



# Hacking the Techno-Transition: The Possibilities of Deep Energy Literacy<sup>1</sup>

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**ABSTRACT** This article takes the E.L. Smith Solar Farm at the E.L. Smith Water treatment plant in Alberta – a province at the epicentre of Canada’s oil and gas industry – as a case study for what I call *deep energy literacy*. An energy transition away from fossil fuels to sustainable energy sources is a necessary first response to climate change. Deep energy literacy is a proposition, a set of theoretical concepts, through which to disrupt, or “hack”, technophilic transitions by attending to intersectional feminist and decolonial politics and solidarities. Technocratic solutions for decarbonization that do not radically reorient existing social, economic, and political relationships are failed solutions even before implementation begins because they have not addressed the root cause of climate change: a bankrupt extractivist worldview. This worldview is the cause of not only climate change but multiple converging crises. Deep energy literacy is a proposition grounded in relationality that can help us identify problems more holistically and thereby come up with solutions that not only address necessary energy transition shifts, but that do so while *simultaneously* addressing a plethora of other concerns – including but not limited to Indigenous (re)conciliation – by creating more equitable and just societies and ecosystems. Seen through the lens of deep energy literacy, this analysis of the processes through which the E.L. Smith Solar Farm project was approved illustrates that when decisions about new energy infrastructure are based in entrenched economic, political, social, and epistemological paradigms, they fail to disrupt the status quo and therefore fail to adequately address the root causes of climate change. To achieve a just transition many experiments need to take place; many of these experimentations will be imperfect. In the case study considered in this paper, I suggest that while deep energy literacy conversations were begun, they were not integrated fulsomely enough. Nonetheless, there are positive lessons to be taken from the E.L. Smith Solar Farm and integrated into future decision-making processes.

**KEYWORDS** climate justice, deep energy literacy, decolonization, energy humanities, energy transition, petroculture

## Introduction

This article takes the E.L. Smith Solar Farm at the E.L. Smith Water treatment plant in Alberta, a province at the epicentre of Canada’s oil and gas industry, as a case study for what I call *deep energy literacy*.

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The data that informs this analysis is drawn from a dozen public presentations and discussions of the projects at various levels of municipal government, including meetings of the Energy Transition Advisory Committee (later renamed the Energy Transition Climate Resilience Committee) and Edmonton's City Council meetings between 2017 and 2020, as well as 775 pages of background documentation and research provided to Edmonton's city councillors as part of the agenda package that informed the vote they took to pass the project. Additionally, in 2019 I conducted six semi-structured, recorded interviews, each one to two hours in length, with a range of stakeholders, four of whom agreed to publish lightly edited versions of the interviews as open-access podcasts episodes, which are available on the *Just Powers' Deep Energy Literacy Podcast* website.<sup>2</sup> As background research prior to the interviews, between 2017 and 2019 I conducted over a hundred one-on-one video-recorded interview-dialogues with a range of influencers and experts in Canadian energy transition sectors – from activists, to engineers, to Indigenous legal experts, to policy makers. These interviews are all published as part of the Intermedia Documentation (iDoc) project, available online in the Just Powers iDoc video archive. iDoc uses semi-structured participatory action research methods informed by feminist filmmaking theory (Onodera 1991; Lusztig 2001; Blaetz 2007; Wilson 2014b) and research-creation methods (Loveless 2019a, 2019b).<sup>3</sup> Further, this article is informed by my time serving on the Energy Transition and Climate Resilience Committee (ETCRC) that advises Edmonton's City Council, the municipal government of the provincial capital. In this advisory role, I witnessed how meaningful thinking took place around this project, and where and in what ways leaders were – or weren't – ready to think through the lens of deep energy literacy.

## Leveraging Energy Transition

Energy transition from fossil fuels to sustainable energy sources is a necessary first response to climate change – one that typically privileges technological solutions. Technocratic solutions for decarbonization are rarely designed and implemented to radically reorient existing social relationships. Therefore, they are failed solutions even before implementation because they do not address the root cause of climate change: an extractivist worldview that informs all our relationships from the most intimate, quotidian interactions, to the faceless networks of global finance and power.

This extractivist worldview is the cause not only of climate change but multiple converging crises, including a global economic crisis, the COVID-19 pandemic and the probability of future pandemics, the many effects of climate change, from rising sea levels to species extinction to food shortages, to name a few. Here, where I write, the City of Edmonton declared a climate emergency in 2019, like thousands of municipalities around the globe. Furthermore, around the world, and specifically in Canada, Indigenous and settler

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<sup>2</sup> Series 4, which explores the E.L. Smith Solar Farm, can be found online at <https://www.justpowers.ca/series/series-4-deep-solarities/>.

<sup>3</sup> The Just Powers open-access archive is available through the University of Alberta Library: <https://ualberta.aviaryplatform.com/collections/1775>.

people are grappling with the impacts of colonization. The contemporary convergence of these crises is rooted in a hierarchical knowledge system that favours patriarchal Western reason associated with pervasive nature-culture divide and extractivist paradigms that inform colonization and continue to shape transactional social, economic, and political relationships (Machado de Oliveira 2021). This worldview is invested in securing control and power in the hands of a few, who treat the rest of humanity, the non-human world, and our shared planetary ecosystem as resources to be exploited. Over the past two centuries, fossil fuels have powered the exploits of this worldview, and the social, political, and economic systems organized around fossil fuels have shaped the inequitable hierarchical relationships that define the petrocultural age (Wilson, Carlson, and Szeman 2017).

Deep energy literacy aims to redirect an adequate amount of the billions of dollars being invested in climate change actions, particularly energy transition, to create more just and equitable realities. As that money creates lower-carbon infrastructure, it also reorients relations of power and reshapes social life. While corporate players try to seize the opportunities made available through these massive investments in energy transition to, maintain or expand their power and wealth, actors in the climate change movement – including elected officials, non-elected public servants, and private employees working on climate and energy files, granting agencies, activists, community members, researchers, journalists – can hack these tech investments aimed at grabbing market shares and power to instead ensure profits and benefits are redirected toward common wealth and more just societies, present and future.

