

COMMUNITY-POWERED LOCAL ENERGY PLANNING AND  
TRANSITIONING IN OFF-GRID NORTHWESTERN ONTARIO  
FIRST NATION COMMUNITIES

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## ACKNOWLEDGMENT OF INDIGENOUS TERRITORIES

I recognize that Lakehead University, my school, is on the traditional land of the Fort William First Nation, signatory to the Robinson-Superior Treaty of 1850. I acknowledge the relationship that the original custodians, Canada's Indigenous Peoples,<sup>1</sup> have with the surrounding lands referred to as northwestern Ontario.

As a new Asian settler in Canada, I believe that recognizing the land on which we exist as settlers is an important part of the progression of acknowledgments, recognition, and appreciation leading to reconciliation. The ongoing process of building reciprocal relations is based on respect. A new settler has a "mother country" with thriving cultures to go back to at any point of time. But for the Indigenous peoples it is all here. This is their home. And, thus, there is a need to learn about the history of Indigenous People across Turtle Island.

Taking part through deliberate actions throughout the research period, I educated myself about Canada's colonial history and became an active and compassionate ally to Indigenous Peoples.

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<sup>1</sup> There are several terms in usage to describe Indigenous Peoples in Canada. "First Nations" are those Status Indians governed under the Indian Act and members of Bands with federally-owned reserve lands set aside for them. "Aboriginal" is the term used in section 35 of the Constitution Act, 1982 inclusive of "Indians, Inuit and Métis". "Indigenous" is commonly used in the international arena as in the United Nations Declaration on the Rights of Indigenous Peoples, but the term is becoming more popular and is often preferred by Indigenous Peoples and acknowledged now by the federal government in its renaming of the ministry responsible for Aboriginal affairs to, initially, Indigenous and Northern Affairs Canada (INAC) and more recently to two ministries: Crown-Indigenous Relations and Northern Affairs Canada and Indigenous Services Canada (ISC).

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Date: May 9, 2019

## ELDER ERNIE KWANDIBENS' MESSAGE ON ENERGY AND ENVIRONMENTAL CONSERVATION: CORE TO INDIGENOUS VALUES

Indigenous Peoples respect and cherish a special relationship with the Mother Earth and all that it offers. It is a profound spiritual connection that guides them to practice reverence, humility, and reciprocity. It is also based on subsistence needs and values extending back to thousands of years. Believing and understanding in taking only what is needed, great care is taken on how much and how they are taken. We must not step outside of the circle of life and should practice taking only what is needed. The significance of sustainable living is long appreciated by the Indigenous Peoples.

Protecting the environment aligns well with energy conservation. Addressing energy and environmental conservation – both out of the same value of respect resonates with core Indigenous values and principles. Efficient energy savings and caring for the environment ties right back to one of the seven teachings of the grandfathers – Respect. Reducing energy consumption is consistent with these cultural and environmental values.

*Ernie is a member of Whitesand First Nation. He works with his wife Charlotte on traditional ceremonies such as sweat lodge ceremonies, pipe ceremonies, sunrise ceremonies, naming ceremonies, young men's teachings, etc. Ernie is also an Elder for Dilico Anishinabek Family Care in Thunder Bay and conducts sweat lodge ceremonies for community members.*

## ABSTRACT

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Accessing reliable and affordable electricity is a challenge for Canada's remote First Nations in northwestern Ontario. These off-grid communities rely on expensive and environmentally harmful diesel-powered electricity, resulting in high electricity costs and limited socio-economic growth. Thus, the communities are transitioning to address these limitations through local energy planning to better meet local challenges and community development goals. This research study provides an insight into the challenges of local energy planning for off-grid First Nations and explores several key questions through its transition: (i) the contextual complexities in Canada's energy system that affect a bottom-up, community-based energy project; (ii) the socio-cultural and capacity building gaps when developing local energy solutions; and (iii) community energy planning as a pathway to reconciliation. A Community-based Participatory Action Research (CBPAR) model was adopted within the overarching framework of an Indigenous Research Paradigm (IRP). Research was initiated using intrinsic case studies with Poplar Hill First Nation as the representative location and the Wataynikaneyap Transmission Project as the transition context. The results indicated the gaps in capacity and the benefits of sustainable energy projects developed through meaningful consultations. Knowledge mobilization was facilitated through the development of capacity-building tools, community workshops, and open houses to advance community energy literacy, the identification of local champions, raising awareness and stimulating discussions at community energy conferences, and expanding academic scholarships. Research findings suggest that the path to reconciliation requires "Indigenizing energy planning" through culturally appropriate, decolonizing approaches that foster mutual respect and shared values.

## ACKNOWLEDGMENTS

A community-based academic journey is seldom lonely. This dissertation is the result of a collaborative and participatory effort with many very special communities, people, and organizations. I am grateful to the First Nation community leadership and community members for their insights reflected throughout my dissertation.

The research study would not have been possible without the guiding advices and invaluable support of my supervisor, Dr. Chander Shahi. I would like to express my deepest gratitude to him for providing the opportunity and believing in me, in the first place.

I am for ever indebted to my co-supervisor, Dr. M.A. (Peggy) Smith for her unconditional and continued guidance, her calm presence, and support, and for her immense faith and confidence in me.

My co-supervisor, Dr. Adam Cornwell, a big thank you for very patiently reading all my manuscript drafts and providing insightful and thoughtful comments. I much appreciate your support.

Throughout our years of working together, the academic committee remained an unfailingly true guide, never hesitating to set me straight when I needed it, always deepening my understanding of where I needed to turn next. At the same time, they never discouraged me and always kept up my motivation. I could not have asked for a better guiding team. I know that your influence helped to make my life as a doctoral student one full of richness and security. For that, I feel forever grateful. Most sincerely!

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My earnest acknowledgement and thanks to Keewaytinook Okimakanak (KO) Tribal Council; Keewaytinook Okimakanak Research Institute (KORI); Margaret Kenequanash CEO of Wataynikaneyap Power LP; and the Ontario First Nations Technical Services Corporation (OFNTSC) for providing the access, contexts, the connections and the networks.

My dissertation, research, and work are a direct result of my learning and sharing with the First Nations across northwestern Ontario. However, the traditional territories of Poplar Hill First Nation, a KO community, were the primary focus of my PhDs dissertation. My warmest thanks to the community. My acknowledgment is incomplete without mentioning Franz Seibel, the ex-Research Director of KORl for his guidance and directions that opened doors for my community-based study, allowing me to travel to various KO communities. The reception shown to me could have been vastly different if I had travelled without

his introductions. My visits provided me with a deeper understanding of First Nation communities and the people. Thanks to him and to the communities that welcomed me in spite of their well-founded questions about my intentions. The trust and goodwill that people demonstrated throughout my travels is a testament to their respect and humble nature embedded in their cultures.

I would also like to acknowledge the community energy practitioners and liaisons who provided valuable awareness through formal and informal discussions. In many cases, these are ongoing contributions, and I am inspired, gratified, and illuminated by their wisdom and guidance: James Suggashie, Philip Howe Sr., Philip Howe Jr., Alice Suggashie, Dennis King, Charlie Moose, Howard, Garius Owen, and Barbara Strang from Poplar Hill, Donald Meekis from KORl, Ronald Pemmican from Deer Lake, Milton Wawia and Mathew Dupuis from Red Rock, David Jeremiah and his mother from North Caribou First Nation, and Elders Victor Pelletier from Fort William First Nation and Ernie Kwandibens from Whitesand First Nation. I am grateful to learn from Edward Hoshizaki and Gail Murray. A complete list of communities visited and Community Energy Liaisons met during the study period is provided at the end of this section.

These individuals have made this project rewarding beyond description, and their always-ready ear, faith in me, and belief in the project meant that I never experienced a moment of flagging motivation during research.

I am grateful to OFNTSC for giving me the on-the-ground community experience, opportunities to organize and participate in various community energy workshops and conferences, and the chance to build relationships with several energy liaisons and practitioners from the industry and the communities. The perspectives, insights, and understanding I gained were immeasurably helpful.

To the many representatives of non-Aboriginal energy groups, organizations, agencies and institutions with whom I spoke during the research: your openness, candid sharing, and generosity with your time were invaluable. Gaining a better perspective of the positions and understandings of people in your roles was critical in clarifying the nature of and basis for on-the-ground interactions between First Nations communities and non-Indigenous groups.

I am grateful to all my student colleagues and administration at the Faculty of Natural Resources Management at Lakehead University for their kind support during my school days. Special thanks to the key persons of the department with whom I had the privilege to be their Grad Assistant: Dr. Ulf Runesson, Dr. Brian McLaren, Laird Van Damme, and Dr. Mat Leitch. To the administrative staff, Jenn Manion and Eva Scollie, fondly known to us as Jenn and Eva ...for always being there.... it has been a pleasure learning and working with you. Thank you for all the assistance and support over the years.

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Communities that I have visited during the study period and who have helped inform the research through associations, directly or indirectly, are as follows:

- Keewatinook Okimakanak Tribal Council First Nations: Deer Lake, Fort Severn, Keewaywin, North Spirit Lake and Poplar Hill.
- Windigo Tribal Council: North Caribou Lake First Nation or Weagamow First Nation, also known as Round Lake First Nation
- Algonquins of Pikwàkanagàn FN
- Chippewas of Nawash Unceded First Nation
- Curve Lake FN
- Six Nations of the Grand River
- Naotkamegwanning FN
- Red Rock Indian Band<sup>2</sup>
- Temagami FN
- Wahgoshig FN
- Wikwemikong FN
- Lac Seul FN
- Eagle Lake FN

In 2017-18, OFNTSC provided the opportunity to work with Community Energy Liaisons from:

- Algonquins of Pikwàkanagàn FN
- Chippewas of Nawash Unceded First Nation
- Curve Lake FN
- Fort Severn FN
- Mohawks of the Bay of Quinte
- Naotkamegwanning FN
- Red Rock Indian Band
- Temagami FN
- Wahgoshig FN

---

<sup>2</sup> Band is the terminology used in the Indian Act that governs First Nation communities. INAC (2012) defines Band as a: “A body of Indians for whose collective use and benefit lands have been set apart or money is held by the Crown, or declared to be a band for the purposes of the *Indian Act*. Each band has its own governing band council, usually consisting of one chief and several councillors. Community members choose the chief and councillors by election, or sometimes through custom. The members of a band generally share common values, traditions and practices rooted in their ancestral heritage. Today, many bands prefer to be known as First Nations.



- Wikwemikong FN

In 2018-19, OFNTSC provided the opportunity to work with Community Energy Liaisons from:

- Independent First Nations: Wabaseemoong Band, Anishinaabeg of Naongashiing FN
- Unaffiliated First Nation (North): Pays Plat FN
- Bimose Tribal Council: Eagle Lake FN, Iskatewizaagegan #39 (Shoal Lake)
- Pwi-di-goo-zing Ne-yaa-zhing Advisory Services (PWI): Mitaanjigamiing FN and Couchiching FN
- Keewaytinook Okimakanak Tribal Council: Deer Lake FN, Poplar Hill FN
- Anishinaabeg of Kabapikotawangag Resource Council: Animakee Wa Zhing #37, Northwest Angle #33, Ojibways of Onigaming FN, Anishinabe of Wauzushk Onigum FN, Big Grassy River FN
- Shibogama Tribal Council: Kasabonika FN
- Matawa First Nations Management: Nibinamik FN
- Windigo Tribal Council: Sachigo Lake FN, Bearskin Lake FN, Cat Lake FN
- Independent First Nations Alliance: Kitchenuhmaykoosib Inninuwug (Big Trout Lake FN), Lac Seul FN

In a study of this scope and duration, many more individuals than those listed here were part of contributing to its completion; to all those left unnamed here, I would like to express my sincere thanks.

Chi Miigwetch.

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## CHAPTER 1. INTRODUCTION

In this chapter, the situation of Canada's remote First Nation communities is explored, with a particular focus on their energy systems and the complexities of electrification in these northern regions. The geographic scope of the study is then explained, including a description of the energy service providers for Keewaytinook Okimakanak and emerging community energy transitions. This is followed by a description of community energy planning (CEP), energy sector dynamics and their impacts on CEP, and community energy transitions and reconciliation pathways. The research objectives and questions are explained. An overview of the methodological approach is given, including situating myself as the researcher, building the research partnerships, and exploring what community-driven methods are used. In the final three sections, research challenges, the organization of the dissertation and the significance of the study are covered.

### 1.1 CANADA'S REMOTE FIRST NATION COMMUNITIES

Energy is the lifeline that connects sectors, services, and societies. It is the thread that links and synergizes economic growth, opportunities for social equity, and potentially a sustainable environment that allows healthy advancements and prosperity for all. Today, energy is not an extravagant indulgence but a basic amenity of life. Though dependent on lifestyle choices, access to reliable, affordable, and clean energy could potentially be a pathway to progress.

Ninety-nine percent of Canada's population is connected to the electrical grid<sup>3</sup> with reliable power generated from a combination of renewable and non-renewable sources — hydro, natural gas, nuclear, coal, wind, and solar, or hydro power being the dominant source (NRCan 2016; Knowles 2016). However, approximately 280 or so off-grid and remote<sup>4</sup> communities located in British Columbia, northern Ontario, northern Quebec (Nunavik), northern Labrador (Nunatsiavut), Yukon, the Northwest Territories, and Nunavut, collectively representing about 200,000 people, are not connected to North America's integrated electrical grid<sup>5</sup> or natural gas infrastructure. Access to these communities, only in a few cases, is by permanent road, while access to most others is by airplane, boat, or winter roads (NRCan 2018).

Northwestern Ontario is home to 25 Indigenous communities with approximately 15,000 residents (NAN 2015b) facing similar off-grid energy challenges (See Figure 1). Most of these communities are members of the Nishnawbe Aski Nation (NAN), a political territorial organization representing 49 northern Ontario First Nation communities with an estimated total membership (on-and off-reserve) of around 45,000 (NAN 2015b). The communities are

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<sup>3</sup> An electrical grid, or electric grid, is an interconnected network for delivering electricity from producers to consumers.

<sup>4</sup> The terms "off-grid community" and "remote community" are used interchangeably within the context of this dissertation for communities that fulfill the following criteria: 1) any community not currently connected to the North-American electrical grid or to the piped natural gas network; and 2) a permanent or long-term (5 years or more) settlement with at least 10 dwellings (NRCan 2011).

<sup>5</sup> The North-American electrical grid is further defined in the Canadian context as any provincial grid under the jurisdiction of the North American Electric Reliability Corporation (NERC), including the Newfoundland and Labrador main grid but excluding all territorial grids and provincial local grids (NRCan 2011).



grouped on regional, ethnic or linguistic characteristics under tribal councils:-

Windigo First Nations Council, Wabun Tribal Council, Shibogama First Nations

Council, Mushkegowuk Council, Matawa First Nations Management,

Keewaytinook Okimakanak, and Independent First Nations Alliance (NAN 2015b).



Figure 1. Off-grid First Nation Communities  
(Tomislav Sapic, Lakehead University, 2019)

### 1.1.1 Energy Systems in Canada's Remote Communities

One of the first things that I noticed on landing at the Poplar Hill First Nation airport, or for that matter any airport in a northwestern Ontario First Nation

community, are the rows of fuel storage tanks or large tank farms and diesel-powered generating stations adjacent to the airports. These tanks store diesel that is flown in or trucked in on a winter road at an annual cost of approximately CAD 1 million per community of 500 people. It is estimated that 115 litres of diesel fuel are burnt every minute in these remote First Nation communities, adversely affecting the environment, individual health, socio-economic opportunities and overall well-being. With the current diesel-generator scenarios, approximately 300 fuel loads of diesel are trucked over winter roads to the northern First Nations if the winter road season is successful (Wataynikaneyap Power 2016).

The current diesel-generated energy systems pose some common challenges for most remote communities: aging diesel generators, limited access to fuel, transportation and storage of fuel, limited generation capacity, high generation costs, high variance of electricity demand, cold climates, and environmental harm and risks (Knowles 2016). These concerns lead to the understanding of the diverse electricity generation in Canada's remote communities which is limited by energy resource availability, remoteness and location of the community, and climate change impacts (NRCan 2011), further elaborated in Chapter 2. Traditionally, wood-burning stoves are used to heat space in households in a non-commercial way with wood collected from the surrounding areas.

The collective fossil fuel that is transported, handled, stored, and buried to generate electricity consumption amounts to approximately 90 million litres of diesel fuel annually (Lovekin and Heerema 2019). Traditionally, diesel fuels are used for space heating, water heating, and transportation and diesel providing for

substantial heating needs (NRCan 2018). However, there are some unidentified financial liabilities, including the cost of clean-ups and remediation for diesel spills. Non-inclusion of these factors makes the “true costs” of diesel and other fossil fuels even higher (Lovekin and Heerema 2019).

In northwestern Ontario, providing reliable and affordable electricity to the remote and off-grid Indigenous communities is made more difficult by the ongoing challenge of energy consumption being substantially higher than the average Canadian household due to the cold climate and average-to-poor infrastructure, such as poorly insulated buildings (Lovekin and Heerema 2019). Lovekin and Heerema (2019) estimated the energy consumption in an average household in northern Ontario to be about 530 litres of diesel resulting in a monthly bill of \$250. The amount is more than twice the average monthly energy-related expenditure in a Canadian household. High energy bills are a recurring discussion point for the community members at any energy-related Open House or forum, as indicated below:

Energy costs are too high. My community is unable to take the burden. They have to make difficult choices.

- James Suggashie, Poplar Hill First Nation

However, from Hydro One, the utility service provider’s perspectives, shared by Bob Shine, Acting Customer Service Manager at Hydro One Remote

Communities:

Rates are very low for First Nations residential customers than most of Ontario....if not all of Ontario. But when it is for Government funded agencies in a community, like the clinic, police, or the school, then, the system is structured for subsidy by those government agencies – example: 10 cents for residential – and for subsidized customers – Standard A – 80-cents/kwh.

Being the original residents of their lands and with due entitlement to civic services like any other resident in Canada, the prevailing energy poverty conditions among remote First Nations are disheartening. There is an urgent need to acknowledge the existing community issues and plan for changes to improve those conditions. The recent Cat Lake First Nation housing crisis (Abedi and Russell 2019) is a testament to the stark realities and is rightly expressed by Ontario Regional Chief Day.

Our people are living in substandard living conditions and this is the result. We need to bring our communities into the 21st century. Substandard is not a standard that we can live with any longer.  
- Ontario Regional Chief Isadore Day (Bombicino 2016)

Inadequacy in energy systems is compounded by grievances of systemic oppression, racism, segregation, isolation, and ongoing social challenges that are further affecting all aspects of community development and well-being. These issues are elaborated in subsequent chapters in the dissertation.

### 1.1.2 Electrification Complexities

Electrification in northwestern Ontario First Nations was long considered the responsibility of the federal government as per the Constitution Act, 1982, section 91(24) giving the federal government responsibility for “Indians and lands reserved for the Indians”. Ontario’s remote First Nation communities were electrified, mostly in the 1960s and 1970s, through “Electrification Agreements” between the Province of Ontario and the Government of Canada (Simeone 2010). Thus, the responsibility for providing electricity was shared, with capital costs for generation and distribution equipment coming from the federal government and ongoing operations, maintenance, and equipment replacement undertaken by Ontario

through Ontario Hydro (COGUA n.d). Some First Nations chose to operate and maintain their electrical systems and were independent of Ontario Hydro (NAN 2012b).

Thus, both federal and provincial governments have been involved in the electrification of First Nation communities. This constitutional and “overlapped” tangle has presented ambiguity and complexities for these communities. In 1992, Ontario Hydro changed its policy to allow for unrestricted service to First Nation households. The lifting of a 20-amp limit led to an increase in energy consumption. However, the cost of generating electricity remained high. Before the deregulation of Ontario Hydro in 1998, the cost of diesel for remote communities was included in the cost of fuel for the whole corporation. However, after deregulation and the creation of Hydro One Remote Communities Inc. (HORCI), the cost of diesel became the single largest line item in a community’s budget (NAN 2012b) making it the most expensive service for the community.

## 1.2 RESEARCH GEOGRAPHIC SCOPE

The dissertation focuses on the energy situation in the Keewaytinook Okimakanak (KO) First Nation communities (Northern Chiefs Council in Oji-Cree language) in northwestern Ontario, Canada as representative of remote Indigenous communities in northern Ontario. The geographical location of KO communities is shown in Figure 2. The six communities under the KO tribal council are Deer Lake, Fort Severn, Keewaywin, McDowell Lake, North Spirit Lake, and Poplar Hill.

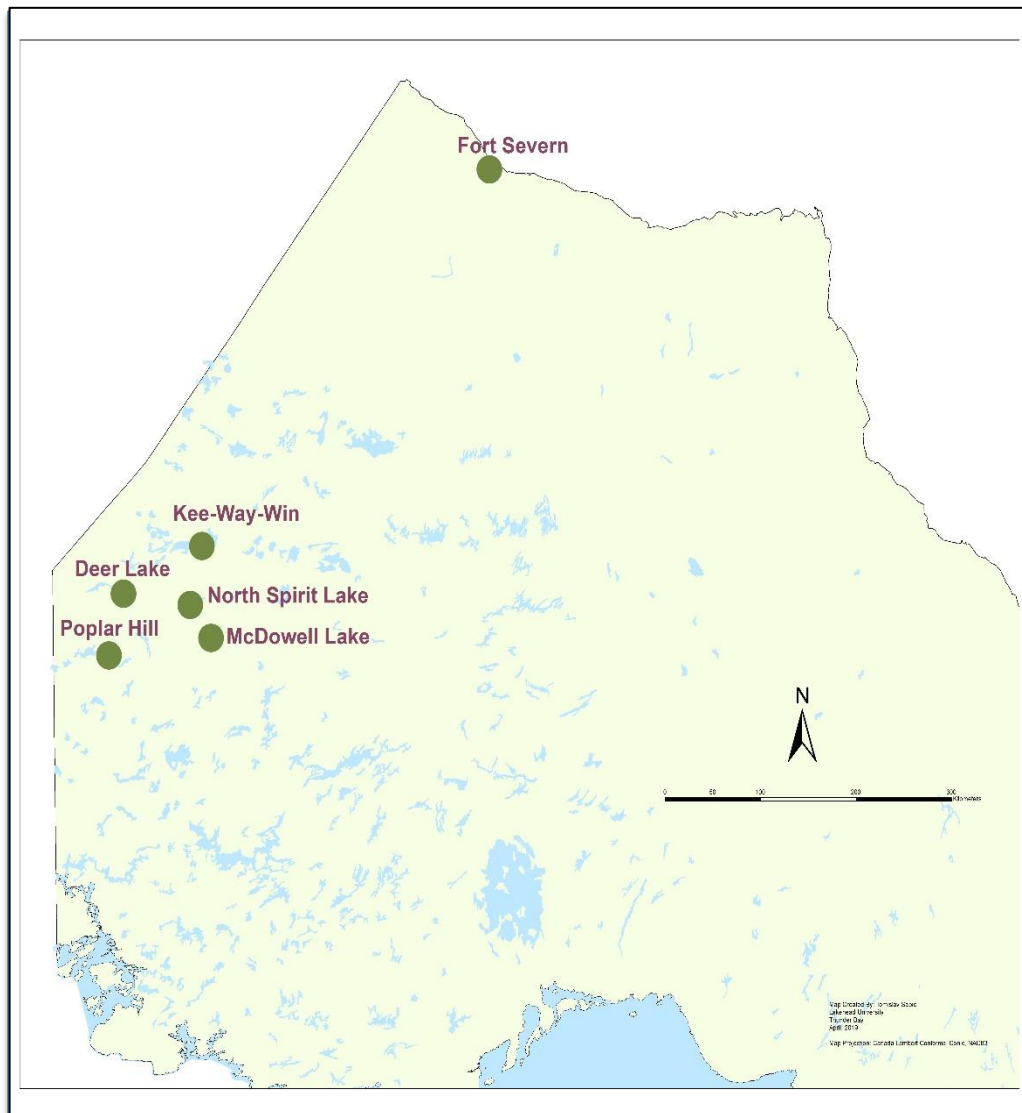


Figure 2. Keewatinook Okimakanak First Nations  
(Tomislav Sapic Lakehead University 2019)

These First Nations comprise a population range from around 60 in McDowell Lake to close to 1,000 in Deer Lake, spread over a territory of 300,000 square kilometres (KORI 2013). It is pertinent to review the historical context of electrification in these northern First Nation communities to understand the current dire electrification situation and the motivation for sustainable energy planning.

### 1.2.1 Energy Service Providers for the KO communities

In discussion with the ex-Research Director for Keewaytinook Okimakanak Research Institute (KORI) and the participants of the Independent Power Authority (IPA) workshop held 3–4 February 2016 in Sioux Lookout, I learnt about the existing operations of the service providers of remote, off-grid First Nation communities, including the KO communities.

The two options for providing energy services for the KO communities are Hydro One Remote Communities Inc. (HORCI) and the formation and management of an IPA. The HORCI communities from the KO Tribal Council are Fort Severn and Deer Lake (Hydro One Inc. 2009) and the IPA communities are Keewaywin, Poplar Hill, and North Spirit Lake. Energy planning outcomes vary significantly between IPA and HORCI communities due to the distinct characteristics and operations of the energy providers.

HORCI, a subsidiary and not-for-profit company of Hydro One Network Inc., is owned by the Province of Ontario. HORCI operates and maintains the generation and distribution assets used to supply electricity across northwestern Ontario to communities not connected to the province's electrical grid (OEB 2008). HORCI's operations are unlike other generators or distributors in Ontario (NRCan



2011). They require a subsidy so that electricity can be provided to its customers at a comparable cost to the rest of Ontario. This subsidy is provided by Ontario's Rural or Remote Rate Protection (RRRP) fund that is collected from consumers across the province. This subsidy is key to the success of KO HORCI communities (e.g., Fort Severn and Deer Lake) because it helps to maintain affordable electricity prices and ensures cost control and maintenance. A secondary subsidy for the HORCI system is the capital agreements with Indigenous Services Canada (ISC) through which ISC covers the cost of new generator installations. The final subsidy for HORCI communities is through Standard A<sup>6</sup> rates.

The IPAs are non-regulated power authorities and, as unlicensed operators, they are not bound by the regulations applied to HORCI. IPAs serve the KO First Nations of Keewaywin, Poplar Hill, and North Spirit Lake. Each IPA is unique and provides distinct benefits to its community owners in terms of control, employment, and community awareness (NAN 2012b). However, as a product of their independence, IPAs are unable to access provincial subsidies to maintain power prices at an artificially low level as is done with HORCI communities. The electricity costs borne by the IPAs are approximately 2% higher than HORCI electricity costs, the reason being lack of economies of scale in fuel purchasing and equipment maintenance (OPA, 2010; OEB 2008). This key difference negatively affects the profitability and viability of IPAs leading to compromises on renovations and new infrastructure development that ultimately affects the quality of life. However, with IPAs there is a higher potential for employment of local

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<sup>6</sup> Standard A interest rates are charged to accounts that are receiving funding or a subsidy from ISC or some other government agency.

community members and operating an IPA can be a source of community pride. Also, anecdotal evidence gathered from the IPA Workshop, indicates that arrears on residential accounts are lower in IPA communities, which may suggest that a community approach to accommodation of payments may result in stronger community support for the IPA than would exist for a HORCI utility (NAN 2012b).

The single largest cost for both IPAs and HORCI communities is diesel fuel, due to the high cost of airfreight and the decreasing periods for winter roads due to climate change. In HORCI communities, all power is generated, distributed and sold by HORCI. In the IPA communities, the situation is the same in that the IPA is the sole supplier, distributor, and retailer of electricity. This monopoly situation is not entirely without benefit as HORCI operates as a break-even business and does not seek to earn a profit on the service it provides in remote First Nations (NAN 2012b).

The nature, structure and functionality of IPAs and HORCI as energy service providers affect energy planning in the KO communities (NAN 2012b; NADF 2012). Cost recovery is more difficult for IPAs without an RRRP subsidy. Thus, community programs contribute to subsidized customer bills with many IPAs charging a flat rate or an affordable amount. IPAs maintain lower safety standards for domestic hookups and diesel plants. First Nations have limited training funds for technicians under IPAs. Finally, IPAs depend on ISC to cover operational losses after the required auditing has been completed. For both HORCI and IPA-served First Nations, ISC funding is required to construct, expand and maintain infrastructure. First Nations are responsible for purchasing, shipping and storing fuel for the generators. Liability for injuries, fuel spills, and contaminated sites

remains with both the First Nations and HORCI, depending on who owns the fuel tanks. Both HORCI and IPAs purchase fuel from First Nations. In the case of HORCI, the diesel generation systems are built and maintained to a higher standard that is expensive for ISC to expand. ISC does not fund short-term upgrades. Many HORCI First Nation communities face restrictions on their energy use and customers pay based on their energy consumption. The RRRP offers some incentives for conservation. Additionally, there are HORCI conservation programs that are underutilized (NAN 2012b).

This dissertation uses a case study approach with Poplar Hill First Nation, an Anishinaabe (Ojibway) community served by the KO Tribal Council. The community is located by the Berens River (latitude 52.07) in the far west of Ontario approximately 120 km north of Red Lake and near the Ontario-Manitoba border, as indicated in Figure 2. The community is accessible year-round by air, with limited winter road access. The on-reserve population of 473 people (Statistics Canada 2016) lives on a land base of 702 hectares with minimal and basic infrastructure facilities and services, such as the Band office, water and sewage treatment plant, diesel fuel storage tanks, school, nursing station, a grocery store, and the airport. As, Geordi Kakepetum, Chief Executive Director of KO, points out:

Reliance on diesel is bankrupting Poplar Hill. The community spends around one million dollars a year transporting diesel into the community. This is not sustainable. Spills due to accidents and being handled by untrained personnel are also hurting the environment. There is not enough energy to build houses, public buildings, or to support economic development. Finding an alternative to diesel for at least part of our energy needs will mean spending less on diesel import and to focus on other priorities including education, healthcare, and economic development  
- (NCC Development LP n.d).

Poplar Hill operates as an IPA (KORI 2013). This is an outcome of the community's decision, which also means that the community has control over its supply and distribution of energy and, as such, does influence energy-use decisions and benefit directly from energy-cost savings. The bulk of the operational costs include diesel generation, costs of billing, administration, and distribution servicing, with the major component being diesel fuel. Ideally, all fuel is transported during the anticipated annual six-week lifetime of the winter road. If air freight is used for diesel, the cost increases substantially. Fuel storage is also a major issue that requires annual replenishment. The existing fuel tanks are at their maximum capacity and require periodic expansion. Poplar Hill faces the increasing cost of diesel fuel and lack of standardized operations for collections, financial record keeping, customer billing, and safety standards. Additionally, being an IPA community, the true cost of power is not understood, and making requests to federal and provincial authorities for standardization, emergency, maintenance, and availing subsidies like RRRP becomes nearly impossible. Identifying issues, not partaking in blame games, and defining responsibilities for the community, governments, and all involved is necessary for effective energy transition management.

### 1.2.2 Emerging Community Energy Transitions

The existing state of affairs with non-functional and impractical energy systems and practices are no longer acceptable to First Nations. This is increasingly being recognized by all the stakeholders. The dismal state of affairs in many Indigenous communities was acknowledged by Canada's Liberal government. Prompt actions resulted in commitments with new funding through

the 2016 budget with CAD 8.4 billion over a five-year period (Lovekin 2017). An additional CAD 4 billion was pledged in subsequent years towards the overall development of the Indigenous populations across Canada. The support potentially paved the way for a much-desired and true reconciliation (Lovekin 2017) between Canada's Indigenous and non-Indigenous populations.

Meanwhile, Ontario, through its 2017 Long-term Energy Plan (LTEP), provided incentives to minimize diesel-dependency for the remote, off-grid First nation communities by engaging with the Indigenous Peoples (OME 2017). Programs such as the Aboriginal Community Energy Plan (ACEP) and Feed-in-Tariff for effective transitioning to distributed energy were extended as channels to promote equity and all-encompassing community development. Development and implementation of energy plans with alignment to Ontario's five-year Climate Change Action Plan 2016-2020 took precedence (Ministry of the Environment, Conservation and Parks 2016). Priorities are made for innovative energy efficiency and conservation options, enhanced energy literacy and capacity building, the expansion of natural gas access, and the integration of small-scale renewable energy projects (OME 2017). After all, reliable energy drives profound cultural, infrastructural, political and economic transformations (Stirling 2014). It follows then that denying access to energy effectively slows or stops these transformations.

Communities have been exploring alternative forms of energy production including hydroelectric, wind, and solar with some success, essentially creating their own micro grids (Weis and Cobb 2008). There is a lot of interest for the First Nations in Ontario's northwestern region to utilize renewable energy. However,

connecting to the existing provincial power grid is one of the emerging ways to maintain relatively low energy bill costs and increased socio-economic development. Wataynikaneyap Transmission Project was initiated as an unprecedented venture and with the hope to act as a catalyst for economic self-determination for the communities. Margaret Kenequanash, the Chief Executive Officer of Wataynikaneyap Power said:

The present energy systems are financially unsustainable and socially unacceptable. Our collective, relentless, and unyielding drive is to address the electricity crisis—with limited electricity generation capacity provided by expensive and dirty diesel resulting in electrical load constraints, rolling blackouts, and restricted economic development. We have to find other solutions.

- Margaret Kenequanash, Wataynikaneyap Power

For more local solutions developing energy plans was emerging as an option to address the supply and demand of energy, scoping sources, usage, and innovative ways of including alternative energy, in minimizing electricity bills, in the application of conservation and energy efficiency, and for reducing carbon emissions.

### 1.3 Community Energy Plans (CEP) for First Nations

Community Energy Plans are, in general, a relatively new approach especially in the context of First Nations. This dissertation explores CEPs as an approach to address the energy transition that the First Nation communities in northwestern Ontario are experiencing. A CEP provides a comprehensive, long-term plan and the ability to reduce greenhouse gas (GHG) emissions (Knowles 2016), by evaluating a community's existing energy use and emissions in order to:

- Accurately measure community-wide energy consumption and GHG emissions;

- Identify and implement solutions to improve energy efficiency and conservation;
- Help develop community priorities around renewable energy and other energy infrastructure projects; and,
- Integrate energy conservation and sustainability into the local planning process.

It is necessary to identify and assess energy supply options to improve the energy supply in a community. Using principles such as sustainability, affordability and environmental preservation, communities engage in a multi-step planning process to identify and evaluate how energy is used in the community (energy demand) and how that energy is supplied to the community (energy supply). The Ontario Power Authority (OPA) provided a generic Indigenous CEP template which included understanding community energy usage, identifying conservation opportunities, scoping renewable energy sources, understanding the risks and rewards, and establishing an energy vision and goals for the community (OPA 2010). It is important to note that CEP is a community-owned and community-driven process with a much greater role for First Nation Chiefs and Councils in the decision-making process as “prosumers”, particularly with respect to energy management initiatives.

Historically, First Nation communities were not involved in the planning and delivery of energy and utility systems. Traditionally, energy supply and other infrastructure are planned and delivered centrally by a number of government departments or agencies. A community’s needs, priorities, and values are often

ignored and disregarded in these decisions. Thus, cost-saving measures and implementation opportunities are missed.

There are resources available for First Nations across Ontario to develop their own CEPs (IESO 2019). Not only does this help with planning for energy transitioning, CEPs encourage power capacity planning and integrate other services such as land use, infrastructure, fibre optics and roads; CEPs also help communities identify socio-economic priorities. For example, many First Nations have expansion projects in the planning stages that have been delayed due to lack of electricity. In other words, CEP should be a socially inclusive process to develop baselines, to assess with standard benchmarks, to identify and follow pathways for change in the way energy is produced, distributed, and consumed. Both, a process and a tool, CEP brings together data and community values in order to develop locally relevant and integrated solutions (OPA 2010). However, Gail Lawler from Conservation on the Coast and a guest speaker at the Tech Nations 2017 conference stressed that CEP cannot solve all the energy issues in a community.

The CEP is not a “silver bullet” that will solve a community’s energy problems nor will a CEP reduce the energy bills of its residents. Nevertheless, the process does help communities manage and plan for community energy systems. It will require the commitment of all – the Elders, Chief and Council members, and the community-at-large, the ultimate end-users or the consumers. It will also need the involvement of federal and provincial governments at all levels for secure funding. CEPs, if done right, they are proving to be a key to the success of localized energy projects with varied scope and opportunities.



### 1.3.1 Energy Sector Dynamics and Their Impacts on CEP

The availability of relatively cheap electricity has been a driving force in the economic life of Canada since the 1800s. Until recently, that force did not include many remote First Nations in northwestern Ontario. New assurances, directions, and attitudes, while promising, are by no means secure. The energy sector in Canada and most particularly in Ontario is undergoing changes due to two inter-related forces: the polarized climate change discourse and resulting mandates and the politicization of the energy sector. The current federal Liberal government and the previous Ontario Liberal government both made advancements in energy policies to mitigate greenhouse gas emissions and promote a low carbon and green economy.

Following the 2018 election, the provincial policies were reversed by the current Progressive Conservative government, which deems climate change measures to be too expensive and not a priority. In keeping with their ideology, the provincial government terminated 758 renewable energy projects (The Canadian Press 2018) and terminated Ontario's cap-and-trade system, all of which resulted in several First Nation Community Energy Liaisons losing their jobs and ending subsidies for electric vehicles and home energy retrofits. Energy was also politicized in the decades prior to Doug Ford becoming the provincial premier through the deregulation of the electricity industry by Kathleen Wynne's Liberal government as well as her predecessor, Ontario's premier Dalton McGuinty.

As of this writing, there is a continued and growing commitment from the 22 First Nation communities to build the Wataynikaneyap transmission grid, extend it to off-grid communities, and partner with First Nations for economic and overall

well-being of the First Nations (Walters 2018; Wataynikanepap Power 2016).

These investments provide assurances in the transitioning process. Other initiatives include capacity-building and getting communities “grid-ready” for upcoming power lines. However, any changes to these funding commitments could have a negative impact on CEP and profound impacts on First Nations who are embracing alternative energy planning.

