Impacts and place-based approaches to transformative energy justice for First Nations

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Abstract

Place-based approaches to renewable energy transitions tailor solutions to specific social, cultural, economic and ecological contexts inherent to particular localities, and have been argued to underpin transformative energy justice outcomes. This co-created study illustrates place-based approaches in First Nations by drawing on semi-structured interviews with knowledge holders in 14 First Nations located across the Province of British Columbia (BC). Interview participants had direct experience with 36 First Nation-led renewable energy projects, sharing their experiences and observations on both the process (community engagement) and outcome (impacts and benefits) dimensions of operational and planned projects. Participating knowledge holders shared overwhelming evidence of a rich diversity of social, political, material, economic, ecological and relational impacts generated from renewable energy projects. Project impacts include a sense of pride and joy, cultural resurgence, ecological benefits, socio-economic regeneration, and improved infrastructure, all of which support self-determination. Nearly all First Nations projects engaged with their community during the conceptualisation, planning and development of projects. Decisions on how project revenues were allocated to downstream initiatives were critically important in shaping how each Nation reasserts their priorities, worldviews and value through self-determination. Fundamentally, knowledge holders shared that their Nation's approaches to developing renewable energy projects are place-based. Our study demonstrates the importance of co-creation approaches and the value of semi-structured questions to illustrate the rich impacts. In the broader context of systematic neglect of social, environmental, and justice-oriented values in public policy making, and amidst widespread failure of "decide-announce-defend" approaches to achieving social acceptance for renewable energy projects, this study outlines what distinguishes place-based approaches in practice, and demonstrates how they deliver transformative outcomes for First Nations. The findings suggest that policy, project and resource allocation decisions should consider as broad a range of impacts as the findings indicate. We conclude that embedding place-based approaches in institutional arrangements, policy and project design is critical to provide economic opportunities to First Nations without discrimination under the United Nations Declaration on the Rights of Indigenous People (UNDRIP), alongside meeting BC's power needs and decarbonisation goals.

Keywords: place-based approaches; transformative energy justice; renewable energy; First Nations; Indigenous

1. Introduction

The spatial roll-out of renewable energy has equity implications (Regier et al., 2025; Sasse and Trutnevyte, 2019), and climate and energy policies that are just, equitable and beneficial for communities can both address multifaceted societal challenges and sustain public support for decarbonisation (Lamb et al., 2020). Rural areas and regions play a vital role for the development of renewable electricity generation and transmission infrastructure that will be needed to enable energy decarbonisation (Balta-Ozkan et al., 2015; Hoicka et al., 2021a; Naumann and Rudolph, 2020). To achieve decarbonization of transportation and heating sectors through electrification, electricity grids in Canada may double or even triple relative to the current electricity grid (Dion et al., 2022), requiring as much as

$500 billion in investment by 2050 (Thomas and Green, 2022). If managed inclusively, this transition to renewable electricity can potentially provide opportunities for reconciliation between colonial governments and Indigenous Nations by enabling opportunities for Indigenous Nations participation, benefit sharing and local development (MacArthur et al., 2020).

Recently, in response to projected shortfalls in low-carbon power production to meet climate change change mitigation targets[1], and in response to Trumpian tariffs, the government of the Province of British Columbia (BC), Canada, has issued many electricity procurement calls, while the federal Government of Canada announced an economic trajectory led by major infrastructure projects[2]. These policies to develop new renewable electricity and related transmission infrastructure will impact rural communities, including First Nations (First Nations Major Projects Coalition, 2025; First Nations Major Projects Coalition and Mokwateh, 2025). Of the 203 First Nations in BC, many view the United Nations Declaration on the Rights of Indigenous People (UNDRIP) as a pathway to drive renewable energy projects for decarbonization while supporting goals of self-determination, socioeconomic benefits, and energy reliability (Lovekin et al., 2021). In 2019, BC passed the Declaration on the Rights of Indigenous Peoples Act (DRIPA), which requires provincial laws to be consistent with UNDRIP and may provide pathways for First Nation communities to improve their economic and social conditions without discrimination (Nichols and Morales, 2021). Community renewable energy provides a potentially transformative pathway to decarbonize energy in a way that incorporates novel governance inclusive of the rights and values of impacted and traditionally excluded communities (Fiander et al., 2024).

While there is growing consensus that more attention should be paid to the distributional impacts in energy policy design, there is little evidence of the socioeconomic benefits and impacts of renewable energy projects under wide-ranging ownership and implementation models (Berka and Creamer, 2018), and in what context and under what conditions they offer transformative pathways. In a global meta review of 203 studies of climate and energy policy outcomes, Lamb et al. (2020) found that climate and energy policies have often fallen short of delivering positive social outcomes related to electricity access, affordability of energy, employment, distributional and equity issues, community cohesion, subjective well-being and drudgery, livelihoods, poverty, and procedural justice. Furthermore, current research and practice is based on Western understandings of energy justice (Lembi et al., 2025). Because interpretations and ontologies of justice are subject to spatial differentiation and can vary widely across communities and contexts (Elmallah et al., 2022), there are calls for utilization of place-based research methods (diverging from engineering and technology centred perspectives) to pluralise and diversify these ontologies (Galende-Sanchez and Sorman, 2021; Hoicka, 2025; Lembi et al., 2025). A place-based ethical framework (otherwise known as grounded normativity) diversifies and decolonises the ontologies of justice present in current research and praxis (Tornel, 2023).

In this study, we argue that place-based approaches to institutional, policy and project design and development are critical both for providing economic opportunities without discrimination, and to meet the province's power needs and decarbonisation goals. Herein, we review the distinguishing factors of place-based approaches to renewable energy and what has prompted their recent emergence, its relationship with Indigenous engagement, community energy, impacts or benefits of renewable energy, and transformative energy justice, and their implications for energy policy and governance. This research offers insights into how BC's new procurement

[1] The Province of British Columbia, Canada, has ambitious climate change targets that in 2021 were estimated to require between 10.9 TWh and 19.1 TWh additional electricity supply by 2030 (Kasteel, 2021; Lovekin et al., 2021).

[2] For example, the BC government and BC Hydro have announced the procurement of renewable electricity projects. For example, as this research was conducted, in 2023, BC Hydro announced a new call for power will seek to acquire 3,000 GWh per year from new greenfield facilities from "100% clean, renewable energy" to be commercially operational by the end of 2028 (BC Hydro, 2023d; Ministry of Energy, Mines and Low Carbon Innovation, 2023). The announcements identify the important role First Nations can play in generating renewable electricity, in assisting in the province's decarbonization effort and the opportunity to support Indigenous self-determination (BC Hydro, 2023d, p. 202; Ministry of Energy, Mines and Low Carbon Innovation, 2023). In 2024 a plan for $36 billion of investment for community and regional infrastructure projects to deliver clean electricity to consumers and related infrastructure for decarbonization was announced. This includes new high-voltage transmission lines, upgraded generating facilities, and infrastructure to support high-growth areas with residential housing and transit electrification (Ministry of Energy Mines and Low Carbon Innovation, 2024).

programs may impact First Nations, with insights into policy design and outcomes regarding how the province will meet its requirements for DRIPA and UNDRIP.

This research adopts a co-creation approach with partner intermediary organizations and was developed in support of advocacy efforts by a coalition of First Nations located in the province of British Columbia (Hoicka et al., 2025; Lovekin et al., 2021; New Relationship Trust, 2021; Peng, 2024). Co-creation approaches to research seek to "collaboratively and iteratively produce knowledge, action and societal change" (Chambers et al., 2021) by connecting researchers and other societal actors, and are a key feature of decolonial place-based approaches (Chambers et al., 2021; Galende-Sanchez and Sorman, 2021; Lembi et al., 2025; Rowan et al., 2024). The Clean Energy British Columbia (CEBC)[3] and the New Relationship Trust[4] received funding from the Canadian Federal Government Ministry of Natural Resources Canada Clean Energy for Rural and Remote Communities Program to "develop resources and inform options available for First Nations and remote communities to participate and manage their energy objectives […] to undertake an awareness program to increase public, municipal and government support to create more opportunities for Indigenous and remote communities to participate in clean energy opportunities as community energy managers, owners and/or partners." (Clean Energy Association of British Columbia, 2021). The fund sought to enable the "agency, leadership and stewardship of communities" in order to "realise the social, economic and environmental benefits of renewable energy" (Clean Energy Association of British Columbia, 2021).

We document First Nation's own community engagement practices, perceived and anticipated socioeconomic benefits of renewable energy projects led by fourteen distinct First Nations, and explore how these are framed within the culture, worldviews and sense of place of the Nations themselves. Specifically, we draw on interviews with knowledge holders in 14 First Nations located across BC, who have direct experience with 36 renewable energy projects that are operational or under development, to provide insights on both the process (community engagement) and outcome (impacts and benefits) dimensions of these First Nations renewable energy projects. In a separate study, we articulate how the lack of institutional control at the regional scale is viewed by these First Nations as one of the key barriers to generating renewable energy for socioeconomic development and self-determination (Hoicka et al., 2025). This study contributes to a better understanding of the underlying drivers that shape Indigenous leadership in this sector. We reflect on how the findings contribute to broader discussions to reimagine energy systems through transformative energy justice based on the values and practices of First Nations. We consolidate findings around place-based approaches and its importance to institutions, policies and programs for energy transitions involving Indigenous Nations design around local values to account for the significant and specific place connection of Indigenous Nations.

2. Place-based approaches to renewable energy and infrastructure development

'Place-based approaches' to climate and energy solutions are gaining prominence in both academic literature and practice as an approach focussed on solutions that are tailored to the specific place-attachment, social, cultural, economic and ecological context of particular locations (Devine-Wright and Devine-Wright, 2009; Devine-Wright and Ryder, 2024; Lai et al., 2025; Moore-Cherry et al., 2022; Weller et al., 2024). Collectively, place-based approaches can be seen as a response to the challenges and critiques associated with top-down approaches characterised by centralised technocratic decision-making, uniform place-agnostic policies and large-scale infrastructure (Ptak et al., 2025). "Place-based at scale" approaches have emerged as pragmatic and instrumental approaches to incorporate multifunctionality and decentralisation, mitigate harm for ecosystems, address justice and local resilience and create local value in renewable energy landscapes (O'Neil et al., 2022).