By “hack”, in this context, I mean intervening into social infrastructures of governance and political systems of power and oppression according to the principles of deep energy literacy (elaborated in the next section). In this, I am drawing on the work of key feminist infrastructure scholars such as Lauren Berlant (2016), Ruth Schwartz Cowan (1983), Deborah Cowen (2017), Laboria Cuboniks (2015), Dolores Hayden (1982), Keller Easterling (2014), Leslie Kern (2019), Dagmar Lorenz-Meyer (2017), Angela Mitropoulos (2012), Selena Savić and Stephanie Wuschitz (2018), and Ara Wilson (2016), who call for disruption(s) to the way infrastructure is built, used, and repurposed. Working together with their ideas, I have developed the concept of deep energy literacy by thinking through whose land an energy project is situated on, who owns the land and the energy source, who controls it now and into the future, who benefits from the energy it produces, as well as the human and more-than-human impacts of the energy project (Wilson 2020, 2021). If people making decisions about energy take seriously the fact that all of our relationships are grounded in the energy systems that have fuelled our networks of power and oppression, then they will take seriously the power of energy transition to transform future communities with decisions taken today. In short, hacking the techno-transition is about replacing *both* the hard infrastructure of the fossil energy system that first comes to mind when we think of transition (an oil rig, a mine, a refinery), as well as the soft infrastructure of social relations, business and politics as usual. Both soft and hard infrastructures are equally important, but a transition that only attends to the physical built world will merely reproduce the social, political, and economic relations that sustain the inequities and violences of the present, into the future. Both aspects of this transition require a significant shift in mindset, but so far, in Canada,

our leaders are dealing only with the technophilic half of the equation. My argument is that while a transition of *both* infrastructural forms takes investment, currently money mostly flows to *hard* infrastructure projects, ignoring the importance of the social dimensions of energy transition. To increase awareness of the need for investment in the non-physical, deep energy literacy is needed.

### What Exactly Is Deep Energy Literacy?

*Deep energy literacy* plays off of and repurposes the oft-used term *energy literacy*. Energy literacy has, most commonly thus far, focused on the *technical* aspects of transition, and has widely been touted as an educational solution to support climate action. The rationale is that if we, as citizens, understand energy – how it is created, stored, transported, how much we use and need for what – we will be able to assess energy information to problem solve and ultimately act on climate targets. However, decades of energy literacy education have done little to advance climate change policy or behavioural changes. Certainly, it is very important that technical experts have this knowledge, but a technical understanding of energy is only one piece of the puzzle. It is critical, of course, but, it isn't enough. What is equally important is an informed theoretical frame through which to make assessments around energy that address not only decarbonization but the root causes of the climate crisis.

Deep energy literacy, in short, deals with the soft infrastructures of social, economic, and political change needed to ensure that tech shifts are undertaken in ways that achieve our climate commitments. The climate commitments made by 197 countries in Paris in 2015 are not simply a formal obligation to collectively decarbonize; they are much more comprehensive and include commitments to climate *justice*. Using the lens of deep energy literacy, I argue that the only responses adequate to the challenge of climate change deal with climate justice. *If we achieve climate justice, we will have addressed climate change. The reverse is not true.* Therefore, climate justice is the litmus test for whether our individual and collective actions are adequate responses. Deep energy literacy is a proposition, a set of theoretical concepts, and a praxis, through which to disrupt and reconfigure, or “hack”, dominant techno-transition ideologies.

Disciplinarily, deep energy literacy draws from the deep ecology theories of the 1970s, which argued that technocratic solutions are inadequate to the challenges of ecological devastation. As energy humanities scholars have long argued, energy transition is a *social* transition: the solutions needed are fundamentally social (Wilson, Carlson, and Szeman 2017). In partnership and response, deep energy literacy is a theory and a praxis that I have been developing for more than a decade (S. Wilson 2014a, 2016, 2017). In that time, various levels of Canadian government have made formal climate commitments, and commitments to reconciliation, gender equity, and other equity issues. As a theoretico-practical lens, deep energy literacy holds those multitudes together and allows change agents to collectively come up with responses adequate to the climate crisis.

How does it do this? Deep energy literacy seeks to integrate multiple knowledge systems and ways of knowing, including but not limited to multispecies ethics (Haraway 2008, 2016;

Tsing 2015; Puig de la Bellacasa 2017); red intersectional feminism<sup>4</sup> (Clark 2016; Monture-Okanee 1992; Turpel 1990); intersectionality (Crenshaw 1991; Nash 2017; Collins 2019); decolonizing and Indigenizing theory and praxis (Simpson 2014; Kermoal and Altamirano-Jiménez 2016; Betasamosake Simpson 2017); ability and accessibility issues (Criado-Perez 2019; Kafer 2013; Kern 2019; Samuels 2017); class politics (Dawson 2017; Hayden 1982; Jaffe 2021; Mies 1986; Federici 2004); ecofeminism (d’Eaubonne 1974; Merchant 1990; Mies and Shiva 1993; Worthy, Allison, and Bauman 2019); situated feminist and queer epistemologies (Simandan 2019; Haraway 1988; Hall 2017; Weiss 2018), and an ethics of relationality and care (Care Collective 2020; Federici 2013; Noddings 2013; Brown 2017, 2019, 2020; Spade 2020) – all to inform energy transition and climate responses commensurate to the current convergence of crises. Embracing intersectional, intergenerational, intercultural, interspecies, interdependent ways of thinking and doing politics and life is about finding solutions that can address multiple crises, and create the solidarities needed to do this shared work. As Angela Davis says, “We are interested not in race and gender [and class and sexuality and disability] per se, by themselves, but primarily as they have been acknowledged as conditions for hierarchies of power, so that we can transform them into intertwined vectors of struggle for freedom. When we *identify into feminism*, we mean new epistemologies, new ways of producing knowledge and transforming social relations. As scholars and activists, we realize that categories always fall short of the social realities they attempt to represent, and social realities always exceed the categories that attempt to contain them” (2012: 197; emphasis added).

Deep energy literacy learns from these perspectives to redirect the techno-transition messaging of an energy literacy focused on explaining the workings and failing of current technologies while proselytizing new or alternative technologies as solutions. It is a stand against the dominant fetishizing of techno-energy literacy. It does this because such a fetishization lands the responsibility for energy transition squarely with those who

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<sup>4</sup> As Susanne Luhmann (2022) reminds us, Canadian intersectionality developed simultaneously and synergistically with American intersectionality, albeit differentially and strongly informed by Indigenous feminist thinkers and activists from both sides of the border. Natalie Clark, who coined the term *red intersectionality* (first published in 2016), traces its genealogy back to earlier Indigenous feminists. Clark writes, “From the words of Sioux activist Zitkala-Sa (1901) over a century ago, through to the voices of my friends and sisters and the Indigenous feminist activists writing and speaking out today, this knowledge of the interlocking arteries of colonialism has always been part of our truth-telling (de Finney 2010; Hunt 2014; [Betasamosake] Simpson 2011)”. She also cites Patricia A. Monture-Okanee (1992), who, in Constance Backhouse et al.’s collection, writes, “Race (as well as colour, creed, national or ethnic origin) is a Western European and now, Euro-Canadian construction. My people speak of nations, in holistic sense. My race can never transcend my colour, or creed, or ethnic origin. My race is always inclusive of those characteristics, as well includes my spirituality and my culture. Since this is a difficult construction to grasp, interested readers are referred to Mary Ellen Turpel”. This is all to say that the knowledge and discourses of Black, Indigenous, BIPOC, LGBTQ2+, Québécois and non-Québécois and more are intersecting and interdependent, with different trajectories and synergies of thought in different places and spaces, and different national contexts.

