Narratives of Renewable Energy in Rural Alberta

Exploring the (In)Visibility of New Infrastructures

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Abstract: Over the years, Alberta has seen a rapid growth in the construction and expansion of renewable energy infrastructure, particularly in solar and wind energy projects. This transition promises to bring new financial advantages such as lease payments, property taxes, and community support to smaller rural localities. However, they also come with challenges. Large-scale projects, often built by foreign companies, reshape familiar landscapes with transmission lines, steel towers, and fields of solar panels. The visibility of these initiatives significantly influences local perceptions, as large wind farms and solar installations often face scrutiny from residents. Concerns about aesthetics, land use, and potential impacts on agriculture lead to resistance among communities who feel their livelihoods are threatened. The hidden nature of fossil fuel infrastructures masks significant power dynamics and long-term costs of relying on oil and gas..

This paper explores how people in rural Alberta interpret and respond to these visible changes in their surroundings. Drawing on ethnographic research, it examines the tensions and possibilities that emerge when renewable energy goals intersect with questions of place and justice. By listening to diverse voices and experiences, the paper puts in the foreground the social dimension of the energy transition. Understanding this dimension is crucial in navigating the obstacles and injustices encountered as we move forward.

Keywords: renewable energy; infrastructure visibility; energy justice; land use conflicts; rural Alberta; energy justice

Résumé : Au fil des années, l'Alberta a connu une croissance rapide dans la construction et l'expansion d'infrastructures d'énergie renouvelable, en particulier dans les projets d'énergie solaire et éolienne. Cette transition promet d'apporter de nouveaux avantages financiers tels que des paiements de location, des taxes foncières et le soutien de la communauté aux petites localités rurales. Cependant, elle s'accompagne également de défis. Les projets à grande échelle, souvent construits par des entreprises étrangères, remodèlent les paysages familiers avec des lignes de transport d'électricité, des tours en acier et des champs de panneaux solaires. La visibilité de ces initiatives influence considérablement les perceptions locales, car les grands parcs éoliens et les installations solaires font souvent l'objet d'une surveillance étroite de la part des résidents. Les préoccupations relatives à l'esthétique, à l'utilisation des terres et aux impacts potentiels sur l'agriculture suscitent une résistance parmi les communautés qui se sentent menacées dans leurs moyens de subsistance. La nature cachée des infrastructures liées aux combustibles fossiles masque d'importantes dynamiques de pouvoir et les coûts à long terme de la dépendance au pétrole et au gaz.

Cet article explore la manière dont les habitants des zones rurales de l'Alberta interprètent et réagissent à ces changements visibles dans leur environnement. S'appuyant sur des recherches ethnographiques, il examine les tensions et les possibilités qui émergent lorsque les objectifs en matière d'énergies renouvelables se heurtent à des questions liées au lieu et à la justice. En écoutant des voix et des expériences diverses, l'article met en avant la dimension sociale de la transition énergétique. Il est essentiel de comprendre cette dimension pour surmonter les obstacles et les injustices rencontrés à mesure que nous avançons.

Mots clés : énergies renouvelables ; visibilité des infrastructures ; justice énergétique ; conflits liés à l'utilisation des terres ; Alberta rurale ; justice énergétique

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As the early morning light filters through the clear skies of late March, a mix of sunshine and clouds suggests the chance of snowfall. Signs of life appear along the winding road cutting through hamlets and villages scattered across the Alberta prairies. Against the pale blue sky, silhouettes of ravens, falcons, and migrating geese appear. Approaching a bend, a wide stretch of solar panels comes into view (Image 1). We are nearing the town of Innisfail, where this large solar farm stands as a testament to the region's commitment to renewable energy. For some, the sight blends seamlessly into the landscape shaped by Alberta's gradual energy transition over the past decade. This 115-acre parcel of land, home to the solar farm owned by Elemental Energy Inc., raises

Image 1. Innisfail Solar Farm. Photo by the author.

questions about its proximity to neighbouring farms, roads, paths, and areas inhabited by wildlife. As we drive past this infrastructure, I find myself thinking about the tensions between concepts and perceptions of progress, sustainability, and the delicate balance of coexistence with the natural world.

