

Indigenous Community Energy Plan

Chelsie Parayko, Master's Candidate, University of Winnipeg

parayko-c@webmail.uwinnipeg.ca

(705) 971 – 3291

203-100 Maryland Street

Winnipeg, Manitoba

R3G 1K8

Patricia Eyamba, Master's Candidate, University of Winnipeg (corresponding author)

eyamba-p@webmail.uwinnipeg.ca

(204) 914 - 0614

265 Appleford Gate

Winnipeg, Manitoba

R3Y 0S5

Nik Friesen-Hughes, Environmental Studies – Urban Environments Graduate, University of
Winnipeg (corresponding author)

friesen-hughes-n@webmail.uwinnipeg.ca

(204) 952 – 1890

759 Fleet Avenue

Winnipeg, Manitoba

R3M 1K1

Executive Summary

Canada is experiencing an energy evolution; this evolution creates opportunity for communities to develop their energy plan,¹ hence, increasingly more communities are opting to lead and control their source of energy where decisions are being considered at the community level. This development is powered by the desire to reduce greenhouse gas emissions and to become more energy self-sufficient² but most importantly to drive a process and create a project that is in line with community environmental standards and values which includes the protection of what is culturally and spiritually important to them.³ First Nation's within Canada recognize the importance of effective management of energy and water to their economy, environment and social harmony, including Community M. As a community, Community M, is committed to developing an energy plan is evidence of their self-determination.⁴ In this report we hope to provide some background information on how to create such a plan for the community. The report defines what an energy plan means and how it works in Canada, provides information about the stakeholders and analyze their power and influence and how to get them buy-in to the project. In addition, it provided information on energy mapping and its relevance to energy plan, example of a tool kit that presents a step-by-step process of how to create a community energy plan. The tool kit describes key components that make an effective and efficient Community Energy Plan. Lastly, the report gave examples of best practices, mention challenges and barriers and how to mitigate them when possible.

This report provides evidence-based information that would serve as an additional instrument to guide the people of Community M in their pursuit to develop their energy plan. It is hoped that work it would provide broad framework as reference to assist Community M's proposed Community Energy Plan (CEP) project. During the development of this report it was understood that as technology changes, as the community's goals change and as the efforts towards alternative energy become varied the need for change within the CEP will arise. It is for these factors that this document would be a living document that will evolve with the community to ensure that it is always relevant and always serving the community to the best of its ability.

Introduction

Many humans are high-impact beings - while energy is essential to our survival and development, capitalist and colonial forces have created a world in which our society becomes increasingly dependent on energy every day. Many people view this current energy consumption and demand as unsustainable and believe now is the time where we must begin to transition away from less sustainable energy systems dependent on fossil fuels. Everyday fossil fuels become less

¹ Denis, Genevieve St., and Paul Parker. "Community Energy Planning in Canada: The Role of Renewable Energy." *Renewable and Sustainable Energy Reviews* 13, no. 8 (2009): 2088-095. doi:10.1016/j.rser.2008.09.030.

² Denis, Genevieve St., and Paul Parker. "Community Energy Planning in Canada: The Role of Renewable Energy." *Renewable and Sustainable Energy Reviews* 13, no. 8 (2009): 2088-095. doi:10.1016/j.rser.2008.09.030.

³ Denis, Genevieve St., and Paul Parker. "Community Energy Planning in Canada: The Role of Renewable Energy." *Renewable and Sustainable Energy Reviews* 13, no. 8 (2009): 2088-095. doi:10.1016/j.rser.2008.09.030.

⁴ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

financially viable as alternatives begin to emerge, and it is clear their continued use is not compatible with our global emission targets for human survival.

Now is the time to transition to more sustainable energy systems. Western research and literature have increased and developed relatively recently regarding the topics of environmental issues, climate change, energy policy and plans, and sustainable development. However, traditional knowledge related to these subjects has existed for time immemorial and provides a key foundation for growth and progress. In order to move forward, western understandings of environmental issues and sustainable development must undertake system wide transformations in sociotechnical systems and understandings of traditional ecological knowledge.

