

Community Energy on the Road to Reconciliation:

Understanding the key components of Community Energy

Planning Tools for Indigenous communities

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ABSTRACT

Community energy planning is becoming a common tool for ensuring communities are meeting their energy efficiency and greenhouse gas emissions targets. Community energy planning is the process of developing an energy and emissions baseline, engaging the community to create a community energy vision, and implementing a plan to achieve short-, medium-, and long-term goals for energy efficiency and renewable energy development. While there are various reasons a community may choose to develop a Community Energy Plan (CEP), Indigenous communities have been using community energy planning as a tool to gain political autonomy, advance self-determination, develop capacity in renewable energy projects, and ensure Indigenous ownership and control of renewable energy projects. A number of tools and resources can assist in developing a CEP, but none address the specific needs and goals of Indigenous communities interested in community energy planning. This research project included a document analysis of published CEPs, CEP tools and resources, as well as CEP policies and funding programs. The research project also involved semi-structured interviews with public officials working in community energy planning with Indigenous communities. These two methods were used to develop criteria for assessing community energy planning tools, resources, and policies for Indigenous communities. The research concluded that meaningful and accessible community energy planning tools for Indigenous communities must balance technical and social considerations, be action-oriented, balance visionary versus pragmatic elements, be economical to conduct, and be simple with options to add complexity as required. The outcomes support the development of community energy planning tools, resources, and policies for meaningful and accessible CEP toolkits that assist Indigenous communities in reaching their social, economic, and renewable energy goals.

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CHAPTER 1: Introduction to the Research

A Community Energy Plan (CEP), also known as a Strategic Energy Plan, identifies a community's energy goals and priorities, current energy usage, energy efficiency opportunities, and potential for renewable energy generation projects (Office of Energy Efficiency and Renewable Energy, 2017). Community energy planning is a key strategy for reducing or eliminating the technical, socio-political, and economic barriers to implementing renewable energy projects for communities. Community energy planning is an emerging trend in Canada with the goal of ensuring energy decision-making is kept at the local community level, rather than in the hands of national governments or private entities (St. Denis and Parker, 2009). This research is key to identifying components for meaningful and accessible community energy planning and project development tools and resources that ensure Indigenous communities are able to use community energy planning and renewable energy to work towards economic and political autonomy, self-determination, community economic development, and nation-building. Many CEP toolkits have been developed and used in larger communities and urban municipalities (Tozer, 2013). A toolkit is a set of tools and resources that guide the development of a project or resource. A toolkit differs from instructions because a toolkit provides the user with templates and resources rather than just an explanation of how to complete something (Bryson et al., 2011). For many planners, policymakers, and technicians in larger communities, the purpose of renewable energy and community energy planning is to reduce greenhouse gas (GHG) emissions, benefit the environment, and implement new technology and innovation. For Indigenous communities, however, the significance of renewable energy projects is different.

In Indigenous communities, energy planning often aims to create social and economic value, be community-led, and focus on community goals beyond energy (Miller et al., 2017).

These goals can include education and training, community ownership, capacity building, community economic development, building social capital, and more (Krupa, 2012). Community energy planning is a tool to ensure renewable energy projects are planned by, implemented by, and benefit a community (Alaska Energy Authority, 2017). More importantly, the process of developing a CEP can help Indigenous communities who are working towards larger goals of economic and political autonomy, self-governance, and community economic development. While the bottom-up approach of community energy planning and renewable energy projects has a significant benefit for communities in terms of capacity building, community economic development, self-determination, and self-governance, these efforts can only be fully successful if there is movement on the part of governments and institutions to recognize the self-governing powers these communities are actively working to reclaim (Cornell, 2015).

Currently, few provincial and territorial governments in Canada see the value of community energy planning in Indigenous communities. The Government of Alberta supported community energy planning through their Alberta Indigenous Climate Leadership Program; however, that program ended with a change of government in 2019. The Government of Northwest Territories along with the Northwest Territories Power Corporation mandated in 2005 that CEPs be conducted in every community in the Northwest Territories. This support continues today through funding organizations such as the Arctic Energy Alliance. Aside from these two jurisdictions, no other province or territory has specific programs to support the development and implementation of CEPs. Indigenous communities are often seen as small drops in the larger energy and electricity usage bucket for provinces and so the focus is often on industry and larger urban centres. However, a focus on community energy planning with Indigenous communities specifically has the potential to assist provinces in achieving their climate change and GHG

emissions targets, working towards reconciliation in a practical and meaningful way, and addressing concerns of extreme electricity and energy bills in northern communities. The goal of many CEPs is to support Indigenous nations in achieving economic and political autonomy, self-determination, and economic sustainability (Miller et al., 2017). For this reason, community energy planning has the potential to lead to reconciliation that is practical and achievable through collaboration and partnerships between communities, government, and private sector professionals.

1.1. Positionality of Researcher and Ethics

I believe the perspective, realities, and positionality of the researcher provide important context for the research design and methods. We each have a unique history and perspective and it is impossible to eliminate this reality from our research work, and so it must be understood and shared as part of the research process. I am a non-Indigenous person conducting research in an Indigenous-focused context. This is important; although I have a wealth of experience living and working in Indigenous communities, I am not an Indigenous person and I do not pretend to fully understand the context and realities of Indigenous communities as I am not from such a community. I believe this is important to share in the context of ensuring my research aligns with the principles in Chapter 9 of the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (Government of Canada, 2014).

The research conducted as a part of this thesis made a formal submission to Ethics in February 2019. A letter dated March 15, 2019 from the Behavioural Research Ethics Board at the University of Saskatchewan stated that the research was exempt from requiring a full ethics review. The research meets the requirements for exemption status under Article 2.1 of the Tri-

Council Policy Statement: Ethical Conduct for Research Involving Humans, December 2014, which states:

“In some cases, research may involve interaction with individuals who are not themselves the focus of the research in order to obtain information. For example, one may collect information from authorized personnel to release information or data in the ordinary course of their employment about organizations, policies, procedures, professional practices or statistical reports. Such individuals are not considered participants for the purposes of this Policy. This is distinct from situations where individuals are considered participants because they are themselves the focus of the research. For example, individuals who are asked for their personal opinions about organizations, or who are observed in their work setting for the purposes of research, are considered participants” (Government of Canada, 2014).

Chapter 9 of the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans (Government of Canada, 2014) discusses ethical approaches to research involving First Nations, Inuit, and Métis Peoples of Canada. Most research involving Indigenous peoples in Canada has been conducted by non-Indigenous outsiders (Government of Canada, 2014). While the policy statement is aimed at researchers and academic institutions, these principles should be followed by all those doing work with Indigenous communities, whether they be planners, industry technicians, practitioners, or others. In the case of community energy planning, it is essential that intellectual property rights are respected and that traditional knowledge holders are not taken advantage of in the process of understanding the community’s energy vision. All work carried out in the community energy planning process should be determined jointly by the Indigenous community and the planner or practitioner involved in the work. The First Nations Principles of OCAP (ownership, control, access, and possession) “provides communities with an

understanding of why, how, and by whom their information is collected, used or shared” (First Nations Information Governance Centre, 2014). When conducting community energy planning with a community, the practitioners involved must understand and follow the OCAP principles regardless of the barriers to doing so. Transformational planning cannot be a reality unless all planners and community practitioners understand the OCAP principles and Chapter 9 of the Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans. If CEP and community renewable energy projects are to be done in the correct way, they will be developed by and for the community using the OCAP principles in a way that facilitates nation-building, self-determination, and self-governance and tries to break down the continued colonialism that Indigenous communities face.

1.2. Research Objectives and Relevance

The purpose of this research is to develop criteria to assess the effectiveness of community energy planning tools, resources, and policies in facilitating Indigenous participation in community energy planning and community renewable energy projects. The criteria will be used to determine what key elements are required to have a meaningful and accessible CEP toolkit and process. Ultimately, the research will provide recommendations for a CEP toolkit and process that allows Indigenous communities to meet their specific goals. An overall research question with two objectives was used to guide the research process.

What are the key components of a meaningful and accessible CEP toolkit for Indigenous communities?

1. *Develop a set of criteria to assess the community energy planning literature, tools, and policies based on the needs of Indigenous communities.*

2. *Determine the needs and gaps in current community energy planning literature, tools, and policies and make policy recommendations to support Indigenous participation in community renewable energy and community energy planning.*

By answering the above question and meeting the objectives, the research aims to provide communities, local governments, and utilities with tools to structure policy and support community energy planning in Indigenous communities. Recommendations from the document analysis will be valuable and relevant to government agencies, utilities, and communities working on developing their CEPs. The research seeks to contribute to a wider research focus on the need for policy and program changes within federal and provincial governments, as well as utility companies, that will facilitate and encourage community energy planning development in Indigenous communities. More broadly, this study will also recommend important practices for working with communities on renewable energy pilot projects that benefit both the communities and the province in terms of achieving their renewable energy and GHG emissions targets. Having criteria for Indigenous-specific community energy planning tools and resources will also support communities in developing a community plan that addresses community social, economic, and environmental challenges. The research offers a contribution to academic knowledge by assessing gaps in CEP toolkits and helping to inform the community energy research community of the benefits and challenges when working in community energy planning in Indigenous communities as well as a potential framework for doing so. The analysis of the community energy planning process will also offer insights into the way that renewable energy projects can be developed by the community, for the community.

1.3. Statement of the Problem

The context of the research was framed by first understanding the policy problem that community energy planning is attempting to solve in Indigenous communities. The context and

background are highlighted in detail in the Literature Review in Chapter 2. However, to fully contextualize the research, it is important to understand that community energy planning is a tool for addressing the following problems or concerns:

1. High utility bills (energy and electricity) that are burdening Indigenous communities already confronted by a variety of economic and social challenges (Krupa, 2012; Quesnel, 2019).
2. Continued oppressions through colonial policies, paternalism, and government-controlled aspects of everyday life in Indigenous communities (McCreery, 2012; Mann, 2013).
3. Lack of political autonomy, energy security, and economic development opportunities that are sufficient to meet the needs of community members (Hibbard and Adkins, 2013; Cornell and Jorgensen, 2007).
4. Challenges related to accessing resources for developing renewable energy projects (Dreveskracht, 2013; Krupa, 2012).
5. Asserting self-government and control over traditional lands and resources (Mann, 2013; Kerr et al., 2014).

With that in mind, the CEP toolkits and processes that are being used by urban and non-Indigenous communities are lacking the required components to successfully address these issues. For example, toolkits such as the Getting to Implementation Toolkit developed by Quality Urban Energy Systems for Tomorrow (QUEST) begins by describing the development of a steering committee. While this concept seems helpful, it goes into explaining who should be on the committee, including technical experts and engineers. It is not common in Indigenous communities to have a wealth of technical experts on staff and the toolkit does not explain the alternatives or describe the process to follow if technical experts are not readily available to participate (QUEST, 2015). It is also common in urban centres to use CEPs for the purpose of reducing GHG emissions (Tozer, 2013). While this goal is important, it is not the most important

factor for Indigenous communities implementing community energy planning. Many of the current community energy planning tools and resources are focused almost entirely on GHG emissions reduction (Tozer, 2013; Wirth, 2014). Chapter 2, Section 2.3 provides a detailed assessment of current CEPs that have been completed in Northern, remote, and Indigenous communities and highlights the gaps in the process that are required to address the concerns mentioned above. Commonly, CEPs involve the following steps: assessment of total community energy and emissions, technical and economic evaluation of energy efficiency and renewable energy opportunities, and an implementation plan including specific recommendations. This process leaves little room for political, cultural, or social influence and may not focus on addressing the deeper concerns of the community. Through a document review, case study review, policy gap analysis, and semi-structured interviews, the research conducted provides recommendations on the key components of a CEP toolkit or process that attempts to address the greater issues mentioned above. In their 2009 paper, St. Denis and Parker discuss how community energy planning, with the right tools and resources, can offer a truly alternative approach to our current top-down energy system. However, their research did not include a discussion of the social, cultural, or political context of CEPs in Indigenous communities or how current CEP tools and resources fail to address the different context in these communities. The research conducted in this thesis work is an endeavour to fill these gaps and provide governments, utilities, private companies, and communities with the tools required to use community energy planning to achieve the larger community economic development and political autonomy goals.

1.4. Definitions and Context of Research

A variety of key terms will be used throughout this thesis and, to fully understand the literature review, findings, discussion, and conclusion sections of this thesis, it is important to agree upon the definitions of the terms being used. Below I provide definitions of the terms used throughout the thesis.

The terms *rural and remote* are used throughout this thesis to denote geographic similarities between communities. Rural refers to communities that are typically less than 10,000 people and have limited services available for residents. Remote refers to communities that are either not connected to the North American electricity grid, not connected to the Natural Gas grid, not accessible by year-round roads or all of the above.

Reconciliation is the recognition and affirmation of the rights of Indigenous peoples through the signing of the treaties while also ensuring actions and solutions to current and historical colonial policies and actions that have attempted to remove Indigenous people and their rights from the land (United Nations, 2008). The Government of Canada recognizes reconciliation to be the renewal of relationships with Indigenous communities, peoples, and governments through recognition of rights, respect, cooperation, and partnership (Crown-Indigenous Relations and Northern Affairs Canada, 2019). Specific policies regarding reconciliation by the Government of Canada and the Assembly of First Nations are multi-faceted and include economic, social, environment, culture, justice, finance, housing, water, and other areas where specific action towards reconciliation are required (Assembly of First Nations, 2003). Understanding this definition, there is a role for energy security and energy self-sufficiency if we are to achieve genuine reconciliation in Canada.

Economic development is defined as “the process by which a community or nation improves its economic ability to sustain its citizens, achieve its sociocultural goals, and supports

it [self-determination] and governing process” (Begay et al., 2007). It is also important to understand that economic development in Indigenous communities is not the sole responsibility of the communities themselves; the historical treatment of Indigenous people and communities has caused damage and current policies still require the community to rely on outside sources for their economic security. Renewable energy may offer a solution to this challenge, under the right policy conditions.

Self-determination as defined by the United Nations General Assembly Resolution 1514 (1960) is the right of a people to choose their governing and is based on equal rights and fair equality of opportunity. In an Indigenous context, self-determination is understood as the “right and authority of Indigenous nations or communities to determine their own futures and their own forms of governments” (Cornell, 2015). Self-determination is the inherent right of Indigenous peoples to participate in the democratic process of governance and determine their development future – socially, culturally and economically (Barker, 2015).

Self-government is the exertion of those rights, recognized or not, through systems of governance over land, resources, communities, and more. Self-government is increasing in all Indigenous tribes and communities in Canada, Australia, New Zealand, and the United States as a result of Indigenous resurgence and the movement on the part of Indigenous peoples to ensure their rights are not only assumed but recognized by governments (Cornell, 2015).

Self-sufficiency is the ability to provide for one’s own needs without any reliance on external sources (Webster Dictionary, n.d.). Self-sufficiency can be further understood through the lens of energy democracy or energy justice, which can be described as the bottom-up or grassroots approaches to energy decision making and subsequent development (Szulecki, 2018).

Energy autonomy is understood to be the decentralization, distribution, ownership, and control over the energy generation and distribution. The concept is best applied with a decentralized and distributed energy system (Scheer, 2006). Indigenous energy autonomy is a part of a larger goal of achieving economic and political autonomy. Energy autonomy can be described as the ownership and responsibility over a community's or region's energy security.

Energy security is understood to be necessary for the functioning of economic and political systems in the modern world. Defining energy security is complex and multi-faceted and includes key indicators such as availability, accessibility, affordability, and acceptability of energy supply (Kruyt et al., 2009). The International Energy Agency (IEA) (2019) defines energy security as “the uninterrupted availability of energy sources at an affordable price”. The IEA further discusses the difference between long- and short-term energy security. Short-term energy security is the capacity of the energy system to respond quickly to unexpected changes in the supply-demand chain, while long-term energy security deals with the timing of investments in the supply chain to align with economic developments and environmental needs. Community energy planning is a method that seeks to address the challenges with both short- and long-term energy security through education, planning, and demand-side management.

Access to natural resources, aging and changing energy infrastructure, political autonomy, and political stability are factors that influence energy security. A community's energy security can be at risk due to geographic location, impacts of climate change, and access to financial resources by communities and individuals. Without energy security, economic and social development that meets the needs of modern societies is difficult to impossible (Winzer, 2012). Jewell et al. (2014) describe energy security as the low vulnerability of vital energy systems. They describe vital energy systems as those that are necessary to ensure stability and

strength in our societies. For the purpose of this research, energy security is understood to be access to and affordability of energy in Indigenous communities, as energy is essential to support economic, social, and environmental development therein.

CHAPTER 2: Literature Review

2.1. Framing the Socio-economic and Cultural Context in Indigenous Communities

Renewable energy is a growing opportunity in Canada and around the world. Energy transitions are high on political agendas and the decentralization of energy production is key to the utilization of renewable energy (Wirth, 2014). An important way to decentralize the electricity grid is through community renewable energy projects (Wirth, 2014). The decentralization of the grid will allow the renewable energy industry to focus on more than economic opportunities, such as social, political, and cultural values for communities (Urmee and Anisuzzaman, 2016). Any renewable energy project being discussed for implementation or use by a community must focus on the more-than-energy needs of the community (Miller et al., 2017). Community-based renewable energy projects, planning, and policies are a way to implement renewable energy technologies and use the process to facilitate self-sufficiency, local determination, engagement, and empowerment (Walker, 2008). For Indigenous communities in Canada, community energy projects and planning become a significant driver for economic development and nation-building. To understand the benefits of renewable energy projects for Indigenous communities, it is essential to understand the social value of community energy planning and community renewable energy projects. The following sections discuss the socio-cultural, economic, and policy context in Indigenous communities as it relates to community renewable energy. The community context will frame the discussion about how a meaningful and accessible CEP toolkit and process can facilitate community energy projects for Indigenous communities in Canada, therefore building capacity for self-determination, self-governance, economic and community development, and political autonomy for Indigenous nations. Understanding the social value of renewable energy projects is key to appreciating the different

approaches that each Indigenous community will have to planning, developing, and owning renewable energy systems.

2.1.1. The social value of energy

For many Indigenous communities, developing renewable energy projects with a focus or goal of self-sufficiency is an illustration of aspirations for political independence, self-sufficiency, and self-determination (Rezaei and Dowlatabadi, 2016). The concept of self-sufficiency can be further understood through the lens of energy democracy or energy justice, which can be described as the bottom-up or grassroots approaches to energy decision-making and subsequent development (Szulecki, 2018). To ensure the inclusion of Indigenous communities in the decentralization of the energy system, policies and programs supporting decentralization must be rooted in energy democracy (Wirth, 2014). It can be argued that energy democracy or energy justice as conceptual frameworks are meaningful to understanding how community energy planning and the social value of energy can be used as tools for Indigenous communities seeking self-government and self-determination. In the context of Indigenous rights and the social value of energy, energy democracy can be further defined as a way to exert political, community, and energy-related self-determination by Indigenous communities.

In their working paper on poverty eradication through energy innovation, Miller et al. (2017) begin their discussion with a very direct statement: “fundamentally, people don’t care about access to green electrons or carbon-neutral fuels; they care about what they can do with that energy”. There is an additional layer to this statement for many Indigenous communities, particularly those seeking economic and community capacity building, and that is the process of developing, owning, maintaining, and facilitating renewable energy development and generation at the community and utility level. For Canada’s Indigenous communities, planning for,

developing, owning, and maintaining community renewable energy generation have the potential to lead to growth in economic, social, and human capacity in the community, which can be used as a method to facilitate self-governance, self-determination, and community economic development. Understanding that the social value of energy is the key driver for the development of community- or utility-scale renewable energy projects in many Indigenous communities is important for policymakers, technical experts, and governments to understand. Many federal, provincial, and territorial policies and programs are heavily focused on renewable energy implementation to reduce GHG emissions (NRCan, 2017). Many current policies and funding programs are heavily focused on technical solutions to the GHG emissions challenge; this is a different goal than held many Indigenous communities for their renewable energy projects and CEP (Krupa, 2012, 2013), making it challenging to get support for projects and planning. One example of such programs is the NRCan Clean Energy for Rural and Remote Communities (CEERC) program, which supports communities who are interested in reducing their reliance on diesel. However, the program does not address or support things such as transmission infrastructure to various communities, which would significantly increase their ability to develop and benefit from renewable energy projects (NRCan, 2019). Reframing the conversation around the social value of renewable energy projects is necessary to understand what communities need to achieve their goals. The true problem must be understood for the solutions to be sustainable and acceptable to the community (Dusyk, 2013).