[3] CEBC (Clean Energy BC) is a Canadian non-profit organization focused on promoting clean energy development and investment in British Columbia.

[4] The New Relationship Trust (NRT) is a self-reliant and politically neutral Indigenous-led organization that delivers First Nations funding using an effective, reliable, and credible funding platform that has been utilized as a third-party program delivery hub on behalf of the Federal and Provincial governments.

Energy transitions are inherently geographic processes that inevitably manifest differently across spaces, and generate uneven opportunities, impacts and benefits (Bridge et al., 2013). An epistemological approach that centres place therefore opens avenues for critical analysis of spatial differentiation, including uneven socioeconomic impacts, and can significantly influence climate change policy and governance(Bridge et al., 2013). These processes and their implications are shaped and mediated by context-specific relationships to energy and the politics and policies governing it (Apollo Alliance, 2004; Devine-Wright and Devine-Wright, 2009; Leonhardt et al., 2023; Moore-Cherry et al., 2022; Weller et al., 2024).

The geographical notion of place is "a particular location in the world that has meaning for individuals and communities. It is a complex holistic term that combines physical, ecological, political, economic, social and psychological attributes" (Devine-Wright and Ryder 2024, p. 2). Place-based approaches to energy transitions therefore pay attention to the specifics of the unique and particular geographical context, the social relations unfolding in which energy research and development are occurring (Devine-Wright and Ryder, 2024). By virtue of its focus on local engagement, impacts and visions of the future, place-based literature is aligned to concepts of community energy (Devine-Wright and Ryder, 2024; Koga et al., 2024). Despite tensions around defining the concept of "community", many community energy projects are linked to place-based ideas around community (Koga et al., 2024; Walker, 2011). For example, in research on community energy, a growing field of literature documenting the diverse ways in which communities are engaging with renewable energy and associated infrastructure, place is defined by the social relationships in a particular location, encompassing a "sense of belonging" in a "community as place" (Creamer et al., 2018; Walker, 2011) and the potential to mobilise collective action towards creating local benefits (Bomberg and McEwen, 2012; Walker, 2011).

A rich evidence base documents the shortcomings of place-agnostic approaches to energy project development. A lack of meaningful community engagement early in a project's development processes often leads to perceptions that engagement at a later stage lacks authenticity or fairness (Elmallah and Rand, 2022). Renewable energy project development processes that are perceived to be unfair decrease social acceptance for renewable energy development (Bessette et al., 2024; Hoen et al., 2019; Hogan, 2024; Mills et al., 2019; Nilson and Stedman, 2023; Rand and Hoen, 2017; Saglie et al., 2020). For example, "Decide-announce-defend" is the conventional process for planning energy projects, in which the relevant details of a project – particularly siting details - are planned prior to their announcement to the affected public (Ducsik, 1981; Nilson et al., 2024; Wolsink, 2000). "Decide-announce-defend" has a polarizing and offending effect on communities situated close to proposed projects (Ducsik, 1981; Wolsink, 2000). Community opposition has been recognized as a cause of project delays and cancellations (Comeau, 2022; Comeau et al., 2022; Nilson et al., 2024; Susskind et al., 2022).

A central feature of place-based approaches and approaches recommended to generate social acceptance is the implementation of meaningful engagement with communities located close to a project's proposed site at early stages of project development(Fast and Mabee, 2015). For example, in examining community support of and visions for future energy development in Estevan, Regina and Saskatoon, Saskatchewan, Canada, Hulbert (2022) finds that "place-based land use planning is required in order to increase wind and solar power production" (p. 1706). The influence of place-attachment and identity on opinions about energy developments within and across communities is significant (Hurlbert, 2022). For example, in an already highly industrialized community in Saskatchewan, Canada, support for coal development is much greater than in other, less fossil-fuel attached, regions of the province (Hurlbert, 2022). This research shows that how communities frame energy futures is entwined with place-attached, holistic, and inter-generational thinking (Hurlbert, 2022). The development of solar and wind projects is thus contingent on a place-based approach to land-use planning that considers local perspectives about context appropriate site selection, design, and technology (Hurlbert, 2022). As such, there are multiple potential benefits of place-based approaches to energy landscapes, ranging from community control over siting and design, to positive ecological impacts, and local resilience (Hoicka et al., 2025).

2.1 Policy informed by place-based approaches and transformative energy justice

Place-based approaches create space for meaningful examination and acknowledgement of the dynamic historical and ongoing relationships between people and places (Devine-Wright and Ryder, 2024) . Place-based approaches are considered fundamental to achieving transformative energy justice in which root causes and legacies of inequality are addressed, and voices and world views of historically excluded communities are centered in problem framing and decision making and transition processes (Avelino et al., 2024; Elmallah et al., 2022; Lembi et al., 2025). Place-based approaches can focus on heterogeneous local and Indigenous knowledge and stewardship, community needs, the redistribution of benefits, knowledge sharing, and opportunities for self-determination (Elmallah et al., 2022; Hoicka et al., 2025). In a thematic analysis of community documents, Elmallah et al. (2022) observe that "local realities", or place-based framings, should inform energy research and policy to advance "justice" according to diverse ontologies of justice that exist on the ground (Elmallah et al., 2022). Taking a place-based participatory co-design for research on electrification in Brazil, Lembi et al. (2025) find that place-based approaches are considered fundamental to achieving transformative energy justice in practice, because they create avenues to identify practical applications of energy justice and energy sovereignty.

By designing policies and projects that work for specific places, place-based approaches can address local socio-economic challenges and provide tangible benefits to both workers and communities (Lai et al., 2025). As such, place-based approaches are better equipped to address inequities and account for the social and political dimensions of energy transitions (Bridge et al., 2013). Through an acknowledgement that places are not isolated and confined, but are profoundly interconnected, place-based approaches are amenable to integrated planning at local and regional levels (Devine-Wright and Ryder, 2024; Hurlbert, 2022). Effective and holistic energy policy at regional and provincial levels should consider diverging opinions and impacts across places (Hurlbert, 2022).

2.2 Place-based approaches to Indigenous Nation Participation in Energy Projects

First Nations, Inuit and Métis groups are fundamentally connected to a sense of place that is inherent through connection to traditional territories. This sense of place exists even when a community or Nation is displaced to reserve land that may not overlap their traditional lands (Hoicka et al., 2021b). Traditional territories have been passed on from time immemorial and through cultural practices such as hunting, fishing, trapping, and harvesting (Malone and Chisolm, 2016). Because Indigenous worldviews are relational, place is not only defined through human relationships, but also through human/non-human relations on traditional land (Velasco-Herrej\uc0\u243{}n et al., 2022). This Indigenous connection to place is at times acknowledged under colonial law through treaty rights (Albers, 2017). Irrespective of colonial recognition, Indigenous people, whether living on traditional territories or not, are connected to land and place. Place-based approaches for Indigenous people are fundamentally connected to Indigenous resurgence "Being Indigenous today means struggling to reclaim and regenerate one's relational, place-based existence by challenging the ongoing, destructive forces of colonization. Whether through ceremony or through other ways that Indigenous peoples (re)connect to the natural world, processes of resurgence are often contentious and reflect the spiritual, cultural, economic, social and political scope of the struggle." (Corntassel, 2012, p. 88).

There is a wide literature about Indigenous engagement in renewable energy development and its benefits (Bullock et al., 2020; Chitsaz, 2022; Cook et al., 2017; Mang-Benza et al., 2024; Mang-Benza and Baxter, 2021; Peng, 2024; Rakshit et al., 2019; Rezaei and Dowlatabadi, 2016; Savic and Hoicka, 2023; Smith and Scott, 2021; Stefanelli et al., 2019; Yalamala et al., 2023). Although many of these studies do not explicitly name place-based approaches to understanding the dynamics of Indigenous involvement in renewable energy development, they align with characteristics of place-based approaches. These studies have illuminated how Indigenous renewable energy development is motivated, at least in part, by First Nations aspirations to overcome their historic and ongoing experiences with colonialism through improved self-sufficiency and expanded sovereignty (Peng, 2024; Rakshit et al., 2019; Rezaei and Dowlatabadi, 2016; Savic and Hoicka, 2023; Smith and Scott, 2021; Yalamala et al., 2023). For example, attitudes, aspirations, approaches, and barriers to renewable energy development have been surveyed across many Nations and contexts across Canada (Bullock et al., 2020; Savic and Hoicka, 2023) in B.C. (Cook et al., 2017; Peng, 2024), and in remote, diesel-based communities (Rezaei and Dowlatabadi, 2016). Some studies

assess community values, worldviews and engagement prior to when renewable energy projects are started (Chitsaz, 2022; Rakshit et al., 2019) and after projects are completed (Mang-Benza et al., 2024; Mang-Benza and Baxter, 2021; Smith and Scott, 2021). Relevant secondary research has provided cumulative findings about the importance of meaningful engagement, sovereignty and self-sufficiency (Stefanelli et al., 2019; Yalamala et al., 2023). Recognizing the desire for self-sufficiency and sovereignty is reflective of a location's context, the embedding of relationships between people and the natural world, and is emblematic of a place-based approach, even if not explicitly stated.

