/british-columbia/first-nations-kinder-morgan-transmountain-1.4615263
In a major victory for Trans Mountain, Federal Court dismisses Indigenous appeal of project's approval	Tasker, J.P.	CBC News	2020	https://www.cbc.ca/news/politics/federal-court-appeal-trans-mountain-1.5450748
Supreme Court dismisses First Nations' challenge against Trans Mountain pipeline	n/a	CBC News	2020	https://www.cbc.ca/news/canada/british-columbia/trans-mountain-pipeline-challenge-bc-first-nations-supreme-court-of-canada-1.5634232
First Nations, environmentalists vow 'long battle' on approved Kinder Morgan pipeline	Johnson, L	CBC News	2016	https://www.cbc.ca/news/canada/british-columbia/kinder-morgan-approval-bc-1.3873267
Alberta Energy Regulator suspends environmental monitoring for oilpatch over COVID-19	Weber, B.	CBC News	2020	https://www.cbc.ca/news/canada/edmonton/alberta-energy-regulator-suspends-environment-monitoring-for-oilpatch-over-covid-1.5578994
B.C. First Nations disappointed Supreme Court won't hear their appeal of Trans Mountain project	Bellrichard, C.	CBC News	2020	
Ministerial Panel on Kinder Morgan Pipeline Actually Nails It	Wilt, J	The Narwhal	2016	https://thenarwhal.ca/ministerial-panel-kinder-morgan-pipeline-actually-nails-it/
The death of Trans Mountain pipeline signals future of Indigenous rights: Chiefs	Lavoie, J.	The Narwhal	2019	https://thenarwhal.ca/death-trans-mountain-pipeline-signals-future-indigenous-rights-chiefs/
Why we'll be talking about the Trans Mountain pipeline for a long while yet	Thomson, J.	The Narwhal	2019	https://thenarwhal.ca/why-well-be-talking-about-the-trans-mountain-pipeline-for-a-long-while-yet/
Supreme Court rejects Trans Mountain legal challenges. So, what's next?	Cruickshank, A.	The Narwhal	2020	https://thenarwhal.ca/supreme-court-rejects-trans-mountain-legal-challenges-so-whats-next/
B.C. flooding exposes pipeline, raises concerns along Trans Mountain route	Anderson, D.	The Narwhal	2021	https://thenarwhal.ca/trans-mountain-pipeline-flood/

Trudeau's Trans Mountain pipeline investment 'clearly' not profitable: watchdog	Bulowski, N.	The Narwhal	2022	https://thenarwhal.ca/trans-mountain-trudeau-pbo/
What is the Trans Mountain pipeline — and why should I care?	Meyer, C.	The Narwhal	2023	https://thenarwhal.ca/trans-mountain-pipeline-explainer/
'TD crew' got heads up Canada would obscure involvement in Trans Mountain pipeline bailout	Meyer, C.	The Narwhal	2023	https://thenarwhal.ca/trans-mountain-td-bank-loan/
The new Trans Mountain pipeline is now flowing. Could an Indigenous Rights case impact operations?	Habib, A.	The Narwhal	2024	https://thenarwhal.ca/trans-mountain-launch-indigenous-rights/
Trans Mountain paid McKinsey over $32M to save money as pipeline costs exploded	De Souza, M	The Narwhal	2024	https://thenarwhal.ca/trans-mountain-paid-mckinsey/
Indigenous chiefs blast Ottawa's Trans Mountain consultation efforts ahead of key regulatory decision	Snyder, J	Calgary Herald	2019	https://calgaryherald.com/news/indigenous-chiefs-blast-ottawas-trans-mountain-consultation-efforts-ahead-of-key-regulatory-decision/wcm/97e9a11c-0c3b-4392-a050-6ee3e92d9340
Experts to advise Ottawa as it consults First Nations that want stake in TMX	s/a	Calgary Herald	2019	https://calgaryherald.com/pmn/news-pmn/canada-news-pmn/experts-to-advise-ottawa-as-it-consults-first-nations-that-want-stake-in-tmx/wcm/7385185b-b750-49c2-b62e-474fe8439218
New Indigenous coalition aims to buy a piece of Trans Mountain pipeline	Varcoe, C.	Calgary Herald	2019	https://calgaryherald.com/business/energy/varcoe-new-indigenous-coalition-aims-to-buy-a-piece-of-trans-mountain-pipeline
Corbella: Project Reconciliation Indigenous TMX deal now on Trudeau's desk	Corbella, L.	Calgary Herald	2019	https://calgaryherald.com/news/local-news/corbella-project-reconciliation-indigenous-tmx-deal-now-on-trudeaus-desk
Kenney calls TMX court ruling a 'victory for common sense'	Hudes, S	Calgary Herald	2020	https://calgaryherald.com/news/politics/victory-for-common-sense-kenney-praises-courts-ruling-on-trans-mountain-challenge