control the current system, its science, technology, and financing. By contrast, *deep energy literacy* works to build new soft infrastructures for the future: infrastructures that include new languages for thinking and *being together in and with our ecosystems*. Lauren Berlant (2016) puts it this way: we need new “glitchinfrastructures for teaching unlearning” that make obvious that “the good life” does not equal *justice*. Furthermore, carceral justice, restorative justice, and transformative justice are not the same thing (Reese 2020; McCaslin 2005; Dixon and Piepzna-Samarasinha 2020). If actors in the climate change movement are to make the changes needed within the time frames dictated by the speed of global warming, everyone needs to be part of the solution, and vast interdisciplinary perspectives and previously marginalized knowledges need to have a voice at decision-making tables.

Importantly in all this, deep energy literacy insists on *locally determined* and not globally prescribed actions. When viewing the current climate crises through the lens of deep energy literacy, common cause does not equal one-size-fits-all solutions to energy transition. For example, many “environmental solutions” are urban-centric, make assumptions about class, and end up being implicitly racist. These approaches cannot apply across cultures, and cannot be scaled across urban and rural spaces and logics. Indeed, as Berlant reminds us, the commons has too often been invoked as “an incontestably positive aim, [that] cover[s] over the very complexity of social jockeying and interdependence it responds to... [T]he commons concept is a powerful vehicle for troubling troubled times” but one that likewise means living “with some loss of assurance as to one’s or one’s community’s place in the world, at least while better forms of life are invented and tried out” (2016: 395). Technocratic energy transition won’t achieve these goals, as techno-energy literacy does not disrupt current ways of thinking about economic and political relationships foundational to the social fabric of our societies.

As the above overview makes clear, deep energy literacy is both a praxis and a theory grounded in relationality, as opposed to transactionality. It can help us identify problems more holistically and thereby come up with solutions that address not only one aspect of the climate crisis – energy transition – but that simultaneously address a plethora of other concerns. At the E.L. Smith Solar Farm, proposed at the EPCOR water treatment plant in Edmonton, which I discuss as my case study later in this article, the main concerns included, but were not limited to, Indigenous (re)conciliation, ecosystem health, and more equitable and just social and economic relationships, present and future. However, if the project were different, the deep energy literacy considerations would likewise be different. Let’s say, as just one possible example, the project in development were a low-carbon urban transportation system, the list of deep energy literacy concerns might include many of the same fundamental concerns of this project but would also need to shift and/or expand to meet urban design challenges in ways that take into account transport *accessibility*, understood broadly as everything from economic access to gender mainstreaming to the responsibility to decolonial, BIPOC, and LGBTQ2S+, as well as the young and old and disabled of all ages. Crucial to the theory and practice of deep energy literacy is an understanding of the specificities of *each* set of solutions to the actors, stakeholders, and ecological needs of each specific location and community. In this case study, the project was new solar energy infrastructure in the river valley of Edmonton, Alberta.

All energy projects happen on the land.<sup>5</sup> Therefore, some deep energy literacy questions to consider include the following: Whose land is it? Whose is it now? Whose has it been historically? In other words, who owns it? Who are the rightful stewards of the land? Are those one and the same? Who owns the energy source? Who controls it now and into the future? Who benefits from the energy it produces? Who uses the energy it produces? Who profits? Who pays? Is it affordable? Are there benefits (community benefits, for example) beyond the obvious energy outputs and financials? What are the human and more-than-human impacts, for better or worse? Does the project enhance or undermine intersectional equity and decolonial justice?

In Canada, deep energy literacy is accountable to reconciliation. Decolonial theory and praxis – or “red intersectionality” – in Canada, in the current post-Truth and Reconciliation Commission (TRC) era, is about *non-extractive, respectful Indigenous and non-Indigenous relationships*, willing to account for the harms of the past and present. The TRC, which ran from 2007 to 2015, focused on the residential schools that operated across Canada for the better part of a century, separating Indigenous children from their families and cultures. One of many colonial instruments, the Indian Residential School system, enacted genocide; many Indigenous children perished during their time in these schools, and survivors were traumatized and disconnected from their families and culture. The TRC heard testimony from 6,500 survivors across the country, created a historical archive including five million government records related to residential schools, and published a final report with 94 Calls to Action that guide Canadian institutions on how to decolonize (Government of Canada 2021). This national reconciliation project is in synergy with the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) adopted in 2007, which outlines the “minimum standards for the survival, dignity and well-being of the indigenous [*sic*] peoples of the world” (p. 28), including the rights to self-determination and Free, Prior, and Informed consent when there is to be any development on their lands. This time of reconciliation in Canada is characterized by individual and collective work by Indigenous and non-Indigenous peoples to imagine a decolonized reality and work to achieve it. Recognizing this post-TRC context when considering new energy projects is *imperative*; Indigenous Peoples are the first rights holders of the lands we now call Canada, and often the reserves that are home to Indigenous nations across these territories are resource-rich areas that are being looked to for new energy sources. Since all energy projects happen on the land, acting on climate targets cannot be ethically undertaken without respectfully meeting reconciliation and UNDRIP commitments. There is no just climate response that does not simultaneously consider these multiple and intersecting commitments – at least here in Canada.

Deep energy literacy is an expansive concept inside of which we can teach one another about our blind spots. A look at the E.L. Smith Solar Farm as a case study is an opportunity to explore where deep energy literacy happened, almost happened, could have happened, or might happen in another similar project in the future.

Deep energy literacy is iterative.

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<sup>5</sup> “Land” in this context includes hydro and offshore energy projects. In short, the land means the planet.