### 1.3.2 Community Energy Transitions and Reconciliation Pathways

Canada’s reconciliation efforts calling for acknowledgments, fairness, equity, and inclusivity are at a critical crossroad of acceptance by all involved. The Truth and Reconciliation Commission (TRC) defines reconciliation this way:

Reconciliation is about establishing and maintaining a mutually respectful relationship between Aboriginal and non-Aboriginal peoples.... There has to be awareness of the past, an acknowledgement of the harm that has been inflicted, atonement for the causes, and action to change behaviour (TRC 2015a: 6-7).

Further, rights-based reconciliation is, among other things, a critical and complex process that acknowledges the past, recognizes and supports the deep connections Indigenous Peoples have to the land, and promotes healing for all Canadians. It is not a single action or gesture, and it is not about a loss of non-Indigenous rights. Reconciliation is about respect, not blame (Hamilton 2017). It is important to understand that the term “reconciliation” is relatively abstract and can mean different things to different people. Indeed, some Indigenous Peoples have pointed out that there is no word for reconciliation in their traditional languages. Reconciliation is a dialogue and a process; it does not work towards a final goal but rather is an approach to the ongoing improvement of relations between

Indigenous and non-Indigenous living in Canada (Indigenous Corporate Training INC. 2018).

Canada's energy resource development activities are in the forefront of this ongoing dialogue. Indigenous communities are transitioning and increasingly taking a lead in finding innovative local energy solutions, building capacities, advancing leaderships, and promoting entrepreneurship. They are calling for recognizing and respecting their inherent Aboriginal and treaty rights and more clarity on community consultation and engagement processes through inclusive policies and programs. Potentially, CEP for sustainable energy resource development offers the pivotal link to the reconciliation process. This dissertation further deliberates on pathways to local energy solutions based on respect, trust and relationship building.

#### 1.4 RESEARCH OBJECTIVES

Across Canada, governments are looking for new ways to manage the many challenges related to energy insecurity issues including accessibility, reliability, and affordability. This is with the overall aim to minimize diesel dependency and its associated environmental and social impacts. The northwestern Ontario off-grid, fly-in First Nation communities are at the centre of all of these challenges.

The interplay of technical, economic, environmental, and socio-cultural factors that shape energy options and implementation plans for these communities are complex and multifaceted. This is also taking into account specific historical issues that affect the First Nation communities including the effects of colonialism,

racism, intergenerational trauma, isolation, cultural differences, language barriers, and other realities.

The research objectives were to address diesel dependency challenges by transitioning to alternative energy solutions through community energy planning and its implementation. The emergent transition gaps were socio-cultural factors in community energy planning, exclusion of Indigenous Peoples and their rights in energy resource development, capacity gaps, and a lack of infrastructure and technological readiness. The collective goals of KORI, OFNTSC's and mine were to build capacities, enhance energy literacy, and raise awareness at all levels in the communities, as illustrated below in Figure 3. This was to enable the First Nation communities to make effective decisions for their sustained efforts in achieving energy autonomy, self-determination and energy sovereignty.

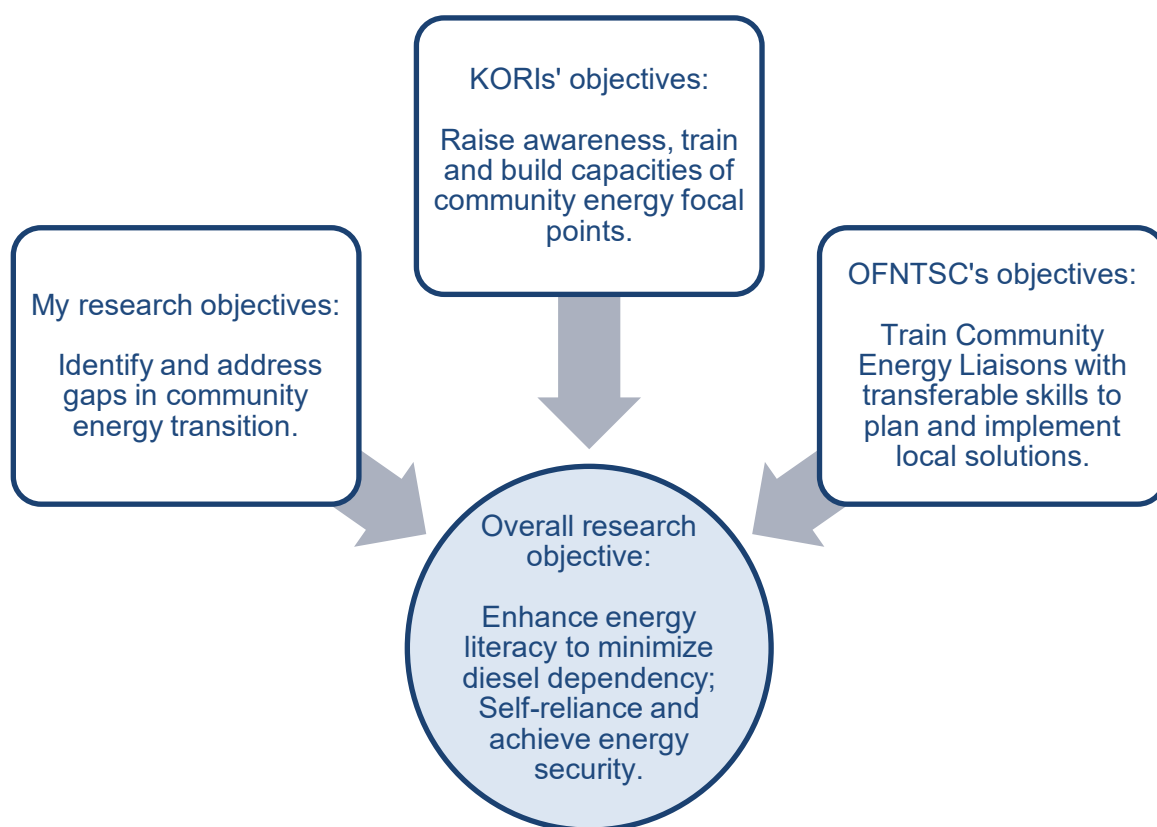


Figure 3. Research partnerships developed for shared goal and objectives (Rakshit 2019)

Celebrating new electrification development through the transition process is achieving self-determination and energy sovereignty for Ontario's northwest region. Going forward, such successes are important for equitable access to energy like the rest of the province enjoys and towards Canada's ongoing reconciliation discussions and processes. These sentiments are echoed and felt by the Wataynikaneyap Power community members and its CEO alike, as indicated below. With Pikangikum First Nation becoming the first remote community to be connected to the provincial power grid in 2018, it was a moment to rejoice for all.

I think it's a reassurance to other First Nations that we are going to build this line up north. Yes, there are ongoing challenges and issues that we deal with on a regular basis, but, if there's a will there's a

way, and we're going to build this line and energize the north.  
(Walters 2018).

- Margaret Kenequanash, Wataynikaneyap Power

The dissertation will add to the academic body of scholarship around energy planning and energy transition in remote, off-grid First Nation communities.

#### 1.4.1 Research Questions

The key questions to guide this research are:

1: How does Canada's complex energy sector impact community-based energy planning and how can these impacts be addressed?

2: What are the critical gaps in developing local energy solutions in this period of transition and potential ways to address them?

3: In light of current efforts by provincial and federal governments on building Indigenous relations and reconciliation, does CEP offer a critical pathway of reconciliation for the First Nations?

### 1.5 METHODOLOGY

#### 1.5.1 SITUATING MYSELF AS A RESEARCHER

This research process provided contexts, purpose, and a drive to position myself in relation to the outcomes and actions. I felt an affinity to the First Nation people I worked with and their struggle to reclaim a rights-based place on their own land. I drew from similar parallel contexts in India, in particular how the effects of colonialism eventually led to grassroots-driven opportunities to regain self-determination. Intimately familiar with the effects of colonization as an East Indian, I was particularly touched by toll suffered by the Indigenous Peoples in Canada

dealing with the effects of colonialism. I learned how British imperialism in India started with trade operations and economic benefits followed by colonizing and ruling that would last over 150 years. In India, colonialism destroyed thriving industries and led to cultural upheaval (Tharoor 2017). Systemic racism and forced changes to lifestyles robbed millions of people of their identities, their self-respect, and, in many cases, their lives (Tharoor 2017). Independence from Britain in 1947 did not repair the damages. The experience of colonialism left behind a population traumatized for generations to come.

We see in history how social movements in India and other areas of the world have led to positive social changes over time. Here in Canada, the recommendations made by the Truth and Reconciliation Commission (TRC) provides one of the pathways for positive change.

When I relocated to Thunder Bay, Ontario, in 2012, it was shocking to see the similarities between the two examples of colonialism, that of India and that of First Nations in Canada. I pass the site of St. Joseph's Indian Residential School (National Centre for Truth and Reconciliation. n.d) on the corner of Arthur and Franklin streets on my daily route to work. It is a constant reminder of the Canadian government's assimilation and isolation activities.

Canada has pledged to pursue reconciliation (GoC 2018), including a commitment to reversing the intergenerational traumatic effects of the residential school system (INAC 2018b). A simple acknowledgement of Indigenous Peoples rightful place in the nation's collective history is widely recognized to be the first step. Identifying and honouring the First Nation peoples, their land, their identity, their values, and their desire to develop local energy resource development in their

traditional lands is a respectful starting place for this dissertation. Thus, in this dissertation, it is proposed that energy resource development is a possible path to reconciliation. There are several reasons for this, but most pertinent is the fact that energy is integral for socio-economic and cultural development. Also, studying energy planning can provide opportunities to learn from the successes of First Nations-led energy projects and their adaptation approaches to the transitional changes.

#### 1.5.2 Establishing Research Partners

In fall 2014, I approached NAN. They suggested two topics: all-season road development and renewable energy development in the NAN territory. In discussion with my supervisor, I opted for the latter topic. However, I could not pursue my association with NAN, one reason being the turnover of my point of contact there. Subsequently, an introduction to KORI helped find an Indigenous partner for the study. KORI was interested in engaging at the research level to address the ongoing challenges of energy insecurity and diesel dependency issues. Their interest was further accentuated with the prevailing discussions on the development of a transmission line in the northwestern Ontario region. KORI was keen to know the KO communities' perspectives on the transmission line passing through their respective communities. Another important factor for my engagement was that some of the KO communities had developed their CEPs through consultants and these plans were not being utilized and implemented due to obsolete data. KORI felt the need for community inputs that conveyed their vision, needs, and priorities in order for the energy plans to be more effective. To meet all of these inquiries, I took the role of a student researcher on KORI's



suggestion. I was a “learner” and not a researcher; this was one of my first teachings that I received from the KORI Director during a preparatory meeting in the summer of 2015. The usage of the word “research” was to be avoided when engaging with community members. This piece of wisdom influenced my approach in shaping the research questions, the design, methods, analysis, interpretation, and dissemination.

In March 2017, I associated with Ontario First Nations Technical Services Corporation (OFNTSC), Thunder Bay, Ontario as a Community Energy Planner. The affiliation closely aligned with my academic pursuits. The project was supported with funding from the Ontario Ministry of Indigenous Relations and Reconciliation and the Green Investment Fund, as part of a joint climate change initiative between OFNTSC and Ontario Climate Change Impacts and Adaptation Resources at Laurentian University. Part of the project’s objectives was to help First Nation communities across Ontario develop energy plans and build their capacities for its implementation. I continued in 2018 with funding support from the Indigenous Relations Branch of the Ministry of the Environment and Climate Change (MoECC). However, the project came to an abrupt halt on December 19, 2018 when OFNTSC received a notification from the newly-elected provincial government to wrap up the project immediately. Presently, I am continuing with the energy file with projects supported by Independent Electricity System Operator (IESO) to build the capacities of their Community Energy Champions (CEC). Thus, my association as a community energy planner with OFNTSC provided me further impetus in shaping the approach to my dissertation with applied energy services. I

got platforms, opportunities, and interactions beyond the study focus area to pursue skill-building training and to develop energy planning tools.

A critical realization working with both KORl and OFNTSC was the need to build trust and authentic relationships with not only my research and professional partners but also with the tribal councils and community members. Both groups were key to making progress in any form of engagement. My approach was of complete humility and the willingness to learn. I gathered that as a non-First Nation researcher, there was a need to be willing to be taught by my First Nation colleagues and partners and to be truly open to listening and learning. I have come to realize that most First Nation peoples communicate in a gentle and often indirect manner, so there is a need to learn to listen in a different way from the norm. Failing to understand the cues could potentially result in subtle withdrawals. I have participated in ceremonies: smudging, drumming, traditional dances, and the blanket exercise that have offered similarities with the Asian cultures that are part of my roots. The learnings have been profound, emphasizing the need to open the whole self, not just the mind, to absorb First Nations holistic learnings. These philosophies have most certainly helped me in the development of this dissertation.

I realize that, whether it is research or working with the First Nation peoples, a commitment is developed that goes well beyond any project, association, visits, or academic pursuits. There is relation-building. I have tried to maintain the relationships that I have developed with regular communications with the communities.

A notion and hypothesis soon emerged that energy planning in deriving local solutions must take a bottom-up and community-driven (for, by and with the community) approach, taking into account not only the “on-the-ground” realities but also the incorporation of community values and beliefs. An effective community engagement practice was critical for an energy plan’s applicability and success.

At the very onset, KORl and I realized that the research inquiry with the community must have a “practical” component to it. Open Houses, community radio, and Facebook interactions were adopted to raise awareness on energy conservation and transitional issues including the new transmission line. Soon, capacity building became a key deliverable for KORl. I got the opportunity to develop online training modules for KO communities’ energy focal points. Thus, participatory and community-driven methods were adopted as research design which were also culturally acceptable.

### 1.5.3 Community-driven Methodologies

Inquiring about my community’s worldviews was the first step for me to shape my dissertation. It was very important for me to understand and appreciate their Indigenous worldview if I wanted to contribute in a meaningful way, as echoed by scholars (Bishop et al 2002). It also helped me affiliate my belief systems and thought processes to establish a participatory approach for the dissertation for our collective outcomes. I take my worldview for granted as it is developed through my interactions with my societies (Olsen, Lodwick, & Dunlap, 1992), my perceived world, and so very unconsciously. However, this dissertation provided me the opportunity to embrace another worldview—the Indigenous worldview—which is fundamentally based on people’s relationship with the land and their environment.

Keeping aside my worldview or any other influential worldviews, I have tried to understand and absorb the holistic Indigenous worldview that appreciates deep relationship between all living and non-living entities. In finding an Indigenous grounding that best suited my dissertation, I embraced the concept of CREE: Capacity Building, Respect, Equity, Empowerment (Lemlin and Lickers 2004) as my dissertation philosophy. The CREE teachings aligns well with the philosophy adopted for this dissertation and is distinctly reflected in subsequent chapters.

Capacity building in the context of individuals, institutions, and community has become important to achieve local community empowerment and "related concepts of participation, ownership, and bottom-up planning" (Linn 2016). It is an ongoing and a continuous process with long-term outcomes and commitment (Mowbray 2005). Empowering First Nation communities to be self-sustaining in finding local energy solutions has emerged as the central outcome of this dissertation.

One of the core principles that guides Indigenous Peoples in Canada is respect. Incorporating and practising this essential human value in all aspects of interactions, protocols, and practices will pave the way for meaningful connections (Lamelin & Lickers 2004). Equity is to be applied to services, relationship-building, and systems—a much-desired requisite and commitment when working with First Nations. Fairness and developing parity can set directions for shared benefits and stronger affiliations. Throughout the course of the research, I have realized that self-reliance, minimal dependency on consultants, and empowerment were required to enhance the confidence, capacity, and capability of First Nations to participate in energy resource development at all levels. The research is backed

by the CREE elements that articulate the essential principles of an Indigenous worldview.

The CREE philosophy aligns with an Indigenous Research Paradigm (IRP). I relied on the IRP framework provided by Wilson (2001) which includes the ontology, the epistemology, the methodology, and the axiology of Indigenous Peoples. One dominant aspect of Indigenous ontology is that there is relationship and inter-connectedness between two domains—physical and spiritual (Meyer 2008). All natural processes play a significant role in our daily lives. Undoubtedly, humans play a critical role in the continuation and maintenance of the physical and spiritual aspects of life. And, because of its orientation with the spiritual domain, there are ceremonial processes that establish the linkages in the Indigenous way of life. I have witnessed this in almost all the First Nations events that I have attended: the smudging rituals at opening and closing ceremonies. Alice Suggashie, former Chief of Poplar Hill First Nation, told me during a beading night on my visit in the summer of 2017:

“My father used to tell us not to harm anything in the environment as they have life.

Such connections emphasize the influences between the spiritual and physical (Cajete 2000).

Elder Ernie Kwandibens' shared another Indigenous value—reciprocity. Reciprocity signifies the relational worldview in respecting our relationships with other life. Our relationships are reciprocal (Rice 2005). We take from others and we must also offer something in return. These aspects align well with the development of sustainable local energy practices and energy conservation. These two factors—spirituality and reciprocity—are key elements of an Indigenous

ontology and are key in my approach to IRP. Additionally, my own guiding principle has been the universal value of respect for any form of life. This value alone has provided me positive influences and friendships with First Nation people and is also integral to the IRP.

An IRP is also influenced by a specific epistemology that is derived from the interconnections between the human world, the spirit, and inanimate entities (Hart 2010). Ermine (1995) said that humans explore and experience a sense of wholeness through contexts and the knowledge acquired in being in the contexts and the actual happenings that engulf us in our daily lives. Hence, an IRP process accepts the practical applications of reflective and subjective findings. And the carriers are, typically, the Elders. Thus, this dissertation adopted the insights provided by not only the Elders I met, but also by community energy practitioners or focal points.

I further gathered insights from Simpson's (2000) seven principles of Indigenous worldviews to understand their attachment to the environment. I focused on community-driven approaches through the IRP lens (Hart 2010, pp 9-10).

- First, knowledge is holistic, cyclic, and dependent upon relationships and connections to living and non-living beings and entities.
- Second, there are many truths, and these truths are dependent upon individual experiences.
- Third, everything is alive.
- Fourth, all things are equal.
- Fifth, the land is sacred.
- Sixth, the relationship between people and the spiritual world is important.
- Seventh, human beings are least important in the world

Learning these teachings can take a lifetime to understand because of their rich and deep insights. Nevertheless, I have been immensely influenced by Indigenous scholars and have been drawn to the works and narratives of Canadian Indigenous authors like Michael Anthony Hart and Margaret Kovach, who have been encouraging all to make space for Indigenous methodologies; Shawn Wilson and Linda Tuhiwai Smith, a Maori researcher from New Zealand, who is asking for research to be linked with social movements and justice, both conveyed important lessons. I had the honour of listening to a talk by Shawn Wilson when he visited Lakehead University in 2016. These factors directed my interpretations of the IRP paradigm in carrying out my engagements in a way that was respectful and beneficial and as expected from the point of view of the First Nations (Porsanger 2014).

In IRP, the research process is beyond the production of new knowledge. The IRP purpose is also to decolonize, provide healing and include capacity building (Hall et al. 2015). An additional benefit that resonated with me was that I was able to situate myself in the context (Absolon & Willett, 2005; Baskin, 2005; Restoule, 2004). I was not experiencing and learning from a distance. This approach was important for me as removing the Indigenous context from the research objectives was purposeless.

The research questions were approached using Community-based Participatory Action Research (CBPAR) (McIntyre 2008). Detailed participatory research methodologies are included within each chapter from 2-5. The adopted model reflects collaborative approaches that bring knowledge and action together for social change that benefits the community (Ellick 2016). The framework begins

with identifying the community problem, deliberating on actions and then reinforcing the action with on-the-ground research that is undertaken with the complete engagement of the community. Thus, the process requires the CBPAR to be community-based; participatory and collaborative; and action-oriented. CBPAR is also applied research and this feature aligns well with the study as illustrated in Figure 4. CBPAR seeks changes in the community that advance the well-being of its members through a committed process of co-learning (Chung et al. 2005).

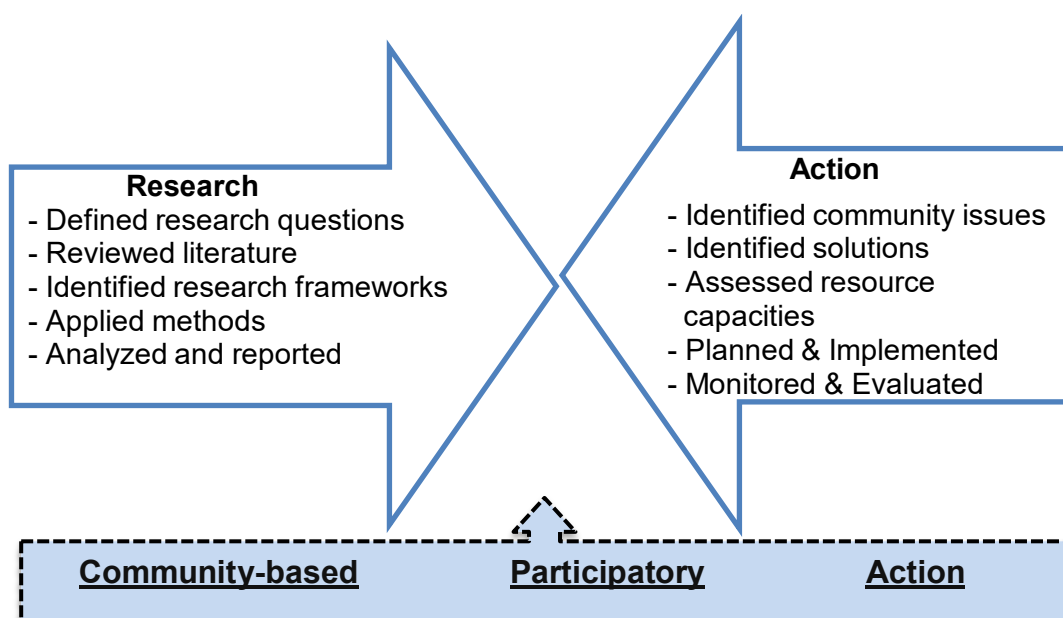


Figure 4. Community-based Participatory Action Research (CBPAR) Framework (Rakshit 2019)

As community engagement was underway, I felt that I needed to understand the distinguishing features of Indigenous research and community-based research for their effective applications – on when and how do they interplay? This led me to explore the guidelines that have emerged on how to conduct research with Indigenous Peoples. In Canada, for example, the Steering Committee of the First



Nations Regional Longitudinal Health Survey promoted the principles of ownership of research and data, control of the research, access to the data, and possession (OCAP 2005). These principles provided very specific directions on how the community should be involved in the research process and how research with Indigenous Peoples should be conducted (Schnarch 2004). The Canadian Institutes of Health Research (CIHR) published 15 guidelines for research involving Aboriginal people. The first refers to understanding and respecting Aboriginal worldviews (CIHR, 2007). Additionally, Indigenous Peoples themselves are establishing guidelines for research ethics. KORl's Community Research Planning Guidebook provided detailed protocol on community engagement.

Drawson et al. (2017), based on a systematic review on IRP, state that the guiding principles drawn by the First Nations Information Governance Centre through a policy document aligns with the Ownership, Control, Access and Possession (OCAP) principles. They recommended that community-based and participatory approaches are acceptable and can play a key role in Indigenous research (FNIGC 2014). The approach is also useful because it aligns with Indigenous axiological beliefs and fits well into the Indigenous research paradigm because the idea is to improve the reality of the people with whom you work. The research directions, explained above, are conceptualized in Figure 5.

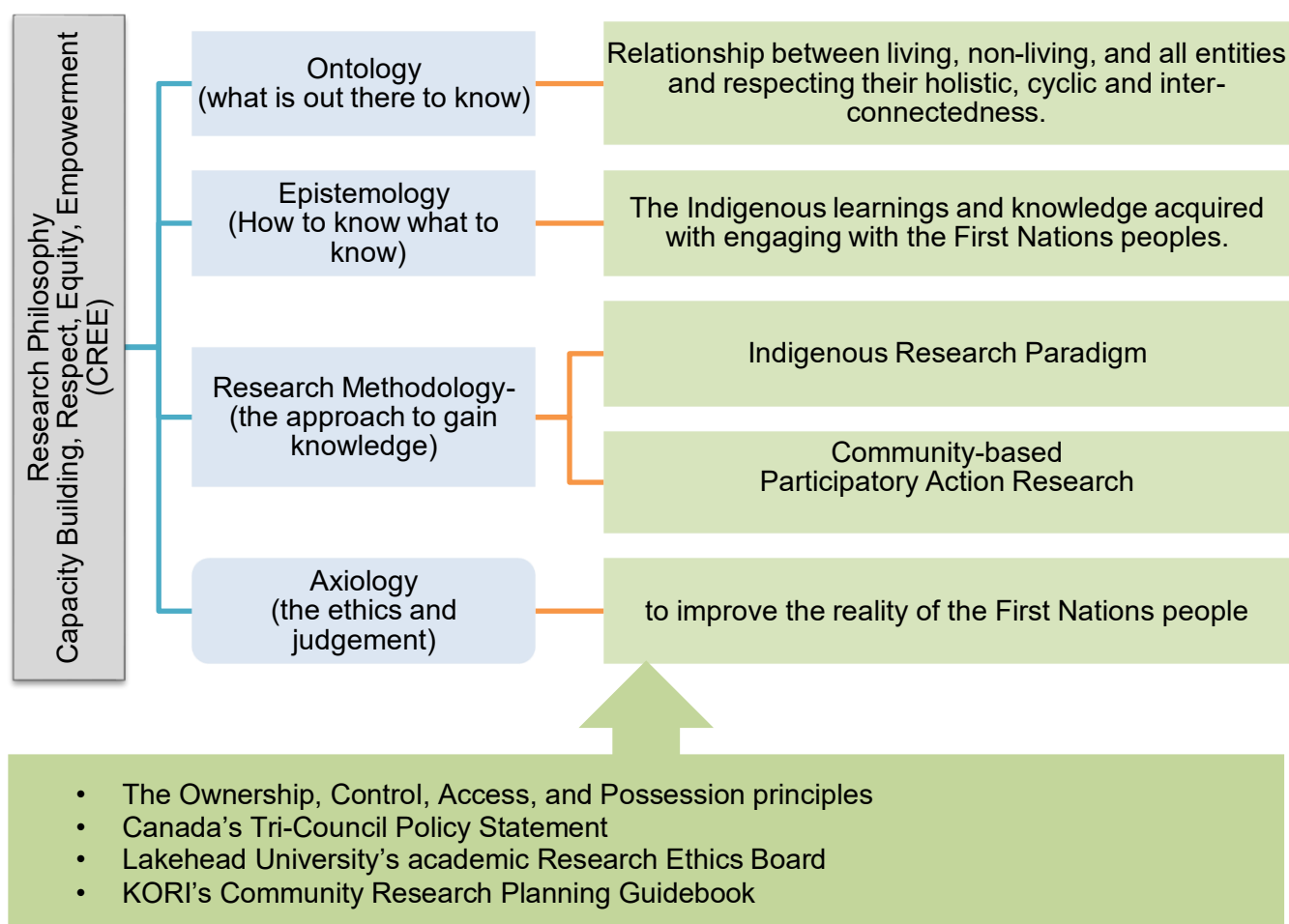


Figure 5. Research Methodologies Framework (Rakshit 2019)

Within these adopted frameworks, a mixed-methods approach with a multitude of qualitative and quantitative research methods was adopted. These methods included a literature review (grey, academic, media updates) of government and non-governmental sources. Community visits, community open houses, and community capacity-building events that have informed this dissertation are listed below:

- Independent Electricity Systems Operator (IESO) First Nations Energy Symposium, October 2018, Toronto.
- IESO First Nations Energy Symposium, October 2017, Toronto
- Chiefs of Ontario (COO) Community Energy Workshop for Northern & northwestern Ontario First Nations in May 2017
- Our Lands conference, Rama, January 25, 2017

- Hydro One Remote Communities Inc. meeting, November 2016, Thunder Bay
- Open Houses at KO Communities, Poplar Hill and North Spirit Lake First Nation, November 8-9, 2016
- Northern Ontario First Nations Environmental Conference (NOFNEC), October 4-6, 2016, Thunder Bay
- Community Visit, Poplar Hill, August 19, 2016
- Open Houses at KO Communities, May 2016
- Local Distribution Company Workshop, March 2016
- Community Visit, North Caribou Lake First Nation, February 15, 2016
- Independent Power Authority Workshop, Sioux Lookout, 3 & 4 February, 2016
- Remote Electrification Readiness Program (RERP), Community Worker Training, December 8-10, 2015
- Remote Electrification Readiness Program (RERP), Community Worker Training Orientation Workshop, Sioux Lookout, March 24 - 26, 2015
- Northern Ontario First Nations Environmental Conference (NOFNEC), September 29 - October 1, 2015, Thunder Bay.

Qualitative techniques using an inductive approach included participatory observations, informant discussions, informal talks, and semi-structured interviews/discussions. Quantitative analysis was undertaken through questionnaires and surveys (see Appendix 2). The process has provided emergent patterns and explanations (Goddard and Melville 2004) leading to the establishment of theoretical premises, described in Chapter 6.

For the literature review, the academic databases Web of Science and Google Scholar were utilized. The inclusion criteria followed the keywords search as indicated in chapters 2-5. For relevance, articles were screened at title, abstract, and full text levels. For more topical themes like 'community energy planning' and 'energy transition', and 'Canada's consultations', available literature for the past five years were examined. Only articles written in English were considered for inclusion. Results from relevant literature were synthesized narratively to identify emergent themes within the study focus area and to answer specific research questions. Based on the principles of grounded theory

established by Glaser and Strauss, the inductive technique allowed me to approach my research questions with an open mind with no preconceived impressions and ideas of results.

I adopted a case study approach to provide the geographic and location-specific context of an off-grid, remote First Nation community. The Wataynikaneyap Power Transmission project was used as a transitional example, as it was the most significant activity affecting First Nations communities in northwestern Ontario during the study period. The case study approach allowed me to situate myself in the context and to explore for a period of time. As described by Stake (2000), case study as a methodology is to look at activities and dynamism in a social system of a population or community. My data collection was through interactions with the community members that were recorded using a cell phone and that were later transcribed into documents and coded for emergent themes.

The guiding research protocols and standards that were followed included: a) the principles of OCAP (OCAP 2005); b) Canada's Tri-Council Policy Statement (TCPS 2 2014); c) Lakehead University's Research Ethics Board; and d) KORI's Community Research Planning Guidebook (KORI 2007, 2012). (See Appendix 1). The research outcomes and outputs are to have some significance. I found that the best way I could contribute was by filling the critical capacity-building and knowledge mobilization gaps in the development, planning, and implementation of energy plans for First Nations.

## 1.6 RESEARCH CHALLENGES

The research topic, partnerships, objectives, approach, and outcomes evolved over time and during the study period. This was a challenge as timing had a direct correlation with the research funding and its time limits. This was compounded by several external factors such as the dynamic energy sector resulting in many changes in policies, actions, shifting patterns of governance and political motivations.

The research topic with NAN started with exploring renewable energy development to address energy insecurity issues. During the course of the study, a new partnership developed with KORI. Though renewable energy was still a topic of interest, new topics and concepts such as community energy planning and energy transition took precedence to address diesel dependency. My association with OFNTSC further provided me with a broader geographic landscape to address the same concepts of energy planning and transition. Thus, interests in divergent topics, geographic scope, and the desire for multiple outcomes proved a challenge in integrating this variation in my academic journey.

My perspective evolved with comparisons across different regions in Ontario on community energy planning and differing approaches to address CEP. Ongoing narratives on Canada's TRC process influenced contributions. Thus, my manuscripts emerged keeping those broader concerns such as energy resource development as a pathway for the reconciliation process. A common thread was building capacity.

The research, which began with an academic approach, had to adapt to new circumstances which influenced my approach and methodology. I embraced the opportunities that arose during the research.

Having moved to Canada seven years ago, I was astounded to learn about the long-standing injustices inflicted on Indigenous Peoples. I was immediately interested to know more about the historical past, to grasp Indigenous worldviews and to learn the nuances of IRP. However, it was overwhelming. Building trust and relationships in the field and developing my own academic network took time. And, as we all know, time is the biggest challenge in a doctoral program. My overall goal remained steadfast – which is to better the lives of the people that I have committed to work with.

Finally, besides time limitations, high turnover of focal points and competing community priorities limited my access. Although the dissertation represents a comprehensive view of the impact of connecting remote communities to the provincial grid, there is still room for further studies to overcome the transition challenges involved. Research limitations are elaborated in the concluding chapter 6.

### 1.7 Dissertation Organization

The dissertation is guided by a manuscript format. It is divided into four interrelated and interconnected—chapters 2-5—comprised of four separate manuscripts published or in the process of being published in peer-reviewed journals. The abstracts of all four manuscripts are included at the beginning of each chapter which indicates the development of the dissertation, starting from the study of the complexities involved in energy planning, development, and transition

to bridging gaps in energy planning, community capacity-building for energy sovereignty, and, finally, the paths to rights-based reconciliation. Each chapter includes a literature review on the contexts and concepts discussed.

Chapter 2 is a publication on energy transition complexities in rural and remote Indigenous communities. Interdisciplinary contexts are explored to understand the contextual complexities in the development of local economies, adapting to technology advancement and social changes through adaptive principles from complexity science. The outcomes add to the academic dialogue on energy system transition adaptations in marginalized Indigenous communities in rural and remote locations.

Chapter 3 illustrates gaps in energy planning for First Nation communities with an emphasis on the links between energy security, economic prosperity, and sustainability. The manuscript details disconnections between theory and practice in energy planning in First Nation communities. The research findings are timely in providing a bottom-up, community-driven approach to the growing interest in ensuring local energy security amidst longstanding colonial marginalization.

Chapter 4 focuses on community capacity building for energy sovereignty with the Wataynikaneyap Transmission Project as a context. The case study underlines the challenges and benefits of capacity building for remote First Nations. Chapter 5 considers Canada's energy resource development as a potential path to rights-based reconciliation and makes suggestions about the importance of community engagement, associations, and partnership advancements for fruitful outcomes.

Chapter 6 concludes with research contributions and recommendations for future research.

### 1.8 Significance of the Study

Remote, off-grid First Nations in northwestern Ontario do not have access to the same reliable, relatively inexpensive electricity that most of the province – and indeed, most of the Western world – enjoys. Not only should access to power in a country such as Canada be seen as a basic right, along with food, water, and other civic necessities of life, but the lack of power severely limits the socio-economic-cultural prospects of many of these communities. When looked at through the lens of reconciliation, connecting remote First Nations to the provincial power grid must be seen as a priority.

However, there are many challenges to this goal, including political will and funding, capacity building, preparing communities to get onto the grid, energy planning and its impact on socio-economic development planning for each community, the dynamic nature of the energy sector, and other factors. Further, there is little in the literature about the social aspects of energy planning and even less so directly related to First Nations (Sovakool 2014).

The research demonstrates through the experience of one community – Poplar Hill First Nation – and a First Nations-led energy project – the Wataynikaneyap Transmission Project – that it is possible to secure energy solutions. Although the lessons learned here are transferrable, it is important to remember that the experience will be different for every First Nation, simply because the circumstances are different for every First Nation. Further, the dynamic nature of the current energy sector, buffeted by political changes, will



affect future projects. This path forward is a reference point while forging new paths. Most of all, this path celebrates the success that many communities have already reached (see Appendix 6).

Meaningful reconciliation efforts need to be developed and continue to ensure that First Nations have the same access to reliable and affordable energy that the rest of us enjoy. This must be a journey that is travelled together. There is a way forward. This dissertation is just one step. The ongoing dialogues and discussions at academic and non-academic levels must continue if true reconciliation is to be achieved.

An overall theoretical and conceptual research design that informed this dissertation in understanding the contexts, shaping the concepts, the methodology philosophies and the methods, the inter-relatedness of emerging themes and gaps that led to research findings is elaborated below in Figure 6.

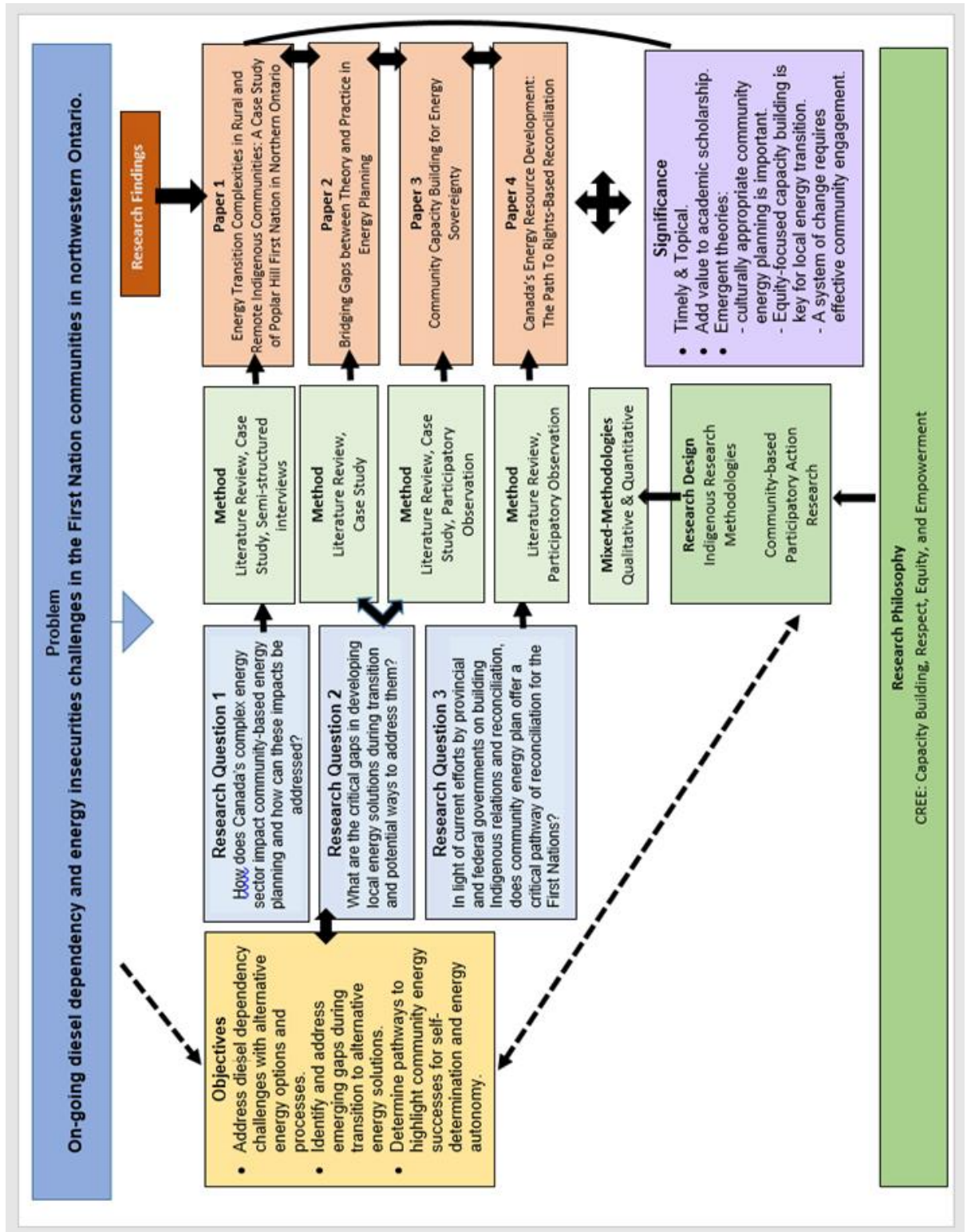


Figure 6. Theoretical and Conceptual Research Design of the Dissertation (Rakshit 2019)

## CHAPTER 2. ENERGY TRANSITION COMPLEXITIES

Roopa Rakshit, Chander Shahi, M.A. (Peggy) Smith & Adam Cornwell. 2019.  
Energy Transition Complexities in Rural and Remote Indigenous  
Communities: A Case Study of Poplar Hill First Nation in Northern Ontario  
Under 2<sup>nd</sup> Review by Local Environment: Manuscript ID is CLOE-2017-  
0136.R1.