Miller et al. (2017) describe the social value of energy as the access, ownership, and control of energy in a community. When understanding the key elements of success in meaningful Indigenous renewable energy projects, “subtle differences in ownership of energy resources and systems may mean that one community is able to reinvest significant proceeds

from energy development while another finds that energy payments to outsiders drain local financial resources” (Miller et al., 2017). A community can be involved in the development of renewable energy projects in a variety of ways and there is no one-size-fits-all approach. For many communities, equity ownership is the goal; for others, it is a royalty structure with education, training, and employment opportunities. When governments and utilities specify what Indigenous involvement in a renewable energy project means, they are continuing a colonial approach to determining what is best for Indigenous communities without understanding the specific goals of each community.

In the process of planning community renewable energy projects, it is critical that Indigenous communities outline the goals and values of developing the project for themselves. Miller et al. (2017) provide a multi-layer design framework for creating social value in community energy projects. The framework includes five layers:

- Understanding the community social value of energy;
- Socially valuable energy services;
- Effective and efficient socio-technical systems integration;
- Energy enterprises; and
- Ownership and financial reinvestment.

Including the Multi-Layer Design Framework for Social Value Creation in the community energy planning and renewable energy development process would build capacity in communities and assist with meeting their community goals. It would also highlight to governments that the value of community energy projects in Indigenous communities is about much larger goals of political autonomy, self-government, self-determination, and community economic development. Moving from implementing renewable energy to localizing renewable energy (Dusyk, 2013) creates the social value that creates opportunity for communities to meet their goals.

2.1.2. Culturally-appropriate energy solutions

While the economic, social, and environmental context of community renewable energy is widely discussed in the literature, there is also a fourth dimension: culture (Urmee and Anisuzzaman, 2016). The long-term success of any renewable energy project in Indigenous communities must consider all four elements in detail and through thorough planning beginning at the outset. Understanding the community's cultural and spiritual connection to the land and therefore connection to the source of electricity is essential for ensuring the long-term sustainability of renewable energy projects in Indigenous communities. Members of the renewable energy community often think of solar and wind technologies as being 'free' sources of electricity, but this understanding is very different for Indigenous communities. The Navajo Nation and Hopi Pueblo in the southwestern United States consider the sun and wind as gifts from the Creator and therefore not unlimited resources for people to use at their disposal (Candelaria, 2003). Unique and specific ceremonies must be conducted by Elders and knowledge holders for renewable energy projects to be developed and implemented. This is just one example of the intricacies of developing renewable energy projects with Indigenous communities and why proper planning, cultural understanding, and respect are prerequisites to any successful venture.

Other general cultural considerations must be understood prior to planning or developing renewable energy projects with Indigenous communities. Western understanding of the 'need' for power and electricity is often different than the Indigenous understanding of how and when energy and electricity are necessary. Different cultural understandings of time and the timing of the development process also exist. Indigenous people have a holistic view of the land and natural resources as being gifts from the Creator, and Indigenous communities have diverse and

unique ways they may choose to plan for and develop renewable energy projects. This understanding does not always align with the process in which governments and private developers work towards commercial operations of renewable energy projects. A recent example of government programs not aligning with Indigenous timelines is the Alberta Renewable Energy Program (REP) Round 2. The REP is a utility-scale procurement program that was a government-supported power purchase agreement (PPA) to facilitate the development of large-scale renewables in Alberta. The second round of the REP in Alberta was designed to include an Indigenous equity ownership component to encourage participation by Indigenous communities, create the greatest degree of competition, and provide the lowest cost for Albertans (AESO, 2018). While the specifics of the Indigenous participation on these projects are unknown, each project was required to have a minimum Indigenous equity ownership of 25%. Seemingly a meaningful program to ensure Indigenous participation, it launched in mid-2018 and was closed less than four months later. The short timelines between the launch of the program and when the project submission was due proved challenging for many Indigenous communities who did not feel the timeline was adequate to develop meaningful relationships with development partners. On the surface, the program succeeded in ensuring Indigenous participation by requiring a 25% Indigenous equity participation in the projects; however, it failed to acknowledge the different cultural understandings of the timelines required to successfully create a lasting relationship between an industry partner and Indigenous community. Different understandings also exist with respect to what Indigenous participation is and what is possible for different communities; however, the program did not allow for creativity or flexibility in their definition of Indigenous participation, which was limited to a pure equity ownership stake in the projects.

2.1.3. Nation-building through community renewable energy

If planned and implemented with social, cultural, political, and economic values in mind, renewable energy projects and planning have the ability to strengthen nation-building. Nation-building is the process of achieving Indigenous self-determination and self-governance (Cornell, 2015). Self-determination is understood as the “right and authority of Indigenous nations or communities to determine their own futures and their own forms of governments” (Cornell, 2015). Self-government is the exertion of those rights, recognized or not, through systems of governance over land, resources, communities, and more. Nation-building is increasing in all Indigenous communities in Canada, Australia, New Zealand, and the United States as a result of Indigenous resurgence and the movement on the part of Indigenous peoples to ensure their rights are not only assumed but recognized by governments (Cornell, 2015).

If renewable energy projects and planning are to facilitate the building of Nations, they must recognize the need for a new understanding of ‘economic values’ and a new understanding of ownership structures (Goodfellow-Baikie and English, 2006). Hibbard and Adkins (2013) discuss how “healthy economies emerge from and are embedded in their cultural context” (p. 98). Renewable energy development has the potential to build healthy economics and healthy Nations if proper planning, ownership, and political structures are recognized and valued. In *Reclaiming Indigenous Planning*, Matunga (2013) describes the impacts of colonization on Indigenous economies. To have meaningful economic growth that fits with Indigenous values, the reclaiming of traditional lands and resources must be coupled with the capacity to develop those resources in a way that the community chooses (Matunga, 2013). In the case of renewable energy projects, this means communities must retain ownership and control of any renewable energy projects and resources being developed on or near their Nation’s territories and ensure

that any projects developed align with their cultural values. While colonial governments implement funding programs to facilitate Indigenous participation in their energy futures, these programs often lead to industry and technology companies bringing in projects without the consent or collaboration of communities, leading to unsuccessful projects and creating a lack of trust of renewable energy technologies (Rezaei and Dowlatabadi, 2016). As discussed throughout *Reclaiming Indigenous Planning*, there is a need to dismantle the inequality in power structures if Indigenous political autonomy and self-government are to be honoured and ensure that Indigenous nations can build and strengthen their own governance structures, institutions, and systems. In the meantime, Indigenous communities are using renewable energy and community energy planning to facilitate their efforts to regain self-determination and self-governance as well as advance community economic development.

2.1.4. Economic development for Indigenous peoples and communities

Self-determination and self-government are required for economic development (Dreveskracht, 2013). Self-determination and self-government put development decisions in Indigenous hands, allowing Indigenous nations to set their own agenda and ensure decisions are made with local culture, perceptions, and interests in mind (Dreveskracht, 2013). Indigenous communities struggle with the significant challenge of lack of ownership and rights to land and resources, which is made worse by the multiple jurisdictions and overlapping responsibilities of federal and provincial governments (Kerr et al., 2014). One way to gain self-determination is through economic development. Economic development is defined as “the process by which a community or nation improves its economic ability to sustain its citizens, achieve its sociocultural goals, and supports it [self-determination] and governing process” (p. 36, Begay et al., 2007). Economic development that aligns with community values and meets the cultural,

social, and political needs of a community can only occur if Indigenous institutions and governments are given necessary powers over their decisions (Dreveskracht, 2013). Indigenous communities are challenged every day by the false pressure to choose between traditional practices and ways of life and participation in the global economy (Hibbard and Adkins, 2013). As discussed by Dreveskracht (2013), this sentiment needs to be de-mythed as “providing resources to achieve cultural integrity and self-determination escalates economic development on Indigenous lands and supports nation building, rather than damaging it”. If Indigenous nations want to develop economically, socially, or otherwise, they must redefine for themselves what development means and how it matches their own traditions and culture (Dreveskracht, 2013). Renewable energy projects offer an opportunity to have economic development that aligns with the cultural values of many Indigenous communities. Governments and institutions must realize there is no singular key to successful economic development for Indigenous communities, and much of the success comes from ensuring cultural match and self-determination for Indigenous nations (Dreveskracht, 2013).

Understanding how some Indigenous communities are successful in economic and community development while others struggle to reach their goals is key to developing renewable energy projects with Indigenous communities. In 1987, professors Stephen Cornell and Joseph Kalt at Harvard University founded the Harvard Project on American Indian Economic Development. The projects goals were to understand and facilitate conditions for sustained, self-determined, social and economic development for Indigenous nations. Among the key research findings from the project, they determined four key elements for successful economic development on American Indian reservations: sovereignty, institutions, culture, and leadership (Begay et al., 2007). For sustained, culturally appropriate economic development to

take place, self-determination matters. Indigenous nations must be empowered to make decisions about what approaches to take and what development means to them (Cornell and Kalt, 2007). For development to take hold, institutions matter. Assertions of self-determination must be backed by capable, culturally appropriate institutions of governance and mechanisms for fair decision-making (Begay et al., 2007). As noted in many sections throughout this literature review and agreed upon by many authors, culture matters in successful economic and community development. Successful economies rely on appropriate institutions of self-government that are rooted in culture (Begay et al., 2007). Nation building and economic development necessitate community leaders who recommend changes that are culturally suitable and focused on community growth and development that meet the needs of the community in question (Cornell, 2015). To facilitate the cultural and institutional needs of economic development, the community energy planning process must hold culture and institutions in high regard. A CEP toolkit and process that understands and incorporates this reality will facilitate the development of renewable energy projects that are successful in sustained and long-term economic development for Indigenous communities.

2.2. A Review of Relevant CEP-related Literature, Policies, Frameworks, and Toolkits

Over the past five years, there has been major growth in Indigenous participation in renewable energy projects of various sizes and scales. Although this is a positive sign, it is important that communities have the tools, resources, and policies to support their engagement and participation in community renewable energy to ensure these projects are developed with the Indigenous community's best interests, goals, and objectives in mind.

2.2.1. Key elements of successful community renewable energy projects

Understanding the essential elements of successful renewable energy projects in Indigenous communities is key to building momentum for community energy projects in such communities across Canada. The first key element of success for renewable energy projects in Indigenous communities is having a bottom-up, grassroots approach from their inception, through development and implementation (Krupa et al., 2015). The grassroots approach ensures communities retain the ownership and benefits of the projects. Grassroots development begins with local community champions or leaders who are key “moral agents” (Van Der Schoor and Scholtens, 2015). The second key element is the presence of community champions who are connected to a larger network of actors working towards similar goals in their communities. Walker (2008) discusses the benefits to the project if these community champions have a unique skill set that meets the needs of one or more project components. The third element is trust amongst all cooperating organizations and stakeholders (Krupa et al., 2015). A precursor to building trust amongst stakeholders is ensuring the values of a community are integrated into the vision for all renewable energy projects being developed (Krupa et al., 2015). Community energy projects are a growing reality for Indigenous communities and provide a meaningful approach for Indigenous peoples to “engage in the transition to a sustainable energy future” (Van Der Schoor and Scholtens, 2015). However, there are very explicit challenges and barriers for Indigenous communities who are seeking to engage in community energy and renewable energy projects. Policy and practice need to ensure there are no over-simplified prescriptions for all community projects, as all projects are community and context specific (Walker et al., 2010).

2.2.2. Barriers for developing renewable energy in Indigenous communities

Indigenous communities must face and overcome major technical, socio-political, and economic barriers to implement renewable energy and thrive as active proponents in renewable energy projects. These barriers are discussed below and will be discussed further in Chapter 5 to highlight the ways in which community energy planning may be a tool to overcome them.

The technical hurdles for Indigenous communities developing renewable energy projects can generate increased costs and may result in a project no longer being economical. Most Indigenous communities in Canada are located at the ends of long transmission and distribution lines or they are off-grid entirely and use diesel generators to power micro-grids in a single community or group of communities (NRCan, 2009). This reality can create interconnection challenges for specific renewable energy technologies. The size and capacity of the transmission lines supplying the community are directly related to the size of a renewable energy system that can be installed to provide electricity to the grid beyond the meter. Smart expansion of transmission and distribution lines is vital for communities that are connected to the North American power grid (Krupa, 2013). Many on-grid communities suffer from intermittent power characterized by extended and frequent outages (Arriaga et al., 2013), so the implementation of renewable energy technologies is attractive for these communities to have a more secure energy supply.

Diesel communities experience technical barriers related to interconnection and intermittency of renewables (Krupa, 2013); however, greater community energy project installation in remote communities promotes understanding of these technical issues and better equips communities and utilities to mitigate these challenges (Arriaga et al., 2013). Krupa (2012) discusses how “the new energy landscape forged by renewable energy technologies stands in

stark contrast to the centralized, largely fossil-fueled models upon which modern civilization was built”, and this represents a significant technological barrier. The centralized, fossil fuel-based characteristics of our current electricity grid mean that technical changes to our transmission and distribution system must occur for renewables to be developed at a larger scale (Krupa, 2012). With careful planning and an understanding that all communities are different, these technological challenges can be overcome through system upgrades and implementing technologies that make sense in a local context (Wirth, 2014). Contrary to popular discourse around renewables, the technological barriers are often easier to overcome than the socio-political and economic obstacles for Indigenous communities (Walker et al., 2010). It is also important to be fully transparent and honest with communities about what renewable energy technologies can and cannot do. For example, there is considerable current discourse around reducing reliance on diesel in northern communities. With a lack of affordable, reliable battery and storage technologies, implementing renewable energy technologies in northern communities will only offset part of their diesel consumption and significantly increase costs, while still requiring diesel generation as backup (Alvial-Palavicino et al., 2011). With many northern governments currently able to bulk buy diesel, renewable energy integration prior to effective storage options could increase costs to residents without adequate government support and intervention. It is also critical that governments and the private sector understand that Indigenous communities and their energy security are not a playground for technology testing. Reliable electricity is a necessity for healthy, resilient, economic and social opportunities in communities; therefore, overpromising with respect to technological solutions can cause great harm and lack of trust in renewable energy in the future (Walker et al., 2010). Taking the time to understand the

reality in the community and the full energy security picture is essential to ensure the community's best interest is kept at the forefront of these projects.

The socio-political obstacles faced by Indigenous communities are numerous. A major barrier discussed in the academic literature is the issue of capacity. To effectively participate in not only the planning but the development and ownership of renewable energy projects, individuals within a community need to understand the technologies, policies, and regulatory frameworks in their region (Krupa, 2012). If a community is wanting to play a key leadership role in project development, then an even more profound understanding and skillset is required. Bringing in external assistance in the form of consultants can be expensive and risky, as a community's energy vision can often be pushed out of the picture (Walker et al., 2010). Treaty issues and negotiations can also be a major barrier for many Indigenous communities. When treaty issues remain unresolved for a particular band, there is often hesitation to engage in the development of projects without a clearer understanding of where the First Nation stands within those negotiations (Krupa, 2012). This emphasizes the lack of equality for Indigenous communities seeking to engage in renewable energy projects. The lack of equality is also seen in the underrepresentation of Indigenous people in politics, regulatory bodies, industry, and academia (Krupa, 2012). The lack of equality and lack of capacity are directly linked and are often associated with higher costs and lack of control of projects. In a recent CBC article, McDiarmid (2017) discusses the need for more training and capacity building opportunities to give communities the know-how to get started. It is important to recognize that “nearly all electricity developments – renewable or otherwise – will occur within the territories of Canada's Indigenous peoples” (Krupa et al., 2015) and therefore it is a requirement on the part of both government and the private sector to meaningfully engage and encourage Indigenous

participation in projects, even if this means longer timelines and lower returns for the private sector renewable energy developers.

For many Indigenous communities, the socio-political and technical barriers described in the preceding sections could result in higher overall projects costs. The lack of capacity and training for community members to engage in the operation and maintenance of projects has resulted in higher costs associated with projects in remote communities (Arriaga et al., 2013). Due to the isolated nature of many Indigenous communities, high costs of installation and maintenance mean the return on investment (ROI) for a project is spread over a much longer term (Walker, 2008). With a longer-term ROI, it can be even more difficult for Indigenous communities to receive private investment for their renewable energy projects, regardless of the project size. From 2009 to 2016, Indigenous and Northern Affairs Canada (INAC) offered a program called ecoENERGY for Aboriginal and northern communities to assist with developing renewable energy and energy efficiency projects and reduce the costs of implementation on communities (INAC, 2016). The challenge with federal and provincial incentive programs is that their cyclical nature can result in further financial uncertainty for communities seeking to be involved in community renewable energy projects. Krupa (2012) describes this as a “lack of clarity for the long term”, which can create misunderstanding and misinterpretation of the economic feasibility of renewable energy projects. Many European nations have seen a shift in policy to support the reduction of these barriers and uncertainties through rebates and feed-in-tariff programs (Walker, 2008).

2.2.3. Community energy planning – an overview of literature and tools

QUEST (2015) defines community energy planning as a process to determine a community’s priorities and needs surrounding energy. If focused on the whole community

energy picture, a CEP should include energy efficiency, energy conservation, and switching to renewable energy sources (St. Denis and Parker, 2009). The US Department of Energy’s Office of Energy Efficiency and Renewable Energy (2017) calls these plans community energy strategic plans and highlights that they are “not static documents, but rather long-term blueprints to focus

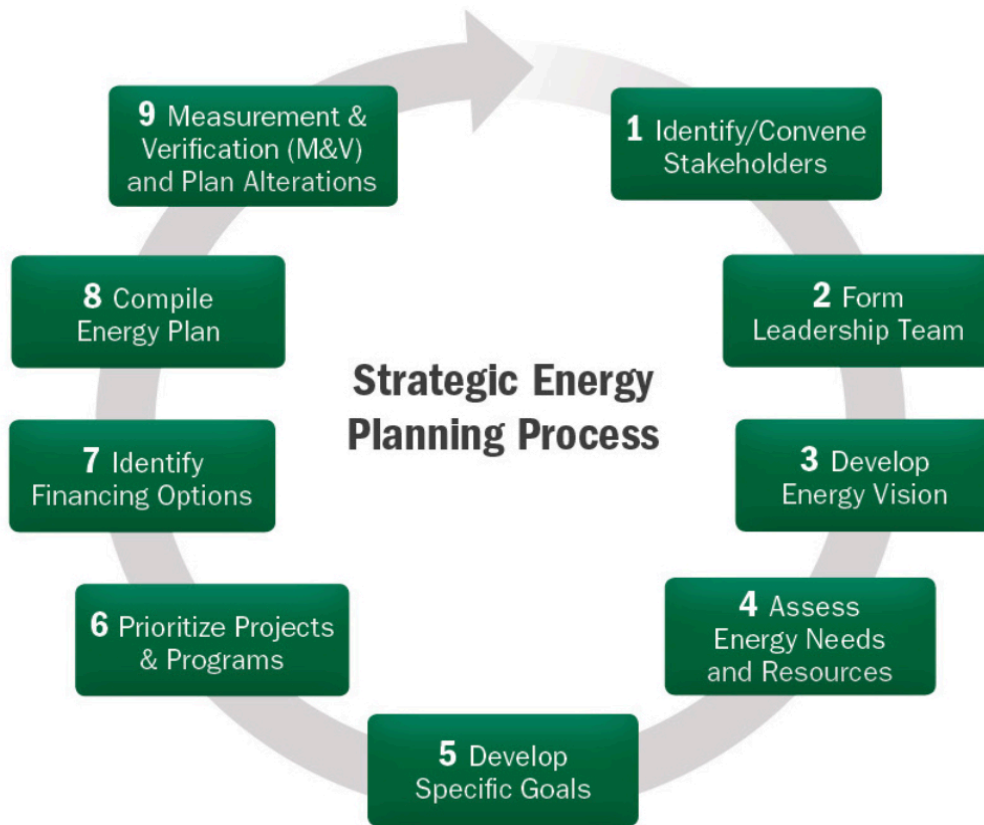


Figure 2-1: Strategic Energy Planning Process from the US Department of Energy, Office of Indian Energy Policy and Programs (US Department of Energy Efficiency and Renewable Energy, 2017).

and guide efforts and actions towards a defined energy vision”. The US Department of Energy, Office of Indian Energy Policy and Programs provides a nine-step process for developing a CEP (Figure 1) (US Department of Energy Efficiency and Renewable Energy, 2017).

