An Ecological Habitus on the oilfield?
Environmental concerns of oilsands workers and their lifestyle social practices.

by

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A thesis submitted in partial fulfillment of the requirements for the degree of

Master of Arts

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Abstract

In this case study research I interviewed direct employees of oilsands mines in Northern Alberta about their environmental concerns, how their concerns translate into their day-to-day lives, how they think about climate change, green energy technologies, and a world beyond oil use. I use the concept of ecological habitus to examine the environmental dispositions of people working in oilsands mines. This study furthers our understanding of the concept of ecological habitus by examining the ecological habitus of those who are not typically thought of as being pro-environment in their attitudes or actions. It also recasts the conversation about pro-environmental behaviours away from demographic indicators and into the realm of how we understand the relationship between dominant and new ways of behaving as part of social change. While this group indicates concern for the environmental issues and climate change there was little belief that climate change would affect them where they live. While many expressed desire to move towards green energy technologies there was distrust in these technologies and whether or not decarbonisation could be achieved in an economy and a society so deeply dependent on petroleum.

Keywords: *Alberta Oilsands, Ecological Habitus, Pierre Bourdieu, Social Practice Theory, Climate Change Denial, Lifestyles, Green Technologies, Decarbonisation.*

Preface

This thesis is an original work of Amanda Cheir Evans. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Projct name: "An ecological habitus on the oilfield? The paradox of climate change and the environmental attitudes of natural resource extraction workers." No.58650, 2015. No part of this thesis has been previously published.

Dediction

I dedicate this thesis to my father, Randy Harold Evans.

Acknowledgements

I would like to thank my mom, Leane Brunhilde Evans, for all those late night phone calls and talking to me about random philosophical thoughts. If not for your own personal library, my love of books, human cultures, society, and research would not have budded. Thank you for holding on until I was done. I will meet you again somewhere, sometime, somehow, I love you.

Thank you to all who participated for graciously giving me part of your time.

Thank you to Drs Howard Ramos, Yoko Yoshida, and Lindsay DuBois (Dalhousie University), it is because of you my love for research and academic reading flourished.

Dr. Ken Caine, thank you for your guidance and support, and for casual conversations about dogs. Drs Sara Dorow and Naomi Krogman for all your helpful sugestions and encouragement. Shana Dion, and everyone at First Peoples' House who gave me community.

Glenn, thank you for the perfect amount of pressure to keep me on track, and your love. Sullivan and Titan, for keeping me grounded and being good doggos. My siblings, their spouses and kids, Grandma, Tantes, Aunts, and cousins (my clan), thank you.

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Chapter One: Introduction

Many people living in the Global North seldom contemplate the source of the fossil fuels that power their everyday lives, nor how those fossil fuels contribute to global warming or climate change.[1] Recently however, there is recognition and consensus that climate change is a problem that calls for a change in the way we view and use fossil fuels. The consequences of fossil fuel use also forces us to consider the ecological and social implications of our energy demands and how extraction damages the environment. In the Global North we struggle with having all the modern luxuries an oil-based capitalist petro-state offers while striving to achieve sustainability and preserve ecosystems for future generations. One way to look at this problem is through a micro-sociological lens where we examine how natural environments are viewed by individuals and how these views affect their everyday life interactions with natural environment. How do we understand petroleum consumption social practices in the everyday lives of individuals? How do individuals conceptualize and reconcile environmental damage and petroleum production? To explore these questions I spoke with people working in oilsands mines in northern Alberta, Canada; a group not generally imagined as a pro-environment group of individuals but a group that, nonetheless, has environment views and opinions. In this study I am interested in this group's proximity to both the production and consumption of

[1] In this thesis I use the term climate change because it points to the consequences of global warming caused by greenhouse gas emissions.

oil. By working in oilsands mining these workers have experiential and bodily knowledge of how the energy demands of a modern society affects ecosystems. This attribute gives oilsands mine workers a unique perspective compared to those who have a physical separation between their energy use and natural resource extraction. The 'oilsands' are, however, a fraught environment in many ways.

The technical term for the geological formation in northern Alberta and Saskatchewan is 'bituminous sands', but more commonly referred to as 'oilsands' and 'tarsands'. However, these two terms have been politicized; using the term 'tarsands' indicates a strong critique of its extraction, whereas the term 'oilsands' is considered to be a more neutral but supportive term that is used by industry workers and much of mainstream media (Takach, 2013; Dorow & O'Shaughnessy, 2013). For the purpose of this thesis I use 'oilsands' because the term is more widely understood than 'bituminous sands' and is perceived to be less politically problematic and divisive than 'tarsands' (Hoberg & Phillips, 2011). I also use the less political term out of respect for those who participated in this study. The term tarsands while historically correct, is used contemporarily by people who wish to position themselves against the oilsands. By using the term oilsands I positioned myself not necessarily against oilsands developments which made talking about environmental issues associated with oilsands mines easier.

Although the environment has always been societally important, prior to the environmental movement of the 1960-70s, concerns around the environment were focused primarily on the availability of natural resources. With growing interest in how societal activities impact world ecosystems there has been a noticeable shift in how

people conceptualize the human-nature relationship. This shift in mindset, referred to as the New Ecological Paradigm (NEP),[2] has been empirically observed since the 1970s where an increasing number of people view the environment as something that needs to be protected in and of its own right (Dunlap & Van Liere, 2008). Despite this shift in attitude towards the natural environment, it has also been observed that people do not necessarily behave in accordance with their professed pro-environment attitudes (Barr, 2004; Blake, 1999; Kennedy, Beckley, McFarlane & Nadeau, 2009; Kitchell, Kempton, Holland & Tesch, 2000). The dissonance between attitudes and behaviours is observed in many social contexts but is seen prominently in contemporary western societies through the attitudes and behaviours surrounding energy use (Heberlein, 2012), specifically energy derived from burning fossil fuels. In this research I explore this issue by asking those intimately involved in oil extraction how they view environmental issues related to their industry and how those views influence their everyday lives. Although there are many environmental issues associated with the extraction of petroleum energy resources, I chose this research to focus on the issue of climate change and how climate change is related to other environmental issues in the seldom-heard lives of oilsands mine workers.

Ninety-seven percent of published climate scientists are in consensus that recent changes in global climate systems are being driven by human activities (Cook et al,

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[2] The current NEP consisted of 15 key factors that range on a scale of humanistic to ecological, and query individuals' opinions on their views of overpopulation and resource availability, whether or not humans have a right to change environments for human purposes, and whether or not other life forms on this planet have the right to exist and be protected, and if the current environmental crisis is exaggerated (Carolan, 2013).

2016). Burning fossil fuels, deforestation, and destruction of wetlands are the main contributing factors to climate change (Marshak, 2008). Despite knowing that burning fossil fuels is a major cause of climate change, the production and consumption of fossil fuels is expected to increase over the next fifteen years. For example, the Canadian Association of Petroleum Producers (CAPP) estimate that by 2030 the total oil production in Canada is expected to increase from 4.16 million barrels per day (mb/d) to 5.54 mb/d (CAPP, 2016). In western Canada, where the majority of Canadian oil is produced, bituminous oilsands production is expected to increase from 2.37 to 3.67 m b/d between 2015 and 2030 (p.6), with most of the oil produced in Canada exported to the United States. In 2014 an estimated 3.4 million barrels per day (m b/d) of petroleum and petroleum products were exported to the United States and of this, 2.9 m b/d were crude oil and diluents (EIA, 2015, p.6).

Most of the oil produced in Western Canada comes from the Alberta oilsands. This region contributes to climate change in two ways. One is a direct production contribution to greenhouse gases (GHGs) in the atmosphere through the extraction, upgrading and transportation of bitumen. In 2015, Canada's total GHGs were 722 Megatonnes (Mt) of Carbon Dioxide equivalent (CO2 eq) (Government of Canada, 2017a). Over half of these emissions are produced by the transportation and Oil and Gas and sectors in Canada. Broken down by Canadian economic sectors it is reported that: 26% Oil and Gas, 24% Transportation, 12% buildings, 10% Heavy Industry, 11% Electricity, 10% Agriculture, and 7% Waste and Others (p.20). Of the 189.5 Mt CO_2 eq produced by the Oil and Gas sector, 71 Mt CO_2 eq were from extracting and upgrading

unconventional oil sources and 18.1 Mt CO_2 eq were directly from Oilsands mining and extraction (p.21). The other contribution to climate change associated with these mines is that most of the oil extracted is used to produce the fuels we consume. The transportation sector contributed 173 Mt CO_2 eq to emission rates in Canada in 2015 (p.20). Broken down, 63.2 Mt CO_2 eq were produced by freight trucks and 82.3 Mt CO_2 eq were produced by passenger cars and light trucks (p.22). These contributions to climate change are partly driven by consumer behaviour, continued demand for petroleum products, and structures in our society that keep us dependent on petroleum products. The per capita emissions rate in 2015 was 20 Mt CO_2 eq (p.19).

Research Questions and Study Objectives

In this study I ask: What is the ecological habitus of oilsands mine workers in their everyday life, and how does this influence the way they perceive and interact with their natural environment? By everyday life I mean how workers describe their work life, their home life, and how they spend their free time though hobbies and vacations. In addition, I ask, what are their social-ecological social practices and how do these social practices relate to their climate change perspectives and attitudes?

Sub-questions that guide my inquiry include the following:

a) How is climate change perceived and understood by people working on the ground in open pit mining activities on the Athabasca Oilfield?
b) How do their everyday life social practices influence their perceptions about climate change and their self-described environmental behaviours?

c) What are the ways oil extraction workers view oilsands mining operations in relation to environmental degradation?

This research contributes to better understanding climate change attitudes and environmental behaviours based on the social practices of those working in the surface mining activities of Alberta oilsands region. While oilsands mine workers are my particular research group, I am not necessarily interested in their work activities because of the environmental concequences of the work iself. Rather I focus on this group because of their intimate relationship between procuring this resource for global use, the visual consequences they may (or may not) perceive, and how this tension affects their everyday lifestyles.

I begin with an overview of the context of my study. The Alberta oilsands are more than just a geographical place where people work. It is a dynamic place where rapid change can take place leading to serious socio-economic implications. Over two years of research and data collection I watched as global oil prices crashed, conservative federal and provincial governments shifted to more liberal and social democratic governments (respectively), increased Canadian political participation in global plans to lead in climate action, a massive wildfire and evacuation of the entire city of Fort McMurray, Alberta, and the significant exit of Royal Dutch Shell from Alberta oilsands mining. All of these events affected data collection and greatly influence and shape this research and thesis. After discussing the context of my research I provide theoretical background and empirical studies that underpin this study, and conclude this chapter by discussing how my particular research question is situated within this body of work.

The Alberta Oilsands

Oil comes from three regional sources in Canada: Atlantic offshore rigs, prairie crude oil pumps (also referred to as conventional, or sweet crude) and the bituminous oilsands (non-conventional oil) in northern Saskatchewan and Alberta. The Western Canadian oilsands deposits are recognized as being the largest known oil deposits in the world holding over 174 trillion barrels of oil (Fort McMurray Tourism, 2015; Government of Alberta, 2018). However, most of this deposit is too deep too be recovered and only 165 billion barrels is proven to be recoverable using current technologies (Canadian Association of Petroleum Producers, 2017). These proven reserves are currently known to be the third largest in the world, behind Venezuela and Saudi Arabia at 300 billion and 266 billion barrels, respectively (OPEC, 2016, p.22). In Alberta, there are three oilsands deposits: the Cold Lake Oilfield, the Peace River Oilfield, and the Athabasca Oilfield, which is the largest deposit.

There are two different ways of extracting bitumen from oilsand. With in-situ extraction,[3] bitumen is extracted from wells by pumping water, steam and sometimes solvents into the ground to reduce the viscosity of the oil, allowing the bitumen to be pumped out (see Alberta Energy Regulator, 2015). The second process of bitumen extraction, a process that garners a lot of negative celebrity and media attention, is open-pit mining. The bituminous sand closest to the Earth's surface is scooped into trucks using 100-ton hydraulic shovels and transported to processing facilities that

[3] The most common in-situ extraction method used in Alberta is steam-assisted gravitational drilling or SAG-D.

systematically removes the bitumen from the sand and mixes it with naphtha then is upgraded into synthetic crude oil (Oilsands Discovery Center, 2016). This product is then shipped by pipeline, railcars, and trucks to be refined into the many petroleum and petroleum-based products we use every day.

All open-pit mining activity is located on the Athabasca oilfield located in the Regional Municipality of Wood Buffalo (RMWB, Figure 1) where the largest urban settlement of Fort McMurray is also located. This region is also home to Indigenous communities who still depend on the land and waterways for harvesting food and other natural resouces. Currently there are four oil companies and seven active mining operations in this region (Figure 2).[4] All of which are located on the Athabasca Watershed in proximity to the northern flowing Athabasca River.

While this project does not specifically focus on Indigenous livelihoods in connection to oilsands mines it is important to recognize that and this region is also home to Treaty Eight nations the Métis Nation. There are strong tensions that exists between Indigenous groups and oil companies, which are very complex because of the diversity of Indigenous people who live in the area and are affected, both positively and negatively, by the oil and gas industry in the region. Indigenous issues and environmental issues are highly intertwined in environmental discourses.

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[4] At the beginning of this project there were five companies mining in the RMWB; however, in March 2017 Royal Dutch Shell sold its mining assets to Canadian Natural Resources Limited.

Local Indigenous environmental issues includes deforestation which disturbs local eco-systems and affects traditional food supplies. There is also a strong fear of contamination from oilsands project effluence and discharges which find their way into the air and Athabasca Watershed. The effects of these environmental issues have on Indigenous peoples is unique in that it forces these groups to give up traditional and culturally significant ways of gathering food which is an extension of colonization forcing conformity to Eurocentric ways of living.

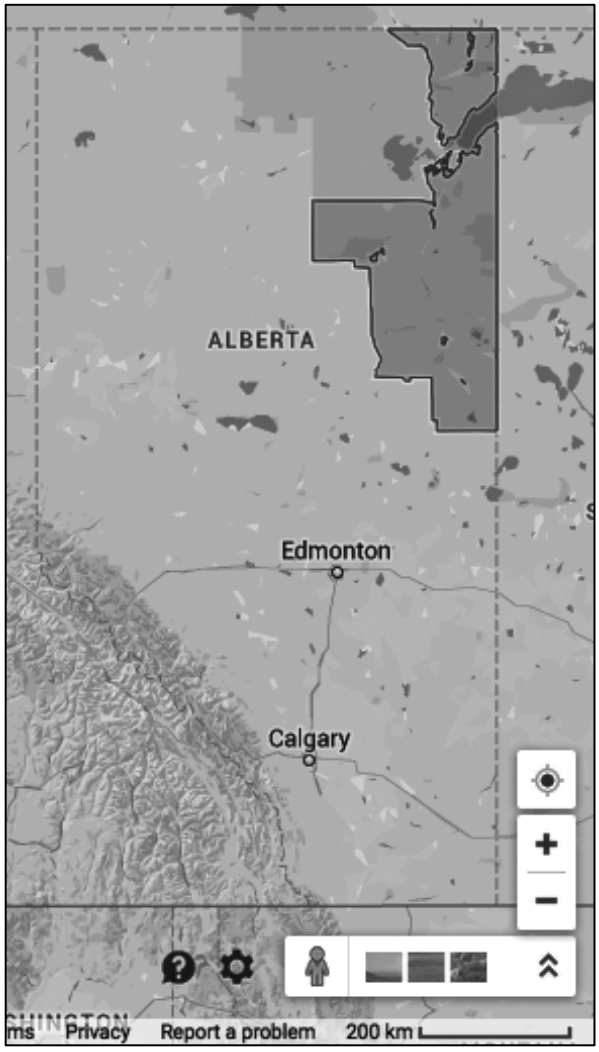

Figure 1: Regional Municipality of Wood Buffalo, AB (Google Maps, 2015)

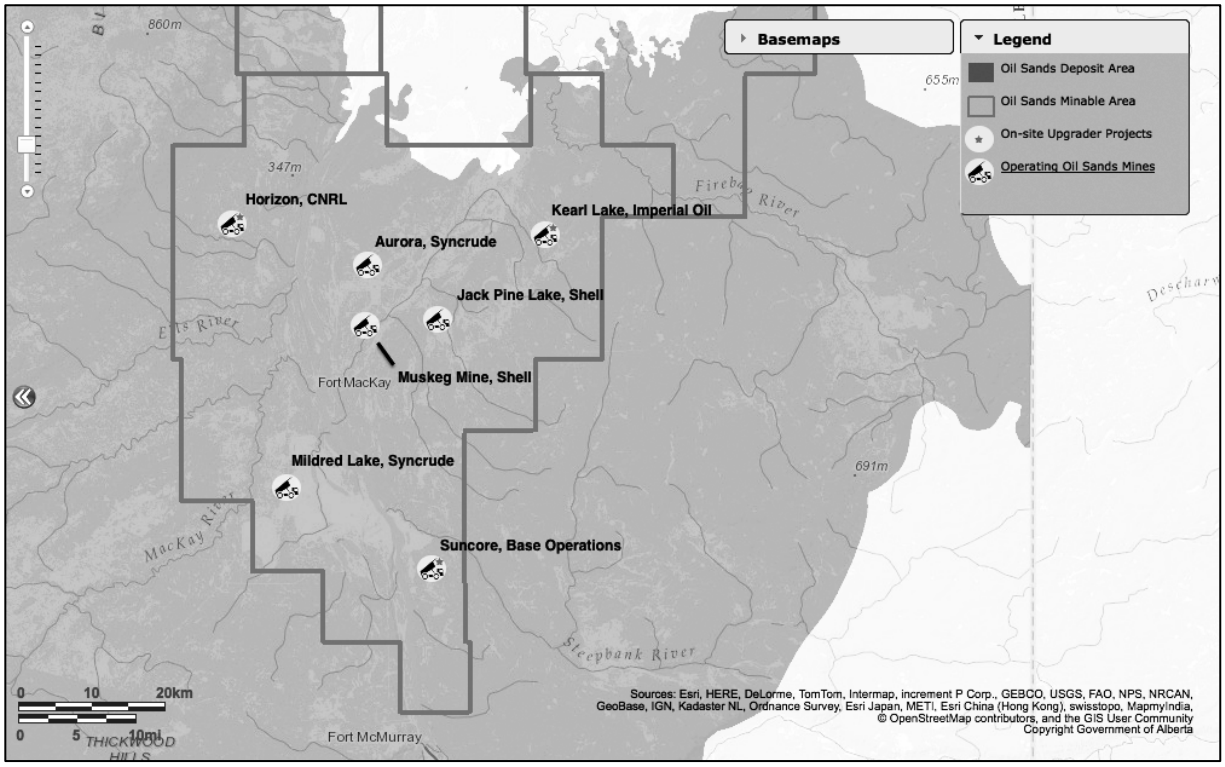

Figure 2: Mine sites at the time of data collection (Government of Alberta, 2015).

Oilsands mineworkers.

The Alberta oilsands is a large remote geographical location that employs a highly mobile workforce. In this study I focus on interviewing operators and mechanics (not construction workers) who work in these mines. All workers commute to work at these mine sites (even those who reside in Fort McMurray), and some travel very long distances from their home communities. While some workers spend their whole careers in the oilsands, many others have a plan to make as much money as possible and then leave. In 2014 roughly 146,000 people were directly employed in oilsands across Alberta (Canadian Energy Research Institute, 2014). In the 2012 municipal census of Wood

Buffalo, a mobile workforce of 39,271 people traveled back and forth from the region employed in various oilsands projects (RMWB, 2012a). Mobile workers do not live in the region but commute from other areas of the country and abroad to work, a mode of transport described as "FIFO", or "fly-in fly-out", work (Story, 2010, p.1166). Workers also commute to the oilsands region by driving in and out (DIDO) and bussing in and out (BIBO) each work shift. While over time the number of mobile workers in this region fluctuates, in 2012, 93% of FIFO workers commuted from within Alberta (43%) or other provinces within Canada (50%) (RMWB, 2012a). In addition to these mobile workers, there are also 11,523 people who live in the RMWB and work in oilsands projects (RMWB, 2012b, p.102).