Managing this transition will require efforts from many actors – for many communities, a good first step is to create an energy plan.⁵ There is substantial evidence that energy plans are an effective tool in managing this transition and typically result in cleaner air, land and water while improving energy sustainability and resilience, costing taxpayers less for energy moving forward, and improving quality of life.⁶ Our project explores the factors to be considered in the development of an effective Community Energy Plan (CEP).

Our Values

Our materials, resources and methods selected for this work will pay attention to and honour Indigenous way of knowing. We would approach this work in a holistic manner knowing that all things are interconnected.

Community M has the capability and self determination to develop and create their community energy plan, therefore, this work is presented with an open heart in the spirit of collaboration and cooperation in support of their effort to develop Indigenous based community energy plan.

Our hope is to provide supporting material that would speak to your mind, spirit, soul, and body as we believe that this project when implemented can help to bring healing, restoration and wellness to the people and the land.

Guiding Principles⁷

- Collaborating together
- Fairness and equity
- Environmentally and culturally responsible
- Reliable energy
- Affordable energy
- Benefiting the community and region
- Continual improvement

⁵ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy* 30, no. 3 (2012): 381-400. doi:10.1068/c10222.

⁶ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

⁷ Northeast Superior Regional Chiefs Forum. *Northeast Superior Regional Energy Strategy*. 2016. Ontario.

Community M: Background

Community M is located in Manitoba and has a total registered population of 1093.⁸ Community M has two major energy challenges; high operation of energy generation and climate change. Both of these challenges have deep and challenging consequences on environment, economy, technical, cultural and social aspect of the life of the people in and around the community.⁹

Limited access roads during winter is affecting the socio-economic life of the people of Community M. During this season, the roads are covered with ice and are subject to weight restrictions. Heavy traffic during this period makes the road weaker and rougher, this makes travel longer for individuals and distribution and operation of energy very expensive. The implication of this is that it costs more for people to travel outside the community for any kind of activity plus technicians have to be flown in to conduct preventive and corrective maintenance. This makes cost of living, operation and distribution of energy very pricy.¹⁰

Climate change, pollution and fluctuation of water levels of the Nelson River via Kelsy Dam has been attributed to the activities carried out by Manitoba Hydro. The ebb and flow of water levels cause flooding along the shoreline which pollutes the water and kills the trees and shrubs used for economic purposes.¹¹ Animals are trapped in their hideouts and drown thereby reducing the number of animal available for hunting, biodiversity is loss as a result of this condition. The community that depends mostly on its natural resources as a source of livelihood, hence during this period economic activities are crippled or dwindle because the people do not have enough resources that could meet with their daily demands and supplies.¹²

Socially, the same report posits that climate change, among others, has impacted negatively on social traditional activities. Participation in winter recreational activity like fishing has decreased and skills such as snowshoe making are not being passed on to younger generations.¹³ Given the situation, it is important to conduct a needs assessment with the understanding that identifying gaps and determine ways to respond to them is critical to the future of the community. This Community Energy Plan would improve energy situation, boost the economic situation of the community, build skills and create jobs, and most importantly, the power and control of their energy vision would be in the hands of the community.¹⁴

⁸ Environment and Climate Change Canada. "ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Annex 4: Theme IV." ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Protecting Nature, Goal 5: Wildlife Conservation , Conserving Wildlife. August 08, 2017. Accessed February 28, 2018. <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=D39CB7AC-1>

⁹ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

¹⁰ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

¹¹ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

¹² "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

¹³ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

¹⁴ "Centre for Indigenous Environmental Resources (CIER)." CIER Website. Accessed February 28, 2018. <http://www.yourcier.org/>.

What is an Energy Plan?