The importance of place-based approaches is increasingly acknowledged in empirical research that characterizes Indigenous Nation involvement in renewable energy projects. For example, Indigenous Economic Development Corporations (EDC) have long been used as a business model for First Nation economic development in a range of sectors, including forestry and tourism (Savic and Hoicka, 2023). Indigenous EDCs are created by the political organization of the Nation, and act as an arms length business on behalf of the Nation. An Indigenous EDC can be considered place-based because they are a unique model that emerged from this unique colonial context, where First Nations have experienced a breadth of economic and legal barriers due to colonial institutions like the Indian Act to developing renewable energy projects (Krupa, 2012). Savic and Hoicka (2023) documented how the EDC model is employed by First Nations in ownership and control of renewable energy projects. Smith and Scott (2021) conducted interviews with 14 community leaders and residents of the Nation councillors, project consultants and project staff to articulate how a 58 MW, 26-turbine wind project on the traditional land of Batchewana First Nation in Ontario Canada was motivated by a desire to improve self-reliance and sovereignty by asserting the Nations jurisdiction over the territory. The desire to demonstrate jurisdiction over their historic territory reflects a “sense of belonging” through a visible continuation of the Nation’s relationship with the land. The study reveals how the project is motivated by the desire to create land-based opportunities while upholding the Nation’s social, political, and legal orders and principles and fulfilling the community’s obligations to steward their land and consider future generations (Smith and Scott, 2021). Their acknowledgment of the role played by the Nation’s relationship with their land and desires to incorporate Indigenous practice, values, and obligations in renewable energy development highlights the importance of place-based approaches to understanding Indigenous involvement in renewable energy projects.

Mang-Benza and Baxter (2021) sought to understand “the lived experience of people living with wind turbines” seven years after the two turbine 4 MW wind power project became operational on M’Chigeeng First Nation on Manitoulin Island, in the Province of Ontario. They conducted interviews with 28 band members and 4 residents (people who live on reserve but are not band members and have no voting rights in band affairs) of the M’Chigeeng First Nation. In their findings, they draw a specific connection to the promise and importance of place histories in the understanding of communities’ responses to renewable energy. Three years later, they conducted a survey of 157 voting members who were located both on and off reserve. They found that community and land attachment remain strong for Indigenous people even when living away from their traditional lands (Mang-Benza et al., 2024).

These approaches and findings culminate in the argument that place-based approaches are suited to outline the implications of energy policy design on transformative energy justice outcomes relevant to Indigenous Nations. The application of place-based research to understand the impacts of existing First Nations involved renewable energy projects is suitable to inform future policy design and the implications for First Nations to improve their economic and social conditions without discrimination.

Table 1: Summary of Place-Based Approaches to Renewable Energy Transitions

Holistic and material:

-Tailored specific place-attachment, social, cultural, economic and ecological context of particular locations (Devine-Wright and Devine-Wright, 2009; Devine-Wright and Ryder, 2024; Lai et al., 2025; Moore-Cherry et al., 2022; Weller et al., 2024).

-Incorporates multifunctionality and decentralisation, mitigate harm for ecosystems, address justice and local resilience and create local value (O'Neil et al., 2022).

Place-Attachment

-Diverse ways in which communities are engaging with renewable energy and associated infrastructure, place is defined by the social relationships in a particular location, encompassing a "sense of belonging" in a "community as place" (Creamer et al., 2018; Walker, 2011).

-Community and land attachment remain strong for Indigenous people even when living away from their traditional lands (Mang-Benza et al., 2024).

-Highly variable, place-attached, holistic, and inter-generational thinking (Hurlbert, 2022).

Local Value Creation

-can address local socio-economic challenges and provide tangible benefits to both workers and communities (Lai et al., 2025)

Transformative Energy Justice

-Can address root causes and legacies of inequality, voices and world views of historically excluded communities are centered in problem framing and decision making and transition processes (Avelino et al., 2024; Elmallah et al., 2022; Lembi et al., 2025).

creates avenues to identify practical applications of energy justice and energy sovereignty (Lembi et al. 2025).

-heterogeneous local and Indigenous knowledge and stewardship, community needs, the redistribution of benefits, knowledge sharing, and opportunities for self-determination (Elmallah et al., 2022; Hoicka et al., 2025).

-Reveals desire to create land-based opportunities while upholding the Nation's social, political, and legal orders and principles and fulfilling the community's obligations to steward their land and consider future generations (Smith and Scott, 2021).

3. Methods

This study employed semi-structured interviews and thematic analysis to learn about community engagement practices, perceived, experienced and anticipated socioeconomic impacts and benefits of renewable energy projects, and how these are framed within the culture, worldviews and sense of place of participating First Nations. The focus of the interviews and document analysis was to document the project details, motivations, community engagement processes, pre-conditions and socioeconomic benefits of renewable energy projects in the participating Nations. The following documents our methodological approach in detail.

3.1 Partnership research and funding

Ethics principles for academic research with First Nations is outlined by Canada's Tri-Council Policy Statement 2 (2022) and by the principles of ownership, control, access, and possession (OCAP) provided by the First Nations Information Governance Centre. Chapter 9: Research Involving the First Nations, Inuit, and Métis Peoples of Canada of the Tri-Council Policy Statement 2 (2022) "is not intended to override or replace ethical guidance offered by Indigenous peoples themselves. Its purpose is to ensure, to the extent possible, that research involving Indigenous peoples is premised on respectful relationships. It also encourages collaboration and engagement between researchers and participants" (Canadian Institutes of Health Research et al., 2023). OCAP principles apply to all aspects of First Nations information, from creation through management (Schnarch, 2004).

Following these ethics requirements and processes, the research was developed to support advocacy for First Nations in the British Columbia renewable energy sector Clean Energy BC and the New Relationship Trust are organizations that work directly with First Nations across British Columbia. Clean Energy BC obtained funding from Natural Resources Canada's Clean Energy for Rural and Remote Communities Program, Capacity Building Stream, a federal government program and used this to hire the university researchers. This study took a co-creation approach to research and the study design was developed by the university researchers with Clean Energy BC and

the New Relationship Trust to extend the findings of a survey of 72 First Nations conducted by Clean Energy BC in 2021.

3.2 Recruitment

Recruitment efforts sought to identify First Nations that had at least one operational renewable energy project. Interview participants had direct involvement in the project and were considered a knowledge holder or expert through their direct involvement in the project. Members of First Nations with projects under development also participated in interviews, sharing their experiences with their project development.

Clean Energy BC emailed 42 First Nation members to invite them to an interview. In addition, at an annual in-person First Nations Energy Summit organised by Clean Energy BC in January 2023, the Principal Investigator presented the research project and invited summit attendees to participate in interviews, either on-site during the event or to be scheduled at a later date. After the Summit, the Indigenous summit registrants were contacted by Clean Energy BC and invited to an interview. Some interview participants identified additional contacts and shared these with members of the research team. Over this time, knowledge holders and experts from First Nations with projects under development reached out to participate in the interviews. They were included to provide insight into pre-conditions and community engagement for Nation's energy projects.

3.3 Ethics

Each First Nation has their own unique protocol for consenting to research projects. For example, some Nations have a dedicated ethics staff, or rely on consent from elected officials. For this reason, for each interview, researchers received consent both from the community based on their own protocols, as well as from each interview participant. Each First Nation and individual participant was given the option to waive anonymity and exclude their data from peer-reviewed research. In accordance with OCAP principles, the collated data for each First Nation was returned once analysis of all data was complete (The First Nations Information Governance Centre, n.d.).

3.4 Interviews

Interviews that are in-person, locally-informed and employ a relational and conversational manner have been identified as being more inclusive and accommodative of Indigenous culture and peoples (Phatshwane, 2024). For this research, in keeping consistency with earlier interviews conducted by Clean Energy BC virtually during the pandemic, the partner organisation directed researchers to conduct this phase of interviews virtually, although some took place in-person at the Clean Energy BC First Nations Energy Summit in a hotel boardroom. The three interviewers had previous research experience and training in interviewing Indigenous participants. Interviews were audio-recorded, and transcribed using Zoom. Transcripts for each interview were emailed to the respective interview participant to confirm accuracy and content shared. Each interview lasted approximately 1-1.5 hours, and took place between December 2, 2022 and March 29, 2023. For Nations that did not waive anonymity, a numbered pseudonym was assigned (eg. "Nation #1") and all identifying information (such as names and locations) were removed from the analysis.

3.4.1 Interview Instrument

The interviews employed a semi-structured instrument. The questions were informed by relevant literature, other interview instruments, and impact evaluation materials (Berka, n.d.; Clean Energy BC, n.d.; Savic and Hoicka, 2023). The interview questions are provided Table 1. The questions were neutrally worded and gave room for discussion of critical barriers to development of new or additional projects faced by communities in the electricity sector. The interview questions asked participants about their personal motivation and involvement in the energy project, how the project was conceived and how it evolved in the community, turning points and critical milestones, how communities were involved, and to identify the critical sources of support or partnerships. Questions relating to motivations, early processes and milestones of projects all contribute to documenting the pre-conditions of energy

projects. The questions also asked for the benefits or impacts experienced by the Nation as a result of the project's development or implementation, how the Nation may have been changed as a result of the project, and the broader influence that the renewable energy project may have on the renewable energy context at a regional or national scale. Questions were phrased in an open-ended manner to prompt responses that are most relevant, culturally appropriate or important, in their own words, although there were prompts if needed as seen in Table 2.