Economic downturn.

Work in the Alberta oilsands region is often described as being precarious. This stems from multiple factors that threaten to lower production and affect job security. Economic, political, and natural phenomena are the three dominant factors that have impacted the region in recent years. Economically, the price of oil dropped globally in 2014, where West Texas Intermediate (a key indicator oil stock for North America) dropped from $105.98 USD per barrel in July, 2014 to $44.80 USD per barrel by January 2015 (EIA, 2017). This recent oil market crash is the result of multiple factors that all came together to create an oil market that had too much supply to meet demand. Financial media sources describe this drop in oil price as primarily due to "… growth in U.S. production, sputtering demand from Europe and China, Mideast violence that threatened to disrupt supplies and never did" (Arnsdorf, 2014). The North Dakota shale oil boom added an

extra nine million bpd to the global market where it was predicted that conflicts in Syria, Libya, Iran and South Sudan would see decreased production, which did not happen (Kemp, 2015). In addition, OPEC nations (in particular, Saudi Arabia) maintained their levels of production in order to maximize revenue and preserve market chare (EIA, 2016). The resultant oversupply of oil on the world market caused Canadian oil producers to decrease their own supply, slow down and even stop projects, and lay off workers in order to remain profitable. At the same time as this market crash, major and dramatic political changes were occurring at the federal and provincial levels.

New governments.

Politically, two key shifts in governance occurred. In May of 2015 Albertans ended 44 consecutive years of conservative government and elected a center/left New Democrat Party (NDP) government under the leadership of Rachel Notley. Then, federally, in October, 2015 Canadians elected the Liberal Party of Canada under the leadership of Justin Trudeau to replace Stephen Harper's Progressive Conservatives who was Prime Minister for the previous nine years. Both new governments ran on platforms (at least partially) that promised climate change action. In Alberta the NDP government rolled out a Climate Leadership Program aimed at reducing carbon emissions. Federally, the Department of Environment was renamed the 'Department of Environment and Climate Change', in order to represent the government's priorities (Government of Canada Privy Council Office, 2015). Subsequently, the federal government also took part in the 2015 Paris Climate Change Conference and has since introduced national climate change initiatives including a nation-wide carbon tax.

Environmental risk and disasters.

In general, the Athabasca oilsands region garners a great deal of negative attention from media outlets, politicians, and environmental groups. As a result, employees and those associated with these industries often can be very defensive. One of my research participants (explained in more detail in subsequent chapters), Laura, expresses a common reaction to oilsand criticisms. She turns the argument around on those who 'call out' the oilsands as being the cause of environmental damage and instead places blame on the consumers of oil. Notwithstanding the 'blame game' of environmental impacts, this study site is challenged by multiple environmental risks and a history of what Beamish (2002, p.4) calls "crescive troubles": slow, chronic leakages that accumulate over time and affect the health of humans and biophysical environment. Multiple pipelines lead from this area supplying synthetic crude oil to upgraders, refineries and distribution terminals creating the risk of pipeline leaks. Tailings ponds and sand piles from the upgrading process litter the landscape causing environmental risk to local (and migrating) wildlife and ecosystems. Climate change is also an ongoing point of tension in the region. Oilsands projects contribute to 9.8% of Canadian GHG production (CAPP, 2017b). It is commonly assumed that the results of climate action will have detrimental consequences on the oil industry in Canada. However, this region is also expected to be directly affected by climate change through changes in weather patterns and seasonal shifts that will make disasters like flooding and forest fires more frequent than in the past.

On May 3, 2016 the oilsands region experienced a devastating wildfire, referred to as 'The Beast', which caused the evacuation of roughly 90,000 residents from Fort

McMurray and forced major oilsands projects to temporarily cease production (Flannigan, as cited in Alary, 2016). 2400 homes were lost and 15% of residential and industrial areas were damaged making this, at 3.58 billion $CDN, the costliest natural disaster in Canadian history (Insurance Bureau of Canada, 2016). The direct causes of the fire are believed to be a combination of low snow pack from an exceptionally dry winter intensified by a strong El Niño weather system and a spark from an ATV type recreational vehicle (Asher & Mouallem, 2017). In addition to this, the historical practice of forest fire suppression in Alberta resulted in aged forests more prone to wildfires (Flat Top Complex Wildfire Review Committee, 2012).

In the next section of this chapter I provide the theoretical background and literature surrounding my research question and study context. I begin by analyzing the history of researching environmentally significant behaviour, through attitude behaviour models, followed by new approaches to studying these behaviours though social practice theory and ecological habitus. I briefly discuss how my research question fits into these theories and how I used them in this research. I then review literature including empirical studies beginning with climate change denial, skepticism and silence, followed by social norms, and finishing with the identity of natural resource workers. I conclude this chapter by again placing my research question within these works and layout the structure of the remaining chapters.

Theoretical Background and Literature Review

Social psychological models of behaviour.

The need for fundamental social change away from the negative impacts of high rates of energy consumption and environmentally damaging lifestyles is widely accepted. Early studies of environmental attitudes and behaviour began with a model of reasoned action which theorized that a person's behaviour is a product of their beliefs about the consequences of a behaviour, or how normal a behaviour is, and their attitude towards that behaviour which goes through an intension to perform that behaviour (Fishbein and Ajzen, 1975; Figure 3).

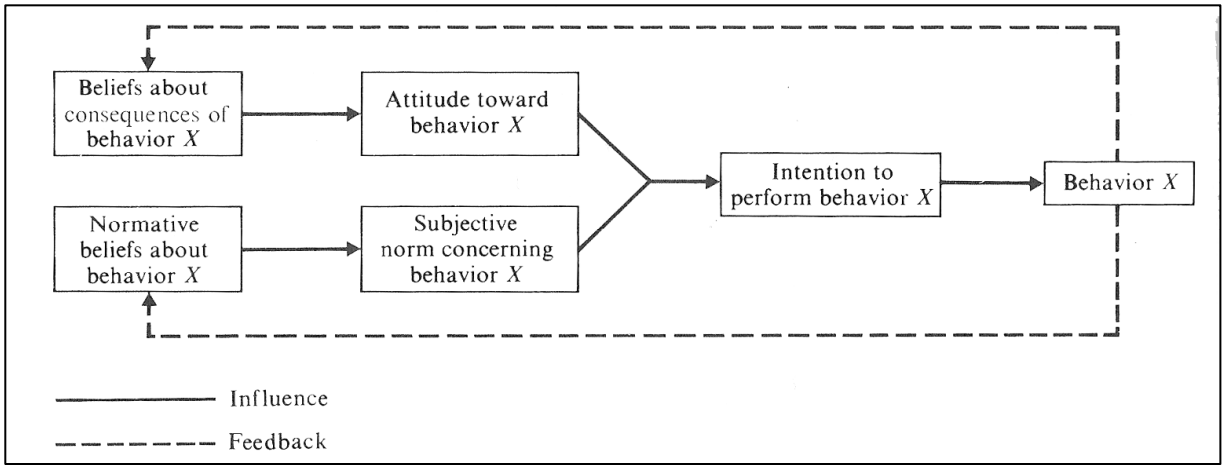

Figure 3:Theory of reasoned action (Fishbein & Ajzen, 1975)

Since then, this model has been adapted and used in the study of environmental values and attitudes. Attitudes are believed to be constructed from beliefs that specific actions will have a specific effect on things they value, and these are generally viewed as being shaped during socialization and viewed as being relatively stable (Stern & Dietz, 1994). Although the stability of attitudes is debated (Blake, 1999), the term attitude has

been expanded to encompass beliefs and values in many studies that examine the attitude-behaviour gap, where expressed attitudes on a topic do not align with a person's overt behaviours. The term pro-environmental attitude is used to describe a person's perceptions, values, beliefs and overall concern for supporting a healthy natural environment.

Barriers to pro-environmental behaviour.

The discrepancy between positive environmental attitudes and pro-environment behaviours is conceptualized in a number of ways: value-action gap (Barr, 2002; Blake, 1999), attitude behaviour-split (Bell, 2012), environmental values-behaviour gap (Kennedy, Beckley, McFarlane, & Nadeau, 2009) and attitude behaviour choice or ABC (Shove, 2010). Regardless of the term or acronym used, it is now generally accepted that there is an incongruity between attitudes and actions and that people are aware of this discrepancy (Blake, 1999; Kennedy et al. 2009). The rift between attitudes and behaviour has led to the study and search for reasons why those who have pro-environment attitudes do not always act according to those values.

Respondents in a Canadian study on environmental values and behaviour gap recognized that the main barriers preventing their pro-environmental actions are: lack of information or knowledge to make informed decisions, time, control over decisions made, and money (Kennedy et al. 2009). The attitude-behaviour gap can also be organized into three categories: individuality, where concern for environment is outweighed by other concerns; responsibility, the responsibility for action is placed on others (in-part due to the lack of efficacy of individual action as opposed to government

or corporate action); and practicality, described in terms of lack of time, money, space (e.g. for recyclables), information, encouragement, and environmental service infrastructure (Blake 1999). However, more recent research on actions following public information campaigns concludes that educating the public does not result in behavioural change.

Although people may be knowledgeable regarding environmental issues and willing to change, actually changing their behaviour was inconvenient to their lifestyle. Barr (2002) points out that "…raising levels of general awareness is unlikely to be effective. This may well enhance levels of stated concern, but it is the transformation of this into action that is pressing" (p.247). Reasons for not behaving pro-environmentally came down to a matter of convenience (p.245). In an experimental study involving educating the public about energy consumption and power plant pollution one of the main conclusion was that educating the public in order to change their attitudes and subsequently their energy consumption behaviour, just does not work (Heberlein, 2012, p.70). Another reasoning for the dissonance seen in pro-environment attitude-behavour models is that these models approach the problem from a cognitive theory perspective that treat human behaviours as derivatives of an individual's rational and unproblematic plans (Blake, 1999). These models often leave out or fail to include structural and institutional factors that enable or inhibit pro-environmental actions (p. 265). The complexity of behaviour-barrier models has led some researchers to suggest that development of a comprehensive model for predicting pro-environmental behaviour might be a futile task, and conclude that old behaviour patterns might be the biggest

barrier to behavioural change (Kollmuss & Agyeman, 2002). Others propose that in order to understand pro-environmental behaviour it is the environmental habits (both good and bad) that need to be studied (Kasper, 2009; Shove, 2010; Hargreaves, 2011).

Individuals are often categorized into a dichotomous scheme of 'environmentalist' or 'not an environmentalist'. As a result, this leaves little room for those who could have some degree of pro-environmental values to be understood. In the past, being considered an 'environmentalist' meant you were interested in protecting wildlife, the countryside, and heritage buildings (Cotgrove and Duff, 1981). Environmentalists who believed in fundamental lifestyle changes were seen as 'utopian' or 'extreme' (p.93). Moreover, the term 'environmentalist' is slippery. For some, an environmentalist is simply someone who has membership with an environmental group (Kitchell, Kempton, Holland, & Tesch, 2000). There is, however, another type of environmentalist described as the 'everyday environmentalist.' This encompasses people who, although they do not describe themselves as environmentalists, practice pro-environmental behaviour. A notable example is the social practice of recycling, which has become an environmental social norm (Barr, 2002).

Research on environmental attitudes and behaviours that discern which groups of people are more pro-environmental than others may lead to stereotyping. By only studying simply the demographic qualities of environmental attitudes and behaviours there is a risk of understanding attitudes and behaviours "…through a mechanistic worldview, linear cause and effect explanations, and an emphasis on prediction" (Kasper, 2009, p.3). A general stereotype of an environmentalist has emerged where the

environmentalist is considered to be a young woman who has post-secondary education, owns a house, has left-wing political views (Bar, 2002; Dietz, Stern, & Guagnano, 1998), and identifies as an environmentalist (Kitchell, Kempton, Holland, & Tesch, 2000). In a study of Alberta residents, it was found that gender, age, marital status and political ideology were the most statistically significant predictors for whether or not a person believes in anthropogenic climate change; young, single women with left-wing political views were more likely to respond positively (Davidson and Hann, 2012). Although these findings are interesting and useful, these data can be misused when someone falsely makes the assumption that older married men with conservative political beliefs do not believe in climate change at all.

The attitude-behaviour model is also criticized for placing an over-emphasis on the actions of the individual to create change with slogans such as ‘be the change’ (Shove, 2010) and ‘go for green’ (Barr, 2002). This over emphasis on the agentic individual is said to have the effect of raising awareness of environmental issues and creating more concern for the environment but has little effect on making environmental actions easier to implement (Barr, 2002, p.247). Although there is high reporting of community environmental services (recycling services, public transit, stores selling organic produce, and environmentally friendly products) in Canada, respondents still recognize the discrepancy in their behaviour, argued to be primarily due to information deficit (Kennedy et al. 2012). As mentioned previously, Kollomus and Agyemen (2002) argue that the largest barrier to behaviour is actually our old habits and the difficulty of practicing and adopting new habits, as part of one’s social practices.

Social practice theory: attitudes and behaviours as parts of social practice. Social practices are the patterned ways of behaviour, understanding, knowhow, and desiring that are acted out by different individuals in different places at separate times (Reckwitz, 2002). These theories pull away from the rational action theories that place human behaviour as a result of rationalised values-beleifs then action. "Social practice theories attempt to remove the dualism between mind and action, agency and structure, subject and object… rather, our actions refelect an ongoing dialogue between agents and structures and a historically situated relationship of people to place" (Kennedy, Cohen, & Krogman, 2015, p.6).

Social practice theories are a family of theoretical approaches to research, that are all connected historically and are conceptually similar (Nicolini, 2012), and which explore the subjective-objective and structure-agency dimensions of human action and social change.

Social practice theories are different from the attitude-behaviour models theorized above in that social practice theory reintroduces social context to behaviour primarily recognizing other social factors beyond socio-demographic characteristics (age, gender, income) and indicators of socialization (religion, political ideology, occupation), but also history and what human bodies actually do. In their survey of Albertan's attitudes towards climate change, Davidson and Hann (2012) found that gender, age, marriage, and political ideology were significant predictors of belief in the cause and impacts of climate change. Researchers concluded that the only socialization factor that was

overwhelmingly significant was the tendency to vote conservative in a federal election and further note these beliefs could be due to the ultra-right wing views of people living in the province or to an ascription to traditional values (p.230). However, because of the nature of quantitative work "[u]nless the surveyors ask, we will never know why the respondents feel the way they do" (Bouma, Ling, and Wilkinson, 2012, p.51).

Another possible reason for why Albertans tend to vote conservatively in federal elections may be due to history. There is, I argue, a strong historic component to federal conservatism due to a previous plan to centralize Alberta's energy resources for re-distribution across Canada. The National Energy Program was proposed in the 1980s by a Liberal Party government then led by Pierre Trudeau.[5] The threat of this program still haunts and affects the psyche and perceptions of Albertans who view liberal governments as 'out to get *our* oil'. This historic component also has a significant effect on voting behaviour, (at least on a federal level). Social practice theory reintroduces history in shaping the social practices of people not just as personal experience but also a collectively embodied experience. Even if one did not experience the implementation or the politics of the NEP it is still remembered by subsequent generations and reminded of by conservative political leaders and media.

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[5] The National Energy Program was a policy that was put into place to make oil and gas resources more regulated by the federal government in order to create oil independence for Canada, regulate the price of petroleum products in Canada, and promote Canadian ownership of oil assets. The Alberta Progressive Conservative government, led by Peter Lougheed, argued that such a program would be unfair to Albertans, who were the primary producers of oil and gas, and was an example of eastern provinces exploiting the natural resources of the western provinces.

In this research I use the term ‘social practice’ rather than ‘practice’ because it more explicitly indicates that the things we do as individuals are partly out of agency but this agency is embedded in social structures. Put another way, we have the power to choose what we do but at the same time social norms, and/or known ways of doing things, compel us to behave in particular ways we would not behave if the context were different.

Common to the many forms of social practice theory is the suggestion to step back from the attitude-behaviour model that sees habit as just another form of behaviour, or just another factor that serves as a barrier to pro-environmental behaviour (Shove, 2010). Instead, habits should be considered social practices where institutions, infrastructures and daily life interact in a coevolving system; behaviour is located within these interactions, and history matters in changing the system (p.1278). The units of inquiry include how social practices are defined, change, and what material elements they are comprised of; how social practices circulate and travel; how they relate to one another; how power is understood within systems of social practice and how are systems of value are reproduced and contested (Shove & Spurling, 2013, p.3). In this sense, social practice is seen as an entity, and the subject of study where we should be asking, ‘how do social practices evolve?’

Within this study I focus on a form of social practice theory described as ‘praxology’, developed from the writings of Pierre Bourdieu. Like Shove’s social practice theory, praxology is concerned with studying how social practices are involved in social interactions, how practices and interactions relate, and the historic contexts in

which these operate. Instead of looking at how power is understood, praxology focuses on power conflicts that arise from societal changes—the introduction of new or modified ways of seeing, thinking, and doing—and how social change is resisted by adherence to traditional ways of practice. With concepts like habitus, capital, field, and doxa (defined in the next section) Bourdieu sought to "…inject a stronger sense of temporality and temporal contingency into social analysis" (Calhoun, 2012, p.42) where habitus is a conceptual tool for analysing social change (Gorski, 2012). Social change is contentious and these concepts allow for a closer examination of the power dynamics involved with social change.

Bourdieu tells us that changes to habitus occur "…where dispositions encounter conditions different from those in which they were constructed and assembled…" and in rapidly changing societies these changes are continual but only in relation to its previous structure (2005, p.47). Also included in Bourdieusian praxology is the concept of doxa, a taken for granted view of the world that gives a practical sense of how they should live well in a particular place (Bourdieu, 1990). For Bourdieu there are two forms of doxa, hetrodoxa and orthodoxa, which co-exist and compete in social fields and are part of how societies transform or reproduce. Orthodoxa aligns with the dominant class and can be seen through the distinctive tastes of the upper class while heterodoxa are deviations from orthodoxy.

Because doxa is a key component in the concept of habitus, it is likely prevalent in the ecological habitus of a person. In my main research question, when I ask, 'what is the ecological habitus of oilsands mine workers in their everyday life…', part of what I

uncover is the power struggle that exists between orthodox and heterodox dispositions and behaviours towards the environment.

Ecological Habitus

Habitus, Field, and Capital.

Habitus[6] is a concept used for understanding both social reproduction and transformation. Specifically, habitus is described as

> "… a system of *dispositions*, that is of permanent manners of being, seeing, acting and thinking, or a system of *long-lasting* (rather than permanent) schemes or schema or structures of perception, conception and action" (Bourdieu, 2005, p.43; italics in original).

That is, habitus describes how a person (or group) understands, plans, and behaves in accordance with how they have been taught through past experiences and education. According to this principal people who come from similar historic experiences and educational backgrounds should exhibit similar patterns in their understanding, planning, and behaviours. Bourdieu suggests that habitus be used not as a concept on its own but in relation to the notion of field, a social space of competition where people act according to their position (the capital they possess) and habitus (Bourdieu, 2005, p.47). Fields are the "…areas of production, circulation, and appropriation of goods, services, knowledge, or

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[6] Habitus is different from habits in that it is not just repetitive action, by using the Latin word Bourdieu means to point out that habitus is not natural but a set of socially acquired characteristics (Bourdieu, 2005, p.45-46).

status" or, capital (Swartz, 1997, p.117). Capital consists of the resources a person has at their disposal when competing in a given field with other social actors. It includes economic (wealth), social (resources and power derived though connections to other people), cultural (informal and formal knowledge and skills, but also articulateness, persuasiveness, aesthetics preferences, and cultural awareness) (Hiller and Rooksby, 2005, p.25).[7] The concepts of habitus, capital, and field suggest that it is not only the individual that makes choices but that these choices are influenced and shaped by their social contexts. Where a person comes from and the set of actors they interact with strongly affects how they are going to behave.