Community energy planning is currently commissioned predominantly in climate change mitigation and adaptation policy due to regional and national pressure to reduce GHG emissions (Tozer, 2013). The key ingredient for success in the development of a CEP is the creation of a

community energy vision that is rooted in community values, opportunities, and goals and supports the greater vision of self-determination and self-governance. The principles of social value creation, energy democracy, and the multi-layer framework discussed above should be integrated into the creation of the community energy visioning process. The community energy planning process and the implementation of the resulting CEP can help mitigate risks associated with climate change and reduce the barriers to developing renewable energy (Tozer, 2013). The application of the CEP can “lead to widespread economic, health, social, resilience and environmental benefits” for communities (QUEST, 2015). Because the grassroots development of a CEP occurs with more collective input than plans with a top-down approach, the energy systems tend to be more aligned with local resources, community values, and need (Tozer, 2013). The data collection and analysis that occurs during the community energy planning process can help to reduce costs associated with carrying out pre-feasibility and feasibility studies. For Indigenous communities, the process of developing a CEP could lead to (First Nations Power Authority, 2017):

- Increased capacity and understanding of energy in community members;
- A more in-depth understanding of community-relevant renewable energy technologies; and
- Creative means of community ownership of projects.

Once a CEP has been developed, there are many benefits to the community as it is implemented.

The community is likely to benefit from (First Nations Power Authority, 2017):

- Capacity building for on-Nation and off-Nation job opportunities;
- Community engagement through the planning and implementation process;
- Prioritization of reducing energy costs, including opportunities for reduction in energy consumption, energy audits, energy efficiency, and behind the meter power generation options;
- Access to potential grants and funding for implementing renewable energy projects;

- More resilient energy infrastructure and reduced costs associated with energy usage;
- Self-determination and self-government using energy and renewable energy planning as a platform; and
- Greater negotiating power as the Nation is more fully informed of the nature of the project and its economic attributes.

Natural Resources Canada has become increasingly interested in how community energy planning can help to reduce diesel use in remote communities, reduce electricity costs in on-grid communities, and increase energy efficiency (NRCan, 2017). Unlike Official Community Plans, Land Use Plans, and other plans that are required to follow prescribed timelines, structures, and reach specific outcomes, CEPs are more flexible and can focus on the overall goals of the community. While the community energy planning process in itself is not transformational, the way in which it is developed and implemented can be.

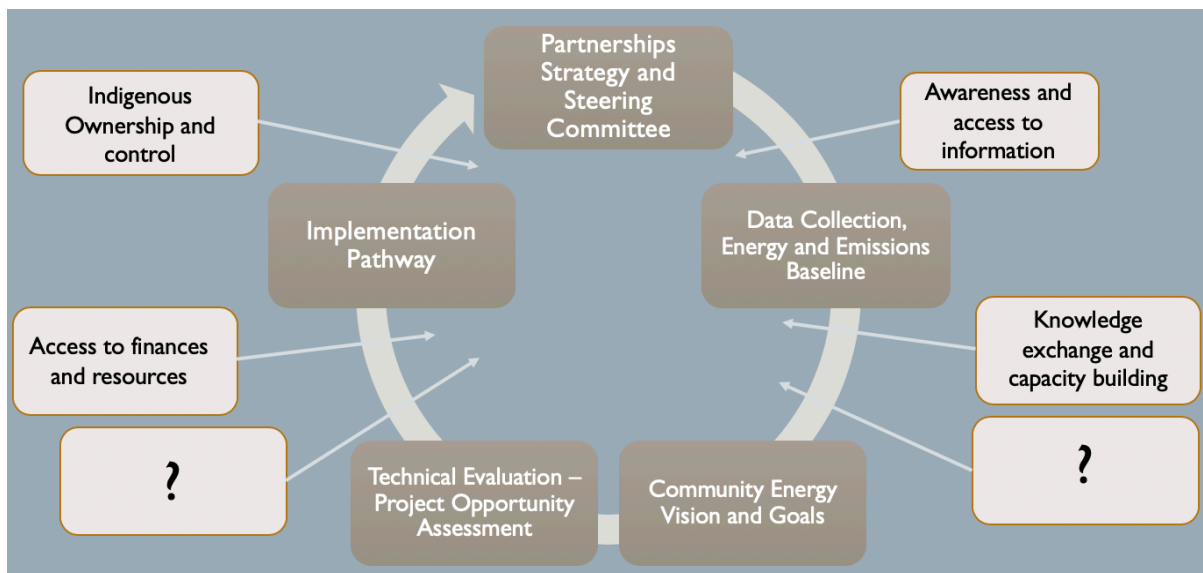


Figure 2-2: Illustration of gaps in the CEP process.

Figure 2 shows the typical process for developing a CEP. The brown boxes indicate a simplified explanation of each step of the community energy planning process. The tan coloured boxes highlight some hypotheses with respect to areas that are seemingly missing from the process in terms of ensuring it is meaningful to Indigenous communities.

2.2.4. Moving from traditional to transformative Indigenous planning

There is demand for planning in Indigenous communities that is community-based, is comprehensive, and leads to action (Mannell et al., 2013). The community energy planning process is rooted in the principles of comprehensive, community-based actions. To move from traditional to transformative planning, there must be a recognition by governments and national, provincial, and territorial authorities that Indigenous people have the right to self-determination, self-government, and sovereignty. In Chapter 1 of *Reclaiming Indigenous Planning*, Matunga (2013) states that transformative planning must have as its primary aim the support of communities in their goals and, in doing so, refuse and reject their continued oppression by the colonial state through policies and procedures. Cornell (2013) notes that the process of community planning for many Indigenous communities is a part of self-governance and self-determination and, without self-determination and Indigenous control, no planning can truly be transformative. The community energy planning process has been used by urban planners and municipal governments to assess energy needs, usage, and renewable energy opportunities. In the context of Indigenous communities and transformative planning, community energy planning is being used to facilitate social value creation, energy democracy, and self-determination. The end product of the community energy planning process is just like any other plan in that it needs to be recognized by governments and practitioners as a legitimate tool for Indigenous ownership and control of renewable energy projects. While the community energy planning process and resulting community energy projects are not going to change the power structures and oppression that continues today, they are a tool for Indigenous communities to exert control over their energy resources and supplies. For the community energy planning process to be transformative, it must remain in the control of the Indigenous community, be defined and described by that

community, and allow for the retention of ownership over any renewable energy projects or associated energy production and resources. The cases that will be explored through the document review highlight a variety of community renewable energy examples where the community energy planning process and associated renewable energy projects were used to increase economic opportunities, build capacity, and work towards self-determination and self-government.

CHAPTER 3: Methodology and Methods of Research

The research was conducted using a mixed methods approach that included a document review and semi-structured interviews. The document review looked at 8 CEPs that had been completed in communities that have a population of 10,000 people or less and have characteristics that are relevant to Indigenous communities, such as being rural or remote and 4 CEP resources that have been widely used to guide the CEP process. The document review provided a comprehensive list of criteria for a community energy planning process. Empirical data from semi-structured interviews with public officials were used to provide context and assess the acceptability of the criteria and recommendations provided in the document review. The semi-structured interviews focused on speaking with public officials who worked either directly or indirectly in CEPs, community energy implementation, or the development of community energy policies and programs.

To guide the overall research methods and objectives towards the goal of providing policy recommendations, case-oriented policy analysis was used as a guiding conceptual framework for the research, rather than a method. The key elements of the policy analysis were used to make policy recommendations based on the data collection and analysis from the document review and semi-structured interviews. Using a case-oriented policy analysis lens, CEP toolkits and frameworks were reviewed to identify gaps and areas that need to be addressed in the creation of future toolkits, frameworks, and policies that specifically address the needs of Indigenous communities. Figure 3 outlines a simple diagram of policy analysis as a conceptual framework for conducting research (Patton and Sawicki, 1986). Steps 1-3 of the conceptual framework was used to develop the criteria and evaluate the CEP tools and resources.

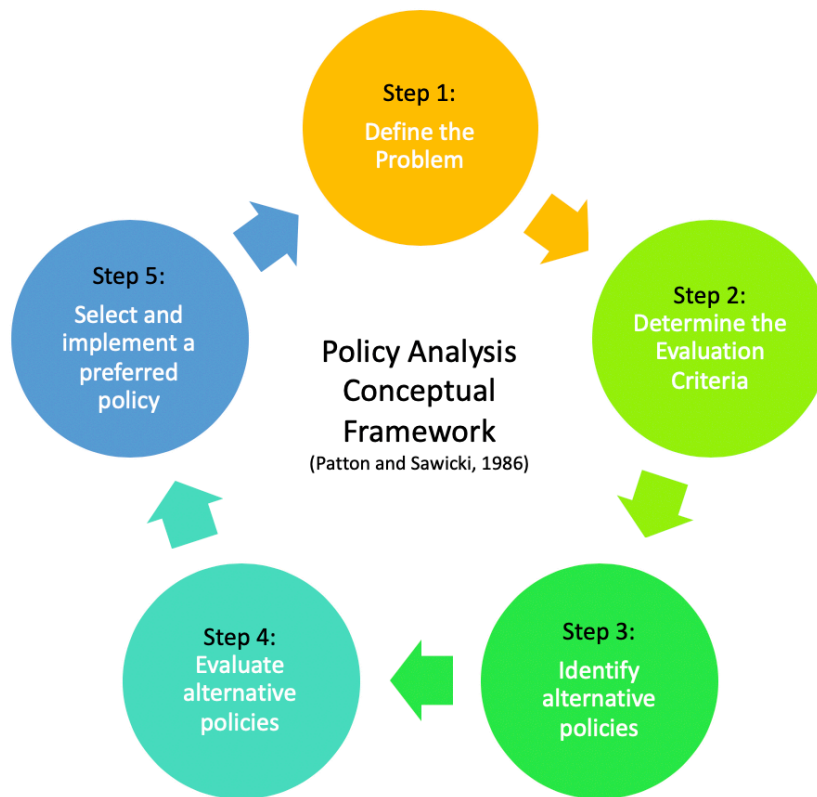
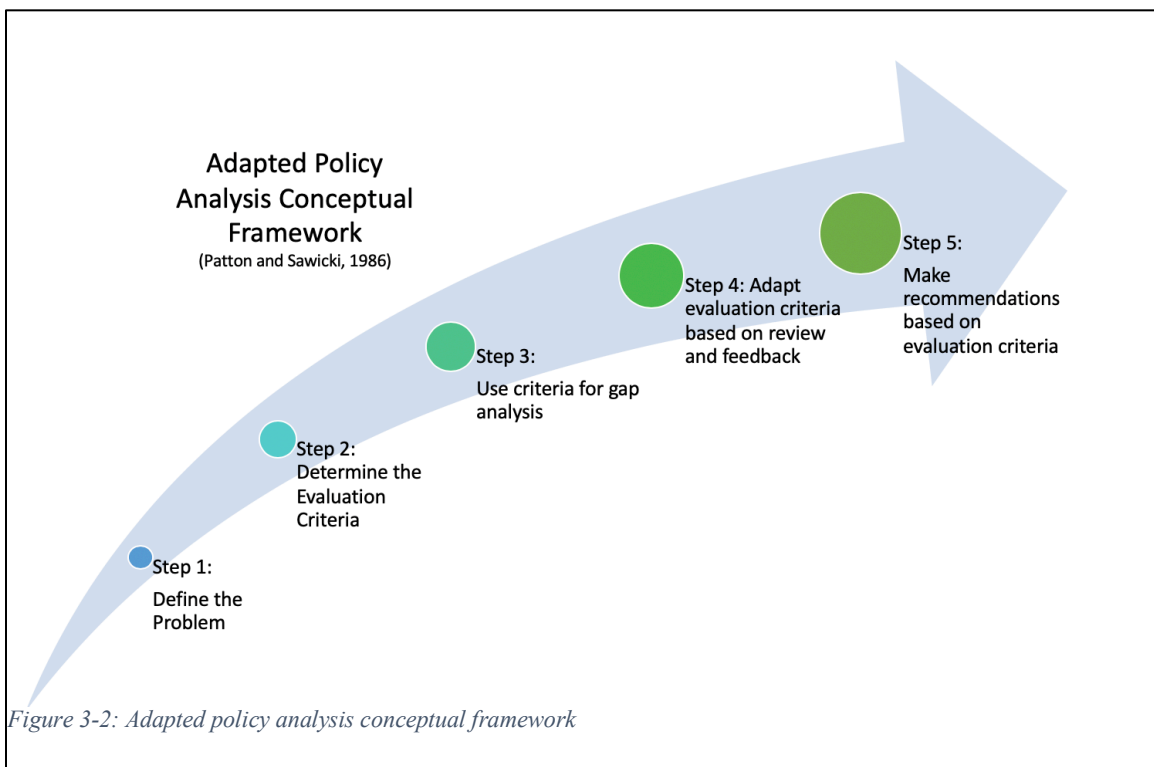


Figure 3-1: Policy analysis conceptual framework (Patton and Sawicki, 2018).

Through the initial literature review and document review, evaluation criteria were created (Adugba, 2011). Relevant evaluation criteria must be created as a way to compare, gauge, and choose among policy alternatives (Adugba, 2011). The literature review helped to inform the questions used for reviewing the CEPs in the document review. The evaluation criteria developed were used to highlight the existing gaps in the policies and toolkits and where there is a need for alternative policies to meet the needs of Indigenous communities in their energy planning goals and visions. Through the literature review, document review, and semi-structured interviews, gaps in the toolkits and resources were identified. The identification of the gaps is where the discussion of alternative toolkit methods and policies began. The recommendation of alternative toolkits for CEPs was conducted using a variety of tools, including concept maps, that

were useful tools for assessing themes, gaps, and interconnections and identifying the main findings as a result of qualitative data collection through meetings/interviews and literature reviews (Daley, 2004).

The research work also provides recommendations for adapting the policy analysis conceptual framework to achieve research objectives. The policy analysis conceptual framework is a conventional research method used commonly in academic research. Figure 4 shows how the framework was adapted to meeting the objectives of the research. While the conventional approach to policy analysis claims to be a cyclical process, the research conducted was more iterative and builds as it is developed. The evaluation criteria developed were used in the gap analysis when reviewing CEPs and community energy planning tools and resources. Feedback on the draft criteria was provided by the interview participants and the criteria were adapted based on the feedback provided. Finally, recommendations were made based on using the criteria throughout the review and analysis process.



The development of a more iterative and reflexive policy analysis process allowed for comparison and interaction between the themes that result from the document review and those that arose during the interviews. Srivastava and Hopwood (2009) state that in order for qualitative methods to achieve the goals of the research they should be adapted to the context and experience of the researcher and should “feel” like they are a good fit. With that in mind, the process in Figure 4 was used as an iterative and reflexive process that aligned with the goals of the research. The process allowed for the data to be re-visited at least three times after each new layer of information was collected (after the document review, following the creation of the criteria, after the semi-structured interviews, and again once the concept maps were created).

In order for the research process to “feel” like a good fit, as recommended by Srivastava and Hopwood (2009), I spent a lot of time throughout the interview process “having tea”. This concept was first described to me by Dr. Peter Kulchyski, a professor from the University of Manitoba’s Department of Native Studies whom I had the pleasure of getting to know during a “Bush School” in Pangnirtung, NU in 2013. Dr. Kulchyski discussed the importance of time and connection when working with Indigenous communities. Spending genuine time getting to know people in the community is key to our own learning and the success of any project or research. What you learn having tea is often different from what you learn from community meetings or engagement sessions because of cultural differences and where people feel safest sharing information and knowledge (Kulchyski, 2000). There is value in not what you learn in an interview, but rather what you learn from sitting in an Elder’s living room listening to stories being translated to you by his/her 7-year-old granddaughter. My experience “having tea” during my time in Pangnirtung was truly transformative to my work and life. Throughout the research and writing of this thesis, I spent a lot of time “having tea” and many of my interviews were

more “having tea” than semi-structured interviews. That process allowed a deeper understanding of the challenges associated with community energy planning and renewable energy projects in Indigenous communities.

3.1. Research Design and Methods

Table 1 outlines the methods used to conduct the research for this thesis. Figure 5 is a flow chart of the research design and methods.

Table 3-1: Overview of methods for proposed research

Research Objective	Methods
1. Develop a set of criteria to assess community energy planning literature, tools, and policies based on the needs of Indigenous communities.	<ul style="list-style-type: none"> • Document review • Semi-structured interviews • Policy gap analysis
2. Determine the needs and gaps in current community energy planning literature, tools, and policies and make policy recommendations to support Indigenous participation in community renewable energy and community energy planning.	<ul style="list-style-type: none"> • Document review • Semi-structured interviews • Concept mapping

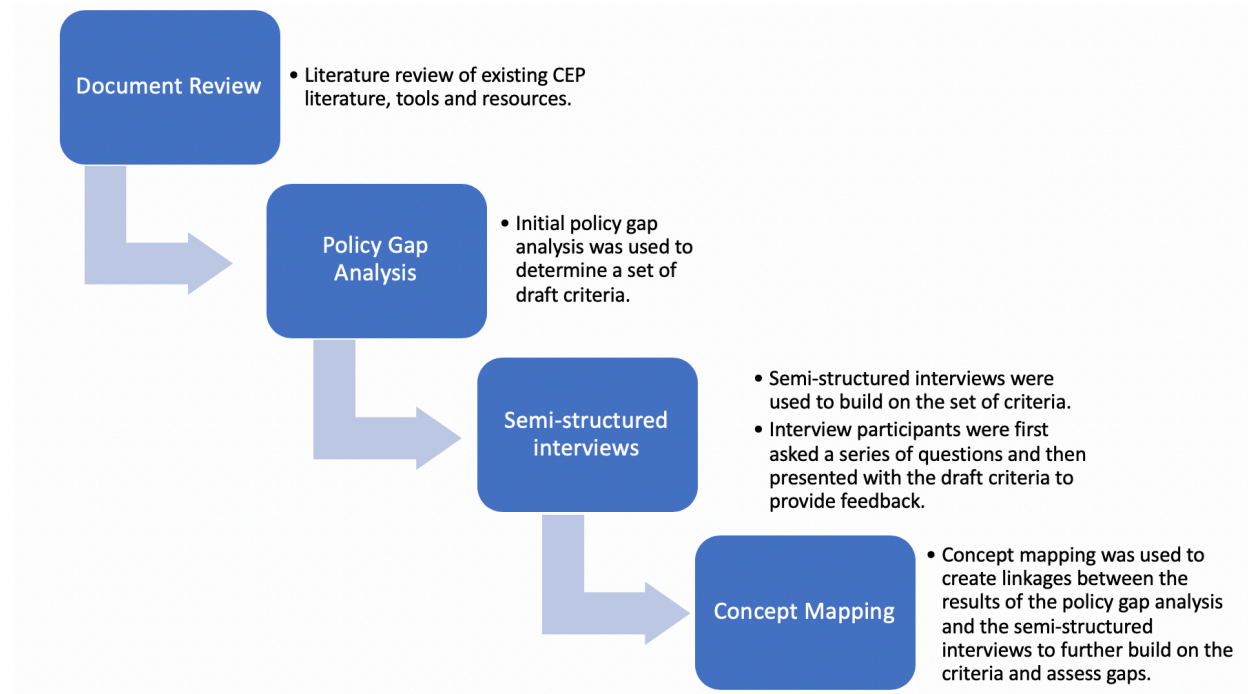


Figure 3-3: Flow chart of research design and methods.