Alberta has recently seen a rise in solar and wind farms, marking a shift toward renewable energy. Known for being the centre of Canada's energy sector, Alberta has a long history in which fossil fuels have greatly influenced the region's economy (Mansell and Schlenker 2005; Paskey, Steward, and Williams 2013). These non-renewable resources have become an integral part of Albertans' culture and the fabric of its society. Recent years have, however, presented challenges—low prices, pipeline disputes, cancellations, and layoffs, casting shadows of uncertainty over the sector. As of 2020, substantial fluctuations in oil supply and demand have intensified Alberta's oil and gas landscape volatility (Wang and Lo 2020). As of late 2023, Alberta has 30 operational solar projects, with over 15 under development, and 44 operational wind farms. The provincial government aims to bolster smaller communities through community vibrancy funding, lease and property tax revenues, and job opportunities generated by these developments. However, this growth has not been without its challenges. Local resistance has surfaced, reflecting concerns over land usage, conservation efforts, the preservation of environmental, cultural, and scenic values, and the impacts of these renewable energy initiatives on agricultural practices. This local resistance shows the intricate balance between advancing renewable energy goals and protecting ecosystems and cultural heritage. In the current political climate, new construction projects face ulterior obstacles, adding

uncertainties to the province's path toward a sustainable energy future. Since 2023, Premier Danielle Smith has expressed in various circumstances her reluctance to initiate an energy transition to more renewable energy resources, viewing a just transition as a non-essential component in her legislative agenda (Anderson 2023; Fedor 2023). Smith has criticized federal plans to support oil and gas workers moving into the green energy sector, calling these efforts an "idiocy" (Edmonton Sun 2023). She argues that Alberta's fossil fuel industry has a strong future and that encouraging workers to leave well-paid, skilled jobs for uncertain roles in renewable energy is both economically and strategically unwise (Edmonton Sun 2023).

Over the past two years, my research has looked at the perspectives and perceptions of Alberta's evolving energy landscape. This study examined how communities interpret these changes and accept or reject them, and has explored the opportunities this industry can offer for those already employed in the energy sector who may be considering a transition to cleaner forms of energy or are compelled to do so out of necessity. The project used ethnographic research, including semi-structured interviews with government officials, industry professionals, tradespeople, farmers and residents affected by renewable energy projects.

At the heart of the energy justice discourse lies the imperative of recognizing and amplifying the voices of those directly affected by the energy transition using ethnographic approaches (Loloum, Abram, and Ortar 2021; Mišík and Kujundžic 2021; Szeman 2019). Given the urgency of the energy transition, it is essential to listen to rural residents, landowners, agricultural producers, and energy workers—and address their concerns—to support a more equitable future. The paper is structured as follows: I will briefly delineate the current policy and regulatory landscape, highlighting the ongoing political and legislative developments shaping the trajectory towards a cleaner energy landscape. Then, through the presentation of my research participants' voices and narratives, I will examine why embracing renewable energy often arises from a struggle to adapt to the visible changes accompanying the transition in energy infrastructure. These visible and less visible changes evoke strong emotional responses, influencing how people perceive their sense of place, home, and attachment. Understanding the emotional dimensions of energy transition can uncover why some people resist these changes, while others embrace them, helping to create a more informed and empathetic dialogue about the energy transition. Additionally, prioritizing ecological integrity

and social equity can foster a more resilient and inclusive energy transition that benefits all stakeholders. This paper does not provide an exhaustive presentation of every perspective on the energy transition; however, I will include a diverse array of lived experiences, mindful of the multiplicity inherent within each narrative, story, and viewpoint (Sherran et al. 2019).[1]

As I explore the dynamic changing landscape of energy transition and infrastructure development, Hirsh and Sovacool's (2013) observation stands out: people have normalized electrical infrastructure, such as power lines and substations, as these have been made historically "largely invisible, both in its manufacture and physical manifestations" (2013: 706). In contrast, visible structures like wind and solar farms receive much more attention and scrutiny. In my analysis, I argue that the dichotomy between visibility and invisibility significantly influences the public perception and engagement with energy development initiatives, complicating the energy transition process. This visibility often leads to heightened awareness and scrutiny of renewable projects, affecting public attitudes and acceptance. As Loloum, Abram, and Ortar (2021: 3) argue, invisibility can become a major hurdle in critically analyzing energy systems because this factor can obscure the underlying power dynamics and socio-political implications of energy infrastructure. Invisibility refers to how energy systems often operate out of sight and mind, making it difficult for consumers and policymakers to fully grasp their impacts and complexities.

From Policy to Practice: Alberta's Path to Renewable Energy Integration

In Alberta, the regulatory framework governing renewable energy projects falls under the jurisdiction of the Alberta Utilities Commission (AUC), the authoritative body overseeing energy approvals in the province. Projects with a capacity of less than ten megawatts are exempt from AUC approval but must fulfill a checklist. However, projects exceeding ten megawatts necessitate formal approval according to AUC Rule 007 (AUC 2019).