Ecological habitus.

Ecological habitus is a term that builds upon a Bourdieusian explanation of habitus and refers to the "embodiment of a durable yet changeable system of ecologically relevant dispositions, social practices, perceptions, and material conditions" (Kasper, 2009, p.318). Ecological habitus can be understood as a practical tool that focuses on social practices to explicate "the independent and dynamic relationships between people and the ecological contexts they inhabit" (p.312). For Haluza-DeLay, ecological habitus "… generates social practices appropriate for the socio-ecological characteristics of a specific place… a way that is consonant with environmental sustainability" (2007, p.3).

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[7] In this thesis I do not engage with Bourdieu's extension of capital as power, that is the interconvertible, symbolic and violent dimensions of capital.

Discovering ecological habitus requires (1) defining what is ecologically sound social practice, (2) critiquing social-structures that inhibit an ecologically sound lifestyle, and (3) discovering how social relations cause people to resist an ecological worldview and lifestyle (Heluza-DeLay, 2008, p.214; Heluza-DeLay, 2006, p.66).

Within his study of the ecological habitus of environmental organizations Haluza-DeLay (2007) writes about there being two habituses, an ecological habitus (heterodox) and a dominant habitus (orthodox). The awareness of inconsistency that environmentally-active people have, where they are not living the ecological lifestyles they wanted to live, "…demonstrates how an environmental habitus brushes up against dominant habitus and social practices" (p.10). Nilan (2017) further argues that the orthodox habitus and heterodox habitus can be inverted. Among environmentally active individuals their orthodoxy would be pro-environment social practices. She says, "[i]n social practice, the new orthodoxy of activist pro-environmental discourse works against the *hysteresis* – inertia – of current unsustainable behaviours and oblivious talk in the wider society." (Nilan, 2017, p.2). For both Haluza-DeLay and Nilan, the doxas of ecological habitus are framed in environment versus economics dichotomies, similar to how the New Ecological Paradigm separates naturalistic values and humanistic values, where an individual ascribes to one side or the other. The issue with this is that it does not explain how individuals might ascribe to both categories at the same time; an 'all the above' mindset.

In contrast to the two competing spheres of doxa, Debbie Kasper (2009) sees ecological habitus as value neutral where dispositions fall on a continuum of pro-

ecological to anti-ecological. Here, ecological habitus is conceptualized as a web or network of dispositions that include the dimensions of: habitat, water, food, energy, waste, time (life activities), economic behaviour, identity, beliefs, and future goals to live ecologically well (p.322; see Figure 4). Using this conceptualization every group has an ecological habitus, but it is not necessarily a pro-environment relationship.

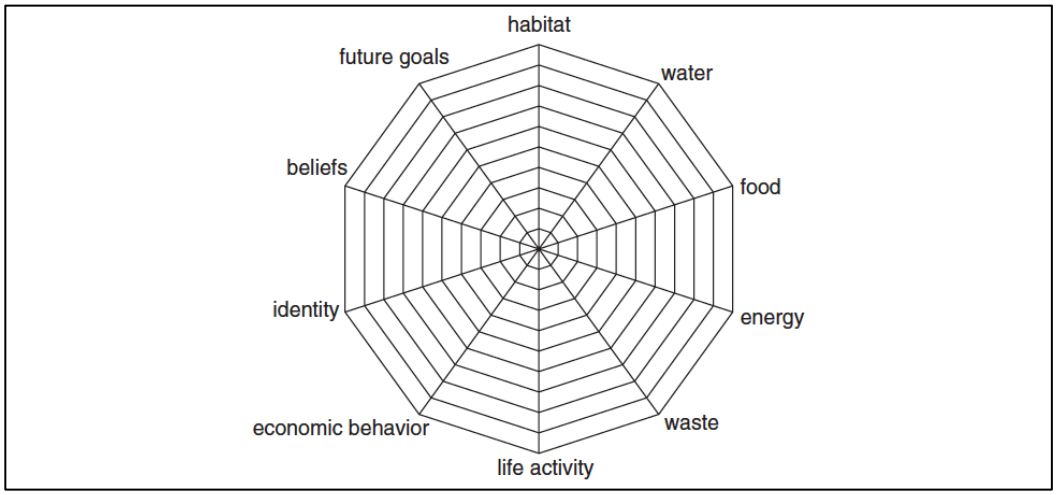

Figure 4: Conceptual model of ecological habitus (Kasper, 2009, p.322)

Gäbler (2015), on the other hand, asks us to consider an ecological habitus where sustainability is the field of play, that it has a set of rules and capitals where people use these to engage in power struggles for dominant positions. In this eco-habitus, the status point is integrity, where the player with the smallest eco-footprint succeeds. In a review of the literature on the concept of ecological habitus Kirby (2017) asks us to redirect our attention back to the fact that Bourdieu intended for habitus to be value neutral and that habitus is a way of understanding power relations by examining the inter-relatedness of field, capitals, and habitus. Specifically, Bourdieu played with the idea that these terms were a function of social practice in order to have us think relationally about what

constitutes social practice: [for example, his social equation of (habitus)(capital)] + field = social practice] (Bourdieu, 1984 in Kirby, 2017, p.95). Further, Kirby suggests that ecological habitus should utilize the term "green habitus" in order to distinguish pro-environmental attitudes and behaviours apart from behaviours that are not pro-environmental (2017, p.108).

Most studies on ecological habitus have focused on examining how this bundle of concepts looks among people who self-identify as being either environmentally aware or active (Haluza-DeLay, 2006; Kasper, 2009; Nilan, 2017). Less is known about how ecological habitus looks among groups who do not necessarily identify as 'environmentalist'. For this reason, I hold this question up to those who work in natural resource extraction in northern Alberta. How can we understand the ecological habitus of Alberta oilsands mine workers? Do these workers have environmental concern(s)? What types concerns do these workers have and to what degree are they concerned by environmental degradation? Do their lifestyle social practices reflect any of their environmental concern(s)? In this enquiry, I am influenced by Kasper's value-neutral web of ecological habitus for my analysis, where she suggests that everyone has an ecological habitus, but it might not be a pro-environmental habitus. For example, an oilsands miner may still value the environment because they like to go out ATV-ing on their days off—an activity that often has a negative impact on soil, water and air. In my analysis I also consider Gäbler's idea of 'sustainability as a field' useful where there is a set of rules and capitals one must possess in order to have ecological integrity on the

sustainability field.[8] In/on this field an individual who has an environmental-concern because they enjoy ATVing in remote areas would lose due to a lack of pro-environmental integrity. Because I inquire about ecological dispositions I chose to orient my discussions with participants on the particular environmental issue of climate change. I felt it necessary to do this because of the complexity of environmental issues when it comes to the Alberta oilsands.

> *"If the entire Alberta oil-sand resource (that is, oil-in-place) were to be used, the associated carbon dioxide emissions would induce a global mean temperature change of roughly 0.36°C. This potential warming is almost half of the observed warming seen in the past 100 years (0.76°C)" (Swart & Weaver, 2012, p.135).*

However, current extractive technologies used in the Alberta oilsands are not able to access all this oil with technologies currently being used, nor is Alberta's oil (currently) overly accessible to markets beyond the United States. This could change if pipelines such as KeystoneXL, Trans Mountain, and/or Energy East pipelines were to be built giving Canadian oil producers access to global markets.

In the final portion of this literature review I go over key works that address climate change, climate change denial, social norms surrounding climate change relating to my research question. Politics and ideology also play an important role in how

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[8] Gäbler (2017) does not give a specific definition of sustainability in his paper, but I mean sustainability to be actions that seek to minimize, mitigate, or repair negative human impact on the environment.

environmental issues are talked about among working class individuals. Because of this, I conclude with a look at works exploring the identity of natural resource industry workers.

Climate change: denial, skepticism, and silence.

People rely on different tactics to psychologically navigate climate change. They utilize different forms of denial and skepticism to distance themselves and question the legitimacy of climate change (Dunlap, 2013). Cultivating skepticism is also part of how petroleum interest groups defend against sweeping social-economic changes that would put them out of business (Dunlap and Jacques, 2013). There is also a socially-organized form of denial and a construction of innocence that allows people to go on living their lives in the same way despite accepting and knowing about climate change (Norgaard, 2011; Hughes, 2013).

Drawing once more from psychology and social psychology, there are three main types of denial: 1) literal denial – something does not exist, 2) interpretive denial –words are changed to obscure the severity of something, and 3) implicatory denial –the effects of something are minimized (Cohen, as cited in Norgaard, 2011, p.10). In studies of climate change beliefs three main variables make up a range of skepticism or denial: whether or not climate change is happening (literal denial), that climate change is human caused (interpretive denial), and whether or not climate change poses a risk to humans (implicatory denial) (Hobson and Niemeyer, 2011; Kuehne, 2014).

Only a small portion of the population totally denies the existence of climate change interpretive denial of the causes and consequences of climate change is more common. Hobson and Niemeyer (2011) found that only four of their 103 participants

embodied a “deep skepticism”, also called literal denial, and were adamant that the Earth’s climate was not changing (2011, p.6). In Alberta Lefsrud and Meyer (2012) found 0.6% of Albertan petroleum professionals (N=1077) literally denied climate change (p.1492). What is more common is interpretive denial, where people believe that current climate change is a natural phenomenon either not caused by humans burning fossil fuels or only partly caused by human actions. (Lefsrud & Meyer, 2012; Hobson and Niemeyer, 2011; Kuehne, 2014).

With interpretive denial people tend to follow such arguments as “[i]t is a mistake to think that human activity can change this… It would be like an ant in a bowling ball who thinks it can have a significant influence the roll of the ball (sic)” (Lefsrud & Meyer, 2012, p.1493). Within implicatory denial climate change is seen as not being any significant risk to themselves or their livelihoods. For example, in a study of Australian citrus and grape farmers’ climate change concerns, some did not view the four-year drought they were experiencing had anything to do with climate change (Kuehne, 2014). And still another nuance of skepticism is that some may believe that climate change is real and threatening but believe that any actions taken will damage their nation’s economy (Lefsrud & Meyer, 2012; Hobson and Niemeyer, 2011).

Cultivating skepticism.

While most people generally accept climate change, there are still places where the debate is ongoing. Climate change denial is more prevalent by those working in the oil and gas industry in Alberta than those working in other sectors (Alberta Social Survey, 2006). In Alberta, only 36% of professional engineers, geologists, and geophysicists

surveyed believe that the debate on climate change is settled and that International Panel on Climate Change (IPCC) models should be trusted (Lefsrud and Meyer, 2012, p.1492). In the Regional Municipality of Wood Buffalo only 17% of polled residents believed that the climate change was caused by human activities (Mildenberger et al, 2016). Books denying climate change have increased in recent years with over half of these publications released between 2005 and 2010 (Dunlap and Jacques, 2013, p.6). The authors of these books, many with direct connections to petroleum companies, have come to be seen by the media as climate change experts despite the fact that these books are not peer-reviewed (p.3-4). In what is described as a "campaign of disinformation" (Dunlap, 2013, p.692), these publications use doubt in climate science as a point of debate to refute the models put forth by the IPCC. Public figures also use scientific arguments to justify or minimize the affect their own country has in contributing to climate change. The author of Trinidad and Tobago's 2010 draft climate change policy points out that in "a scientific context the atmosphere reacts only to absolute emissions and not per-capita emissions" (Hughes, 2013, p.577). This argument justifies non-compliance to a national policy that would reduce per-capita GHG production. In Canada people who work as professionals in the petroleum industry may be influenced by arguments like this because they provide a justification for continuing on as normal. Among members of the Association of Professional Engineers, Geoscientists, and Geophysicists of Alberta (APEGGA) surveyed, top level oil and gas employees were more likely (47.1%) to

believe that "nature is overwhelming"[9] than all members overall (24%) (Lefsrud and Meyer, 2012, p.1492-3). They were most likely to believe that climate change is natural, there is no way that humans can change the earth's climate, and most strongly disagreed that climate change poses a risk to people (p.1493). Because of the higher proportion of climate change denial among top-level oil and gas employees it is likely that those who work on the ground in Alberta oilsands mines are influenced by these beliefs. Oil mine workers could also be affected by what is described as a social form of climate change denial.

Socially organized denial and the construction of innocence.

In her ethnographic study of Bygdaby[10], Norway (a major oil producing nation) Kari Mari Norgaard (2011) focuses on an implicatory form of denial, where there is a Norwegian public silence that she calls a system of "socially organized denial" (p.12). People accept anthropogenic climate change and its risks but are still able to ignore climate change (ibid). She emphasizes that emotions, social context, political economy, and social interaction play a major part in how people think about climate change (p.63). "Tools of innocence" and "tools of order" are used to construct innocence and "create distance from responsibility" because climate change actions go against cultural norms that are imbedded into the context of people's lives (p.11-2). In a study of oil patch

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[9] Nature is overwhelming in that members believed current global warming is due to natural cycles and human activities are too small to have an effect on the greenhouse effect (Lefsrud and Meyer, 2012).

[10] Bygdaby is the anonymized name of Norgaard's place of study (2011).

politics in Saskatchewan climate change dismissal was found. Amongst rural participants of this study the science behind climate change was doubted, contributions to global emission by industry, and climate change as beneficial were all ways in which participants framed the issue of climate change and the responsibility for climate change action (Eaton, 2017). This study also points out how participants remain silent on issues involving the oil industry because of how much their provincial economy relies on oil and gas industry and how much oil companies financially sponsor community interests (p.16).

Hughes (2013) describes a construction of innocence in his study of Trinidad and Tobago, where government representatives and members of non-government groups (Alliance of Small Island States, or AOSIS) fit their nation into a "victim slot" (p.571) as a nation sinking due to sea level rise but also evoke "implicatory denial" by stating that "we are small" (p.577). By comparing their production of petroleum to OPEC producers and their carbon emissions to larger polluters like China they are able to minimise the responsibility to act against climate change. In Norway, similar imagery is used to portray how Norwegians see themselves as "having suffered," that "Norway is a little land," and use "America as a tension point" because Norway in comparison is smaller and therefore is perceived as having less power (Norgaard, 2006, p.359).

Social norms and climate change.

A large part of the social organization of denial and the construction of innocence is connected to cultural norms and how they are expressed in different economic and social

contexts. Social norms are socially expected behaviours, and contribute to how we act in a given situation. They are also culturally and context specific. How people behave and what they say can differ from one group to another and one context to another. Natural gas workers in Pennsylvania felt comfortable discussing their work with researchers but felt uncomfortable talking about their work with longtime residents who oppose fracking (Filteau, 2015). People can learn norms without changing their attitudes and norms can be re-enforced or deactivated (Heberlein, 2012). Re-enforcing norms entails seeing someone else break a norm which then re-enforces the norm within your own actions (p.97). For instance, seeing your partner put recyclables in the trash bin would re-enforce your own recycling behaviour. Social norms can also be deactivated.

Heberlein (2012) describes the deactivation of norms as a two-step process. First, the consequences of not following the norm are minimized or neutralized; 'this doesn't hurt anything', then the responsibility of behaving according to the norm is placed on others; 'this is not my job' (p.97). This is similar to the process involved with socially organized denial and construction of innocence toward climate change. In the processes of organized denial people minimize how their own actions, or the actions of a nation, factor into climate change. Through the construction of innocence the responsibility of climate change action is placed on others. Big polluters like the United States (in both relative and absolute terms) are more responsible than Norwegians (Norgaard, 2011); richer and more powerful nations are more responsible than Trinidadians (Hughes, 2013). On the oil and gas fields of Pennsylvania workers place responsibility on consumers (Filteau, 2015). But norms are also tied into the identity of certain groups of people.

Being a member of a group may require certain lines of thinking or belief. That is, some people may feel they need to act in a particular way in order to belong to a group.

Identity of resource workers ('working man' versus environmentalists).

In this study I argue that going to work in the northern Canadian oilfields is a particular social practice that is geared towards practical functions.

> *"Growing up in Edmonton, I mean, the rigs is where you went when you dropped out of highschool right? The rigs's where you went when you got a DUI [charge of driving under the influence] and you had to pay court fees. It's just kind of — the way people think of it."*
>
> *-Tyson Cornfield, Cenovus drilling employee, Christina Lake, AB (Purdon, 2015, 3:56)*

Embedded in this practice are dispositions that are linked to environment, an ecological habitus, ranging from pro-environmental to un or non-environmental dispositions.

In his work on identity politics of northern Ontario forestry workers sociologist Thomas Dunk (1994) describes how these resource industry workers position themselves as being for the environment but against environmentalists. He says that, "in the process of constituting their own identity, local forest workers invent categories" (p.28) Forestry workers' image of environmentalists is primarily fueled by popular media who frame environment issues as "jobs-versus-environmental issues" (p.29). Although many expressed concerns for the environment, especially the pollution of nature and clear-cut logging methods, they felt strongly opposed to environmentalists (p.24). Forestry workers identify themselves as rural people whose lifestyles involve consuming nature (hunting, fishing, skidooing, camping etc.) and identify environmentalists as "people from 'down

south' or from big cities" (p.24). To them, southern Ontario represented an oppositional force encroaching on "their way of life" and "their tradition" (p.22). Hunters in this region of Canada felt similarly. After the cancelation of the spring bear hunt, hunters felt that environmentalists threatened their identity as hunters to the extent where a legal suit was filed against the Ontario government for violating their constitutional rights and freedoms (Dunk, 2002). Identity can be so emotional and personal that conflict, and even feuds, may occur to protect that identity.

Being skeptical or denying climate change can also be connected to a person's identity. Hobson and Niemeyer (2011) in their study of climate change skepticism in Australia found one unique case of a woman who identified herself as a "firmly committed climate skeptic" (p.13). Despite groups discussions with others (who ranged from skeptical to non-skeptical) or being presented with climate change models she clung to one instance of outdated scientific evidence that suggested oceans are cooling (ibid). No amount of information or discussion could sway her from this belief.

Working and living in the oilsands region also mean living at the intersection of "…larger than life scales of work, money, opportunity, destruction, development, environment, [and] 'the North'" (Dorow & O'Shaughnessy, 2013, p.121). Oilsands workers are a group who often wrongly stereotyped as uneducated young single males (Angel, 2014a.). In the context of the Alberta oilfield the idea of frontier masculinity (Angel, 2014a; Miller, 2004) is used to describe this group where a (predominantly male) population is defined by their rough ways of working hard and playing hard (Angel, 2014b). Oilsands workers go north for various reasons but a main reason is lucrative

employment that allows people to make more money than they could possibly make elsewhere doing similar work. For example, a warehouse technician, an occupation requiring a basic high school education, could easily make $35-45/hour in a northeast Alberta oil mine, where in an urban center, like Edmonton, the same job would pay approximately $20.00/hour.

For many, working in the oilsands also means a fly-in/fly-out (FIFO) lifestyle: a 'no-town' mode of living where workers are full-time workers living in camps but part-time residents of other regions (Storey, 2010). This is not to imply that mobile workers are placeless people. Also called employment-related geographical mobility (E-RGM) (Cresswell, Dorow & Roseman, 2016) this model of mobile employment has largely replaced the model of the company town (Storey, 2016; Dorow & Mandizadza, 2017). For many living and working on Imperial Oil's Kearl Lake site they feel a constant duality in their lives as if they are living two separate lives (Fletcher, 2012, p.26). Living, working, and commuting in this way causes an intense compartmentalisation of time and space and "spatiotemporal disorientation" (Dorow & Mandizadza, 2017, p.1788) when shifting between home and work that is unique to mobile oilsands workers.

Oil extraction is also a volatile industry that is subject to harsh boom-bust cycles which makes one's occupation precarious. Demand for the jobs in this region is high and those who do not fit in or follow the rules of work camps, and jobsites, are quickly out of employment (Fletcher, 2012). By better understanding a group that is not generally thought of as being pro-environment this research sheds light on how ecologically

unsound social practices are maintained and change in a world that faces the challenges of climate change and threatens the way people currently live their lives.