Table 2: Interview Questions about Motivations, Benefits and Impacts

How the project came about, how it evolved and who was involved
• What is your involvement with the project and how long have you been involved? • What motivated you to become involved? • Why is this project important to you? • How did the First Nation become involved in working in this renewable energy project? • Were there turning points, or key milestones, in the life of the project? • Were any partnerships critical in the success of the project? • To what extent was the wider community involved in the development of the project?]
Motivations and impacts

• What kinds of benefits has your community experienced as a result of this renewable energy project?
  o Which of these are most important and why?
• Did these benefits meet, fall short of, or exceed your expectations? (e.g., for job creation, local sourcing of materials and services)?
  o How many jobs were directly created as a result of this project (from construction, maintenance & operation to management)?
  o Did you source any products, material and services for the project locally?
  o Has the project supported the development of other projects or business endeavours in the community or region (agriculture, manufacturing etc.)? If so, what are these, and how? (e.g. through power provision, land and capital inputs). (If so, do you know of any jobs created by these activities?)
  o Are any project revenues allocated to the First Nation community? How are these revenues being spent? For example, in the form of community trust, grants, scholarships, sponsorships, community development programmes etc.
  o What impacts are revenues having on First Nations as a result of this?
• Did the project deliver any other or unexpected benefits, for example in terms of new knowledge and skills, better understanding of energy issues?
• How has the project changed or influenced the First Nation?
• How has successfully implementing this project shaped future ambitions and aspirations for the First Nation?
• Has this project had wider influence in the region or country? How do you believe that your project contributes to the wider British Columbia energy system?
• Why are First Nations, community-led projects in British Columbia important and distinct?
• In your experience, which governance structures offer stronger socioeconomic benefits from renewable energy to your community?

Participants were invited to share secondary documents about their Nation's renewable energy project, such as reports, summary documents, videos, presentation slide decks and a Community Energy Plan. These documents were also included in data analysis and were used to supplement interview data. 13 additional documents were shared by four Nations participants, and additional information about each project was found in other databases (Hoicka et al., 2021b) and from internet searches.

3.5 Coding & Analysis

For this analysis, the interview transcripts and secondary documents were imported into qualitative research software and coded. Through a combined deductive and inductive approach, the initial thematic codes were

identified based on the literature and interview instrument, and were adapted and emergent codes were developed based on the interview transcripts.

In total, 24 benefit and outcome codes were applied to the interview and additional documents, identified in Table 3. The initial codebook, which included all benefits and outcomes listed in Table 3, with the exception of "sense of pride", and definitions were established based on the interview instrument and in line with high-level barriers, motivations, and impacts as identified in the literature and the survey run by Clean Energy BC in 2021 (Berka and Creamer, 2018; Bielig et al., 2022; Brummer, 2018; Mang-Benza and Baxter, 2021; Savic and Hoicka, 2023; Yalamala et al., 2023).

Meetings were held between the two coders for the data to identify and agree upon consensus codes. In the first meeting, coders met to identify the data coding process using data analysis software. In the second meeting, coders reviewed the data coding process and the initial codebook (including the list of codes with definitions). Following this meeting, the coders independently coded the same interview transcript, noting potential emergent codes that were not included in the initial codebook. The code "uncertain" was used to identify excerpts of the transcript that coders were unsure which code to apply to, to flag these excerpts for further discussion between coders. In the third meeting, the coders reviewed their code patterns for this first interview transcript to compare and identify any inconsistencies in definitions or interpretations of codes or excerpts from the transcript, as well as emergent codes. Through this discussion, the coders agreed on codes and definitions for the remaining transcripts, adding the emergent code "sense of pride" as benefit, and "anticipated benefits" and "realized benefits" parent codes to distinguish between benefits that had been experienced by participants through their existing projects and those that were anticipated (which include the benefits Nations without operational benefits shared anticipating). To ensure inter-rater reliability, the process of independently coding a transcript and meeting to compare and update the code book was repeated a second time, and in the fourth meeting the coders addressed questions and uncertainties and reviewed any inconsistent application of codes to come to a consensus on how to apply codes. Following this, the coders independently coded the remainder of the transcripts and materials.

Table 3: Themes used to code benefits and outcomes following inter-rater reliability

Impact Categories	Impacts
Social, political	Social cohesion Sense of pride Language and cultural resurgence Organisational learning Capacity building Autonomy Independence Self-determination Empowerment New imaginaries Recreation
Material	Infrastructure Supply resilience Access to affordable electricity and healthy homes
Economic	Local procurement of materials & services Training and employment Project revenues Socio-economic regeneration
Ecological	Emissions mitigation Displacing fossil-fuels Cleaner air Reducing power consumption

	Reduced noise Reduced fire hazard Ecological benefits
Relational	Global niche development Setting precedent External networks Education/ awareness in external parties Reconciliation Knowledge sharing Visibility Influence

Excerpts and associated codes from transcripts and additional documents were exported from the coding software upon completion of coding. Summary tables were made using these exported excerpts by benefit code, as outlined in Table 3. Direct quotes were paraphrased to clarify their meaning for analysis in some cases, using details from other sections of the transcript (for example, replacing the word "they" with the specific organization being referred to). Quotes are attributed to the respective Nation of participants rather than the participant themselves, as they had received approval from their Nation to share information and were being asked about their Nation's energy projects by our research team.

4. Results

A total of 20 interviews were conducted with members and citizens of 17 First Nations (including 2 participants from one Nation), as well as 1 consultant and 1 organisation operating in the sector. 13 additional documents were provided. Of the 20 participants, 17 (14 Nations, 1 consultant and 1 organization) consented to being involved in peer-reviewed research and are included in this analysis. The 14 First Nation participants and their respective renewable energy projects are mapped in Figure 1 and outlined in Table 4.

Table 4 outlines the project characteristics such as project size, technology type, the type of land it is sited on, the ownership structure and the legal actor involved in the ownership or benefits structure. Most of the Nations that have both operational and planned projects have involvement from the EDC, whereas for the Nations with only operational projects, the political organization, such as the elected band council, more often tends to be involved. There are a range of structures of ownership and control. Several Nations have no ownership or minority ownership of large projects with royalties agreements, whereas other Nations have a controlling share of ownership of their projects.

Figure 1: Map showing location of the First Nations participating in this study

Table 4: Project Characteristics

Nation	Share Owned	Technology	Capacity (MW)	Use	Year of Operation	Legal Actor	Land Type
Nations with Operational & Planned Projects							
Nation #1	100%	Heat pumps	52 homes	Home, community building energy efficiency	2021	EDC	Reserve
		Hydro	1	Sell electricity	Planned 2025		Reserve, crown
Nation #2	0% impact benefit agreement with royalties	Hydro	235	Sell electricity	2010	EDC	Traditional
			62		2016		
			47	Not shared	Not shared		
	100%	Solar	planning	Self-consumption	planned		Reserve
Kanaka Bar Indian Band	50%	Hydro	49.9	Sell electricity	2014	EDC	Traditional
	100%	Solar	0.1	Self-consumption	2016		
		Wind	0.0008		2019		
	50%	Hydro	1.8	Sell electricity	planned		
	100%	Wind	0.03	Self-consumption			
Skidegate Band Council	100%	Heat Pumps	360 homes	Home energy efficiency	2015	Political	Traditional
		Solar	0.246	Self-consumption	2015		
	33%[1]	Hydro	6	Sell electricity	planned		
		Solar	2	planned			
West Moberly First Nations	15% limited partnership	Wind	15	Sell electricity	2021	Not Shared	Crown Land
	100%	Solar	0.5	planned	planned	Political	Reserve
Nations with Operational Projects (None Planned)							
Nation #3	100%	Solar	0.02	Self-consumption	2017	Political	Reserve
Heiltsuk Nation	100%	Heat pumps	410 homes	Home energy efficiency	2018	Political	Reserve
Kitasoo Xai'Xais Nation	100%	Hydro	1.7	Self-consumption	2021	Political	Traditional
	100%	Solar	0.023		2015		Reserve

	100%	Heat pumps	40 homes	Home, community (lodge, museum) energy efficiency	2022		
Lytton First Nation	100%	Solar	0.07	Self-consumption	2019	Political	Reserve
Simpcw	0% ownership with Royalties agreement	Hydro	20	Sell electricity	2011	EDC	Traditional
Xa'xtsa Nation	Partial[2]	Hydro	150	Sell electricity	2009	Not shared	Traditional
	0% Participation agreement with royalties	Hydro	21.2		2015	Political	
			40.6		2016		
			27.5		2022		
Nations with Planned Projects (None Operational at time of interview)							
Kitsumkalum Band	100%	Hydro	8	planned	planned	EDC	Traditional
			5				
Ts'uubaa-asatx Nation	planned	Hydro	Project details were under development				
		Solar					
Nuxalk Nation	100%	Biomass	783MWh /year	planned	planned	political	Reserve
		Heat pumps	planned	Home energy efficiency			
		Hydro	2	Sell electricity			Traditional
		Solar	0.199	planned			Reserve

Table 4 Legend

1 Equal partnership between 3 First Nation Councils, Old Massett Village Council, Skidegate Band Council, and Council of Haida Nation.

2 Partial ownership, at the end of a 60 year agreement the community will own 100% of two projects.

Legal Actor Legend

Political: The political organization of a community, such as elected Band Council (Savic & Hoicka, 2023)

EDC An economic development corporation is a for-profit business entity that engages in business opportunities on behalf of a Nation. Community members comprise the entirety of and EDC's shareholders, making the EDC directly responsible to the Nation. In First Nations, the political organization establishes EDCs with the approval of the community. As of 2023, there were 294 Indigenous EDC's among nearly 700 First Nations, Inuit, and Métis communities (Savic and Hoicka, 2023).

Land Type Legend

Reserve land Many times, First Nations were displaced from their traditional lands in exchange for living on reserve land (Albers, 2017). Reserve land is ”Crown land held in trust for First Nations and may or may not overlap with traditional lands” (Imai, 1999). Traditional lands are lands historically occupied or used by Indigenous nations for traditional purposes such as ceremonies, hunting, fishing and trapping (Indigenous Corporate Training, 2019). UNDRIP recognizes the inherent rights of Indigenous People to free, prior and informed consent to projects located on their traditional lands.

Crown land is land owned by the provincial government. This type of land is available to the public for industry, recreation and research. (Government of British Columbia, n.d.).

Financial Participation

Royalty payments involve the allocation of a percentage of % revenue from the project in return for use of First Nations water, land or resources.

Impact and benefit agreements are privately negotiated, legally enforceable agreements that establish formal relationships between Indigenous Nations and industry proponents that outline how the First Nations will share in benefits of the operation (Kielland, 2015).