With legal challenges to Trans Mountain exhausted, is civil disobedience next?	Morgan, G.	Calgary Herald	2020	https://calgaryherald.com/commodities/energy/with-its-legal-hurdles-all-but-cleared-tmxs-challenges-move-to-different-court/wcm/2a2c226e-9601-4f71-9f5e-6b3d41251970/
Varcoe: 'Cross my fingers' — Alberta's premier concerned about potential two-year delay of Trans Mountain expansion	Varcoe, C	Calgary Herald	2023	https://calgaryherald.com/opinion/columnists/varcoe-danielle-smith-concerned-possible-trans-mountain-delay
Federal regulator reveals reasons for changing route of Trans Mountain pipeline	The Canadian Press	Calgary Herald	2023	https://calgaryherald.com/news/local-news/regulator-provides-reasons-trans-mountain-route-change-ruling/wcm/712e561e-49f4-4f7e-8d22-f1c9c1dbb25d
With pipeline facing new delay, Trans Mountain ponders how to remove 'obstruction'	Stephenson, A	Calgary Herald	2024	https://calgaryherald.com/business/energy/trans-mountain-ponders-obstruction-removal-construction-delay
Emissions cap could hurt Trans Mountain pipeline sale price, Calgary Chamber says	Stephenson, A	Calgary Herald	2024	https://calgaryherald.com/business/energy/calgary-chamber-emissions-cap-could-hurt-trans-mountain-pipeline
Federal government faces potential loss if Trans Mountain pipeline sold: PBO	s/a	Calgary Herald	2024	https://calgaryherald.com/business/energy/federal-government-faces-potential-loss-if-trans-mountain-pipeline-sold
Varcoe: Trans Mountain eyes capacity increase, expects to move more oil abroad if U.S. tariffs hit	Varcoe, C.	Calgary Herald	2025	https://calgaryherald.com/opinion/columnists/varcoe-us-tariff-threat-proves-value-trans-mountain-expansion-canada
First Nations vow to kill Kinder Morgan pipeline expansion with lawsuits	McSheffrey, E.	National Observer	2016	http://www.nationalobserver.com/2016/05/19/news/first-nations-vow-kill-kinder-morgan-pipeline-expansion-lawsuits
Kinder Morgan lawyer explains company doesn't want protesters to get hurt	Waisman, D.	National Observer	2018	https://www.nationalobserver.com/2018/03/14/news/kinder-morgan-lawyer-explains-company-doesnt-want-protesters-get-hurt
Thousands rally against Kinder Morgan after court injunction	Waisman, D.	National Observer	2018	https://www.nationalobserver.com/2018/03/10/news/thousands-rally-against-kinder-morgan-after-court-injunction

Kinder Morgan just told its shareholders how it persuaded the Trudeau government to pay billions for a pipeline no one else wanted to buy	De Souza, M	National Observer	2018	https://www.nationalobserver.com/2018/08/08/analysis/kinder-morgan-just-told-its-shareholders-how-it-persuaded-trudeau-government-pay
The political calculus of Rachel Notley, John Horgan and Justin Trudeau.	Wood, S.	National Observer	2018	https://www.nationalobserver.com/2018/05/29/opinion/political-calculus-rachel-notley-john-horgan-and-justin-trudeau
Trans Mountain to restart pipeline construction within 30 days	McIntosh, E. & Wood, S.	National Observer	2019	https://www.nationalobserver.com/2019/08/21/news/trans-mountain-restart-pipeline-construction-within-30-days?utm_source=First+Peoples+Law+Blog&utm_campaign=49ffc87d9d-EMAIL_CAMPAIGN_2019_07_10_09_19_COPY_01&utm_medium=email&utm_term=0_84105b31a3-49ffc87d9d-107047953
As Trans Mountain gets shovels ready for pipeline, First Nations vow to protect territory.	Wood, S.	National Observer	2019	https://www.nationalobserver.com/2019/06/19/news/trans-mountain-gets-shovels-ready-pipeline-first-nations-vow-protect-territory
First Nations renew court battle to stop Trudeau and Trans Mountain	Wood, S.	National Observer	2019	https://www.nationalobserver.com/2019/07/09/news/first-nations-renew-court-battle-stop-trudeau-and-trans-mountain
Bad Dreams on Burnaby Mountain: Threats of Oil Spills, Explosions and Killer Firestorms	Sandborn, T.	National Observer	2020	https://www.nationalobserver.com/2020/10/05/opinion/bad-dreams-burnaby-mountain-threats-oil-spills-explosions-and-killer-firestorms
TMX pipeline and B.C.'s climate tragedy	Woodside, J.	National Observer	2021	https://www.nationalobserver.com/2021/11/18/news/tmx-pipeline-and-bcs-climate-tragedy
Taxpayers likely to eat $17 billion of Trans Mountain's debt, report says	Bulowski, N.	National Observer	2022	https://www.nationalobserver.com/2022/10/06/news/taxpayers-likely-eat-17-billion-trans-mountain-debt-report
Energy regulator gives Trans Mountain a 'break' on possible oil spill costs, say MPs, environmentalists	Bulowski, N.	National Observer	2022	https://www.nationalobserver.com/2022/08/23/news/energy-regulator-gives-trans-mountain-break-possible-oil-spill-costs