Summary of chapters and findings.

This thesis is written in a manuscript format. In Chapter Two I describe the methods used in this research as well as ethical considerations to fieldwork. In Chapter Three I present the results of my analysis on the ecological habitual of oilsands mine workers. I explore their work lifestyles and their home lifestyle, then discuss how these permit or prohibit ecological ways of living with a focus on the concept of doxas. In Chapter Four I switch focus and examine the environmental concerns and perspectives of oilsands mine workers. Specifically, how they view climate change, the mine they work in, and green energy technologies. Chapter Four concludes with a discussion on how these three relate within the perspectives of these workers. Chapter Five, the conclusion, is a summary and synthesis of the previous four chapters and also outlines the implications of this study, its limitations, and suggestions for further research.

Chapter Two: Methodology and Analysis

In this study I implemented a single case study of oilsands mine workers in order to generate a rich description of their social-environmental lives. Case study methodology is used for in-depth description of a unit of analysis that is part of a geographical and temporally bounded system (Marriam, 2014; Cresswell, 2013; Stake, 2009; Gerring, 2007). Oilsands mine employees are bounded geographically and temporally by currently working in the oil strip mining operations in the Regional Municipality of Wood Buffalo (RMWB). Oilsands mine workers are bounded geographically by their place of work in the oilsands mines of the RMWB, but are also bounded by their patterns of long distance commuting to and from work (even though they may live in different places). By these parameters this is a case study of those who work in oil sands mining operations on the Athabasca Oilfield, they all commute long distances to and from work (albeit using various modes of transportation), work long hour days, and long work weeks, where 'home' and 'days off' have distinct meanings that are different than those who do not work this lifestyle.

The case unit of analysis can also be described in finite terms (Marriam, 2014). Oilsands mine workers are a finite group because it would be possible—with enough time and money– to interview all people who work directly in these mines. A case study methodology is suitable for this research because my research question is to understand the "present circumstance" of particular group of people (Yin, 2014, p.4).

A case study examines a particular situation, describes as many variables as possible, and is heuristic because it illuminates the reader's understanding of the

phenomenon under study (Marriam, 2014, p. 43-4). Stake (2009) builds upon this explanation noting that "[m]ost cases feature: descriptions that are complex, holistic, and involving a myriad of not highly isolated variables; data that are likely to be gathered at least partially by personalistic observation; and a writing style that is informal…" (p.23-4). As a result, a case study approach can provide readers with a deeper understanding how people working in an oilsands mine perceive climate change and how these perceptions factor into their lifestyle choices.

A case study approach, as described by Robert Yin (2014), has three main criteria that need to be satisfied during the data collection and analysis phases to ensure the quality of the study: construct validity, internal validity, and reliability (p.45). Construct validity in this study is achieved by gathering multiple sources of data including in-depth interviews, primary observational data, and secondary sources from news media. Internal validity at the analysis stage was gained though pattern matching within each data source and between data sources building explanations as well as considering other explanations. By adhering to a case study protocol [the interview guide (Appendix A) and research objectives] during the data collection stage contributes to the reliability of this research.

This research draws on semi-structured interviews, observational journaling, and a media review to understand and contextualize the social-political realities within which this research is situated. As an environmental sociologist who lives in a part of Canada where the oilsands are so prominent in our economy and daily lives, and whose partner is employed in this field, I am interested in what oilsands mine workers do in their daily lives, what they think about environmental issues, particularly the issue of climate

change, and how they feel about moving away from oil towards green energy technologies.

Semi-structured interviews.

Between October, 2015 and July, 2016 I conducted eleven in-depth interviews[11] as a primary means of data collection. Interviews ranged from 48 to 111 minutes long, with an average time of 72 minutes. Because of the highly mobile and dispersed travel and settlement patterns of those interviewed, interviews were conducted in person (f=7), over Skype (f=2), and over the phone (f=2). The object of interviewing was to reach a saturation point (respecting respondent's time commitment) where no new information was being gathered. At the time of this research, the demand for the jobs in this region was high, and those who do not fit in or follow the rules of work sites and camps are quickly dismissed (Fletcher, 2012). It was this 'fitting in' element that prevented some potential participants form being interviewed on this particular topic, not that companies have mandated rules or policies preventing people from being interviewed. Several contacts that declined to be interviewed (and some that I did interview) were concerned what others would think of them for participating in this study. These 'others' were framed as mainly co-workers but also the public. This element of the job makes oilsands miners a particularly cautious group; as such, recruiting participants for this study was

[11] Two of these participants identified as Indigenous Canadaians. While this was not the focus of this research design it is important to note that these mines sit on Treaty 8 territory. This region is the traditional home of the Sikanni, Dene-Zaa, Cree, Saulteau and Métis.

challenging. The downturn in the price of oil during the time of this research resulted in many layoffs in the region,[12] and made potential participants very cautious about saying anything negative regarding the companies or operations in this region. The threat of being laid off or dismissed is a real fear for this group of workers. In the beginning, there was much interest from oilsands mine workers to participate in this study (my goal was originally to interview between 15 and 20 individuals). However, due to shifting political powers in Alberta and Canada and the downturn in the oil economy, fewer people were willing to talk to me about their perspectives on environmental issues and the Alberta oilsands. Moreover, after the Fort McMurray wildfire all of those who were initially interested declined to be interviewed, likely due to job insecurity and concerns over more pressing community needs, but also because how the fire was linked to climate change in the media.

Individuals selected for this study were limited to those who work directly for an oil company in an oilsands surface mining operations. This included: shovel operators, truck operators, general labourers, foremen, and mechanics. Both long distance mobile workers and residents of the Regional Municipality of Wood Buffalo (RMWB) were included in this sample. The reasons for this were to focus on those who work in direct physical proximity to large amounts of earth being moved which gives these workers a unique perspective on how demand for energy resources affects the landscape. These

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[12] In 2016 the CAPP estimated that 29,500 oil and natural gas sector jobs were lost due to the economic downturn of oil, of these 4,500 were directly employed by oil companies (CAPP, 2015).

oilsands mine workers while at work come face-to-face with dramatic changes, degradation, and destruction of land.

I did not distinguish between commuters and residents of the region was primarily a function of the constraint in time needed to conduct this study. I recognize that long distance commuters, those who fly, drive, or bus in from distances in excess of 50km, and those who commute from Fort McMurray to work in oilsands mines may have differeing perspectives.

Participants for this study were recruited through snowball sampling. Entry to the field occurred through separate contact persons. Multiple contact entry helped to ensure that participants from a variety of mine sites and backgrounds were represented in this study. As a student from a working-class background my social location helped me to broach an environmental topic that is both socially and politically sensitive. Drawing on my background I am able to communicate with other working-class people on a more familiar level. I have insight as to how their up-bringing might have been and what processes occurred in their lives to make them choose to themselves go into working-class employment. Life trajectories and goals for the working-class are also familiar to me: getting a good job, finding a partner, raising a family, living and retiring in comfort are a familiar theme throughout the interviews as well as going to the oilsands in order to ‘get my family ahead’. In addition, I have close family members and friends who work in the region; however, none of them work daily in an open pit mine. The experiences of these close family members and friends are valuable because it allowed me to observe

and experience firsthand their lifestyles as FIFO and DIDO employees and how this way of working affects them.

Interviews were audio-recorded using a digital audio recorder and then transferred to a password protected computer. Following the transfer to my, audio files were deleted from the digital recorder. Backup copies of the recordings were made and kept on an encrypted USB memory stick. Audio files were transcribed using Microsoft Word and the identities of participants were kept anonymous.

For this study I interviewed eleven people (ten men and one woman)[13] who work directly in oilsands mining operations. Their ages ranged from 29 to 57, with a median age of 33. Two participants are heavy-haul truck operators, the remaining nine were heavy-duty technicians by trade. Two worked in supervisory roles. All participants, except for one, spend most of their working day in the open pit of an oilsand mine. The one interviewee who does not do daily work in a mine has over 30 years of experience working directly in other oilsands mine operations.

Work shifts are typically described in terms of days ‘on shift’ and days ‘off shift’, sometimes called a ‘set’. Common sets are fourteen-and-fourteen, seven-and-seven and four-and-three shift. Because time off is fairly lengthy, compared to typical Monday to Friday (thus, five-and-two) occupations, the time off makes it possible for employees to commute to distant regions. Only one participant was a permanent resident of Fort McMurray. Eight were fly in-fly out (FIFO) commuters, one of whom travels between

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[13] Although themes regarding gender and masculinities did come up in the analysis of these data they were not the focus of this research.

provinces for work, and two drove in and out of the region every set. Nine of the ten people who commute live in, or very near to, large urban centers when they are not working. When the commuter participants are working three reside in Fort McMurray and seven live in a mining camp. All are married or in a long-term relationship except one who is divorced. Seven participants have at least one child, two participants have adult children, and one has grandchildren. Overall, the make-up of this sample reflects the composition of FIFO worker demographics reported as: 85% male, 71% married, 47% 44+ years, 6% local, 60% Alberta, 32% interprovincial (Oil Sands Community Alliance, 2018, p.3).

Observational journaling.

In addition to interviews, I kept an observational research journal throughout this project. Observation is described as being "…a direct and powerful way of learning about people's behaviour and the context in which this occurs…" (Maxwell, 2013, p.103). Observations were collected during visits to Fort McMurray and the Athabasca Oilfield. In this journal I kept notes on my immediate surroundings, tours I went on, places I visited, and casual encounters with people living, visiting, and working in the region. Photographs were also included in the journal as well as relevant print information and interview notes. In total I made three, four-day trips to Fort McMurray: one in the fall of 2015, one in the spring of 2016, and a final trip in the fall of 2016.

On the first trip to Fort McMurray and the oilsands region (November, 2015) I traveled with a mineworker friend and stayed in the residence of an acquaintance, who is also an oilsand mine worker. We toured the region by car, visited the Oilsands Discovery

Center, Syncrude's reclamation area, and the Giants of Mining, a display of decommissioned mine equipment.

Trip two (April, 2016) occurred after the federal election where the Liberal Party, led by Justin Trudeau, won against the previous Conservative Party majority that had been in power under Stephen Harper for the past decade. Trudeau was elected on a platform that in part promised to take action against climate change. On this trip I stayed in a hotel by the airport, took an aerial tour of the two largest mine sites, Syncrude and Suncor, and was shown the nightlife by a tradesman friend who was working in the region. The third trip (September, 2016) was taken after the Fort McMurray wildfire. I stayed in a hotel downtown this time and spent most of my time touring the region to observe changes, both physically and emotionally.

For each trip to Fort McMurray, I drove from Edmonton in order to experience the five-hour commute that some of the workers I talked to experience at the beginning and end of every shift. In the first two trips I experienced the slow transition between landscapes going from aspen parkland, into grassland, and finally into the black spruce and muskeg of the boreal forest. I discovered how the city itself was offset from the mines and other extraction projects. From ground level most of the mines, except the Syncrude mine, are screened behind bands of vegetation. This region set in wilderness is an odd mix of positive and negative connotations. It is a region of concentrated industrial activities that receives accolades for being an economic powerhouse but is simultaneously ridiculed for its environmental degradation and contribution to GHG emissions. The Municipality, aware of these attentions, celebrates with pride the

companies that offer such high standards of living but equally strives to etch out an ecologically sound existence in the forest at the forks of the Athabasca and Clearwater Rivers.

During my 2016 post-forest fire trip to the oilsands region I experienced how altered the landscape was when driving into Fort McMurray. Large swaths of black poles that used to be trees dominated the landscape, but underneath young trees survived the fire and now have room to grow. 'Welcome Home' billboards, 'YMM Strong', and promises to rebuild, lined the highway like emotional punctuation. Such observations, combined with the media review data, are used to remind me of the contextual shifts that occurred throughout my research.

Part of observational data collection was also to monitor media sources for news and information regarding oilsands mine work in particular anything that would contextualise this case study and the people working on the ground in oilsands mines. News articles and publications from government and non-government groups were gathered, as were some social media articles from Facebook and YouTube. The purpose of collecting and analysing these media was to look for news story and report patterns that matched patterns in interview data (Yin, 2014). This review helped contextualize what it means to work in the oilsands and adds to the descriptive aspect of this research results.

Analysis of data.

Following data collection and transcription all data were analysed. Having eleven interviews allowed me to undertake a manual analysis, which was advantageous in that I

could engage more directly, deeply, and carefully with the data rather than being distracted by learning new computer-assisted analytical software (Saldaña, 2016). Analysis consisted of examining, coding, categorizing codes, and then tabulating results to determine themes in relation to the initial questions and objectives of the study (Yin, 2014, p.132). Coding was done using bottom up, open coding, approach that entailed flagging conversations on points of interest, and then sorting these codes into categories and subcategories. These were then developed into themes encompasing work life, home life, and the environment. These themes were then compared to key areas identified through the literature and theoretical concepts sourrounding ecological habitus and Bourdieur's field theory. The main objective was to develop a case description of the ecological habitus of those working in the mines of the Athabasca Oilfield.

Ethics.

Collection and analysis of data from interviews was in accordance with the Tri-Council Policy Statement (TCPS; 2014) core principles: respect for persons, concern for welfare and justice (p.6), and a University of Alberta Research Ethics License. Informed consent was achieved through a University of Alberta Research Ethics Board approved consent form that was e-mailed to each participant at the time of contact and briefly reviewed before the interview commenced. I ensured that each participant's involvement in this study was completely voluntary, they did not have to answer any questions they did not feel comfortable answering and they had the right to withdraw from the study at any moment even after the interview had ended.

All participant identities were anonymized including their names, places of work (including the mine and company they work for), and place(s) of residence. Potential risks to participants could include repercussions from employers and/or ridicule from friends and co-workers if information from the study can be traced back to individuals who participated in this study. Concealing the identity of participants minimizes the risk to those involved from negative effects they may encounter as a result of being involved in this research. Participants were also asked not to discuss the contents of their interview because this could compromise their anonymity. No individual was disqualified from participating based on any characteristic such as age, gender, sexuality, ethnicity or religion. Although there was not any direct benefit, research participants contributed to "… the welfare of society as a whole though the advancement of knowledge for future generations…" (TCPS, 2014, p.20).

Chapter Three: An Ecological Habitus at Work and Home

Everyone has an ecological habitus, a disposition towards the natural environment that plays out in our everyday lives. A person's ecological habitus is how they perceive they should best interact with the environment. How best to interact with the environment is connected to history and the social context(s) that person is in. I define ecological habitus as having three aspects: First, everybody has an ecological habitus but does not necessarily involve pro-environment dispositions and actions; that is, an ecological habitus is value-neutral (Kasper, 2008). By 'value-neutral' I mean that a person's ecological habitus depends on their perspective of how best to interact with the environment. Some are very concerned about how human systems negatively affect non-human entities and eco-systems; therefore, they seek to mitigate negative affects through their actions. Meanwhile, others feel that humans are already behaving harmoniously with the environment and no changes are necessary. This does not mean that conflict does not exist. One person's perspective of living well ecologically does not always match another person's way of living well in a particular place.

The second aspect of ecological habitus is that it entails the competition of two doxa,[14] an orthodoxa that is the dominant societal view of how to live well with the natural environment while a heterodoxa challenges that dominant view (Heluza-DeLay, 2008; Nilan, 2016). Thirdly, and finally, ecological habitus plays out on a field of

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[14] As mentioned in Chapter Two, doxa is a taken for granted view of the world and is comprised of orthodox and heterodox perspectives and behaviours (Bourdieu, 1990).

sustainability.[15] This field has its own rules, language, and social practices, where the 'feel for the game' relies on integrity in terms of sustainability (Gäbler, 2017), where if pro-environment attitudes do not align with pro-environment behaviours a person's integrity is called into question. I use this definition to explore my research questions: what is the ecological habitus of oilsands mine workers, and does working in an oilsand mine influence their environmental concern? If so, how do these concerns play out in their everyday lives, especially their home lives where they have (at least some) power to preform actions of environmental integrity?

The data presented here are derived from interviews with eleven participants using a semi-structured interview guide (Appendix A). These are self-reported behaviours, not directly observed behaviours. This limits the research in that I can only speak to how these participants think they behave and not how they actually behave.

As stated in chapter two, the motivation behind choosing this group to research is not to place blame for environmental degradation or responsibility for environmental action on these workers. Rather, the motivation in interviewing this sample of the population is that they have a 'front row seat' to the consequences of western societies' demand for fossil fuel energy.

In this chapter I begin with presenting the results of my interviews. The results are sectioned into five major themes that describe in general the lifestyles of the oilsands mine workers I interviewed, and how their lifestyles relate to environmental concerns.

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[15] I mean sustainability to be actions that seek to minimize, mitigate, or repair negative human impact on the environment.

Following this, I discuss how these lifestyle attributes shed light on the ecological habitus of these workers, how in general their ecological habitus can be viewed using neutral terms. I describe the power struggles between heterodox and orthodox environmental social practices, the ways in which heterodox behaviours remain dominant, and how behaviours are defended through a language of environmental integrity.

Results

In this section I begin by presenting the findings for five major themes: 'work life'; 'home life'; 'work life and environment'; 'home life and environment'; and 'hobbies, vacations and environment.' First I analyse the overall lifestyles of these oilsands mine workers through their work life and home life because environmental behaviours play out in these spaces and it is in these contexts where ecological habitus can be examined. I then examine concern for environmental issues and environmental behaviours, how they talk about—or do not talk about—pro-environment social practices, in relation to these themes of jobs, their home lives, hobbies, and vacations.

Overall, I found that the ecological habitus of these oilsands mine workers is oriented toward 'experiencing nature' as the best way to live well ecologically. There is competition between heterodoxa and orthodoxa within individuals, where being pro-environment (hetero) is in conflict with how people typically conceive of living well (ortho) in an anthropocentric manner where environment is seen as resources to be used and a place for waste. I also found evidence of a language being used by these workers that uses environmental integrity as a form of capital within their ecological habitus.

They compared their own behaviours against the behaviours of other whom they perceive to be living less ecologically-well.

I begin by presenting findings on 'work life' and 'home life' in general because it is a very different way of living compared to what is viewed as a typical Canadian resident's lifestyle—nine-to-five, Monday to Friday lifestyle. By dealing with work and home life in general I am contextualising ecological habitus as a part of their overall work and home lives, their family and human priorities, concerns, and the cycles of the work and home week where ecological habitus and pro-environmental behaviours are embedded.

Work life.

The work of participants was commonly described as an intense routine with long work hours in a high stress setting. Although there were variations to participants' routines, for the most part workers stayed in camps while on shift. Their work days begin at 4:30am. They go to a cafeteria for breakfast and to pack a lunch, then walk or bus to particular areas of the mine, work twelve hours, go back to camp to wash, eat dinner, go to the gym, make a telephone call home, and then go sleep. For those who stayed in town while on shift these 12-hour shifts are book-ended by a 45minute-1.5hour commute back to Fort McMurray, either by bus or personal vehicle. As mentioned before, these direct mine employees work seven or fourteen days straight followed by seven or fourteen days off. These work shifts are described as 'sets' of days on and off. For example, a fourteen-and-seven means that the employee works fourteen days on followed by seven days off.

Those that I interviewed also rotateed from night shifts to day shifts every other 'set.'[16] Under this labour model the mine can operate 24 hours a day 365 days a year, but also makes employees feel as if nothing matters except production.

> *There's some days I don't take breaks… I get out there and don't stop for, except for maybe snacks while I'm doing paperwork. I know how much it costs for those trucks to be down per hour. Well when oil is good they said it was like 20,000 bucks an hour for a truck to be down (Jake, FIFO field mechanic, Interview 7).*

Here Jake describes the nature of oilsands mine work in terms of being able to take a rest. The pressure of the monetary consequences of heavy haul trucks being out of service causes him to sacrifice nutrition and mental well-being. Mitch describes another aspect of stress and fatigue often experienced by mine works associated with long how long workdays and weeks and balancing work with commuting home to family.