Table 5: Community Engagement Details by Nation

Nation	Community Engagement
First Nations with Operational & Planned Projects	
Nation #1	While developing the project, the key values of the Nation were kept front and centre of the projects, and they undertook strategic planning with meaningful engagement rooted in the Nation's worldview, culture, and language. There was a community gathering in 2001 when Nation members were asked what they wanted and their values regarding the hydro project. Five key values were articulated, one being to protect Coho salmon at the hatchery that is part of the watershed that would be the subject of the hydro project. The Nation wanted the project to be Nation owned, a source of economic development, protect fish populations with a 2-way fish ladder, and protect the community and global environment. Any opposition was managed by engagement through newsletters, community meetings, regular updates to Chief and Council, and developing a website so that people could see project progress.
Nation #2	The project site was in a remote part of the territory, and initially encountered some social opposition related to environmental concerns. These concerns were put to rest as the projects were run of river with a small impact, and no fish stocks were to be threatened. The hydro electricity projects kicked off economic development related to ecotourism businesses in the area and these economic benefits generated support for the project from Nation members.
Kanaka Bar Indian Bar	The Nation's members were engaged for over 36 years in the development of their Kwoiek Creek Hydro project. The [solar and wind] projects began with 12 years of community engagement to gain social acceptance for clean energy projects in the Nation. The Nation's members were involved in each step of the project process. Nation members were involved in aspects of decision making such as where pipes should go, where transmission lines were laid, and baseline data studies.
Skidegate Band Council	For their heat pump project they brought in staff from BC Hydro to teach Nation members about managing electricity bills online and curbing household usage. This taught people that heat pumps were an efficient solution for their households and increased awareness. There was some pushback from the community when clean energy projects were first introduced as there were unknowns, for example people were hesitant to implement solar as there are few sunny days. Once installations on community buildings began, people were shocked at the cost savings and supported the project.
West Moberly First Nations	The partner on the project, Natural Forces, approached the Nation first to introduce the wind project and the potential impacts to land and treaty rights and the economic potential. Once these discussions were held the Nation and partner proceeded with building the wind project.
First Nations with Operational Projects (No Planned Projects)	
Nation #3	There was no community engagement as the solar project on the firehall was small-scale (0.02 MW). There would be community engagement if there was a large scale energy project being planned and that would include community consultation and input.
Heiltsuk First Nation	Over 1000 Nation members were engaged over 2 years to develop a comprehensive Community Energy Plan. Their extensive engagement strategy included visioning sessions, online consensus building surveys, coffee shop sit-ins to encourage survey participation, open houses, active social media, website updates, YouTube videos, and newsletters. This resulted in 10 community priorities articulated into the Community Energy Plan that the Clean Energy Association (a non-profit consulting organization that supports local governments and Indigenous communities in energy and climate action) now uses as the gold standard for community energy plans and engagement when supporting other communities.
Kitasoo/ Xai'Xais Nation	The Climate Action Coordinator for the Nation and they engage with the community for projects that reduce greenhouse gases or will have a positive environmental effect. The Nation is on board with clean energy projects and every homeowner was consulted and educated on heat pump use for their homes.
Lytton First Nation	The Nation was involved in the project through the Board and Chief and Council, which is the governing body of the Nation that needs to approve all projects and represent the people.
Simpcw	Community members were sent information packages about energy projects. Open houses were held without project proponents and Nation members were able to ask questions and vote on decisions through a third-party managed voting process. There were discussion and question periods after project

Nation	Community Engagement
	presentations to answer questions and address concerns about impacts to rights and title and the environment.
Xa'xsta Nation	Required that the original developer for hydro projects conduct regular meetings with the members. They told the developers that if they wanted to be in the community working they had to be a part of it. This led to the developer spending several years getting to know the Nation and gaining their acceptance.
First Nations with Planned Projects (No Operational Projects)	
Kitsumkalum Band	The Nation was generally very supportive of clean energy project planning, and participated in working groups and annual meeting presentations. Information was also presented through social media, and there is always an invitation for Nation members to participate in project planning.
Ts'uubaa-asatx Nation	Developed a Community Energy Plan based on engagement and input from the community. Leadership met with Nation members in person and over Facebook and asked them what they wanted to see so that leadership could ask experts if it was feasible. The Nation leadership would not have done feasibility studies for clean energy projects without Nation support.
Nuxalk Nation	The run of river project began with a series of open houses to inform the Nation of the amount of diesel being burned annually (2.2 million L/year) and the amount of emissions produced. This was a wakeup call for the Nation and there was a resounding agreement to move forward with the project. The Nation had a Climate Action Coordinator conducting engagement on a climate adaptation plan for the Nation, and they also engaged with the school and their board about energy usage. The Nation had an electrical engineer from BC Hydro demand management visit the Nation and found that the school buildings accounted for 7% of the entire energy usage on reserve, making it the largest power consumer. This was presented to the Nation and the solar project planning began. There was an open house in summer 2022 with over 200 people that supported the run of river project, and another round of engagement in March 2023. The clean energy team puts out monthly project updates to keep the Nation engaged.

Table 6: Ongoing and anticipated benefits of planned First Nations projects

Social Cohesion, Sense of Pride	● Ts'uubaa-asatx Nation anticipates that clean energy projects would be something that the Nation can feel proud of and that they are doing something that is good for the environment.
Organisational learning, Capacity Building, Setting Precedent	● Kitsumkalum Band anticipates a project could result in education, and improved community understanding for how people can reduce power consumption. The Nation is trying to connect with groups to have assessments done on all houses on the reserve on things like furnace installation, perimeter drains, fans, and windows. The Nation highlights grants and information that can be used to provide education to Nation members about their homes and energy requirements. ● Interview Participant: "Yes, just the cheaper power, and I think a big part of that is also education. And how can you reduce your power consumption? So a couple of weeks ago I met some people like Eco-trust and that group that installs the heat pumps in Bella Bella. And so we're trying to hook up with groups like that now to get a health passport for every house that we have on the reserve and say: you know, what do we need to do here? How's the furnace? How's the installation, perimeter drains, fans, windows, you know all that kind of stuff. I think you can't have a conversation about just power projects without re-education, and looking at your own infrastructure to, you know, have, like there's so much out there right now that is, in grants and information, and help to go from door to door and just check every house and every person educate them." ● Nuxalk Nation has been able to increase capacity for wages and equipment owned by the Nation. They have held informational sessions for Nation members to provide education on solar and other energy info, and hands-on training for solar installation.
Autonomy, independence, self-determination,	● Nuxalk Nation members are feeling empowered that leadership is taking initiative. The participant's team is being looked to by neighbours and community members to support them.

empowerment, new imaginaries	● Interview Participant: "It's definitely an empowerment situation, our people are feeling very empowered that our leadership and our team is taking the initiative to displace that in our backyard. And it's really empowering that you know people are looking towards us, our neighbors. We're looking towards how established we are as a team, and you know they're looking to us to kind of support them. So it's very important to be a part of this process."
Access to affordable electricity and healthy homes	● Kitsumkalum Band hopes to have a cheaper supply of power to the reserve, or maybe even free.
Training and employment	● Nuxalk Nation hopes to train some young Nation members to support the work being done by Urban Systems on projects, so that there is less reliance on Urban Systems coming to the area, which is expensive. Their hydro project could generate a few full-time jobs and some contract work. They would need 2 to 3 people to run the biomass facility, 1 person to run the heat pump program and maintenance and there are additional training opportunities for solar projects.
Local procurement of materials & services	● Kitsumkalum Band will aim to source locally with community suppliers (from within the Nation or the region).
Project revenues	● Kitsumkalum Band hopes to sell the surplus electricity to the local grid or even neighbouring communities. ● Ts'uubaa-asatx Nation anticipates financial benefits from potential revenues.
Socio-Economic Regeneration	● Kitsumkalum Band hopes that future projects would be 100% Kitsumkalum run and managed. Educating Nation members on how power consumption can be reduced and assessing community infrastructure. Trying to work with organizations to get a health passport for every house on reserve and determine what needs to be done in terms of upgrading furnaces, insulation, drains, fans, and windows. Networking from the community trying to figure out a way forward with projects has been helpful. The Nation has met a lot of people and obtained ideas by meeting with other people in a similar situation.
	● Nuxalk Nation anticipates training some young Nation members to support the work being done by Urban Systems on clean energy projects, so that there is less reliance on Urban Systems coming and going to work in the area, which is expensive. Accredited training opportunities for Nation members for the solar project were scheduled at the time of the interview. Residents of the upper valley would also benefit from the hydro project as there is no power producing facility in the area currently. The potential hydro project would provide a power source that would help assist downtime of the electrical grid when power is out.
Displacing fossil-fuels, reducing noise, reducing power consumption	● Nuxalk Nation currently has a diesel generator that can be heard running at all times. Nuxalk Nation anticipates that the clean energy projects will allow the Nation to displace diesel and not having to rely on a generator to power community homes. ● Kitsumkalum Band anticipates a project could result in improved community understanding for how people can reduce power consumption.
External Networks, Education/Awareness in External Parties, Visibility, Influence	● Nuxalk Nation's neighbours are seeing how established the Nation is and are looking to them for support. ● Direct Interview quote: "it's definitely an empowerment. Situation out people who are feeling very empowered that our leadership and our team we're taking the initiative to displace that in our backyard. and it's really empowering that you know people are looking towards us, our neighbors. We're looking towards how established we are as a team, and you know they're looking to us to kind of support them - to I- them. So it's very important to be a part of this process.