Appendix 2. Informed consent form

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Information letter for participants

This information sheet provides a description of this research project and your role and rights as a participant if you agree to take part. Before you decide to participate, please read the following information carefully and feel free to ask the researcher any questions.

General information about the researcher

Name: Emiliano Castillo Jara
Position: Doctoral researcher
Affiliation: Governance & Sustainability Lab, University of Trier, Germany
Research project's title: The contested nature of tar sands spaces in Canada.
Supervisor: Prof. Dr. Antje Bruns
Funding institution: German Academic Exchange Services (DAAD)

Purpose of the study

This research project aims to examine how spaces for tar sands extraction, distribution, and consumption across Canada are configured, governed, and contested. Based on political ecology and energy geography perspectives, this work further develops the concept of energyscapes to explore the interplay of competing agendas, discourses, identities, and worldviews in shaping uneven tar sands spaces. Specifically, using qualitative research methods, this research examines the controversy around the Trans Mountain Pipeline Expansion Project in British Columbia. It seeks to understand the multiple perspectives around the conflict over this project and explore possible ways to address the socio-environmental challenges associated with tar sands operations.

Funding

This research project is funded by the German Academic Exchange Service (DAAD), which does not influence the design, conduct, or publication of the research.

Conflict of interest

There is no actual or potential conflict of interest on the part of the PhD researcher, the funding institution, or the University of Trier.

Procedures

Because of your expertise and experience in the discussion regarding the socio-economic and environmental impacts of tar sands development in Canada, you will be asked to take part in semi-structured interviews and informal conversations about your perspective on this topic. To maintain confidentiality, interviews will only be held between the doctoral researcher and the interviewee. Consent will be revisited before each interview. Subsequent interviews may be scheduled if needed. Two types of interviews will be conducted:

1. Face-to-face interviews with an approximate duration of 30 to 45 minutes. Interviews will take place at places where participants feel safe and comfortable.

2. Online or telephone interviews with an approximate duration of 25 to 35 minutes.

In both cases, if participants agree, interviews will be audio-recorded. When written consent is not culturally appropriate, oral consent must be obtained and documented in the research.

Voluntary participation

Your participation in this research project is voluntary. You may refuse to answer individual questions or withdraw from the research project at any time, without giving a specific reason. Withdrawing from the project will not affect you, and your information will be deleted. After the interview, and before the inclusion of information in academic articles you can ask the researcher to add, modify, or delete a part or parts of the audio recordings, review the transcript of the interviews, the quotations that will appear in the final version of the articles, and a summary of research results. After an academic article has been reviewed and accepted by a journal, data withdrawal will not be possible. A digital copy of a published article can be requested via email.

Risks, stress, discomfort.

Tar sands development is a highly controversial topic in Canada. While it generates revenues for the Canadian economy, it also affects the environment, livelihoods, land rights, health, and culture. Thus, questions regarding your personal experiences and perceptions on this topic might be sensitive. If you experience discomfort, you can refuse to answer individual questions or withdraw from interviews at any time without giving a reason. Confidential data revealed during the interviews will not be disclosed.

Benefits

Research findings will contribute to academic discussions on the multi-scalar and spatial dimensions of tar sands development across Canada. More specifically, the findings aim to advance understandings of the competing perspectives, discourses, and knowledge claims articulated and mobilized by actors to enhance or contest the implementation of pipeline projects. Results are also intended to inform energy policies that address existing inequalities and injustices around tar sands development.

Confidentiality

All gathered information will be kept confidential, de-identified, and used only for research purposes, that is, the publication of articles in peer-reviewed journals. Participants will not be identified in any publications resulting from this project or in conference presentations unless they agree. They can also decide if their information can be quoted in research outputs. Only the doctoral researcher will have access to this information. All digital files, audiotapes, transcripts, and other information will be kept on his password-protected laptop and desktop computer in his office at the University of Trier. Data will be encrypted, de-identified, and stored on the researcher’s personal computer for 5 years after completion of the research project. When publishing in scientific journals, researchers are encouraged to share their research data and store it in publicly accessible repositories to support openness and transparency in the exchange of knowledge and information. This refers to the minimal dataset required to support the central findings of a published paper. Where ethical, legal, or privacy issues are present, data will not be shared. The researcher will ensure that the data shared is used in accordance with participants' consent. After 5 years, all data will be deleted or destroyed.