Municipalities can set rules for solar and wind projects under the Municipal Government Act (MGA), but Section 619 states that AUC decisions override municipal rules if they conflict (Miistakis Institute 2017, 2). Renewable energy projects do not have rights of entry or expropriation; developers and landowners negotiate leases voluntarily. Consent is key: if a landowner refuses, developers must find other sites, which can impact nearby communities. Even without

approval, neighbours may still experience effects from required infrastructure. Land rights and access are usually governed by the Surface Rights Act (FAO 2017; Miistakis Institute 2017). The same rules for collecting overdue rent, off-lease damages, and compensation as seen in the oil and gas industry do not apply to leases involving renewable energy sources—landowners can still refuse entrance to wind and solar installations. Developers' representatives are also exempt from the Land Agents Licensing Act, which governs land transactions and imposes fines on licensed agents and unauthorized people.[2] Consequently, when securing leases on private property, these agents operate without the constraints of mandated negotiation techniques, professional or ethical standards, or codes of conduct. This exemption allows them significant flexibility in their dealings. The provincial government must establish more official review procedures to handle complaints for these situations.

The financial stability of developers is a matter of concern. Project ownership and reclamation funding arrangements must be disclosed, as required by the AUC. Owners of renewable energy projects face financial risks because, unlike the oil and gas sector, there is no comparable Liability Management program run by the AUC. In contrast to the Orphan Well Association (OWA) for oil and gas, a formal program to handle unfulfilled obligations for renewable energy needs to be developed. Discussing end-of-life obligations for wind and solar farms is a relatively new concept. Currently, there are no provincial plans in place to address this issue. As of today, it is up to landowners to obtain legal advice to reduce risks associated with potential accountability for end-of-life obligations from renewable energy firms (FAO 2017).

Considering all these concerns, but to the surprise of many of those I interviewed, including landowners, farmers, and conservationists, in August 2023 Premier Danielle Smith announced a six-month moratorium on all renewable energy projects. This decision left Alberta's energy future shrouded in a thick cloud of uncertainty. This interim suspension, intended to ease the worries expressed by farmers and landowners, promised to review building regulations, assess the effects of development on the electrical system, and develop careful decommissioning procedures. This province-wide reassessment of the green energy sector not only presents challenges for the industry but also has the potential to affect the leadership and autonomy that Indigenous communities have been striving to establish. While projects that were already approved continued to move forward, concerns arose about possible delays

that could create a climate unfriendly to future renewable energy development (Fletcher 2023; Ross 2024).

On 29 February 2024, the Alberta provincial government lifted the moratorium of nearly seven months on the approval of renewable energy initiatives. With the ban lifted, Alberta Premier Danielle Smith announced a shift towards an "agriculture first" strategy for forthcoming renewable energy endeavours (Jowett 2024). This strategy involves prohibiting renewable energy ventures on agricultural land identified as possessing excellent or good irrigation potential. Furthermore, the government plans to establish buffer zones of 35 kilometres around areas characterized by pristine viewscapes (Jowett 2024; Weber 2024). While the term in this context seems to be used to describe natural landscapes relatively untouched by (visible) human development, the terminology itself is vague and inconsistently defined. What qualifies as pristine is shaped by shifting aesthetic, cultural, socio-economic and political values we may have toward the land we live in and rely on. The vagueness of the term then makes the designation highly subjective and, at times, as in this case, strategically applied. The ambiguity of the term is particularly problematic, considering the long history of human interaction and modification of any territory. As geographer Erle Ellis and colleagues (2013) have measured through a quantitative analysis of archeological, paleoecology and environmental records, human land use has transformed ecosystems worldwide for millennia (Ellis et al. 2013: 7,982).

Observations as such make the concept of "pristine" not only difficult to define but also historically misleading (Pearce 2013). Current policies related to renewable energy policies reveal a critical inconsistency: while renewable energy projects are subject to strict visual and spatial regulations in the name of preserving viewscapes, oil and gas infrastructures that are objectively more disruptive receive far less scrutiny. This indicates a calibrated vision of the way policymakers value the landscape. Alberta's new restrictions ban wind turbines within 35 kilometres of protected areas and require extra approvals for solar projects (Weber 2024). These rules, targeting land use, viewscapes, and reclamation, prohibit renewables on sensitive agricultural lands and undefined "pristine" areas, raising concerns about investment uncertainty and government planning (Weber 2024).

Meanwhile, Alberta's oil and gas industry continues to operate, with 328,436 wells awaiting reclamation as of 2024, including approximately 157,000

active wells extracting fossil fuels (Anderson 2024). The government has not introduced new restrictions on oil and gas development within buffer zones[3], which are now designated off-limits to wind turbine and solar installations. This selective application of restrictions reveals an evident double standard: while renewable energy projects undergo tighter regulations for their potential visual and environmental impacts, fossil fuel operations continue largely unhindered. The case of the coal industry in the province further illustrates this inconsistency. In 2020, the United Conservative Party (UCP) government's initial decision to rescind the 1976 Coal Policy, which had previously protected the eastern slopes of the Rocky Mountains from coal mining, was successfully halted thanks to public backlash, leading to a reversal of such decision (Riley 2021). However, existing coal mining operations persist from Grande Cache to Hinton, coinciding with the Alberta government's proposed draft map of buffer zones around protected areas, particularly emphasizing the eastern slopes of the Rocky Mountains (Anderson 2024). The government's willingness to absorb political costs to protect coal, while simultaneously imposing new barriers on renewable energy, shows a clear policy pattern, one that consistently protects extractive industries while limiting the expansion of renewables and thus restricting the diversification of the energy landscape.