> *Yeah and it's though 'cause when you think you got that grind, right? 'Cause it's like once you start it's not like you can press the pause button, you go, go, go, go and then after the seventh day it's like *sigh*. As soon as I'm done [a work week] it's a very long day I just get in the vehicle and drive another four hours [back home] (Mitch, DIDO operator, Interview 4).*

Mitch describes another aspect of stress and fatigue often experienced by mine works associated with long how long workdays and weeks and balancing work with commuting home to family. Similar results are seen in other studies of mobile workers in the Wood

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[16] The exception is some supervisors and managers work four day weeks and only day shifts.

Buffalo region where being in camp is an exercise of counting time and money (Dorow & Mandizadza, 2017), how much time worked, when you get to go home, how much money you have made, and what you are going to spend your money on when you get home (pp.8-9).

Work in an oilsand mine is a high stress endeavour that pays very well but is also risky, both physically and financially. Participants describe their work in terms of long work days and work weeks, where fatigue is a common experience. They are aware of the dangers of mine work and think of this often. Peter describes his job as a field mechanic in a small truck, "I'm out there, basically, as a rolling target to all the trucks" (Interview 2). Three fatalities, connected to mining equipment, occurred during this research (Tait, 2014; CBC.ca, December 2015; CBC.ca, October 2017). Knowing about these deaths, and having personal network connections with those who have lost their lives, is a constant stress for these workers while on shift in the mine.

Financial risk is also a part of working in an oil mine. Relying on real estate and company shares investments in a boom-bust oil economy means that when recessions occur or oil markets slump employees lose money on both housing investments and company shares. For many of these respondents their primary retirement savings plan relies on equity from property investment and company shares. When oil markets slump so do their company shares and property investments, which makes workers hesitant of changes that would affect oil industry profits. Of those I interviewed, many talked about having a contingency plans to get out of this situation by diversifying their income. They diversified their investments through small business ownership and moving their

company shares. Others have plans to make and save as much money as possible then leave oilsands employment. For example, Jake has a five-year plan to make enough money to buy a ranch and leave the oilsands once his child is in school. “I just stick to my plan. We all have plans, everyone that goes up there has a plan” (Jake, Interview 7).

Most workers see the oilsands as a temporary stop in their careers. They express frequently how they do not particularly like working in the sands and refer to working in the oilsands frankly as a means to an end. This ‘end’ is commonly described as trying to get their family ahead in life.

Home life.

> *You go to work, and it’s just a week of work, life almost stops but you’re rushing to get through it. You tend to be very busy, so it goes by quick. Then seven days that you want to stretch out and make last. They’re not long enough, so they go by fast. So life just flies, it really does. Years pass quickly here (Frank, Interview 8).*

Overall, participants said much less about their home lives than their work lives. Each oilsands mine worker spends roughly an equal amount of time at home as they do at work.[17] An outsider might imagine these days off as unstructured free time but, for the most part, their days of ‘rest’ are full catching up on the time they missed while away working. Being home entails interrupting and inserting themselves into lives that did not stop while they were on shift. Going home entails catching up, taking up the social roles of homelife (being a father/man, being the man/woman), taking care of things, and

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[17] I have observed that direct employees of mining companies have more balanced shifts, 7-7; 4-3; 14-14, compared to contract workers 10-4 or 14-7.

negotiating for things to be taken care of for when they have to leave again (Dorow & Mandizadza, 2017). Days off are spent with their partner, children/grandchildren, dogs, extended family relatives, and close friends. Interviewees often had young children and tried to spend as much time with them as possible while home, frequently stepping in as a relief to their life partner, who are the primary caregivers to their children while they are away.

Missing their children's lives was quite palpable in my interviews. As George, who has worked 'up north' for over 30 years says, "Yeah, I missed more than half of my kids' life, so you do a lot of sacrificing, and it's not for the almighty dollar, it's so that you can support your family to try to get 'em ahead" (Interview 5). Those without kids sometimes went on day trips with their partners as a form of getting away, spending time, and reconnecting. Home life, colloquially referred to as 'days off,' is also the only time for doing errands, home improvements, yard maintenance, vehicle repair, the 'honey-do-list,' and for many, the only time they can go shopping for groceries or consumer goods.

A person's ecological habitus is embedded in the everyday lives of people. By understanding the relationship between work lives and home lives we can then begin to examine how thoughts, beliefs, values, and behaviours relating to the natural environment are manifest. For oilsands mine workers their lives and home lives are both equally intense. Work is high stress, and long work days and weeks with very little down time are combined with a real risk to human life. While at work, home life does not stop. These workers miss large pieces of time in the lives of their family and friends. Time at home is intense as well, as these workers strive to play catch up by 'cramming two weeks of

living into one' (journal observation, 2017). As such, I examine how an oilsands mine worker's thoughts on environment and environmental issues fit into their lifestyle. By exploring this question I can begin to unpack what their disposition is towards the natural environment: their ecological habitus.

Work life and environment.

When we discussed environmental concerns two scales of environmental issues emerged. One a localized, small scale, form of environmental concerns relating directly to mining activities: moving of the overburden, constructing dykes, tailings ponds and sand piles, piles of pet-coke, breathing in silica sand dust, H_2S leaks, disrupting and destroying habitats and eco-systems. These concerns received the most discussion. There was tangible quality to the stories these workers told me about their particular mine and how they feel about the environment surrounding that mine. The other scale was larger scale environmental concerns primarily surrounding the issue of climate change and how the mines are connected to emissions contributions in Canada. Participants found it difficult to fully buy into the idea that the mines here could be contributing to climate change and when they did, climate change was not as important as compared to other more localized environmental concerns.

When it came to talking about environmental concerns surrounding the work site, opinions varied. Most interviewees expressed higher level concerns regarding pollution of the land, water, and air; concern over destruction of ecosystems and displaced wildlife and doubts of whether or not reclamation is working, or would ever work. Jake expresses his concern over a bear he once saw in the mine "You see all the animals, bears and

whatnot, and you're like, last year this was your home, and that's my attitude when I'm out there, I feel bad" (Interview 7). Specific concerns included: tailings ponds contaminating the Athabasca River, pollution of groundwater systems, risk to northern communities' fisheries and hunting grounds, environmental risks associated with petroleum coke dust,[18] and wastefulness. Waste concerns included using too much oil in leaking machines, throwing away partially used materials, and unnecessary and excessive food and beverage related waste. As one participant stated,

> *It just makes me sick about how much waste there is… Like, a lot of the stuff you control, like you have a tube of grease here and you used it once and then you throw it away. That's something you can control. You know all your aerosol cans; you're just throwing everything away after one-time use (Peter, Interview 2).*

These concerns for environmental issues related to the job site are of a direct sensory nature to them. The people I interviewed had seen the event or incident happening and causation was quickly determined. Those who expressed heightened concern for environmental issues spoke of them though firsthand experiences. For instance, one field mechanic told me:

> *I've gone to too many calls where engines have lost 300 liters of oil and it's… just…*sigh* soaks into the ground. The area that we do maintenance on in the mine, apparently, it's built on an old marsh so there's gotta be waterways underneath there somewhere. Just over the bank there is like a nature area with a big pond, almost like a little lake, with trees and birds and there's always foxes and coyotes hanging out. This is just, you know, probably no more than a hundred feet*

[18] A carbon bi-product of upgrading bitumen

> *away from where we do all these ugly things (Jake, Interview 7).*

The physical and visual proximity of doing oil work next to a natural setting, for Jake, is enough to impart deep concerns for how human actions in that area are effecting groundwater, a water way, and wildlife associated with that area. Almost all of these concerns were described as localized, job site specific, and were coupled with stories of events and things these workers experienced while on the job.

On the other hand, some workers were not concerned about environmental issues regarding the mines and believed that the mining company they worked for are producing in a responsible way, and are effectively regulated in regards to the environment, and expressed confidence in reclamation projects. When posed with the question of work related environmental concern their responses were very supportive of oil mining operations in northern Alberta. They believe that environmental concerns raised by environmentally minded people are blown out of proportion compared to what they perceived as the reality of the situation. For example, when I first asked George about what he thought about climate change his immediate reaction is:

> *Well, we'll start out by just saying climate change, they're full of shit, it's a cycle. The Earth has been in a climate change cycle for eons, centuries, and now you're saying we're changing it? We haven't changed. We still don't have the carbon that was when the dinosaurs were around, that level's still nowhere near it (Interview 5).*

This strongly reflects a common climate change countermovement argument that CO_2 levels on earth were higher in previous geological eras.

For participants who expressed disbelief that climate change is caused by humans burning fossil fuels, environmental critiques of oilsands operations were said to be based on pseudo-science, and driven by an agenda set forth by 'leftist' mainstream media and governments. They also described how humans were not possibly numerous enough to be negatively affecting the planet. Oilsands mines were framed as an indispensable economic asset to be developed further and mine companies as being disadvantaged by too much environmental regulation. The local ecological consequences of mining were dismissed and sometimes even framed as environmentally beneficial, as explained by Ivan, "[a]m I thinking about the ecological damage we're doing in the mine itself? Absolutely not, because basically what we're doing is we're cleaning up the world's largest oil spill" (Interview 6). Other interviewees, who I describe as having environmental concerns, also had overlapping and conflicted opinions where their environmental concerns were in tension with their support for the industry that employs them.

> *Sometimes I just feel like we're raping the Earth right? But it's so, it's such a fine line because that's what feeds my family that's what pays my bills… I mean it's a fact of life and sometimes I feel crappy about it (Laura, Interview 10).*

What Laura says here exemplifies the tension that exists in all of these workers where there is a deep regret and sadness for environmental damage caused by mining and human demand for petroleum verses the benefits of having a really good well-paying job. Carolan (2013, p.259), drawing on the work of Robert Merton (1976), describes this tension between feelings, attitudes, and beliefs as "sociological ambivalence".

Ambivalence, having mixed feelings and/or contradictory ideas about something, becomes sociological when it ties onto social statuses and roles causing "role strain" where "tensions that emerge when expectations from holding multiple roles clash" (Carolan, 2013, p.259). Those I talked to exhibit this tension where they express concern for the environment and environmental degradation that occurs from oilsands mining but these attitudes and feelings are in tension with their social roles that require them to earn a living and provide for their family.

Home life, hobbies, and environment.

Depending on the lifestage of the participant there were different patterns of how they talked about their engagement with family time and the environment. When coming home from work reconnecting with partners, children, and pets was priority. I was interested to know how their expressed environmental concerns and behaviours towards the environment would be affected by this social reintegration process. Participants talked at length about their enjoyment of outdoor recreational activities and how much they enjoyed being out in nature. For those who had children, it was important for their children to learn these activities and spend time outside. For example, the purchase of Craig's house was determined by the lot size and how his children could interact with the outdoors.

> *We didn't even like the house, we had a big yard… that was our big focus so they could stay outside when they want to be. My 18 month old, she lives outside, she loves it. Put her in her snowsuit and she'll sit out there all day, she don't care (Interview 1).*

Being outside, outdoor recreation activities, and purchasing large properties are not necessarily pro-environment behaviors but they relate to how a person views, and interacts with, the natural environment. In these interviews nature is a product for consumption.

Hobbies involved some form of outdoor recreation. Amongst outdoor pursuits, the most common were hunting, fishing, golfing, hiking, walking, and cycling. Less common but still prominent was snowshoeing, skiing/snowboarding, and snowmobiling.

Going out to socialise was not very common instead, solitary activities were more commonly talked about including: going to the gym, watching movies, playing video games, home and yard work, and working on household projects. The industry mechanics also tended to practise mechanics as a hobby. Both maintaining and repair their own vehicles and the vehicles of friends and family. Those who had young children or grandchildren described spending a lot of time with them going to malls, recreation centers, or taking them to play sports.

Less common was how environmental concerns affected life pursuits in a way that influenced mindful pro-environment behaviours. When these did occur they were amongst those who did not have children. While this sub-group did not have children, having dogs was common. Their interaction with the natural environment still included outdoor recreational pursuits, taking their dogs to experience nature, and the desire to

own large pieces of property. However, their concern for environmental degradation modified how they pursued their interests. Jake, for example, tries to keep his hobbies simple, low key and less costly than most workers.

> *I just, I go up there and I know I come back to just my simple living, with my projects. I don't have big over the top toys [like] jacked up trucks and fifth wheels. I have a tent. You know, I don't have a giant travel trailer. I don't have a $40,000 Harley. I've got a little, few thousand-dollar motorbike project that I'm working on (Interview 7).*

Jake contrasts his own small motorbike project, a pursuit connected to a love of mechanics and desire to experience reconstructing a vintage motorcycle, against what he sees as wasteful and unnecessary purchases. Owen, on the other hand, became a vegetarian because of his concerns with industrial agriculture and its negative connection to animal welfare and climate change. Meanwhile, Laura walks her hometown as much as possible rather than drive and makes green consumer purchases like preferring to buy organic or local produce and higher quality goods that last longer. In addition to how home activities were associated with actions to environment I also wanted to know how environmental attitudes and behaviours factored into vacation time for these workers.

Vacations and environment.

There were four types of vacations that people took: the annual trip home, recreation vacation, exotic vacation, and short getaway vacation. Every participant engaged in all four forms. At least once a year there was some form of returning home to see family. 'Going home' was usually a driving vacation. Most drive to other provinces or the

northern United States. One flew home annually to see family because the distance is too long to drive.

Recreational vacations centered around a main hobby and tended to have some sort of seasonality to it. In the summer there was golf, fishing, or camping trips. Hunting trips took place in the fall. Winter trips were for skiing/snowboarding and snowmobiling. These recreational vacations usually involved driving to the Rocky Mountains of Alberta, or to the interior of British Columbia. Staying local was considered to be a low-key and undesirable form of recreational vacation.

Either annually or biennially participants typically went on an exotic vacation that involved flying. Common places to go for them were Vegas, Mexico, Jamaica, Hollywood, Paramount Studios, Disney, or Caribbean cruises.

Day-trips and weekend trips were also commonly talked about for camping or driving scenic routes, these were usually done in the summer months as a way of getting away from the city for a few days.

Annual vacations, exotic vacations, and short getaways had distinct human centric motivations. Traveling large distances to go home to see extended family members re-establish bonds with a larger family group. Going with the nuclear family, or close friends, to entertaining destinations create memories that people can reflect on also solidify family bonds. Short getaway trips served the purpose of allowing a couple, and their family to reconnect after a period of working away from home. These three forms of vacation were opportunities for participants to re-establish and reinforce social and kinship ties. The relationship between these forms of vacation to environmental

behaviours had to do with modes of transportation—traveling via plane, cars, and ships. Modes of transportation and their relation to environmental concerns or environmental degradation were conspicuously absent from our discussions.

Converse to the lack of discussion connecting annual, exotic, and getaway vacations, to environmental concerns, talking about recreational vacations had direct associations with natural environment and how participants thought about nature, and how they interact with the nature. Similar to 'home life' and 'hobbies', when it came to recreational vacations natural environment was a place to be out in and to be experienced through outdoor recreation.

Participants also spoke of how their way of doing recreational vacations was ecologically 'better than' others. For example, and mentioned before, Jake criticises people who camp using trailers, "I don't have big over the top toys [like] jacked up trucks and fifth wheels. I have a tent" (Interview 7). Craig also compares his camping vacations to other oil workers:

> *Yeah, like the shit people have is crazy. Like I have a holiday trailer. It's not a big trailer, it's like a hybrid, it's like a tent trailer. We didn't want anything elaborate we didn't want anything big, 'cause it's something that you use very infrequently (Interview 1).*

In both examples those who have 'over the top' or 'elaborate' recreational vehicles are spoken of negatively in comparison to their own way of behaving. These statements, and ones like it, relate to sustainable integrity as a form of capital in ecological habitus. Those who have the smaller eco-footprints have higher status (Kirby, 2017). Jake would have higher ecological status than Craig because he uses a tent to camp. Craig would have

higher status than someone who uses a fifth-wheel trailer or RV for camping. Using this idea of ecological footprint, or in this instance carbon footprint, is being employed by both Jake and Craig to position their camping recreation as 'better than' other's. It's here that I see integrity being used as a form of capital on a field of sustainability.

In this chapter I examine how individuals working in the oilsands mines of Alberta think about and behave towards the environment to conceptualise these as part of their ecological habitus. A possible barrier to why environmental attitudes and behaviours do not align is that most people do not have time to think about the environment because of the demands involved with modern work and home lives (Blake, 1999; Kollmuss & Agyeman, 2002). The lifestyles of oilsands mine workers provide an opportunity to examine how constraints on personal time may affect how they think and behave towards the environment because they have unique work/home life structures compared to what is 'normal' nine-to-five, Monday-to-Friday, work schedule. Work life is very structured with little time for individual pursuits or to behave environmentally how they would prefer. Home life, while it is described as 'days off' are also subject to the responsibilities these workers have to their family and property. While at home there is downtime to fit in hobbies and personal pursuits. Vacations represent unstructured free time where these individuals have the freedom to pursue whatever they feel however they feel. They also work in a location where they witness the environmental consequences of oil demands and production. In the discussion portion of this chapter I relate these results to a working definition of ecological habitus.

Discussion

The ecological habitus of the oilsands mine workers I interviewed have three main attributes. The first is that ecological habitus is a neutral term. Second, there are two doxa that make up an ecological habitus an orthodox—typical—way of behaving and a heterodox—atypical—way of behaving. Thirdly, sustainability is the field where ecological habitus plays out where integrity is used as a form of capital. Ecological habitus is embedded in the everyday lives of people. The everyday concerns of people such as having and keeping a good job, providing for family, getting their family ahead, work fatigue, and saving for retirement, allow them to push aside heterodox ideas of pro-environmental behaviours which in turn perpetuates orthodox environmental behaviours.

As stated before, ecological habitus is a neutral term that captures how a person thinks about and interacts with the natural environment. By considering ecological habitus as a value-neutral term that is not necessarily pro-environment, I was able to see what this group considers to be living well with the environment. Living well ecologically was primarily associated with 'experiencing nature' through outdoor recreation. Simply being out in nature doing some form of outdoor activity is living well with the environment. Activities ranged from relatively benign activities like walking and hiking, only requiring, at minimum, a trail and pair of shoes, to carbon intensive and invasive activities like golfing, camping, skiing, 'quadding', and snowmobiling, which all need large areas of developed land and burning fuels for recreational and entertainment purposes.

For those who have children, teaching them outdoor pursuits were also important. Dog owners also felt it important for their dogs to experience nature and commonly arranged for their own recreational pursuits to centre around their dog(s). Going to 'The Mountains' was another common code associated with the themes of what it means to live well with the environment and experiencing nature. Although ecological habitus is a neutral term, this does not mean that there is no tension or struggle that occurs because of ecological habitus. These tensions are also representative of the sociological ambivalence (Carolan, 2013; Merton, 1976) that exists between how people's concern for the environment and their social role of earning a living.

Tension occurs when there is a power struggle between typical and atypical ways of behaving (Merton, 1976) and heterodox (atypical) and orthodox (typical) ways of thinking. This tension represents a power struggle that occurs not only between but also within these workers. Although an overall ecological habitus can be considered neutral there is still conflict between what is orthodox and heterodox ways of viewing and behaving in the world. This was clearly expressed when people talked about 'environmentalists.'

Environmentalists were commonly categorized into two groups. 'Crazy environmentalists' were people who openly criticise and protest oilsands operations.