## Case Study: EPCOR E.L. Smith Solar Farm

### Situated Theoretical and Methodological Approach

The EPCOR E.L. Smith Solar Farm is a major industrial project currently in development in Alberta. Once built, it will consist of 45,000 solar panels on 23 hectares of land – the equivalent of approximately 36 city blocks or 43 football fields. It is slated for development on a bank of the North Saskatchewan River in Treaty Six territory, in what is now recognized as Edmonton, the provincial capital of Alberta. The city sits on lands stolen in the 1870s from Papaschase and Métis Peoples, displacing them by means that led to the loss of culture and life, as part of Canada’s history of genocidal colonial practices. Energy and natural resources play a starring role in this history. People in this province live in the heart of the nation’s resource extraction economy. Edmonton is located just south of the world’s largest mining project at the Athabasca bitumen deposits (Leahy 2019). Referred to as the tar sands or the oil sands, this massive industrial undertaking continues to displace Indigenous nations and cause irreparable harm. This place, where I live and work and where I was born and raised, is one of the most intense sites for hydrocarbon energy production the world over. It is therefore also one of the most interesting sites for energy transition activism.

### Context and Timeline

On October 19, 2020, in a split vote of seven to six, Edmonton’s City Council approved the E.L. Smith Solar Farm, planned to go up adjacent to, and provide energy for, one of the city’s major water treatment plants. For context – and without rehashing arguments I have written about in earlier phases of the project (Wilson 2021) and explored in dialogue with energy transition activists and environmental leaders via the *Just Powers Podcast* (available open-access on the project website)<sup>6</sup> – I’ll provide an overview of the project’s history.

First: the location of this project is critical to understanding the debates, discontents, and desires swirling around it. The E.L. Smith Water Treatment Plant is located adjacent to the North Saskatchewan River that flows through Treaty Six territory and the provincial capital city, providing water to a municipal region of a million citizens. Edmonton’s River Valley is the largest urban park space in North America; this biodiverse area spans forty-eight kilometres wending throughout the city (Canada Cool n.d.). The stretch of river and adjacent land where the water plant now sits was part of the Enoch Cree Reserve until 1908 and was historically a gathering place for Indigenous Peoples (Houle 2016). In 2017 EPCOR Water Services Inc., the utility provider that owns the plant, brought forward a proposal to install a ten-megawatt solar photovoltaic system on the site.

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<sup>6</sup> Series 4 of the *Just Powers’ Deep Energy Literacy Podcast*, which I host and produce, consists of interviews with local experts in solar energy, Indigenous archaeology, and biodiversity impacts of solar installations. All five episodes of *Series 4: Deep Solarities* can be found here: [www.justpowers.ca/series/series-4-deep-solarities/](http://www.justpowers.ca/series/series-4-deep-solarities/).



Initially, EPCOR's proposal to create a solar installation was well received by the City of Edmonton administration and Council as a means to support the city's energy transition and climate commitments. The project attracted more than \$12 million in funding early on (EPCOR n.d.). EPCOR conducted consultations with surrounding residents and Indigenous nations, including the Enoch Cree Nation, the neighbouring Indigenous nation. In January 2019 the Energy Transition Advisory Committee (2019) of the City of Edmonton reviewed and submitted a memorandum of support for the project to the City Council.

Amid these developments, there were also undercurrents of discontent. As disparate affinity communities (many on opposite sides of the political spectrum) found themselves *together* in opposition to this project, the E.L. Smith Solar Farm became a provincial election issue. In March 2019, the *Edmonton Journal* reported that Jason Kenney, the United Conservative Party (UCP) leader, leader of the opposition, and candidate for premier of Alberta, was promising, if elected, to cancel the EPCOR solar project and establish a provincial park in southwest Edmonton instead (Junker 2019a). Suddenly, local organizations, such as the Sierra Club Canada, the North Saskatchewan River Valley Conservation Society, and Edmonton River Valley Conservations Coalition, whose members largely self-identify as progressive, found themselves sharing political aims with the right-wing, conservative UCP party.

When environmentalists protested the E.L. Smith Solar Farm during the 2019 provincial campaign, Kenney's UCP party appropriated the momentum created by these community organizers to assert their "oil-loyal" stance as allied with the project of environmental conservation (Wilson 2021). Motivating this was the fact that, in Canada, party views on which sources of energy are superior and should be supported (and even government subsidized) are based directly on how much financial value these sources can deliver to stakeholders – the oil companies, not the electorate – which then pays political-dividends in securing power. While Kenney and his provincial government play no official role in municipal decisions, in the case of the E.L. Smith Solar Farm, political spin was used to seed doubt about the merit and legitimacy of energy transition projects like this one. Despite this, the E.L. Smith Solar Farm proposal continued to move forward, as a major redirection of the project at that stage could have resulted in the loss of grants, not to mention the time and investments already put into its planning by EPCOR.

In May 2019 EPCOR responded to the multiple concerns around recreational access, biodiversity, and Indigenous heritage by amending the project plans to include trails, wildlife corridors, educational opportunities, and Indigenous art. These corporate responsibility strategies, however, proved to be insufficient. The Enoch Cree Nation withdrew support for the project saying "new archeological information suggests the site was used for ceremonial purposes" (Junker 2019b). In response, on June 20, 2019, following the E.L. Smith hearing of the City Council, Premier Kenney again spoke out via social media. He posted on Facebook, "I agree with these Edmonton residents and the Enoch Cree Nation. The River Valley should be a ribbon of green, free of industrial projects. That's why Alberta is ending funding from this solar farm in the Valley and will help create the nearby Big Island Park" (Kenney 2019). Here, E.L. Smith provided Kenney an opportunity to perform his extreme anti-renewable stance as not only eco-friendly but as Indigenous solidarity on a project over

which he had neither political power nor responsibility to follow through on his declarations. The flip side of this performance of Indigenous allyship and environmental conservation was that he was also still supporting only one energy source: oil. His party's interventions play an important role in understanding the entrenched pro-oil energy politics that need to be overturned for a comprehensive transition to take place in this province, where pro-oil and environmental conservation aims came together to try and stop the E.L. Smith Solar Farm installation from going up in the proposed location.

During the June 2019 hearing of City Council, land-use, -access, and -rights issues were parsed by different divisions of the city administration, various interest groups, researchers, Indigenous communities, and concerned citizens. A litany of issues, including disruption of biodiversity, the industrialization of preserved green space, Indigenous land use and land rights, not to mention the newly found existence of Indigenous archaeological findings dated at several thousand years old, were raised in opposition (Edmonton City Council 2019). Nonetheless, EPCOR argued that this project would help to achieve some of the city's decarbonization targets, and many of the voices in favour of energy transition pushed for approval. While the speakers at the hearing approached the issues according to the division of existing knowledge silos, represented by either academic disciplines or the government's administrative departments, many city councillors broached their topics according to a neoliberal power script organized around cost and expenditures. Recognizing that what was at stake required more information and new thinking on how to meet carbon targets at the same time as climate *justice* goals, City Council sent the project back to administration for further review. This request for additional information, specifically designed to weigh multiple competing factors in an interconnected rather than separate way, was a step in the right direction for a praxis of deep energy literacy.