Contact information

If you have any questions regarding the research project, you can contact me at any time.

I have listed my Supervisor's contact information, Prof. Dr. Antje Bruns, whom you can contact to verify its accuracy.

Prof.Dr. Antje Bruns
Governance & Sustainability Lab

University of Trier
Campus II, Behringstraße 21, 54296 Trier
E-Mail: brunsa@uni-trier.de

Free and Informed Consent Form

I, _____, have carefully read the information for this research project. The doctoral researcher, Emiliano Castillo Jara, has explained this project to me and answered all my questions. If I have additional questions, I can contact him at any time.

Please put a checkmark on the corresponding line(s) that grant me your permission to:

I grant permission to be audiotaped
I wish to remain anonymous
You may quote me

I understand that I can decline or withdraw from the research project at any time without negative consequences. My signature below verifies that I have agreed to participate in this project and that I have received a copy of the Information Letter and the Informed Consent Form for my record.

Participant

_____
Name

_____
Signature

_____
Date

Researcher

_____
Name

_____
Researcher's signature

_____
Date

Appendix 3. Coded themes for the net-zero discourse analysis

1. Main themes

Net-zero, climate change mitigation and Carbon Capture, Utilization, and Storage (CCUS)

Subthemes

- Emissions reduction through CCUS in fossil fuel production
    - Energy scenarios and future projections of fossil fuel-related emissions
        - Significant reductions through carbon capture, utilization, and storage (CCUS) by 2050.
    - Public-private funding mechanisms for the development of CCUS.
- Limitations and risks of CCUS
    - Optimistic and uncertain assumptions about the potential emissions reduction of CCUS
        - Omissions about the emissions involved in the construction and operation of CCUS
    - Prioritization of corporate-owned, large-scale technologies over other energy systems.
        - Maintenance of fossil fuel production and consumption patterns.

2. Main themes

Economic growth opportunities through net-zero

Subthemes

- Economic growth opportunities
    - Competitiveness of Canada's net-zero economy.
        - Compatibility between the energy transition and continued fossil fuel extraction
        - Economic importance of the oil industry to Canada
- Estimated job creation in the net-zero transition
- Net-zero targets
    - Accountability and transparency of emissions reduction goals
    - Net-zero targets as a primary vehicle for private and state investments in CCUS
    - Corporate actors in the fossil fuel and financial sectors making net-zero pledges
    - Contradictions of net-zero targets
        - Lack of inclusion of the life-cycle emissions of fossil fuel development
        - Voluntary nature of targets and their lack of state regulation
        - Concealment of the historical responsibility of corporate and state actors for climate change

        - Greenwashing accusations

3. Main themes

Relations between Indigenous peoples and the Federal Government concerning the net-zero policy.

Subthemes

- Type of relationships between the Federal Government and Indigenous peoples.
    - Reconciliation between Canada and Indigenous peoples
        - Indigenous peoples' rights to their lands, territories, and resources.
    - Indigenous climate leadership
        - Inclusion of Indigenous peoples in climate decision-making processes.
- Indigenous economic reconciliation
        - Net-zero as an economic opportunity for Indigenous peoples to assert self-determination and influence land use and energy decision-making processes.
- Anti-colonial and anti-capitalist versions of Indigenous self-determination
    - Colonial representation of Indigenous peoples and their lands
        - Commodification of land and ecosystems
        - Indigenous land appropriation and occupation for the development of net-zero projects
        - Violation of Indigenous land rights is recognized by national and international legislation as well as traditional laws.
- Impacts and risks of CCUS downplayed in official net-zero discourses
    - Water and air pollution, health damages, deforestation, among others.