> *They come over to wave their flags and stop [oilsands production] for the whole day. I mean they flew over here on a big fat jet right? So it's… it's it's such, a, it; somedays I look at you know the trees that we push down and what we dig up, and what we take, but that's, unfortunately, it's fact of life. We're not all pilgrims… it's not what life is anymore (Laura, Interview 10).*

'Real environmentalists' are framed as non-threatening and benign. George states that a 'real environmentalist' is someone who

> *"[A]ctually does environmental work and goes around being an environmentalist, they check the fish population, they check the animal population, they check the trees, they are concerned enough that they went to school and decided to investigate" (Interview 5).*

'Crazy environmentalists', exemplified by visiting 'outsider' outspoken celebrity environmental activists— like Neil Young, James Cameron, and Leonardo DiCaprio— and environmental activist groups like Greenpeace, were commonly criticised for being hypocritical because they too enjoy the comforts of a modern life that entails burning fossil fuels. This misinterpretation of the surrounding environmental issues and consequences of oilsands mining is common. Such a 'red herring' argument creates diversion from the issue of environmental degradation caused by oilsands mining by pointing to the issue of specific individuals consuming oil while also critiquing societal oil consumption. Although related issues, they are not the same. Celebrity activists are recast as illegitimate spokespeople for environmental issue of environmental degradation caused by oilsands mines because they also benefit from using oil products.[19]

The charge of 'crazy environmentalist' indicates a heterodox opinion that rubs up against what these oilsands mine workers condone as the proper orthodox way that 'real environmentalists' should behave. The role of 'real environmentalists' was to simply

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[19] This diversionary way of talking about environmental degradation associated with oilsands production is also associated with social silence, denial, and constructions of innocence which will be discussed in more detail in Chapter Four.

gather environmental data to inform industry and governments towards better extraction practices and a stronger social license to operate. Such normative behaviours do not necessarily threaten the status quo—the stability—of how things are currently done. Heterodox 'crazy environmentalists' challenge and so threaten dominant ways of thinking and behaving. The behaviour of 'crazy environmentalists' made these oilsands employees uncomfortable and caused them to be defensive, dismissive, silent and thus possibly resistant to perform heterodox pro-environmental behaviours.

Heterodox and orthodox thinking can also be used to understand the attitude-behaviour gap (A-B Gap), where new heterodox ways compete against the more established and dominant orthodox social practices. This corresponds to the conclusion of Kennedy et al. (2009) where the biggest barrier to new behaviours being adopted is old habits. But instead of simply old behaviours being in the way of new ones, new behaviours are discredited. As demonstrated in my interviews of oilsands workers and supported by media presentation of local responses to visits from American artists, old habits are defended, and people vociferously resist change. Old habits are reinforced though a collective agreement of how to live well. For these oilsands mine workers living well with environment means having physical experiences through outdoor recreational pursuits. Only a few workers expressed that their environmental concerns affected how they conduct their socio-ecological day-to-day lives. Most express more traditional, orthodox, ways of interacting with the environment where human actions are centered around interacting with the environment in a pattern of consumption of and experiencing

nature. They are also in the process of reproducing their ideal way of living with nature by teaching their children to how to live with nature in the same way.

They share their ideal way of living with environment through experiences with friends and family. For example, annual winter "sledding" (snowmobiling) trips to "The Mountains with the boys" from work (Blake, Interview 2). This differs from the ecological habitus of an environmentalist who views activism and being an advocate for environmental protection from human encroachment as the best way to live ecologically.

I understand the three participants, described above, as having a heterodox type of ecological habitus; a disposition of how to live well with the environment that centres around environmental concerns and pro-environment behaviours. For these three their concerns for the environment are playing into how they behave in day-to-day life which is an example of how the gap between their attitude-behaviour towards environment is reduced. Following Catton and Dunlap's New Ecological Paradigm (1978) these three workers see themselves as part of an ecosystem and their concerns for environmental degradation cause them to try, in their own distinct ways, to live in a more harmonious way with that environment. They also expressed a definite tension between trying to live ecologically well while being involved in work and behaviours that are damaging to the environment. For example, Owen talks about owning his Corvette but wanting to buy a Tesla when they become more affordable and reliable. Owen wants a Tesla not only because "Teslas are cool" but also from a feeling of guilt over driving a vehicle that he sees as less environmentally friendly (Interview, 9). These workers, when talking about or focusing on these tensions between orthodox and heterodox ways of thinking and

behaving, frequently called out a person's, or group's, behaviors in order to hold up their own attitude or behaviour as 'doing it better' than another's attitude or behaviour.

Oilsands workers use ecological integrity as a way to defend ways of behaving in a heterodoxy. Ecological habitus draws upon sustainability (actions that mitigate, minimise, and reverse environmental damage) as a field and ecological integrity as capital in this field; those with the smallest ecological footprint have more status (Gäbler, 2016). Common throughout my interviews is how participants viewed 'others as doing it wrong.' This came out predominantly when talking about how outdoor hobbies were done. Those who camped in tents were critical of those who had trailers. Those who had trailers emphasized how small their trailer was compared to people who had big camping vehicles. 'Other's doing it wrong' also come out in discussions about climate change and emissions.

Participants commonly questioned the ecological integrity of a person or a group by pointing out hypocrisies. That the moral stance of someone who critiques the oilsands does not match their behaviour of using oil products is called a hypocrite.

> *There's so many things that people tend to forget when they become this so-called environmentalist. That without some of these oils, in fact some of these tarsands oils…[if] you take that away; you take a lot of things away. You want to be a true environmentalist? Walk, ride a bike, don't drive a car, don't fly, right? So, if you're going to be a hypocrite make sure you wear it real' well (George, Interview 5).*

The 'hypocrite statement' is effective because it silences any who are involved. It polarises the conversation and paralyses those who might have opinions to share. For instance, Sean (Interview 11) says, "I don't want to sound like I'm way left wing…" as a

way of distancing himself from those whom he sees as having these opinions, specifically ‘left-wing environmentalists’. It causes those with wanting to live environmentally better to question their behaviours to believe change is pointless or unattainable because oil products are ubiquitous in our everyday lives.

Unfortunately, these hostilities and accusations of hypocrisy towards critics and activists who speak out against environmental issues associated with oilsands mining and the oil industry will not likely stop because of our dependence on oil. Modern industrial societies depend on vehicle transport for everyday life. Fuel consumption is compulsory in what Ivan Illich saw as a societal ‘radical monopoly’ of the transportation industry (Illich, 1974) where our environmental decisions are shaped by the dominant industrial order. “Any industry exercises this kind of deep-seated monopoly when it becomes the dominant means of satisfying needs that formerly occasioned a personal response” (p.18). Simply not driving is not an option for the majority of people living in Canada. Our dependence on oil goes beyond transportation and moving goods and services from A to B. Petroleum and petroleum products are ubiquitous in all consumer goods. We are a nation and a world “addicted to oil” though the products and the energy we need to charge those products (Huber, 2013) and the artificial indoor environments we maintain (Shove, 2003) all require energy—from coal, natural gas, and sometimes petroleum coke. Until we can find a way out of this dependence and compulsory fuel consumption this situation will not change.

Conclusion

Previous studies of ecological habitus focus primarily on those who are environmentally aware or part of environmental groups (Haluza-DeLay, 2006; Kasper, 2009; Nilan, 2017). In this research I took the opportunity to study the ecological habitus of a group who is not necessarily considered to be concerned with environmental issues. I asked participants who work in oilsands mining operations questions to better understand what their ecological habitus would look like, if they had environmental concerns, and how do these concerns affect the ways they behave in their everyday lives.

In order to understand the ecological habitus of oilsands mine workers I first had to understand what their overall life patterns were, what their environmental concerns were, and how they talked about their interactions with environment at work and at home. Work for these oilsands mine workers was described as intense and full of physical and financial risks. They live, work, and commute to northern Alberta to try to make a better living and to get their families ahead. Home life for oilsands workers was equally intense, if not more, as they described their condensed routines of maintaining social connections, getting errands done, and trying to include hobbies and vacations into their lives.

Not all were immune to the environmental damage that occurs as a result of petroleum demands. While some believed the industry was doing a good job of mitigating these damages, more felt concern that not enough was being done to protect the ecosystems in the region. Among the most concerning aspects were seeing wildlife suffer as a result of mining development, and proximity of tailings ponds, pet-coke piles, and mining operations to surface and underground hydrology. While at home, having a

relationship with the outdoors through recreation was viewed as the best way to interact with the environment. Only three interviewees expressed that their environmental concerns had an effect of their home lifestyle and that their concerns caused them to act in a heterodoxic, pro-environmental way.

From these results I conclude that the ecological habitus of these oilsands mine workers is one of awareness and concern for the environment but, like many other groups where the A-B Gap is observed, these do not translate to pro-environmental behaviours. Their dispositions are supportive of environment protection, they were concerned for environmental damages they have seen or experienced, but for them, action was seen as being the responsibility of others (other countries, other industries, others people 'doing it wrong'). These mobile mine workers all had similarily intense homelife-worklife situations, time off structures, and high incomes. Both the week(s) off leisure time and excess income were allocated towards 'living the good life' and 'getting the family ahead' and the environment was largely a commodity to be experienced or consumed. This is not to be a critique of these particular people's life choices or how they don't choose to live in a more pro-environment way considering their concerns. Rather I mean to point out that 'living the good life' and being pro-environment seem to be in opposition to one another. This extends to all Albertans and Canadians who do live a good life because of the oil we produce and sell to the United States and that oil has environmental consequences.

Very few spoke of how their dispositions affected their own behaviors. Overall, living environmentally well had to do with experiencing and interacting with natural

landscapes though hobbies and recreational activities. Some activities were less environmentally damaging than others such as walking or hiking but most activities engaged with were carbon intensive and required large pieces of developed land and centered around travelling to the mountains.

There was; however, a discernable tension between typical ways of behaving and pro-environment ways of living. I describe this tension as a conflict between orthodox (typical) and heterodox (atypical) ways of thinking and behaving. This internal struggle can be seen both within individuals but also between groups, and came out especially when participants talked about environmentalists. Environmentalists were split into two categories of 'real' and 'crazy'. Real environmentalists represented an orthodox way of seeing the world and behaving within it and crazy environmentalists threatened the status quo by calling for changes and revisions in how we behave towards the natural environment. Whether defending orthodox or heterodox dispositions, participants called out another's integrity in pro-environmental actions in order to defend their positions.

Integrity was used as a form of capital when talking about pro-environmental ways of living. A person's way of behaving was viewed as more pro-environment than another's. Or that those who spoke out or were too vocal about being pro-environment were called hypocritical. This use of pro-environmental integrity as a point of contention can be seen as something that perpetuates the A-B Gap. This use of integrity keeps orthodox ways of interacting with ecosystems intact and anything that is atypical behaviour, namely ecologically sound ways of living, subordinate to what is typical.

In the next chapter I examine how these particular oil sands mine workers thought of climate change as a specific environmental issue. How they thought about green energy technologies and whether or not they can envision a post-petroleum society. While I rely heavily on previous studies on climate change denial, silence, and constructions of innocence to explain my findings, I also recast these findings into my previous definition of ecological habitus as a way to build upon this chapter's findings. To this point I see ecological habitus as a neutral term but with conflict in heterodox and orthodox ways of thinking and behaving, and ecological and sustainability integrity as a form of capital used in guiding and promoting one's ecological habitus.

Chapter Four: Ecological Habitus, Climate Change, and Decarbonisation

As part of this research, I was interested in how climate change and decarbonisation were perceived and understood by Alberta oilsands mine workers. Alberta has been, and still is, an energy producing province with a long tradition of coal mining, oil, and gas production. In 2016, almost 28% of Alberta's GDP came from mining, quarrying, and oil and gas extraction (Government of Alberta, 2017). Alberta's economy relies primarily on the production and sale of bitumen to the United States (CAPP, 2016). It can be argued that oil production is part of an Albertan identity. As Laura asserted to me, "That's what Alberta is, we're an oil and gas province" (Interview 10). Any major changes to this status-quo could be viewed as threatening and therefore resisted. This is reflected in the concept of ecological habitus through the concepts of heterodox and orthodox. Given that fossil fuel production has a long history in Alberta and is an integral part of the province's current economy, an understanding of this that draws on the concepts of heterodoxy and orthodoxy might help explain why changes to this habitus are resisted.[20]

Previously, in Chapter Three, I explored the notion of ecological habitus by examining the experiences of a small group of oilsands mine workers. Specifically, I drew upon their lifestyles (work-life, home-life, and home-life activities—hobbies and vacations) to understand how environment is explained in relation to one's life. In this chapter I draw upon a subset of indicators that are used to analyse ecological habitus though peoples' attitudes and behaviours towards habitat, water, food, energy, waste, life

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[20] It is important to note that most of those I talked to identified as moving here from other provinces and the United States, or they commute inter-provincially.

activity, economic behavior, identity, beliefs, and future goals (Kasper, 2009). In this chapter I explore four of Kasper's aspects of ecological habitus—identity, beliefs, energy, and future goals—to understand the ecological habitus of these oilsands mine workers' dispositions towards climate change, green energy technologies, and decarbonisation. I chose these four aspects over the others due to their relevance to Alberta's long history and reputation as the primary oil-producing province in Canada. Alberta is also a 'have province' as a result of this oil production. Having a collective provincial identity tied up with a natural energy resource must have an impact on the beliefs and future goals of oilsands workers. Also, people who work in this industry have a higher average income than those in Canada as a whole. The is reflected in the median income of an Alberta household in 2015 which was just over $100,000 compared to the national median of $80,000 (Statistics Canada, 2017). These higher household incomes might alleviate the financial costs commonly associated with living pro-environmental lifestyles like buying local, eating organic foods, and investing in products relating to increased fuel efficiency. Of interest is how identity, energy, beliefs, and future goals are related to strategies employed by people to resist changes to the current oil-and-gas-dependant economy of Alberta.

Different strategies of denial, silence, and constructs of innocence (explained in previous chapters) are used when it comes to thinking and talking about climate change, the impacts of climate change, and climate change action. These strategies are used by people in order to distance themselves from the discomfort, or cognitive dissonance, associated with climate change (Dunlap, 2013; Norgaard, 2011; Norgaard, 2006; Hughes.

2013). While only a small number of people totally deny the existence of climate change, it is more common for individuals to question the cause(s) of climate change to minimize the implications of climate change (Hobson and Niemeyer, 2011; Lefsrud & Meyer, 2012; Kuehne, 2014). What I found is that it is also common for people to 'shift blame' or responsibility for climate change action onto other industries and countries.

In this chapter I focus on the part of my research question that asks: how is climate change understood by people working on the ground in open pit mining activities on the Athabasca Oilfield? In what ways do workers view oilsands mining operations in relation to environmental degradation, particularly climate change? I explore their perspectives of what it means to live a sustainable life, how they feel about green energy technologies, and their thoughts on a post petroleum society.

After presenting the results of oilsands mine workers' climate change attitudes, green technology views, and thoughts of decarbonisation, I discuss how climate change denial, green technology perspectives, and decarbonisation can be recast and understood as part of a person's ecological habitus. Climate change denial and resistance to climate change action can be understood as a defense of orthodox ways of thinking and behaving. Particularly I argue that amongst those oilsands mine workers I interviewed, climate change denial, support for green technologies, and decarbonisation are related to the tension between orthodox and heterodox ways of environmental thinking and behaving. As a result of this tension individuals struggled with their thoughts and behaviours when it came to being pro-environmental. This tension and struggle exists within individuals as well as between groups.

Results

In these results I present findings related to climate change denial, green technologies, and decarbonisation. Overall, I found a situation of climate change denial similar to previous studies where total denial is uncommon. What is more common is an interpretive denial surrounding climate change, 'constructions of innocence' and 'blame shifting' regarding climate change action (Norgaard, 2011; Hughes. 2013). Despite there being a relatively high degree of belief that contemporary climate change is caused primarily by humans burning fossil fuels, the impacts of climate change on where they live were minimised or not considered important compared to other issues. There was support for green energy technologies even amongst those who did not explicitly state belief that current climate change is caused through human actions. Only three people I interviewed felt that their livelihood would be negatively affected if Alberta transitioned to a green energy economy, but only two could envision a decarbonised society, and these two did not explicitly state a belief in climate change caused by human emissions.

Climate change denial.

In these interviews none of the participants expressed an explicit or literal denial of climate change as seen elsewhere (see for example, Cohen 2001, as cited in Norgaard, 2011, p.10). Literal denial is increasingly quite rare. For example, Lefsurd and Meyers (2012) found in their study of over 1000 Alberta oil industry professionals that only 0.06% of participants literally denied climate change. Six of those I interviewed stated that they believed climate change was a real concern caused by humans burning fossil

fuels. Two workers believed that climate change was a completely natural phenomenon. Another two thought that climate change was real but not sure if it was natural or human caused, and one worker avoided the question entirely by changing the subject. Despite explicit statements of belief in human caused climate change, denial of the implications of climate change were common as well as constructions of innocence. All participants expressed some form of implicatory denial,[21] 'constructs of innocence', and 'blame shifting'. These views made it difficult for most participants to envision a society without petroleum energy.

One reason for climate change not being a big concern for workers may be the diffused nature of climate change. This was expressed most pointedly by a field mechanic who stated,

> *I'm not too strong on paying attention to climate change because I feel it's happening no matter what, and it's slow, so it's hard to focus on it. I guess, not as much as environmental issues that's going to be more fast-paced, like coming like a freight train compared to climate change. (Jake, Interview 7)*

Jake's primary environmental concerns were for habitat and ecosystem loss through tangible human-caused developments. The abstract nature and indirectness of climate change affects also made it difficult for some to trust or understand climate change science.

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[21] Implicatory denial—where the implications of climate change are minimized or negated (Norgaard, 2011).

> *But at the same time, if you're going to make that claim, where's your evidence? You shouldn't have to be a university prof that goes to a conference to know exactly what's really going on, it should be made public like NASA does with photos from the Hubble space telescope (Mitch, Interview 4).*

Distrust in climate science is also seen in previous studies of the general public (McCright & Dunlap, 2011; Lewandowsky, Oberauer & Gignac, 2013) and amongst those who live and work in other oilsands regions of Canada (Eaton, 2017, p.207). Not having an understanding of climate science makes it easier for climate change to be dismissed as not really having an impact on human populations.

For most of the oilsands workers I interviewed, climate change feels like it has a certain amount of inevitability to it because of the scale of it, and the global, political, and economic aspects surrounding the issue. Some expressed their lack of agency in the issue, some framed the issue as being too large to comprehend, while for others it was seen as a consequence of other countries' fossil fuel consumption: "[i]f we're only half a percent of the total [world] population… the other big polluters are just going to pollute on… They're just going to make it worse at our expense" (Mitch, Interview 4). Here Mitch expresses two main themes found in these interviews: a 'construct of innocence' that Canada is a small and economically vulnerable nation and 'blame shifting' where others are more responsible for climate action.

Implicatory denial.

Implicatory denial occurs when the effects of climate change are dismissed or disbelieved. Most expressed little to no concern for how climate change will affect where they live. In response to sea level rise Jake (Interview 7) responds:

> *I don't really care how [climate change] affects humans because we're the ones that choose the life on the water or close to. We're the most adaptable animal. So, I feel for the species that their life is getting turned upside down... That worries me, 'cause it would hurt me to see animals, that feel, that have to lose their way of life and lose. Maybe their species disappears because of the changes.*

In this quote Jake specifically states a common thread in climate change denial, the Human Exemptionalist Paradigm which stands in contrast to the New Environmental Paradigm (NEP) (Catton and Dunlap, 1980). Human exceptionalism encompasses a 'myth of plasticity' or idealized adaptability belief where "…the exceptional characteristics of our species *exempt* us from ecological principals and from environmental influences and constraints (p.25, italics in original).

The oilsands workers I talked to felt that there would be little or no climate change effects in the places they currently live. Only three negative effects were talked about—sea level rise, increased occurrence of wildfires[22], and unpredictable precipitation affecting agriculture. Similar to mine-related environmental concerns—seen in chapter three—each of these stated concerns were connected to their own more visceral experience: one owns property near an ocean, one fought in the 2011 Fort McKay fire,

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[22] Ten of these interviews took place *before* the 2016 Fort McMurray fire.

and a third has agriculturalists family and friends who have had their planting or harvests disrupted by less predictable season transitions.