At this moment, the Council voting on the project was beginning to recognize the complexity of the problems converging at this site of energy transition. The material infrastructure of new energy systems is where the negotiations for power, and for the design of possible futures, are and will be taking place over the next ten to thirty years as the world reorganizes around net-zero climate targets. More information was needed, particularly around the archaeological and Indigenous land rights. Also required was a better understanding of new metrics for financial feasibility given the City of Edmonton's plans to implement a carbon budget in 2021 (Clean Air Partnership n.d.), which sets an annually diminishing cap on carbon emissions – an economic framework first developed and implemented in Oslo, Norway (Bell-Pasht 2020). These carbon budgets account for the emissions reductions provided not only by solar panels but also the natural carbon sink of grasslands and trees. Furthermore, how these carbon calculations should rank relative to the value this land has as a commons, for multispecies biodiversity use and access, as well as cultural and recreational value for Edmontonians (and voters) became important considerations.

Implicitly, although not explicitly, City Council was beginning to wrestle with these deep energy complexities, which bode well for attaining climate justice, not just decarbonization targets. However, while the work to produce the additional information requested by City Council was underway in 2019 and 2020, several pivotal events took place. Throughout 2019 climate change and justice conversations were intensifying around the world. Greta Thunberg

and the youth climate movement were receiving widespread global media coverage. On August 27, 2019, citizens came out in large numbers to Edmonton's City Council meeting to demand climate justice be added to the City's agenda, as well as to support a call to declare a climate emergency. Two resolutions were passed: a plan to respond to climate change with a revision to the existing Community Energy Transition Strategy, and the declaration of a climate emergency (Mertz 2019). In September 2019 the Energy Transition Advisory Committee, an earlier iteration of the aforementioned ETCRC committee which advises Edmonton's City Council, had its mandate expanded from a focus on energy transition to include climate resiliency as well. This became the Energy Transition Climate Resilience Committee (ETCRC).

Through the fall, thousands of people rallied in climate strikes across the province, some alongside Thunberg, who visited Edmonton in October. Attitudes in the province of Alberta were beginning to shift. By November the E.L. Smith Solar Farm was back on the ETCRC agenda, but the newly expanded mandate of the committee demanded a move beyond assessments of the solar project's merits as an energy solution to a more nuanced evaluation of the project in relation to climate resilience and energy justice. This committee's discussions implicitly explored deep energy literacy issues as they related to E.L. Smith, in anticipation of City Council's October 2020 hearing to determine whether the project would go forward. It seemed that things were moving in a positive direction to all those advocating for a complex and situated analysis of the project, taking not only environmental but also Indigenous concerns into account.

Then, in March 2020 COVID-19 shifted the local and global conversation on climate away from concerns about energy and resiliency to the more immediate threats posed by the global pandemic. Social distancing and isolation mandates, as well as global panic, made it easier for government and industry to stop consulting and push through business-as-usual paradigms; in some cases, this was intentional crisis capitalism and in others it was an outcome of leaders falling back on widely accepted ways of being and doing because they lacked the skills and agility to be responsive to more than one crisis at a time. The coordination of innovative strategies to tackle never-seen-before problems – like the important work that ETCRC was doing – proved difficult to maintain. Indeed, the pandemic not only made it more difficult to maintain focus on the climate agenda, it also exacerbated existing inequities (Hill and Narayan 2021). Individuals and communities most detrimentally impacted by COVID-19 are also the most vulnerable to the impacts of climate change. Now, these communities were suffering both crises simultaneously, as well as the economic crisis that COVID and the climate were triggering.

In so far as E.L. Smith Solar Farm planning was concerned, throughout summer 2020 pandemic restrictions lightened slightly, allowing for some face-to-face consultation between EPCOR and Indigenous nations and rights holders. By September 1, 2020, this resulted in Enoch Cree Nation once again signing on in support of the proposed E.L. Smith Solar project, and agreeing to a memorandum of understanding (MOU) with EPCOR (Heidenreich 2020a). This MOU between Enoch and EPCOR was a turning point in the lead-up to the final vote in the fall of 2020. The ETCRC held additional meetings to examine the project and the new reports generated by EPCOR, Enoch Cree Nation, and City administration – including applications to amend the North Saskatchewan River Valley Area

Redevelopment Plan to allow for rezoning of the solar farm lands, which included a technical review, a site location study, an environmental impact assessment, and a wildlife addendum to the environmental impact assessment.

The public hearings in October 2020 spanned three days. Fifty-five people spoke to the issue of the proposed solar farm. Of those fifty-five, thirty-four people spoke in opposition (Cook 2020).

### **Analysis: Grappling with Deep Energy Literacy**

Taken holistically, the various issues raised at this hearing had the potential to meaningfully engage in deep energy literacy dialogues. However, despite significant documentation detailing the weaknesses of the project, the City did not ultimately fully wrestle with the necessary work of deep energy literacy. The hearings lacked discussion of the complexities of these interconnected issues (decolonization, conservation, recreation, the carbon budget, economics), taking them, as is typical, to be competing and hierarchical concerns; each meritorious in its own right, but considered collectively the councillors could have produced a more comprehensive understanding of how to reimagine and revalue what was at stake in the E.L. Smith approval/denial process. The project was approved largely according to one-issue voting based on what each individual councillor already understood to be the most important concern. The result was a split seven-to-six vote of City Council in October 2020, where the E.L. Smith Project itself became a political synecdoche for a range of other political issues.

In light of deep energy literacy, the multiple concerns invoked at the consultations and hearings pointed to the need to reassess the relationships of various stakeholders to (1) the land in question and (2) the new energy infrastructure. The relationships of stakeholders to the land in question are central to climate justice and just energy transition because all new energy projects happen on lands and waters that, rather than sites of extraction and use, are homes to people and species, each with vested cares and interests. At E.L. Smith, the major contentions associated with the land can be summarized into four categories of concern: (1a) conserving River Valley recreational use and scenic views given the value this parkland holds for Edmontonians; (1b) protecting against future industrial development given the precedent that might be set through the rezoning of land use required to approve the project; (1c) protecting River Valley flora and fauna biodiversity; (1d) respecting Indigenous land rights, for both historical and archaeological reasons, as well as for future access and use. These categories of concerns are handled by one division of the municipal government: (1a) the Branch of Neighbourhoods, Parks and Community Recreation; (1b) the Department of Urban Form and Corporate Strategic Development (responsible for zoning); (1c) the Office of Biodiversity; (1d) the Office of Indigenous Relations. Each of these categories of concern relative to the land itself reflects the environmental values and philosophies of the branch. However, when these arguments are articulated according to the business- and governance-as-usual models – instead of being addressed relationally and holistically – it becomes easy to forget that issues of land zoning/rezoning (from municipal to industrial in this case) handled by one division of government, and environmental impact assessments handled by another

are all working for a common shareholder – the people. Too often these various issues, and the peoples who champion one above the other, are pitted against one another.