Appendix 4. List of documents used in the discourse analysis

Number	Type of document	Title	Author	Year
1	Report	Getting on Track. A primer on challenges to reducing carbon emissions in Canada's oilsands	Al-Aini, E., Severson-Baker, C., & Gorski, J.	2021
2	Newspaper article	Governments are investing billions into carbon capture in the Prairies. Here's what you need to know	Anderson, D	2022
3	Brief	Study on An Act respecting transparency and accountability in Canada's efforts to achieve net-zero greenhouse gas emissions by the year 2050 (Bill C-12)	Assembly of First Nations	2021
4	Opinion piece	Why did the Pathways Alliance scrub its website? New Greenwashing Rules Explained	Belliveau, E	2024
5	News	Pathways Alliance presents Fostering Indigenous Inclusion and Economic Empowerment in the Business Community.	Calgary Chamber	2023
6	Future scenario	Canada's Energy Future, Scenarios and Assumptions	Canada Energy Regulator	2023
7	Report	Canada's Net-Zero Future	Canadian Institute for Climate Choices	2021
8	News	Premier Danielle Smith responds to Clean Energy Regulations	Central Alberta	2023
9	Report	The big con: How big polluters are advancing a "net zero" climate agenda to delay, deceive, and deny	Corporate Accountability et al.,	2021
10	Issue paper	Does Canada's net-zero math add up? The emissions we count and where we count them matters in the Strategic Assessment of Climate Change	Dusk, N	2021
11	Plan	2030 Emissions Reduction Plan. Canada's Next Steps for Clean Air and a Strong Economy,	Environment and Climate Change Canada	2022
12	Conference report	The Only Road to Net Zero Runs Through Indigenous Lands": Indigenous equity ownership of major projects	First Nations Major Projects Coalitions	2022
13	Report	Chasing Carbon Unicorns: The deception of carbon markets and "net zero	Friends of Earth et al.,	2021
14	Law	Canadian Net-Zero Emissions Accountability Act	Government of Canada	2022

15	Communication	Canada's Partnership with Indigenous Peoples on Climate	Government of Canada	2024
16	Strategy document	Capturing the opportunity: A Carbon Management Strategy for Canada	Government of Canada	2024
17	Plan	Emissions Reduction Plan	Government of Canada	2022
18	News release	Government of Canada and Assembly of First Nations chart a joint path for new and updated priorities on climate action.	Government of Canada	2023
19	News release	Government of Canada legislates climate accountability with first net-zero emissions law.	Government of Canada	2021
20	Brief communication	Net-zero emissions by 2050	Government of Canada	2023
21	Discussion document	Options to cap and cut oil and gas sector greenhouse gas emissions to achieve 2030 goals and net-zero by 2050	Government of Canada	2022
22	Brief	Principles respecting the Government of Canada's relationship with Indigenous peoples	Government of Canada	2017
23	Roadmap	Roadmap for the Decarbonization of Canada's Oil and Gas Sector	Government of Canada	2023
24	Report	Oil and Gas Sector Emissions: Subsidies and emissions reduction goals. The case of the oil sands sub-sector and CCUS subsidies	Gooderman, D.	2022
25	Opinion Piece	Ottawa should abandon unfeasible and damaging 'net-zero' plan	Green, K.	2024
26	Opinion Piece	Net-zero—the pathway to Canadian decline	Green, K.	2022
27	Perspective	Accountable to Who? ICA's perspective on the Canadian Net Zero Emissions Accountability Act	Indigenous Climate Action	2021
28	Report	Indigenous Resistance against Carbon	Indigenous Environmental Network et al.,	2021
29	Brief	The Canadian Oil Sands Playbook: An Analysis of Pathways Alliance	Influence Map	2024
30	Report	Report 6—Canadian Net-Zero Emissions Accountability Act—2030 Emissions	Office of the Auditor General of Canada	
31	Plan	Our Plan	Pathways Alliance	2020
32	Speech	Prime Minister's remarks on the Canadian Net-Zero Emissions Accountability Act,	Prime Minister of Canada	2020
33	Speech	Process Document for Ongoing Engagement on the Pan-Canadian Framework on Clean Growth and Climate Change	Prime Minister of Canada	2016
34	Investment report	92 to Zero: How economic reconciliation can power Canada's climate goals	RBC	2022
35	Research paper	Indigenizing Climate Policy in Canada: A Critical Examination of the Pan-Canadian Framework and the ZéN RoadMap	Reed, G., et al.,	2021
36	Report	Just Transition Guide	Sacred Earth Solar et al.,	2023

37	Opinion piece	Feds ‘net-zero’ agenda is an anti-growth agenda: Chris Sankey for Inside Policy.	Sankey, Chris	2023
38	Newspaper article	Alberta will not recognize federal net-zero mandates: Premier Danielle Smith.	Tran, P.	2023
39	Brief	Tsleil-Waututh Nation Written Submission on Bill C-12	Tsleil-Waututh Nation	2021
40	Comment	Indigenous concerns with using carbon dioxide removal to achieve Canada’s net-zero target A submission to the Standing Senate Committee on Energy, the Environment, and Natural Resources regarding Bill C-12	Tssessaze, L., Lameman, C., & Lepine, M.	2021
41	Informational report	Indigenous Leadership and Opportunities in the Net Zero Transition	von der Porten, S., Podlasly, M., & Csicsai, P. Commissioned by First Nations Major Projects Coalition	2022
42	Report	Net Zero or Net Reckless? What is the appropriate role for negative emissions technologies in meeting Canada’s climate targets?	West Coast Environmental Law	2022