## ABSTRACT

First Nation communities in northern Ontario have unique energy-related challenges within an interdisciplinary context, including historical, geographic, cultural, technological, and regulatory. Presently, undergoing an energy systems transition from off-grid to grid-connection and scoping renewable energy options, these communities are exhibiting characteristics of complex adaptive system principles. This is exhibited through non-linear interactions and connectedness among agents and components in the emerging energy system. This chapter explored these interfaces through a case study of Poplar Hill First Nation, an Independent Power Authority community. The potentials of the complexity science through a community engagement process is used to encode and enhance understanding of the “contextual” complexities in the development of local economies, adapting to technology advancement, and social changes. The findings will help better appreciate the efforts made by Poplar Hill in their transition to self-sufficient systems with deliberations that may provide practical outcomes. This chapter reflects on the deeper trajectories of the human elements embedded within the energy transition process. The chapter adds to the academic dialogue on energy system transition adaptations in marginalized Indigenous communities in rural and remote locations.

## 2.1 INTRODUCTION

In this chapter, I have used the complex adaptive system (CAS) concept to understand the multifaceted energy transitional capacities of First Nation communities to switch to alternate energy sources in the spectrum of future development options that a complicated and dynamic energy sector provides.

Energy transition has occurred over time. History indicates that energy systems have transformed with time, from wood to coal, to oil, to nuclear power and to now more renewable sources (Smil 2010). The progression suggests technology and innovation advancement with time and a universal desire for cleaner options in light of the changing climate. The present day global energy transitions are setting new precedence for climate protection as one of the objectives. The long-term structural changes are a shift in energy generation and consumption from non-renewable energy sources to a more efficient, low-carbon energy mix (World Energy Council 2014). The motivations for the contemporary energy transitions are its objectives, drivers, and mandates of the reigning governance. But most important of all are the cleaner options preferred by the end-users driven by heightened awareness on green environment. Leaving behind a clean environment for generations to come is a compelling force. Canada's commitment to "energy transition" is based on dual awareness that fossil fuel is limited and its undesirable impacts on the climate (OMECP 2016).

While the implications of energy development in Canada are being discussed at national and provincial levels, there is very little documented evidence of energy transition efforts and their impact on the Indigenous communities. Energy transitions in the Indigenous context are restricted to a few

academic references related to community energy planning (Hupacasath First Nation 2015, Rizi 2012) and renewable energy (Krupa 2012b; Arriaga et al. 2013). INAC (2011a, 2011b) reports some successful energy transition projects undertaken by the Taku River Tlingit First Nation, China Creek Small Hydro in Hupacasath First Nation in northern British Columbia, and the Deer Lake micro-hydro generation project in Ontario initiatives that have led communities towards reduced reliance on diesel. Other community-driven success stories are the Five Nations Energy Inc. (NAN 2012a) and the local renewable energy initiatives in Pic River, Ontario (Krupa 2012a). The most recent and notable initiative is the Wataynikaneyap Transmission Project. With 20 communities as its majority owners, the First Nations-led company is unique in community consultations, implementation, and its operations (Porter 2016).

Any energy system transition in the context of Indigenous Peoples is short-lived or fails in implementation if the system unfavourably and detrimentally affects their lifestyle, cultural values, and rights. This is strongly echoed by researchers through studies with the Navajo Nation in the U.S. (Necefer et al. 2015) and several other studies from Canada (Krupa 2012b; Arriaga et al 2013). Respecting Indigenous views will only ensure that energy transitions are viable and sustainable from a cultural, social, and technological level. Energy transition in remote Indigenous landscapes will involve socio-cultural outlooks and considerations and will need to be rationalized to a context-based perspective. This was most evident in the successful outcomes of Five Nations Energy Inc. (FNEI) which established a corporation behind the Omushkego Ishkotayo Project (Western James Bay Transmission Line Project), a 270 km long transmission line

that services the remote Communities of Attawapiskat, Fort Albany, and Kashechewan. FNEI is one of five licensed electricity transmitters in Ontario; and is also the only First Nations owned electricity Transmission Company in Canada, as well as in Ontario. FNEI is also well-known for its “Conservation on the Coast” initiative addressing energy efficiency and conservation. (NAN 2012a; Chilton 2012). I had the privilege of meeting and discussing energy in the north with Pat Chilton, the Chief Executive Officer of Five Nations Energy Inc. on March 9, 2017. He recalled the many obstacles that he and his team had to address for the success of the FNEI project. He said:

Once I realized that transmission line is the most feasible option for my community, the mounting challenges were overwhelming. There was a stereotype and biased preconception about our capacity and capability in running a business. We had to learn a lot. There was energy regulations that were changing. Lots of uncertainties. Difficult to convince the financiers. We addressed them one by one.

From the beginning I stressed upon capacity building, education, awareness, pushed energy efficiency in housing, and listened to the community more.

- Pat Chilton, the Chief Executive Officer of Five Nations Energy Inc.

Such insights are important to understand the impacts of engaging with the community in the local planning process. There is minimal academic evidence on the effectiveness relative to not only some standards of energy services or on the transition process of such projects and their resulting impacts on First Nation communities. This poses a clear knowledge gap in assessing the complexities in energy planning in practice and, subsequently, the energy transition efforts in the First Nation communities.

I have identified the CAS concept as a basis for this chapter to understand the energy transition efforts, the various emergent elements and their interactions

in a community energy system. The “complexity” in CAS may sound daunting and also “complex” however, the basic idea behind the concept is to provide a cohesive approach to studying disparate agents and systems that performs within their functional mechanisms. The characteristics of CAS is that the system is made of many individual elements or agents that interact. These agents and elements act independently leading to emergent outcomes that potentially pose challenges in predicting outcomes of individual interactions. If there is a change in the system, the emergent system either reacts or adapts. Thus interconnectedness of systems in CAS is a key characteristic (Chan 2001). The CAS is a helpful tool to understand the natural phenomenon which include human responses to problem solving within a system, situation, or circumstances (Ellis 2011). The basis of the complexity science is built upon self-organisation, non-linearity, emergence, and co-evolution (Holling and Gunderson 2002) and is influenced by social, political, and physical processes (Mitchell 2009). Systemic changes and feedbacks can be described as an adaptive cycle that repeatedly moves through four sequential development phases. The phases are characterized by varying degrees of potential, connectedness, and resilience (Holling 2002). Connectedness describes the degree to which a system can control its own destiny, as distinct from being caught up in the whims of external variability (Holling 2002). Increasingly, complexity science is becoming a widely accepted multidisciplinary field of research. Yet, it is still an emerging area of interest in the general energy sector and, specifically, in the energy transition literature (Bale et al. 2015). There are no academic references that specifically

discuss energy transitions and their trajectory in complexity science in an Indigenous community context.

Bale et al. (2015) and Homer-Dixon's (2011) insights on complexity interventions in energy systems, and Sovakool's (2014) emphatic observation that social science-related disciplines, methods, concepts, and topics remain underutilized in contemporary energy research, with further demand for more grounded and community case-studies.

The overall purpose of this chapter is to apply CAS to advance a broad understanding of energy transitions in the remote First Nation communities in northwestern Ontario. The chapter follows a case study approach by conducting semi-structured interviews with industry experts and members of two KO communities, Poplar Hill and North Spirit Lake First Nation during Open Houses held in early November 2016 and my in-field observations. There are two specific objectives: (i) to review the community's energy transition options and ii) to explore and document the energy transition process through a complexity lens and emerging adaptive measures. The insights highlight the motivations behind energy transition and provide perspectives and directions in finding sustainable energy outcomes for the Poplar Hill community. The current energy transition process is not unique to Poplar Hill alone, but resonates with several other remote and rural Indigenous communities in northern Canada facing similar conditions.

## 2.2 ENERGY DECISION-MAKING IN CANADA

Besides, the communities that are dependant on fossil fuels to generate electricity for lighting and heat (NRCan 2011), few communities rely on renewable



energy or a hybrid system<sup>7</sup> as their main source of electricity (Knowles 2016). Thus, many remote communities are looking to transition to alternative energy systems. Knowles (2016) lists an array of potential technological solutions<sup>8</sup> for supply-side (generation options) and demand-side (options to reduce energy demand) that can be adopted to supplement existing systems. However, finding the right combination of technologies, and making the key strategic decisions on how such a shift and transformation should be achieved is complex, as it includes multi-level discussions on governance and management, contractual regulatory obligations, utility services, electricity rates, economic models, and funding.

To understand the complexities, it is pertinent to understand the decision-making process in Canada's energy sector. The system is highly regulated with layers of oversight, legislation, and control. The process—often not well communicated between the various government agencies and the public—is confusing, difficult to navigate, and a challenge to participate in as an active player. However, mechanisms have been created to encourage communities to become generators of renewable power through policies like the Green Energy and Green Economy Act (2009). Government plans and policies used by governments to guide future directions are not fixed, but address priorities at a given time and are generally informed by a particular ideology of the political party in power.

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<sup>7</sup> Hybrid systems use both fossil fuels and renewable sources to generate electricity.

<sup>8</sup> Cherniak et al. (2015) and Arriaga et al. (2014) have highlighted different solutions through case studies and community electricity system pilot projects.

Canada is a federalist country with democratic rules and institutions in which the power to govern is shared between national (federal) and provincial governments. According to the Constitution Act, 1982. S 35, the federal government's responsibility extends only to Indian people resident on-reserve, while provincial governments have a general responsibility for Aboriginal peoples living off-reserve (Uribe 2006).

The provinces and the federal government have distinct responsibilities in the energy and electricity sectors, according to the Constitution Act, 1867. Energy and electricity are the responsibility of the provinces and territories, which includes managing, developing, and conserving natural resources (Fast 2018). Because of the separation of the responsibilities, Canada does not have a national energy plan. The main federal regulatory agency is the National Energy Board (NEB). Other federal departments or ministries involved in the energy sector include Natural Resources Canada (NRCan), Environment Canada, and Indigenous and Northern Affairs Canada (INAC)<sup>9</sup> and now called the Indigenous Services Canada (ISC).

Depending on the availability of resources, each province has a different energy profile and follows its own energy policies leading to different generation mixes. The Ontario electricity system is overseen, managed, and regulated by a variety of actors – either government or agencies created by government. In the province of Ontario, the Ministry of Energy oversees the electricity sector and

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<sup>9</sup> In August 2017, Indigenous and Northern Affairs Canada (INAC) was dissolved. The two new resulting departments are: Indigenous Services Canada (ISC) and Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC) (Indigenous Services Canada 2019)

issues directives to the Independent Electric System Operator (IESO) for generation, transmission, management and conservation. The Ontario Energy Board (OEB) is the regulator of the electricity sector. Ontario Power Generation (OPG)—a Crown corporation—owns and operates more than half of Ontario’s electricity generating assets. The local distribution company (LDC) providing electricity utility service to remote communities is HORCI that manages and enforces a variety of regulations pertaining to electricity supply and distribution, upgrades and maintenance, reliability, safety, accessibility, conservation, and billing services (Hydro One 2009). In my interview with Bob Shine, he shared the services that HORCI provided and what it took to maintain reliability in a remote community:

Approximately, \$20,000 is spent to send a mechanic to do maintenance of HORCI run diesel-generation system in a remote community. The maintenance guy goes to the community to check, assesses the situation, comes back to get the hardware and right equipment. As the hardware stores in the communities have only minimal tools. So, we bundle communities and have 1-2 mechanics going around.

In my experience, regarding maintenance of renewable energy facilitated systems, hydro projects require least maintenance, followed by solar...then wind...

I am trying to promote HORCI’s energy conservation program - Reindeer Program. It is taking time.

The energy utilities are closely regulated because of their varying approach and nature of energy supply and delivery and also, because many companies within Ontario’s energy system operate as monopolies (OME 2016).

The federal government also plays a role in providing electricity for First Nation communities through ISC, which provides funding to First Nation

communities that are not served by local or provincial utilities. Since the cost of generating electricity in remote communities is frequently high, electricity rates—referred to as Standard A rates—are subsidized in many remote communities. Ontario's RRRP subsidizes remote and rural electricity customers by charging grid-connected electricity consumers or Ontario electricity customers and transferring the proceeds to Hydro One, which uses them to subsidize the electricity distribution rates of off-grid communities. The RRRP subsidy is given as a discount on monthly distribution charges to reduce costs for customers that are located in rural or remote areas, where the costs of distributing electricity are high and, therefore, is not based on consumption (GoO 2016). Every jurisdiction in Ontario is affected by those energy policy decisions.

First Nation governments have a mixed experience of involvement in energy decision-making, often not being included or adequately consulted. As Brian Kurikka, Principal Consultant of Cloud River Resources said:

Decision-makers are - at urban centers making policy for communities that have never been there.

However, they are aware of their unique position they are in due to the Crown's legal duty to consult and accommodate. The question is how best can First Nations create effective decision-making mechanisms recognizing the overlapping authorities of the different orders of government?

The inter-judicial energy regulatory processes provide a glimpse of the complexities that affect remote communities and their local operations. Poplar Hill's additional complexity factor is their desire to remain independent, own and operate their own local utility, making them an Independent Power Authority (IPA) community. They are not bound by the standards of existing government

regulations and, therefore, do not receive the benefits of standardization (rates, subsidies). Thus, energy transition for Poplar Hill is far from a simple process with straightforward solutions. Instead, the community must consider the balance of obligatory regulatory processes and policies, technology, economics and, most importantly, local social factors (Faaij 2016; Miller et al 2013) and the desire for the community-at-large to transition.

### 2.3 THE COMMUNITY ENGAGEMENT PROCESS

The study included Indigenous and qualitative techniques to highlight the nature of the current energy situation, its context and complexities. The approach is best described as gathering knowledge that is built upon an Indigenous relational tradition. The approach utilized open-ended, semi-structured interview questions to prompt conversation, where participants and the researcher co-find insights and knowledge (Kovach 2009).

KORI and I realized the need to draw the community's perspectives on CEP and the ensuing energy systems transition to grid connections. Thus, the research proposal was timely and KORl was cognizant of the benefits in generating the desired insights through a community engagement process. KORl supported me and the community-based study as a priority. KORl initiated the process by seeking permission from Poplar Hill with due verbal and written explanations on the objectives of the study and to visit the community on 6/25/2016. KORl initiated the community connections prior to the community visits through email and telephone, between me, the Chief and Band Council members, and individuals holding energy and related files, and a variety of community members. In

preparation, KORl provided access to a broad range of grey literature on the community, such as past reports on the run-of-the-river project and consultant's feasibility studies. And, together with KORl's research director, I drafted the research questions for exploratory interviews. I held briefing sessions with KORl on culturally-appropriate guidance on the community visit protocols and reviewing KO's Community Research Planning Guidebook (KORl 2012).

Subsequently, two community visits were made to Poplar Hill in August 2016 and in January 2017 with KORl's research director. Our collective commitment to community development influenced me immensely in playing a bigger role in building the community connections and in developing a goodwill relationship. The critical realization to the community engagement process was to build genuine associations that continues to date via collaborative capacity building activities and through regular communications.

The two community visits resulted in 15 semi-structured interviews between 15-45 minutes with two Elders, the Chief, three members of the Band Council, the youth energy coordinator, four local champions with an interest in community development, the health clinic coordinator, and teachers from the school. Three sessions were informal interactions with women and the youth—over making bead ornaments, cooking meals for elders, at the arena, and during casual walks, respectively.

The interviews were conducted in a respectful manner with due permission from each of the participants. Questions pertaining to community energy, systems transition, impacts of the grid connection on the community life and emerging local governance roles and responsibilities offered deep insights and perspectives on

the interconnectedness of contexts with present conditions. Conversation also led to evaluating potential local solutions, as elaborated in the later sections.

In-field observations and interpretations were supplemented with grey literature for pertinent information on Poplar Hill and its current energy system, such as the IPA, its background, geographical, and historical contexts using triangulation method to gather different perspectives. Academic references were identified through the online database Google Scholar between 2014 and 2018 and Web of Science between 2014 and 2018 for more recent literature using keywords search: complex adaptive system, energy transition, and Indigenous communities. Literature available were wide-ranging from water governance, system resilience and ecosystems services, food systems, governance to sustainability. The inclusion criteria for this chapter were the narratives that directly discussed the concepts of energy transition and the adaptive systems and within the stipulated timeline.

Social science-related disciplines, topics, and approaches remain unexplored in contemporary energy studies research (Sovakool 2014). Community energy transition is an emerging and evolving area of resource development for the First Nations. Collectively, academic literature on the key themes is sparse. Relevant academic and non-academic information that aligns through various mediums of scholarships have been included and referenced in this dissertation.

In following the OCAP principles, I have shared the narratives with KORI and Poplar Hill community. The dissertation will be shared with KORI and the community with due acknowledgments.

## 2.4 CASE STUDY OF POPLAR HILL'S ENERGY TRANSITION

### 2.4.1 Electricity Generation and Consumption

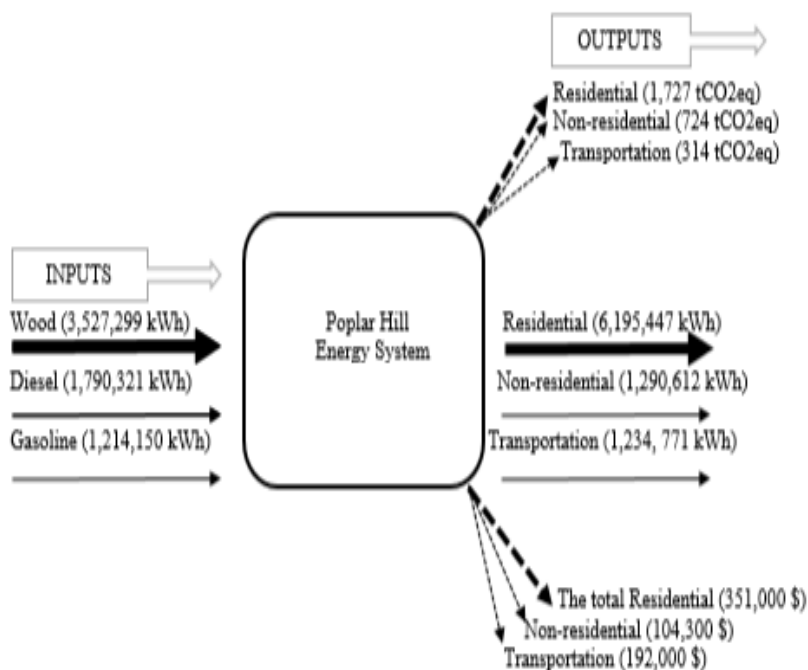


Figure 7. Energy System in Poplar Hill (Adapted from Powell & Cobb 2008).

Figure 7 demonstrates the current energy system in Poplar Hill: the “outputs” or end uses include greenhouse gas emissions, energy consumption, and the total costs incurred in three sectors—residential, non-residential, and transportation. Annually, Poplar Hill uses 8.7 million kWh and spends over \$1 million CAD on energy that results in over 2,500 tonnes CO<sub>2</sub> equivalent of greenhouse gas emissions (Powell and Cobb 2008). When reviewing energy plans of some of the KO communities, I observed that greenhouse gas emissions were not reflected in some of the community energy plans. This could be for various reasons: a non-priority issue, lack of awareness, interest, and skill and knowledge



to calculate the emissions. However, for a community size with 500 population in an off-grid, remote community, and the emissions were in the range of 2,500 – 3,000 tonnes CO<sub>2</sub> equivalent.

The basic energy infrastructure of Poplar Hill includes storage tanks for gasoline and diesel for use in the community, the school, and the Band office. Fuel transportation and storage further augment a range of issues: potential environmental damage from fuel leaks; accidental spillage during winter road transportation; budgeting difficulties for unexpected increases in the price of air freight; and unpredictable impacts of climate change on the reliability of winter roads. Electricity rates vary depending on the type of customer. Residents pay a flat rate, while businesses and government (Band) operations pay based on use. According to Band office information, electrical consumption has been increasing due to new services being connected to unserviced buildings, increases in housing demand, population growth and increased use of appliances and information technology in serviced buildings and houses. This is evident from the total electrical consumption in 2015 which was 2.2 million kWh. The estimated peak demand is 726 MW (KORI 2015).

#### 2.4.2 Potential Energy Transition Options for Poplar Hill

Over time, several energy transition options have been reviewed by Poplar Hill. Some of the past options include an extension of the electrical grid from the neighbouring community of Pikangikum First Nation to the North Spirit Lake transmission line or connecting to the Manitoba Hydro grid. Most of the community's current energy transition initiative is focussed on connecting to the

grid through the First Nation-controlled Wataynikaneyap Transmission Project (Figure 8) and exploring renewable sources of energy. These options are elaborated below:

Provincial Power Grid: Poplar Hill is among 25 remote communities in Ontario with electrical generation and distribution systems that are not connected to the provincial transmission grid. In August 2016, Wataynikaneyap Transmission project, a company owned by 22 First Nation communities, was designated by Ontario to build a 1,800-km power line linking 16 remote First Nations communities, including Poplar Hill, to the provincial power grid as shown in Figure 8. Wataynikaneyap Transmission project will construct, own, and operate the transmission line to provide additional electricity supply to Poplar Hill and connect the community to the provincial grid. However, in order to be connected to the transmission line, Poplar Hill must have a provincially-approved distribution company that is licensed by the OEB. Thus, Poplar Hill must transition to a licensed distributor—HORCI—to support the operations of the community distribution system and to also qualify for the RRRP subsidies. Grid connection in Poplar Hill would certainly result in a reduction in environmental impacts and associated liabilities with diesel spills and in GHG emissions. Grid connection would also improve the social and living conditions of Poplar Hill residents, as they will face minimal load restrictions. The flip side is that connecting to the grid would also potentially lead to increased demand. Also, residents will have to pay HORCI regulated electricity bills or they will have their electrical service disconnected. The autonomous IPA mindset will have to transition to a controlled and regulated system.

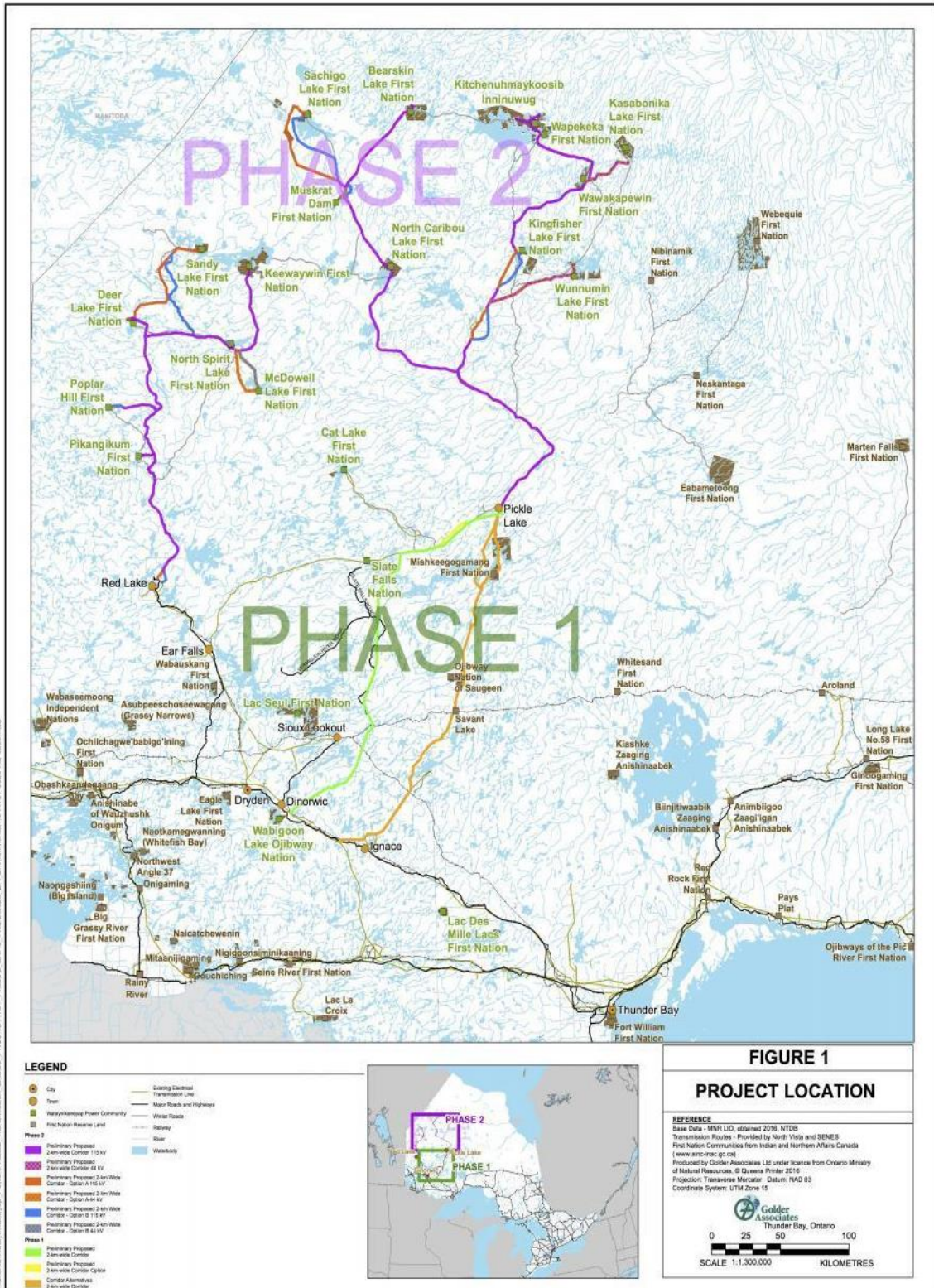


Figure 8. Wataynikaneyap Power Map  
 (Wataynikaneyap Power 2015).

Eye Falls Hydroelectric Site: In discussion with Philipp Sr and James Suggashie, both long-time associates of the Poplar Hill Band Council in various capacities, I gathered that the community had been exploring a possible hydroelectric site located at Eye Falls on the Berens River, approximately 8 km upstream from Poplar Hill. In conversation with Garius Owen, Poplar Hill's Landuse Coordinator, a GIS expert and an alumni of the Confederation College, I gathered an interesting story about the proposed dam. The Elder who shared the story with Garius apparently conveyed his sentiments on the proposed project and had said, "Try it Out". The story goes as follows:

A family was fishing, the child fell off the boat. Woman and child drowned. The woman's name was eye-rapid. Hence, the name of the rapids are called eye-rapid. There are 4 rapids.

There are many community members not in favor of the hydro dam. Due to the fish habitat being destroyed. My GIS maps included the moose, harvested ducks, beaver traps, fishing spots, travel routes of people, and migratory birds.

The site is close to Poplar Hill; the flow of the river is well documented, and initial biological and archaeological studies have not revealed any significant barriers to construction. Walker (2003) estimated that the hydro facility, with a peak capacity of 1,240 kW, would meet the community's expected peak load beyond the year 2030. The system described in the pre-feasibility study would reduce over 3,000 tons of CO<sub>2</sub> per year and eliminate the need for over 1,000,000 litres of diesel to be imported and stored in the community every year. Discussions about undertaking this hydroelectric project are ongoing. The multi-level, multi-layered government regulatory processes, changes in community leadership, and other relevant project management issues such as unable to meet deadlines, lack

of technically skilled people in the community, and lack of financial management capacity have halted the project several times.

Solar Power: NCC Solar Inc. installed a 10 kW solar system on the roof of the new motel, with a battery solution that will generate enough electricity to power the motel. The shiny solar panels are a welcome addition to the Poplar Hill community.

## 2.5 REFLECTIONS AND DISCUSSION

### 2.5.1 Energy Transition and Complex Adaptive Systems

In the adaptive cycle concept, systems repeatedly move through a cycle of four sequential development phases: exploitation, conservation, release, and reorganization (Holling 2002). Figure 9 illustrates the energy transition phases in Poplar Hill through the lens of the complex adaptive cycle. The community has undergone a progressive transition from the release, to reorganization, exploitation to the emerging conservation phases.

The exploitation phase: I was informed by members of the Poplar Hill community, that the diesel energy system in Poplar Hill was rigid, inefficient with weak connectedness. From generation, to diesel spill, to high maintenance cost to power blackouts and brownouts- they were all recurring issues. According to Barbara Strang from the Nursing Station in Poplar Hill;

I have to deal with everyday power outages in the community. I will be happy with more power. There are three nursing stations and 28 staff members. The Band Office would like to give me more nursing stations but due to lack of power, they are unable to do so...With more power, I can also bring more equipments, more testing services, and facilities for the community. They also do deliveries but have faced outages when performing operations. Often times and

when the weather is bad, they fly out the expectant mothers to the nearest bigger cities as a precaution with power issues to avoid any problems during delivery. Our nursing stations are always busy. We have Elders and senior people who are on medical respiratory equipment and other kits that require electricity. Then, there are children who needs our attention. These are big issues.

I met Howard Moose during my visit to Poplar Hill. Howard was once a Power Authority Manager and now works for Ontario Works. A very articulate and a professional, he left the former position because he was finding it a challenge to raise the funds to buy diesel and gas. At an informal Open House event, on a flip chart, I read a comment left by a community member, that:

Power outages due to unreliable power system is a big issue. Will it be lessened with new power line? ...Time to repairs and costs are a problem.

Brian Kurikka shared:

There is a strong soil and potentially ground water contamination...if you go around the diesel generating buildings. Water contamination could be for various reasons – sewage level, bad septic, waste water treatment, and also diesel algae deposition.

Diesel fuel as an energy source was a challenge in various aspects: procurement, storage, spills, environmental, and social and was a day-to-day challenge for the community to address. Philip Howe Sr. used to look after the Public Works file in Poplar Hill. He shared the energy insecurity issues that would extend to other infrastructure issues:

When I took over, I knew we had major issues to deal with. We spend \$1 million on diesel annually...that is just for the diesel. All that diesel has to be trucked in by winter road. And, there is no guarantee because you may have a bad winter. Every year, we also fly-in diesel because we run out of fuel by X-Mas time. It is pricey. That is all part of living in the north.

We have 3 generators that are 20 years old...our community size is growing...they are maxed out. We deal with -40. Everybody has heaters on. You know generators can last only that long. They shut down. Last year, we had power outages. Sometimes for a couple of

days. To employ mechanics/technicians from Winnipeg, we spend over \$300,000 over the last few years, almost every month. In the winter time, things in the freezer gets spoilt. There are about 90 houses that are not hooked to oil pumps. So, people started going back to wood stoves. One part of the community is not connected to water line. When they run out of water, they call the water plant, leave message. They remain in queue. We have issues with water plant too. All these companies make the infrastructure and all these mechanics have codes that only they understand. Just like the car dealers, only they can fix it. To bring them in costs money. The new school is coming up. We have to get generators for the school. Plugging in new infrastructure in the community is a challenge. We want to get a new nursing station.

I observed that the community needed effective energy planning and that there was a need for bottom-up, holistic community energy planning to acknowledge the resource gaps, the potentials and possibilities, expertise, and capacities through a collaborative approach. The forward loop in the adaptive cycle reflects growth, development, and effectiveness (Carpenter and Brock 2008), indicating the community's resilience and the enhanced desire for connectedness. The desire for self-determination was high, despite the social vulnerabilities that affect quality of life, well-being, and overall community development. This was evident from the proposed transmission line project coming into the community. Below are some of the comments and views recoded through a 'post-it' exercise from the Community Open Houses, in North Spirit Lake, November 8, 2016 on the new transmission line in their community;

- Eliminates the dependence on fuel – high cost
- Expectation is that rates will go down- community benefit
- Operation and management costs are prohibitive for IPA vs grid
- No annual need to apply for recovery of operational losses
- Power costs limit ability to do other things
- Audit is affected by IPA losses
- No more need to pay for unforeseen circumstances
- Environment risk is lessened. Correct?
- No need to deal with using oil and other contaminants will be eliminated
- Power system is reliant on winter roads

- No more uncertainty on operation due to no winter road
- No more need to fly in fuel-high cost and risk
- Power outages due to unreliable power system will be lessened – time to repairs and cost are a problem
- Repairs delayed by weather - eliminator
- New economic development opportunity-higher employment for
- Project will help prepare community members for other job opportunities - RERP
- Alternative energy projects can become economic benefit to community
- Previously uneconomic energy projects become viable.
- Transmission is a revenue generating business

The conservation phase: Poplar Hill's energy system potential is now very high. The community is ready to transition to low-carbon energy, make lifestyle changes, facilitate conservation, and enhance energy literacy. There is increased connectedness with the transmission line initiative, renewable energy, and alternative solutions options with grants and funding opportunities, including provincial and federal programs, such as Aboriginal Community Energy Plan and IESO's energy planning program. KORl is providing specialization and capacity building opportunities through the Remote Electrification Readiness Program and online learning opportunities. The need for capacity building and concerns for effective resource usage are evident in the below thematic community feedback received during the Open Houses in Poplar Hill and North Spirit Lake in November 2016. Elder Irene Rae said: "I like what I'm hearing".

Others raised issues about training and employment:

- Will childcare be provided during training? Need quality childcare.
- Single parents need to take babies for travel/training.
- I need childcare.
- I have issues regarding my own child. I have to work but also leave for my child.
- We need a training center for job.
- Need new building for trainings in community.
- Will students get summer jobs? More options?
- Training would be better to have in NSLO.



- Will there be jobs available? What kind?
- Will the pay be good? How many jobs and where?
- Train students in heavy equipment
- What kind of training would it be?
- How many job openings will there be?
- Will they offer any land-based training? What kind of training will be announced and where?
- More education and training!
- Are they going to be hiring people from the community to work? What about women?
- Are they going to be training people from the community how to operate and work in case they hired?
- Hire special need people who do not want to be on disability.
- Education is key.
- I cant find a job.
- Need to get more education.
- More home visits.
- What kind of training? Where- Reserve or outside?
- Can people from the reserves be employed to take part in this project?

#### About the environment:

- How are the power lines gonna affect our trap line? Worried about trap lines!
- Will the line impact our environment?
- Is there other places that the transmission line will enter into?
- Are they be going to cut trees down?
- What about the plants and the vegetation?
- How will it affect the migration of the animals?
- Are they going to do this during summer or winter or the whole year?
- Trapline, water and the animals that meat I love, so "F off"! Water quality after project.
- Is the air gonna get affected?
- Are the lines going to go through any rivers or lakes?
- Does the proposed hydro line go through trap line 122RL?
- Will this road affect the sights where we hunt fish and collect medicines?
- I am worried about the animals and land
- What if the animal is starving and bites the power line? What is going to happen if we wait for it to be fixed?

#### About infrastructure and design:

- Are they going through winter roads or are they going to make their own roads?
- Is the line gonna underground or is it gonna be like with poles?

- Is there only going to be one switch to control the power in all other communities?
- How long will the project take? And, will it attack our native ways?  
Having hydro is very good because we wont run out of power
- How are they going to do the project?
- Will it be less than 10 years?
- Are they gonna put the lines, where the winter road goes?

About operations and maintenance/reliability:

- How are they gonna fix the line, if something burns in the summer? How fast will they get there?
- Camp maintenance.
- Transportation to job site.
- What will happen if the transmission line breaks?
- Is lightning gonna affect the lines?
- Who will be watching over the hydro lines?

About electricity billing:

- Will the paychecks of the employed people still being deducted?
- Concerns are we pay less we pay our hydro so much.
- Once the line is everywhere, will we pay less or more than we are paying now?

About community impacts and benefits:

- Will this benefit the community?
- What are some of the positive outcomes for this line?
- Provide translator please!
- Are there going to be more activities in our community?

Analyzing community feedback and insights such as these have been undertaken in Chapters 2-5.

The community is also experiencing the rigidity trap with a fundamental socio-cultural-technological situation. The community is vulnerable to internal and external disturbances in handling emerging technologically-based systems. These situations fit the description of rigidity traps, where conditions for change are very low. These limits are evident in the social realms of Poplar Hill. However, the external conflicting conditions and the internal social challenges—poverty and low

levels of educational attainment, crowding and homelessness, poor water quality, infant mortality, health and suicides, and social assistance dependency—are mutually reinforcing, resulting in rigidity traps that inhibit the community’s desire to be self-sufficient and self-determining. As Margaret Kenequanash, Chief Executive Officer of Watay Power, in her keynote address at the Our Lands conference, Rama, January 25, 2017, said:

What’s important to convey to people who haven’t had the opportunity to visit these communities is that we are in a crisis situation. Not only are the living conditions impacted by a lack of access to reliable power, but basic things that most people take for granted, like being able to open new businesses and build new homes can’t happen when a community is at capacity.