3.1.1. Document review

A document review was conducted to assist in fulfilling both Objectives 1 and 2.

Document reviews offer an organized method to identify the core elements of written communication by categorizing and classifying a wide cross-section of data through content analysis (Curry et al., 2009). A literature review helped to collect the necessary documents for the document review. The document review looks at grey literature and publicly available documents while the literature review focused on scholarly literature. The literature review conducted for this thesis helped to frame and guide the overall research purpose and objectives. The document review was conducted to review existing CEPs for relevant communities with similar characteristics to many Indigenous communities and understand the criteria being used to create the CEPs. The purpose of the document review for the first objective is to understand the social, economic, and political context in Indigenous communities as it relates to community renewable energy and energy planning. The document review provided a lens to understand the various challenges and opportunities for Indigenous communities carrying out a community energy planning process and related renewable energy projects. The document review assisted with developing the set of criteria used to assess the community energy planning literature, tools, and policies to understand their effectiveness specific to Indigenous communities. The literature reviewed in Chapter 2 was used to identify community case studies that would later be analyzed to better understand the key elements of success in the development of the CEP and related community renewable energy projects.

The document review assessed each of the CEPs listed in Table 2 and reviewed their core sections and their implementation plan or action plan. The sections were reviewed to develop minimum criteria for assessing the effectiveness of community energy planning tools and

resources. The implementation or action plan was reviewed for each CEP to understand the common recommendations and assess the implementation effectiveness of each plan. The document review was separated into two categories: CEP toolkit/resource documents and completed CEPs. CEP toolkits and resources documents were selected based on having been used in Canadian and international rural or remote communities. Completed CEPs were selected by those that were publicly available CEPs for communities with less than 10,000 people. It was difficult to find completed CEPs that were publicly available, which is why the document review included larger non-Indigenous communities such as Banff and the District of Sparwood and also assessed Regional Energy Plans such as those in Alaska. This was required in order to ensure there was a large enough sample size for review. Banff, Sparwood and the Regional Energy Plans from Alaska were also included because of their relevance in aspects such as community engagement and implementation planning. Below is a list of questions that were considered while reviewing the documents and which assisted with the assessment. The questions were used to guide the conversation, however, most conversations happened much more organically and so the results of the document review are organized based on themes and sections, rather than answers to the questions below.

CEP toolkits/resources:

1. Which component of the community energy planning process does the toolkit refer to as most important?
2. How accessible is the toolkit? Is it something that could be completed by a community staff member, or would a technical consultant be required to follow the toolkit?
3. How is the community energy planning process described (sections, process, timeline)?
4. Does the toolkit provide examples, worksheets, and steps for completing a CEP? Or is it more conceptual and descriptive?
5. Does the toolkit provide different options for conducting each step? How accessible are these options?

Completed CEPs:

1. Name of community, population, geographic region, cultural information.
2. What were the core sections of the CEP? Which sections were given the most attention?
3. Was the plan highly technical or more conceptual?
4. Was the plan focused on implementation or baseline?
5. What creative implementation plan or recommendations were outlined in the plan? Was there evidence of a step-by-step process for implementation?
6. Was a monitoring and evaluation component included in the plan?

The document review was conducted on eight CEPs completed by rural, remote, or Indigenous communities. A further review was conducted on four CEP toolkits to better understand the current recommendations available for communities to use. Table 2 provides a list of the CEPs and tools reviewed in the document review. These plans or projects were selected based on geographic region and relevance to rural and remote Indigenous communities.

A number of CEPs have been conducted for urban centres or larger towns (Tozer, 2013), but it is important that the document review incorporate CEPs that have been completed in rural and remote communities. The criteria developed from the document review helped to understand which elements of a CEP are critical to its success and implementation. The draft criteria were shared with the interview participants to initiate conversation and use their experience to determine where the gaps exist.

The documents reviewed were selected based on a number of factors. The documents selected were all publicly available online. The CEP toolkits and resources assessed were also publicly available and were selected based on the researchers' experience using the toolkits and consideration of those used to develop the CEPs that were reviewed throughout the research. The CEPs assessed were also selected based on their geographic location, the size of the community, and their relevance to Indigenous communities. Because of the limited number of publicly

available single community energy plans, regional energy plans from Alaska were reviewed because of their relevance to Indigenous CEP. The Town of Banff and District of Sparwood were included due to community size and components of the CEP completed. Understanding that these communities were outliers, they were still included as a comparison with small non-Indigenous communities where similar CEP tools and community engagement strategies were used. Alaska, Northwest Territories, and the Yukon have a wealth of experience in community energy planning and this is reflected in the document review. The Government of Alberta’s CEP outline (Government of Alberta, 2017), is the most recent of the documents reviewed; it was selected due to the recency of the tool, but also to provide a comparison to tools such as the Arctic Energy Alliance toolkit (Arctic Energy Alliance, 2013), and the BC Community Energy Association Guidelines (BC Community Energy Association, 2008).

Table 3-2: CEPs and CEP toolkits reviewed.

Project Name	Location	Status	Published
Bering Strait Regional Energy Plan (Bering Straits Development Co., 2015)	Alaska	Completed	June 2015
Bristol Bay Regional Energy Plan (Sorensen et al., 2015)	Alaska	Completed	December 2015
Aleutian & Pribilof Islands Regional Energy Plan (Southwest Alaska Municipal Conference, 2015)	Alaska	Completed	December 2015
Lutselk’e Community Energy Profile (Arctic Energy Alliance, 2016)	NWT	Completed	October 2016
Inuvik Community Energy Profile (Arctic Energy Alliance, 2010)	NWT	Completed	2007-2008
Town of Faro – Community Energy Plan (Frappé-Sénéclauze et al., 2013)	Yukon	Completed	September 2013
Town of Banff – Local Action Plan (The Sheltair Group Resource Consultants Inc., 2003)	Alberta	Completed	September 2003
District of Sparwood – Community Energy and Emissions Plan (BC Hydro, 2012)	British Columbia	Completed	December 2012
Arctic Energy Alliance – CEP Toolkit (Arctic Energy Alliance, 2013)	NWT	Ongoing	2001

Government of Alberta – CEP Outline (Government of Alberta, 2017)	Alberta	Ongoing	2017
QUEST – Getting to Implementation (Quality Urban Energy Systems for Tomorrow, 2014)	Canada	Ongoing	2014
BC Community Energy Association – Guidelines for CEP (BC Community Energy Association, 2008)	British Columbia	Ongoing	2008

3.1.2. Semi-structured interviews with public officials

Semi-structured interviews were used as a way to incorporate empirical examples into the thesis research. Indigenous and non-Indigenous communities in Canada have completed CEPs and community energy projects and the semi-structured interviews allowed for the inclusion of lessons learned from practitioners who worked on these projects. The semi-structured interviews included conversations with community energy planning practitioners and policy makers who worked to develop the CEP toolkits and resources that were assessed in the document reviews. Semi-structured interviews integrate open-ended questions as well as theory-driven questions to ensure the participant experience is captured along with more theoretical data (Galletta and Cross, 2013).

Table 3-3: Breakdown of interviewees for semi-structured interviews.

Indigenous government officials	Alberta First Nations
	Saskatchewan First Nations
Policymakers and government funding organizations	Federal Government
	Provincial Government
Community energy planning organizations	First Nations Power Authority
	QUEST

Semi-structured interviews were conducted with six community practitioners, including two public officials from Indigenous governments who worked on their community’s CEP, two public officials from government/policymakers related to CEP and renewable energy in

Indigenous communities, and two organizational representatives from groups that work specifically on CEP tools and resources. Table 3 lists the organizations represented in the interviews with public officials. The interviewees were not directly involved in the CEPs reviewed in the document review because none were involved in CEPs that are publicly available. However, all interviewees used one or more of the CEP toolkits in Table 2 to conduct their CEPs. The purpose of the interviews was to capture lessons learned, best practices, and areas of improvement that are required in the community energy planning process. The questions also attempted to capture policy recommendations from public officials who have experience with the positive and negative attributes of current government community energy policies and programs. Table 4 outlines the questions and topics discussed during the semi-structured interviews. These questions were left broad for the purpose of beginning the discussions, but the semi-structured nature of the interviews meant the interviewees had the ability to share information they felt was important to the research topic and goals. Because the interview conversations yielded common themes throughout each interview response, the results in Section 4 are organized based on themes and key messages from the interviews, rather than being coded and organized based on answers to the specific questions. Concept mapping allowed for the themes from the interviewed to be connected to the themes from the document review and analysed to create a final set of criteria.

The interviews were an important way to have open conversations and collect data to answer the overall research question. The data collected through the semi-structured interviews provided a more detailed context to the research work than was originally anticipated. The semi-structured interview method was a meaningful way to supplement the literature review and document review research methods.

Table 3-4: Questions and topics for the semi-structured interviews.

Topic	Question
CEP	Describe your organization/governments understanding of the importance and/or benefits (if any) of creating a CEP?
CEP	What does your organization/government see as some of the beneficial tools used during the process of developing the CEP?
CEP	Where does your organization/government see gaps in the community energy planning process? Are there different tools and practices that your organization/government would recommend in this process?
CEP	Based on your government/organization's implementation plan, how will the CEP be used to guide the community's actions in the coming months and years?
CEP	What were some of the biggest challenges in the community energy planning process for your organization/government/community? What is needed to address these challenges?
Projects	What type of renewable energy project has your organization/government implemented? When was the project completed?
Projects	What have been the main benefits of the community energy project?
Projects	What were some of the major challenges in the implementation of your renewable energy project?

Six interviews were conducted in total. Ten government officials and organizations were invited to participate in the research. The government officials and organizations invited to participate were determined based on a set on inclusion criteria, which assist the researcher in determining an appropriate sample size for interview participants (Robinson, 2014). For this research, the inclusion criteria were as follows: completed a CEP in the last 12 months, Indigenous community CEP, and experience in developing a CEP or CEP toolkit that is publicly available. A purposive sampling strategy was then used to select interview participants that met the inclusion criteria. Purposive sampling is a non-random sampling strategy used when a researcher has some prior knowledge and experience of the research topic and selects participants who are believed to bring a unique depth of experience to the research work (Robinson, 2014). Due to the small number of community energy planning practitioners and Indigenous communities who have completed CEPs, the sample size for this research was small. However, the six interviews conducted represent a cross section of experts from across the

country. They provided a sample of community energy planning practitioners and policymakers with a wealth of experience in creating CEPs and in community renewable energy projects, as well as those who have specific experience working on CEPs and renewable energy in an Indigenous context. The intent of the semi-structured interviews was not to gather a large number of responses from practitioners, but rather to gain a rich depth of insight from individual experiences specifically related to Indigenous communities and community energy planning. The results of the interviews offer a starting point for the criteria to assess the effectiveness of CEP tools, resources, and policies in facilitating Indigenous participation in community energy planning and community renewable energy projects. The research can and should be continued and updated as more Indigenous communities complete CEPs and community renewable energy projects. For the purpose of this research, the detailed experiences of the interviewees were a key part of the research and comparative or extrapolative inferences were not attempted. The small sample size also allowed for each of the interview participants to review the draft criteria (based on the document review) and provide feedback based on the experience of their organizations and communities. The breadth of expertise access through the interviews was valuable for addressing the research objectives and overall research question. The public officials provided information and expertise from a number of different perspectives and experiences.

3.2. Data Analysis

The data analysis followed Miles & Huberman's (1994) depiction of qualitative data analysis as a cyclical process: 1) Reduce data (organize into themes); 2) Display data (quotes organized into tables that are categorized by themes and topics and visualized into flow charts); 3) Draw conclusions (from combined quotes as organized into tables); and 4) Verify conclusions (across data sources and through participant review of researcher interpretation and findings).

Using this approach, the interviews conducted can be used to discuss and conclude on the research question and objectives.

Data were analyzed using reduction, iterative and reflexive methods. Quotes and summaries were plotted in tables of common themes/topics that were derived from the coding process. An iterative methodology allows the data to be visited and re-visited multiple times which allows new themes, questions, and connections to be uncovered (Berkowitz, 1997). Table 5 shows an example of the tables used to organize and analyze data. Once data were organized into common or recurring topics and themes, quotes and ideas were organized using concept mapping and other tools to display the data in easy to understand formats. This also helped to see the ways in which the interview data interacted and related to the data collected through the document review and literature review.

Table 3-5: Example of a table used to code, organize, and synthesize the data collected through semi-structured interviews.

Theme or Topic	Government or Organization	Quotes
Energy security, reliability, and affordability	Indigenous Public Official	
	CEP Organization	
	Provincial/Territorial Government	
Self-sufficiency, political autonomy, and government control	Provincial/Territorial Government	
	CEP Organization	
	Indigenous Public Official	
Community engagement	Provincial/Territorial Government	
	Indigenous Public Official	
	CEP Organization	
Planning as a tool for economic development	Indigenous Public Official	
	Provincial/Territorial Government	
	CEP Organization	
Education, knowledge, and awareness	CEP Organization	
	Indigenous Public Official	
	Provincial/Territorial Government	

Figure 6 provides an example of a concept map developed by Daley (2004) in their study that examined expert and novice learning styles and how they differed and interacted. Concept

mapping was then used to identify common themes and connections from the document review and semi-structured interviews. Concept maps offer a way to analyze and present qualitative research data in a way

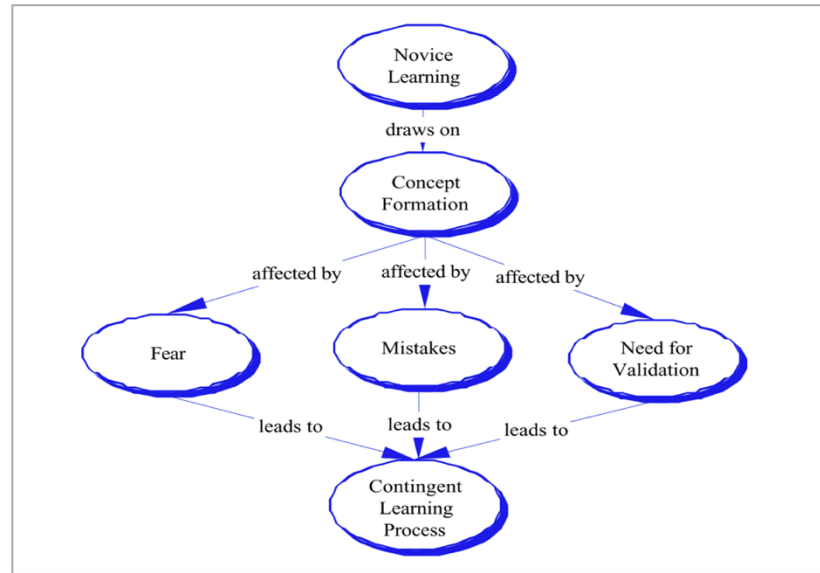


Figure 3-4: Concept map example based on examining learning processes (Daley, 2004).

that maintains the meaning of the interview (Daley, 2004). Concept mapping can be especially useful when detailed ideas and concepts are being shared by interview participants and are difficult to display in a way that captures the main points while not losing the meaning the subject was trying to convey. The concept mapping process was used to reduce the data, analyze themes, and present the data in the findings chapter. The concept maps can be used to better analyze the connections between different concepts and ideas brought forth in different interviews (Daley, 2004). Starting with a concept map for determining the themes and then using an individual concept map for each interview provided a meaningful way to analyze the wealth of data that were collected through the semi-structured interview process. Similar to any qualitative data analysis methodology, concept maps have challenges as well. The concept mapping process is still completed by the researcher and therefore the researcher's interpretation of the data is what is ultimately shared and displayed. In an attempt to reduce bias and

misinterpretation, the interviewees were given the opportunity to comment on all of the concept maps used to display data in this thesis prior to any conclusions being drawn there from.

3.3. Limitations of Study

While the research aimed to employ a variety of data collection and analysis methods to reduce bias and ensure robust findings, qualitative data collection methods always have associated limitations and challenges. The study was limited by the number of Indigenous governments or organizations who had completed a CEP. Because the interview process was time consuming and required a strong commitment on the part of the interviewee, four governments and organizations declined the request to participate in the interview process. The document review was limited to publicly available CEPs. Not all communities who have completed a CEP have it published online or in any public format, which limited the sample of CEPs in the document review. There were also limitations in various understandings of the importance and benefits of CEPs. For many Indigenous communities, translating community values into a Western context can be difficult and aspects are not always captured correctly or holistically in Western academic research. Future research should include pilot project and case studies to better understand the criteria being developed and how CEP toolkits lead to community renewable energy projects and implementation.

CHAPTER 4: Results

Section 4.1 provides a detailed overview and assessment of the document analysis of CEP toolkits. Section 4.2 provides an overview of the document analysis conducted on the eight CEPs. Section 4.3 provides an overview and analysis of the responses from the semi-structured interviews along with a set of criteria that were developed based on the interview responses and literature review.

4.1. Document Review of CEP Toolkits

The sample of CEP toolkits (Table 6) was reviewed and assessed for common themes and sections as well as accessibility. The results are presented below and summarized in Table 7.

Table 4-1: List of CEP toolkits reviewed.

CEP Toolkit	Region/Location	Published
Arctic Energy Alliance – CEP Toolkit (Arctic Energy Alliance, 2013)	NWT	2001
Government of Alberta – CEP Outline (Government of Alberta, 2017)	Alberta	2017
QUEST – Getting to Implementation (Quality Urban Energy Systems for Tomorrow, 2014)	Canada	2014
BC Community Energy Association – Guidelines for CEP (BC Community Energy Association, 2008)	British Columbia	2008

The Arctic Energy Alliance (AEA) toolkit was published in 2001 when the Government of Northwest Territories implemented a policy to encourage community-level demand side management programs to reduce overall energy usage across the territory. As part of the Integrated Community Sustainability Plan process, all communities in the NWT were required to complete a CEP to access federal Gas Tax funding (Arctic Energy Alliance, 2017). Communities were free to work with the AEA or with other external consultants to complete their plan. The AEA was established to help support communities in their energy conservation efforts. It was determined that CEP and awareness and education were essential components of demand-side

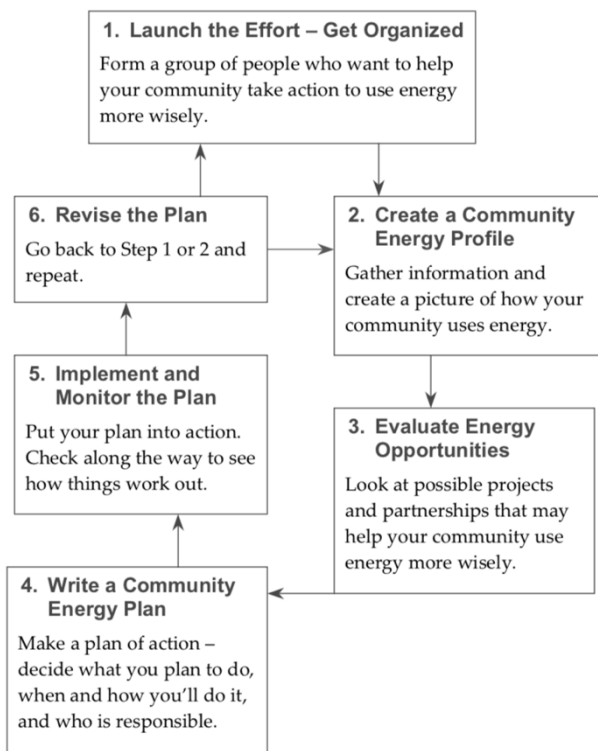


Figure 4-1: Arctic Energy Alliance process of developing a CEP.

management and energy conservation. The AEA toolkit includes a tool for creating an energy one-pager for each community. This one-pager or community energy map provides a community energy and emissions profile, including sources and sinks of energy and emissions, as well as projected load growth and sources of future electricity. Also included in the community energy map is a total annual cost of energy and a per person cost of energy for the community.