Appendix 5. Thematic guide for interviews and informal conversations

Due to the dynamic nature of street protests and the impracticality of obtaining written consent, oral informed consent was obtained from participants before conversations. Protest attendees were informed about the research goals, the voluntary nature of their participation, and the measures taken to ensure anonymity. The following thematic guideline describes the main questions asked during informal conversations during fieldwork in Canada in 2022 and 2023. This guide is organized around main topics to ensure that the dialogues remain grounded in our analytical and methodological approaches while allowing for the different participants' perspectives to emerge. In this sense, specific questions were asked of each participant to adapt the conversations and interviews to their unique contexts and circumstances.

Motivations for participation

- What motivates you to join the protests against the TMX project?
- Is this your first time attending a protest/demonstration, or have you previously participated in anti-pipeline protests?
- Are you part of a group or an organization opposed to the TMX? If so, could you please talk about the goals of this organization/group? What strategies has this group/organization used to stop the pipeline?
- Could you please talk about your campaign against the TMX project? What strategies have been proven more successful and why? And what strategies have not worked as you planned?
- What does a just energy transition in the oil sector look like to your organization?

Indigenous self-determination in the TMX conflict

- How do you see the connection between the TMX project and Indigenous peoples' land and self-determination rights?
- What role, if any, do you think Indigenous peoples' rights should play in decision-making procedures about the TMX?
- How do you perceive the role of your organization/group in relation to the land claims of First Nations along the pipeline route?
- Land use for tar sands development remains a contested and unresolved issue. While the Canadian government claims to include Indigenous peoples in the development of the net-

zero policy, Indigenous groups argue that the Canadian government has not considered their concerns over fossil fuel operations and net-zero projects on their lands. As a result, they contend that the Canadian government has neither adhered to the principles of free, prior, and informed consent (FPIC) enshrined in Canadian law and international legislation nor recognized Indigenous laws. How and to what extent can net-zero address the historical, present, and potential inequalities experienced by Indigenous peoples related to tar sands operations?

Concerns about the impacts and risks of the TMX

- What specific concerns do you have regarding the construction of the TMX?
- How does the TMX project impact your daily life, your community, or your connection with the environment?
- What data, sources or experiences have informed your understanding of the impacts and risks of the TMX?

Canada's climate policy

- How do you perceive this pipeline project in the context of global climate change?
- How do you see the role of the federal government and the Alberta government in managing the tensions between economic development and their climate commitments?
- In your view, what policies or actions do you think the federal government, the Alberta government, and the fossil fuel industry should adopt to reduce fossil fuel-related emissions?
- What do you think you/your organization/group/grassroots movements/communities could do to influence energy/climate decision-making processes?
- According to the Canadian Net-Zero Emissions Accountability Act, the Federal Government can provide the opportunity, if deemed necessary, to the provinces, territories, Indigenous peoples, and citizens to make observations regarding the emissions reduction plans. To what extent can these actors, particularly Indigenous peoples potentially affected by net-zero projects in the oil sector, influence the federal plans to assess the impacts of such projects?
- The oil industry, including the Oil Sands Pathways to Net Zero Initiative, has not yet developed detailed plans to cut GHG emissions despite adopting net-zero targets. How and to what extent can federal regulatory agencies in Canada regulate and supervise the practices of the oil industry to ensure that they meet their net-zero targets?

Appendix 6. Interview and informal conversation list

Participant ID	Date	Location/Event	Self-identified Role	Content of the conversation
1	22 September 2022	Victoria, BC	Fundraising Campaign Director RAVEN (Respecting Aboriginal Values & Environment Needs)	Motivations for opposing the TMX Perceived risks and impacts of the pipeline Strategies against the TMX Canada's energy policy
2	22 September 2022	Burnaby, BC	Representative of Climate Convergence	Motivations for opposing the TMX Perceived risks and impacts of the pipeline Strategies against the TMX
3	22 September 2022	Vancouver, BC	Member of Climate Convergence	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
4	22 September 2022	Vancouver, BC	Lead Campaigner, Wilderness Committee	Motivations for opposing the TMX Perceived risks and impacts of the pipeline Strategies against the TMX Canada's energy policy
5	22 August 2022	Vancouver, BC	Member of B.R.O.K.E	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
6	22 August 2022	Vancouver, BC	Member of B.R.O.K.E	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
7	22 August 2022	Vancouver, BC	Member of Mountain Protectors	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
8	22 August 2022	Vancouver, BC	Member of Mountain Protectors	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
9	22 August 2022	Vancouver, BC	Representative PIPE UP Network	Motivations for opposing the TMX Perceived risks and impacts of the pipeline Strategies against the TMX
10	22 August 2022	Vancouver, BC	Representative Stand. Earth	Motivations for opposing the TMX Perceived risks and impacts of the pipeline