Table 7: Benefits experienced by Communities with Operational Projects (No Planned projects)

Social Cohesion, Sense of Pride, language and cultural resurgence	● Heiltsuk First Nation: The project supported traditional Heiltsuk values, increased self-sufficiency, and is making the community a better place to call home. Collaborative and inclusive leadership with meaningful membership and leadership input gives voice to the people and builds a trusted relationship between the leadership and the community as they are able to trust what leadership is doing on their behalf. ● Kitasoo/Xai'Xais Nation: The region has advanced climate management plans and there is great work being done. The Nation has had their own hydro for 40 years that supports the community. ● Simpcw: Economic benefits of clean energy projects stay in the region and this has built up trust, respect, and a good business reputation within the regional business community. The Simcpw Heritage Fund, which is long-term savings that supports training youth, rebuilding language and culture, and preserving history - all priceless to the Nation. ● Xa'xsta Nation: The Nation has experienced increased community meeting attendance. Interview participant: "We brought the community together, our community meetings before these projects, just to on a good day would maybe draw about 20 people […]. Some of our meetings and our numbers are down because of what's coming out of Covid but our last meeting we had 136 members signed up, signed in 40 children, and there were 33 guests that signed in."
Organisational learning, Capacity Building, Setting Precedent	● Simpcw: The hydro project allowed the Nation to create best practices for how they conduct business, and they can use that as a template for future projects. They created their own Economic Development Council with clear separation between business and politics and set up the Simcpw Heritage Fund. They gained knowledge of how to develop business models that benefit the Nation and their partners. They are a small rural Nation that have competitive advantages such as tax benefits and close relationships with community political decision makers. Project development taught the Nation about having the right people in the right places and getting good advice, and they used this principle to succeed in other projects. ● Xa'xsta Nation: Projects gave Nation members experience they needed to move into other industries when the projects are completed. Many previous employees have transitioned into the Nation's logging company and some have moved on to other areas.
Autonomy, Independence, Self-Determination, Empowerment, New Imaginaries	● Lytton First Nation: The solar project reduced dependence on the BC Hydro grid and the Nation generated their own power in their own backyard. ● Heiltsuk First Nation: The heat pump project was a pivot to climate action and unleashed new clean energy opportunities as outlined in the Community Energy Plan, creating a more positive future for next generations. ● Kitasoo/Xai'Xais Nation: The hydro project allows the Nation to be independent and have its own grid. ● Simpcw: Clean energy projects support the Nation goals to become financially independent and not rely on outside sources to do things that are important to the Nation, such as rebuilding language, culture, and history. Would not have to write grant proposals to ask for money from people that do not understand the community or appreciate the language and culture.
Training and employment	● Nation #3: No jobs were created as the solar project was too small (20kW on firehall) and only required a small construction team. ● Heiltsuk First Nation: The Nation held training for 5 or more members to become heat pump installation and maintenance technicians, and for one member to be a certified energy advisor. There are employment opportunities for heat pump trainees; four jobs for a 2 year time period were created, including the Project Coordinator role and 3 heat pump trainees. A capacity development strategy has been created for positions in future projects. ● Kitasoo/Xai'Xais Nation: The heat pump project employed an external contractor for the past 15 years. ● Simpcw: Employment was not a big part of the discussion in terms of operation and maintenance, not many opportunities for employment at these stages, more focus on the financial benefits. Had a few Nation members involved in construction, and there was a

	learning curve with technical expertise on the construction side and figuring out how the community could maximize its participation in construction. 300 people work directly for Simpcw EDC, 50 employed in the band office and the CEO of EDC is from the Nation. ● Xa'xsta Nation: There was employment of 450 people during peak construction in a remote community (30-40 Nation members).
Infrastructure, Supply resilience, Access to affordable electricity and healthy homes	● Nation #3: As a result of the solar project, the Nation has experienced reduced electricity costs. The solar supports emergency operations out of the community firehall allowing the Nation to be proactive in emergencies. The project also benefits the entire region which experiences electrical shortages, by increasing the resilience of the local grid. ● Kitasoo/Xai'Xais Nation: Hydro expansion allows the Nation to continue supplying energy to its own microgrid. Their home energy efficiency project enabled the Nation to build homes and increase building energy efficiency. ● Heiltsuk First Nation: The energy project involved providing new, efficient heating systems in homes (supporting development of residential infrastructure) and delivered significant cost savings on monthly household BC Hydro bills. Climate action team has led the Nation in creating a framework called Healthy Heiltsuk Homes to increase health, safety, and quality of life. ● Kitasoo/Xai'Xais Nation: Cost savings from heat pumps for household electricity bills. Safe and reliable heat from heat pumps improves quality of life. ● Lytton First Nation: The solar project showed the Nation that clean energy projects "can be done and installed and functioning so that there is a benefit for the community and for the school in the area" (quote from Lytton First Nation), providing free, clean energy generated from a consistent and reliable source.
Project Revenues	● Simpcw: The EDC made $200 million profits in the past few years and has the potential to be a $1 billion company shortly. This brings opportunities to purchase large tenures in territory, such as joint venture partnerships with a heli-ski operation. ● Simpcw: Part of the money earned from clean energy projects goes into Simpcw Heritage fund. ● Xa'xsta Nation: Power companies developed the hydro projects and power sold to BC Hydro with an EPA, as part of their participation agreement the Nation receives royalties which are percentages of revenues (1%, 2.5%, to 5% in 20-year increments) resulting in large cash payments to the community. Royalties from hydro projects are given as cash payments to the Band, 40% goes into bank for the future and 60% spent on other projects and can be used to compensate members for attending general assembly meetings.
Socio-Economic Regeneration	● Heiltsuk First Nation: There have been business opportunities for heat pump trainees to service the remote community without bringing in external support. ● Xa'xsta Nation: Supports remote community population growth. Community work ethic and growth after logging industry decline has been re-established. ● Simpcw: Tax-free status as First Nations EDC can be used to leverage partnerships and build assets, hire and train own people to manage and operate clean energy projects. The Nation used learnings from the hydro project development to hire a consultant to participate in meetings with the project proponent and consequently signed $600 million worth of contracts through negotiations around the Trans Mountain pipeline for fossil fuel development.

Emissions mitigation, displacing fossil-fuels, ecological benefits.	● Nation #3: The project helps to offset reliance on burning wood for heat (to reduce carbon footprint). ● Heiltsuk First Nation: Using cleaner, more efficient technology supports the goals of the Community Energy Plan. Reduced GHG emissions from heating by switching off diesel, the community has to bring in less diesel by barge to a remote area. ● Kitasoo/Xai'Xais Nation: Reduced reliance on oil. A spill occurred 10 years ago with $10 million in damage to the community and ecosystem. Oil spills are a huge concern and led to the development of the heat pump initiative. ● Xa'xsta Nation: One requirement of the hydro project was to build fish channels that increase fish populations.
External Networks, Education/Awareness in External Parties, Visibility, Influence, Knowledge Sharing, Global Niche Development, Reconciliation	● As a result of their energy project, Heiltsuk First Nation experienced increased visibility and presence in the Canadian climate arena, opportunities to present at conferences and increase First Nations representation nationally. ● Heiltsuk First Nation: The Nation has been contacted by many Indigenous communities to look at the model of project they used, which is based on scaling up a previous model used by a different Nation. ● Heiltsuk First Nation: The level of collaboration, willingness, and understanding from partners that have worked with the community is an example of what reconciliation looks like in action today. ● Simpcw: Non-Indigenous communities and businesses in the region that the Nation works are recognizing the Nation as true owners of the land.

Table 8: Benefits experienced by First Nations with Operational & Planned Projects

Social Cohesion, Sense of Pride, Recreation	● Nation#1: The Nation will be putting in berry patches along the new roadway to the hydro site as the Nation members are prolific berry pickers. The road will also be a source of recreation for ATVs and snowmobiles and fishing. ● Nation #2: The project contributed to a sense of pride and increased Nation confidence, as without Nation support and partnership the project would not exist. ● Kanaka Bar Indian Band: The Nation's members were involved in each step of the process. The Nation did the work for the projects alongside professionals and it brought back the community identity, confidence, and self-esteem. Engagement of members in the project work put smiles on people's faces, and increased self-worth and pride. ● Skidegate Band Council: More people are moving to Haida Gwaii as they have seen how the Nation is and the work they have done regarding clean energy projects and want to be a part of it as well. ● West Moberly First Nations: There was a sense of pride in ownership and involvement, the wind project opening ceremony was a proud moment with elders in attendance. There was strong community support for the project and they were able to complete it even through the covid 19 pandemic.
Organisational learning, Capacity Building, Setting Precedent	● Nation #1: The Nation hired a full time Climate Action Coordinator that is a resource to the Nation if they have clean energy questions or concerns, especially with their heat pumps. ● Kanaka Bar Indian Band: The project increased the Nation's professional and technological capacity in business development, computer skills and mapping. Nation members that received training now have transferable skills and this is important in an area where there are seasonal fluctuations in employment, high unemployment, and nominal subcontracting and procurement opportunities.