The AEA toolkit is focused on presenting an

energy snapshot of the community and is heavily focused on establishing a data baseline for community energy and emissions. The toolkit is relatively accessible and provides worksheets and tools that could be used by a community staff member or a group of staff from the community to complete the CEP (Figure 7). The worksheets in the AEA toolkit are simple and easy to use, which makes it accessible for community staff to create an energy and emissions baseline.

In 2017, the Government of Alberta (GoA) launched their Indigenous Climate Leadership Programs under which seven funding streams are accessible to Indigenous communities in Alberta. These programs are available to support communities seeking to achieve energy efficiency and conservation, renewable energy implementation, and community energy planning (Government of Alberta, 2019). The Alberta Indigenous Climate Planning Program (AICPP)

supports communities interested in developing a CEP. The Climate Leadership Programs are designed to encourage the development of a CEP as a first step to accessing grant funding for other energy efficiency and renewable energy grants and programs. As a part of the AICPP program, the GoA developed an outline for CEPs to meet the needs of their program. The outline is reviewed in Table 7. The focus of the GoA's outline is to ensure the CEP is comprehensive, inclusive, and focused on specific and measurable goals. The outline provides an overview of the details the GoA expects in their CEPs. The outline is comprehensive and includes everything from a sustainable development vision for the community, energy efficiency and demand side management, GHG emissions profile, and specific renewable energy opportunities and recommendations for the community. Similar to the AEA's community energy planning process (Figure 6) the Government of Alberta's CEP outline is focused on data collection and analysis as a tool to create CEP recommendations and an implementation plan. The outline itself does not provide resources and worksheets for conducting the CEP itself. The outline sections are focused on data collection and analysis to establish an energy and emissions baseline as well as an understanding of the renewable energy technologies that could be most effective in that region. No section addresses community engagement or details how to engage the community in the planning and implementation of the CEP.

QUEST (Quality Urban Energy Systems for Tomorrow) is a national non-governmental organization that works to accelerate the adoption of efficient and integrated community-scale energy systems in Canada by informing, inspiring, and connecting decision-makers. The organization develops research, shares best practices, assembles government, utility, and private-sector leaders, and works directly with local authorities to implement on-the-ground solutions. One of their major research projects was developing their Getting to Implementation CEP

Toolkit. The toolkit is available online and provides an interactive resource to communities developing and implementing a CEP. The resource offers a variety of resources and tools that are largely geared towards large urban centres where municipal staff have a portfolio dedicated to the development of a CEP. The toolkit is divided into ten strategies for moving from CEP development through to implementation. Similar to the GoA's toolkit, the QUEST toolkit does not provide detailed guidance on how to complete each step of the toolkit and instead provides general recommendations for ensuring implementation of the CEP will be successful. The QUEST toolkit places importance on community engagement from the outset of the CEP process. The toolkit provides worksheets and tools for the CEP process. The recommendations in the toolkit are focused on urban centres as they often refer to engaging large groups of public policy officials and decision-makers rather than individuals living in a particular community. The toolkit also focuses on engaging decision-makers in the implementation process. The tools and resources provided in the toolkit are aimed at technicians and planners who have the technical expertise to conduct assessments in the community and many of the tools would not be accessible to a community staff person without a background in energy and energy planning. The toolkit provides a wealth of stakeholder engagement activities that are flexible enough to be adapted to community members as well as decision-makers and policymakers; however, the activities themselves often require an in-depth knowledge of energy, planning, climate change, and policymaking.

The BC Community Energy Association (BC CEA) developed a Community Energy and Emissions Planning (CEEP) Guideline in 2008 (BC CEA, 2008) to assist local governments with developing energy and emissions targets. The guideline offers recommendations for developing and implementing a community energy and emissions plans. The guideline does not offer

specific tools or templates for communities interested in taking on their own CEP, but the guidelines give detailed advice for community members and practitioners. The guidelines provide an overview and examples of successful community engagement strategies for ensuring that public input is included in the plan. An important distinction made in these guidelines is the difference between visionary and pragmatic target setting. A variety of overarching goals and themes arise throughout a CEP, but without the necessary steps and projects to reach those goals they often sit on a shelf and are considered unachievable. The BC CEA Guidelines describe the importance of balance between bottom-up and top-down goals and how to achieve success in the implementation of the CEP.

The four CEP toolkits reviewed share many similarities. Each has three major areas of focus—community engagement, creating an energy and emissions baseline, and setting goals or targets that are measurable and achievable—and includes these areas in varying levels of depth. As discussed by the interview participants, these three areas of focus are key to the success of any CEP. However, as noted throughout the research, key pieces are missing from these CEP toolkits in terms of how they relate to Indigenous communities. Section 4.3.3 provides a detailed review of the gaps in the community energy planning process and why these gaps can cause a variety of challenges for the implementation of a CEP in an Indigenous community.

Table 4-2: Document review of CEP toolkits

Toolkit/Framework	Core Sections	Summary of Observations
Arctic Energy Alliance – CEP Toolkit	<ul style="list-style-type: none"> • Launch CEP efforts • Create a community energy profile using supply and demand data • Scenarios of future energy usage • Evaluate local energy opportunities • Develop a community energy vision • Implement and monitor the CEP 	<ul style="list-style-type: none"> • Simple, easy to follow process. Website offers downloadable documents to be used as templates. • Strong focus on developing a one-page “energy map” of sources and uses of energy and emissions. • Process is potentially too simple to add in the perspectives of different stakeholder groups. • Ability to expand and edit documents makes it simple to add in data as needed.

		<ul style="list-style-type: none"> • AEA assists communities in NWT with developing their community energy plans.
Government of Alberta – CEP Outline	<ul style="list-style-type: none"> • Sustainable development vision and energy goals • Community profile and expected growth • Energy profile including electricity forecasting • Demand side management • Renewable energy generation opportunities • Energy efficiency and renewable energy funding • Community engagement, jobs, and education • Recommendations and next steps 	<ul style="list-style-type: none"> • Developed as a part of the Government of Alberta’s Indigenous Climate Leadership Grants. Specific funding for CEPs available under the Indigenous Climate Planning Program. • Level of detail in the CEP outline likely requires the community to hire an external contractor to complete most of the CEP work. • Provides an outline, but no resources for specifically conducting the CEP work plan. • Very thorough. Plans that follow this template would provide a lot of data to the community for implementing future projects.
QUEST – Getting to Implementation Framework	<ul style="list-style-type: none"> • Strategy 1: Develop a rationale • Strategy 2: Engage elected officials • Strategy 3: Governance • Strategy 4: CEP oversight • Strategy 5: Engage staff • Strategy 6: Define the value proposition • Strategy 7: Engage community stakeholders • Strategy 8: Monitor and report • Strategy 9: Budget • Strategy 10: Plans and policies 	<ul style="list-style-type: none"> • Framework aimed at larger communities and offers examples from urban settings in BC and Ontario. • Provides diverse community engagement tools and resources, including energy mapping, community meetings, and visioning workshops. • Recommends engaging elected officials from the perspective of their current platforms: economic development, finances and budget, climate change, etc. • Framework does not provide specific tools or outlines for completing each of the strategies, which would be useful for smaller communities. • Recommends integrating the CEP into all other community plans (land use plans, official community plans, etc.) and provides guidance on how to do this.
BC Community Energy Association – Guidelines for CEEP	<ul style="list-style-type: none"> • Community engagement • Energy and emissions inventories • Target-setting • Action plan • Implementation and monitoring • Funding and resources for implementation 	<ul style="list-style-type: none"> • Guidelines highlight the importance of integrating the plan into other community plans and sustainability initiatives. • Discusses the diversity of communities and the need to ensure the plan meets the overall community goals. • Examples of effective community engagement. • Develop an energy planning committee. • Baseline data collection is key – understanding the variability in data. • Visionary vs. pragmatic target setting. • Starting with “catalyst” projects is key to the long-term sustainability of the implementation plan. • Energy pyramid as an example of how to structure implementation actions.

4.2. Document Review of CEPs

To better understand how different CEP tools are used in practice, a document review of completed CEPs was conducted. Table 8 provides a list of the eight CEPs reviewed.

Table 4-3: List of CEPs reviewed.

Project Name	Location	Status	Published
Bering Strait Regional Energy Plan	Alaska	Completed	June 2015
Bristol Bay Regional Energy Plan	Alaska	Completed	December 2015
Aleutian & Pribilof Islands Regional Energy Plan	Alaska	Completed	December 2015
Lutselk'e Community Energy Profile	NWT	Completed	October 2016
Inuvik Community Energy Profile	NWT	Completed	2007-2008
Town of Faro – Community Energy Plan	Yukon	Completed	September 2013
Town of Banff – Local Action Plan	Alberta	Completed	September 2003
District of Sparwood – Community Energy and Emissions Plan	British Columbia	Completed	December 2012

Results of the document review are summarized in Table 9. Also recorded was the location where the CEP was conducted and the total population of the community. The size and location of the community are important for understanding the community's overall goals for their CEP as well as their capacity to undertake a CEP on their own.

The Alaskan government implemented a variety of energy policies in the early 2000s that influenced the development of Regional Energy Plans across the state. The Alaska Energy Authority was established to support these policies and the efforts to establish Regional Energy

Plans. The Authority recommended that plans be guided by a regional steering committee, include detailed community engagement efforts, and focus on implementation of construction or shovel-ready projects in renewable energy and energy efficiency. The plans were also meant to consolidate and coordinate the buying and selling of electricity at the regional level to ensure electricity and energy prices were at a rate that was consumer affordable even to Alaska's most remote residents. One of the programs to support this effort was the Power Cost Equalization (PCE) Program. The Regional Energy Plans were seen as the first step to the implementation of the PCE program. While the Alaska Energy Authority was established to support the development of these plans throughout the state, regions were encouraged to develop their plans in a way that made the most economic, social, and cultural sense for them. For the purposes of this research, three Regional Energy Plans from Alaska were reviewed: Bering Strait, Bristol Bay, and Aleutian & Pribilof Islands. The plans were extremely comprehensive, considering each covered between 12 and 17 communities. The plans took an effective approach to capturing and estimating energy usage and demand information through their community engagement efforts. Because the State of Alaska was offering a wide variety of incentive programs to consumers at the time, the energy planners had the opportunity to engage the public and offer recommendations for making changes to reduce consumer energy costs. The Regional Energy Plans in Alaska focused on economically feasible recommendations and ways that energy could be saved at the individual, community, and state level. Many of the recommendations suggested community awareness and education were the first steps to ensuring the community could understand and therefore participate in the implementation of the plan. The Bristol Bay Regional Energy Plan included a unique community engagement effort of interviewing individual community members as well as staff and experts from energy utilities on the efforts of the plan.

Many CEPs focus on group community engagement efforts because they are simpler, less time consuming, and less costly; however, the interview information in the Bristol Bay Regional Energy Plan provided valuable knowledge and information that allowed Bristol Bay to create a detailed and comprehensive plan. Overall, the plans developed under the Alaska Energy Authority's regional energy planning efforts were comprehensive, action-oriented, and included a wealth of community engagement efforts. The plans were focused on infrastructure upgrades or infrastructure development projects focused on energy efficiency and local renewable energy generation. It was clear throughout the plans that these were the goals; however, it was unclear whether or not that directive came from the state government requirements or was a part of the community's energy vision. Because the plans were heavily focused on the technical and economic feasibility of infrastructure projects, there was little to no inclusion of cultural or social implications of various recommendations or goals. Energy and emissions planning at the regional level, while effective and useful, often includes less social input than those at a more localized or community-specific level (Tozer, 2013). This is especially important with Indigenous communities where social and cultural values from community to community can be very diverse and planning for an entire region may struggle to gain support from community members.

The CEP developed by the Town of Faro in the Yukon is similar to the Regional Energy Plans in Alaska in that it is detailed and comprehensive, but also very focused on the technical and economic components of energy planning. The Faro CEP had less community engagement than the plans developed in Alaska. The Faro CEP focused on energy efficiency and conservation and ensuring electricity rates could be kept affordable for the small community. Despite the size of the community and the fact the plan only included a single community, it was

still very comprehensive. The Town of Faro had support from the Yukon Energy Solutions Centre and the Pembina Institute to complete the plan. These are two valuable resources to have involved in the plan, but may be one reason why there was less community engagement. As discussed by many of the interview participants, having the plan dominated by external consultants means there is less ownership by community members and increases the risk of challenges during implementation. The CEP also organized the recommendations based on sector, which is important for ensuring each sector or individual understands recommendations can be implemented at every scale.

Similar to the context in Alaska, the Government of Northwest Territories has implemented a number of policies and programs over the past 10 years to encourage the development of CEPs in every community. These plans were supported and facilitated by the work of the Arctic Energy Alliance. Unfortunately, the full CEPs that were completed in NWT communities are not publicly available. However, the community energy profiles for each community are available on the Arctic Energy Alliance's website. For this document review, the community energy profiles from Inuvik and Lutselk'e were reviewed. The energy profiles are a one-page document that visually outlines the sources and sinks of energy and emissions in the community and highlights the total cost of electricity to the community and the per person cost of electricity in the community. There is considerable value in these profiles as they provide an easy to understand, visual representation of the community's energy picture. They also help to provide context to decision-makers who are trying to determine how best to spend infrastructure funding. The price tag on renewable energy and energy efficiency projects can seem extreme, but the current costs of electricity and energy in these communities is also extreme, so it is important to understand the economic savings that can come from various levels of capital spending for

energy infrastructure upgrades and projects. Due to the simplistic nature of the community energy profiles and their focus on technical and economic details, there is little inclusion of the community’s energy vision or social and cultural understanding of the community. While these profiles are a useful tool for visualization, their lack of community engagement makes it difficult to use them as a decision-making or implementation tool.

The final two plans reviewed were the Local Action Plan for Banff in AB and the Community Energy and Emissions Plan for the District of Sparwood in BC. Both heavily focus on GHG emissions reductions as the main goal. Because of the size of these regions, these plans were directed and implemented by municipal or regional governments. This meant the plans focused more on government emissions and energy usage as well as goals and actions for reducing the energy usage by government buildings and transportation fleets. The Community Energy and Emissions Plan for Sparwood had an interesting recommendation section focused on long-term, detailed community engagement and education efforts. This was an interesting because the plan itself included minimal community engagement.

Each of the plans assessed in the document review provided data for developing the criteria for assessing CEP tools and offered insights into the different goals and motivations behind a CEP. The assessment also allowed for reflection on ways in which government policy supports the development and implementation of CEPs.

Table 4-4: Document review of completed CEPs.

Plan Details	Core Sections	Implementation Actions or Plan
<p>Bering Strait Regional Energy Plan</p> <p>Location: Alaska</p> <p>Year: 2015</p> <p>Population: 9,500</p>	<ul style="list-style-type: none"> • Energy use • Regional energy analysis/potential • Energy efficiency • Sub-region summaries • Implementation plan 	<ul style="list-style-type: none"> • Improved energy data collection measures • Training and education: job preparation and K-12 curriculum energy modules • Collaborate with regulatory agencies to remove barriers for implementation of projects • Ongoing collaboration with higher education institutions regarding pilot projects • Replace street lights with LEDs • Appliance replacement program

<p>Communities: 16</p>		<ul style="list-style-type: none"> • Design and construct energy efficiency prototype home • Conduct a wind feasibility study • Install wind turbine • Install solar photovoltaic (PV) on power plants • Study potential for hydrokinetic projects • Community bulk fuel storage facilities
<p>Bristol Bay Regional Energy Plan</p> <p>Location: Alaska</p> <p>Year: 2015</p> <p>Population: 4,911</p> <p>Communities: 17</p>	<ul style="list-style-type: none"> • Energy supply and demand • Resource potential • Public outreach • Energy priorities and needs • Community energy profiles • Community engagement results – in detail • Community and utility interviews • Energy meeting participants • Bristol Bay industry survey 	<ul style="list-style-type: none"> • Establish a regional energy committee • Work towards cooperative purchasing of bulk fuels • Develop a regional approach to training and sharing locally-based utility operators and mechanics • Implement training and equipment upgrades to improve diesel generation efficiency • Develop and maintain heat recovery projects on all assets • Replace, repair, and upgrade transmission line infrastructure • Conduct energy efficiency education and outreach programs • Leverage federal funding for residential energy efficiency upgrades • Ensure local contractors are trained in energy efficiency upgrades and relevant technologies • Pre-feasibility assessments for biomass, geothermal, hydro, hydrokinetic, and others • Solar PV: develop projects where economically and technically feasible to do so • Share information and resources with other communities interested in solar PV
<p>Aleutian & Pribilof Islands Regional Energy Plan</p> <p>Location: Alaska</p> <p>Year: 2015</p> <p>Population: 8,162</p> <p>Communities: 12</p>	<ul style="list-style-type: none"> • Regional energy planning • Energy supply and demand • Energy resources and savings potential • Stakeholder outreach • Energy projects and priorities • Community and energy profiles • Stakeholder participation • Analysis of resource potential • Community input and priorities 	<ul style="list-style-type: none"> • Establish a regional energy committee • Assess the feasibility of forming a bulk fuel purchase cooperative • Expand participation in home energy rebates and weatherization programs • Complete inventory and benchmark for all non-residential buildings and identify projects with greatest benefits and cost savings • Complete recommended retrofits to community and commercial buildings • Develop local energy generation from a variety of technologies to ensure long-term sustainability and reliability • Maintain and upgrade diesel generators as required to ensure most efficient operation • Research and assess opportunities to employ wind and hydro electricity production in the region
<p>Lutselk'e Community Energy Profile</p> <p>Location: NWT</p> <p>Year: 2014-2015</p> <p>Population: 307</p>	<ul style="list-style-type: none"> • Total fuel cost • Total cost of fuel per person • Total GHG emissions from energy and electricity • Total energy supply and demand information per source • 4% renewable energy 	<ul style="list-style-type: none"> • Profile focused on technical data: usage, supply, demand, savings, and rebates • Little to no community engagement or consultation; focus is on data collection and analysis
<p>Inuvik Community Energy Profile</p> <p>Location: NWT</p>	<ul style="list-style-type: none"> • Total fuel cost • Total cost of fuel per person • Alternative sources of energy for your community 	<ul style="list-style-type: none"> • Profile focused on technical data: usage, supply, demand, savings, and rebates • Little to no community engagement or consultation; focus is on data collection and analysis

<p>Year: 2007-2008</p> <p>Population: 3,265</p>	<ul style="list-style-type: none"> • 5 ways to use less energy and save money • Efficiency of diesel and natural gas generators • Usage per building type and transportation energy 	
<p>Town of Faro – Community Energy Plan</p> <p>Location: Yukon</p> <p>Year: 2013</p> <p>Population: 372</p>	<ul style="list-style-type: none"> • Community energy and emissions inventory • Energy costs • Energy use in buildings • Energy use for transportation • GHG emissions • Actions on energy use and emissions • Current activities to reduce energy usage and emissions • Opportunities for community, municipal, and commercial sectors • Community energy systems • Recommendations 	<ul style="list-style-type: none"> • Promote the use of wood as a heating fuel • Host a community dialogue on transportation • Work with Yukon Energy Solutions Centre to establish demand side management program • Conduct a weather-stripping walkthrough of all municipal buildings • Conduct energy audits with site visits to the top 4-5 most energy-intensive buildings • Conduct an energy audit on the school and engage students and staff • Provide an annual report to council on energy and electricity usage for all community buildings • Reconvene the Energy Champions group quarterly • Continue to work with energy suppliers to obtain sales data • Develop a protocol to update the energy and emissions survey every 2-3 years
<p>Town of Banff Local Action Plan</p> <p>Location: Alberta</p> <p>Year: 2003</p> <p>Population: 10,000+</p>	<ul style="list-style-type: none"> • Energy and GHG analysis • Forecasting to 2020 • Existing and proposed measures • Program implementation strategy • Communications strategy • Summary of workshop feedback • Overview of initiatives • Available funding programs 	<ul style="list-style-type: none"> • Purchasing green energy for municipal operations • Initiating an Alternative Fuels and Vehicles Program • Establishing a carpool program for town staff • Providing bicycles for town staff for business use • Increasing the uptake of compressed work weeks • Establish a van pool program for town staff • Promoting distributed energy opportunities • Facilitating bulk purchase of green energy by the community • Delivering a residential building retrofit program • Delivering a commercial building retrofit program
<p>District of Sparwood – Community Energy and Emissions Plan</p> <p>Location: BC</p> <p>Year: 2012</p> <p>Population: 3,700</p>	<ul style="list-style-type: none"> • Community energy and emissions planning • Energy planning hierarchy • CEEPs for small communities' overview • Action plan workshop • Business as usual projections • Action plan implementation projections 	<ul style="list-style-type: none"> • Promote BC Hydro demand-side management programs • Improve building code enforcement • Sustainability checklist for buildings • Use zoning bylaws to define desired energy performance of buildings • Require energy efficiency standards when selling city lands • Sign on to solar-ready building code provisions • Education to developers – renewable energy technologies and efficiency • Improve active transportation infrastructure • Long-term community engagement

None of the CEP tools and resources reviewed for this thesis research mentioned time, resources, or community engagement activities that included deeper cultural practices. Yet, as discussed by many of the interview participants, the lack of attention to cultural needs and differences sometimes caused challenges in the implementation phase of the CEP.