The outcome of the E.L. Smith approval process indicates that in this game of strategy, whoever is able to win the land zoning issue wins the day. In this case, land re-zoning means that EPCOR is able to install new energy infrastructure on those lands, and thereby wields greater power in the new energy system that is shaping our future society. However, applying a deep energy literacy lens, the people and the elected representatives on City Council could refuse the siloing of concerns, cares, and interests according to bureaucratic departments. Making decisions informed by deep energy literacy frameworks places in sharp relief the colonial legacy of legal precedents and business-as-usual paradigms; deep energy literacy demands thinking newly about who the stakeholders are (beyond the human and beyond notions of property and ownership) and about what the relationships and responsibility of these various stakeholders are to land and energy infrastructures.

### Reconciliation and Consultation with Indigenous Peoples

In Canada, deep energy literacy needs to account for reconciliation or, more accurately, conciliation, if the “re”, is rejected, as David Garneau (2012) argues for. Colonization and its many crises are also converging with climate and COVID; they must all be addressed together and this is best done by understanding the ways in which their causes are concomitant. Again, issues of energy, climate, health, and Indigenous sovereignty are the responsibility of different government ministers, departments, and decisions makers – each with their own mandate. However, to deal with climate change and energy transition as a first priority, and to do so meaningfully, according to the frame of deep energy literacy, these and a range of other declared priorities – including (re)conciliation – must be considered *simultaneously*. Deep energy literacy eliminates the possibility of separating issues of energy transition from interrelated rights issues, including, but not limited to, those delineated by the TRC’s 94 Calls for Action and UNDRIP. In Canada, it is necessary to think deeply about what it means to decolonize – to think, do and be differently – and this must happen simultaneously with decisions about how to either “use” shared resources to make a transition, or transition to other ways of living in relation to our local and global ecosystems.

The E.L. Smith Solar Farm, and other projects like it, holds the promise of creating better Indigenous–non-Indigenous relations through deep and genuine consultation. According to EPCOR, there is reason to be hopeful about the quality of meaningful consultation. On EPCOR’s webpage for the E.L. Smith Solar Farm, the company claims to “have had over 850 conversations about this project with community residents, indigenous [*sic*] groups, special interest groups and government in order to gather feedback and input on the planning process” (2021). In Alberta and across Canada, there is a duty to consult, but consultation is a contentious issue, historically and ongoingly. Indigenous nations have long been demanding meaningful consultation that recognizes their treaty rights. Treaties are international legal agreements between Indigenous nations and the nation state – originally the British Crown, now Canada. However, industry and government often act as though treaties fall under Canadian law alone, or they are disregarded almost entirely. Instead of dealing fairly with

Indigenous nations and upholding treaty commitments, as would be demanded if Canada were dealing with another country, corporations and various levels of government often place the onus on Indigenous nations to prove historical and ongoing traditional land use.

In this case, a September 2020 MOU signed by Chief Morin points to meaningful consultation between EPCOR and the Enoch Cree Nation. Under “Shared Objectives”, it states, “The Parties will collaborate on the development and implementation of Water Projects of mutual benefit and will work to develop agreements to achieve these goals” (Enoch Cree Nation and EPCOR Water Services 2020: 1). Taken at face value, the consultation led by EPCOR, unlike so many before it in this country, could be seen as a model for reconciliation and good relations moving forward. However, there is also reason to be sceptical.

When Enoch withdrew support for the project in June 2019, it seemed that meaningful consultation was not possible. This is in part because colonial government bodies, such as the Alberta Ministry of Culture and Status of Women (hereafter Alberta Culture), control access to pertinent information. Speaking of an approximately 130-page report prepared by global design firm Stantec for EPCOR but mediated by Alberta Culture, Cody Sharphead (2020), an Indigenous archaeologist who worked for Enoch Cree Nation as a consultation coordinator, revealed that Enoch councillors had, as of the 2019 withdrawal of support, received only a single page detailing archaeological findings at the site. This gap in information sharing between parties is a chronic issue in Canada. It reveals the power imbalance in Indigenous consultation; those Indigenous leaders at the decision-making tables are not always fully informed. In specific reference to the E.L. Smith process, Sharphead said, “I cannot say I’ve been a part of good consultation yet, but I can say I’ve been a part of consultation that’s moving forward” (2020).

Indeed, one might ask whether Enoch Cree Nation was able to give their Free, Prior, and Informed Consent (FPIC) based on the information provided to them. The United Nations describes FPIC as “a principle protected by international human rights standards that state, ‘all peoples have the right to self-determination’ and – linked to the right to self-determination – ‘all peoples have the right to freely pursue their economic, social and cultural development’” (2016: 11). In a letter of support from Enoch dated February 18, 2020, signatory Michelle Wilsdon indicated that Enoch Cree Nation understood that the ground disturbance at the solar farm would be minimal: “While we are satisfied that ground disturbance will be minimal, the presence of Enoch environmental monitors will shine light on the construction and ensure we have the ability to mitigate concerns in real-time. Our Nations’ elders have provided valuable insight into how future archaeological artifacts should be handled and cared for and we look forward to bringing elders back home to the site to honour the land with appropriate protocols” (Wilsdon 2020). EPCOR’s website, however, indicated that the twelve-megawatt solar farm would occupy approximately twenty-three hectares, and consist of 45,000 solar panels. To position these panels one metre above the ground requires an angled racking system that would consist of several thousand piles with the approximate diameter of a frisbee, ranging in depth from three to ten metres. While land access is a desire expressed by and putatively granted to Enoch Cree Nation, actually accessing and using the land the solar farm would sit on would be rendered difficult, if not impossible, given this proposed infrastructure. These discrepancies between what was laid out in the various engineering and

archaeological reports, and what Enoch was promised, raise questions about whether Enoch leaders had access to all the information necessary to provide informed consent.