An interesting nuance to the implicatory denial was a view that Canada would benefit from a warming climate as a form of 'optimistic denial', where the negative consequences of climate change are ignored for potential benefits. While some viewed decreased snowfalls as an economic threat, others, like Mitch (Interview 4), envisioned that a warmer climate in Canada would be beneficial to economy:

> *Places in Canada will probably be the next all-you-can-eat resorts. The all-inclusives will probably start migrating further north because the weather will be nicer and not as extreme as like in Texas, Arizona, or even Mexico, where it's going to get hotter and hotter.*

This 'climate change will not affect me and/or possibly benefit me', or 'optimistic denial', attitude may be a result of living in a country rich in resources and connected to human exeptionalism. In general, those living in wealthy nations tend to be less concerned over the risks of climate change due to the availability of resources (Carolan, 2013). Wealth, social networks, political stability, and modern infrastructures are available to Canadians in times of crisis, allowing them the tools to react quickly to sudden environmental disasters. An example of this would be the wildfire that caused the evacuation of Fort McMurray on May 3, 2016 where approximately 80,000 residents fled the small city. With very little time, the municipality was able to coordinate, communicate, and conduct evacuation with the assistance from regional, provincial, and federal supports as afforded by a wealthy nation.

Systems of implicatory denial were not only present when talking about climate change in general. These systems were more strongly drawn upon when asked about the connection between the oilsands and climate change, which were often coupled with 'social denial', 'constructs of innocence', and 'blame shifting'.

Social denial, constructions of innocence, and blame.

These oilsands workers were, for the most part, not aware of the actual levels of emissions rates in Canada, nor did I explain them in my interviews because I did not want my knowledge of emission levels to influence their responses.[23] Similar to Norgaard's 2011 Norwegian study findings on climate change silence, participants in this study framed Canada as 'a small nation' and pushed blame for climate change onto other countries. When talking about oilsands emissions, participants were inclined to blame other industries or entities being 'worse than' oil mines or the oil industry as a whole. Predominantly, it was perceived that oil refineries and upgrading plants were 'worse than' mines, and the coal, agriculture, the natural gas fracking industry, and cities were 'worse than' oilsands projects.

Participants felt that oilsands mines were unfairly depicted as a large producer of greenhouse gases. The optics of large scale of open pit oil mines, and the lack of aesthetic

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[23] In 2015 Canada produced 722 metric tons of carbon dioxide equivalent (Mt CO_2 eq), the highest proportion of this was produced by the oil and gas industry and the transportation industry (183 Mt CO_2 eq; 26% and 173 Mt CO_2 eq; 24% respectively; Government of Canada, 2017a). Canada ranked 10th in the world for total CO_2 emissions in 2014 from fossil fuel burning, cement production, and gas flaring (Boden, Marland, and Andres, 2017).

in open pit excavation, has made oil mines a large target for negative attention from environmental groups and celebrity environmental advocates. Laura speaks out against celebrity environmental activism and environmental groups who visit the region to protest.

> *These stars come up to try and get some sort of, um, exposure on the oilsands. They have no idea what they're talking about. Again they're showing up on here on a big fat jet, they wanna jump on the train, you know, 'let's blame the oilsands'... (Interview 10)*

She uses the 'hypocrite statement'—discussed as well in Chapter Three—in order to shift blame onto the users of oil. By accusing oilsands critics of 'showing up here on a big fat jet' it implies that activists are not entitled to complain about the oilsands because they are also oil consumers and therefore part of the climate change problem. This inversion of blame was a defensive strategy for these mine workers who felt that their work and they themselves were being unfairly attacked by environmental activist celebrities, politicians, and groups. Shifting or redirecting blame is similar to recent findings in a study of stigmatisation of American shale gas workers (Filteau, 2015). In that study workers "use social weighting to delegitimize and condemn those who they perceive condemn them" (p.9). All of the oilsands mine workers in my research use the same "protective technique" (p.3) to deflect emissions criticisms of their industry onto those who are also benefiting from oil extraction. The effect of this strategy of 'blame shifting' is that it no person, industry, or country becomes responsible for actions that would reduce carbon emissions. These strategies are also reflected in the media context portion of this study.

The Canadian Association of Petroleum Producers (CAPP) and Government of Alberta both use constructions of innocence when framing emissions and climate change action. For example, in 2017 CAPP positions Canada's GHG emissions as being 2% of world emissions, behind China, the United States, and the European Union (Canadian Association of Petroleum Producers, 2017). What they fail to mention are per capita emissions of Canadians. The Alberta government also describes oilsands emissions in the context of world emissions as being 0.15% of world emissions, Canada as being 1.58% of global emissions with China (26.18%), USA (17.17%), Europe (12%), India (6.35%), and 'other countries' (29%) (Government of Alberta, 2014). By comparing the emissions of a single industry to the emissions of entire countries dilutes the issue of GHGs and, in the mind of the public, minimises the amount of responsibility for climate change action.

In these publications there is a constructed innocence that is portrayed by the provincial government and an industry non-government organisation that have an interest to protect the oil industry as it is. Emission rates are hidden through the manipulation of statistics and presented as inconsequential or benign. The Government of Alberta and CAPP both paint Canada and the Canadian oil industry as 'being small' in easy to access publicly disseminated publications. What they fail to mention are the per capita emission of Canada. Referring back to Chapter One, the Oilsands Discovery Center (2016), which is financed by the Government of Alberta (and oil industry companies), states: "Canada uses oil at the highest per capita rate in the world, with a consumption rate of 2.048 million barrels per day. A family of four consumes an average of 92 barrels of oil per year," this figure is sources from the CAPP (Government of Alberta, 2016, p.28).

While measuring rates and nuances of climate change denial in different populations is interesting, it is also assumed that there is a linear progression and association between climate change belief and support for green energy technologies and decarbonisation. So I asked these workers what they thought living a sustainable lifestyle was and analysed how their thoughts on green energy and the idea of decarbonisation fit into their thoughts.

Green technologies.

When talking about sustainable lifestyles and green technologies a common theme that arose was a romantic imagination of a preindustrial agrarian life, or an idealistic fantasy of living a life of solitude in the forest. Living a sustainable lifestyle was conceptualized as 'living off the grid', a way to stop 'paying The Man', and being self-sufficient with food and energy needs. All these solutions to living unsustainable and environmentally-damaging lifestyles were individualistic and involved them, and their immediate family unit, escaping and living apart from society and other people. They are, in a sense, creating and relying on an 'inverted quarantine' approach to environmental behaviour whereby they seek to protect themselves rather than address broader socio-environmental problems through political democratic processes of a social movement (Szasz, 2007. After establishing this baseline of what living a sustainable lifestyle meant for them we conversed about their thoughts on green technologies.

Drawing on participant interviews, I classified green technologies into two broad categories. The first was the mechanical forms of technology that included energy generation, transportation, and efficiency technologies. Wind and solar were the most

talked about energy technologies, electric vehicles came up most when talking about transportation. Efficiency technologies were least discussed and were only brought up when talking about windows, house insulation, and technologies to make mining equipment, upgraders, and refineries more efficient. The other category of technology conceptualized was 'ways of doing', or the behaviours people adopt in order to reduce greenhouse gas emissions. The most common topic in this theme was modifying ways of making consumer purchases. All interviewees expressed support for moving towards some form of green technology but there were also high levels of criticism regarding green technologies, especially energy and transport technologies. Various reasons were to given for this criticism including aesthetics, safety, affordability, and efficiency of the technologies proposed compared to the continued use of oil products.

The two participants who were most dismissive regarding climate change were, interestingly, very supportive of implementing upgrades on mine technology as beneficial way to reduce emissions.

> ***A:*** *What do you think about the green technologies that are being developed?*
>
> ***Ivan:*** *Excellent, excellent. There's the gas ones, the carbon capture that we got, coal scrubbing power plants… the sad part of it is our technical advances are being totally ignored*

Here, reducing emissions through technology was framed as ways of burning fuel more efficiently. In fact, moving towards alternate energy sources was viewed as a threat to the economy.

> *So, greener technologies are, there's nothing wrong with them, but don't kill one industry to develop another. And that's what this new government's doing. It's trying to kill one industry to develop another, and you can't do that.*
>
> *-George (Interview 5).*

However, to these two, Both solar and wind power were viewed as redundant, deceptively high carbon, and inefficient. "It's going to cost you so much to build that what you save is it's going to be negative" (Ivan, Interview 6). Comments such as these can be interpreted as green technologies being perceived as advantageous when it came to improving the efficiency of oilsands mining, but green energy technologies—wind and solar—for domestic change were viewed as a threat to Alberta's oil energy economy. Switching to green energy technologies were also seen as placing the province at a disadvantage because of the cost it would take to develop and implement these technologies. But moreover, the everyday working Albertan often cannot conceive of a world where we do not need petroleum because of our dependence on fossil fuel motor transportation, and the way it shapes our options. The transportation industry is a pervasive and controlling power on Canadian and other industrialized societies (Illich, 1973). It is not just cars but also how we have built our roads, cities, and transport systems to deliver far ranging food and goods that ties us to the use of vehicles and the use of petroleum.

In the remaining nine interviews, participants were more supportive of green energy technologies, although criticisms were still expressed, most of what was said was positive and seen as an economic opportunity.

> *So, this is the mess we're in. We have to do something to change it. It doesn't mean it's all bad from here… I mean this could also be I mean if you want to go from the capitalistic end of it I mean this is a great opportunity to make money… If you look right now there's tons of them out there. Lots of little nice start-ups in Canada even like with the water turbines that they are putting in rivers and all kinds of things.*
>
> *-Owen (Interview 9).*

When criticisms were expressed they were uniform in language and reflect common countermovement claims. In relation to electric vehicles: "If Priuses weren't so ugly maybe I'd drive one. A lot of the electric vehicles are just, like, what are you thinking? Just make it look nice" (Peter, Interview 2), and "I don't know why people think it's such a great thing, because you gotta create these batteries and then what are you going to do with the batteries? Right? I'm pretty sure batteries are bad in a landfill" (Mitch, Interview 4).

Solar and wind energy there were also commonly critiqued using countermovement claims, which rely on single solution analysis when compared to oil and gas, rather than a mix of alternative energy types:

> *Like solar panels, I haven't really looked into the price of them, but I only assume that they're fairly expensive. Right? And if you're not going to give the money, especially like in Alberta, where in the winter time, where you only see six hours of sun, maybe right, I mean, it might be a bit unrealistic, or for a really cloudy location like Vancouver,*
>
> *(Eric, Interview 3).*

> *The wind farms to me they're an eyesore, but also the frequency, they kill a lot of birds, so that's where I'm coming from, that standpoint, 'cause they make a big deal about the tailings pond birds, that landed there and died, which is sad, but those windmills kill a lot of birds [and] especially bats*
> *(Mitch, Interview 4)*

Wind farms were viewed as ugly, bird and bat killing fields, with a large manufacture carbon footprint, dangerous to have near populated areas, took up too much ground space, and were inefficient because 'the wind doesn't blow all the time'. Solar energy was viewed more positively but critiqued for being overly expensive, associated with individual home solar energy, and unrealistic for northern latitudes and cloudy coastal regions. Electric vehicles were described as frivolous and expensive. Although many expressed desire to own a Tesla, hybrids and other fully electric vehicles were not aesthetically pleasing. Batteries and safety were another main issue with electric vehicles. Many stating varying degrees of the complaint: "because a few hundred years down the road we're going to be dealing with these hydrogen cell batteries, and how do we dispose of that?" (Jake, Interview 7).

Simple green technologies like making homes more fuel efficient were the least talked about. These types of efficiency technologies can make a large difference in reducing carbon emissions (Dietz, Gardner, Gilligan, Stern, and Vandenbergh, 2009). When these did come up in the discussion it was in light of how they were too expensive or just not viewed as a priority for participants' particular stage in life.

> *Right now maybe doesn't make sense, just maybe for where I am in life. It's not…if I ever was to do a renovation on my house. I guess there's a lot more stuff that's on the front burner than that right now. But if I were to ever, I definitely*

> *want to put like solar panels on my house one day. I think that's cool. If I re-did my house it'd insulate so it's better insulated*
>
> *-Peter (Interview 2).*

In terms of behavioural changes, the most common form includes changes to consumer goods purchases. In general, mass consumption and having 'too much stuff' was viewed as an issue with environmental impacts. Purchasing locally produced goods, spending extra money on higher quality goods that last longer, products with the end-stage use in mind were ways to mitigate environmental impact. One participant became a vegetarian partly because of his concern for environmental issues and wanting to live a more sustainable life.

> *What I am doing is impacting the life around me basically, or the environment, or the world. Kind of with what happened with vegetarianism, that was—also I really like animals—and everything, there's a lot of reasons but that [living sustainably] was also one of the top reasons why I decided to do it. And just I think you know like if everyone can just make little changes and sacrifice a little bit.*
>
> *-Owen (Interview 9).*

As much as there was support for green technologies mixed with countermovement claims, the idea of no longer needing oil or pursuing decarbonisation was largely inconceivable due to its radical monopolization of our thinking. Because petroleum production and using petroleum products (gas, diesel, plastics) is so pervasive in our lives we cannot conceive of a life or a lifestyle that does not include these products. These

products are relatively new; however, they have only existed in the last few hundred years, and humans have existed for a much longer extent without them.

Decarbonisation.

Only two people I interviewed could conceive of a time when oil was no longer needed as a source of energy. Interestingly, these two did not explicitly state they believed in human-caused climate change. For instance, Craig states “There will come a time where oil will be not needed. So... Yeah, I think it’ll come to an end before I'm dead. If it doesn't something's going to go wrong” (Interview 1).

For most, however, oil was perceived as being so pervasive and ingrained into modern lifestyles that transitioning away from oil would have negative consequences. Ending oil production in Alberta was associated with loss of social programs, increased rates of unemployment that would lead to increased crime and suicide rates, depopulation and ‘brain drain’ as highly educated workers would leave the province for oil jobs elsewhere. Overall, factors preventing transition to green energy was said to be lack of scientific innovation, technology not being advanced enough, politics, and economics. Jake, one of the most vocal about supporting green energy technologies was also one of the most cynical when it came to realising a decarbonised society:

> *Science isn't there to give us what we want without oil. The politics are definitely not there to give us what we want without oil. There's too many hands in too many pockets as far, as I'm concerned, in the industry to allow oil to slow down. As far as I'm concerned it's a like a greasy palm, you know, it's always someone that's going to influence somebody with money, because it's a money industry. Even at twenty-nine bucks a barrel, there's a lot of money to be made.*
>
> *(Interview 7).*

The only way a decarbonised society was conceivable was if the transition was gradual with programs to re-train a workforce currently devoted to oil production and oilfield services. For example, and stated previously by George (Interview 5), "greener technologies are, there's nothing wrong with them, but don't kill one industry to develop another." George, who was one of the most outspoken people when it came to disbelief in climate change, still feels there is room for green energy, but not at the expense of the current energy economy, which does have to do with workers, employment and getting along in life. Laura, who does believe that climate change is something that Canadians have to act on says something similar:

> *I'm all for alternate sources of energy whether it be solar, hydro, wind power, whatever. I'm totally for that but these guys that have been making their livings welding pipe, working iron any sort of oil and gas trade… since you're giving so much money to, you know, provincial workers and all this stuff, why don't you spend some money and re-educate these guys so they can be successful in the work force (Laura, Interview 10).*

Moving towards a green energy economy is not something these workers necessarily worried about. Rather they were more concerned if they would have access to green energy sector jobs and if these would be good jobs.

Of those who were supportive of green technologies, when asked if they felt their livelihoods were threatened by a transition to green energy they talked about how they felt secure; that their particular oil job position was integral to mining operations. They were not fearful of being laid off. One reason for this may be because they were direct employees, not contracted by the company. Drawing on my observational journal notes I found that those who rely on oilsands contract work are more at risk of being laid off when the oil markets slump. In an oil-induced economic recession oil in Alberta, companies often cancel expansion projects. Subsequently, trades workers and construction workers who work for companies contracted by oil companies were more likely to be laid off of work. Those involved in day-to-day operations or required routine maintenance are least at risk of being laid off.

Heavy duty mechanics and heavy equipment operators also expressed security in their jobs because their trade allowed them to be employed elsewhere. Some were confident they could be easily transition into an industrial green energy sector. “I think we’re safe here for quite some time, but that being said, if they were to properly do it…teach me how to how to service that turbine or windmill. I’d rather—any day—much rather work on that then anything else” (Sean, Interview 11). Similar to the statements above from George and Laura, green technology energy industry is not necessarily being contested. In this instance, with Sean and others, especially mechanics, they welcome the

opportunity to work with other types of mechanisms such as wind and water turbines. Despite counter movement claims regarding green energy technologies there was desire to utilize green technologies (mainly solar, wind, and electric cars) in their everyday lives or support for moving towards these types of energy on an industrial level. If reassurances could be given from industry and government that solar and wind energies are ecologically safe, achievable, and viable, there would be more support from these workers. Overall, workers wanted assurance that they could be re-mustered into this green energy sector.

Discussion

In this chapter I took a measure of ecological habitus informed by a subset of interrelated environmental aspects outlined by Debbie Kasper (2009). I explored the aspects of identity, beliefs, energy, and future goals by asking questions about what is means to be an oilsands mine worker in Alberta and recording their thoughts about climate change (belief), green technologies (energy), and moving toward a decarbonized society (future goals). In this discussion I relate the results of these questions back to these four aspects of ecological habitus and then into the concept of doxas as a way of understanding how these workers' views can be understood in terms of their heterodox and orthodox attitudes and behaviours that either maintain or change social practice.

Identity.

Common barriers for behaving pro-environmental include lack of knowledge, money, and time (Blake, 1999; Kennedy et al. 2009). When beginning this research, I considered

that because these workers have access to greater wealth, and time off, compared to other Canadians, that they would behave more in line with any environmental concerns they may have. While these workers resisted the popular stereotype of the wealthy oil worker with lots of mechanical, oil wasting, 'toys', they also commonly cast themselves as 'poor working class' people. When it came to discussing green energy technologies these were still talked about as being too expensive. Barriers to behaving pro-environmentally amongst these participants is not connected to not having enough money, time, or a lack of knowing or education but is are connected to old ways of behaving (Kollmuss & Agyeman, 2002). Moreover, these traditional ways of behaving are defended through processes of individual and social identity.

The identity of these oilsands mine workers was closely tied to the dominant oil and gas industry of Alberta. They were (rightfully) proud to be oilsands mine workers where they are specialised to work on some of the largest mining machines in the world. While they were not immune to the environmental consequences of their work place they met critiques with hostility and dismissiveness. This is directly associated with the economic dependence that Alberta has on the oil and gas industry in this province. This industry is viewed as being so beneficial to the people who live and work in Alberta that moving away, or even suggesting to move away, from extraction and sale of bitumen is considered unfathomable and detrimental to their Albertan way of life. Resistance to change in favour of traditional and established ways of doing are reflected in their beliefs toward climate change, green technologies, and decarbonisation.

Beliefs.

When we talked about their beliefs surrounding the issue of climate change, which can be both directly and indirectly tied to the oilsands, implicatory denial, constructions of innocence and blame shifting are all invoked to insulate themselves from uncomfortable feelings or thoughts of being responsible for action on both individual and collective levels. As Laura (Interview 10) said "that's what feeds my family that's what pays my bills… I mean it's a fact of life and sometimes I feel crappy about it." This discomfort, and sometimes guilt, about environmental degradation caused by oilsands mining combined with oil dependent lives causes these workers to pull back from and ignore the issue of climate change but also to buy into and accept countermovement claims or manipulations of statistics that construe emissions rates as 'not as bad as they say.' As mentioned previously, no one knew true emission rates but all expressed some version of blame shifting, where the oil industry was innocent compared to other industries or countries.

Energy.