An Energy Plan, Or Community Energy Plan is a strategic approach to reducing energy consumption and greenhouse gas emissions for a municipality and the communities within it¹⁵ while enhancing quality of life. It's a framework that has a vision, outlines goals and deliverables, and sets up a realistic implementation of these goals through clear actions and the clarification of actor/stakeholder responsibility.¹⁶

The Halifax Regional Municipality's Community Energy Plan has made substantial progress towards energy efficiency by implementing renewable and alternative energy technologies and retrofits, reduced energy consumption and greenhouse gas emissions, developed a better understanding of energy usage, and increased energy literacy of the general population through a variety of policy measures and programs.¹⁷ To maximize its potential, it must go beyond energy and climate issues by addressing the connection with broad systemic issues while guiding its action towards education, awareness, literacy, and both civic and community engagement.¹⁸ Because energy spans many different systems, typically EP's are not a stand-alone plan but instead work within larger plans as a more focused plan.¹⁹

A CEP impacts community operations by developing strategies, policies and programs, reducing energy costs of buildings, infrastructure, operations, and transportation. Energy plans can impact different levels of society by directing municipal operations, and collaborative efforts to improve sustainability for the community. They are usually aligned with other plans or work collaboratively with other plans.²⁰

How Does a CEP Work in Canada?

Some cities and communities have CEP's while others do not.²¹ Why is it that some parts of the world feel compelled to create CEP's and frameworks for addressing climate and energy issues, while others feel no obligation? Generally, the degree to which these CEP's and frameworks exist and are substantiated corresponds with the degree in which climate and energy issues are a factor among popular discourse and concern. CEP's also require time and resources to create. This is why CEP's are more prolific in places like Europe.

¹⁵ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

¹⁶ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

¹⁷ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

¹⁸ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

¹⁹ "Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

²⁰ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

²¹ "Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

Environment and climate issues don't stop at the border – they transcend physical jurisdiction and thus become complex to regulate and enforce. Issues related to the production, procurement, and use of energy pose similar challenges. We need complete solutions – we must work together on a global scale. By collaborating on the development and application of energy policy and CEP's, we can begin to create a collective framework that allows us to address these issues meaningfully. Policy can be a useful tool if it is responsible and empowering for communities to exercise their power. In Canada, this can begin by federal, provincial, municipal, and community bodies working together to create, regulate, coordinate action, regarding energy planning.

In Japan, energy policy existed as a patchwork of laws, regulations, and programs prior to the creation of the BEP – this is how energy planning currently exists in many parts of the world - including Canada. Currently, energy policies must exist within these patchworks. As mentioned, energy is an issue that is intersectional and spans different realms. In Canada, different bodies exist to govern different sectors such as agriculture, aquaculture, construction and manufacturing, electricity, emissions-intensive and trade-exposed, fisheries, forestry, mining, oil and gas, public health, and transportation. Canada also includes numerous departments that are involved in policy. It's difficult to discern which sectors and departments would not be connected to climate and energy issues in some fashion.²²

The difficulty with this patchwork approach, is that it makes policy less effective in that it is difficult to enforce, difficult to track and monitor, and difficult to facilitate and empower community and individual action. In 2002, Japan created a more systematic and comprehensive energy policy planning structure²³ to address these issues - the BEP has been highly effective.

Vision and Goals of a Community Energy Plan

A vision coupled with a set of goals provides a framework for the creation, development and enactment of a CEP. Typically, a CEP's vision and goals are created through a comprehensive process including input from a variety of stakeholders and actors such as government staff, stakeholders, decision makers and members of the community.²⁴ To address issues meaningfully, a CEP must have an overall vision that guides and inspires action from all stakeholders - this happens through clear goals and deliverables. A CEP must also demonstrate a depth of understanding regarding energy and climate issues, and socioeconomic issues; additionally, both the community's goals must be considered along with global goals as these issues are interconnected.²⁵

²² Environment and Climate Change Canada. "ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Annex 4: Theme IV." ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Protecting Nature, Goal 5: Wildlife Conservation , Conserving Wildlife. August 08, 2017. Accessed February 28, 2018. <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=D39CB7AC-1>.

²³ Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." Egyptian Journal of Medical Human Genetics. April 19, 2011. Accessed August 02, 2018. <https://www.sciencedirect.com/science/article/pii/S0301421511002837>.

²⁴ "Advancing Integrated Community Energy Planning in Ontario ..." Accessed February 28, 2018. [http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The Primer - reduced size.pdf&p=DevEx.LB.1,5243.1](http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The%20Primer%20-%20reduced%20size.pdf&p=DevEx.LB.1,5243.1).