The release phase: The trapped dynamics intensify in the release stage.

The energy crisis in Poplar Hill provides a range of scenarios where traps have historically led to the release stage. The intergenerational poverty trap that is widely acknowledged and documented in Canada (Smith et al. 2005; NCCAH 2010; Macdonald & Wilson 2013) is very visible in Poplar Hill.

The everyday life situations brought on by poverty will not disappear overnight with the advent of electrical power; nevertheless, there is an urgent need to discover pathways out of these traps. Post-grid initiatives, such as the enhancement of technical, operational, and management capacities, new knowledge and learning, new strategies, alliances and partnerships, and effective collaborations and connections, might counter the poverty traps. This is further explained with specific evidences in Chapter 4. However, the adaptive range of the transition is dependent on the nature and magnitude of the release and post-release drivers and feedbacks.

The reorganization phase: Ideas and resources for energy security may be available, but the community social systems remain caught in historic rigidity and poverty traps. However, despite limited capacity and resources, the potential for transformation is evident. The feedback loop, through the case study, heard community voices that provided feedback, insights on probabilities and expectations. It suggests that awareness about potential transformation is reflected in the community's efforts to organize, build local capacities, and make informed decisions on sustainable energy solutions. The feedback loop also provides options for reorganization should the emerging system fail.

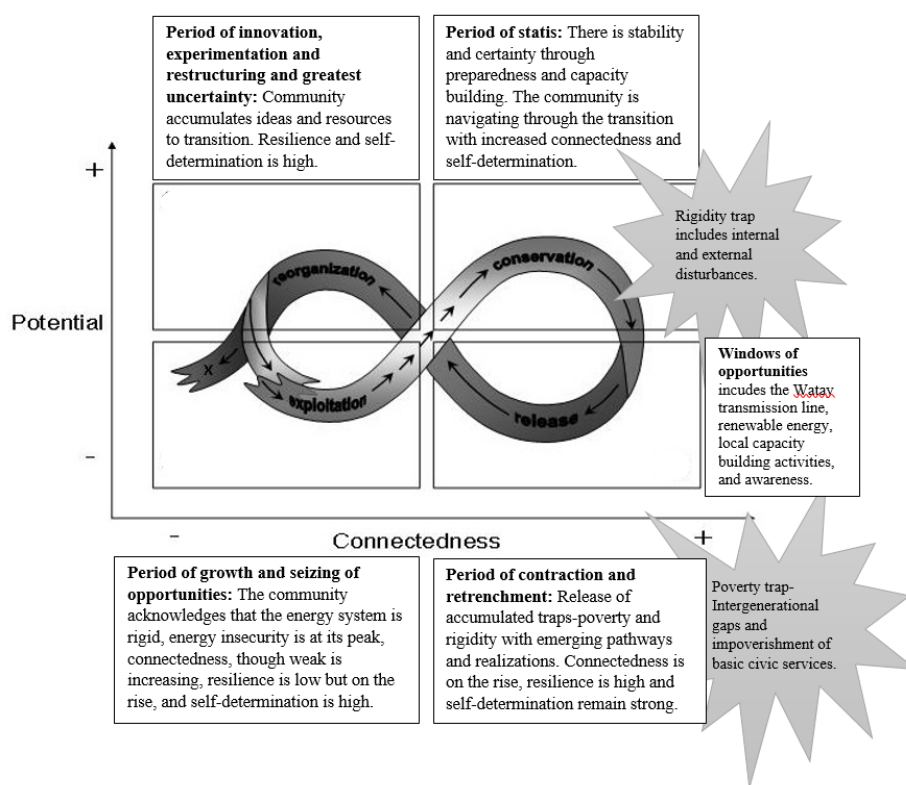


Figure 9. Poplar Hill Energy Transition through Adaptive Cycle (Rakshit 2019).

## 2.5.2 Complexity Interactions in Energy Transition

Complexity elements include agents and systems that interact, influence, and affect one another in the energy transition process (Bale et al. 2015). Agents responds to particular situations. Interactions between homogenous and heterogeneous groups of agents in local contexts can result in many dynamic ways. They are predictable in smaller groups as each agent is governed by its own limitations and resources. However, when interactions are in a larger magnitude take place, then, more complex, and potentially new and richer outcomes may emerge (Abbott and Hadzikadic 2017). The purpose behind agent interactions are not always based on outcomes or goal-seeking. However, systems, such as an energy transition process, provides purpose and goals, and thus, provide potential for new emergent response, actions and behaviours (Gharajedaghi. 2011). Checkland (2012) suggests conditions that necessarily demonstrate a system with a purpose: communication process between agents and systems; the stimulus to bring the proposed change; and the definable emergent properties that arise from such interactions.

These interactions between and among agents in the system provide resiliency over rigidity and poverty traps. The process is evolving in also acknowledging roles and responsibilities, as reflected in the case study. As many community members say: "It does not take much for a crisis to happen in a community".

The crisis comes, capacities are tested, challenges are met, and then it passes, reflecting confidence and resiliency. This may or may not provide opportunities or options. The challenge is to avoid the traps and finding avenues to

address them. In doing so, some potentials may not be feasible. Holding on a status quo situation, like the diesel dependency for too long loses the prospect of renewal or emergence. The transition options for Poplar Hill and other KO communities which included the transmission line, adoption of renewable energy, or taking the energy efficiency and conservation route provided those renewal and emergence pathways.

The heterogeneous agents in Poplar Hill include the end users, generators, stakeholders, and financial partners. Their interactions raise both linear and non-linear suggestions, feedback, ideas and chances, further elaborated in Chapter 3. Other key elements denote various interconnected contextual sub-systems, such as environmental, social, economic, technological, and Indigenous knowledge systems. Their emergent interactions leading to complexities are elaborated below.

Agents and Emergence: The influencing agents in Poplar Hill include the Elders, spiritual leaders, tribal council, Chief and Band Council, and the community-at-large local champions, women, youth councils, members of the education board, teachers, and utility officers involved in economic development, human resources, land use, health, social services, and public works. Presently, the unlicensed IPA community is transitioning to a licensed operating system, as a HORCI supported community.

This transition process will come with challenges and will test the communities, on their acceptance and how to adapt to the emerging changes.

- ex-KORI Director

The community, though transitioning, is at a crossroad in accepting the transition and displayed polarized perspectives, with the younger generation being

more receptive to new changes and Elders and seniors being cautious about new opportunities that might lead to adapting to new systems. There is realization that the transition from an autonomous to a regulated energy system is about finding an optimal balance between maintaining their IPA autonomy and benefiting as a HORCI community. This transition will include a more complex and scalable emergent governance and policy decision-making system with the involvement and engagement with 22 communities. Collectively, a bottom-up approach will require answering important normative questions. The interviewees realize that the transition is bound to affect the cultural landscape and the lifestyle of Poplar Hill with more economic development opportunities, expansions and enhanced communications and networking;

We need to integrate our knowledge and cultural values, lifestyle changes, investments and benefit returns, electricity bill structures, payments and subsidies, and other relevant factors in designing our local energy system.

- Charlie Moose, Band Administrator.

The emergence and development of the new transmission line process will also require Poplar Hill to develop meaningful external stakeholder partnerships with the Ontario Ministry of Energy (OME), OEB, ISC, HORCI, and IESO, other HORCI communities, and the Nishnawbe Aski Development Fund (NADF) to create and reinforce power equity at an affordable cost. All of these agents, through their respective roles, agendas and priorities, play significant roles in navigating through the entire complex system. Potential complexities may also arise when partners' and agents' behaviour, involvement, and externalities prompt changes and are reflected in non-linear effects, such as mixed and divergent

responses to the initiative, leading to delayed decision-making and subsequently, project timelines.

Transitions will also prompt impacts ranging from enhanced local capacities, confidence, resilience, universal standards, and procedures for all partners in the Watay transmission line project. The centralized grid will lead to self-organization among the 22 communities with a shared vision to power the communities, to establish common practices for energy use and services, and to collectively agree upon monitoring and feedback processes and governance structures (Wataynikaneyap Power 2015). At community meetings in the KO communities in November 2016, discussions revolved around governance in the context of the transition both at the community level and at the Wataynikaneyap Power group of communities. I have heard only optimistic sentiments from all concerned including, KORI's ex-Director and Margaret Kenequanash CEO of Wataynikaneyap Power LP. At several platforms, like the 2017 & 2018 IESO Symposium, 2917 Our Lands Conference, Margaret spoke of community engagement; her interactions with Elders in seeking their guidance, of being transparent and keeping open communication channels with regular updates on changes that are bound to come in ways of life, shared values and beliefs, with the overall outcome for cohesive approaches to work with the communities.

Path dependency: In complexity science, a system is based on past decisions that drive its evolution in specific directions (Byrne et al. 2011). Path dependency is applicable to the energy system in Poplar Hill due to its historical electrification contexts. Although Canada became electrified beginning in the 1880s (Gucciardo 2011), Poplar Hill is one of 140 First Nations in Canada that



remains off-grid. Contextual and situation-specific decisions taken in the past have limited the options available for Poplar Hill, prompting a political choice to remain an IPA community.

Path dependency with chronic power woes is extended beyond technology and linked with social issues. One example is the underutilized workforce opportunities in the energy sector. The community's workforce capacities to meet present-day challenges in the energy sector suffer because of lack of education including relevant qualification, skills, and work experience. Other anecdotal tribulations include dissatisfaction with non-sustainable career options/paths as indicated in the community feedback from Open Houses in Poplar Hill and North Spirit First Nation, cultural marginalization and racism, and misunderstandings and communication gaps between Indigenous and non-Indigenous workers.

However, with time, new pathways are created. The incumbent federal and provincial governments in their effort to better their relations with First Nations have committed substantially to aid "transformational change" for Indigenous Peoples. The provincial government has committed investments (OMIRR 2016) to combat climate change and to switch from diesel to renewable energy sources, intended to strengthen local economies and reduce financial outflows for the purchase of energy (NRCan 2009). Lydia Big George, Nishnawbe Aski Nation's (NAN) ex-Climate Change Coordinator at the NOFNEC 2017 said:

Our region is home to the second largest carbon sink in the world. NAN territory encompasses Ontario's largest carbon sink – the boreal forest and all of its attributes.

According to NAN Deputy Grand Chief Derek Fox:

The northern NAN First Nations are very vulnerable to the impacts of climate change because of their remote locations that are in close

proximity to wetlands and low coastal areas that are prone to flooding. Inadequate and failing infrastructure, minimal amenities and services and limited access to emergency services are every day stark realities. Water and food insecurity issues due to changes in ecosystems and food chains, changes in biodiversity composition, impacts on fisheries, fluctuating flow rates of river systems, disturbance of wetlands, influx of invasive species, and changes in animal migratory patterns are climate change impacts that calls for immediate actions.

In my Chronicle Journal column, dated January 2, 2017, I stressed that the First Nations' natural resource-based economies—fishing, agriculture, forestry, and eco-tourism are vulnerable to short and long-term climate change impacts, thus affecting local sustenance patterns and economies in very drastic ways. These factors result in higher living costs and a potential decrease in the quality of life and health.

The Pan-Canadian Task Force (OME 2015) was established to reduce the use of diesel fuel in remote communities. In 2014, the IESO made the economic case for connecting remote First Nations communities, which would result in \$1 billion in savings over 40 years (IESO 2014, Wataynikaneyap Power 2015) with a boon for both public and private economic development construction and operation jobs, as well as spin-off enterprises and transferable skill-sets (Wataynikaneyap Power 2015).

Holling (1973) described resilience as the ability of a system to absorb change without changing its basic structure and function. More recently, Walker and Salt (2002) has described it by saying that resilience as the capacity of a system to experience shocks while retaining function, structure, and identity. The concept can directly apply to community energy as community resilience & self-reliance. It is the ability of a community to cope and adjust to changes and to

engage with community resources in taking advantages of opportunities.

Resilience is more than a response to change, it is a proactive approach in fostering local sustainable energy development. The idea that communities install, own, and enjoy benefits of local energy development is growing fast. These community energy projects make commendable narratives that are offering examples of economic control, collaborative benefits, and active community participation. CEP and implementation is bringing people together. It is creating opportunities for conversation, for relationships, for partnerships, and for collaborations. Interestingly, the rise of prosumers is highlighting one of the most exciting trends in local energy development. Edward Hoshizaki and Roland Pemmican from Deer Lake spoke of a successful partnership and on-the-ground challenges:

Hydro One invested and built the run-of-the-river hydro dam at Deer Lake. INAC (then, AANDC) with the help of the community built it...then over 10 years the community took over. There will be organizational, systemic and technical issues. Technical ones are the easier ones to deal with. Leadership plays a role if u have the resources and the background to carryout.

Poplar Hill demonstrates resilience and self-determination through its adaptive capacities in the transition process despite unpredictable externalities like changes in weather and climate patterns, energy system fluctuations and challenges, dependency on external resources, and lack of internal capacities. An illustration of interconnected relationships between systems and agents in Poplar Hill are indicated in Figure 10.

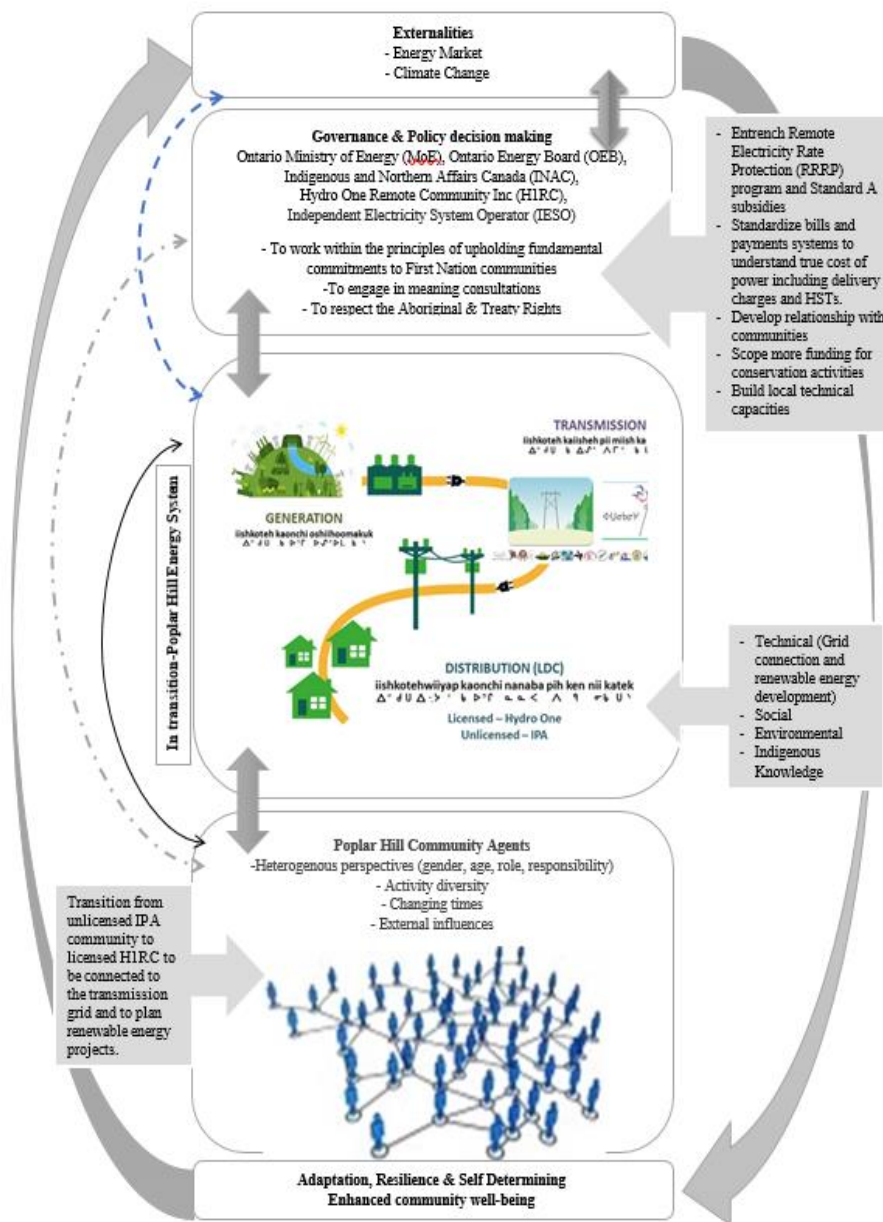


Figure 10. Energy transition and complexity trajectories between multi-layered systems and agents (Rakshit 2018) (Image sources: Poplar Hill Energy System: Wataynikaneyap Transmission Project 2015; (c) Sylvain Sonnet).

## 2.6 ADAPTATION: A WAY FORWARD

In Poplar Hill, the energy mix system is entwined with sub-systems—environmental, social, economic, and technological—that are not governed by linear paradigms. Externalities, such as external costs due to a fuel spill, health related impacts due to the usage of fuels, fuel cost fluctuations/fuel market and climate change impacts, unskilled technical expertise leading to consultant-driven approach, and trajectories, such as maintaining diesel-dependency status-quo within the system, and between the system and sub-systems, causes non-linearity. The prevailing energy system in Poplar Hill cannot be interpreted in isolation as there is not a definitive boundary for energy planning. The planning extends to social, economic, and environmental sub-systems, in addition to historical legacies, events, and connotations. Adaptive cycles highlight the positive side of complexities with the energy transition process in Poplar Hill with unique diversities, contributing to a balance between development and environmental protection. Poplar Hill community has taken to adoption and adaptation to changes in the system, times, situations and contexts, with combined efforts to align with local cultural values, beliefs, and traditional ways of life.

In much of the literature, the objective of transition is to achieve sustainability (Van den Bergh and Bruinsma 2008). In the case of rural and remote First Nation communities, transition to “sustainable” energy solutions is sought to meet energy insecurities. The Wataynikaneyap Transmission project is the main initiative supporting the transition. The venture is the largest energy project ever developed by First Nations in Northern Ontario, commanding a sense of confidence, self-esteem, and pride, which is beyond any quantification. For Poplar

Hill and the other remote communities, besides the substantial savings from the project over diesel generation, other socio-economic advancements will include lower costs of service, ongoing economic impacts from increased economic growth, increased energy availability and quality, improved health outcomes; and environmental benefits with avoided diesel spills and decreased emissions (Wataynikaneyap Power. 2015). Brian Kurikka, Principal Consultant with Cloud River Resources and ex-staff of the OPG BioEnergy Learning and Research Centre at Confederation College in Thunder Bay shared an analogy:

If you have wood-chip or pellet spill...you clean it up with a snow shovel...but with oil, you clean it up only with cheque book.

Thus, in the context of this dissertation and through the Poplar Hill case study, energy transition is beyond a change in the physical infrastructure of the energy systems, their technological management, and operations; transition will also involve considerable socio-economic and environmental development with an overall impact on the quality of life.

Changes, transitions, shifts, and moves provide opportunities and challenges. The healthy outcome is resilience. Resilience is beyond finding a stability, instead it calls for operating with the advancing changes (Holling 2002). Mixed voices to the ongoing community changes suggests contradictory situations. As Alice Suggashie from Poplar Hill said, “we have to do it right for our children” and “we have to hear our youth now.” And, then, there was another insight from a community member, “our ancestors got energy from our natural surroundings, the new power is only a colonial way.” The range of insights provided me to discover complex interactions and acceptance capacity to “socio-cultural realities” in their own social settings reflecting the rigidity trap and adaptive

principles. Community resiliency gives the ability to face positive and negative transitions and to function as a cohesive unit maintaining its values and beliefs. Thus, the capacity for resilience through the four stages of the adaptive cycle- release, reorganization, exploitation and conservation is well represented in the case study reflecting a resilient community. As Edward Hoshizaki from Edward Hoshizaki Dev Consulting, who has maintained a long-term relationship with Poplar Hill and other First Nation communities in the region and reflecting on the polarized community voices said,

There are organizational, systemic and technical issues. Technical ones are the easier ones. Changes come with different voices- response of a 14 year and 54 year old will be different.

Potentially, First Nations can drive and play an important role in shaping policies made by different levels of government, including their own well-being at the community level to facilitate the transitions. As Jason Thompson, a young Indigenous leader from Superior Strategies says:

Give us a purpose. We are beyond making dream catchers and snow shoes anymore. We are availing opportunities with education and mentors.  
- Jason Thompson

Complexities in energy transition have provided favourable platforms, dialogues and debates to address sustainable energy pathways in the off-grid, diesel-dependent Poplar Hill, a compelling trend that is applicable to a broader landscape of Indigenous communities in Canada and beyond.

### CHAPTER 3. BRIDGING GAPS BETWEEN THEORY AND PRACTICE IN ENERGY PLANNING

Roopa Rakshit, Chander Shahi, M.A. (Peggy) Smith & Adam Cornwell. 2018. Bridging Gaps in Energy Planning for First Nation Communities, *Strategic Planning for Energy and the Environment*, 37:3, 17-42, DOI: 10.1080/10485236.2018.11958658.

#### ABSTRACT

There is a close link between energy security, economic prosperity, sustainability and sovereignty for Indigenous communities in Canada. Geographic remote locations, the absence of all-season roads, off-grid status, diesel dependency and non-accessibility to alternative energy sources is leading to acute energy insecurities and serious economic, social, and local environment concerns in the Keewaytinook Okimakanak (KO) First Nation communities in northwestern Ontario. Minimizing diesel dependency scoping sustainable energy solutions and are immediate priorities and key motivational factors for their effective community energy planning (CEP). However, most CEP is based on a conventional top-down approach that, in practice, lacks effective community engagement to design culturally appropriate, “community-centric” energy plans. It fails to understand and acknowledge the local socio-cultural determinants as indicators of energy planning. A literature review, key informant interviews and in-field observations in KO First Nation communities form the basis of this study. The chapter examines community insights on local energy planning to elicit drivers and determinants for a conceptual, bottom-up energy planning framework for application and make recommendations to integrate socio-cultural factors as part of a sustainable and functional energy planning approach for the KO communities. The chapter justifies that this process would ensure multiple benefits such as buy-in by the communities, acceptance, and readiness for CEP implementation, leading to community ownership self-determination, pride, and empowerment. The research findings are timely as there is a significant and growing interest in ensuring local energy security amidst longstanding colonial treatment and marginalization of Indigenous communities and in the broader context of Canada’s greenhouse gas commitments.

**Keywords:** community energy planning, energy security, First Nation, Indigenous, northwestern Ontario, remote, socio-cultural indicators



### 3.1 INTRODUCTION

This chapter recognize and interpret energy planning to have multiple purposes—a planning tool defined through their interactions between environment, cultural values, economic development and a pathway for self-determination, pride, and empowerment. This chapter is drawing from the motivations of the KO communities that demonstrates the need to include socio-cultural factors as a key driver in local energy development.

The academic approach to “community energy planning” (CEP) integrates policy, urban planning, and energy management components into a single model—Community Energy Management (CEM) (Jaccard et al 1997). Rizi (2012) lists various organizations that have contributed to the concept and practice of CEP from 1997-2010. Present-day CEP approach and practice are more evident in a non-academic landscape and through various lenses—economic, technology, policy, renewable energy and for greenhouse gas emission reduction and are mostly evaluative in nature. St. Denis and Parker (2009) examined ten local action plans in remote, rural and urban Canada affirming that CEPs have their limitations when applied in local contexts. As, each CEP need to be individualized to the attributes of a local community and therefore must have unique approaches, applications, assessments, and contexts. Necefer et al. (2015) notes that local Indigenous community contexts include socio-cultural factors—historical, cultural, artistic, and religious or sacred beliefs both in tangible natural attributes (such as land, sites, lakes, rivers, waterfalls, and mountains) and in intangible forms (such as practices, cultural norms, representations, expressions, knowledge, and skills). These deep-rooted values, identity, and the stewardship of the land needs

recognition, acceptance (Tobias & Richmond 2014) and integration into modern energy systems and development.

This chapter through a literature review, participant observations, and discussions elicits the determinants or the broader circumstances and contexts. The chapter discusses these contexts that are in turn shaped by a wider set of drivers that may potentially form the basis of an integrated CEP. The analysis is also informed by my participation in the annual Northern Ontario First Nations Environment Conference (NOFNEC) in 2015 and 2016 that offered open dialogues. I have then offered a conceptual, bottom-up framework and make recommendations to integrate socio-cultural drivers for efficient energy planning for the KO communities.

The research findings are timely as there is a significant and growing interest in ensuring local energy security amidst longstanding colonial treatment and marginalization of Indigenous communities and in the broader context of Canada's climate protection commitments.

### 3.2 LITERATURE REVIEW

A review of both grey and academic literature was undertaken on the scope and motivations for energy planning by off-grid First Nation communities. For background and historical contexts, I approached KORI and NAN for institutional reports and visited the community websites. Grey literature included international, government and organizational reports and studies.

I queried the Web of Science database with keywords search on community energy planning, Indigenous, Canada, and for multi-disciplinary publications on

natural sciences, social sciences, archaeology, economics, and sustainable development. The database search from 2000 to 2015 found 45 published papers with varied topics ranging from food quality, life cycle based decision making, renewable energy, social mobilization, climate change adaptation planning, of community energy systems, economic impact of an energy policy change in rural Northwestern Ontario, Environmental Assessment in the Arctic, case studies on Nunavik, British Columbia. Addressing Indigenous communities were minimal and none on integrating socio-cultural factors in local energy planning. The few articles that were found relevant for the chapter are included. However, the chapter relied heavily on grey literature, insights gathered from the community visits, and event participation.

All reference to the KO communities is through non-academic documentation except for academic papers on information and communication technology (Beaton 2009). The review identified substantial academic references on local energy planning for renewable energy development by First Nation communities in Canada. Sources on energy planning in urban settings were excluded because the context of this dissertation was remote, off-grid First Nation communities.

A literature review on community energy planning in remote, off-grid situations provides theoretical knowledge of concepts, definitions, programs, tools and approaches in Canada. At the national level, the creation of Aboriginal Community Energy Plans in 2015 focused on improving energy efficiency, reducing electricity consumption, and assessing clean energy solutions. To date, 105 Indigenous communities from remote, northwestern and southern Ontario

benefitted from the Aboriginal Community Energy Plan Program (IESO 2019). The initiative, though well-received, is a top-down program offered without sufficient thought on building the capacities of the communities to undertake such energy planning. This is leading to a consultant-driven dependency and reliance, hefty fees and non-functional reports. Rizi (2012) echoes that better understanding of “on the ground” needs are necessary to increase adoption and implementation of energy plans in First Nation communities. There is not much academic evidence on how effective the application of the Aboriginal Community Energy Plan Program has been for the First Nation communities. This poses a clear knowledge gap in assessing energy planning in practice in the First Nation communities.

An analysis of ten of the first CEPs in Canadian communities included two First Nation communities that stressed incorporating local participation in a bottom-up approach that resulted in outcomes that addressed local needs, values, and resources (St. Denis and Parker 2009). The Hupacasath First Nation in British Columbia undertook energy planning and attributed its success to their Chief. The community’s efforts led to the development of the 5.2 MW China Creek hydroelectricity project followed by a community-led energy planning process (Hupacasath First Nation 2015) that resulted in a remarkably “green” approach (Heap and Weis 2015).

A good example of bottom-up energy planning is also provided by the Tlicho (Dogrib) people in Wha Ti, Northwest Territories, who developed their energy planning by assessing their energy use. This exercise involved the entire community including Elders, youth committees and the local government that subsequently made the project successful (AANDC 2011a). The desire for

community self-sufficiency was identified as a primary motivation for engaging with energy projects in the First Nation communities in British Columbia (Rezaei and Dowlatabadi 2016).

Most of the approaches to CEP assume that local governments will initiate efforts, except for NRCan's guide (Church 2007) and AEA's (2009) toolkit, both of which recognize the role of the community members to initiate a CEP. In a practical sense, local or community level energy planning is not only desirable but also useful. Lerch (2007) noted that when local people are engaged, they invest in the outcomes, thus making community energy initiatives more than just plans. These processes are important because somewhere, amidst the underlying historical context of colonialism and the need to rebuild Indigenous identities, communities aspire to be resilient and free of top-down, institution-driven systems, to take pride in embracing innovation, and to integrate development in their ways of life. Thus, energy security plays a major role in their aspirations for self-determination and sovereignty and is necessary to enhance the capacities and capabilities of all Indigenous Peoples in Canada (Henderson 2013).

Further, field observations and reviews suggests that interrelated and interdependent factors in CEP will have favourable impacts when socio-cultural factors are considered for which the central element must be based on the fundamental and underlying philosophy of Indigenous people that all things—animals, the elements, people, and nature—are connected and that they are instructive and illustrative (Chretien 2010). This is further stressed by Elias (1995) in his chapter in *Northern Aboriginal Communities: Economies and Development*, that any economic development needs to take into consideration cultural

consequences. AANDC (2013) in its Comprehensive Community Planning Handbook for First Nations in British Columbia echoes that celebrating traditions and cultures are important factors in a planning process.

Academic literature, references, and documentation on off-grid energy planning integrating socio-cultural factors in the Indigenous context is limited. This leads to a knowledge gap in understanding and acknowledging socio-cultural drivers as measurable and a potential motivational factor for Indigenous energy planning. In a broader context, indicators and targets to integrate cultural factors are still missing in well-intentioned development programs and policies (UNRISD 2014). The effects of “culture” were not included even in the elaboration of the Millennium Development Goals (MDGs) (UNESCO 2012, UNRISD 2014). These oversights may be due to the non-quantifiable nature of “culture” (UNESCO 2001), as there are evidence to suggest that First Nation communities that are firmly grounded in their culture and secure in the legitimacy of their traditions and social institutions are happier and economically more successful (Kant et al. 2014). Reiterating, tangible and intangible cultural forms can drive sustainable development, as well as serve as powerful socio-economic resources (UNESCO 2012). The Mackenzie Valley Pipeline project guidelines (Mackenzie Valley Review Board 2009) strongly suggests making cultural impact assessment an integral, consistently applied, and appropriately transparent part of any community development planning.

The KO communities are carving their energy development path and efforts are underway to translate the energy planning into practice (KORI 2013). Their endeavors for energy security reflects self-determination and empowerment. This

chapter through community insights identify determinants and drivers for integrated CEP for a conceptual, bottom-up framework. Recommendations are made to integrate socio-cultural drivers as part of a sustainable and functional energy planning approach for the KO communities.

### 3.3 METHODOLOGY

Several qualitative approaches were used to understand, scope and analyze the energy challenges of KO First Nations. Participatory research methods were used in planning the research process. My points of contact with participants were through two community visits to Poplar Hill First Nation, the Independent Power Authority Workshop held in February 2016 in Sioux Lookout, and the Northern Ontario First Nations Environmental Conferences held in 2016 and 2017 to gather a wider range of perspectives. Several members from Poplar Hill attended the conferences too. The total number of interviewees were 47: 25 at the three events and 22 during the visit. Collective perspectives were essential for the process of understanding the local energy system, the energy usage and related contexts, for the generation of central and supporting themes in local energy planning. There was mutual curiosity between me and the community members to understand motivational factors, the determinants and drivers of energy planning and “on the ground” application challenges. During this exploratory process, my role changed as an “outsider” to a “mobilizer,” “information provider,” “ally” and “writer.” The evolution of roles was predominantly based on relationship building, honesty, and trust.

My exploratory discussions were dependent on the nature of the research questions, accessibility and readiness of the community members due to a willingness to make time and to share their views. In some cases, language was a barrier, especially when speaking with Elders or senior members. The questions, drafted in consultation with the KORI Research Director, were broadly under the three sustainable development themes: environmental, social, and economic, as a basis to initiate discussions (see appendix 2). They were adjusted for target groups: Elders, band council members, community members, energy focal points<sup>10</sup>, resource project coordinators, utility officers, industry representatives, and conference participants who have been involved in energy planning with First Nations. The interviews were adapted to each informant's interest, response and willingness to explore topics.

The digitally recorded discussions were conducted in a culturally appropriate manner. When meeting Elders, I carried tobacco and snacks as gifts. For the women gatherings, I had arranged for fruits, cookies, and tea. The women shared dried moose meat. I left the discussions open-ended to minimize the scope for biased opinions (Fischhoff et al. 1992). Most of the discussions either in groups or with individuals in the community and at the conferences were planned as in meeting time with prior permissions but three sessions were informal gatherings in the community—over bead making, cooking meals for Elders, and during casual walks with the women.

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<sup>10</sup> Communities either had a dedicated community energy worker position or appointed a band staff member managing a different file to be the energy focal point for the community.



The questions were grouped under the broad themes of environmental, social and economic, the three pillars of sustainability, and were designed to explore factors as drivers for energy planning, both at an individual and community level. I emphatically mention “individual” to scope heterogeneous perspectives (Rezaei & Dowlatabadi 2015). Discussions also revolved around technology, access to alternative sources of energy, climate change, energy literacy, and awareness because of their relevance and intertwined nature in energy planning.

Under the environmental theme, I sought Indigenous perspectives on how best to align “energy planning” within the Indigenous worldview of sustainability, insights on Indigenous ecological values and beliefs that resonate with clean energy, and reflections on renewable energy sources in relation to Indigenous stewardship of the land.

Socio-cultural dimensions in CEP were explored through questions on personal and community energy choices on fuel options, on how “development” in relation to well-being is defined and perceived by Indigenous communities, perspectives on pro-development or pro-conservation discourse, the implications of energy transition on the communities from diesel to clean fuel options, energy generation and consumption, identifying links between energy security and the traditional way of life, the role of traditional ecological knowledge in the energy discourse, raising energy literacy, designing outreach programs, and understanding intersections of tools such as community land use plans, economic development plans, and infrastructure plans in CEP.

Questions also probed Indigenous worldviews on direct and indirect economic impacts of energy planning for community well-being, as well as views

on new economic opportunities, electricity access as a transformative driving force for new opportunities for women and youth, transitioning from western paradigms of economic development and planning into culturally-centered, and community-oriented electrification planning. Finally, informants were asked to identify the motivations of CEP as a stimulant to traditional economies, development and well-being.

The data from interview transcripts, participant perspectives, my observations, academic papers, reports, websites and e-mail correspondence were collated and qualitatively analyzed. Manual coding was followed using environmental, economic and social thematic filters that were adopted from INAC (2012) and the ecoENERGY Program (INAC 2012). They were done both during and after the data collection and was based on judgment calls, “in-field” perspectives and my interpretations. Coding was followed for an inductive inquiry that collectively formed a pattern through emergent themes. For example; discussions on ‘land’, ‘environment’, ‘living off land’, ‘ceremonies’ formed a pattern and an emergent theme on social-cultural factors’. The outcomes from the discussions are presented here in narrative format and quotes from the participants.

### 3.4 THE DETERMINANTS AND DRIVERS FOR AN INTEGRATED CEP

In-field community engagement and open dialogues at the conferences played a significant role in identifying the determinants that established the broader themes such as environment, social, and economic. And the emergent drivers were—socio-cultural, environment, socio-economic, technology,

governance/institutional mechanisms for integrated and culturally-appropriate energy planning for the KO communities, as elaborated below.

Socio-cultural: In discussion with Ronald Pemmican, the focal point behind the development of Deer Lakes Land-Use Plan, he referenced findings from the plan elaborated in this section. Histories, literature, language, religions, traditions, ceremonies, ancient beliefs, and ancestral and present day ways of life are integrated with the land for KO communities. This intimate relationship between people and land provide distinctive perspectives and voices on renewable energy infrastructure planning, attitudes towards energy options, abilities to control energy consumption, and in making lifestyle choices. Anishiniini Gayenaabuhstooauch Akheeni (Indigenous Use and/or First Nation Use of the land) includes activities that are recognized as Aboriginal and treaty rights under Canada's Constitution, section 35. Besides hunting, fishing, trapping, other rights-based activities on the land include travel on waterways, occupation and maintenance of portages, trails and campsites, gathering of traditional foods for use and special occasions, cutting wood for community use, harvesting of plants and materials from trees for food, medicines, crafts, and structures, building of cabins and shelters for traditional community activities, planting and harvesting wild rice, visitation and maintenance of sacred spiritual and cultural sites and for recreational interests (Pemmican and Sanders 2015; Joseph 2018; KORI 2013 ). Rights-based features include rock paintings, burial sites, historical campsites and settlement locations, family vision quest sites and ancient village sites. These features testify to longstanding occupation by the First Nations with potential sites of artifacts recovery confirmed through archeological records. Preservation and protection of history and cultural

legacies have deep connections to community well-being over time. From an Indigenous perspective, no compromise is to be made with any heritage and archeological resources (Joseph 2018). Careful management of Indigenous cultural values, as well as the promotion of a healthy land base are integral and of high priority to all First Nation communities. Thus, integrating every aspect of land and resource use in energy development is essential whether it is planning for new transmission lines, scoping alternative sources of energy, technology deployment, and undertaking conservation efforts.

Additionally, Aboriginal language is a powerful means of understanding the Indigenous ways of life. The significance and importance of local language to the Indigenous community is immense. As Nicole McKay said:

I and my husband are trying to teach our children our language.

Using local language to translate technical energy terminologies can enhance energy literacy and community-based knowledge. Collectively, traditional knowledge, historical facts and communication through local language will contribute to identifying community-wide energy planning assets. Engaging with the Elders and members of the KO communities will increase local capacities in conducting energy surveys, baselines, and assessments in a sustainable way.

Marginalization through the residential schools has left devastating and ongoing multi-generational impacts on health and welfare of individuals, families, and communities that challenge community development efforts. The trauma is reflected and reverberates through physical, psychological and economic disparities that persist across generations leading to weakened social structures. Individually, exposure to trauma has manifested into discontent, anxiety,

depressions, grief, and addictions within generations in the community. Efforts to engage with the community, especially the youth, in taking stewardship role in energy planning poses challenges due to ongoing personal struggles. This was made evident during discussions with Howard Moose from Poplar Hill. Howard managed the electrification system in Poplar Hill. He shared his concerns about not able to recruit youth to take jobs in the power generating stations in the community and even when they took many a times they simply don't show up for work.

Understanding and being sensitive to the community's past and historical contexts are social determinants that impact effective implementation of the CEP due to shortage of people to take up energy related work in the community.