In a reproduction of colonial power, Alberta Culture (a division of the provincial government), Edmonton's City administration (municipal government), and EPCOR (the utility company whose only shareholder is the municipal government) were able to determine and control the information that was released to the stakeholders they claimed to be engaging in meaningful consultation. Control of access to information allows these institutions to manipulate decisions of land use to maintain colonial power. Not to put too fine a point on it: the lands at stake are Indigenous lands enclosed through colonization. The Land Back movement in Canada provokes Indigenous and non-Indigenous people to consider what the future would look like if Crown lands were returned to Indigenous governance (Manuel and Klein 2020). Whatever prompted Enoch to first provide consent for the solar farm, then withdraw their support in 2019, and then re-sign on in support of the project in 2020, Enoch Cree Nation's Council has declared aspirations for land access and use that the city and utility company will not be able to uphold. The same types of information-withholding practices that led Indigenous Peoples to sign peace and friendship treaties in the late nineteenth and early twentieth centuries risk being reproduced in twenty-first century renewable energy projects under the banner of reconciliation.

### Colonial Logics of Land Use and Access

Questions of which histories of land *count* are critical in this case. Which histories of land use determine present and future rights to access? Whose ownership, present and historical, determines rights to future access? Indigenous relationships to the land were explored through the E.L. Smith process in terms of historical uses of the land, the interruption of use and access, as well as a desire to reinstate access. The archaeological land value of the site was deemed insufficient to halt the project or change its location. Late-stage negotiations between Enoch and EPCOR give Enoch greater access to land that remains the private property of the corporation. A different, more expensive design for the solar panel infrastructure, with a higher racking system, could have allowed for the requested human and multispecies access to the land underneath it, but the low-installation design of the one-metre racking system demands that the twenty-three-hectare solar farm be fenced off.

Even more egregious is the fact that the 2020 Urban Form and Corporate Strategic Development environmental impact assessment by city administration determined that the solar farm, located in the River Valley, receive a failing grade. The rezoning was assessed according to nineteen criteria, divided into four categories: financial, social, environmental, and institutional. Twelve (12/19) criteria were deemed measurably detrimental to the ecosystem and three (3/19) were unknown, which equalled 15/19. In other words, by its own assessment, the City of Edmonton administration determined that it was not essential that the solar farm be located on the proposed site. The financial category was the only category out of the main four in the impact assessment to receive a passing grade: the cost benefits were (1) tax saving to the corporation; (2) cost savings identified because the land was already owned by EPCOR; and (3) operation savings, which translates to corporate fiscal

feasibility. In other words, the profitability of the project, calculated largely according to business-as-usual paradigms, outweighed multiple other criteria focused on ecosystem health (Urban Form and Corporate Strategic Development 2020).

The issue of land – whose relationships to the land are prioritized and how – provides a clear indication of how power relations are being entrenched in current energy transition projects, rather than reorganized. Given that City Council did not take seriously their own land-use department's assessment against rezoning, EPCOR's land lease, bestowed by the city at an earlier stage, and their profit margins, were clearly prioritized over other competing concerns, namely recreational use and access by citizens, ecosystem health and biodiversity, and nine thousand years of stewardship by the rightful owners of the land as evidenced by the archaeological findings (Johnson 2019). Ultimately, deep energy literacy applied rigorously to projects like this one can help guard against what in its most mundane form allows energy transition, decarbonization, and climate commitments to become tools to perpetuate ongoing colonization and ecocide.

### New Energy Infrastructures

After E.L. Smith was approved in October 2020, Edmonton City Councillor Sara Hamilton remarked, “If everybody finds a reason not to build these types of projects you end up building absolutely nothing anywhere or near anyone” (Heidenreich 2020b). As someone committed to energy transition, I agree with the principle that many experiments need to take place; many of these experimentations will be imperfect but can be used to learn from and improve upon. At best, E.L. Smith will be one of these projects. However, if I were a city councillor with a vote, my desire would have been to deny this project as proposed. First, because seen through the lens of *deep energy literacy* this project fails on multiple accounts. Second, because the weakness of the project was confirmed by many of the City of Edmonton's *own assessment criteria*.

According to my analysis, one of the major reasons that this project was in fact approved is that while it *failed* in almost all categories, the financial balance sheet – according to a business-as-usual model – worked in its favour. Not only was there investment on the part of EPCOR and City administration teams working on this proposal, there was also the possibility that \$12.6 million in grants would be lost if the project were moved or changed too dramatically.

Another reason it was approved was because it was already well on its way at the point when key concerns were raised. When deep energy literacy concerns are not fulsomely anticipated *from the outset*, is there a next-best scenario? Is it possible to determine a range of points in a project's development when it might be reconfigured or redirected to allow for best practices and better, relational, integrated, deep energy literacy decisions – even if these take more time? When a project is already underway, the reassessment process still favours approval because of affective, financial, and time investments on an issue that has time-sensitive non-negotiable tipping points. Therefore, the most critical moment for deep energy literacy consideration to be factored in is at the inception stage of a project. Infrastructure that legislators and engineers put in place now, whether it is a political policy or an energy



plant, will endure for years, if not decades or centuries. If critiques arise during the approval and construction processes, there needs to be social license and funding to reroute; what might be critiqued as fiscal inefficiency or failure to meet proposed timelines in the short term can create the possibility for better long-term outcomes. Building flexibility into emerging systems requires shifts in attitudes around productivity, success, and tabulations of the bottom line. In the E.L. Smith case, what appeared to be a solid energy transition project became problematic as factors that hadn't been anticipated came to light during the project's approval phase. If project approvals had been staggered in ways that allowed investment and reassessment, as well as the capacity to radically redesign or reroute midway, there would have been more room for deep energy literacy to take root.

A deep energy literacy approach also demands that granting agencies be more flexible in understanding that project shifts are sometimes needed to address deep energy literacy priorities as they arise throughout a project's life cycle. *Granting drives innovation. If granting itself is not innovative, there are limits to what experimentations can take place.* Climate change demands social, economic, and political agility. Therefore, projects/experiments need to be likewise responsive, without fear of having funding withdrawn. In short: the E.L. Smith project could have been adapted, or even moved to another less contentious location, if there was not an underlying fear that millions of dollars in funding would be lost.

With new energy infrastructure, what is at stake is how such infrastructure shifts (or fails to shift) historically inequitable power relations between stakeholders, which includes, but is not limited to, the distribution of financial profits and losses as well as non-financial impacts and benefits. New energy infrastructure and new energy networked systems not only shape our communities and the way we live and move in the world, but they determine future power relations, in all the senses of the term. Energy transition has the potential to entrench existing inequitable power relations; it also has the potential to remake social, economic, and political power dynamics. For that to happen, it is not necessary to be energy literate – that is, to understand all the workings of an oil refinery, or a coal-fired power plant, or a geothermal or solar installation. What is required is to understand *how decisions are being made* about new energy infrastructures, *why* and *for whose best interest*.