				Strategies against the TMX
12	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
13	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
14	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
15	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
16	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
17	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
18	22 September 2022	Burnaby, BC	Protestor	Motivations for opposing the TMX and perceived risks and impacts of the pipeline
20	15 May 2023	Calgary, AB	University of Calgary Professor	Canada’s net-zero policy
21	16 May 2023	Calgary, AB	University of Calgary Professor	Canada’s net-zero policy
22	23 May 2023	Calgary, AB	University of Calgary Professor	Canada’s net-zero policy
23	24 May 2023	Calgary, AB	University of Calgary Professor	Canada’s net-zero policy
24	27 May 2023	Calgary, AB	University of Calgary Professor	Canada’s net-zero policy
25	20 June 2023	Online	Energy Policy Expert Pembina	Canada’s net-zero policy
26	22 June 2023	Online	Energy Policy Expert IIS	Canada’s net-zero policy
27	23 June 2023	Online	Energy Policy Expert IIS	Canada’s net-zero policy

CV/Resume

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Berufserfahrung

Seit 12.2025	**Freiberuflicher Analyst** Remote/Mexiko Konzeption und Redaktion interner Analysen zur strategischen Beratung von Kunden im Energie- und Nachhaltigkeitssektor.
11.2018 – 01.2026	**Doktorand/Lehrbeauftragter im Bereich Raum-und Umweltwissenschaften** Universität Trier/Deutschland Promotionsthema: Konflikte um fossile Infrastruktur in Kanada Disputation ausstehend • Eigenverantwortliche Steuerung vom Forschungsprojekt zur Energiewende, von der Fördermittelakquise bis zur Projektumsetzung • Aufbereitung und Veröffentlichung von Forschungsergebnissen zu den Themen Energieproduktion und Nachhaltigkeit in Fachzeitschriften sowie deren Präsentation auf Konferenzen • Eigenständige Planung, Konzeption und Durchführung von Lehrveranstaltungen zu räumlichen Aspekten der Energiewende und globalen Energiesystemen
07.2016 – 07. 2018	**Innovations- und Fördermittelberater** Innovatio/Mexiko-Stadt • Analyse und Aufbereitung von über 110 F&E-Vorhaben als fundierte Entscheidungsgrundlage für die Beantragung öffentlicher Mittel. • Erarbeitung von Entscheidungsvorlagen für F&E-Projekte sowie Identifikation passfähiger Förderinstrumente • Aufbau und Begleitung von über 50 industrie-wissenschaftlichen Projektpartnerschaften zur Förderung von Wissens- und Technologietransfer
04. 2015 – 03. 2016	**International Business Consultant** Promexico und Becomar/USA und Mexiko • Durchführung tiefgreifender Markt-, Wettbewerbs- und Trendanalysen für 10 Unternehmen als Basis für deren US-Expansion • Strategischer Aufbau und Management eines Portfolios aus fünf internationalen Geschäftspartnerschaften

- Erstellung von Entscheidungsvorlagen für das mexikanische Wirtschaftsministerium zur Stärkung der bilateralen Beziehungen zwischen Mexiko und den USA

01.10.2010 – 01.10.2011 **Studentische Mitarbeiter im Forschungsprojekt „Indikatoren für nachhaltige Transportsysteme und die sozioökologische Bewertung von Biokraftstoffen: Eine Fallstudie aus Mexiko“**
Interdisziplinäres Zentrum für Forschung in Wissenschaft und Geisteswissenschaften, Nationale Autonome Universität von Mexiko

- Literaturrecherche und systematische Analyse nationaler und internationaler Biokraftstoffpolitik
- Unterstützung bei der Vorbereitung und Durchführung quantitativer und qualitativer Datenerhebung zum Mobilitätsverhalten in Mexiko-Stadt
- Erstellung von Präsentationen und Mitverfassen Publikationen zu den sozioökologischen Folgen der Nutzung von Palmöl-Biodiesel und Zuckerrohr-Ethanol in Mexiko
- Mitwirkung bei der Organisation von Workshops und Tagungen zum Thema nachhaltige Mobilität in Mexiko-Stadt

Ausbildung

2011 – 2014	M. A. Internationale Beziehungen Nationale Autonome Universität von Mexiko Note: 1,0
2006 – 2010	Bachelor Internationale Beziehungen Nationale Autonome Universität von Mexiko Note: 1,0