Environment: This section elaborates upon the First Nations peoples bond with the land. The relationship is to be respected and is essential when planning for any energy infrastructure development including renewable or transmission lines. These becomes important drivers in the environmental assessment process. Deer Lake, one of the KO communities consider waterways (e.g. rapids, rivers, falls and lakes) as important sources of subsistence and economic activity (Pemmican and Sanders 2015). Protecting culturally significant ecological systems—waterways, aquatic habitat, fisheries, wetlands, wildlife, forests, and biodiversity and the KO communities' way of life to which all these forms of life are interwoven is critical for efficient energy planning. Thus, the need for current and future community energy access, infrastructure interests, roads and transmission corridor routes, renewable energy options can be realized while respecting Aboriginal and treaty rights, minimizing energy development footprints on

ecosystems, water crossing, cultural sensitive sites, roads, and corridors. This way, a balance outlook to the developmental processes and the desire to stay on the reserve is maintained.

Socio-economic: Local energy development is key to the success of any developmental activity in the community, be it renewable energy, tourism, mineral development, commercial forest harvesting, fishing or trapping is directly or indirectly dependent on energy supply. This was effectively conveyed in the business case made for the transmission line project (Wataynikaneyap Power 2015). Thus, energy planning must include due consideration for future developmental activities and community demographics, gender distribution, social cohesion and structure, energy use and consumption trends, existing and future infrastructure for residences and businesses and for job creation. Efficient energy planning will support existing and potential resource development opportunities including the housing and infrastructure needs of the community. CEP incorporating community development plans such as land use, economic and resource development, water treatment plans, waste diversion plans will prove to be beneficial.

Technology: A key determinant in energy planning is that the technology to be adopted should fit KO communities' plans for renewable energy or in any technology-intensive development and conservation efforts. Feasibility studies, costs and benefits assessments, market trends, adaptability, flexibility, reliability for technology deployment will be required to determine the potential of an energy development project, in establishing a renewable energy infrastructure. Edward

Hoshizaki provided the example of the reasons behind Deer Lake's run-of-the-River and solar project doing well. He reflected:

It is because of the sound business plan undertaken that used all parameters for successful outcomes. The business plan was based on operating on a functionality where Hydro One, that is already servicing Deer Lake to become a market to sell the power to. Hydro One purchases electricity at 91 cents/ kWh for solar, 40 or 50 cents/kWh for run-of-the-river project. It is not necessary that this model will work for Poplar Hill or the other KO communities.

Further, any new technological approach would need to be aligned with conservation and natural resources protection efforts. How Indigenous people relate tangible and intangible attributes of nature can help promote the acceptability of new technologies and innovations. In KO communities, diversifying with renewable energy sources like run-of-the-river and solar power is highly supported. At the time of writing this chapter, biomass, though well-received and very successful in many communities was considered a lesser option due to a lack of clear understanding on its source, and infrastructure know-how and, more importantly, the presumption that biomass requires felling trees that goes against Indigenous values. Presently, though there is a growing awareness on biomass as a fuel source, however, due to lack of demonstrative evidence of a First Nations led project in the northwestern region of Ontario and lack of the supply-chain infrastructure has deterred communities to pursue bioenergy. Brian Kurikka added:

The community is concerned to use biomass-cut down all our forest. In Sachigo Lake, there is 30,000 cubic meters of annual amount of wood within a short distance of the community ... they would need 10,000 annually. So a surplus of 20,000 ... so, if they collect wood when clearing grounds for making houses, insect damaged wood, during harvesting, widening of road ... so, there are jobs created ... just harvesting wood can create jobs. Part time job in silviculture too. However, effective Forest Management Plan has to be included in harvesting! Leaves can be left on the ground – part to the plan ... different for each tree- aspen, birch, pines etc.

For non-agriculture communities and remote - awareness of greenhouse can be given..they can grow vegetables in the winter with the waste heat generated from the diesel power plants. Hydro One can do that! To put the green house right beside the generator plant. There is enough heat to run a small green house – with minimal additional infrastructure cost.

However, a big challenge is the lack of energy experts and workers in the community to carry out new initiatives. The same speaks for post-installation maintenance and sustainable operations. This was echoed by a number of voices including Howard Moose, Philip Howe Sr, and KORI. There is evidence of projects being either stalled or dependent on consultants. Energy planning requires addressing the technological service gaps when planning for energy options.

Governance/Institutional Mechanisms: Progressive leadership and inclusive, transparent and robust community engagement processes are pivotal determinants in energy planning. KO communities are striving to provide opportunities for their members to play multiple roles and benefit from their ideas, talents, skills, and resources, such as Elders, senior members of the communities, teachers who can be local voices of knowledge. KO communities are recognizing the need to identify and mentor “local champions or ‘go-to’ energy focal points or coordinators”, and build local capacities to play one or more of these roles.

When I visited Poplar Hill, I met Phil Junior. He was the newly appointed Youth Community Energy Worker. He took me around the community, showed the diesel tank farms, the newly built school, and the solar panels on the motel and by the airport. He spoke to the community over the radio and informed them that he and I will be coming around and meeting them to talk about energy developmental projects in the community. We also made a short video on what he thought of all the solar projects in his community. He made me very proud and I was very impressed to see his confidence. Phil Junior was the energy voice of the community.  
- Rakshit, 2019



Engaging the youth and “training-them-young” for such a role would be beneficial at so many levels, including their interest with new technologies. Institutional mechanisms for transitions between energy services-from IPA to HORCI operations by appointing locals could be an approach to effective planning. Active participation of women, who play multiple and influencing roles, is a way forward.

KORI played a supportive and intermediary role by understanding the community contexts and external stakeholders. They drove community actions and promoted community changes by: mobilizing; addressing opposition and resistance; maintaining efforts; influencing decisions on local energy systems; achieving community-level improvements of energy infrastructures; and developing awareness tools for CEP. They encouraged building local capacities to conduct surveys and to collate baseline data and information for energy planning, a key consideration for sustainable outcomes and necessary to wean communities from “external consultant dependency”. A team comprising of the Chief, Band Council members, community advisory members, relevant federal and provincial ministries, external stakeholders and partners, and technical experts can form advisory groups with defined terms of reference for desired results and accountability. Elders have an important place in the decision-making process and play a very influential role in KO communities. I was informed by KORl that Elders are members of the Band Council. And it was important for me to have a dialogue with them. Their wisdom, visionary advice was always well-received and respected. They shared potential challenges including generational gaps and heterogeneity in decision making that is affected by work cultures, dynamics, and

transitional acceptance. Another institutional gap is that the community is always in “election mode”, due to the Indian Act requirement for elections to be held every two years. This results in a rapid turnover of chiefs and council members that affects motivation, time and resource commitment to energy planning.

### 3.5 ELEMENTS OF AN INTEGRATED CEP FRAMEWORK

CEP is in its formative stages in KO communities. Key elements were identified through the semi-structured interviews for an integrated approach, as elaborated below.

Community Participants: Socio-cultural knowledge is best learned through community engagement that is pivotal to functional energy planning. Participants include Elders and spiritual leaders for their guidance and valuable insights, wisdom, stories and life lessons on conservation and sustainability. Engagement with a community’s tribal council, chief and band council members, local champions, community members-at-large, women, youth councils, teachers and education boards, and utility officers for economic development, human resources, land use, natural resources, health, social services, and public works could contribute their respective expertise and knowledge toward defining the objectives of energy planning and in the development of various assessment tools. CEP must also aim to provide two-way information and communication channels on energy development initiatives to facilitate knowledge mobilization, with the overall objective to empower community members to contribute to informed decision making in energy planning, for example, an open house event in the community, social media, and radio.

Partnering with External Stakeholders: Understanding roles and responsibilities of the number of companies, agencies and regulators in Ontario's electricity sector can be intimidating. The federal and provincial regulators like, the Ministry of Energy, Ontario Energy Board (OEB), the organization with the System Operation, Planning and Procurement portfolio is IESO, Local Distribution Company (LDC)/Generation and Distribution agency is HORCI, funding agency such as INAC, chief and the tribal council leadership play significant roles in energy planning in a KO community. Partnerships should be founded on the principles of protecting the lands, waters, and way of life of Indigenous Peoples and ensuring benefits for future generations. Access to alternative sources of energy, grants and funding allocation and distribution, regulations and acts of legislation, conservation incentives, energy efficiency programs, and scoping renewable projects are areas that calls for inclusiveness participation of the First Nations. Regular reminders through newsletters and awareness materials, and education will not help put theory into practice without the trust between these stakeholders and the communities.

Tools and Resources: Traditional ecological knowledge must be considered in environmental assessment, in establishing criteria for sustainability, and as a powerful tool for managing environmental risks (Berkes et al. 2000). The role of traditional knowledge, when well documented, interpreted and applied can benefit and complement western worldviews (Stevenson 1996). Incorporation of both western science and traditional knowledge into studies, maps, planning, and assessment tools facilitates cogeneration of knowledge that is technically sound and connected to local value systems, needs, and priorities. Other KO community

resources such as economic and resource development plans, housing and infrastructure development plans, oral community knowledge, and traditional land use studies can provide community data and information, such as heritage sites, ceremonial places, hunting, hunting, and trappings lines. Such studies can inform the goals and objectives of energy planning, form the basis of baseline data for financial and logistic assessments and collectively indicate sustainability criteria.

Managing External Stressors: Energy regulatory complexities, partnership building complexities and consensus, collaboration challenges, communication challenges, corporate interests versus community needs, budget uncertainties and delays, and timeline fluctuations are external stressors that are intimately linked to energy planning and can be improved with better understanding of local contexts and socio-cultural factors. Approaching the KO communities with respect and lending keen ears to listen will have far-reaching impacts and acceptance.

Based on the above understanding obtained from community discussions and the literature review, a conceptual framework is suggested for the KO communities as indicated in Figure 11. A reductionist approach is used to design the conceptual framework that was predominantly driven by my empirical observations and informants' insights. The detailed description in the results and discussions, explains the elements of the framework and their interconnectedness and relationship with the land. They reflect the voices of the community on a potential functional, bottom-up approach to energy planning. Figure 8 is a visual representation, a less formal structure, explaining the observations, and providing a context and directions for culturally-appropriate energy planning in the KO

communities. It is not based on any previous theory or model but provides a fresh outlook to include social-cultural factors as an efficient driver.

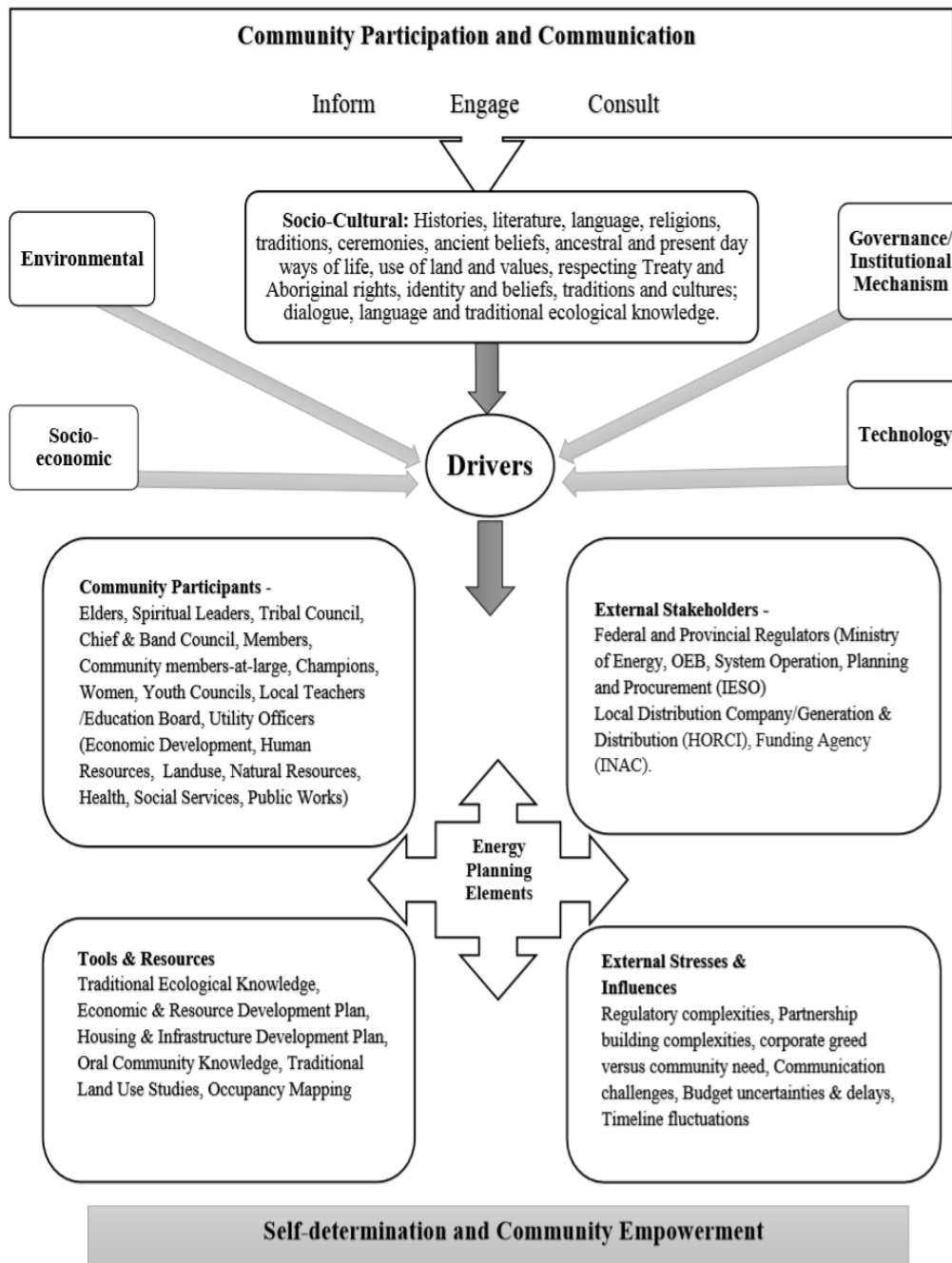


Figure 11. Community Energy Planning Framework (Rakshit 2019)

### 3.6 CONCLUSIONS

The off-grid, remote northwestern Ontario KO communities have expressed their interest in addressing energy insecurity by enabling and supporting energy development through functional and relevant energy plans based on their history, values, culture, spirituality, language and traditional knowledge. Energy planning processes that enable them to participate fully in their own social and economic advancement and to manage their lands and resources while maintaining their sacred connections to Mother Earth can lead to efficient and sustainable energy solutions.

Their present-day energy crisis and challenges due to historical contexts, diesel-dependency, lack of local capacities, tools and resources, top-down energy planning guidelines, and minimal community engagement require urgent action by the KO communities for their energy security. However, each community is unique in its composition, size, energy consumption trends and needs, thus, a generic energy planning approach will not meet every community's requirements.

Drivers—socio-cultural, environment, socio-economic, technology, governance/institutional mechanisms, derived through active and informal consultations and engagement through the interviews play very vital roles for developing culturally-appropriate energy planning, that are often ignored.

Integrating the communities is beneficial in building robust “community-centric” energy plans and most importantly, in enhancing local capacities, capabilities and the confidence. The efforts are undoubtedly a self-determined approach in finding sustainable energy solutions. The chapter emphasizes that energy development for the KO communities in particular, and the First Nations, in general, is linked to

First Nations energy sovereignty. Additionally, the IPA context provided challenges and opportunities (Gasparotto 2012) for Poplar Hill, summarized below:

- Regulations required for local standardization on the generation, distribution, delivery, operations, and retail management of community electrification. This calls for acceptance and willingness to permit and enforce changes at the community level. Poplar Hill, along with other IPA communities can collectively make an agreement.
- Standardized approach was also required for communities to manage and account the present energy system which are presently, contracted or out-sourced, local administered by the Band Office, Independent local authority, or a combination of either of the above practice. This could potentially provide opportunities to in making effective business cases to make financial requests for asset capitalization, subsidies, rate requests, etc. Such a practice could also help making a case for ownership and businesses.
- There is scope to develop an IPA utility with economies of scale, share success stories, logistic, and operational support for increased revenue.

First Nation participants at the IPA Workshop, February 2016, Sioux Lookout provided the below insights;

- For us, becoming a licensed distribution company...the likelihood of that is slim.
- All the IPA get together and become a licensed company or join HORCI.
- Historically, 20-30 years back -when building infrastructure in communities, Hydro One was initially approached to become power distribution...at the time, they felt that didn't have the capacity...so decision was made to incorporate IPA in each community ...there was no license required. But, now in order to get a provincial license, you must be connected to HORCI.
- Vision of leadership is important.
- We need to understand how to do local distribution.
- Crux of the issue is the RRRP.
- IPA Business plans need to be updated.
- Running an IPA is a difficult enterprise.

The proposed conceptual energy planning framework that is drawn from participatory action and Indigenous research methods embodies community voices, community aspirations, their needs and desires. Development plans including energy solutions must be derived at through local participation that can

eventually guide energy conservation and renewable energy development.

Community well-being can be enhanced with the amalgamation of innovation and technology on the one hand and local traditions and culture on the other. This must be done considering the unique needs and socio-cultural framework of each community.

Further, as the provincial government is strengthening and transforming its electricity and fuels systems, Indigenous communities are emerging as critical partners in the broader energy planning landscape. They are bringing unique perspectives, knowledge and leadership to energy projects and energy systems development. Such an approach supports better outcomes, services, and local data gathering. This is a crucial step in advancing energy development that is also informed by and responsive to the region's diverse First Nation communities.

Potential future research paths could be developed with more culturally-appropriate tools and platforms to support Indigenous community engagement and leadership, and to explore consistent and systemic energy policy approaches to complex socio-cultural economic and socio-technical systems in the local Indigenous contexts. However, a cautionary word is against pursuing a one-size-fits-all strategy, as each community has unique needs and capacities.

The overarching purpose of this chapter was an attempt to bridge the knowledge gap about socio-cultural requirements, the "social costs" in energy planning and to advance academic literature on Indigenous perspectives on energy planning. Initiatives and activities that are grounded with cultural values make sound institutions and economies. This is more so with the First nations who follow distinct ways of life and beliefs (Kant et al. 2014). The voices and



expressions of First Nations, vital to community acceptance and reflected through KO communities, help guide a way forward to functional energy planning, not just on supply options but on efficient energy use too. The emergent, community-driven energy development approach could be an effective planning tool and create self-determined and empowered Indigenous KO communities. As Brian Kurikka said:

First Nations in northern Ontario are more impoverished – they are forgotten...other parts have moved on.

In conclusion, in this chapter, I am driving the point that electrification is a basic human right and First Nations treaty rights and is necessary in improving lives of the Indigenous people living in remote, poor communities.

## CHAPTER 4. COMMUNITY CAPACITY BUILDING FOR ENERGY SOVEREIGN

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## ABSTRACT

Ontario's 2017 Long-Term Energy Plan has identified the Wataynikaneyap Power transmission line as a priority project. The province's current energy mandates and policies commit program dollars to build the human capacities of the seventeen Wataynikaneyap Power communities through the Remote Electrification Readiness Program (RERP). This effort is part of growing interests, changing perspectives, and focus in the continuum of provincial strategies to encourage First Nations to meet their emerging energy transitional needs and to partake in the energy sector. Capacity-building challenges are unique in the Wataynikaneyap Power communities because they experience higher levels of poverty and socio economic inequities, are subjected to antiquated and unjust institutional structures, are following a legal and self-governance status, and are maintaining distinct cultures and ways of life. Capacity building as a concept is wide-ranging and offers a multitude of expressions and interpretations. For the Wataynikaneyap Power communities, capacity building has offered the opportunity to exert their inherent rights and to increase their participation in local and regional energy planning and development. This community-based research is derived from grassroots participatory observations. Through a case study of one of the Wataynikaneyap Power communities, Poplar Hill First Nation, the chapter will: a) elucidate a working example of an Indigenous capacity-building process through the RERP; b) demonstrate that capacity development is a key building block for self-determination and to achieve energy sovereignty; and c) illustrate the broader scope of learnings and pathways to effective capacity building for Indigenous communities that will drive energy development initiatives and actions in Canada's expansive energy sector.

Keywords: aboriginal peoples, capacity building, energy transition, ethnographic research, northwestern Ontario

#### 4.1 INTRODUCTION

The Wataynikaneyap Power Transmission line, a First Nation-owned and led company has been chosen by the province to construct and operate the new transmission line, connect seventeen remote First Nation communities to the provincial grid, and provide electricity to more than 10,000 people in northwestern Ontario. It was a historic milestone and a proud moment for the First Nation people of northwestern Ontario (Wataynikaneyap Power 2016). As Margaret Kenequanash, the Chief Executive Officer of Wataynikaneyap Power explained to the community workers in one of the community Open Houses:

Our community are at capacity. They are maxed out...what that means is that it is difficult to continue expand the infrastructure. Connection to the housing, compromising our existing infrastructures like sewage and water. It affects your food, shelter and water...pretty much.

Last I heard, federal government spends about \$98 million annually to sustain our diesel generators in the communities. If we connect to the grid, we will save at least a billion dollars on part of the federal government. Also, we have to take care of our environment, as stewards of the land, then there is emissions, the transportation cost. Communities are having a stunt growth with no scope of economic development....We have to look to the future.

The communities working together and controlling the development of the transmission line infrastructure within their traditional lands is proving to be a remarkable fruition of true partnerships. There is a total sense of self-organization.

This is the first time we can take part in a project of this size and importance. Developing this project will provide our community a sense of pride and self-esteem that we can leverage for other projects.

- Bill Sainnawap, Big Trout Lake First Nation, (Wataynikaneyap Power 2016).

Once this idea of constructing and operating the transmission line was conceived and well on its way to development, the ensuing challenge was to

discuss potential challenges. Community capacity, presently inadequate to non-existent, was soon recognized as one of the urgent concerns.

At this point, it is pertinent for all groups—academicians, policy-makers, investors, project proponents and other interested stakeholders involved—to have a collective understanding and clarity about what capacity building means in the context of Indigenous populations and their interactions and partnerships. This is also in recognition of and commitment to the legitimacy and primacy of community ownership, decision-making, and actions. Stevenson and Perreault (2008) show that Indigenous Peoples view the issue of “capacity” as a two-way street emphasizing that both industry and government need to build their capacities for a broader approach and multiple perspectives.

In a World Bank study (Uquillas and Martinez 1995), capacity building is a generic understanding comprised of four inter-related elements: human development; the restructuring of institutions; political leadership, and an insight that begins to incorporate strong human elements (Woons 2014). Eade and Williams (1995) suggest that capacity building is the basis for development that strengthens people’s abilities to determine their own values and priorities and to organize themselves to act on them. Kusel (1996) considers “community capacity” as the collective ability of a community to respond to both external and internal stresses, to create and take advantage of opportunities, and to meet the needs of the community. Littlejohns and Thompson (2001) offer a similar viewpoint in that the degree to which a community can develop, implement and sustain actions allows greater control over its physical, social, economic and cultural environments. In principle, these varying viewpoints place the intended

beneficiaries in the driver's seat (O'Shaughnessy et al 1999). Building capacity is about social change—when effective, it is transformative and forms the basis for self-determination (Missens 2008; Fletcher et al 2008). Taylor (2003) asserts that capacity building is underpinned by principles of self-determination and is an important measure and step. This is especially true in marginalized populations (Smith et al 2003). Five Nations Energy Inc., founded in 2001, offers an example of a First Nation-owned licensed electricity Transmission Company (Chilton 2012). Developing local capacities to operate the system today is the company's biggest strength. Missens (2008) asserts that capacity is the combination of people, institutions, resources, organizational abilities, authority, and practices that enable First Nation communities to reach their own goals. This leads to a discussion on a holistic approach to building capacities. Past research (Kusel 1996; Nadeau et al 2003) provides generic typologies of capacity resources that can be adopted for the energy sector, including:

- Human resources: skills, knowledge, education, leadership ability;
- Institutional resources: governance and management systems;
- Knowledge resources: databases, baselines, traditional knowledge systems;
- Social resources: community cohesion, partnerships and networks, interpersonal relationships, trust;
- Physical resources: infrastructure, buildings, technology, roads;
- Cultural resources: traditions and values, land ethic, lifestyle;
- Natural resources: land, forests, water, wildlife, ecosystems; and
- Financial resources: capital and project funding.

These resource types are inter-dependent and overlapping and require addressing gaps in all types of resources. Additional resources in the context of First Nation energy development include the foundational components of Aboriginal and treaty rights and title, leadership, community governance frameworks, and political will (Kepkey 2007).

Community preparedness and building local capacities are required to maximize the opportunities that the Wataynikaneyap transmission line will provide. It requires the communities to be ready to take up employment openings, spin-off businesses, and entrepreneurial prospects. Ontario, through the Ministry of Indigenous Relations and Reconciliation, announced remote electrification readiness grants to assist the seventeen northwestern remote First Nations' plan for grid connection. Sentiments of the RERP workshop participants on engaging with different community groups are shared below:

- Communities expressed excitement for the youth with new opportunities.
- Ambitious project. Lot of work to do. But, we will learn together.
- Motivating our students is important. They have a lot to deal with – and enhance their self-image.
- How to bridge the minimum qualification gap for employment? It is demotivating.
- On community engagement, to get leadership involved in community events, open houses and radio shows to reflect support.
- Seek guidance from Elders. Make sure they understand the capacity building initiative.
- Get everyone's cooperation-youth, women, outdoor men (fishermen, trappers, line cutters), entrepreneurs, education councillors, and spiritual leaders.
- Offer gifts and prizes at community events.

The one million dollar per year Remote Electrification Readiness Program (RERP), covering the three-year period from 2014-2017, was then created to assess the employment, economic, business and training gaps of the seventeen

communities (Wataynikaneyap Power 2016). The RERP is part of the Ontario government's economic plan for supporting strong and healthy First Nation communities, by investing in people's talents and skills and creating a dynamic, supportive environment where the economy thrives. In the context of developing community capacities, it is important to acknowledge not just the end goal but also the process. The RERP, though a top-down framework, helps the remote First Nation communities develop their own readiness plans that include the following process: (i) identifying community resources, (ii) undertaking a gap analysis and prioritizing community needs, (iii) developing an action plan to leverage programs, services and community resources to address identified gaps/community needs, and (iv) implementation and ongoing monitoring. The effectiveness of the RERP in articulating the nexus between sustainable energy transition and enhanced capacities in fostering self-determination has yet to be analyzed.

This chapter illustrates a working example of an Indigenous approach derived from a western RERP framework. Extensive participatory and collaborative grassroots methods assessing needs resulted in identifying the gaps in community capacity. The process allowed the communities to understand their own capacity strengths and weaknesses. The assessments were based on a community-driven preparedness approach in addressing local transitional emerging issues and in building their capabilities and confidence. Further, the knowledge and skills gaps identified as necessary for building the transmission line had the potential to be transferable to other infrastructure-related jobs. Although the outcomes and changes may not be measurable for several years after the implementation of a community project (Paradis et al 2005), growth in

community capacity can be documented throughout the community-based project (Smith et al 2003).

The outcome of the chapter demonstrates that developing capacities is a key building block for Poplar Hill's self-determination and energy sovereignty. The chapter concludes by summarizing the broader scope of learnings and pathways to effective capacity building for remote Indigenous communities in driving initiatives and actions for local energy development and services and in the far-reaching landscape of the energy sector.

## 4.2 METHODOLOGY

I took participatory observation as the approach for this chapter. The guiding principles included: an emphasis on exploring and experiencing the energy transition process without deciphering theories; working with the flow of information and narratives generated and not with structured data formats and figures; and making a unique attempt to create knowledge that may potentially be not quantifiable (Atkinson and Hammersley 1998). Dewalt and Dewalt (2002) believe that participant observation as a research method helps to provide a holistic and objective understanding of the context and phenomenon under study. Finally, Krupa (2012b) affirms that such a process offers communities an opportunity to express their indigenous development vision, which can provide a possible template for other aspiring communities.

Northern Chiefs Council, KO and KORl, acknowledge the benefits of grassroots, community-based research (KORl 2012). In keeping with this, they enabled me access to open houses in Poplar Hill and other KO communities,



attend capacity workshops, have informal discussions with a variety of community members and individuals holding energy files, and, finally, access a broad range of grey materials such as workshop reports. This chapter acknowledges the association and contribution of the Northern Chiefs Council, KORl and the Poplar Hill community.

A key element in the RERP process facilitated and led by Edward Hoshizaki and Gail Murray was collecting the community demographic baselines from Statistics Canada and community-wide surveys. John Cole, ex-RERP Coordinator from Shibogama Tribal Council said at a RERP Community Worker Workshop:

RERP is preparing our communities...its all about planning. We start baselines. It is a starting point. We have to collect information on how many people are employed? How many programs? What they are doing? How many local businesses to start and grow? Once we have that, we do the need assessment. It is a process that we have to do.

- John Cole, ex-RERP Coordinator

A review of existing data was also undertaken to avoid duplication of efforts, identifying the data gaps, and also to validate the data received from the cross-section of sources. Statistic Canada data posed advantages and disadvantages. The data were readily available and inexpensive due to online public access; however; acquiring up-to-date census statistics was a challenge as the mandatory long-form census was replaced in 2011 with a voluntary National Household Survey, leading many to question the reliability of the census data (Hulchanski et al 2013; KORl 2017b). Another problem was that many Indigenous communities, for various reasons, are improperly counted. This makes data analysis and comparisons from one census year to another difficult (Southcott 2009). The community survey on the other hand was found to be more reliable as they were

done with local information access. Phil Junior, Poplar Hill's Youth Energy Coordinator was considered "one among us" person to carry out the survey. The surveys extended to beyond data collection. Ground-reality insights on motivational factors and challenges in acquiring employment skills were solicited.

Once the demographic baselines were collected, asset and business directory information was collected through surveys, discussions in meetings, and workshops from December 2015 to June 2016. K-NET<sup>11</sup> designed the online database and interface <http://wataytraining.knet.ca> for easy access and to complete the online surveys. The analysis of the data collated were downloaded in the CSV format and as Microsoft Excel sheets. The extensive data gathered provided a clear picture of the community's training needs and expectations (KORI 2017b). The results of the RERP process was shared and discussed with the Poplar Hill community through a workshop.

#### 4.3 WHY BUILD CAPACITY?

The Indigenous Peoples in Canada have been and continue to be impacted by colonization with ongoing process of deliberate displacement, cultural aggression, and systemic oppression. The continued exploitation, marginalization, and colonization has resulted in current day consequences (Yee 2015). Poplar Hill continues to experience a high level of poverty due to several factors including the

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<sup>11</sup> K-Net is a unique First Nation-owned and operated ICT Service Provider leading the way for rural and remote First Nations of Ontario into the ever-growing world of information communication technologies. Based out of Sioux Lookout, Ontario, K-Net materializes a wide range of capacity building services visualized by First Nations, such as cellular service, broadband connectivity, and online applications (<http://knet.ca/>).

impacts of colonial impact, isolation, lack of economic opportunities, and a shortage of trained workers (Alfred 2009; Allan & Smylie 2015). Its distinct cultural values and lifestyle are different than those of non-First Nation communities and their governments. Poplar Hill, along with NAN communities, is presently negotiating a form of self-government<sup>5</sup> with the federal government. This is important to note as it has resulted in the community being proactive and taking responsibility for on-reserve operations, very critical to building institutional capacities during transition to sustainable energy solutions with open-mindsets in adopting related emerging challenges. Building the capacities of the youth is another critical reason. In any number of discussions with community members on human capacity, the prominent keywords reflected are community, skills, sustained, people, pride, youth, and future. The word “youth” is repeated several times. I visited David Jeremiah’s community - North Caribou Lake First Nation, also known as Weagamow First Nation or Round Lake First Nation in northern Ontario, Canada in September 2015. David had just got the job of the Community Energy Planner. He shared his passion, excitement, and commitment to his community at the NOFNEC 2015.

I stood for band election. My platform was renewable energy. I was short of only few votes. But, I got the job of the energy coordinator in my community. I had no idea what I was going to do. I had no desk, no computer. I asked the smartest person – google and researched on renewable energy.

I started with Band asset collection to see how much my Band spends on electricity...the numbers were mind boggling - \$1 million. The more I listened...the more I became aware that my community needs to do all this.

I started doing programs. My community started off with solar.

One X-Mas, which I call Black X-Mas, a generator blew up...we did not have electricity...we didn't feel like X-Mas.

I now work closely with Windigo, Tribal Council. HORCI, IESO, NCC.

I day dreamed – about my baby project...I contacted Canada Mortgage and Housing Corporation about our housing...is so poor...we want to do 10-15 new units that will work on alternative energy...maybe solar.

I am young. It is a dream.

- David Jeremiah, North Caribou Lake First Nation

According to the Constitution Act, 1867, energy and electricity are the responsibility of the provinces and territories. The Government of Canada is responsible for on-reserve governance, but the Province of Ontario is responsible for energy development on provincial Crown lands. Wataynikaneyap Power communities, including Poplar Hill, are taking the lead on the provincial 1,500 km new Wataynikaneyap Power transmission line. Fifty-one percent of the project is owned by 22 First Nations (Wataynikaneyap Power 2016). The project is expected to generate significant economic benefits for First Nations, northwestern Ontario, and the rest of Canada more broadly. During the construction period alone, roughly 261 jobs in northwestern Ontario and almost 769 across Canada are expected to be created (Pricewaterhouse Coopers LLP 2015). Once operational, the project will help alleviate the load growth restrictions that hinder economic growth. Other significant socioeconomic benefits will include: lower cost of service; ongoing economic impacts from increased economic growth; increased energy availability and quality; decreased emissions; improved health outcomes; avoided diesel spills; and improved quality of life (Wataynikaneyap Power Project 2015).

Poplar Hill, in preparation for the transition from the diesel-dependent energy systems to being connected to the grid, assessed employment, economic,

business and training gaps through the RERP. The aim was to prepare the community for the transmission line construction, to ensure maximum employment and business benefits, and to enhance readiness for future energy and other development projects. The RERP pathway indicated in Figure 12 included:

Acquiring community baseline information and developing a resources/assets inventory; developing a community needs assessment and undertaking gap analysis; developing a community readiness action plan; and Implementing and carrying out the readiness plan through hands-on training.

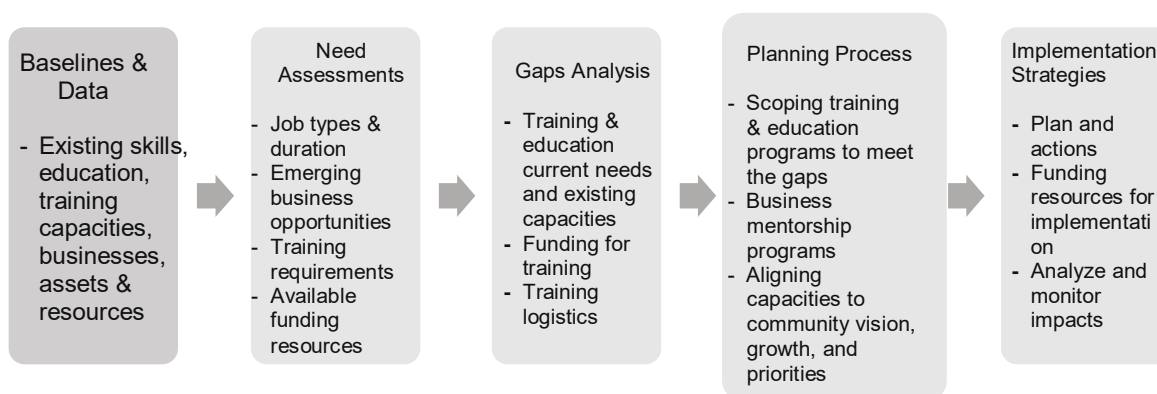


Figure 12. RERP Project Pathways (Wataynikaneyap Power 2016; KORI 2017b).

The RERP training hired Phil Junior in Poplar Hill, who was provided with a range of information, resources, and tools to assist the community through the transition to the point of being “ready”. Active dialogues and discussions ensued on emerging transitional issues including post-grid local operations, roles, responsibilities, expectations, billing, payments, and connections rates. Perspectives were shared on a wide array of socio-economic impacts and changes due to the transmission lines that called for urgent coordinated actions.

The holistic and concerted approach by the community was a positive step forward towards sustainable post-transmission operations and management.

Through the RERP, Poplar Hill got the opportunity to deliberate on alternative energy solutions as well. They consulted relevant agencies including the service provider, Hydro One Remote Communities Inc. and the regulators<sup>12</sup>—Indigenous and Northern Affairs Canada, Independent Electricity Systems Operator, and the Ontario Energy Board on the Ontario Electricity Support Program—on retrofitting, improving energy efficiency, promoting energy conservation, the adoption of renewable energy, and the mechanisms for energy planning decisions to support local economic development.

#### 4.4 KEY FINDINGS

Community Baseline: The baselines established highlighted opportunities to explore where, why and how change and transition need to happen in Poplar Hill. This included general demographic characteristics such as population trends, labour force activity, the age structure of communities, and educational and

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<sup>12</sup> Canada's main federal energy regulatory agency is the National Energy Board. Other federal departments or ministries involved in the energy sector include Natural Resources Canada and Indigenous and Northern Affairs Canada, now split into two departments: Indigenous Services Canada and Crown-Indigenous Relations and Northern Affairs Canada. In the Province of Ontario, the Ministry of Energy oversees the electricity sector and issues directives to the Independent Electric System Operator (IESO) for generation, transmission, management and conservation. The Ontario Energy Board is the regulator of the electricity sector. Ontario Power Generation—a Crown corporation—owns and operates more than half of Ontario's electricity generating assets. The local distribution company providing electricity utility service to remote communities is Hydro One Remote Communities Inc., a subsidiary of the Hydro One Inc., that manages and enforces a variety of regulations pertaining to electricity supply and distribution, upgrades and maintenance, reliability, safety, accessibility, conservation, and billing services (Hydro One 2009).

income levels. Baselines articulated values and assessed current weaknesses/issues and their root causes. The process inspired a readiness action plan.