As outlined by the Alberta Energy Regulator, setback regulations in Alberta for oil and gas operations vary based on the type of development and whether the facility or pipeline handles sour gas. According to the Alberta Energy Regulator (AER 2022), these regulations outline four distinct levels of setback requirements. For instance, Level 1 mandates a 100-metre setback for urban centres, public facilities, permanent dwellings, and unrestricted country development. Moving to Level 2, setbacks increase to 500 metres for sour wells, pipelines, and facilities in urban centers and public facilities, while maintaining the same setback for permanent dwellings and unrestricted country development (AER 2022). For Levels 3 and 4, the setback requirements escalate to 1,500 metres for urban centers and public facilities, with a 500-metre setback for unrestricted country development, and a 100-metre setback for permanent dwellings (AER 2022). Municipalities in Alberta adhere to these guidelines when evaluating and approving various types of developments.

The differences in treatment between oil and gas development and renewable energy initiatives in Alberta highlight the complex and diverse regulatory environments that govern these industries. Although oil and gas

operations adhere to specific setback regulations set by the Alberta Energy Regulator, their expansion seems quite limitless. These contrasting regulatory approaches not only influence where projects can be located but also reflect the broader challenges and opportunities each sector faces in adapting to Alberta's evolving energy policies and priorities.

Voices of Dissent: The Impact of Alberta's Renewable Energy Moratorium

Amidst the upheaval caused by the moratorium, numerous organizations across Canada expressed concern and frustration. Environmental Defence, whose mandate includes climate change mitigation, eliminating toxic substances, and protecting freshwater ecosystems, responded just days after the announcement. In their public statement, they strongly criticized the decision, warning that it jeopardizes progress toward a sustainable energy future and the efforts to address the climate crisis. I contacted Environment Defence, a multifaceted organization operating at the forefront of environmental advocacy in Canada. During my conversation with Keith Brooks, the Program Director, he provided insight into the moratorium's potential impact on renewable power development, emphasizing its short- and long-term repercussions. Drawing parallels with similar situations in other provinces, Brooks highlighted the economic consequences of halting renewable energy projects: "Putting a freeze on renewable power development in the province of Alberta means people are going to lose their jobs. It also means that investment in renewables in Alberta will dry up... We've seen this happen before in other provinces, and a prime example is Ontario."[4]

Reflecting on Ontario's experience, Brooks recounted how, when Premier Ford assumed office, he terminated 750 renewable power projects and repealed the Green Energy Act, effectively signalling an end to green energy initiatives. He continued, "All of those companies left, all those jobs... Alberta emerged as the destination for renewable energy investment, as it had a market open to renewables, and slowly became the province where renewables were being installed more quickly than any other place in Canada."[5]

Keith highlighted the paradox that while concerns about renewable energy projects are quickly addressed, there is still significant denial in Alberta about the environmental pollution from tar sands and fossil fuels, revealing double standards in dealing with the oil and gas industry (Dembicki 2022). As he shared with me,

> I don't think there is a great deal of risk associated with abandoned wind turbines or solar farms. It is not the same as an oil and gas liability. It is not trillions of liters of toxic tailings seeping into the Athabasca River or poisoning Indigenous communities that live downstream. It is not a well that is potentially leaking methane or sour gas or anything else really.[6]

However, the resistance to energy transition in provinces like Alberta is unmistakable. Keith, echoing sentiments shared by others interviewed, attributed this resistance to a form of entrenched protectionism deeply embedded within the province's political landscape. This protectionist stance has historically hindered legislative efforts to shift towards cleaner energy sources. Additionally, a cultural affinity with the oil and gas industry has developed over the years in extraction regions like Alberta (Saxinger 2015; Sherran et al., 2019). When energy infrastructure remains unseen, it often leads to an "out of sight, out of mind" mentality among the public (Pasqualetti 2020, 384–386). This mentality fosters a misconception that the environmental costs associated with electricity are minimal. As distance, technology, and urban lifestyles shield us from these costs, we become increasingly unaware and less tolerant of energy development's intrusions on our personal space. In Alberta, much of the oil and gas infrastructure, especially in the oil sands, is located in remote northern regions that are not commonly viewed as scenic. These sites are not necessarily hidden but are less visible to most people, leading to less familiarity with the industry itself. Unlike wind farms or solar panels, which are often prominent in the landscape, oil and gas operations are designed to minimize visual impact. This invisibility means that the environmental degradation, pollution, and other negative consequences associated with these activities are less apparent to everyday observers, contributing to a diminished sense of urgency or responsibility to address these issues. Over time, oil and gas infrastructures have become normalized and are often seen and valued both politically and culturally as integral Alberta's economic identity. In contrast, renewable energy projects, like wind and solar, are highly visible, often placed in open rural areas. Beyond their physical presence, in rural areas where oil and gas continue to shape communities' identities, renewables may be seen not just as visual intrusions, but as threats to local values, reflecting anxieties about change and the potential loss of local ways of life. This perception, combined with a tendency to downplay the harms of fossil fuels, can contribute to complacency and resistance to the adoption of cleaner, more sustainable energy