4.3. Overview of Interview Responses

The interview participants belonged to three main categories: Indigenous government officials, policymakers and representatives from government funding organizations, and representatives from CEP organizations. These categories are important for understanding the way each of these organizations currently acts and for recommending ways that organizations and governments can develop more successful CEP policies and programs in the future. This section is divided into subsections according to the common themes and topics that recurred in the semi-structured interviews. The five subsections below reflect the most common topics that were discussed in the semi-structured interviews with all six participants.

4.3.1. Energy security, reliability, and affordability

Five out of six interview participants said that energy security and reliability was one of the major benefits of developing and implementing a CEP. One of the interview participants representing a CEP organization noted the following:

In order to build communities that are healthy, socially and economically, they must have a reliable source of electricity and people must have comfortable and safe homes.

Throughout many of the interview responses was a common thread surrounding the importance of ensuring that access to energy was not a luxury, but a right for everyone. Access to reliable and affordable electricity was discussed by one interview participant from an Indigenous community government:

How can we ensure our communities have economic development opportunities when we are often paying extremely high heating and electricity bills? Some of that money

could go back to supporting youth programs or education, but it's being taken away by the cost to operate the band office, and other community buildings.

The three interview participants representing organizations who support communities to develop their CEPs either through programs or consulting services agreed that few tools focus on energy security needs; this is a reality for rural, remote, and Indigenous communities that is different from urban centres. One CEP technician shared the following:

When we're working with a city, the main goal is usually to reduce greenhouse gas emissions. This is often sold to the taxpayer as "reducing costs". It isn't very often that the public or government in cities discuss the challenge of energy security. It isn't even something we think of very often.

The two interview participants who had conducted CEPs in rural, remote, or Indigenous communities had a better understanding of the unique challenges and motivations behind CEP development in these areas. However, they agreed it can be challenging to match the needs of the community with the needs of government through specific policies and funding programs. One CEP technician shared the following thoughts:

It's simple to understand the needs of a community and the requirements of the government when developing funding programs, but it isn't always easy to make the programs match both needs and requirements. We do our best.

Energy security, reliability, and affordability are also a necessary focus for the implementation phase of the CEP. Four of the interview participants felt that CEPs often focus on large projects or goals, which can create additional costs for the community. One public official from an Indigenous government organization felt the need to emphasize the smaller, more tangible and accessible actions from the CEP:

Of course, solar projects are really cool and exciting, but we can achieve greater savings and energy security from energy conservation and efficiency measures to start. The CEP process needs to provide the tools and resources to start with energy efficiency and conservation and work towards the larger renewable energy projects.

Understanding the interaction between energy security, reliability, and affordability and the implementation actions of a CEP was a common theme for all interview participants. One of the CEP technicians discussed the importance of ensuring community concerns around energy security, reliability, and affordability are discussed early on in the CEP process.

4.3.2. Self-sufficiency, political autonomy, and government control

When asked why the CEP process and related energy projects are valuable to their government or organization, the two public officials from Indigenous governments and organizations responded with a common theme of self-sufficiency, political autonomy, and reducing reliance on outside governments and consultants. The CEP was a process and guiding document that focused on achieving a variety of goals for the community, but a major focus was on capacity building to further Indigenous government self-sufficiency and self-determination over their own affairs. One interview participant described the goals of the CEP as follows:

Achieving self-government through energy ownership and Indigenous control over energy-related matters. CEP can help us get there.

With that in mind, the interview participant went on to describe the need for energy savings to improve the economics of various renewable energy projects. Two of the interview participants discussed their local renewable energy projects as “opportunities to exert self-determination over their energy and resources”. Community energy planning can create opportunities and pathways to achieve renewable energy projects that results in a variety of benefits to the community. Five

of the six participants described their community energy planning journey as a long, slow, political discussion about energy: who has access to it, who can afford it, and who controls it. An interview participant representing an Indigenous government organization noted that:

Our goal with the CEP should be to determine what is important to us and how we achieve that with our energy resources. We buy electricity from the grid, which is often produced through sources that are coming from traditional territories of our people. And then our Elders can't afford to pay their electricity bills. What is the solution to this? Maybe CEP can help.

One of the CEP technicians who participated in the interviews discussed the ways in which current CEPs are developed with a very technical focus. They described the technical components as being key to understanding the community's energy needs and energy savings opportunities; but, without adequate community engagement, the CEP will likely not be as useful to the community.

It's like reading a biography about myself that was written by someone who has never met me. I probably won't feel like that biography is a representation of me. CEP is the same. If we only collect data and present solutions based on that data, there is a risk that those solutions will never be implemented for a number of reasons.

From this discussion, the interview participant went on to discuss how we might achieve this. They suggested longer timelines are needed in community energy planning and renewable energy project development to build lasting and meaningful relationships with people. The interview participant described the challenge of doing this as a CEP technician when government

funding is tied to very short timelines that do not always align with the community engagement pathway.

4.3.3. Community engagement

All interview participants expressed that community engagement tends to be difficult, time consuming, and sometimes expensive, which means it needs to be conducted effectively. Effective community engagement could look very different in each community. One interview participant discussed how community engagement can easily fail without anyone in the community to work with directly.

[We] did our best to ensure there were posters and flyers and information available, but not being from the community and not having a lot of support from a staff person who had boots on the ground, meant that we had difficulty getting members out to events. By the time we realized we weren't doing the community engagement in a way that met the needs of that community, it was already time to submit a draft and so it was difficult to call it true community engagement when it was more just a presentation of the plan.

Community engagement was often the main subject of discussion. All six interview participants felt that community engagement was a key factor for success in both the development and implementation of a CEP. Two of the interview participants from Indigenous government organizations felt they did not have enough background knowledge of community energy planning and the process at the time they were engaging the community, which caused people to not be interested in participating. These interview participants felt they needed more support and training on what a CEP was and what the goals were so as to better communicate such aspects to the community.

I have lots of different duties and supporting the CEP wasn't my full-time job. There was enough training and knowledge of CEP to do a good job of sharing information with the community.

Five interview participants conveyed that engagement with political leaders and decision-makers was just as important as community engagement. One interview participant discussed this as the only thing that matters. Without engagement and support from the decision-makers in the community, it would be very difficult to get financial support for the implementation of the plan.

The interview participants from CEP organizations discussed the various ways to engage a community in the CEP process. The interview participants always started by saying that community engagement was necessary as soon as the project begins.

Early and ongoing engagement is the only way to ensure that the plan will be accepted by the community in the end. This engagement might take time and it is important for us consultants to understand the time commitment of doing community engagement well.

Determining what methods of community engagement will work is different for every community, which is another reason why political and leadership level support for the CEP is important. Interview participants also shared that community engagement is much smoother and is more successful if community members are hired to work directly on the CEP. One interview participant described working on the CEP and how they were able to engage the community:

I enjoy working for my community and being employed during the CEP project was an opportunity to get people excited about energy and renewable energy. Because I know so many people and I enjoy visiting with people, there was lots of people who wanted to answer our surveys and be involved in guiding the CEP process. I think if

it was someone from outside of the community doing this job, it might not have been so successful.

The CEP technicians who were interviewed shared this sentiment, noting that project work involving staff from Indigenous government organizations resulted in much more community engagement and involvement as a whole than projects where no community staff were directly involved. The CEP technicians shared that they sometimes ended up with a plan that was more technical than they had hoped, but had done everything available to them to ensure the community was engaged. The interview participants also described a variety of community engagement tools they used in their CEPs, including:

- Information booths, posters, presentations, and workshops;
- Newsletters, mailouts, and pamphlets;
- Radio discussions, online interviews, and podcasts;
- Community surveys;
- Ceremonies, cultural days, and community camps; and
- Focus groups and discussion forums.

With each of these tools, the interview participants discussed how they could be executed to ensure they were effective. Unfortunately, most interview participants felt they were making things up on the go as there was little out there in terms of tools and resources to create, organize, or host any of these recommendations. One public official from an Indigenous government shared the following:

I did the best I could using my past experience, but it would have been nice to have a sample presentation or template for hosting a community energy visioning workshop.

I also would have liked to have a translator involved to ensure that our Elders in our community could participate, but the language related to energy is difficult to translate into Cree.

Overall, interview participants felt that although community engagement is one of the keys to a successful CEP, it is also difficult. Interview participants felt that a stronger focus on and available funding for community engagement in the CEP process would ensure the long-term sustainability of the CEP itself and any energy projects that were developed from the CEP implementation plan.

4.3.4. Planning as a tool for economic development

All six of the interview participants discussed the importance of economic development and economically viable projects as an outcome of the CEP process, although in a variety of different ways. Two interview participants felt a CEP could lead to a variety of economic development opportunities if it was conducted with that goal in mind. One of the interview participants shared the necessity for business planning as an outcome of the CEP:

Every major CEP recommendation should come with an economic analysis or business plan. This is easier said than done because it requires a certain skill set to complete, but it is really important for engaging leadership in the discussion and it makes it easier for decision makers to prioritize actions based on how they will benefit or impact the community.

Three of the CEP technicians discussed the challenges of proposing projects or ideas from the CEP recommendations that are not economically feasible. The result is that decision-makers and community members lose faith in the CEP and what it was meant to do because they see the cost and understand the recommendations are nearly impossible to implement. One CEP technician discussed the importance of keeping the CEP recommendations organized according to short-, medium-, and long-term goals, but also based on ROI amounts and timelines:

If we're going to make a recommendation, it is best to understand the total cost of that recommendation, the total savings for the community, and the return on investment associated with that project. This is where governments often realize that they are better off starting with investments in energy conservation and efficiency prior to making any investments in renewable energy generation or businesses.

Another interview participant suggested the CEP recommendations only be organized by their total ROI and the timeline to achieve them. One interview participant discussed the challenge of relying on government funding sources to implement the CEP actions:

The CEP needs to result in some kind of own-source revenue opportunity for the community in order to ensure that the CEP can be implemented. Waiting around for government funding to fix doors and windows can be really challenging.

A public official from an Indigenous government organization described the immediate need for results from the CEP based on the built-up expectations in the community that stem from the community engagement efforts:

We have to balance how we present the CEP to the community. Solar projects seem like the best and most exciting solution, but the real benefit to people will come from more energy efficient homes and lower electricity bills. Managing expectations in the community engagement phase can be really difficult, but usually the small implementation actions that impact people at home through their bills can show that there is value to the CEP and its recommendations.

If the planning committee or steering committee believes that economic development is the goal of the CEP, interview participants recommended a few things to ensure this goal is achieved. One interview participant said:

Think about ways that a business could be built around the implementation of the CEP. Maybe instead of hiring energy auditors or insulation contractors, a local energy expert or business could be created to support these initiatives. If economic development, jobs, and training is one of the major goals of the CEP, then throughout the CEP process try to build opportunities for local business growth.

Another interview participant stated:

There's a reason the CEP project was in our economic development department. We believe that the CEP is a tool for our government to achieve some economic development opportunities. That might be through large projects in the future, but for now it might just be through saving the community money on electricity bills.

There are a variety of ways to ensure the CEP meets the economic development goals of the community and that its recommendations are economically feasible. One interview participant discussed how many of the CEP tools and resources are focused on energy and emissions baselines, but do not offer many resources for doing business planning.

4.3.5. Education, knowledge, and awareness

Throughout the interviews, a recurring theme that arose was the need for staff, community members, and CEP technicians alike to have opportunities for education, knowledge sharing, and awareness. One participant discussed the challenge of doing a community survey when the energy literacy of the community members was quite low. Unfortunately, this was not known when the project began and therefore the community survey and other community engagement events did not yield the results the steering committee had hoped for. Understanding the level of knowledge and awareness in the community and staff prior to beginning the project is key. One of the interview participants reflected on their community education efforts:

We should've taken more time to educate and raise awareness about what the community survey was for. People were confused why we were asking for their power bills and energy bills and they didn't understand what the data collection was going to do for them. Looking back on it, we could have spent more time doing education and awareness prior to starting the community engagement initiatives.

An important distinction made by all interview participants was that the aim is not only educating the community about energy and what a CEP is but also educating CEP technicians, government staff, and the steering committee about the cultural protocols, ceremonies, or general concerns of the community. One public official from an Indigenous government organization shared the following reflection:

When working with our community, we have to understand each other. We work with consultants that are open and willing to learn. They might be experts on community energy planning, but we are experts on the social, economic and environmental aspects of our community.

The CEP process as well as the final plan and implementation plan must be accessible to the community. All of the interview participants discussed the need for a balance between technical language and information vs. practicality in the written plan. If the plan is overly technical, many of the interview participants felt there was a strong likelihood it would just collect dust on a shelf and not really be used by public officials or decision-makers.

The CEP can be an opportunity for knowledge sharing and capacity building for community members, government staff, and CEP technicians. A participant described how a community energy planning can be an opportunity for cultural and technical knowledge sharing:

It's important that the plan aligns with our values and traditions. This could be a real eye opener for a CEP technician to be involved with our style of governance and decision making. It is also valuable for our staff and community members to learn about energy and renewable energy. There's a lot of reconciliation that can happen with this kind of knowledge sharing.

In many of the current CEP tools and resources, these kinds of cultural- and values-based education and learning needs are not discussed. This is likely due to the fact that many of the existing CEP tools and resources are geared towards large urban centres where local governments are more focused on the technical needs of the community and the ability of the CEP process to meet those needs.

One public official working in policy and program development to support the development of CEPs suggested that programs need to extend their timeline to accommodate the education and engagement needs of communities. To do this, the public official shared that government programs need to be more aligned with the needs of communities:

It is difficult because our programs have to be aligned with fiscal years and government priorities. This doesn't always align directly with the CEP process, but we are doing our best to be adaptable and make accommodations as needed to ensure that the CEPs are beneficial and useful to communities.

One interview participant discussed how language and language barriers can be a challenge for developing and implementing a successful CEP. The interview participant suggested that, prior to starting the CEP process, the steering committee determine and define the terms required to conduct community engagement. Once that is complete, the terms could be translated into the

local language to ensure that Elders can participate in the community engagement process. The interview participant said:

Sometimes there is a lack of understanding of what is meant by the term “energy” and also there are a lot of myths and distrust about different renewable energy and fossil fuel-based energy sources. If we don’t start with a common understanding, community members are not likely to support the plan and therefore the implementation phase will be really difficult.

Beginning the CEP process with a common understanding of terms, process, goals, and intended outcomes is key to the successful implementation of the plan. Various approaches can be taken to educate and share knowledge, but these are specific to the community and culture and are not necessarily able to be templated.

CHAPTER 5: Discussion

Community energy planning is becoming increasingly important to local and municipal governments as a tool for reducing GHG emissions, reducing energy and electricity costs to residents, and ensuring a better standard of living for people and communities. QUEST (2015) describes the importance of ensuring community engagement and education are included in the CEP process. The Government of Alberta (2017) has encouraged community engagement along with a focus on community ownership of renewable energy projects. Other tools and resources that have been in use for a longer period of time, such as those produced by the Arctic Energy Alliance and the Alaska Energy Authority, heavily focus on reducing the cost of energy to community members. While the existing CEP literature, tools, and resources are becoming more and more focused on the social and economic aspects of energy, many gaps remain as they relate to Indigenous communities.

In this discussion section, I use the data presented in the results section to establish a final set of criteria for assessing CEP literature, tools, and policies to ensure that future CEP tools have a deeper consideration of the needs of Indigenous communities. The criteria developed and recommendations discussed aim to ensure the presence of relevant and meaningful CEP tools for Indigenous communities that ensure success in achieving community goals. I discuss the importance of ensuring the CEP process and resulting plan meet the true goals of the community, with the understanding that oftentimes the community is using their CEP work as a tool for much larger goals related to economic development, reconciliation, and self-determination. Using concept mapping as a main tool for sharing and presenting the data, I share a number of concept maps throughout this chapter to help visualize the concepts and how they address the research objectives and answer the research question set out in Chapter 1. The discussion is aligned with

the objectives of the research. Section 5.1 provides a detailed description of the criteria developed based on the document reviews and semi-structured interviews. In Section 5.1.2, I present a gap analysis and make recommendations for ensuring CEP tools and resources are developed that support Indigenous participation in the renewable energy sector.

5.1. Criteria for Assessing CEP Tools and Resources

Based on the document analysis and semi-structured interviews, a set of criteria were developed that can be used to assess CEP tools or resources aimed at supporting Indigenous communities who are working to develop a CEP. Ideally, these criteria will be used by policymakers who are developing policies and programs to support community energy planning in Indigenous communities and CEP technicians who are working with Indigenous communities on their plans. These criteria have been reviewed and validated by the interview participants for accuracy and connection to their interview responses. Figure 8 provides a visual concept map of the criteria for assessing CEP tools and resources for Indigenous communities.

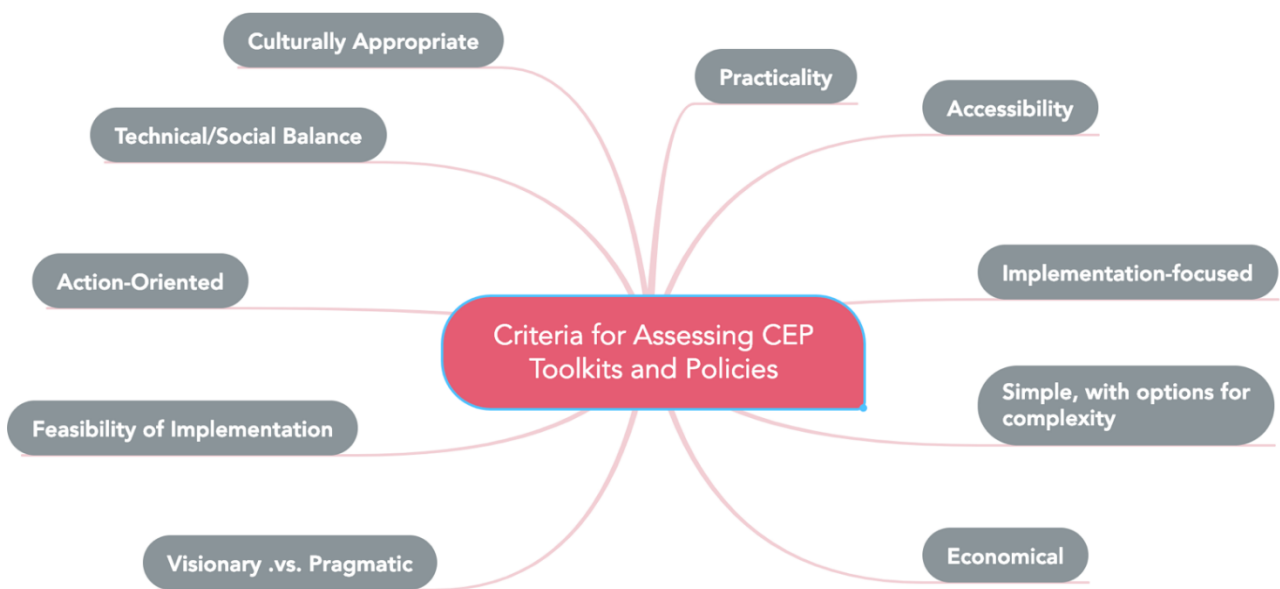


Figure 5-1: Concept map of criteria for assessing CEP tools and resources.