Demographics: Since the 1970s and earlier, the community has experienced tremendous growth, despite out-migration. Children between the ages of 0-15 make up 83% of the total population, reflecting a young population (Statistic Canada 2016), a differing factor from the non-Aboriginal population, which, in addition to a declining population, is aging (Southcott 2007).

Labour Force: A proper understanding of the existing labour force conditions came from the RERP Community Survey. The current “official statistics” were recorded from the 2006 Census and so must be assessed with caution. The job situations vary considerably and are seasonal. The labour force data collected do not account for seasonal variations or rapid shifts in employment. This is especially problematic for Poplar Hill and other Indigenous communities in northern Ontario where seasonal wage-labour positions are common (KORI 2017b). As such, census labour force data for employment and unemployment rates have many problems associated with them. It is advisable to avoid generalizations about unemployment rates based solely on census rates. Participation rates, which include those working and those unemployed, are more reliable as they are less likely to be affected by seasonal variations.

As is the case for occupations, community readiness can be partially assessed by a knowledge of the industries in which people living in the community have experience. Table 1 lists the five most important industry categories in Poplar Hill. The largest single source of employment is public administration, followed by

health care and social assistance. It is common knowledge and as shared by KORI ex-Director;

Everybody wants to work in the Band. Band is the only place with direct and indirect job opportunities.

Table 1. Employment Breakdown by Industry in Poplar Hill (KORI 2017a)

| Governance/<br>Band Office | Educational<br>services | Health care<br>and social<br>assistance | Tikinagan<br>Child &<br>Family<br>Services | Police | MTO<br>Airport |
|----------------------------|-------------------------|---|--|--------|----------------|
| 80                         | 22                      | 25                                      | 6  | 2-4    | 2              |

There is potential to extend this industry base to community energy projects as there is unused labour available, especially the young population in Poplar Hill and the Wataynikaneyap communities. As Jacob Strang, Deputy Chief of Poplar Hill First Nation, says:

The Wataynikaneyap Power project provides a future for our community's youth with job creation.

Education: The data presented in Table 2 refer to levels of education in Poplar Hill. The experiences of many community members in residential schools has led to a widespread rejection of established formal institutions of education. Statistics Canada 2016 census record 92% of non-Indigenous young adults (pp. 20-24) having at least a high school certificate compared to only 48% living on reserve (Richards 2017). Given this history, it is not surprising that the levels of formal education are low. Commito (2015) asserts that Aboriginal education continues to be a primary concern for the province at large.



Table 2. Formal Education Levels in Poplar Hill (Statistics Canada 2016).

| Total population 15 and over | No certificate, diploma or degree | High school certificate or equivalent | Apprenticeship or trades certificates or diploma | University degree |
|------------------------------|-----------------------------------|---------------------------------------|--|-------------------|
| 285                          | 260                               | 10                                    | 15   | 0                 |

Resource and Asset Inventory: Poplar Hill did a very detailed data collection about their assets that was compiled into a local business directory. It was identified that there will be business opportunities to fill some of the sub-contract employment positions during the construction phase of the project. These business opportunities will be addressed in a complementary initiative on business readiness support. This initiative will assist individuals and the community to expand or start businesses, providing them the training and tools needed to capitalize on opportunities and, as well, identifying structures of partnerships or joint ventures businesses.

#### 4.5 NEEDS ASSESSMENTS

The needs analysis was a collective process of discussions with the communities through an Open House event marked by door prizes, a feast, games, and drawing the community members to share their insights through post-its and flipcharts. I thoroughly enjoyed facilitating the process with KORl, engaging with the community members and helped identify the employment opportunities for the construction of the transmission lines. This included all the positions, their responsibilities, and requirements. Power Tel Utilities Contractors Ltd., chosen by Wataynikaneyap Power in 2017 to build the first stage of the transmission project, developed the Power Line Employment Needs report identifying a number of

requirements for prospective employees of the powerline company, as well as for sub-contracted positions. Additionally, some of the identified positions offered “on-the-job training”, supporting the job types that includes DZ Driver’s License, Workplace Hazardous Materials Information System (WHIMS), First Aid and CPR, MOL Safety Awareness, rescue techniques, on-site orientations, chainsaw training, and environmental management. Job qualifying requirements included a minimum age of 18 years, formal education with minimum Grade 10, Grade 12/GED requirements, language proficiency, a driver’s license, trade certifications, and previous experience.

#### 4.6 GAP ANALYSIS

The baselines, community survey responses, and the needs analysis identified the gaps and the resources needed in Poplar Hill, specifically identifying:

- employment opportunities;
- potential benefits to be gained in terms of business by the communities;
- recommended means such as schooling, training, and investment to close the capacity and resources gaps;
- location of potential employers and business operations; and
- community support infrastructure needed, including programs and physical assets.

Community survey results indicate:

Unemployment Level & Basic Education: 34% of survey respondents of all age groups are unemployed and 39% are seeking employment. Basic education upgrades will be required for Poplar Hill to capitalize on the Wataynikaneyap

construction opportunities. To be eligible for the majority of the employment opportunities, Grade 10 is mandatory. More than 18% of the workforce population will need to upgrade to Grade 10 and for some of the higher-level jobs, Grade 12/GED is required to be eligible for direct employment opportunities.

Language Skills: English language skill was not a survey topic so the overall oral and written English language level could not be assessed, nor how those levels might relate to the PowerTel language requirement. It can be assumed that the Grade 10 requirement is closely associated with English language skills and so will be a minimum requirement.

Driver's license: The majority of the identified employment opportunities require an Ontario driver's license. Only 15% of people surveyed indicated that they have their driver's license. Obtaining a driver education course and testing will directly increase an individual's employability.

Training Courses Completed: Some community members identified completing PowerTel listed "on-the-job training courses". These certifications are a step ahead, although some may need re-certification to update their certification.

Trade Certifications: For the transmission construction and sub-contracted specialized positions there are certain trade certifications that are required to gain employment: project managers, powerline technicians, crane operators, equipment operators, and mechanics. The sub-contracted positions requiring a trade certification are equipment rental, civil works, right-of-way clearing, feller buncher operator, skidder operator, chainsaw operator, logging, camp operations manager, camp cleaning staff, camp maintenance, camp food preparation, camp food services supply, heavy equipment haulers, and helicopter services. Many

community members have identified having related past work experience in an outdoor setting indicating comfort on the land or “bush” type positions. For such mature members, Prior Learning Assessment & Recognition (PLAR) could be considered a more meaningful way to recognize life experience.

Previous Work Experience: Most women community members identified food preparation services, including catering traditional food and selling food plates. These skills may translate into employment opportunities in camp food preparation and camp food service supply. Security and guard work done in the past will translate well into security employment in a Wataynikaneyap construction camp.

A sentiment shared by the community workers at the RERP workshop was on acknowledging the past experience, real knowledge and skills of some workers in the community:

An important fact to record. Several community members never completed any formal school or grades. They learnt on-the-job and maintained steady jobs for years. They would be important asset for the transmission line project, eg: heavy equipment operators or diesel mechanics.

Training location is important to consider in relation to childcare options, travel costs, and time away from family. These considerations are also relevant when looking at job site locations for designing training action plans. Local in-community training was indicated as the easiest and most popular option.

#### 4.7 DISCUSSION: CAPACITY BUILDING AND ENERGY SOVEREIGNTY

The central theme of education and skills for the economic, social, and cultural base has been through their traditional subsistence activities, a foundation

laid over thousands of years upon which Poplar Hill exists. In the past, there were few incentives for the community to obtain industrially-related skills and formal education. However, over time, there is an increased interest in developmental activities. New opportunities have emerged with local energy development projects including renewable energy. Below is an excerpt from my discussion with Philip Howe Sr, who worked on the Public Works file in Poplar Hill. He shared his excitement on planning alternative sources of energy against all odds.

We asked Deer Lake. They have solar powers. We thought of them. However, renewable energy is only a back-up solution. They are for short-term and in only small capacity. We realize the debris or the snow on the snow panels...then they do not work. They are good initially. But, we have to constantly maintain them. The batteries burn; they heat up and blow up.

We don't have enough wind to try wind power. Fort Severn has one.

I wanted to do run-of-the-river. It was originally started by the Residential school people way back in the 70s. They had built one part of the dam...but never finished it. It was only in paper, I think. There was a disagreement and it was put on hold.... 12 years back we did the environmental assessment. They have to do another one. Permits take 3-4 years. We informed the community by radio. Asked them to vote – yes or no. We had people go door to door. Explained the key factors that environment has to be protected and we have to get rid of diesel. Also, it will create jobs. I feel developmental projects will help our community. We have power outages, generation station maxed out, and diesel is expensive. We fly the fuel from Red Lake. Fuel price changes and the plane also raise their fee.

The conversation drifted to his family ...his children. Phil Sr informed that lots of parents are pushing their children to get degrees. The youth want to come back to the community. We have skilled workers, older people but they have no degrees. For them, putting together proposals, budget, work plans are a challenge.

Throughout the culturally-grounded RERP process and an intensive community engagement process, a wealth of information was collected to prepare the community for continued actions. Many of the dynamics, strengths, weaknesses, critical gaps, and preferences of Poplar Hill and Wataynikaneyap communities emerged. This is most evident as the RERP was mobilized in, by, for, and with the communities. The communities' pursuit of self-determination emphasized their stand in addressing energy challenges through their own priorities and agenda. Leadership and local champions at various level have played a key role. Community Elders, tribal councils, community chiefs and band councils, and Wataynikaneyap Power's governing board inspired all involved to take responsibilities and actions.

The RERP initiative will result in tangible benefits. However, the case study on Poplar Hill provides a number of recurring themes on capacity building that will need attention for sustained energy transition:

Develop a community technical pool: The lack of training on energy-related themes within the community will continue to remain a limiting factor for increased and sustained professional participation in the energy sector. The RERP needs to address vocational, hands-on skills development and formal technical training in community energy planning.

Build institutional capacities: Human resources emerge as a central theme of the capacity literature in general and specifically in the RERP process. However, the focus is on the individual. The thinking is that if members of the community get the training, skills, and acumen they need, they could improve their lives and also become part of the local energy development. However, little or no

attention is given to the larger collective or social context in which the individual resides. This calls for appropriate institutional support and conditions to entrench individual capacities into community institution capacities. Human capacities need to align with the overall development of physical resources such as infrastructure, technology, telecom, and internet that are linked to energy operations and management. These are additional areas of capacity needs for Indigenous communities.

Integrate transferable skills: Energy-related opportunities can be integrated with various sectors in the community, including transportation, land use, and resource and economic development. It is beneficial to build transferable capacities to integrate in to broader comprehensive community development plans.

Towards sustained funding programs: The population in Poplar Hill is young and growing and is comparable to the Indigenous population in the rest of Canada. Capacity building programs for these populations are grossly underfunded. Access to capacity funds is obtained via a competitive, proposal-driven process whereby funding is limited in scope and duration. Budgets and the flexibility of programs, though being increased substantially, have to be commensurate with the need of communities to participate in the energy sector economy in a sustained manner. Further, accessing government funding is a two-way street. Implementing energy actions will require understanding of governmental funding landscapes that come with a range of existing institutional barriers. The RERP needs to include financial acumen.

Be receptive to formal work cultures: Traditional subsistence economies are increasingly giving way to formal employment and business opportunities. Potentially, there will be different sources of income generation and schedules of work. The RERP, while incorporating Indigenous values and orientations, must prepare, or “culturally train” community workers to effectively manage the challenges that come with regulated workplaces, including accepting responsibility or accountability.

Include cultural and territorial contexts: Finally, part of developing human capacities is to consciously integrate Indigenous rights for community identity, self-determination, and energy sovereignty.

#### 4.8 PATHWAYS TO EFFECTIVE CAPACITY BUILDING FOR INDIGENOUS COMMUNITIES FOR LOCAL ENERGY ACTIONS

First Nation people and their governments position their developments within their aspirations for sovereignty and jurisdiction. Their capacity building is focused on meeting sacred, customary and legal responsibilities associated with their sovereignty (Missens 2008). Thus, understanding the relationship between a community energy project, such as Wataynikaneyap Power, and sovereignty is not simply a matter of defining and measuring tangible indicators or factors. This was evident throughout the RERP process at Poplar Hill. The relationship in its contemporary manifestation requires one to see the historical context that provides a foundation for understanding both this relationship and the continued existence of Indigenous marginalized communities in Canada. It allows us to see how the destruction of local capacity building has affected the community’s ability to make



decisions and address their current energy insecurities. Any well-intentioned actions and initiatives will fail if they do not support and align with the cultural development of the community by deliberately building on the specific values and preferences of the communities. In conclusion, the RERP process provided a broader scope of learning and pathways for Indigenous capacity building in the energy sector, as indicated in below Figure 13:

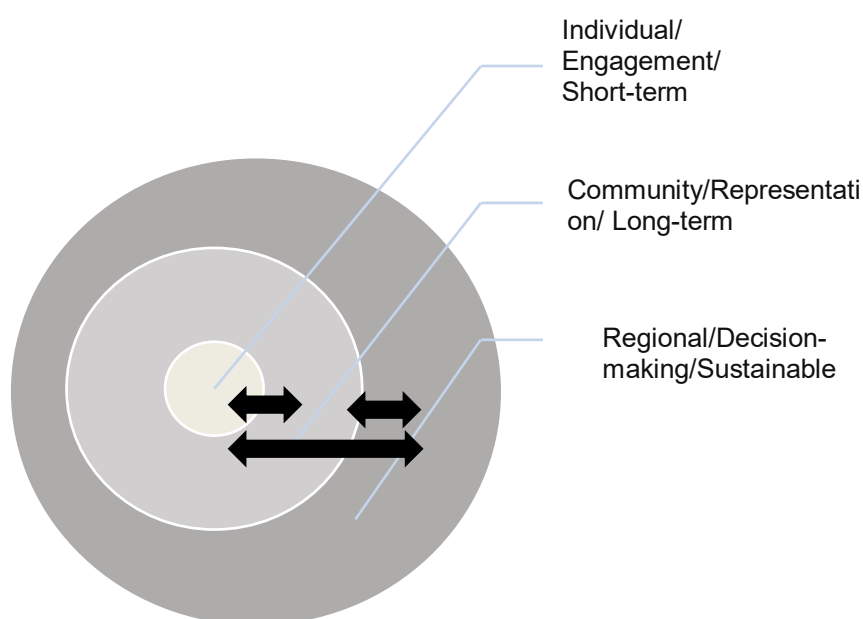


Figure 13. Relationship of Core and Broader Capacities Required for Indigenous Empowerment and Sustainability (adapted from Stevenson and Perreault 2008).

Looking internally: Recognizing the existing capacities is a critical first step. New capacities are to be built on the foundations of prevailing capacities and acknowledging life experiences.

Sustained outcomes: A long-term CEP vision is a vision of community-level capacity. Figure 8 illustrates that current capacity building efforts, no matter how successful, target only a limited number of the capacity requirements in the energy

sector. The issue of capacity in this context and collective responses, actions, and relationships need to consider dimensions such as scope (e.g., engagement, representation, decision-making), scale of sustainability (individual, community, regional), and duration of engagement (short- and long-term).

A stakeholder-wide approach: Building Indigenous capacities and creating effective institutional arrangements are inextricably linked. Creating integrated and adaptive institutions of knowledge and practice will not happen by themselves: “They require motivated people, with awareness of their own standpoints and biases, a commitment to find common grounds” (Wilkinson et al. 2007). Thus, building capacities will have to be a commitment for both Indigenous and non-Indigenous players involved in new institutions and energy programs in an environment of mutual respect and equality. A conversation with Jason Ritchat, from Solar Logix provided an interesting perspective:

I would say that most of the First Nations have considered them- the solar power. It is being talked about a lot more. I would say, since last five years solar has being gaining interaction as far education goes. Now, whatever stage the industry is in, education will still be the key for renewable energy.

I take only a sales approach. And, quite frankly, for me, social factors are identical regardless of the cultural, so whether you live in Brazil or Canada, China, Russia it does not matter from a cultural standpoint. Energy is energy.

I do respect First Nations and their traditions of living off the land and with that kind of concept, solar or any renewable energy, whether that be hydro, wind, solar. Geothermal maybe not be as much, but any of those I would think it would fit well with First Nations culture.

Additionally, institutional barriers have to be minimized or removed for Indigenous communities to take responsibilities for building their own capacities. Policies and

procedures must adequately finance and resource Indigenous communities to create their own energy-related programs.

Holistic capacities: The capacity building process should integrate other potential areas of focus in the energy sector including financial management, institutional arrangements, infrastructure resources, social capital, natural resources capital, and knowledge systems. A holistic approach is essential in the context of Indigenous communities.

Respect cultural diversity: Indigenous communities are distinct and unique. Each community will likely differ with respect to their viewpoints on social, cultural, and economic sustainability. A one-size-fits-all approach will not be effective. Also, it is worthwhile to note that different people within those communities present distinctly different opportunities and challenges for capacity building. It is important to understand, respect, and account for “culturally appropriate” approaches in capacity-building initiatives. Cultural fit is a key component in any capacity-building initiative, especially so for Indigenous Peoples. Integrating cultural capacity as a resource in local energy planning is imperative and should not be ignored.

Collective benefits: Finally, it is important to acknowledge that building Indigenous capacities in the energy sector is in the collective interests of both the Province of Ontario and the Government Canada for long-term sustainable ecological, social, and economic outcomes. Strong, vibrant Indigenous communities are a winning solution for all Canadians.

Community-based initiatives such as the RERP provides direct attention to collective impacts on both individual and community well-being. Enhancing community capacities through resource mobilization, organization, and

frameworks of actions contribute to self-determination. This chapter informs researchers, grassroots development practitioners, and policymakers about the enterprise of indigenous capacity building and how it holds the key to broader goals and outcomes in breaking down barriers to employment, for fair chances, and for creating opportunities to participate in the pan-Canadian energy sector.

## CHAPTER 5. CANADA'S ENERGY RESOURCE DEVELOPMENT: THE PATH TO RIGHTS-BASED RECONCILIATION

Rakshit, R, C. Shashi, (Peggy) M.A Smith and A. Cornwell. 2018.  
Under Review: The Northern Review, Yukon College. 2019.

### ABSTRACT

Natural Resources Canada expects approximately \$650 billion will be invested in energy resource development projects in the next ten years across Canada. Most of Canada's valuable natural resources are located on publicly-owned provincial Crown lands. These lands are also Indigenous Peoples' traditional territories within which are located federally-owned Indian reserves. Energy initiatives have been contentious for Indigenous Peoples and have led to ongoing conflicts with federal and provincial governments, energy corporations, and stakeholders in every part of Canada. Indigenous Peoples' grievances are many: lack of respect; disregard of Aboriginal and Treaty Rights; infringement on their traditional territories, activities, cultures, traditions, and values; inadequate and culturally inappropriate information dissemination and consultation on energy projects; failure to seek consent for using traditional lands; and not sharing the benefits in a fair and equitable manner. Consultations have created deadlocks with lost opportunities for everyone: energy corporations lose capital and markets, First Nations lose economic and social opportunities, and the country as a whole misses out on low-carbon economy advancements. This is especially pertinent given the Truth and Reconciliation Commission of Canada's (TRC) recommendations to acknowledge past harms of colonization and the resulting TRC's 10 Principles of Reconciliation. Through a combination of qualitative research methods, this chapter draws out the inadequacies in current engagement, consultation, and negotiations between governments, First Nations, and energy corporations. The chapter recognizes that rights-based reconciliation pathways for constructive and positive collaborations between First Nations and energy stakeholders will provide contexts for developing inclusive policies in the energy sector. In doing so, the chapter will advance academic literature on reconciliation approaches in the Canadian energy resource sector.

Keywords: Canada, energy, First Nations, forestland, reconciliation, Indigenous rights

## 5.1 INTRODUCTION

Canada's historical relationship with Indigenous Peoples and their systemic marginalization are well documented (Iacobucci 2016; TRC 2015a; AJIC 2001). In framing the context for energy resource development, Canada's colonial past has particularly affected First Nations in their overall well-being (Griss 2013). Lack of shared visions, conflicting ecological values, divergent perspectives on risks, impacts, and benefits, and approaches to development have fostered continued confrontations resulting in a broad spectrum of conflicts and stalling of projects (Griss 2013). The lack of trust between the government, energy corporations, and First Nations has led to ongoing frustrations and "gridlock" situations, benefitting none (Webb 2014).

There is tremendous potential in Canada's untapped energy resource development, which translates to significant opportunities for First Nations, specifically for northern and remote parts of Canada (Laurin and Jamieson 2015). The country is expected to invest \$650 billion in the next ten years in resource development projects with several taking place on traditional Indigenous lands (Webb 2014). There is much to gain by including First Nations as equal and prominent players, enabling contributions to a range of potential opportunities: linear developments like transmission line routes and distributions, power plants, and renewable energy generation (NRCan 2017; Griss 2013).

From an outside perspective, the need to consult on all activities on traditional lands is patently obvious if we recognize that Indigenous Peoples in Canada are self-determining peoples with treaty, constitutional, and human rights. We should heed the TRC's call for constructive action to address the ongoing

effects of colonialism on many aspects of Indigenous lives including culture and economic opportunities. However, there is a lack of understanding about the root causes of onsite energy project demonstrations and conflicts on traditional lands. The question becomes, can energy resource development offer pathways to bring harmony to Canada's discordant societies at a time when there is a growing recognition for reconciliation in Canada to heal, improve, and repair relationships with Indigenous Peoples?

The objectives are to: (1) scope the inadequacies in current engagement, consultation and negotiations between governments, First Nations, and energy corporations to successfully undertake energy projects; (2) identify salient aspects such as recognizing First Nations as stewards of the land, recognizing their ecological integrity with sacred land, and respecting Aboriginal and treaty rights in facilitating appropriate negotiations; and (3) suggest reconciliation pathways for constructive and positive common grounds for desirable shared and sustainable outcomes. Information is sourced from academic and grey literature reviews, knowledge gathered from conference participation, and discussions with both First Nations and non-First Nations across energy corporations, governments, and grassroots community energy liaisons and practitioners. Conclusions and recommendations will be informed and guided by the TRC's recommendations, including its ten Principles of Reconciliation (TRC 2015c). The outcomes will provide an understanding of what constitutes "meaningful consultation" with First Nations. This is pertinent to understand rights-based reconciliation pathways for constructive and positive collaborations between First Nations and energy stakeholders. The scholarship will advance the academic literature on

reconciliation approaches in the Canadian energy resource sector. The goal is to provide non-Indigenous stakeholders with a rationale and background for developing inclusive policies and directives in the energy sector and the natural resource sector in general.

## 5.2 METHODOLOGY

I approached the chapter with minimal predetermined themes. However, I felt that the research would benefit with addressing and scoping Indigenous energy resource development in the ongoing Canada's TRC movement. I deliberated on a research design that would draw on different perspectives. Thus, a combination of qualitative research methods were adopted under an overarching participatory action research paradigm—a review of academic and grey literature, in-person non-academic conference and event participation and participation observation, and informant discussions. As Berg (2004) states, PAR approach includes principles of participation and contributions, derived reflections and interpretations, and a strategy that calls for improvements and positive changes in a social situation or condition. The approach also appreciates the human capacity to study, absorb, contemplate, and change (Stringer 1999). I gained valuable insights from social and learning interactions at Indigenous energy conferences and workshops and has included them as a research methodology. The PAR approach is informed by Kordts-Freudinger et al. (2017) and Ørngreen and Levinsen (2017) who have provided grounds for conceptualizing and supporting learnings from workshops and conferences as an interactive research methodology. I have relied upon literature review and grey literature for historical



contexts and circumstances for this chapter. The data collection is in the form of observations and experiences. The data analysis is through narratives. In a qualitative study, participatory observation is considered an important methodology (Atkinson and Hammersley 1998). The identified research methods to meet the three objectives are elaborated below.

### 5.3 DISCUSSIONS ON THE CURRENT STATE OF KNOWLEDGE

#### 5.3.1 Literature Review

To meet objective 1, I undertook a systematic academic literature review using the online database Google Scholar between 2015 and 2018<sup>13</sup> through combinations of keyword search terms on “Canadian reconciliation”, “First Nations”, “Canadian resource development”, and “energy”. Substantial literature was gathered on Canadian reconciliation (300) with formats ranging from theoretical frameworks, insights, opinions on sub-themes such as the Canadian Truth and Reconciliation Commission (TRC), residential school impacts, resilience, language, mental wellness, health, gender violence, crime, justice, and human rights issues. Four hundred academic sources were gathered with keyword searches using “Canadian resource development” and “First Nations”, with sub-themes ranging from tourism, health, mining, oil sands, water, food, ecosystems,

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<sup>13</sup> The Truth and Reconciliation Commission of Canada (TRC) was established on June 2, 2008. However, its findings, along with 94 Calls to Action for reconciliation between Canadians and Indigenous Peoples, were not released until June 2105. The National Centre for Truth and Reconciliation, which opened in November 2015, is home to the research, documents, and testimony collected during the course of the TRC's operation. Specific thematic actions identified in the TRC Final Report, including education, health, youth programs, and business, can directly be applied to energy resource development (TRC 2015b; McLachlin 2015; Reconciliation Canada n.d.).

forests, and land use. “Canadian reconciliation” and “energy” revealed 100 results with wide-ranging sub-themes including energy efficiency, climate change, Indigenous consultation, environmental assessment, regulatory review, carbon reduction, Indigenous environmental education, and renewable energy projects. The inclusion criteria were narratives that directly discussed Canadian reconciliation and energy resource development within the stipulated timeline. The themes that were excluded were not related to Canada, were not energy-related, and/or were outside the timeline.

Where relevant, grey literature sources were included and referenced from government and environmental organization professional reports that were actively engaged and highlighted the most recent trends and insights in the energy sector, including Natural Resources Canada (NRCan), Independent Electricity System Operator (IESO), Pembina Institute, Lumos Clean Energy, conference and workshop proceedings, blogs, opinion pieces, and newspaper clippings. Figure 14 illustrates the literature review breakdown.

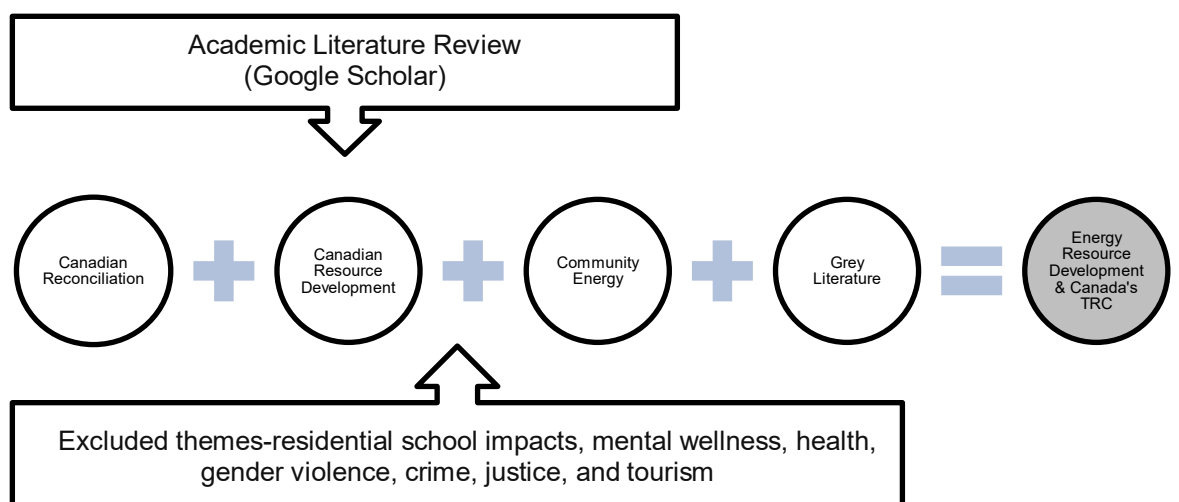


Figure 14. Literature review breakdown (Rakshit 2019)

Social science-related disciplines and topics remain unexplored in contemporary energy studies research (Sovakool 2014). As Peter Gregg, President and Chief Executive Officer of the Independent Electricity System Operator (IESO) emphatically said at the 2018 IESO Energy Symposium, Toronto, that:

Community energy planning is being identified as an emerging and evolving area of resource development for First Nations. Canadian reconciliation is a developing action on every aspect of Indigenous lives.

However, the academic literature on the two key themes here, First Nations energy development and Canadian reconciliation, is sparse. This is not surprising given that the TRC's 94 Calls to Action were only released in late 2015. It does make it difficult though for policymakers in various sectors (private sector, public sector, etc.) to make informed decisions about how to develop policies and directives through the lens of reconciliation since there is little previous knowledge collected with these directives in mind. Relevant academic and non-academic information that aligns with the research questions and identified through various mediums of scholarships has been included and referenced in this chapter.

In meeting objective two, the adopted methodologies were conference participation and informant discussions. I was in a position of privilege to be present in a large group of First Nation communities, Tribal Councils, First Nation-led technical organizations, government agencies, and industry experts working in energy development. These culturally-appropriate settings enabled me to approach participants as a co-attendee while maintaining a respectful approach.

### 5.3.2 Participation Observation

Insights were collated from my participation at: the Ontario First Nations Technical Services (OFNTSC)'s Technations Conference's community energy planning sessions in August 2017; OFNTSC's All Tribal Council, Large and Unaffiliated First Nations meeting in October 2017; the IESO's Indigenous Community Energy Symposium in 2017 and 2018; and the Chiefs of Ontario (COO) Community Energy Workshop for Northern & northwestern Ontario First Nations in May 2017. Informal and interactive dialogues were held with thirty -five participants (Table 3), who were most directly involved in community energy development across Ontario. They included representatives from First Nation organizations (OFNTSC, Watayenikyap Power), non-First Nation organizations (Ministry of Energy, Hydro One, and IESO), grassroots community energy liaisons and practitioners, and Elders. Consent was sought to use their messages as quotes, but, in some cases, confidentiality was requested and respected.

Table 3. Number of Informant Dialogue Participants

| Groups                    | Number |
|---------------------------|--------|
| OFNTSC                    | 2      |
| Watayenikyap Power        | 5      |
| Ministry of Energy        | 1      |
| Hydro One                 | 2      |
| IESO                      | 2      |
| Community Energy Liaisons | 10     |
| Practitioners             | 11     |
| Elders                    | 2      |
| Total                     | 35     |

The primary source identified were the informants from the organizations that were engaged with energy planning and development in and with First

Nations, mostly through funding and providing energy services. Community Energy Liaisons and practitioners were ‘on-the-ground’ workers and were actively engaged in community affairs. They were approached based on the availability of their time, willingness to participate, and as personal acquaintances. The subjective and primary source of knowledge gathered and recoded on the phone were insights, preferences, reactions, and responses around the research questions, i.e. if and how energy development can carve a path in the nation’s reconciliation process and what are the drivers that can facilitate the action. The secondary data was collected from formal presentations, distributed marketing and communication materials, conference websites, and from Elders’ perceptive opening and closing addresses. Informal exchanges—over health breaks, meals, and at side events—provided opportunities for deeper, more personal understanding. Discussions were collected and recorded using self-reports and note taking. The “note texts” were then transcribed, sorted and categorized under themes: First Nation energy development motivations and drivers, points of intersections for reconciliation approaches, and the emergent sub-themes exploring the nexus between land, Aboriginal and treaty rights, and the impacts of energy development on traditional lands. The resulting qualitative data were analyzed using my judgment and interpretations. The learnings acquired from conference attendance followed the Communities of Practice assessment implying that social interactions with supportive space, technologies, and time are central to the “acquisition” and “creation of knowledge” (Kordts-Freudinger 2017). The above mentioned adopted methodologies, has elucidated the thematic pathways for the desired social changes discussed below.

## 5.4 DISCUSSIONS ON SALIENT DRIVERS

### 5.4.1 Significance of Traditional Land in Energy Resource Development

The Opening Prayers by an Elder at a Community Energy Planning Workshop in Cornwall, Ontario in 2017 reflected the Indigenous belief that prior to colonization, land meant identity for the First Nations.

We are all thankful to our mother, the earth, for she gives us all that we need for life. She supports our feet as we walk about upon her. It gives us joy that she continues to care for us as she has from the beginnings of time.

To our mother, we send greetings and thanks.

Now our minds are one.

Land continues to strengthen the relational nature of First Nation life (Joseph 2018; AFN n.d.; Circles for Reconciliation 2016). These associations have been ignored or overlooked by most governments, energy corporations, and stakeholders in favour of energy resource projects (Bains 2017), leaving First Nations with destroyed environments and broken promises.<sup>14</sup> As Community Energy Liaison, David Assinewei from Wiikwemikoong First Nation said,

Why don't we get anything when they build things in our land? Why are we always left with nothing?

This has led to opposition by First Nations to invasive resource development that does not include them in decision making, their values or a share of economic benefits (Lukacs 2015; Webb 2014; Methot 2012).

Traditional territories and rights of Indigenous communities have been destructed and invaded with energy projects (Mclachlan 2014; Wilt 2016; Calder et

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<sup>14</sup> Read Crowley and Coates (2013) for an overview of patterns of Indigenous engagement in natural resource development in Canada.

al. 2016). Energy projects across Canada including 22 anticipated hydro projects, British Columbia's Site C, Labrador's Muskrat Falls, Manitoba's Keeyask, and Quebec's four-part La Romaine projects reports varying degrees of damages (Calder et al. 2016; Wilt 2016). The Canadian government continues to fail to respect the claim of First Nations towards their land including the principle of Free, Prior and Informed Consent (FPIC), for any development. The crown fails to take any measures to mitigate environmental pollution and destruction. Thus, the significance of land as a driver of responsible and sustainable action for energy resource development is important. This will be pave the way for a trusting relationship and a basis for shared-values of environmental protection.

#### 5.4.2 The Land and the Indigenous Rights Nexus

Aboriginal and treaty rights are deeply rooted in Indigenous lands (Smith 2015). The most elemental of these rights is the right to their identity as Indigenous Peoples (Linklater and Bone 2014) asserted through their continued habitation of their lands and pursuit of their traditional ways of life (INAC 2010a). Further, the United Nations (UN) Charter guarantees “human rights and fundamental freedoms” without distinction as to race, sex, language, religion and conditions of economic and social progress and development. These are basic rights that all human beings share by virtue of being human (United Nations 1945; Anaya 2004).

Aboriginal rights are inherent rights based on historic occupation of land prior to colonization (FNIS 2009). Treaty rights are those set out in treaties<sup>15</sup> following colonization. However, land with a legal title was a foreign concept to First Nation cultures. Further, governments' interpretations of these rights are restrictive to written promises in specific treaties. This is contrary to views of the Indigenous Peoples, who feel that their entitlements are based on both written and oral agreements (AJIC 1999) and were to last "as long as the sun shines, the grass grows, and the rivers flow."<sup>16</sup> The rights revolve around a holistic philosophy that speaks strongly of sharing lands and resources, not "giving them up" (Smith 2017). Thus, any violations and disruptions by resource development impact not just First Nations' rights, but also their roots and ways of life (Patterson 2013). I had an interesting conversation with Brian Beaton, a PhD candidate from the University of New Brunswick and who was visiting Poplar Hill around the same time as me. He shared the sensitive portrayal of Indigenous values over western values:

Services that we are accustomed to in an urban environment by being a "consumer" in the economy system. In the indigenous worldview, it is the relationship and connectivity with land, environment – mixed economy. Everyone plays a role –giving it a holistic approach. Whole Community. In the urban setting, it is a household, an individual, statistics Canada statistics, used by Corporation. A capitalistic shareholder.

Connectivity with all the services in a community. Service can work in silos and works good in urban settings, in large communities. But, in

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<sup>15</sup> Starting in 1701, the British Crown entered into treaties to encourage peaceful relations with First Nations. Early treaties were for Peace and Friendship. Later, numbered treaties involved First Nations ceding or surrendering rights to the land in exchange for treaty rights (INAC 2010b).

<sup>16</sup> "The words 'as long as the sun shines, as long as the waters flow downhill, and as long as the grass grows green' can be found in many treaties. It set a relationship of equity and peace." — Oren Lyons, Faithkeeper of the Onondaga Nation's Turtle Clan (Historica Canada Education Portal (n.d.).



small communities, connectivity, relationship building is important. Present system is inadequate. Hence, change is required. We need allies at all levels of the government and at Corporations.

But, service comes with responsibility – training and building capacities. Can't work in silos.

It is subjective to consider social values over economics. Indigenous communities are striving, working hard to retain, to treasure, to preserve the desire. It is a reality.

And to address desires, to provide opportunities, for youth, we need electricity. We need the connectivity to be at pace with development. Electricity is critical. Everything is online-training, applications, transfers.

What makes a healthy community? For an Indigenous perspective – goes beyond the three pillars of sustainability – and includes spirituality. They supersede any western perspective.

#### 5.4.3 Legal Dialogues and Decisions

In Canada, federal and provincial governments have used jurisdictional “tangles”<sup>17</sup> (Smith 2015; Knowles 2016) to navigate, control and dictate energy projects within traditional lands (Coates 2016). Historically, several land claims<sup>18</sup> and energy-related injustices have been identified including the construction of hydroelectric dams in Manitoba (Waldrum 1993), the 1977 Northern Flood Agreement between Manitoba Hydro and the northern Manitoba Cree, and the 1975 James Bay and Northern Quebec Agreement between Hydro Quebec and

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<sup>17</sup> Canada's Constitution acknowledged Aboriginal and treaty rights in 1982, but the original 1867 British North America Act delegated responsibility for 'Indians and the lands reserved for Indians' to the federal government [section 91(24)], while giving provinces authority over the lands and resources within provincial boundaries (Section 92). This created a jurisdictional tangle in which the provinces, in dealing with First Nations interests in lands and resources, would claim that 'Indians' were a responsibility of the federal government, while the federal government when asked to represent First Nations' interests in lands with the provinces would claim that natural resource management was a provincial responsibility. For over 100 years this 'passing of the buck' has left First Nations issues in lands and resources unresolved (Smith 2015).

<sup>18</sup> For an overview of Indigenous People: Specific Land Claims, see the Canadian Encyclopedia 2015.

the James Bay Cree, to name a few. Development benefitted mainly the energy corporations while damaging First Nation lands, communities, and cultures despite promised economic benefits (Bone 2013). As Coon Come (2004) said, “agreements between the First Nations and the Crown corporations were left to the courts to define what the rights of First Nations are.”