Regardless of their climate change beliefs, all participants agreed (in different ways) that implementing mechanical forms green technology would be beneficial, but these statements were coupled with expressions of doubt. Transitioning to green energy was seen as cost prohibitive, inefficient, and described using countermovement rhetoric involving safety, efficiency, and cost. Part of the issue here was that most seen green energy technologies as something the individual must purchase and implement; living sustainably meant solar panels or wind turbines, with battery banks in the basement, and

a Tesla in the garage. The 'inverted quarantine' (Szasz, 2007) method of dealing with environmental threats is connected to how we understand issues of sustainability and solutions for climate change. Instead of employing government and industry with the task of finding solutions that citizens desire the onus for change is internalized by individuals who distrust the new solutions that are available in favour of what is already known.

The other part of the issue was that large scale industrial green energy projects were even more controversial. The decline of the oil industry was very disturbing to some participants. Green energy was not seen as a solution for both humans and the environment, it was viewed as "trying to kill one industry for another" (George, Interview 5). These technologies are threatening to what is currently known and practiced. We know that oil industry jobs are good jobs and that during boom cycles the province and nation prospers. What is not considered is that industrial green energy job could also be good jobs that could help the province and nation prosper but without a boom bust cycle (Blue Green Canada, 2012).

Future goals.

A future goal of decarbonising Alberta or Canadian society was an inconceivable ideal because of how entrenched oil production is in this province, but also because of a fear that if we 'shut down the oilsands' this society would witness a collapse. Goals for the future associated with green technology were solutions based of individualistic implementations of *mechanical* green technologies (solar, wind, and Teslas). Behavioural modifications were limited to green consumerism, while talk about efficiency technologies was minimal.

Although there was belief that climate change was cause by humans burning fossil fuels, and there was moderate support for certain green energy technologies, decarbonisation was not possible. Contrary to these, those who questioned climate change causes, were more supportive of green technologies and the idea that decarbonisation could be achieved. More study would be needed on this particular area, but it does not seem, in this case, that belief in climate change is necessarily needed in order to move forward with decarbonisation. It seems more important that green energy technology industry is safe, efficient, and lucrative and steady source of employment for people working in the industrial trades.

In sum, the ecological habitus of these workers using these four facets of ecological habitus (identity, beliefs, energy, and future goals) can be stated as such: these workers have an identity associated with being working class people employed in industrialized oil resource extraction; they recognise that their work contributes to GHG emissions in Canada, but believe that emission rates are overstated, and that other industries and countries are more responsible for climate change action; green technologies are perceived as a possible solution for curbing emissions rates, but these solutions are viewed as having to be implemented on an individual level and as a single system buy in, which makes green energy technologies perceived as cost prohibitive and inefficient and leads to the idea that decarbonisation is not possible because of the pervasive use of oil in an Alberta economy deeply-seated in oil. It is not an issue of not knowing or realising the issue of climate change and that green technologies and

decarbonisation are the routes to pursue. Rather, it is not being convinced on the implementations and execution of these changes when these changes would change everything about what it is to live and work in Alberta where oil dominates the economy and people grow up here thinking they will enter this sector of employment. This knowing of other, greener, ways to produce energy but the resistance of accepting or condoning a transition to these energies in Alberta is also an example of how orthodox and heterodox ways of thinking and behaving interact.

Orthodox and heterodox attitudes and behaviours.

Barriers preventive to pro-environmental behavior while expressed commonly in terms of not having enough time, money, or knowledge fall short of explaining why these particular participants, although they care about and have concerns for the natural environment do not necessarily behave in accordance with their attitudes. These workers are educated[24] have time and have more money than the average Canadian. They have environmental concerns but—like many Canadians—do not behave in accordance with these concerns. In these interviews I seen evidence that suggests that 'old habits' expressed by Kollmuss & Agyeman (2002) are a barrier that prevent pro-environment behaviours. Through ecological habitus these old habits can be understood in terms of orthodox and heterodox ways of behaving and are connected to particular ways a group of people behaves. This group identifies themselves as working class people who work in

[24] All those who I interviewed had at least a grade 12 education, most also had gone to trades college, one had some university level education, and one had a BSc in Earth sciences.

the Alberta oil industry, as such there is a particular way that is orthodox ways of thinking and behaving towards nature. While nature is seen as something to be respected the tradition of exploiting nature also influences behaviours. Oil work is a tradition in Alberta and suggesting to move away from oil extraction and export is threatening to people's way of life, even if there are better alternatives.

Conclusion

Climate change denial and silence are more than just denying the existence of climate change. It is also a question of where do we go knowing these issues? How can humans get the energy they need to maintain our modern lifestyles while respecting nature at the same time? Literal climate change denial is rare. More frequent is interpretive and implicatory denial, that humans are not the primary cause of climate change or that humans are exempt from the consequences of climate change. Amongst those I talked to most believed that humans were the primary cause of climate change. However, most did not feel that they would be affected by climate change. When it came to talking about green energy and decarbonisation participants demonstrated a tension between a want for change and defense of the industry they are a part of. This I link to the identity these workers have as oilsands mine workers working in Alberta's oil economy.

Alberta is a province that relies on oil and gas economy, Canada is a country with a long staples economy history based on natural resource exploitation and exportation. Bourdieur's work on habitus connects not only what people ave recently done but also the practices of forberers and what they established therough their practices (Kennedy, Cohen, & Krogman, 2015). In these results we can see that climate change denial and

constructions of innocence are used to defend what is familiar. Oil and gas work is multigenerational in the province of Alberta. People in Alberta grow up knowing oil and gas jobs are readily available and actively seek jobs in this industry because they are good jobs. Changing this requires time and a real plan for transition on a higher level than the individual. However, individuals still have to ask for, and demand, change from industry and governments.

Chapter Five: Conclusion

I did not choose to study the lives of oilsands mine workers because I thought that they were devoid of environmental ethics, or responsible for environmental issues associated with oilsands mines. I was interested in knowing about the thoughts and feelings of on the ground industry workers who face environmental issues associated with mining and climate change in a province and country that has long relied on economies of natural resource extraction and sale. I was interested in how their industry and work played into their thoughts surrounding environmental issues because they work in a place where environmental degradation occurs because of societal demand for fossil fuels. I also wanted to know how working in the oilsands while living a modern affluent lifestyle (relative to others) affected those thoughts and choices when it came to green technologies and sustainable living.

Commiting to the belief in human caused climate change, green technologies, and decarbonisation are frequently thought about as if they are a linear progression; we tend to assume that these things line up in terms of belief and practice in straightforward way. We think that if a person believes in climate change then they would support technologies that reduce carbon emissions and subsequently believe that a decarbonized economy is something that is achievable. What I discovered in interviews with oilsands mine workers was expected levels of climate change belief. A majority of those I interviewed believe that climate change is a real and primarily caused by humans burning fossil fuels. There were those; however, that either evaded the topic or adhered to the belief that current changes in climate are natural. Despite general belief in climate change and its human

causes, the implications of climate change were dismissed. There was also a high degree of social denial, constructs of innocence, blame shifting, and countermovement claims towards green energy technologies.

When green technologies were discussed, responses were often variable and inconsistent with environmental dispositions. There was a high degree of support for green technologies but responses were peppered with 'yeah buts' and 'countermovement claims.' When talking about decarbonisation the patterns of response changed as well. Those who believed in climate change could not envision a decarbonized society and those who did not explicitly state belief in climate change could envision a decarbonized society. Skepticism seems to have shifted from climate skepticism (Dunlap, 2013) to skepticism over the implementation and efficiency of green energy technologies which is also a part of the climate change countermovement (Dunlap & Jacques, 2013; Carolan, 2013).

Overall, there was a high degree of skepticism surrounding whether or not a green energy economy could be achieved in Canada, *particularly* from those who did believe that current climate changes are being caused by humans burning fossil fuels. Through this research I found that belief in climate change is varied and nuanced but it is not necessarily needed in order to for an individual to support green energy development and those who know climate change is caused by human`s burning fossil are not necessarily able to envision a decarbonized society.

I began this research with an interest in finding out how those who work on the ground in natural resource extraction industries—specifically those who work on the

ground in the oilsands of Alberta, Canada—view and perceive environmental damage that comes as a consequence of modern societies' energy demands. I pinned this research interest onto a relatively new social theory of ecological habitus that originates in the concept of habitus, field theory, and praxology of Pierre Bourdieu. I asked, what is the ecological habitus of oilsands mine workers in their everyday life—their work life, home life and how they spend their free time; do the environmental consequences of their work influence the way they perceive and interact with the natural environment? How do they think about and/or talk about environmental issues and climate change, green technologies, and decarbonisation?

I drew upon semi structured interviews and a single case study methodology in order to generate rich description of the lives of oilsands mine workers. I also conducted observational journaling where I drove to the oilsands region on three occasions (mirroring a common mode of transportation for oilsands workers). Here I went to the Oilsands Discovery Center, toured sites of decommissioned mining equipment, viewed mines and reclamation sites (including the Syncrude bison herd, which were framed as symbol of reclamation success), and went on an aerial tour of the Suncor and Syncrude mines. To understand the social context of workers in the region, I stayed at hotels in downtown Fort McMurray's downtown area, the airport area, and in an oilsands mine worker's residence. I took in the day life and the night life of the City, and talked to other oilsands workers (mostly trades people) and residents. Two of these trips were before the 2013 forest fire and one after.

Ecological habitus as work, life, and play.

In Chapter Three I strived to answer my research questions by looking at ecological habitus through a person's lifestyle. I constructed a working definition of ecological habitus informed by previous research, and see ecological habitus as a neutral term that consists of the struggle between heterodox and orthodox views and behaviours, and plays out on a field of sustainability where ecological integrity is used as capital.

I explored the lifestyles of these workers to better understand how thinking and behaving towards environment relates to different aspects of their lives. Oilsands mine workers lives are fairly compartmentalised compared to what people would consider normal. Most Canadian residents, normal would be working an eight hour (9:00-17:00), Monday-Friday, job. Oilsands mine workers work in 'sets' of days on and days off. They generally work in 12hr shifts, 6:00-18:00 or 18:00-6:00. The thought is that they get 'days off' as rest. In reality, life back home does not stop. When they return home workers hit the ground running trying to catch up with 'home life'. They reconnect with their partners, children, dogs, extended family, friends, and the errands that cannot be done during 'day on' or when 'in camp'. Part of this reconnection process seems to be though vacations.

After trying to understand the lifestyles of these individuals, I then explored how the natural environment fits into all this human centered activity of work, life and play. From this vantage I could begin to grasp the ecological habitus of these oilsands workers. My goal was not to describe the lives of all oilsands mine workers but to provide an authentic description of the lives of those I interviewed and the context surrounding their

everyday lives. Their ecological habitus, which I describe as living well within their biophysical environment and ecologically-well, was a matter of experiencing nature: being in and exploring nature, as well as teaching their children about nature or taking their dogs out into nature so they might experience it together. This ecological habitus had a consumerist nature to it which is not uncommon, nor necessarily bad. What was absent were feelings and expressions that people were *part of* nature, contributing to what philosopher Paul Taylor (2011[1989]) famously called a "biocentric approach" to nature.[25] Also absent, for the most part, were everyday pro-environmental behaviours based on concerns for environmental degradation. Participants who did make a connection between their concerns and behaviour did so through green consumerism. They bought local, high quality (longer lasting) goods, ate vegetarian diets and, most notably, walked to services in their neighbourhood instead of driving. This partly contributes to the ecological habitus of these oilsands mine workers. The other part of ecological habitus is how they consider environmental issues.

Ecological habitus and environmental issues.

In Chapter Four I looked at the ecological habitus of oilsands mine workers by examining ecological habitus though four of the twelve conceptualised attributes of ecological habitus (Kasper, 2009). I used identity, belief, energy, and future goals as a way to

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[25] For Taylor (2011[1986), the biocentric approach to respecting nature includes: 1) that humans are members of Earth's community of life, 2) the natural world is a systems of interdependence where humans are integral—not exempt, 3) individual organisms are teleological centers of life, they have goals and strive to realize good in their own way, and 4) denies human superiority over nature.

analyse these oilsands mine workers' thoughts on the very specific environmental issue of climate change. I then used these results as a reflection of ecological habitus that deals with how societies change and/or reproduce, and the power struggle that exist when it comes to climate change action.

What I found was that, like other studies, there is a high degree of knowing about climate change and other environmental issues. There was also a high degree of environmental concern amongst this group, especially amongst the younger people I interviewed. These environmental concerns were more to do with physical degradation of the land and water, effects on animals, their habitats, and ecosystems. There was also strong acknowledgement that burning of fossil fuels is causing current climate change. At the same time there was strong aversion to the topic of climate change, as well as different forms of social denial and constructions of innocence.

Contributions to ecological habitus.

There are ranges in climate change belief even when a person appears to be in agreement with it. A person can believe in the human causes of climate change but still argue that other entities are to blame for climate change. In the context of climate change action, they may remain publicly silent for fear of being called a 'crazy environmentalist', and may further believe that climate change will not have an impact on where they live.

While my study is not meant to be generalizable, I provide some evidence that suggests this group of oilsands mine workers think differently; they believe climate change is a thing, but are fuzzy on the causes and implications of climate change. They also believe that 'others' are more responsible for the problem than the oil industry,

Alberta or Canada, and there is a social silence regarding the issue. Despite these opinions on climate change there was still a high general level of environmental concern, especially in relation to mine sites, and high levels of expressed support for green energy technologies. In many ways, the oilsands workers I interviewed are similar to many Canadians, even though they work in an industry that is a key contributor to greenhouse gas emissions.

By talking about these issues through qualitative research I was able to uncover some nuances regarding climate change and green energy technology shifts that could be the subject of further study; mainly that belief in climate change does not necessarily mean that a person supports green energy technologies.

I also suggest another way to view ecological habitus as a value neutral, site specific, entailing conflicts between orthodox and heterodox dispositions that are embodied but also play out between individuals and groups and involks integrity as capital. Those I interviewed are aware and knowledgeable about environmental issues surrounding open pit oilsands mining. They work in close proximity to the natural environment and the destruction of this environment causes concern for most of these employees, inturn they do wish for better outcomes but remain unconvinced, unsure, unwilling to implement changes in their lifestyles. This is not to say that those I interviewed are without agency but their circumstance(s) place them into position(s) that perpetuates and maintain the status-quo, oil-based lives.

Further research.

Despite the general belief that there are many workers directly employed in oilsands operations, direct employees of oilsands mines are a very small group of individuals limited to mainly heavy duty field mechanics, heavy equipment operators, and some supervisors. It would be advantageous to extend this study to people who work in other Athabasca Oilfield operations such as plant workers, supply warehouse workers, construction workers, and tradespeople who work directly with oilfield operations, and, those who work with in-situ drilling projects.

Focusing this project design on Indigenous people working in the oilsands would also produce unique data around the struggles between identity as a First Nations, Métis, and/or Inuit (FNMI) person and working in oilsands which provides for family, offering access to the good life (perhaps a different, non-Eurocentric, *Miyopimâtisiwin*), at the same time as destroying the land. A research design that delves into these particularities would have to be carefully designed, with cultural sensitivity, and with respect to the complexities of FNMI peoples.

Being a long-time resident, or commuting into work in the oilsands from other provinces, could also contribute to differences in the data collected. Most of the people I interviewed did not grow up in Alberta, they moved here attracted by oilsands jobs and a booming economy. Part of the blaming process I found in regards to responsibility for climate change action, and living the most sustainably, also came to light when

participants talked about the perceived behaviours of 'newcomers'[26] to Alberta. A research design that adjusts for the difference between new and long-time residents of Alberta, and between intra and interprovincial moile workers, could also produce data relevant to the environmental, economic, and political issues of climate change and decarbonisation in Alberta and Canada.

Study limitations.

This study is limited in that I was only able to interview eleven direct employees of oilsands mines. The oilsands mine workers who agreed to speak with me were wary of being interviewed in this time period because of their industry and the precarious nature of oilsands work. Many of these employees are not unionized and therefore can be dismissed without cause or representation. As well at the time of this study there was a slump in the global oil market and prices which caused many layoffs and moreover, fear of layoffs. This is turn made it extremely difficult to find workers willing to be interviewed for fear of recrimination by employers or potential employers. Finally, there was the massive 2016 Fort McMurray forest fire which caused a forced end to my data collection, and extreme difficulty in interviewing workers thereafter due to heightened worries about homes and job security. Because climate change was strongly implicated in the intensity of the forest fire, and a main topic of my study is climate change perceptions, all prospects for interviews quickly dried up.

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[26] In this case these remarks were not racialized.

Applications.

Changes in climate change policy have taken place, and are still taking place, in Canada and in Alberta since this study began. The new federal government of Canada, led by the Liberal Party of Canada, changed the previous Ministry of Environment to be the Ministry of Environment and Climate Change (Government of Canada Privy Council Office, 2015). They also attended international climate change talks in 2015. The previous federal government refused to participate in these global meetings. Since the 2015 Climate Change Conference in Paris, the Canadian federal government has mandated that each province and territory must develop and implement a carbon tax, outline strategies to reduce emissions across different sectors, fund low carbon economic growth, conduct models and report emissions accurately, and implement climate change adaptation strategies (Government of Canada, 2017b). The Alberta government has implemented a carbon tax and a more comprehensive climate change action plan that supports Alberta's diversification of its GDP so as to be less dependent on oil and gas revenues. However, both these governments have not prescribed to any decarbonisation strategies that would lead to a slowing down of, or divestment in, its petro-economy.

There is also a developing social movement amongst oilsands workers who recognize that the current state of a petroleum dominated oil energy economy is not in their best interest. Iron and Earth (2015) is organization created by oilsands workers. Although they are very careful to say in their mission statement that their objective is not to "shut down the oilsands" (ibid). Iron and Earth, and groups like this, seek to diversify Canada's energy sector through collaboration, training, and advocacy (Iron and Earth,

2015; Blue Green Canada, 2012). Blue Green Canada, a collaboration of Canadian labour unions, environment and civil society organisations, suggests that with the same amount of investment that oilsands projects receives the green energy sector could outperform oil and gas sector in job creation, mitigate the social and economic problems associated with a boom and bust oil economy, and help Canada meet emissions targets (2012).

Many of those I interviewed exhibited an ecological habitus underpinned by a flexibility and willingness to adapt to changes in Alberta's and Canada's energy sector, But it required a clear path forward, through policy, education, and/or training, that included them and with reassurance that there would be good jobs to support a good way of living.

> *No matter what any of these oils site say, that they're putting clean water back into the rivers. It's not happening. I don't believe it for a second. But yet, I go there every day and work, and I do worry about the environment… but I know that environmental friendly [people], and they don't like what's going on up there, they still get in their car, drive away, back to their home. You now they still buy all these goods that are made out of petroleum products… everything down to our chapstick… I wish, I wish, there was a cleaner way to do this, I really do, I would love to be part of that.*
>
> *(Jake, Interview 7)*

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Appendix A: Interview Guide

Ecological Habitus

1. Could you begin by telling me your name and what you do for a living?
2. How did you come to work up there?
3. What is a typical work day like for you?
4. What is it like when you're home?
    a. Could you describe what a typical work cycle is like for you?
5. When you're not working what do you do?
6. What is a typical vacation for you? (do you do this often?)
    a. What other ways do you spend time with friends and/or family?
7. When you have time off what sort of things do you do outside?
8. How important is it to be outside?
9. When you retire what do you see yourself doing?
10. Could you describe to me what the mine looks like?

Perceptions: the organization, identification of sensory info (attitudes)

1. Could you describe for me what you think about climate change?
2. And what have you heard recently about climate change?
3. Where do you usually hear about these things?
4. What are some of the climate changes do you think we'll see in our lifetime?
5. Do you think climate change will ever affect where you currently live?
6. What (if any) do you think is the connection between oilsands and climate change?
7. What kind of criticism do you typically hear regarding oilsands work?
8. How do you feel when people criticize oil industry work?
9. Does working in the mine ever make you think more about environment?
10. In your words, how would you describe an environmentalist?

Lifestyle: the material contexts

1. What does 'living a more sustainable life' mean to you?
2. Are there any 'green' technologies [or ways of doing things] that interest you?
3. Do you ever consider switching over to using greener technologies?

4. Do you ever see a world where we don't need oil?