When problems are considered separately (in silos), so too are their solutions, and the discussion becomes one of trade-offs. Whether the issue at stake is climate change writ large, or a more contained albeit still unwieldy project like the E.L. Smith Solar Farm, the delineation of the problem determines the limitations of the solution. Instead of succumbing to the logics of the status quo that positions biodiversity and energy transition in adversarial relationships to one another, or that position the COVID-19 pandemic against climate justice, or that positions Indigenous rights and reconciliation as a barrier to achieving our goals for an equitable sustainable future, the real challenge is to shift to a deep energy literacy paradigm – a new perspective that accounts for the complexity of multiple and converging crises.

Calls for decarbonization now and climate justice later are part of a fantasy that reduces the complexity of the current convergence of crises down to one manageable issue that can be solved by designing net-zero futures. To imagine that the soft infrastructures – the governance models being designed now that will determine the economic and political power relations

of the future – can be reconfigured around the hard infrastructures of renewable energy projects once established is akin to wishing for peace as an outcome of a political economy organized around militaristic fossil-capitalism. One of the lessons of E.L. Smith is that multiple levels of government need to coordinate to achieve global climate goals; furthermore, party politics as mobilized by Alberta's provincial government are not agile to the kinds of productive dissent necessary to negotiate new ways of making decisions and new governance models. If existing institutions, including government and electoral systems, are not adequate to the demands of the climate crisis, it is necessary to consider what forms of leadership and governance should replace them. In Canada, municipal governments are non-partisan (save the exception of a few cities), not beholden to party-line loyalties, and – aspirationally – they are capable of engaging in meaningful debate and dissent capable of producing more socially just futures. Edmonton City Council did not develop a meaningful approach capable of holistically assessing the multiple complex concerns at stake at E.L. Smith, but on my reading this was due, in addition to the dollars on the line, to the COVID-19 interruption. In June 2019 many different citizens, speaking for themselves or groups, raised deep energy literacy issues that, when considered holistically and interconnectedly, are what is needed to make decisions for more just futures. At that time, Council voted to send the project back for more study, and the ETCRC did more serious deep energy literacy work. What happened the following year, however, was arguably (at least in part) a result of stretched capacities as City Council, struggling to deal with the pandemic, fell back on status-quo considerations during their final deliberation. Reacting instead of acting.

### **Conclusion: What Is Still Possible**

As of early fall 2021, ground has broken on the E.L. Smith Solar Farm, but the project remains contentious. There is still an upcoming judicial review of Council's October 2020 vote, filed by the Edmonton River Valley Conservation Coalition (ERVCC) on the grounds that the additional engagement with Enoch, which played an important role in getting the project passed, was only part of the June 2019 Council motion that sent the project back to the administration for further review. Whether ERVCC or EPCOR wins this court challenge, EPCOR is already digging up the soil and beginning construction.

This case study illustrates the importance of shifting our understanding of energy transition away from being solely a tech revolution to a social revolution that includes the technologies of lived everyday reality, because these are the only technologies that provide any hope for social cultural revolution at the scale and speed demanded by climate change. In 2018 the IPCC special report declared a twelve-year time frame to act on climate if the goal is to keep global warming to 1.5 degrees above pre-industrial temperatures. Now there are still very few policies or regulations in place to ensure these global targets will be met. The City of Edmonton, through its modelling, already knows that two degrees warming has happened for us. Our carbon budget of 155 megatons between 2019 and 2050, necessary to align with the Paris Accord and the Edmonton Declaration, will be spent by 2028 if rapid, radical changes are not mobilized. Therefore, the fantasy that future technologies will save us or help us reverse-engineer climate change are just that: fantasies, science fiction.

The technologies now under development cannot save us – they simply won't be ready in time. What *can* be changed relatively quickly are the social infrastructures – the power relations established in multiple informal relational ways and habits of being and doing, as well as through formal proceedings such as hearings and consultations and institutional practices and values that not only organize power around energy infrastructures but that create the conditions for these energy technologies to be built.

If the petrocultural age teaches anything, it is that energy sources are not inherently problematic or benevolent; it is the energy systems and the networks of local and global social, economic, and political power relations organized around these energy sources that make for greater exploitation or equity. The current paradigm is the outcome of the knowledge system that informs it. This is the crux of the crisis: the current paradigm not only normalizes the extraction of profit from energy sources but sees land as a natural resource and people as a labour source to be exploited.

As a theoretical framework and a praxis, deep energy literacy can inform the complicated conversations needed around how energy transition and responses to climate change are enacted. As the earth is being overturned at the E.L. Smith Water Treatment Plant to prepare to cement in pillars several metres deep, to install solar panels that typically have a lifespan of twenty-five years, one cannot help but recognize that the inventory of problems this project solves is far smaller than the list of problems it creates. Nonetheless, the project is a flagship action on climate and a place where meaningful conversation on deep energy literacy principles did get started. The close look, above, at the processes through which the solar farm project was approved illustrates that when leaders and stakeholders make decisions about new energy infrastructure, these are too often based on entrenched economic, political, social, and epistemological paradigms that fail to adequately address the ever-increasing complexities of climate change as they intersect with necessary decolonial commitments. However, in their failures, these experiences teach us about what can be done differently next time in each of our local contexts.

Deep energy literacy is not something pre-formulated as an outcome of expert knowledge, but is collectively and *locally* constructed. This started to happen around E.L. Smith, through the public hearings, through the questions raised by City Council, and through the work of ETCRC, but the level of attunement this type of engagement requires was derailed by COVID – as not only a pandemic, but as a crisis demanding significant resources and the attention of leaders, as well as a condition of life that demanded social isolation and that pushed group decision making onto media platforms that had their own deleterious impacts on robust debate. While the global pandemic had, to my mind, a significant effect on the outcome of these deliberations, there were important instances throughout this process that illustrated how climate policies and politics can become a lever in achieving long-standing social justice goals. Deep energy literacy responses at the local level, while they may or may not be directly scalable or transferrable to other contexts, can offer adaptive lessons to be taken from geographically specific applications of the concept. Many local applications of deep energy literacy – tackling social, structural, and relational changes alongside technological transitions – could have global impacts. In this way, deep energy literacy becomes a frame for building more responsive governance systems and policies, as well as a praxis that productively disrupts technophilic paradigms.

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