However, in the 1970s, deliberate steps to advance the collective rights and interests with seminal Supreme Court of Canada (SCC) decisions<sup>19</sup> recognized Aboriginal rights and title, shifting the country’s legal foundations (Coates 2015) with broader interpretations of those rights (Coates 2016). They include *Haida Nation v. BC* (2004), *Taku River Tlingit First Nation v. BC* (2004), and *Delgamuukw v. BC* (1997), which directed the Court’s definition of the government’s “duty to consult and accommodate”. These decisions became part of a fundamental understanding about resource development in Canada that also translates to energy infrastructures. One of the key elements of these decisions is that the Crown is indivisible and both federal and provincial governments have the responsibility to consult and accommodate when resource development has the potential to infringe Aboriginal and treaty rights (Young et al. 2014).

With time, Indigenous legal victories have, according to some, transformed Indigenous Peoples into “resource rulers” with 250 unique and unprecedented

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<sup>19</sup> The SCC through numerous decisions has clarified the intent of the concept of recognizing and affirming Aboriginal and treaty rights contained in section 35 of Canada’s Constitution. The SCC has clarified that ‘the Crown’ is indivisible and that, although the federal government still has responsibility for ‘Indians and the lands reserved for Indians’, provincial governments also have a responsibility to address Aboriginal and treaty rights in resource development, through ‘the duty to consult’ (Lawrence and Macklem 2000).

court rulings won in the Canadian resource sector, reflecting “native empowerment” (Gallagher 2012). However, it is stressed that the ascent of native empowerment is neither mentioned nor acknowledged by the mainstream media in the context of Canada’s national economy (Gallagher 2018).

Two inquiries—the Berger Inquiry (Berger 1977) and the Lysyk Inquiry (Northern Pipeline Agency 2011; Lysyk et al. 1977)—made an effort to not only hear the proponent companies but also the affected 30 Indigenous communities in Northwest Territories. The inquiry documented their sentiments and resentments about the oil and gas pipeline through the Mackenzie Valley that led to propose 38 indicators for Social Impact Assessment and the Alaska Highway Pipeline project, respectively. The Lysyk Inquiry report asserted that Indigenous Peoples can be involved as equal participants. The pipeline debates opened new approaches of engaging with Indigenous communities in the project approval process including environmental assessment processes (Northern Pipeline Agency 2012).

At the time of writing this chapter, two First Nations in Ontario—Aroland and Ginoogaming—were in court about their rights to be consulted and accommodated against the defendants TransCanada Pipelines, the National Energy Board, and the Government of Canada (Netnewsledger 2018) that eventually resulted in their favour. As a Community Practitioner said:

Can anyone work in our backyard without our permission? Will you allow it? Isn't it respectful to come and talk to us before planning any work in our land?

Critical to the reconciliation process will be to shift from mere consultation to consent in addressing the Indigenous Peoples’ rights and their responsibilities as

stewards of the land (Smith 2017). Also, important is to put a value to the “consent”.

Recent times reveal global interventions in building Indigenous relationships and defending Indigenous rights. In 2010, Canada belatedly endorsed the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) that articulates the principle of free, prior and informed consent (FPIC) (INAC 2017). However, Canada considered it “aspirational” at the time with no legally binding obligations (CIGI 2014). In 2015, Canada indicated its commitment to UNDRIP’s FPIC, but asserted that FPIC is met through the requirement of domestic laws on the “duty to consult and accommodate”.

Since then, the Government of Canada implemented or is implementing several policies in pursuit of these promises: Romeo Saganash introduced a Private Member’s Bill C-262 (“An Act to ensure that the laws of Canada are in harmony with the UNDRIP”) (CBC 2018). The Bill is before Senate for second reading as of April 4, 2019 (OpenNorth 2019). This is a bill of reconciliation to confirm Indigenous Peoples’ political, economic, cultural, environmental, and spiritual rights. Further, in 2017 the Prime Minister Justin Trudeau announced a Working Group of Ministers to review laws, policies, and operational practices that impact Indigenous Peoples and their rights and interests (Public Policy Forum 2018).

The federal government’s 2018 budget included investments in Indigenous Peoples for housing, child and family services, education, health care and access to clean drinking water, to support capacity-building, and to advance self-determination and self-government. The prime minister also stated in parliament

that the government will recognize and implement a rights framework in partnership with Indigenous Peoples.

Indigenous leaders believe that their rights and influence have expanded under UNDRIP, giving them an effective veto over major resource developments, including pipeline construction and renewable energy projects (Iacobucci 2016). However, according to the Minister of Crown-Indigenous Relations, Carolyn Bennett, the fact that the current government has embraced the Declaration does not confer on First Nations a veto on energy and natural resource projects in their territories (Lintz 2016).

In what might be considered a step backwards, on October 11, 2018 the Supreme Court of Canada (SCC) ruled that governments within Canada do not have a duty to consult with Indigenous groups or communities during the legislative process (*Mikisew Cree First Nation v. Canada* (Supreme Court of Canada 2018 SCC 40) as it is inappropriate to bind the legislative branch with judicial branch rulings. Parliamentary sovereignty mandates that the legislature can make or unmake any law it wishes, within the confines of its constitutional authority (Supreme Court of Canada 2018 SCC 40). The SCC made it clear in its ruling though that governments still have a duty to consult: "Simply because the duty to consult doctrine, as it has evolved to regulate executive conduct, is inapplicable in the legislative sphere, does not mean the Crown is absolved of its obligation to conduct itself honourably" (Supreme Court of Canada 2018 SCC 40). However, Aboriginal groups can still challenge laws if they infringe on their rights.

There is a larger issue as well: namely, that Section 35 of the Constitution Act recognizing Aboriginal and treaty rights and all other acts and legislation at

varying levels of government need to be aligned and clarified. There are approximately 70 recognized pre-1975 treaties between 364 First Nations representing over 600,000 First Nation people (Coyle 2005; Anaya 2014). Not only does this fracturing manifest confusion on points of law, but it can lead to a “policy of extinguishment” of Aboriginal rights to make it easier to push energy and other developments through. Canada’s objective of achieving ‘certainty’ through extinguishment is anathema to the very basis for and purpose of Aboriginal title (McIvor 2018).

#### 5.4.4 Energy Resource Development Approaches

Today, First Nation engagement in the Canadian energy sector can be broadly defined by two representative groups. The first is well-known dialogues between First Nations and stakeholders on energy development projects, whether it is negotiating a framework for Indigenous involvement in the Ring of Fire, resisting the Kinder Morgan Pipeline, or criticizing Enbridge’s Northern Gateway project (Cardinal 2017; Coates 2016). The second is First Nations making inroads in the expanding Canadian clean energy economies in the past two decades in every province (Coates 2016).

Lumos Clean Energy (2018), through a comprehensive national survey, informs Indigenous participation in 152 medium-to large-scale solar, wind, hydro, geothermal, and bio-energy energy projects. Positive sentiments and intent were shared by community practitioners/energy focal points, as below:

Renewable Energy is clean energy and in some cases maintenance would be minimal.

- Late Councillor Roy, North Caribou Lake First Nation

Natural energy of sun and wind to provide (energy of electricity through panels/turbines).

- Margaret Wabonge, Eagle Lake

The Future. Like how a dragonfly recharges its wings from the sun and fly again!!.

- David Jeremiah, North Caribou Lake First Nation.

Zero greenhouse gas emission from burning fossil fuels = Renewable Energy.

- Rod Whitlow

First Nations' active engagement spans employment and direct investment, project approval processes and environmental evaluation<sup>20</sup> for uranium mining, hydroelectric projects, oil and natural gas exploration, and pipeline development. There are hundreds of Indigenous-owned companies active in the resource development sector, thousands of Indigenous employees, and dozens of collaboration agreements with First Nation communities (McDiarmid 2017). Projects such as the Watanikaneyap Transmission Line, Supercom Industries LP, Five Nations Energy Inc., and several renewable energy (OSEA. n.d.), energy efficiency, and conservation projects that are owned, led, and implemented by First Nations are bringing pride and satisfaction. The experiences gained indicate efforts towards local self-sufficiency and economic prosperity (Neegan Burnside Ltd. 2004). Chief Paul Burke from Fort Severn First Nation, the northernmost off-grid community in Ontario shared with pride the new solar project in the community at the 2018 IESO First Nations Energy Symposium.

We received more than \$500,000 in funding from the IESO's Indigenous Energy Support Program. We are going to build a 300-kilowatt combined ground-mounted and rooftop solar project. It is expected that we reduce our diesel dependency by 20 per cent when

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<sup>20</sup> There are close to 400 impact and benefit agreements (IBAs) currently in place across Canada with mining companies alone (Lumos Clean Energy 2018).

it is fully functional. This multi-phase project will also integrate battery storage and optimization measure. We are hoping that we meet the needs of 500 residents in our community. This project is a big catalyst and will be a game-changer for us. This project will also create jobs and supportive opportunities for us. This will be a good example for my region. We can learn from each other. We want a sustainable future.

- Chief Paul Burke, Fort Severn First Nation

Canada's energy sector has indicated its commitment to engage Indigenous communities and provide economic benefits from future projects including procurement opportunities, clean energy options for remote communities to reduce diesel dependency, skills training, capacity building, and commercial partnerships (Shephard 2016).

Renewable or "clean" energy is one of those sectors offering the strongest incentives with the potential for First Nations to choose renewable energy technologies as feasible options (NEB 2018; Environmental Defence 2016; Lumos Clean Energy 2018). Electricity billing, energy efficiency and conservation subsidies, and partnership development are available through funding program support, rebates, and incentives from Natural Resources Canada, Independent Electricity System Operator (IESO), Indigenous Services Canada (ISC), and utility service providers. First Nations are taking advantage of these opportunities (Lumos Clean Energy 2018). With milestone Indigenous mass movements like Idle No More<sup>21</sup> and the TRC Calls to Action (TRC 2015b), Indigenous Peoples have

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<sup>21</sup> Idle No More has quickly become one of the largest Indigenous mass movements in Canadian history, sparking hundreds of teach-ins, rallies, and protests across Turtle Island and beyond. What began in 2012 as a series of teach-ins throughout Saskatchewan to protest impending parliamentary bills that Indigenous people feared would erode Indigenous sovereignty and environmental protections has now changed the social and political landscape of Canada (Idle No More 2012).



signalled that they will no longer be content as outsiders looking in. They have a newfound confidence in striking a balance between protecting local ecosystems, creating the required economic space, and ensuring responsible development.

This also breaks the misconception that First Nations are uniformly opposed to energy resource development.

“We are not anti-business,” said Phil Fontaine, former national chief of the Assembly of First Nations (AFN), “but development will not occur unless Aboriginal people have been engaged, consulted in a proper way, and there is an accommodation of Aboriginal interests.”  
- (Young 2018).

Historic contexts of mistrust remain with Elders and senior community members, who are apprehensive and advise caution. This hesitation is justified when viewing emerging opportunities through the lens of the past. In Lac Seul First Nation Economic Development Manager, Chris Angeconeb’s words:

For decades, industry has clashed with Indigenous communities over resource exploitation in their traditional territories. (Wilt 2016)

As a result, local First Nations, feeling excluded, have blocked or delayed resource projects. But giving a First Nation the chance to participate for sustainable solution will smooth the duty to consult and accommodate process” (Freeman 2017). In the past decade, First Nations have begun to be consulted systematically on energy resource development. There are significant efforts to secure First Nations’ consent, to provide payment or compensation, and/or to engage them in a significant and sustained way in the construction, maintenance, and environmental care of these projects (AFN 2015).

The private sector/energy corporations are being proactive and strategic in seeking “social licences”<sup>22</sup> to address complex societal interventions such as NIMBY (Not In My Back Yard) and BANANA (Build Absolutely Nothing Anywhere Near Anyone) (Leblanc 2016). Impact and benefit agreements (IBAs) have emerged as a mechanism to encourage First Nations’ participation in resource development projects.<sup>23</sup> A prime example is the Kitimat LNG Canada project in British Columbia (LNG in Northern BC 2016). The company paid \$200-million to 15 affected communities, guaranteed training, and, by locating the plant on Haisla land, ensured property tax revenues and other economic and social benefits. As a result, it is not expected to be opposed (Gerson 2015). Henderson (2013) and Lumos Clean Energy (2018) recount several such success stories of renewable energy projects in First Nation territories that are an outcome of effective engagements and partnerships. There is an emerging realization that stronger relations with First Nations will improve business operations and profitability. However, while the IBA concept is broadening regulatory scope and energy policy frameworks, its meaning and implementation are still evolving in practice (Bradshaw et al. 2016). More definitive Canadian regulatory and legal frameworks recognizing Aboriginal and treaty rights must be developed for First Nations to participate effectively (Bradshaw et al. 2016).

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<sup>22</sup> Social license suggests that permission to proceed with resource projects requires some form of general societal consensus or support for the project to proceed. Social license extends beyond any formal approval.

<sup>23</sup> IBAs are privately negotiated, legally enforceable agreements that establish formal relationships between Indigenous communities and industry proponents. With a few exceptions, governments are not directly involved in the development or negotiation of these bilateral arrangements (Kielland 2015).

Another significant area of improvement will be education and skills attainment to enter the energy sector. Support for skill development and solid educational grounding remain a priority issue with many First Nations (Rakshit et al. 2018; OMIRR 2018). There is some progress demonstrated with good capacity building initiatives such as Watayenikyap Powers' Community Remote Electrification Readiness Project (Ministry of Indigenous Affairs 2015) and the East-West Tie Transmission Project (INAC 2018a). However, funding for capacity development needs to address capacities beyond project-based job training opportunities, such as allocating training funds for professional development, acquiring licenses, certifications, and degrees to sustain the capacity building efforts. Additionally, there is limited understanding and awareness among First Nations on the career opportunities within the energy sector (Rakshit et al. 2018). Mathew Dupuis, Chief of Red Rock Indian Band on Lake Nipigon reiterated to his fellow community members at the IESO Symposium: "If you want the industry to work with us, then it's time to invest in your people".

Canadian workplaces also have a long way to go in becoming inclusive by welcoming First Nations. There still remain subtle or evident inequities, systemic racism, and discrimination which make it difficult for First Nations to thrive. Glimpses of these sentiments were shared during open discussions with members of both Poplar Hill and North Spirit Lake. General feeling of being undervalued, always suspicious, being followed at work to keep tab of movements, and not being addressed in a proper manner. In conversation with Nicole McKay, I gathered that, emphasis is placed on providing training to cope with work place

cultures. According to a survey result on choice of location of work place, cities closer to the communities were not popular.

Other subtle barriers are created when human resource policies and practices do not reflect the Indigenous realities and their cultures, such as practices in the workplaces are not inclusive of Indigenous workers (Electricity Sector Council 2011).

#### 5.4.5 Analytical Outcomes: Energy Resource Development as a Frontline of Reconciliation

Some positive developments are creating favourable conditions for First Nations. The energy resource sector is offering important points of constructive and positive collaboration through frameworks and programs, such as Natural Resources Canada's Clean Energy for Rural and Remote Communities (CERRC) Program that offers \$220 million over six years. The aim is to reduce the diesel dependency of rural and remote communities, and to support the use of more sustainable solutions. Indigenous Affairs and Northern Canada: Northern Responsible Energy Approach for Community Heat and Electricity Program (REACHE) Program offers \$53.5 million over 10 years and \$5.4 million ongoing to continue supporting remote communities north of the 60<sup>th</sup> parallel on energy efficiency and renewable energy technologies for heat and power (Lovekin 2017). These avenues are creating models of trust and harmonized partnerships between First Nations, governments, and energy corporations in what might be called definitive pathways to reconciliation. Unquestionably, this has occurred due to consistent and aggressive efforts by Indigenous Peoples across Canada (Crowley and Coates 2013).

To address objective three, below is a description of four reconciliation pathways, including deliberate actions and desired social changes drawn from the above discussions: Integrating Consultation into Energy-Related Policies and Regulations, Culturally-Appropriate Community Engagement Approaches, Conducting Meaningful Consultation, and Developing Harmonized Partnerships.

#### Reconciliation Pathway 1: Integrating the Consultation Process into Energy-Related Policies and Regulations

Pan-Canadian and provincial regulatory frameworks, plans, and bodies are being repealed, replaced, or overhauled, in the areas of environment and energy, with emphasis on the importance of building/improving relationships with Indigenous Peoples based on recognition of rights, respect, cooperation and partnership. These include:

- The 2018 Pan-Canadian Framework on Clean Growth and Climate Change;
- The Impact Assessment Agency of Canada (IAAC) replacing the Canadian Environmental Assessment Agency;
- The Canadian Energy Regulator (CER) replacing the National Energy Board;
- and
- The 2017 Ontario's Long-Term Energy Plan: Delivering fairness and choice.

In Canada, jurisdiction over environmental issues is shared by the federal and provincial governments. Federal laws that apply to energy projects include the following key acts and guidance:

- Electricity and Gas Inspection Act (R.S.C., 1985, c. E-4);
- Emergency Management Act (S.C. 2007, c. 15);

- Energy Efficiency Act (S.C. 1992, c. 36);
- Canadian Environmental Protection Act, 1999 (S.C. 1999, c. 33);
- Fisheries Act (R.S.C., 1985, c. F-14);
- Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22);
- National Pollutant Release Inventory (guidance and tools);
- Navigation Protection Act (R.S.C., 1985, c. N-22);
- Nuclear Safety and Control Act (S.C. 1997, c. 9);
- Radiation Emitting Devices Act (R.S.C., 1985, c. R-1);
- Renewable Energy Approval (REA) process (Province of Ontario);
- Species at Risk Act (S.C. 2002, c. 29) (SARA).

Further enforcement to integrate Indigenous Peoples and communities directly into these policies and acts to go beyond rhetoric expressions is possible by:

- “Align[ing] energy-related advocacies with Aboriginal and treaty rights with a more autonomous role”, says R. Donald Maracle, Chief of the Mohawks of the Bay of Quinte in response to an open floor interactive discussion on energy sovereignty.
- Aligning national and provincial energy regulatory frameworks, acts, plans, policies, programs, and agreements in “consultation and cooperation” with First Nations as stressed by Matthew Dupuis, Chief of the Red Rock Indian Band at the 2018 IESO Symposium.
- Clarifying roles for consultation and accommodation in regulatory processes for everyone as recommended by David Assinewai, Energy Planner from

Wiikwemkoong Unceded Territory during an informal discussion at 2017 IESO Symposium health break.

The below narratives were gathered from IESO 2018 Energy Symposium, October 22-24, 2018, Toronto, Canada.

- Bringing transparency and clarity to energy project assessments, reviews, and approval processes across federal and provincial agencies.
- Raising awareness, understanding, and giving legal authority to UNDRIP's principle of free, prior and informed consent for energy-related projects.
- Ensuring the Crown carries out its legal duty on consultation and not delegate the procedural aspects to proponents.
- Maintaining the newly created Indigenous Advisory and Monitoring committees for new pipelines to embrace the use of Indigenous-led assessment processes.
- Building First Nation capacities into environmental assessment and review processes.

These efforts will help ensure that Aboriginal and treaty rights are considered as part of the process, not outside of it. This will create clarity for governments and industry, avoid misunderstandings, and reduce the risk of inadequate consultation and/or accommodation.

The Species at Risk Act represents an excellent example of how Indigenous Peoples are integrated into policy making. SARA recognizes that the role of Indigenous Peoples as stewards of the land in the conservation of wildlife is essential and that Indigenous Peoples possess unique traditional knowledge concerning wildlife species. The National Aboriginal Council on Species at Risk

(NACOSAR) was established as an expert advisory committee to SARA. The Council's insights help to identify and protect species at risk during the development of energy and other projects. The knowledge of Council members also helps to identify activities that could adversely affect Indigenous Peoples and their food sources as well as resources used for social, ceremonial, and commercial purposes (Fuchs n.d).

Similarly, the Ontario Ministry of the Energy has enacted consultation policies directly into the Renewable Energy Approval (REA) process. The ministry requires that companies follow a specific protocol for consultation with all affected Indigenous groups. This includes an initial detailed report on the project so that the ministry can determine the "Aboriginal consultation list". Not only does this step-by-step list provide a straightforward roadmap for companies to follow during the consultation process, it helps the province ensure that all obligations to consult are met. If there is a shortfall, it is that the requirement to accommodate is qualified by "where appropriate", leaving it open to interpretation (OMECP 2016).

In some cases, First Nations themselves are creating protocols to make their expectations clear to industry and governments. Alderville First Nation, for example, has set up a protocol, rules for process, and principles for consultation for all proposed government and industry activities on their traditional lands (CAID 2015) becoming more common for sure. Similar systems exist in other First Nations, including Taykwa Tagamou Nation (CAID 2011), Northern Secwepemc te Qelmuw Leadership (CAID 2009), the Anishinabek/Ontario Resource Management Council (CAID 2003) and the Federation of Saskatchewan Indian Nations (CAID n.d.). In 2011, Aboriginal Affairs and Northern Development



Canada (now Crown-Indigenous Relations and Indigenous Services Canada) set out guidelines for all federal officials describing the duty to consult (AANDC 2011b).

### Reconciliation Pathway 2: Instituting Culturally-Appropriate Community Engagement Approaches

Consultation, to be effective and to meet the principles of reconciliation, requires thorough, informative, and meaningful engagement with community members that is not rushed. The process should also reflect an appreciation of the fact that affected First Nations may have different priorities than the rest of Canada. Attendees at the IESO 2017 Symposium reinforced the importance of considering the social impacts of a project early on to ensure they are consistent with community values. Thus, community engagement then needs to be culturally appropriate.

### Reconciliation Pathway 3: Assimilating Meaningful Consultation Process into Energy Development

What does “meaningful consultation” look like? This can be broken down into several areas. Energy corporations need to understand the essence of FPIC as follows:

F (Free) - Consent given without coercion, intimidation, or manipulation;

P (Prior) - Consent is sought before every significant stage of project development;

I (Informed) - All parties share information, have access to information and the capacity to make informed decisions;

C (Consent) - The option of supporting or rejecting development that has significant impacts on Aboriginal lands or culture (FAO-UN 2018).

Further, it is pertinent to bring clarity through guidelines on community-based consultation policies, their scope, extent, and interaction with the duty to consult with First Nations. As Sonny McGinnis, Rainy River First Nation said at the 2018 IESO Symposium:

It is important to issue proper and advance notification on the energy infrastructure project and to maintain regular communication throughout the project cycle regarding its progress or challenges”; to provide the financial and technical means to participate in decision-making processes in advancing energy project implementation.

Gail Lawler, Energy Matters at the Tech Nations 2017 reiterates:

To provide sufficient, easy-to-read information/ materials ahead of time/in time (in the Indigenous language(s) spoken within affected communities).

To use examples from Pathway 2, the NEB failed to conduct adequate consultation during the Clyde River project, including not providing information in the Inuit language. TransCanada did not provide enough information to First Nations along the Energy East pipeline to convince them that it was not another environmental disaster in the making. Although the “duty to consult” doctrine refers mainly to government, the duty does directly or indirectly (through government consultation on Indigenous lands) affect industry.

From industry’s perspective, consulting with affected First Nations early and often is just good business. Michael J. Fortier, who specializes in Indigenous Law, asserts that proper consultation is beneficial for companies from a purely risk-reduction standpoint. Citing mining operations, he said, “companies may prevent and resolve costly, time-consuming disputes through... engagement with Indigenous Peoples” (Fortier 2018).

Similarly, the Supreme Court of Canada (SCC) has upheld court challenges by First Nations against mining companies on the grounds that governments did not meet their duty to consult. Ross River Dena Council (First Nation) in the Yukon and Wahgoshig First Nation in Ontario both successfully proved that the duty to consult extends to claim staking activities. In Ontario, the province amended its Mining Act in 2012 to include a provision for consulting with affected First Nations before a claim could be registered (Indigenous Corporate Training Inc. 2013).

Meaningful consultation can also be expressly outlined by government, a First Nation, or a partnership of First Nations, such as an assembly, as illustrated in Pathway 1. First Nation-driven protocols are especially useful given that, as we have seen, the needs of one First Nation can be different from another. For the past ten years, the annual Indigenous Consultation & Engagement Conference has helped industry understand the changing legal landscape of consultation (The Canadian Institute 2018).

In short, meaningful consultation is consistent with the FPIC principle as defined by the First Nation itself, not by a government or industry definition. Further, this definition recognizes that each First Nation has the right to decide what it needs to fulfil its own criteria. Consultation processes should also be guided by the principles of the United Declaration for the Rights of Indigenous Peoples (UNDRIP).

#### Reconciliation Pathway 4: Developing Harmonized Partnerships

Energy projects in the community can be both a source of income and employment and also a cause of disruption of the community's social and cultural

fabric. Successful outcomes happen with healthy and mutually respectful partnerships that go beyond a seat at the energy project negotiation table. An effective consultation process requires genuine interest with concerns meaningfully addressed. This means sharing all benefits: jobs, training, infrastructure, energy, profits and increased environmental knowledge through harmonized goals. Some common rhetoric and sentiments shared at the 2018 IESO Energy Conference was on accomplishing effective consultation which included; investing time in building partnerships early on, from project inception to its completion, exercising clear communications through regular forums to meet project partners; education, raising awareness and providing orientation government officials, energy corporations and stakeholders on the history of Canadian Indigenous Peoples and their treaties and human rights.

There are examples of projects in recent years that have integrated First Nations into their business plans. The Kitimat LNG Canada project mentioned above will help bring jobs to some or all of the First Nations along its route, where unemployment can be as high as 70 per cent, according to one former chief. According to Brenda Duncan, “When LNG Canada first engaged with us, it was the first time ever that we were seen as partners — that we were treated as partners. And we are now participants in our own economy. It means a lot,” (Robinson 2018).

Similarly, the \$1.6 billion Wataynikaneyap (Watay) Power Transmission Line project, which will connect 16 First Nations in northwestern Ontario currently not on the electrical grid, will also train and employ members from those First Nations. Further, Wataynikaneyap Power is 51% Indigenous-owned in partnership

with energy industry leader Fortis Ontario. Through this partnership, First Nations will have access to the electrical grid, will benefit from its construction, and will profit from its operation.

Although there are several partnerships similar to this one, both in and out of the energy industry, they are relatively rare. “Partnerships take trust and time,” according to an Assembly of First Nations’ report to the Senate Committee on Energy, the Environment and Natural Resources (AFN 2011).

## 5.6 Conclusion

History reminds us that Canada’s energy sector was built while ignoring First Nations and with colonial authority that continues to exert control. However, the nation’s energy resource development landscape is changing. As keen partners, owners, or investors, First Nations are welcoming opportunities to guide the energy transition process. Their support and active participation will make crucial contributions to the success of energy projects in their territories.

However, the pathway to reconciliation is not clear. The relatively recent release of the TRC’s 94 Calls to Action (2015) provides a core set of ideals to incorporate into engagement, consultations, and negotiations between non-Indigenous stakeholders and individual First Nations. There are some good examples of those mechanisms at work, as outlined here, however, there are many inadequacies too.

Reconciliation means finding a common ground for understanding that is based on mutual respect and trust. Going forward, that common ground lays the fundamental basis of any energy resource development negotiations, dialogues, and discussions. Based on the foregoing analysis, Efforts should include:

- refining the regulatory processes within the energy sector to provide more clarity and transparency and to specifically address First Nations' issues;
- ensuring appropriate and meaningful consultation with affected First Nations, including culturally appropriate information sharing, follow-up, and adherence to protocols established by First Nations and/or governmental policies;
- fostering a framework of partnership and trust by taking the “duty to accommodate” as seriously as the “duty to consult”—consultation means addressing concerns and taking appropriate actions; and
- expanding the duty to consult and accommodate to incorporate the UNDRIP principle of free, prior and informed consent.

Recognizing First Nations as the stewards of the land and respecting their treaty rights should be drivers helping to facilitate appropriate negotiations.

Reconciliation pathways call for respecting First Nation “contexts” through their treaty and Aboriginal rights. This translates to Indigenous Peoples taking their rightful place in Canada’s energy industry. Echoing SSHRC (2017), “Indigenizing energy resource development” can be collective pathways to reconciliation of past grievances by acknowledging Indigenous rights to self-determination. It is time for First Nations to decide for themselves how their lands are to be used.

This chapter outlined several successful projects in Canada that resulted in economic and social benefits for all parties. The lessons learned in these examples can be adapted for engagement and negotiations during future projects. First Nations, for their part, will have to employ vigorous and cohesive negotiation strategies, sharp focus, and assertiveness to enter the energy sector.

By following these reconciliation pathways, energy project negotiations can be transformed from opposition to co-operation. The spirit of UNDRIP and respect for Indigenous rights should be upheld.

## CHAPTER 6. RESEARCH SIGNIFICANCE, RECOMMENDATIONS, AND CONCLUSION

The purpose of this research was to examine the energy insecurity issues in the remote, off-grid First Nation communities in northwestern Ontario through a case study of Poplar Hill First Nation. The Wataynikaneyap Transmission Project and other alternative local energy solutions are their pathways to energy transition. Using an Indigenous Research Paradigm and Community-based Participatory Action Research (CBPAR), the research explored perspectives and insights from community members and stakeholders on various aspects of planning local energy solutions through a transition. This chapter reviews, analyzes, and discusses the findings of this research. This chapter also outlines the significance of the research and concludes with recommendations for further research.

Three fundamental questions framed the research:

1. How does Canada's complex energy sector impact community-based energy planning and how can these impacts be addressed?
2. What are the critical gaps in developing local energy solutions in this period of transition and potential ways to address?
3. In light of current efforts by provincial and federal governments on building Indigenous relations and reconciliation, does CEP offer a critical pathway of reconciliation for the First Nations?

### 6.1 RESEARCH SIGNIFICANCE

The outcomes emerged during the research period with the collective learning and understanding of the concept of Community Energy Planning (CEP)

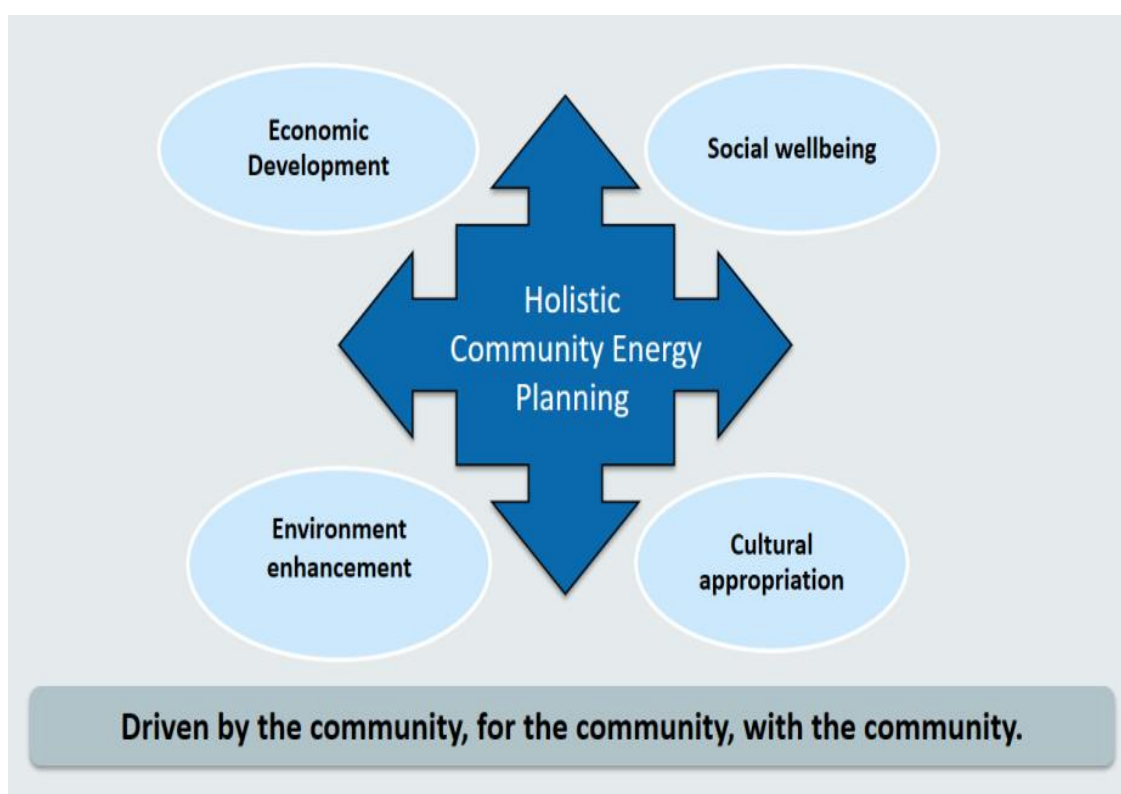


as a tool, as a process, and as a transition management pathway. My simultaneous engagement (besides my academic commitment) with OFNTSC, a First Nation organization provided me the platform to implement the CEP, to explore the energy transition process from off-grid to on-grid, and to adopt various alternate sources of energy. My theoretical contributions are through the following emergent theoretical premises: the significance of culturally appropriate community energy planning, equity-focussed capacity building, and community engagement.

#### 6.1.1 Significance of Culturally Appropriate Community Energy Planning

It is clear that developing and implementing an energy plan with the participation of the community in envisioning their priorities and needs are mandatory for its successful functionality and implementation. For the plan to be effective and acceptable in the Indigenous context, the CEP concept has to evolve to integrate Indigenous values and beliefs. During the course of the research and engaging with various stakeholders as opportunities arose, a collective learning on CEP emerged, which is described below through figures 15 and 16 and further elaborated in Chapter 3.

The Indigenous approach to CEP is holistic. It is inclusive and represents the perspectives of all members of the community including Elders, Chief and Council members, Band officials, and community members-at-large. The process should be bottom-up and driven by the community, for the community, and with the community. All the stakeholders offer unique and valuable perspectives on



integrating socio-cultural factors into the CEP process for positive changes. Figure 15. Towards a holistic community energy planning (Rakshit presented at OFNTSC Community Energy Planning workshop 2018).

An Indigenous CEP is also comprehensive and takes into account resource integration and links all planning areas that are interdependent and interrelated from fresh and waste water to land and resources, health, education, governance, infrastructure development, housing, solid waste, and transportation. The planning process provided the opportunity to potentially identify community priorities for the use of its land base and territory, anticipate future infrastructure and development needs, and protect the community's existing resources. The process helped identify and protect vulnerable or valuable areas, traditions, cultural values, and practices to prevent conflicting developments. Upholding the spiritual aspects of

the community during the planning process could potentially help promote healing and reconciliation.

However, the scope of comprehensive CEP and its implementation is dependent on where the community's interests and priorities are in relation to matters such as treaty negotiations, their approach to governance, and the extent to which planning is addressing land and resource issues within the community's traditional territories. At the time of writing this dissertation, Poplar Hill First Nation was in the process of updating their energy plan. They had also availed OFNTSC's open call to identify a Community Energy Liaison. As OFNTSC's energy planner, I was responsible for encouraging communities, including Poplar Hill, to participate in the training program. Twenty communities took the training. They were given \$15,000 for six months – October 2018–March 2019 – to hire and maintain the Liaison position. However, the project had to wrap up in December 2018 due to a politically-influenced decision; the work remains incomplete. The Liaisons were given hands-on training by OFNTSC to collect baseline data, to collect data to develop each community's energy profile, to read electricity bills, to prioritize energy projects, and to develop a project management plan to implement projects.

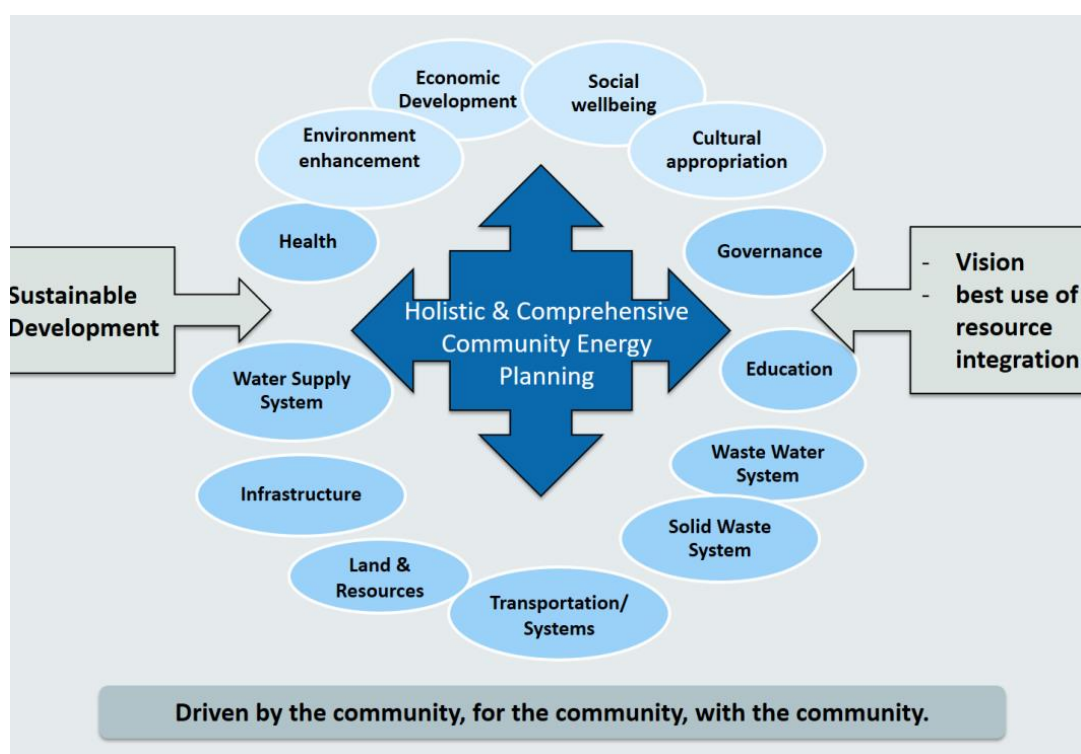


Figure 16. Towards a holistic and comprehensive community energy planning (Rakshit presented at OFNTSC Community Energy Planning workshop 2018).