Culturally-appropriate tools and resources are essential for the successful implementation of a CEP. This is not something that an urban CEP technician necessarily has to think about, but for many Indigenous communities' important ceremonies and cultural requirements must be a part of the CEP process for the plan to be adopted and accepted by community members. As many of the interview participants discussed, they were required by local protocol to organize and participate in ceremonies or Elders gatherings to ensure the CEP process was conducted in a good way. Culturally-appropriate tools and resources are easier to talk about, but much more difficult to do. They require time, financial resources, and a willingness from the CEP technician to organize and participate in something that is not typically part of the development of an energy plan. It is especially important that any government policies or funding programs take into consideration the necessity of culturally-appropriate activities to complete the CEP. Urmee and Anisuzzaman (2016) discuss similar findings in the implementation of off-grid rural electrification programs in rural and remote communities. If policies, plans, and programs fail to incorporate the unique social and cultural values of a particular region, they will not be successful (Urmee and Anisuzzaman, 2016). These social-cultural values are different in every community and therefore cannot be defined in detail. Understanding the role of culture and social value in energy and energy planning at the onset of the CEP process is key to having success in the implementation of the plan.

Having a *balance of technical and social components* is key to ensuring the CEP meets the needs of the community, while also gathering the technical information necessary to create a pathway to successful energy projects. This is very much related to having a CEP that is both culturally-appropriate and inclusive, while also ensuring the correct technical components are completed (e.g., renewable energy assessments, energy audits, and energy efficiency

recommendations and assessments). Currently, the CEP toolkits being used to develop community energy plans in Indigenous communities (QUEST, Arctic Energy Alliance, and BC Energy Association) focus on the technical elements. Urmee and Anisuzzaman (2016) highlight the importance of incorporating the social and cultural values of the community into any planning process and note the community is not likely to support the outcomes of the plan nor the recommended projects if only technical information is shared and presented.

To make a difference in the lives of people and assist a community in achieving their goals, the CEP must be *action-oriented and participatory*. Throughout the semi-structured interviews and the document analysis, it became clear the implementation plan needs to focus on next steps that are achievable in the near term. An action-oriented CEP is one that includes projects at various scales (e.g., household, community, utility) and in various sectors (e.g., residential, commercial, community, and private sector). This finding is consistent with the recommendations provided by Tozer (2013), who describes the challenges of CEP implementation if the recommendations are too general and not sufficiently focused to create action or change. Without a participatory approach, the CEP process itself is much more challenging and the likelihood of implementation is low. This finding is supported by Belmonte et al. (2015), who looked at participatory approaches to renewable energy development as a way to ensure community support for projects. This is further supported by Koirala et al. (2016), who state one of the most important factors to any community energy system is the support of the end users. Participation is key when introducing new ideas and technology (Alvial-Palavicino et al., 2011). A strong participation strategy and community engagement throughout the CEP and the development of any renewable energy project helps to lead to long-term success (Belmonte et al., 2015).

The CEP must include an implementation plan that is technically, socially, and economically feasible. ***Feasibility of implementation*** is key to ensuring the plan is useful to the community members, local governments, and decision-makers. A CEP should include business plans, economic analysis of project recommendations, and ROI information for each of the recommendations. Decision-makers need information to make decisions that best suit the needs of their people; without understanding the feasibility of a project, it becomes very difficult to implement. Full-scale feasibility studies are often outside of the scope of a CEP, but pre-feasibility assessments and desktop studies could be added to the fabric that makes up a CEP. The Alaska Energy Authority REPs reviewed in Section 4.3 included a regional energy potential for various renewable energy resources as well as an economic analysis of various recommendations.

In the Bristol Bay REP, the concept of ensuring the plan has a balance between being ***visionary vs. pragmatic*** was key to its success. For a CEP to provide real value back to the community, it must have a step-by-step plan for achieving the recommendations. However large the end goal may be, it needs to be broken down into steps that are achievable, in terms of both the human and financial capacity of the community. The plan must also be visionary in that each of the smaller projects or recommendations works towards a much larger goal, such as owning and operating a community-based utility. This directly relates to ensuring the tool is ***practical*** in nature, rather than conceptual. Mannell et al. (2013) support this finding in their work in comprehensive community planning, where they discuss the importance of ensuring the community plan provides a road map of action, rather than simply a theoretical call to action.

The recommendations in the plan must be ***economical***. Each of the recommendations should come with a business plan, budget, and analysis of the ROI associated with the

implementation. Without these pieces, implementing the recommendations is done without the community understanding the full cost of the project or the benefits from an economic perspective. One of the major barriers to implementation of renewable energy projects in Indigenous communities is a lack of financial resources (Krupa, 2012). This challenge is also relevant for the recommendations associated with a CEP. The project recommendations, whether energy efficiency or renewable energy, require a capital investment to move toward action. Arriaga et al. (2013) discuss the challenges of implementing renewable energy in Northern Ontario Indigenous communities as they are complex and expensive. It is essential the project recommendations in the CEP are economical to ensure success in the implementation of the CEP. A rise in government funding programs in renewable energy and community energy systems, coupled with declining technology costs, has led to success stories in community energy projects (Koirala et al., 2016). The economic understanding of a CEP and the project recommendations from the CEP is something that requires a technical and financial knowledge set to conduct. However, there are a number of resources that can assist communities at understanding the high-level economics of a project. Publicly available information about renewable energy economics can be found through the National Renewable Energy Laboratory (NREL) and their datasets and models are free to the public.

Any CEP template or tool must be *simple to use and accessible*. A CEP tool or template should be able to be understood by a community practitioner or staff member; extensive training or a university education should not be required to complete the plan. However, there should be options for complexity as needed. For example, if a community wishes to do more in-depth studies of renewable energy potential in their region, the template could recommend other tools to achieve that goal. Tozer (2013) describes some of the challenges with CEP implementation

even for urban centres, one of which is the complexity of the tools used to develop the plan and the disconnect between policymakers and the technical staff who are conducting the CEP. This challenge was discussed throughout the semi-structured interviews, and it was recommended that a CEP tool should be accessible to community staff and not necessarily require professionals from outside of the community to be hired.

While having a comprehensive energy and emissions baseline is an important piece of the CEP, ensuring the plan is *implementation-focused* will ensure its long-term success. Krupa et al. (2015) describe the ways in which a multi-level governance approach to renewable energy project leads to a much higher likelihood of success due to community support throughout the project. Similarly, with community energy planning comes the need to ensure the community is involved throughout the process so as to lead to success in the implementation of the plan.

5.1.1. Success factors for community energy planning

Important factors influence the success of a CEP, and there are two phases in which these factors are the difference between success and lack thereof: the initial launch of the CEP process, including community engagement and education; and the implementation phase of the plan. These two phases differ in many ways that are important to understand to ensure a successful CEP planning process and implementation.

The phase of launching the CEP process and engaging a steering committee or local champion is critical to the success of the CEP process and therefore the implementation of the plan. It is essential that the launch phase of the CEP begin with engaging staff and community members and ensuring local support and buy-in for the CEP process. This phase often includes a significant amount of education. Oftentimes in Indigenous communities, people may not fully understand the importance of the CEP, the goals of the process, the technical side of energy, and

how it will affect their daily lives. Early and ongoing engagement throughout the CEP process and implementation is key to the success of the plan over the long term (Tozer, 2013; Mannell et al., 2013; Ozog, 2008; Walker et al., 2010). At the initial launch phase, it is also important to develop a structured work plan and assign roles and duties. Interview participants felt a structured work plan was necessary to avoid wasted time trying to get organized and understand how each piece of the CEP would eventually fit together. Interview participants also found this initial phase was key to ensuring people (locals or consultants) with a technical background understood the importance and necessity of the social and cultural components of the process. This finding is supported by Wirth (2014), who suggests ‘community spirit’, a cooperation-focused approach, location, and local responsibility and ownership are significant drivers behind the development of community energy projects. If this was not understood early on in the process, the CEP tended to be geared toward technical results. Although this was still valuable to the community, community members often felt disconnected from the plan, which ended up causing challenges for its implementation and long-term sustainability. This is aligned with work by Koirala et al. (2016), who describe the same challenges through the development and implementation of renewable energy projects.

The implementation phase of the plan is also a critical time when many challenges can arise. Specifically, this is where the lack of early and ongoing engagement can surface. For example, one interview participant shared that their CEP was conducted almost entirely by an external contractor who did not know the community or feel comfortable in community social situations. This led to a lack of genuine community engagement. When the Implementation Plan was released, the community began to get engaged with the project and at this time shared that a several recommendations in the plan were not accepted by the Elders group. This led to

suggestions they be removed from the plan, meaning almost all the work put into those recommendations by the external contractor was wasted. Had the consultant focused on community engagement in the initial launch phase, they would have understood early on that those recommendations would need a longer time to implement for reasons that were important to the Elders in the community. The Bristol Bay REP shares a graphic to explain what makes



Figure 5-2: Factors for successful energy projects (from Bristol Bay Regional Energy Plan, 2015).

CEPs and their related projects successful (Figure 9). Based on their regional energy planning process, they determined energy projects needed to be economically viable, technologically feasible, and supported by the community, resource owners, utility operators, and local governing entities to be successful (Sorensen et al., 2015). All interview participants shared these same success factors that were necessary for successful implementation actions from their CEPs. One major challenge shared by interview participants was that CEPs were often supported by government programs and grants, but then no funding or support was available for the actual implementation of the plan. This left the community challenged by the economic burden of implementing the plan; their CEP ended up sitting on the shelf for many years before the first projects were implemented, and by then the CEP itself needed to be updated.

A common success factor discussed by all interview participants was the importance of political or leadership support for the CEP and related implementation projects. This finding is also supported by the literature (Tozer, 2013; St. Denis and Parker, 2009; Ozog, 2008). Many interview participants discussed the challenges that arise when political leaders either do not support the CEP or are just indifferent to the CEP results or implementation. When either case is present, the community champion role shifts onto either a staff person or a volunteer community member who does not have the authority to make decisions about capital spending for projects. Having political support for the CEP process as well as the recommendations of the plan is key to the overall success of its implementation. Two of the three Indigenous public officials interviewed for this research suggested early and ongoing engagement with Chief and Council is critically important to the success of a CEP. Engagement with political leaders is even more important during an election. If it seems current leadership may be transitioning out of their roles, it is important to find a new champion for the CEP amongst the potential incoming political leaders.

Monitoring and evaluation of the planning recommendations is also essential to the effectiveness of the plan (Tozer, 2013). One of the common recommendations in the CEPs reviewed in the document review was implementing an effective data collection method that was not labour intensive. For many communities, going through the CEP process requires considerable searching through energy and electricity bills to collect information that is needed to establish an energy and emissions baseline. Part of the CEP implementation must be to initiate data collection procedures that make ongoing collection of data simple and something that is a part of a staff person's regular tasks, meaning it should not create a significant amount of extra work for that individual. An example shared by an interview participant was that their Band

Administrator was required to record energy and electricity bills in a spreadsheet to summarize this information for their Finance Coordinator. The Band Administrator simply added a column for energy usage information, so when they were reviewing the bill they recorded the total cost (\$) of the electricity bill as well as the usage (kWh). This added a minimal amount of work for the Band Administrator but meant that updating the CEP’s energy usage and demand information was much simpler. While this is seemingly a simple solution, ensuring staff are supportive of these kinds of changes is essential to success during the implementation of the plan.

Based on the semi-structured interviews conducted and the toolkits reviewed in the document review Table 7 and Table 9, a concept map of challenges for CEP implementation was created (Figure 10). The concept map highlights the interview participant responses to the question: *What were some of the biggest challenges in the CEP process for your organization/government community? What is needed to address these challenges?*

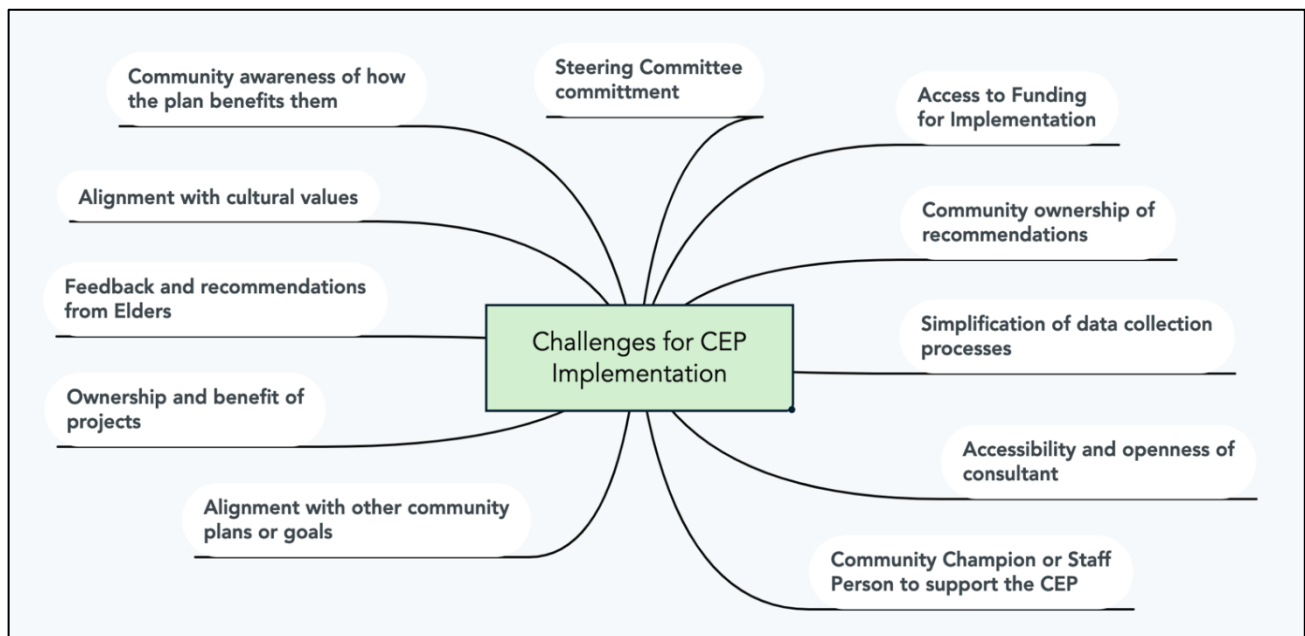


Figure 5-3: Interview responses - challenges for implementing a CEP.

To ensure the successful implementation of a CEP, policies supporting the development of these plans must address the challenges in Figure 10. Arguably, any funding made available for CEPs should consider the use of funds for education and capacity development, local training and employment to support the CEP, and access to additional funds for the implementation process once the CEP is complete. With increased local capacity, Indigenous communities develop local expertise in energy and renewable energy and are able to take ownership of the planning process and renewable energy implementation (Krupa, 2012). Koirala et al. (2016) discuss the importance of engagement in developing Integrated Community Energy Systems (ICESs) and the need to facilitate a paradigm shift from community members being passive consumers to having “deliberative and inclusive participation of consumers in the energy system” (p. 735).

The Government of Alberta’s Indigenous Climate Leadership Programs are an example of one way that funding programs could be developed to support the implementation of CEPs. Once the CEP is completed under the Alberta Indigenous Climate Planning Program (AICPP), the community could then use the Alberta Indigenous Energy Efficiency Program (AIEEP) to implement projects such as energy efficiency upgrades to community buildings or Elders’ homes. Policies and programs structured this way are important to ensuring the CEP and its implementation plan are utilized. The implementation of the CEP is where the community sees the direct and indirect benefits of the planning process, such as reduced energy costs and higher comfortability of buildings. It is also important to the government that these plans are implemented, as it is often a goal of these programs to reduce GHG emissions through reductions in energy and electricity usage.

While these challenges each have a seemingly simple solution to ensure they do not become a limiting factor to CEP implementation, the solutions each require time and financial capacity to ensure the challenges are mitigated. Section 5.1.2 below discusses gaps in the CEP process that can lead to challenges in implementation.

5.1.2. Gaps in the CEP process

Recurring CEP process gaps arose throughout the document review and semi-structured interview process. The development of any CEP tools specific to Indigenous communities must address these gaps in a way that is accessible to communities, their staff, and local practitioners working on the CEP. The major gaps emerging from the results that need to be addressed in an Indigenous-specific CEP tool are as follows:

- Templates and forms that are fillable and accessible to community staff;
- Templates for effective community engagement activities;
- Space and time available for culturally-appropriate ceremonies, gatherings, and meetings that are deemed necessary by the community;
- Training and education for local CEP or Energy Technicians; and
- Business Plans for Implementation Plan recommendations.

Although not the aim of this research, the results may help to influence government and organizations in Saskatchewan, Alberta, and beyond to develop a CEP toolkit specific to Indigenous communities that can be used by practitioners in Indigenous community energy planning.

5.2. Understanding the Purpose of Community Energy Planning

The findings in this study clearly indicate different motivations for developing a CEP in Indigenous communities. In her article, Tozer (2013) discusses how many urban centres in Canada are concerned about climate change and reducing GHG emissions through community

energy planning. St. Denis and Parker (2009) discuss the ways that CEPs are bringing decisions that are normally made at the regional or national level into the hands of local communities. Local-level management of energy and renewable energy would allow for community-specific goals to be achieved in energy efficiency, conservation, and energy generation. While CEPs are understood to benefit the economy, environment, and society (St. Denis and Parker, 2009), Indigenous communities pursue community energy planning for distinctly different reasons.

While evident in this study that Indigenous communities each develop a CEP for different reasons, a number of larger goals were common amongst the interview participants and the plans reviewed. Indigenous communities are using community energy planning as a tool for retaining ownership and control over renewable energy development projects that could benefit their community (Krupa et al., 2015; Rezaei and Dowlatabadi, 2016). During the community energy visioning piece of the planning process, the direction of the implementation plan shifts if it becomes clear that ownership and control over projects is a goal of the community. Likewise, the CEP process would take a different path if the goal were to reduce overall costs of electricity in the community. Many Indigenous communities are pursuing community energy planning as a tool to develop partnerships (Ozog, 2008), capacity building opportunities (Krupa et al., 2015), and strive for genuine reconciliation through energy and renewable energy projects. Some of the interview participants discussed how a CEP with the right partnerships could lead to long-term economic, social, and environmental changes that seek to break down larger social barriers in the community.

Krupa (2012) identifies five main barriers to Indigenous participation in renewable energy projects in Canada: cash, capacity, clarity for the long term, circumstances, and lack of legitimacy. Based on the study conducted, Indigenous communities are using CEP as a way to

overcome these barriers to genuinely participating in the renewable energy sector. Krupa notes many institutional challenges for Indigenous communities to raise enough capital to participate in these projects. Access to loans and capital is a major barrier to Indigenous involvement in large projects. Another barrier is lack of capacity and understanding of the projects, the finances, and how to be involved in the process. Indigenous communities with limited capital and capacity are often unsure of investing in renewable energy projects for they believe they have a lack of clarity for the long term (Krupa, 2012). Most of that fear stems from a lack of knowledge and understanding. Since his 2012 article was written, we have moved away from Indigenous renewable energy projects lacking legitimacy. The Renewable Energy Program in Alberta released its second round of procurement in mid-2018. The procurement round was known as the Indigenous REP round and required all projects to have at least 25% Indigenous equity ownership. When the REP announcement was made in December 2018, three projects were awarded, representing a total of more than 300 MW, and all were priced the same or lower than the non-Indigenous projects announced in the first round (REP 1) of the program (AESO, 2018). These recent developments in large, utility-scale, Indigenous-owned projects show the “lack of legitimacy” argument is losing its legs. Many Indigenous communities in Alberta who have not yet participated in the REP rounds or a renewable energy project are using community energy planning as a way to build capacity and community support for involvement in future REP rounds in Alberta.