Peer-reviewed Publikationen

2026	Castillo Jara, E & Bruns, A. The production of unequal energyscapes: contested colonial spaces for tar sands development. Journal of Political Ecology (Bevorstehend).
2026	Advancing Energy Justice Through Litigation Against the Proyecto Integral Morelos in Central Mexico. In: Agbaitoro, G. and Ogbumgbada, C. (eds). Energy Justice Litigation: International and Domestic Perspectives. Springer (Bevorstehend).
2025	Making fossil fuel futures: The discursive formation of Canada's net-zero imaginary. Energy Research & Social Science, 127,104182, https://doi.org/10.1016/j.erss.2025.104182
2024	The Discursive Production of Hydrogen Imaginaries and their Spatialities in France and Germany. In: Meyer, T., Weber, F. (eds) Energy Geographies: Negotiating the French-German Interface. Regionale Geographien | Regional Geographies. Springer VS, Cham. https://doi.org/10.1007/978-3-031-69797-5_9
2024	Stephani, E., & Castillo Jara, E. Collaborative renewable development in Chile: a new path forward for the Mapuche. Journal of Energy & Natural Resources Law, 42(3), 381–401. https://doi.org/10.1080/02646811.2024.2356989
2022	Castillo Jara, E., & Bruns, A. Contested notions of energy justice and energy futures in struggles over tar sands development in British Columbia, Canada. Futures. 138. 102921. http://10.0.3.248/j.futures.2022.102921

Lehre und Betreuung

SS 2019 – SS 2022	Vorlesung und Übung Energy Geographies Fach Raum- und Umweltwissenschaften, Universität Trier

Ausgewählte Konferenzbeiträge

04.11.2025	Das Versprechen der negativen Emissions-Technologien: Fossile Kontinuitäten und Ungleichheiten in der Klimapolitik Universität Trier, Online Lectures for Future
25.07.2024	Stephani, E., & Castillo Jara, E. Collaborative renewable development in Chile: a new path forward for the Mapuche. Symposium to Launch the Journal of Energy and Natural Resources Law Special Issue on Energy Justice Discourse: Global South Perspectives.University of Essex, England
11.06.2024	The political ecology of Canada's net-zero imaginary. Political Ecology Network (POLLEN) Konferenz. Lund University, Schweden
07.06.2024	Netto-Null als koloniale Zukunftsvorstellung im Kontext der kanadischen Energiewende. Energiekrisen/Energiezukünfte: Räumliche Perspektiven auf nachhaltige Transformationen. AK Geographische Energieforschung. Universität Marburg, Deutschland
12.10.2023	Contested hydrogen imaginaries in France and Germany. Franco-German Dialogue on Energy Geography: Workshop for early career scholars. Université Haute-Alsace, Frankreich
22.06.2023	Conflicted perspectives of energy justice: Conflicts over tar sands infrastructures in Canada. World Energy Justice Congress Université de Pau et des Pays de l'Adour, Frankreich
16.06.2023	Canada's net-zero policy and the reproduction of climate colonialism. EAN/FAN Workshop: Renewable Energy & Post-carbon Futures Instituto Universitário de Lisboa, Portugal
27.09.2022	Competing notions of energy justice around tar sands development in Canada. Fossil Fuel Supply and Climate Change Conference University of Oxford, England

Ausgewählte Weiterbildungskurse

09-11.04.2025	Early Career Writing & Research Skills Workshop in Energy Justice United Nations University, Brügge
29.04-27.05.2025	Academic Writing for Doctoral Candidates. Universität Trier
17.11.2023	Methodische und methodologische Herausforderungen in der qualitativen Forschung. Universität Trier
10.10-07.12.2022	Online Academic Writing Course in English for Research Publications University of Witwatersrand, Südafrika

Stipendien

01.10.2024 – 01.03.2025	STIBET-Stipendium des Deutschen Akademischen Austauschdienstes (DAAD).Universität Trier/ DAAD
2023	Reisestipendium der Stiftung für Kanadastudien in Deutschland Stiftung für Kanadastudien, Deutschland
01.10. 2022-31.09.2024	Promotionsstipendium des Nationalen Rates für Wissenschaften und Technologien in Mexiko CONAHCYT.Mexiko
01.11.2022-31.01.2023	Kurzzeitstipendium der Forschungsinitiative Rheinland-Pfalz (FI/St 2022-13) Deutschland
01.10.2018-31.09.2022	Forschungsstipendium für Promotionsprogramme in Deutschland, DAAD (57381412) Deutschland

Sprachen

Spanisch	Muttersprache
Englisch	C2
Deutsch	C2

IT-Kennnisse

	MS Office: Word, Excel, PowerPoint
	Datenanalyse-Software: MAXQDA
	Datenbank & Recherchetools: Citavi, Zotero
	Grafikdesignprogramme: Movly, Prezi, Piktochart, Powtoon, Canva