alternatives (Farhar et al. 1979; Hirsh and Sovacool 2013; National Research Council 2010; Wiseman 2009).

Hirsh and Sovacool (2013) argue that the electric utility system's enduring effectiveness hinges on its ability to conceal its product from public view, both in the manufacturing process and in its tangible form. Infrastructure is often conceptualized as a network of essential elements—railroad lines, pipes, electrical grids, and more—that typically operate unnoticed, functioning in the background to support daily activities (Star 1999, 380). According to Star and Ruhleder (1996), infrastructure gains significance through its connections to organized practices, becoming truly foundational. Its transparent operation means it facilitates tasks seamlessly, without requiring constant reinvention or assembly (Star 1999, 381). However, this inherent invisibility becomes strikingly apparent during breakdowns, such as server crashes, bridge failures, or power outages. Even the presence of backup systems underscores infrastructure's visibility when it falters (Star 1999, 382). Contrary to the view of infrastructure as inherently invisible, Larkin (2013, 334) suggests it represents only one end of a spectrum, ranging from hidden systems to grand spectacles. Context-dependent visibility, as argued by Carse (2012), shapes infrastructure's perceived significance and integration into daily life, challenging its presumed invisibility. Anthropological examples (Sneath 2009; Winther 2008) illustrate how infrastructure often maintains visibility and cultural significance. It is thus when this technology becomes visible that it transforms into a persistent reminder of individuals' existence within a technologically driven society. This visibility shatters the illusion of an "almost magical and largely unsensed substance" (Hirsh and Sovacool 2013, 717), compelling individuals to confront the harsh realities of energy production and consumption. This visibility challenges the hidden nature of energy production, prompting deeper reflections on our relationship with technology and its place in the natural world. Highly visible wind turbines and solar panels compel people to confront this illusion, often resulting in opposition to the technology itself (Sherran et al. 2019).

Toward the end of December 2022, I interviewed Ruiping Luo, a conservation specialist with the Alberta Wilderness Association, just as news was spreading about a proposed solar project—the Foothills Solar—in Foothills County, 50 kilometres southeast of Calgary, near a wetland complex designated as an Important Bird Area for breeding waterbirds. Ruiping Luo discussed the risks renewable energy projects pose to wildlife, particularly water-obligate birds that need water to take off. "We don't know how effective these measures

they are proposing are going to be. But we do have evidence that solar panels could impact bird populations and potentially cause bird deaths." She cited the lake effect—a theory that birds mistake solar panels for water and try to land, leading to collisions and fatalities (Hathcock 2018, 2). She noted that waterfowl and birds spending most of their time near water may be drawn to solar panels, potentially causing serious harm to their populations.

In our conversation, she voiced urgency and anxiety over rushed decisions with lasting consequences. Concern for wildlife led to the formation of the Frank Lake Concerned Citizens group, working with the AWA to oppose the project. Ruiping suggested siting projects in already disturbed areas.

> There are a lot of lands where oil and gas have caused damage, and they [the companies] are trying to restore those areas. So why not use those areas or even urban spaces? Calgary, for instance, doesn't have solar panels on most of its houses, and it's a pretty spread-out city. Putting solar panels on even half of those houses could generate a significant amount of electricity.

She continued,

> Alberta is a big province with a lot going on, and I understand you don't want the electricity way up in the north, where it takes three days to get to. But there are so few natural areas remaining, especially in the grasslands, so we should be trying to avoid the really important areas for wildlife.[7]

In our follow-up interview nearly a year later, with the moratorium on renewable energy projects still in place, Ruiping voiced her ongoing concerns. Despite the government's announcement that the moratorium was intended for a policy review, no consultation had begun three months in. She expressed skepticism, questioning why renewables required a pause for review when oil and gas policies had always proceeded without any halt in activity. Like Keith, Ruiping saw how the moratorium represented a decision to deter investment in Alberta's renewable energy sector, thereby slowing down the necessary energy transition.