Indigenous communities are often interested in using their CEP to develop local leadership in energy generation, distribution, and management. Many of the interview participants felt the future of micro-grid and Indigenous-owned utility companies was not very far away. The development of community- or Indigenous-owned utility companies has many

benefits, including economic development, but also allows the community to continue working towards political autonomy and self-determination. Ensuring the CEP meets these goals begins with the process of developing the plan and ensuring the community and leadership are engaged in the process along the way. Many interview participants discussed the challenge of engaging leadership in the plan when the Chief and Councillors are also required to work on other imminent challenges, but it is essential to have them involved in the planning process.

5.3. Engaged, Participatory, and Collaborative Approach to Community Energy Planning

Based on the results and criteria developed, a concept map (Figure 11) was created to illustrate a CEP process that is understood to be an engaged, participatory, and collaborative approach to community energy planning. The green arrows highlight interconnections between the different CEP components. A community engagement strategy that is developed collaboratively and implemented in a way that meets the needs of the community is required to achieve a community energy vision that reflects the community's values and goals. It is important to many Indigenous communities that the development of the CEP involve ceremony and spiritual gatherings, this is essential to ensure the plan aligns with the values of the community, which is important for the implementation of the plan. The importance of increased community energy literacy is highlighted in the bottom right corner of the concept map.

Throughout the interviews, many CEP technicians and public officials discussed how the energy literacy of the community could often be a barrier to developing a strong plan and also implementing the plan. The CEP process should therefore include a strategy for education and training to increase energy literacy in the community to support the successful implementation of the plan.

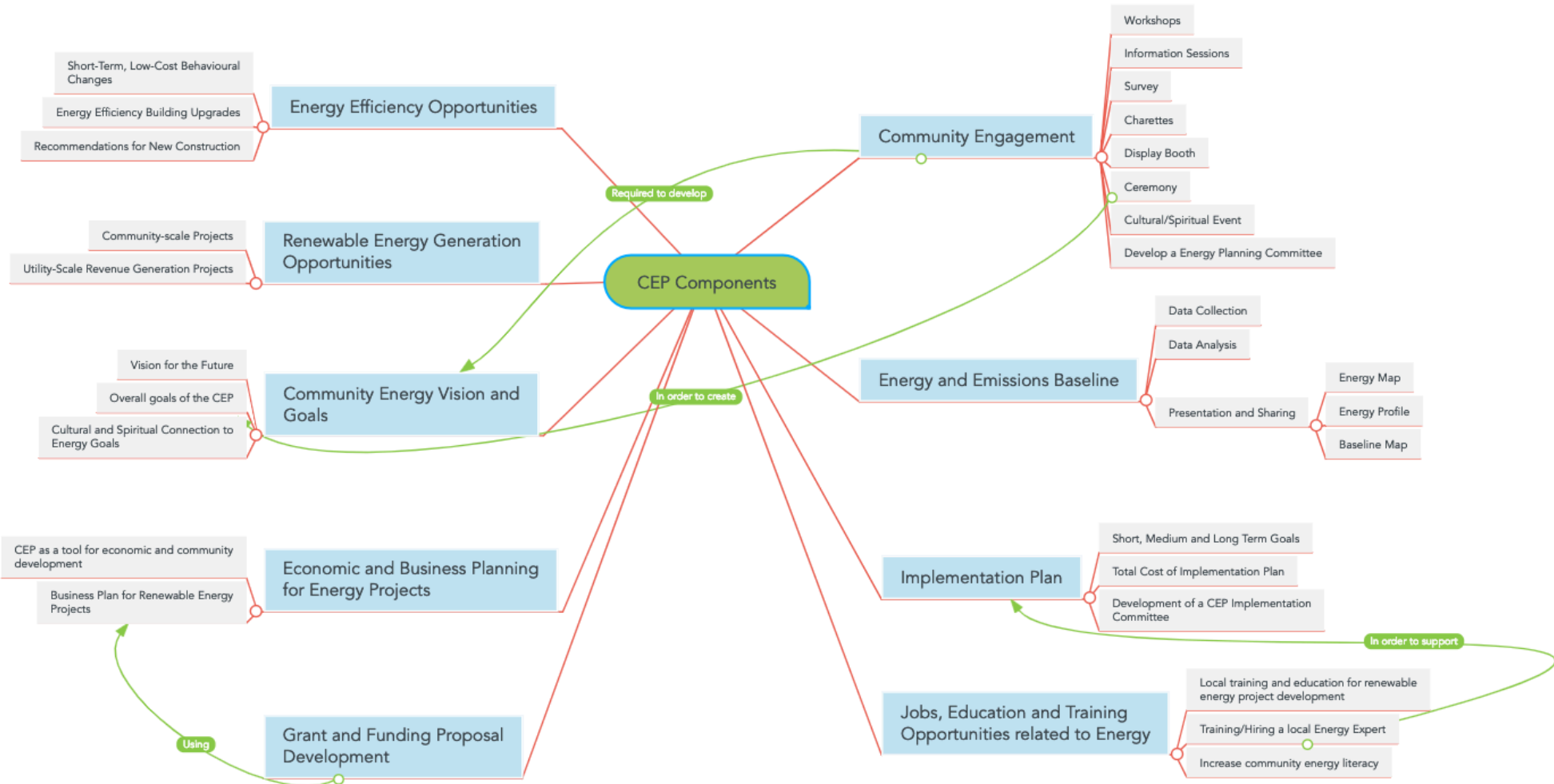


Figure 5-4: Concept map of the essential components of a CEP.

One of the CEP technicians interviewed shared very clearly that the most important component of the CEP process is community and stakeholder engagement. The interview participant had worked in community energy planning across Canada and in Europe and felt that, regardless of whether the community has a population of 100 or 1,000,000, ensuring people are engaged, informed, and aware is the key to a successful plan. CEP timelines that allow for adequate community and stakeholder engagement are important to ensure sufficient time to adequately engage community members, businesses, stakeholders, local government staff, and other stakeholders.

The CEP can assist the community in developing grant and funding proposals, and should help to create business plans with preliminary economic analyses for the implementation projects. A CEP process that meets this need would help to address the barriers to renewable energy development in Indigenous communities discussed by Krupa (2012) and also allow the communities to retain ownership and control over their economic development and retain their connection to culture as discussed by Hibbard and Adkins (2013). In the bottom left corner of the concept map, the green arrows illustrate that developing funding proposals using the CEP requires it to include a strong business plan and economic analysis of various renewable energy and energy efficiency projects that are highlighted in the implementation plan. While many of the interview participants discussed the importance of community engagement, values, and other social and cultural aspects of the CEP, they also made a point of saying these social and cultural components should not take away from the technical and financial aspects of the plan either. A balance between these components is required for a CEP to be successful.

Finding a way to confirm the technical and economic information provided in the CEP is accessible to the community is also important. This is where challenges can arise depending on

the energy literacy in the community, staff, and leadership. Those leading the implementation of the CEP must fully understand the technical and financial information presented as this is critical to successful implementation of the plan. One of the interview participants discussed how their community offered a two-day energy literacy workshop aimed at staff and leadership to increase their understanding of the CEP as well as various components of energy and renewable energy development work.

5.4. Defining Indigenous Participation in CEP and Renewable Energy

Understanding and defining the various ways Indigenous communities and businesses can participate in the renewable energy industry is important for Indigenous communities and businesses, but also for the renewable energy industry. One example of the ways in which Indigenous communities have used a community energy “vision” and moved forward with projects is the Pic River First Nation in Ontario and the development of Pic River Energy. Pic River started their journey with the understanding that economic development and politics can and should be separated in the community (Krupa, 2012). Their community had a vision for their renewable energy future in which they could address various social and environmental issues as well the high unemployment rate in the community and establish ways to create economic wealth for community members and the community as a whole. Over the past 30 years, Pic River First Nation has blazed a trail forward in energy and renewable energy and has successfully become a renewable energy developer and created a wealth of opportunity for their members (Krupa, 2012). Pic River Energy is rooted in principles from their Elders such as water is sacred, no projects shall interfere with their relationship to the land, community members are heard, and the importance of future generations (Pic River Energy, 2019). These values are combined with the company principles of transparency, respect, professionalism, inclusion, and flexibility to create

an organization that has been hugely successful. Being 100% Indigenous-owned means the company retains the benefits that come from the development process all the way through to the income from the generation of electricity (Pic River Energy, 2019). While this example provides an equity and development participation opportunity for the Pic River First Nation, this model is not necessarily the best starting point for all communities.

Participation in a renewable energy project can take three main forms; however, within these three areas is flexibility in how the projects are structured to maximize participation. Figure 12 illustrates the main structures for Indigenous participation (First Nations Power Authority, 2019). The first is equity participation, which is often talked about as being the goal. While equity participation is excellent in terms of providing returns to the community, it also comes with risks. Depending on the community's financial capacity, experience, and risk tolerance, a pure equity participation in a project may not be the best option. The second is economic participation, which can be in the form of a royalty or other type of payment. Economic participation can also include contracting opportunities for Indigenous businesses as well as employment and training opportunities for community members (First Nations Power Authority, 2019). A large renewable energy project has a variety of contracting opportunities and being the successful proponent on the contracts could lead to millions of dollars in economic development opportunity for the Indigenous business or economic development corporation involved. The third form of Indigenous participation is through governance and decision-making. Renewable energy projects are governed by boards and committees at each stage of the project from development through to construction and commercial operations (First Nations Power Authority, 2019). Creating opportunities for Indigenous participation throughout the governance process is important to ensure knowledge transfer and capacity building for future renewable energy

opportunities. In a perfect world, true Indigenous participation in a project would include all three aspects: the community would have an equity participation in the project where a return on investment is aligned with the community’s risk tolerance; they would have opportunity to secure 50% or more of the contracting opportunities with companies or contractors that are capable of conducting the work (First Nations Power Authority, 2019); and they would have a seat on all boards and committees making decisions regarding the project. Early and ongoing participation throughout the project is the best way to ensure genuine capacity building and knowledge sharing. This serves two purposes: for the Indigenous community members to learn



Figure 5-5: Indigenous participation in renewable energy projects (First Nations Power Authority, 2019).

and, even more importantly, for industry and developers to understand the needs, visions, and culture of the community and ensure it is included in the project (First Nations Power Authority, 2019).

Developing a CEP can be the first step to preparing a community to participate in large-scale renewable energy projects. Developing a CEP according to the concept map in Figure 11 can assist a community in understanding the opportunities and risks associated with various renewable energy projects available to them. As noted above, Krupa (2012) describes the barriers to Indigenous participation in renewable energy development in Canada as being cash, capacity, clarity for the long term, circumstances, and lack of legitimacy. A CEP can support a community in addressing these barriers in a variety of ways. A CEP can be used as a tool for understanding and accessing financing for renewable energy projects. Starting with a CEP will ensure the community has a vision for renewable energy development for the long term. Through community engagement and collaboration with other community planning processes, the CEP can help to address some of the major social and economic challenges in Indigenous communities. The CEP process can be used as educational tool to provide communities, leadership, and staff with education with respect to the benefits and challenges of various renewable energy technologies. This can reduce the challenge of lack of legitimacy and well equip the community for genuine participation in a large-scale project.

CHAPTER 6: Conclusion and Recommendations

Community energy planning is a growing process in Canada that attempts to create local solutions to energy and emissions challenges. Community energy planning in Indigenous communities is also growing thanks to these communities leading the way in community energy projects as well as funding programs that support the development of community energy planning in Indigenous communities. Many tools and resources are available for conducting CEPs, but very few addresses the needs and challenges of Indigenous communities. The purpose of this research was to highlight the areas in which CEP tools and resources need to be improved and adapted to align with the needs of Indigenous communities and address their overall goals. The thesis attempts to address the knowledge gap in current scholarship around CEP tools and resources and recommend how they can better support Indigenous communities. This is important for creating a local and national energy future that works towards meaningful reconciliation through participation in renewable energy and creating energy autonomy for Indigenous communities.

The research identified a variety of reasons why an Indigenous community would conduct a CEP. Although not an exhaustive list, some of those reasons include reducing energy costs in the community, creating energy autonomy and self-sufficiency in the community, reducing impacts to the environment, and accessing funding to implement renewable energy projects. While some of these are shared by non-Indigenous and urban communities (Tozer, 2013; QUEST, 2015; Arctic Energy Alliance, 2017), there are unique differences and challenges for Indigenous communities (Krupa, 2012; Cornell and Jorgensen, 2007; Goodfellow-Baikie and English, 2006). Tools, resources, policies, and programs that seek to understand and support these differences must be developed to encourage community energy planning in Indigenous

communities. Understanding these differences is key to supporting the development of policies that allow for CEPs to be whatever a community needs them to be. It is essential that the CEP process be flexible enough for communities to use this tool to achieve their goals in energy and beyond. A CEP process in an Indigenous community should not simply seek community engagement, but rather be led by the community themselves; to create this opportunity, the tools and resources being developed to support the CEP process need to be uniquely aligned with the needs of Indigenous communities. This is a significant to scholarly research as it aligns with findings about the importance of community energy planning in general and how to create energy self-sufficiency, energy autonomy in communities, and support for renewable energy (Krupa, 2012; Krupa et al., 2015; St. Denis and Parker, 2009; Tozer, 2013; Rezaei and Dowlatabadi, 2016).

The most common CEP tools and resources currently being used for the CEP process focus on larger urban centres and heavily on energy and emissions from a technical perspective. The research concluded that for CEP tools to be valuable to Indigenous communities they should be culturally appropriate, action-oriented, practical, accessible, economical, and balance technical and social attributes to align with the goals of the community with respect to the CEP process. Current tools and resources being used in community energy planning assume every community has the same goals and needs from the plan, which is not the case. This finding is important as it creates a starting set of criteria for developing a CEP toolkit that meets the needs of Indigenous communities.

Finally, the research supported the need for community energy planning as a tool to assist communities in participating in various scales of renewable energy projects. The CEP process, if conducted in such a way that aligns with community values, helps the community to build

capacity, develop energy autonomy, and local support for economic, social, and environmental development through renewable energy projects. If CEP tools were available that allowed Indigenous communities to conduct a meaningful CEP on their own and determine for themselves the course or direction of their energy future, communities would be well equipped to take on a large role in the development of these goals. This finding creates an opportunity to address some of the challenges of Indigenous participation in the renewable energy sector through community energy planning, which can create economic development and governance opportunities for Indigenous communities.

While this research and thesis work are a small part of the overall scholarly work currently being conducted to support Indigenous community energy planning and participation in renewable energy projects, much work remains to be done. Future research in this area should include a case study review to help understand the successes and challenges associated with Indigenous communities conducting a CEP using the recommendations from this thesis. Also important is that a CEP toolkit for Indigenous communities be developed and piloted. Other scholarly research should include the assessment of renewable energy project ownership models and their implications for Indigenous communities. Moving forward, the findings from this thesis work should be used to develop policy outlines for an Indigenous CEP program that would support the development of CEPs in Indigenous communities, both at the federal and provincial levels.

6.1. Recommended Approach to Community Energy Planning with Indigenous Communities

Community energy planning conducted in a way that aligns with community needs and values provides communities with a practical tool to achieving energy security, self-sufficiency,

local capacity building, and control over energy projects being developed in their traditional territories. Based on the literature review and the semi-structured interviews conducted, the following recommendations provide an approach to community energy planning with Indigenous communities.

Beginning the CEP process with ceremony is important for ensuring the process aligns with the cultural protocols and values of the community. For practitioners from outside the community, it is important to ask what protocols exist in the community. Every community and culture are different, but one way to do this would be to sit with someone local, provide them with a gift or some form of appreciation, and ask them to share with you what they know or recommend an Elder who may be able to guide you in the cultural protocols of the community. For many technical professionals, this is difficult to understand, takes a significant amount of time and resources, and may seem like it is not directly adding to the CEP process; but, without it, there is no genuine respect and the CEP process automatically begins as a colonial process in which Western ideology leads the way. An important part of this process for a CEP practitioner who is not from the community is simply listening to what people have to say and learning. Hearing people's stories of connection and culture and learning the protocols will help to create a connection to the overall goals of the CEP and allow the connection between culture and energy.

Another important recommendation for any external CEP practitioner is to take as much time as they can to "have tea", as discussed in the methods section. In a practical sense, incorporating "having tea" into community energy planning requires additional time to the CEP process. A critical aspect of a meaningful CEP process in Indigenous communities is ensuring the process is given enough time to be conducted in a meaningful way.

Once an understanding of the cultural protocol in the community has been established and the CEP practitioner has spent sufficient time “having tea”, they are likely to have a good idea of what the community’s goals and concerns might be. Yet, it is still important to establish a formal understanding of why the community is developing a CEP. How do they intend to use the CEP? What is their capacity to conduct the CEP on their own? What data collection and technical analysis might be required to develop a CEP that meets their needs and goals? Answering these questions is key to understanding rather than assuming knowledge of the motivations behind the planning process and what the community is hoping to do with the CEP in the end. It will also help to guide the CEP steps and ensure opportunities to integrate the technical, social, and economic analyses in such a way as to achieve the intended results through the CEP process.

The final phase of any CEP is developing recommendations and an implementation plan. While having the CEP completed is an important step, it is the implementation of the plan where the community truly begins to benefit. An important part of community energy planning in Indigenous communities is keeping the implementation plan focused, realistic, and fundable. Chiefs and Councillors are dealing with a multitude of challenges affecting their community. To assist them in making decisions for their energy future, the implementation plan of the CEP needs to be focused on near-term solutions as well as long-term goals. Funding the implementation plan is key to the success of the CEP. Oftentimes communities might have the capacity and willingness to move forward on particular project recommendations but lack the funding to do so. Recommendations in the implementation plan should be aligned with currently available government funding programs or own-sources revenue the community has set aside specifically for this implementation. While perhaps not typically in the realm of community

energy practitioners, funding applications and accessing grant funding is an essential part of community energy planning in Indigenous communities. Without careful attention to the funding, the CEP is not likely to be implemented.

The criteria for assessing CEP tools and resources are good practice for developing CEPs in Indigenous and non-Indigenous communities alike. The main difference, and why they are so critical for the development of CEPs in Indigenous communities, is that little to no success and support for the recommendations in the CEP is likely without the inclusion of culturally-appropriate and community-specific engagement. This is also a critical part of true reconciliation and economic reconciliation, i.e., that Indigenous communities have the tools and resources to be involved in economic development and guide the future of their community, energy, or otherwise. If the criteria from Figure 8 and the recommendations from this section are not included in the CEP process, then there is no movement toward genuine reconciliation and energy self-sufficiency in Indigenous communities and these concepts and decisions will remain in the hands of those external to the community.

6.2. Scholarly contributions of the research

The findings contributed to academic literature and scholarly work by bringing an Indigenous-focus to the community energy planning field. There is currently little academic research focused on conducting community energy planning in a way that aligns with Indigenous values and world view. The research findings provide criteria that will be valuable in future research to evaluate not just community energy planning tools and resources, but also other resources that relate to energy planning and implementation in Indigenous communities. Adding to the extensive work that has been conducted on Indigenous participation in renewable energy projects (Krupa, 2012; Arriaga et al., 2013; Alvial-Palavicino et al., 2011), the criteria for

assessing CEP tools and resources provide a resource for future research to focus on how CEPs can be a tool for ensuring meaningful Indigenous participation in renewable energy projects.

While the iterative conceptual framework described in Figure 4 is not an entirely new qualitative method, it is a meaningful scholarly contribution as it highlights a more reflexive way to utilize the policy analysis framework. The adapted framework that was used to achieve the research objectives allowed for the data to be re-visited three times, creating opportunities to see more connections and allow for a deeper analysis of the data from the document review and interviews. Using a fusion of traditional research methods (document review and semi structured interviews) alongside methods such as the adapted policy analysis framework in Figure 4 and the concepting mapping tools, created an opportunity to deeply analyze an under-studied concept like community energy planning. This process also allowed for the creation of a baseline or platform for future research in Indigenous community energy planning that is needed to ensure that Indigenous communities have the tools they need to achieve their energy goals and have a more secure and self-determined energy future.

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