Key to all energy planning were sustainable development considerations, which is not a new concept for First Nation people. Their tradition of living “sustainable” lives takes a long-term view of sharing and protecting the land, the animals, and the plants to sustain future generations in perpetuity. In effect, CEP is planning for sustainable community energy transitions by inculcating the values of practising energy conservation and energy efficiency that aligns with Indigenous values of respecting the Mother Earth and all that it offers. As stewards of the land, and considering these values in the context of emerging developments and transitions to newer energy systems, it is the First Nation people who are now deciding for themselves what sustainable community energy goals are and what they mean to them. The message is being conveyed to the world, loud and clear.

Artist Fiddler's words of wisdom resonate with Indigenous Peoples' perspective that the renewable resources that we want to adopt as local energy solutions are gifts from the Creator, and they have to be stewarded wisely:

In the beginning, the Creator gathered the four elements- Earth, Wind, Fire and Water – and breathed into them". From this union, mankind was created.

- Gordon Fiddler, Artist from the Sandy Lake First Nation in northern Ontario

During my talk with David Jeremiah, he provided me an analogy and a cultural insight. He said:

That renewable energy is like a dragon fly...that basks in the sun, gets reenergized and flies again. The shiny solar panels on our roofs or mounted on the ground, the wind turbines, hydro and biomass projects – are all sustainable way to address the energy crisis issue. I feel, my responsibility to leave behind a clean place for our children.

- David Jeremiah, North Caribou Lake First Nation

I found that communities were increasingly receptive to the energy planning process and its implementation as they understand the benefits. They realize that CEP enhances the community's governance tools and capacity while allowing them to provide guidance on how to protect the values of the community. This was evident during the Wataynikaneyap information-sharing community open houses as well. These findings, discussed in Chapter 3, align well with learning presented by Chretien (2010); Elias (1995); AANDC (2013); and Kant et al. (2014). I have provided a conceptual CEP framework in Figure 11 that offers the intersection of socio-cultural drivers—socio-cultural, environmental, socio-economic, technological, governance/institutional mechanisms—that were identified and presented in Chapter 3. In my present capacity as an energy planner, I promote the adoption of this framework irrespective of each community's unique needs and priorities. The CREE philosophy embraced for this research includes respect as a

value to be practised for all living beings and empowerment as an outcome for the community in developing their own sustainable energy solutions.

Discussions indicate that an effective and culturally-appropriate CEP can undoubtedly empower the community to become more self-aware and carve its own energy transition path by improving energy performances with informed decisions, combining fragmented efforts and decreasing duplication, enabling efficient use of various resources, identifying and solving organizational problems, and developing tools to aid the entire process.

#### 6.1.2 Equity-focused Capacity Building: Key for Local Energy Transition

Systemic capacity-building approaches that drive equity can transform the most daunting challenges of the communities. Equity-centered capacity building offer options and approaches to improve local energy systems, ranging from development, implementation, operations and maintenance. The CREE philosophy adopted for the research has stressed capacity building to ensure the deeply reflected insights of the communities in valuing the development of local capacities. Poplar Hill and other KO communities recognize the need to raise awareness on energy conservation and practising energy efficiency. They are scoping funding to secure dedicated positions to hire energy liaisons or champions. They recognize the purpose of education for youth and adults alike in using and strengthening local potential employees who have the necessary skills but lack the formal training to support their communities. This will require formalizing various skills, including certifications and acquiring licenses among other job readiness-skills, as elaborated in Chapter 4. The chapter emphasized

that building capacity is also about social change and forms the basis for self-determination (Missens 2008; Fletcher et al. 2008; Taylor 2003). This is particularly pertinent for populations that are marginalized (Smith et al. 2003).

The lack of skill-based capacity for developing energy infrastructure and providing ongoing operations and maintenance of existing energy infrastructures is an enormous challenge for remote communities. Regular maintenance is a key consideration to minimize downtime and to ensure the safe and continuous operation of any energy system. Maintenance of renewable energy systems requires specialized training, and (typically) a local team to undertake routine maintenance and inspections. The lack of maintenance capacity was evident when I visited the remote communities. For example, Poplar Hill has ground-mounted solar panels at the airport and on the roof of the community motel. However, the airport panels were non-functional. Even something as routine as brushing off snow from the panels raised issues. The inability to properly maintain energy facilities can lead to reduced generation and non-functionality. As a result, new and innovative measures of managing energy infrastructure must be developed. Mechanical factors can mitigate the risks, including: increased design tolerances, increased sensor use/feedback specifications, and implementation of pro-active maintenance. However, these are not sustainable solutions. Training with local employment must be made a feasible option since accessing remote sites is costly and time consuming if contractors have to be called in. My work through the OFNTSC platform is striving to build local capacities with culturally responsive practices.

### 6.1.3 Effective Community Engagement.

It is imperative to carry out due diligence to learn about the community prior to any project development: its culture and ethno-historical information; treaty information; governance; formal protocols or agreements in place (e.g. reconciliation, resource management, sectoral revenue sharing, land claims, impact benefits etc.); local economies sources; historical or current involvement in any resource development projects; and consultation protocols (from Finding the 'Community' in Community Energy Planning, a presentation by Michael Jacobs' of Curve Lake First Nation to the IESO 2017 Symposium).

It is important to create opportunities for co-development. Norm Jaehrling, CEO of Pic Moberg First Nation, discussed the success of the Gitchi Animki Hydroelectric Project on its traditional lands during a conference presentation. Pic Moberg owns 50 per cent of the project, which includes two generating stations producing 18.9MW of power for the First Nation. Brian Thunder from Sachigo Lake, in response to visiting government officials to his community, says:

We are simple people. You will have no one listen to you if you come to visit us that reminds us of our settler past.

Another essential element is to speak a language that creates a common ground or platform to explore the best alignment for long-term sustainable interests in an energy project. Michael Lyle, Vice-President, Planning, Legal, Indigenous Relations and Regulatory Affairs, IESO expressed gratitude to symposium participants for joining in an important dialogue about energy, including the youth:

We're grateful to all of you here today. Although the IESO is full of expert planners and operators, it's essential for us to also learn from the experts in



your communities and engage with the future experts, who are today's youth. It's important that we continue to consider the local perspective and work closely with communities and consumers like you to develop viable solutions to provincial, regional and local electricity challenges. It is important to respect and support Indigenous rights, ownership, traditional knowledge and teachings in energy decisions and program design.

- Michael Lyle, IESO

Other delicate nuances to practice would be more face-to-face and verbal communications over remote and digital media. I was constantly reminded to not make "helicopter visits", which I gathered were the periodic but limited engagements or visits practised with the communities that did not form any real connections with its members. Visiting communities with targets, timelines, and deadlines without respecting the community time is again a deterrent to the true purpose of the engagement process. As Elder Victor Pelletier in his humble simple way said:

Visit us often, talk to us, get to know us, we have a lot to offer. But, you need to spend time with us.

Elder Kwandibens, when he invited me to a sweat lodge ceremony, pointed to the importance of respecting First Nation cultural and traditional activities:

Recognize, respect and accommodate First Nations' cultural activities such as funerals, election schedules, festivals and traditional activities like fishing, hunting, harvesting, when planning community visits.

The Energy East project is another good example of poor consultation. In 2013, Phil Fontaine (former national chief of the Assembly of First Nations) took a position with TransCanada Pipeline to advocate for Indigenous interests during pipeline construction. However, many Indigenous Peoples felt this was a betrayal and past dealings with TransCanada left many mistrustful of the company. Specific

complaints were many, including one claim by Indigenous groups in the Rainy River region of northwestern Ontario that Indigenous Peoples living there were taking on all of the environmental risk to their livelihoods while TransCanada Pipeline was receiving all the benefits (Harrison 2017). Shoal Lake is infected with cryptosporidium which is possibly from past industrial activities and Grassy Narrows First Nation is still contending with mercury-polluted waters definitely left behind by industry. Therefore, TransCanada's vague assurances that their waterways were safe did not ring true with the people living there. The pipeline, which was to run from Hardisty, Alberta to Saint John, New Brunswick was cancelled in October 2017 (Evans 2017).

On the other hand, LNG Canada recently set a new standard in consultation, according to Haisla Nation Deputy Chief Councillor Brenda Duncan (Robinson 2018). What they did right during the Kitimat project (mentioned above) was to “engage consistently and early with community members and to sincerely listen and accommodate.” Still, the fact that not all 20 First Nations affected by the pipeline agree that they were adequately consulted speaks to the fact that there is no unified voice representing all First Nations, but that each First Nation may have different expectations and thresholds for consultation and accommodation to be met.

If First Nations are not invited to be at the table when energy projects in their traditional and reserve lands are being discussed by federal and provincial governments and other stakeholders, then, there will always be gridlock. It is to be acknowledged that First Nations are not to be taken as stakeholders in any energy

project negotiation. As Assembly of First Nations National Chief Perry Bellegarde and NDP MP Romeo Saganash stressed (Gilmore 2018):

First Nations are not stakeholders. First Nations are rights holders and title holders, and we must be involved from the outset and throughout the decision-making process. I remind all governments that it is not too late to engage our peoples. This approach is better for everyone involved and leads to better decisions and better outcomes. This is to build nation-to-nation relationship. There are three jurisdictions in this country: federal, provincial and Indigenous and the other two jurisdictions must know and understand that Indigenous jurisdiction, Indigenous land rights, and consent is at the heart of this issue.

## 6.2 RESEARCH CONTRIBUTIONS

This research study, to the best of my knowledge, is the first academic study of off-grid, remote First Nation communities in northwestern Ontario that explores the energy transition contexts through the CEP process. To corroborate and to note the knowledge gap, the literature review in each of the chapters, 2, 3, 4 and 5 have highlighted the existing academic literature on CEP and energy transition.

The research contribution through knowledge mobilization celebrates the community's adaptation to new and emerging changes in local energy resource development. The research contribution demonstrates how remote First Nations are making progress towards energy autonomy. This quote reflects my thoughts about the research:

I know I am not moving mountains,  
I know there are others doing much more than I and there are many  
days where I wish I was achieving more.  
There are days when I feel the work I do is so small and I wonder if it  
is making a difference at all – like a small pebble in a big lake. But by  
ensuring that the small things I do are affecting some change no  
matter how little and believing in that change, I get to the next day.  
And of course there are days when I feel that the small ripple my  
pebble made is being felt on every shore and those days I think –

wow – here I am, I'm meeting my goal.

Let's keep going.

- Tabatha Bull on Women, Community, Energy, IESO Community Energy Planning Conference 2017

This research was unfolded at two levels: the theoretical conceptual and the on-the-ground, hands-on actions and initiatives. The CEP concept as a process and tool was explored through four chapters that helped to develop an understanding of the scope of community energy data, information and knowledge, its generation and application through the baseline data and energy profiles. The CEP concept was a tool that helped understand the governance and management functions (planning, organizing, staffing, directing, coordinating, and monitoring) of local energy projects. CEP also revealed the challenges, limitations, and knowledge gaps.

On a practical level, this research contributed to building the capacity of First Nation communities in northwestern Ontario during energy transitioning. Through my association with OFNTSC, I engaged with Poplar Hill and other communities in the region. To offer through a process of co-development, several main contributions resulted, including generating awareness, reviewing energy plans, implementing CEP, building capacity, facilitating networking and partnerships, developing communication awareness tools, and celebrating community success. These achievements are detailed below.

#### 6.2.1 Generated Awareness

Engagement, as we know from reconciliation efforts in general, is crucial. I spent time engaging, generating awareness, interest, and receiving support from the Tribal Council, Chief and Band Council management, and the community-at-large to help understand CEP and its role in community development and for

energy autonomy. I helped those engaged to realize that the process has the potential to help communities adapt to new challenges during energy transition. Information sharing, preparing and taking advantage of the momentous opportunities provided/committed by the government for First Nations are critical. I organized open houses and also visited schools to talk about energy efficiency and conservation. Community Energy focal points or local champions were invited to present their work. Below is a list of events where I, along with KORI and Community Energy Liaisons in northwestern Ontario, co-presented our work on community energy planning.

- Presenter, Independent Electricity Systems Operator (IESO) First Nations Energy Symposium, October 2018, Toronto.
- Workshop on Regional Centres and the Sustainability of Canada's Rural and Northern Landscapes Workshop, May 11, 2018, Lakehead University (Dr. Peggy Smith Presented on my behalf).
- Presenter, IESO First Nations Energy Symposium, October 2017, Toronto.
- Presenter, OFNTSC's All Tribal Council, Large and Unaffiliated First Nations meeting, October 2017, Rama.
- Presenter & Panel Organizer, Ontario First Nations Technical Services (OFNTSC)'s Technations Conference's community energy planning sessions, August 2017.
- Presenter, the Canadian Sociological Association Congress May 27, 2017, Ryerson University, Toronto.
- Presenter, Chiefs of Ontario (COO) Community Energy Workshop for Northern & northwestern Ontario First Nations in May 2017
- Presenter, Our Lands conference, Rama, January 25, 2017
- Presented my work during the Honourable Elizabeth Dowdeswell, Lieutenant Governor of Ontario's visit to our campus, February 15, 2017
- 2017, KORI was invited to be a guest speaker for the Lakehead University, NRMT 3251 course on renewable energy resources. KORI shared the renewable energy projects in the KO communities.
- Northern Ontario First Nations Environmental Conference (NOFNEC), October 4-6, 2016, Thunder Bay.  
KORI and I presented on Community Energy Planning and Energy Transition.
- Poster Presentation, Graduate Studies Research Conference - March 7, 2016.
- 2016, KORI helped organize a keynote address by Margaret Kenequanash, CEO, Wataynikaneyap Power LP, Resources, Economy, and Society

Research Group Graduate Studies Research Conference, Lakehead University.

- 2015, I invited KORl as a guest speaker at Lakehead University during the course on International Resources Management.
- Northern Ontario First Nations Environmental Conference (NOFNEC), September 29 - October 1, 2015, Thunder Bay. KORl and I presented on Renewable Energy.

### 6.2.2 Reviewed Energy Plans

I reviewed consultant-driven CEPs and pointed out gaps in their recommendations that were generic and not community-specific. This involved working with the community through the process, visiting the community, checking on baselines collected, discussing with the CELs their utility providers, and then drawing upon the energy project priorities in discussion with them. This is with the hope that the Liaisons, when designing and developing future energy plans by themselves, will have the insight to address the gaps. I also facilitated community-led, community-driven energy profile and mapping exercises to facilitate decision making and to choose specific courses of actions among various alternatives. The process helped community members to take stock of and assess community supply sources and energy demands, existing resources, proper utilization of resources, and achieve goals and objectives set by the community themselves.

According to Milton Wawia from Red Rock First Nation:

It is all about planning well. Planning is common sense. You fail to plan. You plan to fail.

### 6.2.3 Implemented CEP

I mobilized the hiring of Community Energy Liaisons (CELs) and identified local champions, encouraging youth and women to engage in the energy sector.

At the time of discussing energy plans in a community, I would speak to youth and young women who are managing environmental files or working for the Band about various opportunities that may come up with local energy planning and why it is important to invest some time. I also facilitated open discussions on positioning Liaisons in the community's local governance, understanding and defining the Liaison's role in the community, and outlining how to make energy more "discussable and relatable" for the Liaisons with the community leadership and the community-at-large. This process included providing skills-based learning opportunities for Liaisons through mentoring and peer learning opportunities.

#### 6.2.4 Built Capacity

Education is pivotal in all aspects of local energy development and its transition. As rightly said by Chief Matthew Dupuis and Milton Wawia from Red Rock Indian Band at the OFNTSC Community Energy Planning Capacity Building Workshop in Thunder Bay, November 2017:

Education is one of the major focuses of our community development. We feel as the leaders of the Red Rock Indian Band. It is our responsibility to continually educate our people so that they are aware of the rising costs of energy.

During 2017-2018, about 30 CELs (25 in north Ontario and five in southern Ontario) were trained in energy project feasibility studies, project management, operation and maintenance, energy infrastructure asset management, and energy economics. I (along with technical experts from OFNTSC) facilitated the development of a modular curriculum on energy fundamentals, terminologies, baselines and benchmarks, understanding energy bills and building baseline data, data organization and aggregation, home energy retrofits and energy conservation, energy budgeting within the context of strategic planning,

determining the effective electricity rate of a building, and estimating building heating energy consumption (see Appendix 5). Additional focus was given to fuel switching: estimating energy cost differences from changing heating systems, smart thermostats; estimating savings from implementing temperature setbacks; lighting system upgrades; and understanding asset-management for existing energy-related infrastructure to help implement the community energy plan. The modules also covered various kinds of clean/renewable energy and ideas for implementing a clean energy project, conducting pre-feasibility and feasibility studies, and availing funding opportunities. All of these modules were supported with hands-on exercises, field visits, expert inputs, and case studies through energy workshops specifically designed for the identified CELs. The Modular Energy Planning & Implementation Workbook, developed for the CELs, is included as an Annex.

#### 6.2.5 Facilitated Networking & Partnerships

I supported participation in community energy conferences to leverage the success of other First Nations and encouraged the communities to share their own experiences and successes in renewable energy through the conference platforms (see Appendix 3: Poster for Academic, Professional Engagement). I also encouraged and connected the community with various energy stakeholders to co-develop meaningful and culturally appropriate partnerships. This was dependent on the support received from the community through networking, requesting meetings, and building connections. The continual engagement and actions of all involved was also a key success factor in promoting capacity-building programs.



These sessions also including providing networking and communication opportunities and sharing of ideas through the social media tools.

#### 6.2.6 Developed Communication Awareness Tools

I helped develop awareness materials like stickers, posters, and flyers and contributed articles to the local newspaper. Examples of these can be found in Appendix 4: Community Communication Awareness Tools. These materials also helped celebrate community successes and energy project milestones.

#### 6.2.7 Celebrated Community Successes

The study acknowledged and celebrated the achievements of the community champions and the energy liaisons who are working towards incorporating energy planning in local development, giving planning a place of significance and promoting energy literacy. I offered them platforms to share community achievements and success stories (see Appendix 6: Community Achievements with Local Solutions).

### 6.3 THE KNOWLEDGE GAPS

The dissertation identified knowledge gaps in its implementation and in the process, as listed below.

Integrating community services with energy planning for effective energy transition: Besides energy, housing, infrastructure, land-use, health care, food systems, and water treatment are predominant concerns of First Nations in the north (Knowles 2016). These sectors are also deeply connected to energy use and consumption. Presently, there are not many feasibility studies, plans, and/or processes in place to integrate all the service areas. Integrating them in a holistic

and comprehensive community energy plan, as explained in Figures 15 and 16, will encourage overall energy efficiency and resource mobilization. For example, integrating energy mapping and land-use plans can contribute to defining future physical forms. Testing various land-use development scenarios can determine the most energy-efficient land use configuration and built form for a community or the redevelopment or creation of new land uses in providing the foundation for an economic model for energy infrastructure investment. This process can be part of any preparation of community expansion and growth. Integration can influence other components of planning studies such as transportation systems, sewage systems and environmental systems. Unfortunately, however, there are hardly any case studies or outcome-based processes for remote, rural, or off-grid communities including First Nations with their additional complexities (which was part of the impetus for this research).

Impacts of community energy plan: There is not much academic evidence about how effective the application of the Aboriginal Community Energy Plan Program has been for First Nation communities. This poses a clear knowledge gap in assessing energy planning in practice in First Nation communities. An evaluation of post-community energy plan development or implementation can help gather which components work and which do not and reasons supporting the gaps.

Impact of community energy transition: There is minimal academic evidence on the effectiveness relative to local projects, services, and initiatives through the transition process and their resulting impacts on First Nation communities. This is a clear knowledge gap in assessing the complexities in

energy planning in practice and, subsequently, energy transition efforts in First Nation communities.

Integration of social-cultural factors in community energy plans: Academic literature, references, and documentation on off-grid energy planning integrating socio-cultural factors in the Indigenous context is limited. This leads to a knowledge gap in understanding and acknowledging socio-cultural drivers as measurable and a potential motivational factor for Indigenous energy planning.

## 6.4 RECOMMENDATIONS FOR FUTURE ACTIONS AND RESEARCH

### 6.4.1 Short-to-Medium-timeframe Action Points for Poplar Hill during Energy Transition

- Update the CEP. The community energy baseline data or profile can be updated using IESO's Indigenous Community Energy Plan (ICEP) Program. The Program offers \$30,000 for remote communities.
- Sustain the Community Energy Liaison position using IESO's Community Energy Champion (CEC) Program. Through the CEC Program, Poplar Hill would be eligible for up to \$50,000 per year which may be renewed for up to three years (without needing to re-apply) provided adequate progress is being made, as determined at the discretion of the IESO.
- Implement a CEP by following up on the collective recommendations put forward by the community. Funding is available for various components of the energy system: generation, home retrofits and upgrades, energy efficiency and conservation, education and capacity building. As part of OFNTSC work, a list

of funding programs was shared with Poplar Hill's Community Energy Liaison (see Appendix 7: Energy Funding Programs for First Nations).

- Integrate the energy plan with other community objectives: Since an energy plan is so tied in with other community activities, the planning process is an excellent opportunity to simultaneously explore other resource development plans. Working in silos is inefficient in the long run due to interconnected and interdependent resources. Integrating development plans will help to maximize available resources, skills, and training opportunities.
- Promote energy conservation: Poplar Hill is eligible for IESO's financial support for innovative electricity conservation technologies and practices. Accessing these funds will help Poplar Hill respond to its energy demands by reducing their electricity demand at certain times such as during peak use hours (peak clipping) or shift some of their demand to off-peak hours (peak shifting). Additionally, conservation behaviour can be enhanced when customers reduce their electricity consumption by scaling back activities that are powered by electricity.
- Prepare for an energy system governance transition: Poplar Hill is presently an Independent Power Authority (IPA) community. This is explained extensively in Chapter 3. However, when transitioning to the grid connection, HORCI will become the utility/service provider. This will amount to a serious governance transition for the community that will require an in-depth study at the local level of the community's interactions with the utility provider.
- Develop a hybrid energy backup system: Poplar Hill, even when connected to the grid, should plan for a back-up energy system due to its remoteness and

often extreme weather conditions. The community should not resort to using expensive, inefficient, and polluting diesel generators as backup if the primary electricity generation does not meet the demand of the communities. Poplar Hill can explore a hybrid system that makes use of combining different sources of renewable energies to better meet the existing power demands of the community. Systems such as these can also have storage elements such as batteries added so that they may be able to supply constant electricity to the grid network without the regular requirement of a backup. For example, the system may be comprised of electricity and solar power or electricity and a combined heat and power system. However, this is dependent on several factors: the community's decision about whether it would want to do away with the current diesel-generated power system; continued funding availability for innovative renewable energy technologies; availability and feasibility of renewable energy technologies; and the community's willingness to scope such options.

- Learn and adapt: There is much that Poplar Hill could learn from its neighbouring community, Pikangikum First Nation (37.61 km away), which became the first remote community to be connected to the power grid in December 2018 (OMNDM 2018a). Learning about post-grid transition challenges, if any, will help. It was understood that moratoriums were put on some of the non-essential electrical usage (Walters 2018). Further, Poplar Hill would benefit from continued association with Indigenous organizations that provide technical solutions on local energy planning, such as OFNTSC.

#### 6.4.2 Other Recommendations for Future Work/Research

- Move towards centralized knowledge transfer practices: Remote First Nations could greatly benefit from the Wataynikaneyap Transmission Project by learning about the process, approach, and challenges in developing a self-led energy agenda from First Nations that have already made the energy transition. Thus, it is recommended that the project develop a system of provincial/regional knowledge transfer with the potential to disseminate training and information to an even wider audience. Two potential programs can help facilitate: Opiikapawiin Services LP (“OSLP”) <https://www.oslp.ca> and The Kuhkenah Network (K-Net) <http://www.kochiefs.ca/KNet>.

While communication does exist between the communities of the Far North, knowledge transfer is not necessarily easy or fluid. Communications technologies are limited, and travel between communities is costly. Thus, it will take a concerted effort to collect and disseminate energy-related information and experiences to other First Nations and to a wider audience. Additionally, each community’s experiences are unique and have much to contribute to literature on First Nations’ participatory planning and capacity building. Creating an accessible body of information on communities’ experiences could greatly enrich this discourse. A database on various energy-related training programs can also be very helpful to the First Nation communities.

A local technical organization such as Ontario First Nations Technical Services, a college or university program, or an independent researcher could assist in collecting and consolidating the information in user-friendly, culturally appropriate documents with which individual community members can engage.

These documents can be produced and disseminated through online platforms, or through presentations at Indigenous, industry development, or planning-focused conferences.

- Research with, for, and by “Indigenous Peoples” and “community” in the community energy discourse: Social science-related disciplines, methods, concepts, and topics remain underutilized and perhaps underappreciated in contemporary energy studies research (Sovakool 2014). Energy analysis therefore needs to look beyond the dimensions of technology and economics to include social elements. Pertinent to this dissertation, the following are some potential research questions:
  - Energy transitioning in the Indigenous context: Energy transitioning is certainly part of today’s discourse, be it the energy market, green innovations, environmental and security aspects, or acceptance of technological advancements. This dissertation has touched upon some aspects of energy transitioning in the Indigenous, off-grid context through understanding the complexity dimensions in the energy sector, capacity-building gaps, and the role of socio-cultural factors in energy planning as a mechanism to achieve reconciliation. The field is evolving and will require a deeper understanding to strengthen the scholarship, such as fundamental knowledge about the technical/technological and economic aspects of energy transitioning in the Indigenous context and the role of public-private partnerships to create platforms for Indigenous socio-technical innovations. The energy transitioning process in a community will require observing possible issues and feeding

them into the political discourse and mandates to make the energy sector more inclusive for First Nations.

- Gender and energy: This dissertation did not specifically collect data and deliberate on gender aspects and their role in the energy sector. There is certainly a need to gauge the interest of women in community energy planning and implementation and also in specific areas in the energy sector. This will require generating data as well as developing appropriate tools and career-related, skills-based information materials to raise more awareness and engage women in the community. In particular, women can play an influential role in the energy transitioning process by helping raise community awareness.
- Youth in the energy sector: Similarly, this dissertation did not specifically collect data on youth participation. Again, there would be great benefit to determining youth interest and devising ways to integrate youth into these projects through skills development and job training, and by simply educating them about the importance of energy security for their communities.
- More engagement with Elders: Dedicated research could focus on Elders' perspectives on how historical contexts and "ways of living" determine present day decisions, behaviour, and attitudes in energy use and conservation. This dissertation has generally spoken about energy conservation aligning to Indigenous values and beliefs. Stories, narratives, explanations in local languages and their translations could deepen the learnings and enhance Indigenous knowledge on energy. Again, it is important to note that cultural



aspects such as stories and lifestyles can differ greatly among First Nations, so customized approaches would need to be developed.

- Energy-related infrastructure asset management: This concept is emerging and is a multidisciplinary approach to meeting energy goals by properly managing the related equipment, facilities, vehicles, etc. owned by the community. The subject requires more study in the Indigenous context as an Energy Asset Management plan assures that energy-related operation and maintenance (preventive) issues are promptly identified and the right actions are taken to quickly solve them, given the different constraints that a community might face. This plan also requires the support, commitment, and communication of several individuals and departments throughout the community. There is a variety of reasons why Energy Asset Management is important.

#### 6.4 RESEARCH LIMITATIONS

Community engagement: CBPAR is time intensive. From initial contacts to building relationships took me approximately two years. The research was limited by the time spent in each of the communities, especially when cultural protocols took precedence over any other activities (e.g., band elections, changes of Chief that affects support and interest, hunting and community festivals, or the death of a community member) and the costs associated with, difficult indeed, research in remote areas. The frequency of visits was often restricted by available funds. The weather too played a role in accessing fly-in communities and for the Liaisons to participate in the workshops. To further complicate matters, capacity-building

funding came with deadlines and/or timelines. It was a challenge to engage and motivate the communities to participate within the given timeframes.

Additional practical barriers during community visits included no-shows at open houses, tough for sure, but perhaps reflecting a general indifference to community affairs. Some community members felt that planning and developmental issues were the responsibilities of the Chief and Band Council members. Community-based planning is idealized by academicians and so falls short.

For me, in spite of past experiences working with communities, engaging with First Nation peoples was not only a new but a unique experience. It was very important for me to understand and learn their backgrounds and community protocols before venturing into energy-related activities. I am humbled for the support and guidance of many First Nation people and organizations in the learning journey. Appreciating an Indigenous research approach is pivotal when embarking on a research study with First Nation peoples.

Additionally, there is a need to understand the Indian reserves which are inherent political spaces that highlight the ongoing nature of the colonial system. In this system, energy plays a key role as it reinforces asymmetrical power relations between Indigenous Peoples and the Canadian government. Against this backdrop, energy efficiency and the ways that communities are engaging with energy efficiency provides an opportunity to push back against some of the oppressive power structures that have constrained Indigenous Peoples from developing their communities in the ways that they want to. This was reflected in many ways: overcoming energy insecurities and resulting challenges through poor

infrastructure, services, and amenities, the community relationship with the utility, and the implications of working with Hydro One or Hydro One Remote Communities (HORCI).

CEL Engagement: Many of the Community Energy Liaisons identified wore multiple hats and held several posts/responsibilities in the community. Lack of interest or not finding suitable CEL candidates was a challenge. The same people were appointed by the Band to participate in various thematic workshops. Thus, energy planning was not always a major consideration or priority. However, when Housing Managers participated as CELs, it worked better as infrastructure management overlapped and connected with efficient energy management.

Due to the high turnover of CELs, there was often a lack of continuity leading to gaps in learning. There were cases when different CELs were appointed to attend the sequentially planned energy workshops with their set curriculum. Further, there were often no-shows including absentees after confirming participation and even instances where participants had checked into the hotel but did not attend the workshop. Even with remunerations offered to CELs as an incentive and for their time commitment, it was very difficult to get the CELs and leadership engaged in the capacity-building programs.

Multiple developmental priorities: Presently, the communities are reliant on winter roads<sup>24</sup> for the delivery of goods and services. The Government of Ontario

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<sup>24</sup> Winter roads in the province's Far North connect remote First Nation communities to a permanent highway or railway system. From around mid-January until spring thaw, winter roads make it easier and more affordable for people to travel and bring in supplies (OMNDM 2018b).

made additional commitments of CAD 5.7 million to maintain winter roads in the Far North (CCE 2018). At the time of the study, there were active and parallel dialogues and interests by various stakeholders and communities on all-season road development and other surface transportation systems as well as building transportation access to the Ring of Fire (Dehaas 2018). However, as Edward Hoshizaki pointed out:

With the roads coming in – it will change their funding formula, it may change their standard A rate. It will not be considered “remote.

There is very little academic or non-academic discussion about how present energy systems will be adapted to meet the electricity demands of such industrial development mega projects as they impact First Nation communities in northwestern Ontario. Deliberations continue about if and how the Wataynikaneyap Transmission Project can be a source of power for these projects. If yes, there will need to be discussions about how they will transform or impact remote First Nations energy planning that are still dependent on ice roads and diesel usage.

Politicized energy planning, particularly with regards to renewable energy:

Developing alternative sources of energy is linked with climate change. During the research period, the climate change mandate, priority, agenda and, subsequently, funding conflicted and shifted with the change in governments. While climate change became a contentious topic in part because of the skepticism raised about the science of climate change, green energy alternatives continued to be pursued at the federal level. Funding for implementing energy projects under the climate change programs also affected First Nations' projects. Soon after the June 7, 2018

provincial general election, Ontario's new government cancelled an array of so-called green energy projects.

Reconciliation is a very important mandate for all of us. These green energy projects were part of that. And nothing seems to be offered in their place.

- Dianne Saxe, Environmental Commissioner of Ontario

Project financing is a hurdle that all developments must overcome. Trying to implement a community energy project without proper capital, grants or loans from other parties will be challenging. There are funding programs available to remote communities aimed at increasing energy independence through implementation of new and/or innovative solutions. It is crucial that the momentum towards sustainable, reliable, and accessible energy for First Nations not be lost midway.

The politics of energy planning and development will likely continue to affect all First Nations as they embark on their own energy transition process.

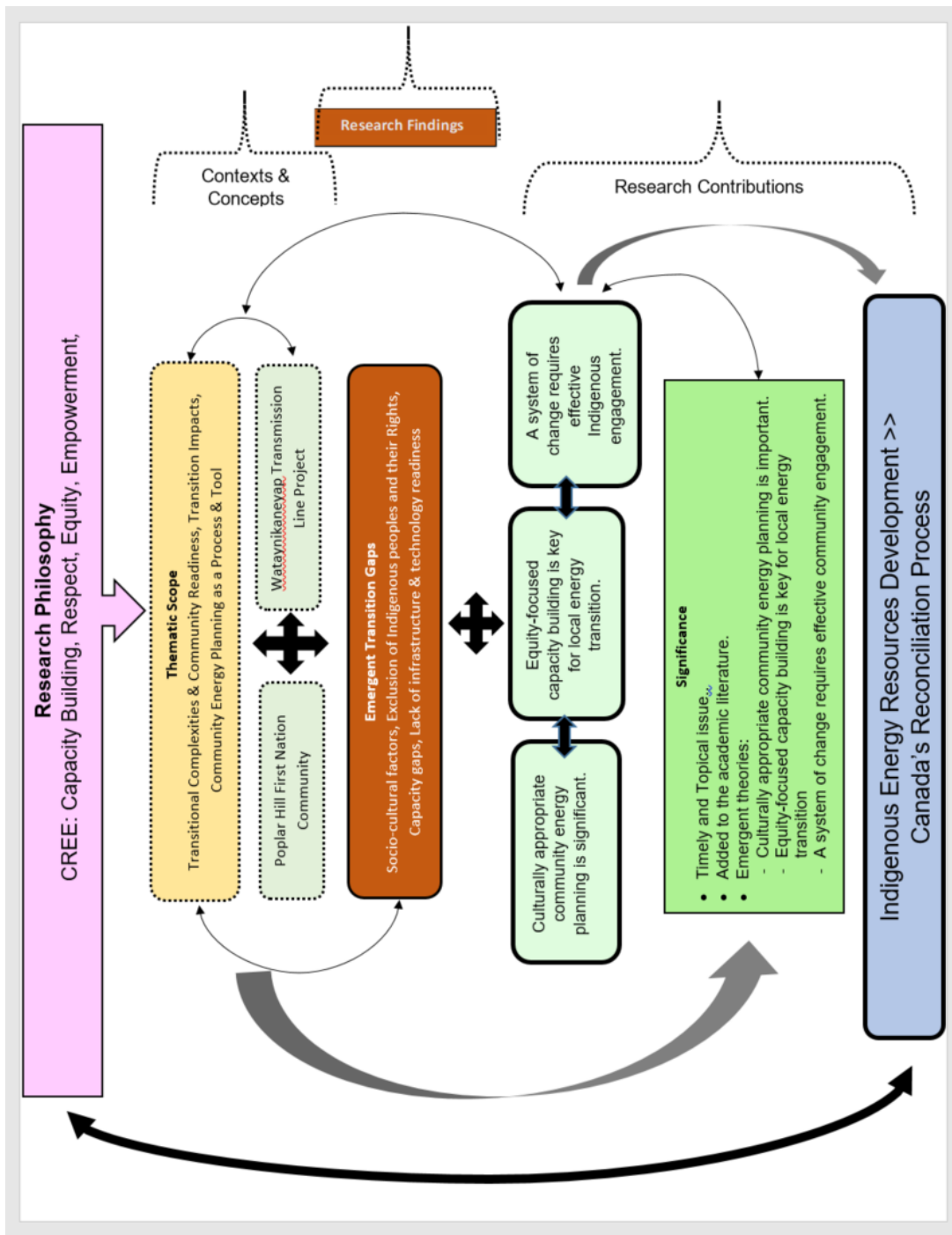


Figure 17. Theoretical and Conceptual Summary of the Dissertation (Rakshit 2019)

## 6.7 IN CLOSING

I have been asked several times during the course of this dissertation: "What is the motivation for First Nations to develop their own transmission line, or to engage in energy projects, renewable energy projects as their energy costs are subsidized anyway? It's not like they are saving a ton of money."

This question speaks volumes about people's misunderstanding of the situation. It shows the ignorance about colonialism, the effects of systemic racism and suppression over generations, the effects of federal and provincial governments' inability to effectively share responsibility for political issues affecting First Nations, and generally an indifference to the plight of thousands of people in our province who have much lower standards of living. Enabling energy autonomy is more than simply providing a basic right to remote First Nations and encouraging socio-economic growth. Energy autonomy equals freedom in a broader sense, including self-governance, self-determination, and ultimately breaking free from hundreds of years of colonialism.

The road to reconciliation will be a long one, and there is no easy solution. However, full reconciliation cannot be achieved until every First Nation reaches energy autonomy. Enable First Nations with a purpose. Enabling First Nations to establish more reliable energy systems with equity benefits will be an important milestone in the reconciliation process and will benefit all.

At the IESO Community Energy Symposium 2018, Sonny McGinnis, Chief Executive Officer of the Rainy River First Nation Development Corporation, summed up the efforts of the First Nations peoples this way:

This story is about resiliency, about overcoming the many challenges of the times. Just as important as clean energy, new jobs, and training is the need to integrate this technology with our own sustainable culture—language, art, values, and traditions. We have a strong desire to re-establish our identity and develop our community resilience to provide a safe, nurturing world with opportunities for our children and grandchildren.

- Sonny McGinnis, Rainy River First Nation Development Corporation

I have often heard: “We have to do it right for our children...for our youth.” I identify closely with these statements. As mentioned previously, I feel a strong connection with the Indigenous Peoples living in northwestern Ontario. Their stories and experience of colonialism and their desire to re-establish their identity are similar to those stories in my homeland in India. Not only did I realize the parallels, but I embraced the Indigenous worldview and Indigenous approaches to reaching reconciliation. I have seen the progress that has been made over the period of this research and I have great hope for the future.

During what started as a purely academic pursuit, I have built relationships with several Indigenous communities and community members. They have guided me to a philosophical path of living that is based on sincerity, simplicity, and mutual respect. It allowed me to better understand the Indigenous ways of perseverance, resilience, and resolve against all odds. After fulfilling my academic commitments, I will apply what I have learned to continue to build community capacities. Through my work with the OFNTSC, I will continue to support First Nations (see Appendices 4-7) across Ontario to develop and implement their own sustainable, community energy plans.



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