As Ruiping had mentioned, concerned landowners and community members formed the Frank Lake Concerned Citizens (FLCC) group to voice their opposition to the Foothills Solar project. Lena Marlowe[8], a member of the group, immediately expressed her concerns upon learning about the proposed solar project near the wetlands she has called home for most of her life. Worried

about the impact on the local bird population, she began gathering information and contacting Environment Canada, Canadian Wildlife Services, and other organizations to garner support for protecting species that cannot advocate for themselves, as she explained. Lena detailed the potential risks associated with the lake effect hypothesis and recounted feeling unheard and dismissed when she raised these concerns at a public meeting with Elemental Energy. She pointed out that these companies fail to build meaningful relationships with local communities, contributing to a sense of mistrust. In her view, these companies are seen as outsiders, unfamiliar with and disconnected from the area, bringing their own agendas and imposing changes without respecting the local context. Lena emphasized that much of the resistance stemmed from a breakdown in communication and the perceived unwillingness by large solar companies to consider the local concerns and make meaningful compromises.[9] Lena proposed a solution to avoid the conflict, suggesting that solar companies could partner with homeowners instead of developing large solar farms on valuable farmland. She argued that renting rooftop space in farming communities and feeding that energy into the grid would be a better use of resources.

Our conversation reflected the same rural/urban divide mentioned by other participants, with rural residents perceiving their land as being exploited to benefit city dwellers. As Hirsh and Sovacool (2013, 723) note, this urban-rural divide is marked by deeper social and economic tensions, with rural communities often describing and viewing urban developers as profit-oriented businesspeople, exploiting their local resources. This opposition is often rooted in longstanding social and economic tensions, where wind turbines and solar panels come to represent clashes between the progressive values of modern urban life and the conservative virtues of rural existence. Whether rural residents oppose or support wind turbines often hinges on their perceptions of the natural environment and progress. These attitudes reveal how economic interests and cultural values often collide, turning the debate over renewable energy infrastructure into a microcosm of larger societal struggles (Hirsh and Sovacool 2013, 716). The clash of values becomes evident when rural residents perceive turbine or solar panel installations as a consequence of urban areas' higher electricity demand (Hirsh and Sovacool 2013). This sense of imbalance deepens resentment, as rural communities feel they bear the burdens and risks while urban residents reap the benefits without sharing the costs (Hirsh and Sovacool 2013; Swofford and Slattery 2010).

After a series of hearings with the AUC in April 2023, the Foothills Solar project was deemed environmentally unsuitable. For Lena, this brought relief and marked a turning point, one she hoped would push developers to take Alberta's guidelines seriously and genuinely engage with conservation groups and local communities.[10]

Emotional Landscapes of Renewable Energy in Rural Alberta

During my interviews with farmers, longtime residents, local representatives, and oil and gas workers in Southern Alberta, a strong connection to the land stood out—shaped by daily work, family history, and community life. For many, the land is tied to who they are, so changes to the land were received as threats to their ways of life and to their sense of belonging. People do not simply live in places, they shape and are shaped by them, creating meaning through lived experiences, beliefs, and storytelling. Renewable energy developments were seen by locals as disrupting deep emotional ties to the land and its values.

Such sentiments lie at the heart of what scholars like Davidson, Bondi, and Smith (2005) have termed "emotional geographies," examining how emotional experiences both influence and are influenced by physical spaces, illustrating a nuanced interaction among environment, emotion, and behaviour. Our emotional responses to space are influenced by cultural context, personal experiences, and social relationships (Davidson and Milligan 2004). For example, a wind farm might represent progress and sustainability to one person but evoke feelings of loss and disruption in another, depending on their attachment to the landscape (Swofford and Slattery 2010). Emotional geographies help us understand the reciprocal relationship between people and their environments (Davidson, Bondi, and Smith 2005), emphasizing the need to consider emotional factors in urban planning, environmental policy, and community development. Recognizing that spaces are also emotional landscapes can lead to more empathetic and practical approaches in managing and designing these environments.

Many of the individuals I interviewed in rural communities spoke of a deep bond with the land. However, for some, renewable energy projects have strained this bond, prompting them to even contemplate leaving due to the unsightly views and land disruptions. In a joint interview, Rachel and Marion[11], both deeply rooted in rural Alberta, shared their distress over the burgeoning wind and solar developments encroaching upon their cherished landscapes. Their family's century-long farming history and small acreage have given them a deep

sense of responsibility for the land. They were initially hopeful about renewable energy projects, but grew concerned after seeing the negative effects. Together with other residents, they oppose the unchecked growth of green infrastructure, including the Travers solar project near their home.