Autonomy, Independence, Self-Determination, Empowerment, New Imaginaries	● Nation #1: First Nations-led clean energy projects are distinct because of the potential for self-determination and they speak to the resilience of communities. ● Kanaka Bar Indian Bar: Kanaka Bar makes decisions through a climate change lens. The renewable energy project aligned with community principles of sustainability and built capacity – these impacts are multigenerational. ● Skidegate Band Council: Revenue will support future development for the company and minimize their dependence on outside contributions for future projects. As they are in early stages of project development, they are not sure how revenues will be utilised but revenues may go back into the company for the next venture, as there will be times that the Nation will need its own financial contributions for future projects as they won't always be 100% funded. ● West Moberly First Nations: It feels good to be involved in ownership and feeling the impacts locally of the project. They are co-owners, and are involved and engaged in the project, which Elders feel good about. The community is increasingly involved, with money flowing to the community as well. ● Interview participant: "It feels good to be involved in ownership as opposed to sitting here watching everything get done you know, by somebody else owned by somebody else. And basically we just sit and live with the impacts. You know what I mean; we're involved in it, and we're engaged in it, we're co-owners. And I know our elders feel really good about you know, hearing that. You know, knowing that we're not just sitting on the sidelines, while other people fill their pockets in our territory. And our community is doing that, you know, is involved in that kind of stuff more and more. There is a connection there, right, because you're involved. More money is flowing to the community"
Supply Resilience	● Nation #1: In a document shared by Nation #1, renewable energy projects are discussed as expanding grid capacity and facilitating growth, creating energy sovereignty and security for remote communities. ● Kanaka Bar Indian Bar: The community resilience plan is about becoming 100% community-based renewable energy and flowed from the results of the Kwoiek Creek Hydro project. It consists of 7 planning areas that look at all projects short and long-term. There is a resilience plan to build up projects over the next 5 years and build sustainable resilience for water, food, shelter, energy, transportation, communications, and waste management. ● Skidegate Band Council: Many people have homes on the oceans that have low-voltage issues as the connections on the telephone poles corrode. The Nation has trained people to understand those issues and now have more power technicians so that the power only goes out for a few hours during storms when it used to be out for days. Skidegate is working with BC Hydro to create solutions for BC Hydro and the Nation for better quality and stable power.
Infrastructure	● Nation #1: Additional documents shared by the Nation discuss the development of new assets and improving infrastructure through the diversification of local economies tied to renewable energy projects. The Nation plans to use project revenues to build new infrastructure such as a Coast Guards facility, hotel, and daycare centre. ● Nation #2: Infrastructure laid by the energy projects (e.g. roads) removed upfront costs for other businesses which allowed for the establishment of an ecosystem of businesses in the Nation's remote location (e.g. bear tourism). ● Kanaka Bar Indian Bar: Development of additional renewable energy infrastructure as a result of existing Nation projects.
Access to affordable electricity and healthy homes	● Nation#1 has experienced hardship from high electricity costs in a BC Hydro non-integrated remote area. They hope to take revenue from the project to offset expenses people have from high energy costs. Heat pumps have been installed in every building in the community and now all residents have more comfort and better air quality in their homes. The Nation is still

	studying heat pump impacts as they were only installed in 2021, so do not know the degree of energy savings yet. ● Skidegate Band Council: People are getting more air circulating in homes due to heat pumps, reducing mold, providing cleaner air, and resulting in cost savings of up to 52% for some homes. Community buildings with solar panels installed now have very low energy bills besides the surcharge for a meter.
Local procurement of materials & services	● Nation #1: During construction of the hydro project they will use a community quarry to source materials and make cement. Services will be provided by the Nation in the form of accommodation, meals and camp services. Local cedar was used for artistic purposes and signage, and they will use local food. ● Skidegate Band Council: Not many materials have been sourced locally as it is a remote island Nation. ● West Moberly First Nations: Gravel for the wind farm was sourced locally based on a partnership between the Nation and another company.
Project revenues	● Nation #1: Once the hydro project is generating revenues all revenues will go to the Nation through the Economic limited Partnership Corporation that will distribute the profits to the Nation. ● Nation #2: The revenue sharing agreement in the impact and benefits agreement supports Nation operations, programs, and financial goals. ● Kanaka Bar Indian Bar: Kwoiek Creek Hydro project allowed the Nation to generate its own source revenues. The Nation gets revenues through the Clean Energy Business Fund, but also leases the land to the hydro project, adding an additional revenue stream, and have taxing authority. Impact Benefits Agreements, land payments, water payments are all revenue streams. ● Financial returns exceeded community expectations. In 36 years of participation in the renewable energy sector from conception to operations of the Kwoiek Creek Hydro project the Nation did not make revenues, so they did not enter into the project initially for the money. ● Kanaka Bar has an Economic and Community Development Agreement so they get 1% of mineral tax revenues from Highland Valley Copper, and also benefit from a gaming revenue sharing agreement with the province. These funds can be used to fund future projects. These are not insignificant amounts but Kanaka is a small band and gets revenues based on Nation size. ● Skidegate Band Council: As they are in early phases of projects, they are not sure how revenues will be utilized but revenues may go back into the company for the next venture, as there will be times that the Nation will need its own financial contributions for future projects as they won't always be 100% funded. Revenues from the project go back into the company for the next venture. ● West Moberly First Nations: The revenue stream from the wind project helps support the Nation. Money from the government for the Nation is limited.
Socio-Economic Regeneration	● Nation #1: Once the 1MW hydro is generating revenues all revenues will go to the Nation through the Economic Limited Partnership Corporation that will distribute the profits to the Nation. This includes new infrastructure such as a Coast Guards facility, hotel, and daycare centre that all need electricity to run. The EPA revenue will help support that growth. People that visit the Nation can stay at these local accommodations and support local businesses. Economic development potential from the EPA revenue will help support the growth of new infrastructure and businesses in the community.

	● Nation #2: The project created economic development opportunities and was a tipping point for development from a small remote nation to an economic powerhouse. ● Kanaka Bar Indian Band: Worked with project partners to engage local labour and services on the project, reducing costs and creating economic opportunities for local businesses and workers. The Nation created Kanaka Bar Employment Services Ltd. to be a future employer for the band.Without renewable energy projects the Nation would have nothing else. Until 2010 there was not much in the community, and 12 years later there are subdivisions, agriculture, and other renewable energy, and many own properties off reserve (declared an Indigenous and Protected Conserved Area for these lands). ● Skidegate Band Council: Skidegate has been a growing Nation in the last 10 years, growing about 4% each year, aided by economic drives that include clean energy projects. Clean energy projects have created employment opportunities and the community wants to see more youth involved and create careers for those entering the workforce and promote jobs and training that will be available on the islands. Bringing in organizations to do trades training (e.g. electricians, heavy equipment operators). ● West Moberly First Nations: Indirect economic development occurred when the construction stage for the wind farm brought people into the region to work and they used community services and businesses. Revenues from the wind project go to community programs such as education and culture camps, helping support elders, youth programs (snowboard team). The Nation has a partnership with a company that has camps that people working on the wind project stayed in during the construction phase.
Reduced noise, displace fossil-fuels, cleaner air, fire hazard reduction	● Nation #1: Cleaner air, less noise pollution, and reduced risk of oil spills. ● Kanaka Bar Indian Band: Revenues go towards forest fire hazard reduction and protecting people's homes. Renewable energy aligns with Kanaka's principles of sustainability, everything Kanaka does has a climate change lens, and considers if a decision will exacerbate climate change and how projects might help food, shelter, water, and energy resiliency. Ensure safety of future generations. ● Skidegate Band Council: Initiatives like the heat pump project get diesel out of the Nation. They used to see a full diesel truck everyday and now only see them a few times a year. ● West Moberly First Nations: Damage to the environment is minimal from wind towers, and the land is able to be reclaimed for other uses if the project ends. They would rather see wind towers on the territory than flare stacks from natural gas.
External Networks, Education/ Awareness in External Parties, Visibility, Influence, Knowledge Sharing, Global Niche Development, Reconciliation	● Nation #1 is involved in a working group, through which they share their Nation's experience and have helped to shape strategies being published by the Provincial government. ● Nation #1: First Nations- led clean energy projects are distinct because of the potential for self-determination and they speak to the resilience of communities. Direct quote: "If you want to know the impact of not having clean energy or energy provided by the system that is provided to the rest of the province. Those are the impacts. And so now we are not prepared to use the EPA revenue to re-pay a loan. We want reconciliation, and at the very least the reconciliation that we want is to have all of the electricity purchase agreement funds flow to the Nation #1 Development Corporation and any funds not required for the operations and maintenance of the system will go to the community for economic development. And you know, whatever else the community decides to put the money toward." ● Kanaka Bar Indian Band: In a presentation document published by the Nation, Kanaka Bar Indian Band has shared their story and demonstrated that Indigenous communities are able to work with industry and governments to develop positive relationships, with the result of shared prosperity for all. ● Kanaka Bar Indian Band: Projects brought contractors, scientists, engineers, to the Nation who worked alongside Nation members and inspired members that they could work in positions too when they saw that they were good people. ● The traditional use study and archaeological study for the Kwoiek Creek Hydro project confirmed that for more than 8000 years people had lived in the same spot. Traditional stories and knowledge married to empirical scientific data and confirms the community's 8000 years of land use and resource governance.

	● Experience with clean energy projects showed that by doing projects together, work, risks and benefits are shared through partnerships and meaningful relationships. Successful projects were built by team work and individual effort. ● Skidegate Band Council: Clean energy projects have made community relationships stronger, especially with BC Hydro and Natural Resources Canada. Nation leadership has been able to work with all levels of staff and make the work more personable. As a result Skidegate is now exploring programs like smart renewable electrification with battery systems on the BC Hydro grid that could create solutions for BC Hydro and the Nation for stable power. BC Hydro is now paying more attention to finding solutions to issues that might not have been a priority in the past. ● Skidegate Band Council: worked with other First Nations and shared failures and successes. The Nation is always 100% open to sharing. Networks for First Nations people that Skidegate is now taking part in networks groups such as the Remote Community Energy Strategy Working Group, Indigenous Climate Adaptation Working Group, and Indigenous Coastal Climate Coalitions have been created. These organizations have brought people together through similar minds that want to share information. This mode of thinking established itself in the last 10 years - before that people were more reluctant to share. This was possibly a result of proposal-driven funding from governments that made communities competitive with each other. ● Skidegate Band Council: Clean energy projects have made community relationships stronger, especially with BC Hydro and Natural Resources Canada. Nation leadership has been able to work with all levels of staff and make the work more personable. Staff have traveled to Haida Gwaii and seen the work the Nation is doing and experienced the culture.

Eleven of the First Nations engaged the community using a variety of methods (Table 5). All of the engagement methods included information, regular updates and engagement of the community to inform them about the project and address concerns, for example, the protection of fish populations, or how much energy was used by community buildings. Some Nation's methods were extensive in reach, such as those of Heiltsuk First Nation. The experience of socioeconomic benefits was reported by Nation #2 (ecotourism) and Skidegate Band Council (reduced costs) to have improved project acceptance. Members of Simcw and Kanaka Bar Indian Band were given control through voting, and involvement around all project siting decisions. Xa'xsta Nation required the project developer to participate in relationship building with the Nation members.