²⁵ Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

Goals can be general such as improving the energy efficiency of buildings, increase sustainable transportation, increase industrial energy efficiency, encourage sustainable land use planning, reducing waste, increase infrastructure efficiency, expanding the use of innovative energy technologies, promoting international energy and environmental cooperation, increase energy security and diversify energy supplies, educating and engaging residents and businesses, and committing to government leadership. Goals can also be clear statistical targets – for example, Japan's 2012 BEP aimed to double Japan's energy self-sufficiency ratio to about 40% from 18%.²⁶

Ultimately, the most effective goals will reflect the needs and desires of the community who created the plan. The concept of sustainable development provides a strong general foundation for CEP vision and goals - outlining that responsible policy at large should focus on conserving our environment for future generations, environmentally responsible economic growth, restoring and maintaining our ecosystems, and providing clean and healthy environments for humans to flourish.²⁷ In Canada, these goals should be coupled with other goals that address systemic and structural issues and processes that affect human, animal and environmental well-being.

It is critical for the plan to outline goals clearly to empower and enable action. Often, there exists a divide between the rhetoric of policy makers and those involved in the community. When establishing goals and targets, plan makers must develop detailed and specific measures of achieving those targets, along with the realistic potential of achieving these targets, and communicate these measures and targets clearly to the community.²⁸ Plan makers must also develop a clear plan of action, deliverables, and roles.

Energy Mapping

Energy Mapping is a visual representation of existing energy resource and energy use in the community. It mainstreams information from baseline and connects it to a map which helps community to identify spatial trends, target specific neighborhoods, sector business, types of conservation efficiency, renewables and distributed generation. It visually communicates with the

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

²⁶ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885; Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." Egyptian Journal of Medical Human Genetics. April 19, 2011. Accessed August 02, 2018.

<https://www.sciencedirect.com/science/article/pii/S0301421511002837>; "Advancing Integrated Community Energy Planning in Ontario ..." Accessed February 28, 2018.

http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The_Primer_-_reduced_size.pdf&p=DevEx.LB.1,5243.1.

²⁷ Environment and Climate Change Canada. "ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Annex 4: Theme IV." ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Protecting Nature, Goal 5: Wildlife Conservation , Conserving Wildlife. August 08, 2017. Accessed February 28, 2018. <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=D39CB7AC-1>.

²⁸ Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." Egyptian Journal of Medical Human Genetics. April 19, 2011. Accessed August 02, 2018. <https://www.sciencedirect.com/science/article/pii/S0301421511002837>.

public and decision makers about where and how much energy is used in the community and in individual neighbourhood.²⁹

Energy Mapping identifies neighbourhoods that use more energy than others relative to building space, age or people per household, where there are clusters of buildings that could support district energy or where there are households with high transportation demands. Steps to creating an energy map can be found in Appendix A

Stakeholders

The success of community Energy plan is contingent upon having different stakeholders buy in. Hence, identifying and Understanding the key players and partners in a project is important for the success of a community project. To ensure true spirit of partnership, the Keeyask Cree Nations identified their partners, they brought the Cree worldview and members perspectives to projects planning and design. It is important to assess Indigenous project using both technical science and Indigenous traditional knowledge along with information gained through extensive government and public consultation and involvement. This integrated and collaborative approach enhances project sustainability. (Appendix B)

Creating an Energy Plan

The following are 8 recommended steps to create an Energy Plan that is tailored to the needs and desires of each Nation. As time moves forward the details that are in this document will evolve, goals will be achieved, changed and amended. It is recommended that the community view this document as a living document so that it is able to progress along with the community and the community needs.