Travers Solar Project is considered the largest solar development in Canada, with 1.3 million solar panels spreading over 3,000 acres of land. As its construction was occurring, many of the neighbourhood farmers complained about the disruption caused and the carelessness of the operations. Not far from their home, the Buffalo Plain Wind Project was under construction at the time of the interview and was completed by the end of 2024. Its 83 turbines spread over hectares of land have raised fears of noise, visual impact, and interference with farming activities. Despite community opposition, approvals proceeded, leaving residents feeling dismissed and, in some cases, marginalized within their own community (Image 2).

During construction, many neighbourhood farmers witnessed disruptive processes and topsoil loss. They lamented the spread of Kochia weed (*Bassia scoparia*), an invasive plant species, threatening their farms.[12] As Rachel and Marion explained, solutions have been proposed to remediate the possible damage or inconveniences, but these have been useless. They feel betrayed by their county representatives. Injustices impacting their farming activities, as Marion explains, profoundly affect their relationship with the land and other species sharing the space. Reflecting on this, she said, "It really breaks my heart. We've already done so much damage to the planet. Farming in the old style

Image 2. Sign against wind energy development near the town of Vulcan, Southern Alberta. Photo by the author.

usually works hand in hand with the land, not like this big industrial stuff. I don't know if solar is the same, but wind has a license to kill."[13]

This sense of loss shows how emotional ties to place are important, and disturbances can significantly impact attitudes and behaviour, especially in visible energy landscapes like wind and solar farms (Pasqualetti 2000). Often, such opposition is labelled as "not in my backyard" (NIMBY), describing resistance from residents who oppose disruptive developments in their neighbourhoods, especially those who have long enjoyed unobstructed viewscapes (Burcher 2005, cited in Hirsh and Sovacool 2013). According to Wolsink (2006), the conventional perspective of NIMBYism is detrimental to the development of renewable energy projects. An alternate perspective, as Swofford and Slattery (2010, 2516) observe, is provided by Devine-Wright (2009, 432), who defines NIMBY responses as "place-protective actions" that are grounded in place identity and place attachment. He contends that to better understand the social and psychological components of the change brought about by energy technology, these responses should be viewed as attempts to safeguard important locations from alleged threats.

Place attachments can be described as symbolic relationships that are created when people give a particular space or piece of land culturally shared emotional and affective meanings (Low 1992, 165). Understanding these emotional and affective meanings is key to developing a more thoughtful approach to environmental issues. Place identity involves a sense of self-built around one's location and includes aspects associated with people's perception of that place (Hernandez et al. 2010). It includes the experiences, values, and meanings connected to a location that shape a person's identity in connection to that setting (Low 1992). Place attachment and identity are connected as people create their identities through interactions and the emotional ties to specific locations (Devine-Wright 2009; Low and Altman 1992; Vorkinn and Riese 2001; Werner et al. 1993). While this framework helped me interpret how people I interviewed express their connection to the land, it is important to acknowledge that these attachments exist within a settler colonial context. My research focused on settler perspectives, and the sources cited here come from Western academic traditions, which do not capture Indigenous understandings of the land and relationships. Claims about place attachment must also be considered alongside histories and ongoing realities of dispossession.

This strong connection to place helps explain why initial support has often turned into opposition as communities feel ignored, their voices unheard, and

their landscapes commodified. When asked about their fears and concerns regarding the damage from these infrastructure projects, Rachel responded with a palpable sense of defeat, describing their entire community as a sacrifice zone. "The county of Vulcan is referred to as the incubator for green energy. That is how it was worded in some kind of plan... I was able to go online and look and read the place. It referred to us as an incubator. It kind of sums it right up for you!"[14] Rachel's words capture their collective disillusionment. With Vulcan labelled as a mere testing ground for green energy initiatives, they feel more displace and resigned. Marion's voice trembled with frustration as she said, "They [wind farms] ... they don't grow food. They're an affront to everything that's agricultural. So, we prefer to call them wind factories or...solar panel factories."[15] Her words carried the weight of generations of farming tradition, emphasizing the disconnect she felt between these industrial structures and the agricultural heritage of their land.

Scholars have drawn attention to the aggressive and potentially manipulative tactics employed by corporations and stakeholders to acquire and control valuable land and resources in green energy development (Backhouse and Lehmann 2020; Dunlap 2020; Dunlap and Arce 2022; Stock 2022). This phenomenon is driven by mechanisms like green grabbing, as defined by Dunlap (2020), which perpetuates ecological and extractive violence and engenders new patterns of inequality within communities. This phenomenon creates "sacrifice zones" in energy transitions (Brock, Sovacool, and Hook 2021), marginalizing unwanted energy infrastructures in remote or degraded areas, with significant social and environmental impacts (Blowers and Leroy 1994; O'Sullivan et al. 2020).