The self-reported benefits are reported by project stage. At the time of the interview, three of the Nations, Kitsumkalum Band, Ts'uubaa-asatx Nation and Nuxalk Nation only had planned projects, none were operational. In Table 6 we outline the anticipated benefits of planned renewable energy projects for these three Nations. Nuxalk Nation expressed already having experienced benefits from pursuing energy related initiatives such as grant programs and training programs (such as the Indigenous Clean Energy Catalyst program), despite not having an operational project.

Table 7 outlines self-reported benefits for Nation #1, Nation #2, Kanaka Bar Indian Band, Skidegate Band Council, and West Moberly First Nations that have both planned and operational projects.

Table 8 outlines self-reported benefits for Nation #3, Heiltsuk Nation, Kitasoo Xai'Xais Nation. Lytton First Nation, Simpcw, Xa'xtsa Nation that have operational projects only.

5. Discussion

Our findings provide several insights and contributions to the theory and practice of place-based approaches to renewable energy projects, and their fundamental connection to transformative energy justice.

In this co-created study, designed in collaboration with our project partners, we employed an open-ended approach to centre Indigenous perspectives and framings about their Nation's motivations, processes of project development, and project impacts. We used semi-structured questions to create space for Indigenous knowledge

holders to share their narratives, worldviews and experiences. Taking this approach, we observe that self-reported project impacts reflect all four dimensions of place-based approaches to renewable energy projects reported in the literature (Holistic and material, Place-Attachment, Local Value Creation and Transformative Energy Justice, see Table 1). The findings show that the value placed on First Nations renewable energy projects strongly align with place-based strategies and transformative energy justice. Summarizing, these First Nations approaches to developing projects are place-based, ensuring a wide range of impacts. These findings demonstrate the methodological value of taking open-ended and co-created approaches to understanding the impacts of renewable energy projects to First Nations.

One nearly universal feature of these projects is what appears to be the strong and multifaceted community engagement prior to and during the project development, to provide information and knowledge to address concerns and demonstrate the socioeconomic benefits of the project, and to invite members into decision making around goals and siting. Many of these approaches were place-based and place-attached, for example, community gatherings, meals, and in local cafe's. Some of the Nations required project developers to lead community engagement initiatives and get to know the community as a requirement of the project. This is pronounced in its difference to the decide-announce-defend approaches that often result in project cancellation and these findings reinforce the literature that transparency in decision making and experiencing socioeconomic benefits improves project acceptance.

One of the most important observations is the presence of a wide variety of social, material, economic, ecological and relational impacts, ranging from self-determination and autonomy, language and cultural resurgence, to ecological benefits, and improved external relationships and awareness of First Nations realities and worldviews. These findings illustrate the context-specificity and diversity of impacts inherent to place-based approaches to renewable energy development (Table 9). The findings also suggest interdependencies across impacts. For example, 'Autonomy, independence, self- determination, empowerment, and new imaginaries' and 'social cohesion, sense of pride, language and cultural resurgence, and recreation' were the broadest reported impacts, particularly across Nations with operational projects (although they were reported in the development stages by Nuxalk). That is, all of the observed impacts support and enable self-determination of the Nations, where renewable energy projects create opportunities for reasserting community values and priorities, through the implementation of initiatives to address local issues and opportunities, with many reporting cultural resurgence, and a wide range of benefits felt across generations in the community. Many of these projects have contributed to a sense of belonging, whether through pride, language and history revitalization, or bringing people together. Earlier stage projects can attribute this to processes of community engagement.

Table 9: Summary of Findings of self-reported benefits by Nation

Nation	Social Cohesion, Sense of Pride, language and cultural resurgence, recreation	Organisational learning, Capacity Building, Setting Precedent	Autonomy, independence, Self-determination, Empower- ment, new imaginaries	Infrastructure, Supply resilience, Access to affordable electricity and healthy homes	Local procurement of materials and services	Training and employ-ment	Project Revenues	Socio-economic Re-generation	Reduced noise, displace fossil-fuels, cleaner air, fire hazard reduction, ecological benefits, Reduce power consumption	External networks, education/ awareness in external parties, visibility, influence, reconciliation, Knowledge sharing, global niche develop-ment
Nations with Operational & Planned Projects										
Nation #1	X	X	X	X	X	X	X	X	X	X
Nation #2	X			X		X	X	X		
Kanaka Bar Indian Band	X	X	X	X		X	X	X	X	X
Skidegate Band Council	X		X	X	X	X	X	X	X	X
West Moberly First Nations	X		X		X	X	X	X	X	
Nations with Operational Projects (None Planned)										
Nation #3				X	X				X	
Heiltsuk Nation	X		X	X		X		X	X	X
Kitasoo/ Xai'Xais Nation	X		X	X	X	X			X	
Lytton First Nation			X	X						
Simpcw	X	X	X			X	X	X		X
Xa'xsta Nation	X	X		X		X	X	X	X	
Nations with Planned Projects (None Operational)										
Kitsumkalum Band		X		X	X		X	X	X	
Ts'uubaa-asatx Nation	X									
Nuxalk Nation		X	X			X	X	X	X	X

‘Socio-economic regeneration’,‘ecological’, and ‘infrastructure, supply resilience, access to affordable electricity and healthy homes’, and ‘training and employment’ were highly reported across Nations speaking to the current service deficits reported in detail by the Nations in Hoicka et al. (2025). These deficits span across reliability of electricity, housing, education, and health services, as well as barriers to opportunities for socioeconomic development.

Inherent to the breadth and diversity of impacts and the capacity of renewable energy projects to support First Nation autonomy and self-determination are Nation collective decision-making approaches around the allocation of project revenues. Whereas project ownership, scale and governance are all determining factors in shaping project revenues, participatory approaches and long-term community plans can serve to guide prioritisation and allocation of revenues to downstream First Nations initiatives, to shape associated downstream impacts. These findings are in broad alignment with other literature pointing to the importance of scale, ownership, governance in shaping the impacts of renewable energy projects (Hoicka et al. 2021; Savic and Hoicka, 2023, Slee, 2020; Berka and Creamer, 2018). Across the 36 operational and planned projects in this study there was a broad range of shares of ownership, mix with benefits and royalties agreements, and project size (see Table 4 Project Characteristics). The interviews suggest that in at least three of the Nations interviewed, First Nation decision-making is informed by strong community engagement and awareness and articulation of community principles and long-term plans.

One critical limitation of this study is that there was only one interviewee per Nation. Our recruitment was supported by the project partner CEBC. This enabled us to recruit knowledge holders with extensive experiences with the projects. However, most of these knowledge holders had a positive perception of the impacts of the project. This limitation is mitigated in part by following ethics protocols as the Nations themselves consented to the interview with the participant, and those with a positive perspective, and perspectives were supplemented with project documents. What is missing, though, are dissenting voices that may not share as positive perspectives on the project’s impacts. This approach would have limited the ability of the study to be wide-ranging across Nations, and also follows in line with previous research for advocacy, such as Cook et al. (2017).

6. Conclusion

Renewable energy projects led and developed by First Nations offer benefits far beyond greenhouse gas emissions reduction. The findings of this study detail how many First Nation’s experiences with renewable energy projects are infused with opportunities to reassert Indigenous priorities, worldviews and value through self-determination. Other studies highlight the systematic neglect of social impacts and value in public policy making and procurement decisions. The overwhelming evidence of the rich diversity of impacts generated from First Nations projects suggests that policy decisions, and project and resource allocation should consider as broad a range of impacts as our findings indicate.

The evidence underscores the importance of place-based approaches to institutions, policies and programs for energy transitions that Indigenous Nations. Institutions, policies and programs should encourage design around local values to account for the significant and specific place connection of Indigenous Nations, and the opportunity to reassert Indigenous priorities through renewable energy projects processes and revenue allocation.

In the Province of British Columbia, political importance has been placed on creating economic opportunity to counter external economic shocks, such as Trumpian tariffs, to meet climate change targets, and to meet the Province’s obligations under DRIPA, to allow economic opportunity for all 203 First Nations without discrimination. New procurement policies for renewable energy, that re-started in 2023, target renewable energy development with First Nations involvement. However, despite a requirement for 25% First Nations ownership in the projects under the procurement call, concerns are already being raised that “decide-announce-defend” approaches are occurring in BC Hydro’s 2024 call for power, and it is not clear that the regulator, the BC Utilities Commission, has the tools to avoid this approach (Mason, 2025). K’omoks First Nation has raised that the lack of consultation on a wind project development is infringing on their treaty rights. Doig River First Nation has raised that they were not consulted on investigative wind project licenses in their planning area (Mason, 2025). Our

findings indicate that for these policies to meet DRIPA, and other obligations, requires place-based approaches to policy that can provide the institutional space to unlock First Nations renewable energy projects as a legitimate, reliable and viable pathway to meet BC's goals of economic development, decarbonization and DRIPA.

In sum, it is time to reframe that energy policy is social policy. An energy transition to mitigate and adapt to climate change is a societal transition, and should be designed based on a lens of social policy that incorporates the principles of equity, justice and resilience across society and generations, that are approaches that acknowledge and support communities. These findings contribute to reimagining energy systems through the dimensions of place-based approaches, including transformative energy justice, based on the values and framings of the First Nations.

Credit Author Statement

Hoicka conceptualization, methodology, validation, resources, writing- original draft, visualization, supervision, project administration, funding acquisition **Berka.** conceptualization, methodology, writing- original draft, supervision **Chitsaz** methodology, data curation, investigation, validation, formal analysis, writing- original draft, visualization**, Klym.** methodology, data curation, investigation, validation, formal analysis, writing- original draft, project administration **Regier** literature review, , data curation, writing- original draft, visualization **Macdonald** literature review, writing- original draft

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