Simon[16], who grew up in Vulcan County, south of Calgary, and has had over 35 years of experience in coal mining and oil and gas, emphasized to me how being opposed to renewable energy projects should not equate to exclusively supporting fossil fuels. He initially embraced wind turbines as a step toward decarbonization and was eager to contribute and shift to that sector as well, but firsthand experience with their inefficiencies changed his mind. "These turbines can't handle very windy days, and they were placed in a very windy part of the province. They were so intermittent..."[17] Later, as the renewable energy structures moved closer to his homestead, he expressed a growing concern about the area transforming into a sacrifice zone, defining his emotions to me as a turmoil of anger and anxiety.

From a psychological and symbolic perspective, the sight of renewable energy projects can evoke feelings of industrialization infiltrating rural landscapes, challenging traditional rural values (Hirsh and Sovacool 2013). This introduction of green energy infrastructures marks "new resource frontiers," where governance regimes assert control over land by territorializing the energy resource space (Hung and Lien 2022). This process involves the industrialization of rural landscapes, shaping socio-ecological relationships in land management, perception, and mapping (Turley et al. 2022). While renewable energy offers a promising shift towards sustainability, it is imperative to thoughtfully examine the socio-environmental impacts and ethical implications of these projects, ensuring their benefits do not eclipse the well-being of local communities or the integrity of our natural landscapes.

Conclusion

Despite ongoing debates about energy transition, Alberta's reliance on the fossil fuel industry remains a dominant force in the province's energy landscape. This article has examined Alberta's complex path toward solar and wind energy—a shift full of promise but also contention. The narratives presented reveal how renewable energy projects can unsettle cultural and emotional ties to the land, disrupting in some cases place identity and intensifying feelings of displacement and injustice.

In Alberta, public perceptions of wind and solar farm developments unveil a complex interplay of factors shaping community responses to renewable energy initiatives. Supporters often point to the potential for economic diversification and environmental stewardship, viewing renewable projects as a move away from fossil fuel dependence. Conversely, critics, influenced by historical distrust of resource industries, express concerns and unease about changes to the landscape and the long-term impacts on their communities.

Throughout this exploration, we have encountered the dichotomy of the visible and invisible, as posited by Hirsh and Sovacool (2013), and the profound impact this has on public perception. Solar panels and wind turbines, with their tangible presence, have reshaped not only Alberta's physical terrain but also its societal and emotional topography. The "geography of emotions" (Davidson, Bondi, and Smith 2005), deeply tied to a sense of place and identity (Low 2012), surfaces as individuals and communities navigate the visible manifestations of energy transition. This emotional landscape, frequently

overlooked or misunderstood by policymakers, is a critical element in the discourse surrounding renewable energy projects.

As Alberta stands at the crossroads of change, the challenges of land use conflicts, the preservation of cultural and scenic values, and conservation concerns emerge as significant hurdles. These are not insurmountable, but they demand a conscientious and collaborative approach. This article argues for an energy transition rooted in empathy and cooperation, where emotional intelligence informs policy, and where open dialogue replaces divisive rhetoric.

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Notes

1 My research is ongoing, and I have not yet engaged directly with First Nations, Métis, or Inuit individuals.

2 In Alberta, a land agent negotiates or acquires surface interests in land for an employer, as an agent, or personally. The Land Agents Licensing Act governs these individuals, requiring licensing, and adherence to conduct and ethics standards. Its purpose is to ensure fair and lawful practices in real estate dealings, encompassing land acquisition and leasing (Government of Alberta 2000). The Act incorporates oversight, enforcement, and penalties for violations, safeguarding the interests of all parties in Alberta's land transactions (Government of Alberta 2000).

3 Buffer zones, in this context, refer to areas around certain locations, such as protected areas or urban centres, where specific activities are restricted or prohibited for environmental or safety reasons.

4 Keith Brooks, interview with the author through videotelephony software, 15 September 2023.

5 Keith Brooks, interview with the author through videotelephony software, 15 September 2023.

6 Keith Brooks, interview with the author through videotelephony software, 15 September 2023.

7 Ruiping Luo, in-person interview with the author at the Alberta Wilderness Association office in Calgary, Alberta, 20 December 2022.

8 This is a pseudonym used to protect the participant's identity.

9 Lena Marlowe, interview with the author, through videotelephony software, March 2023.

10 E-mail communication with the author, 24 April 2023.

11 These are pseudonyms used to protect the participant's identity.

12 Kochia weed is an invasive species that can contaminate grain and impact harvesting (Kumar et al. 2018).

13 Rachel and Marion, interview with the author, 10 January 2023.

14 Rachel and Marion, interview with the author, 10 January 2023.

15 Ibid., interview with the author, 10 January 2023.

16 To protect their identity, the interviewee requested a pseudonym when quoting from our interview.

17 Simon, interview with the author, 21 March 2024.

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