1. Background (Community and understanding of what the plan will entail)
 - a. Identify stakeholders
 - b. Establish a foundational vision,
 - c. Conduct background research
2. Strategic Planning (Short, medium and long-term goals, and the activities - and all inputs/capacities required - to meet the goals)
 - a. Appendix C - Estimated timeline for creation of a CEP
 - b. Appendix D – Example of potential phase breakdown for creation of CEP
3. Community Engagement (Awareness, community input, community strategic outlook)
4. Energy Demand Assessment (local and distribution - quantitative data)
5. Environmental Assessment (examine current and future impacts and willingness to accept those impacts, how to mitigate, how to minimize)
6. Future goals for Community Energy (shift in consumption methods, increase efficiency)
7. Monitoring and Evaluation plan (mechanism to ensure that the plan is meeting the goals of the community, make adjustments as needed)
8. Resources needed (outlining all capacities that are required to function as a sovereign entity in the management of energy)

²⁹ "Advancing Integrated Community Energy Planning in Ontario ..." Accessed February 28, 2018. http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The+Primer+-+reduced+size.pdf&p=DevEx.LB.1,5243.1

Toolkit

Background

As mentioned above the background section of the plan will be utilized to describe two key sections, the community and the history of the community and the description of a community energy plan.

1. *The community and the history of the community*

This portion of the document may require new works or tailoring current documentation to fit the needs of the CEP. This description of the community will outline the current conditions that the community is operating in.

2. *Energy plan information*

This section will describe what a CEP is and how it applies to the Nation. It will give an overview of the components that will be needed within the document and will be amended as each step of the development of the CEP takes place. This will happen as a deeper understanding of the process; community desires and requirements will be achieved as each step is taken.

Strategic Planning

To fully understand what the ultimate goals of the community are in the development of the CEP it is important to have a well laid out strategic plan. The plan will identify the following:

1. Short-term, medium-term and long-term goals – Understanding the timeline of the creation of the CEP and what tasks must be targeted first and foremost will be key in keeping the development of a CEP on task and completed in a timely manner.
2. Assessment of current environment. For example:
 - a. SWOT analysis – Understanding the interior or community's strengths and weaknesses in relation to energy and the development of a CEP, and the exterior opportunities and threats of outside stakeholders with regard to energy and the development of a CEP is a critical step to ensure that all the factors that may play a role in the success of the develop are identified and mitigated.
 - b. Industry analysis – This will allow the community to know what future steps the energy sector, or government intended to take in the energy field. This will allow the community to be prepared to take action with or towards those steps in a planned and efficient manner.
3. A contingency plan for each of the goals and for the ultimate goal. A contingency plan will outline what steps to take should the goals no longer be achievable or in the event that they are no longer the goal that should be realized.
4. An implementation plan for achievement of all goals
 - a. Detailed timeline (ie/ Gantt Chart which shows the timeline of each individual task that will take place, where it will overlap with other sections or actions, keeping the implementation of tasks in targeted time objectives)
 - i. Example Gantt Chart Software
 - ii. <https://app.ganttpro.com/#!/app/home>
5. An outline of what will be needed to complete the goals
 - a. Inputs – What will the Nation have to put into the project in order to complete the task. This could include human capital, printing abilities, office space, etc.
 - b. Current capacity – What skills and capacities does the Nation currently have that can be utilized to create the CEP. This could include things like an existing energy map, a strategic plan, trained workers in policy development, etc.

- c. Required capacity – What skills or physical items does the Nation need in order to complete the document. This could include a trained Land Use Planner, funding, etc.
 - d. Identify existing areas or departments that will be impacted – This could be things like if there is a land use planning department, understanding that their time will be needed and thus ensuring they are able to pause from their day-to-day practices to devote time to creating the CEP. This will allow for a realistic outlook of time commitment.
6. Key indicators – targets and measurables must be identified to create an understanding of the level of completion, what areas must be focused on and where extra capacity might be needed. This will also provide an understanding of what is most important to the community and why.
7. Financial details
 - a. Projections – Detailing a budget that will be utilized for the creation of the CEP and potentially the implementation will provide an idea of what the community must commit to and where dollars must be sourced.
 - b. Requirements – Understanding the broad spectrum of all the dollars needed for inputs will keep the project on task and within the realm of possibility.
 - c. Potential funding sources – Identify funding sources to aid in financial constrain of developing a CEP. This will ensure that the task is completed, and that the community has a document that can be implemented.
8. Monitoring and evaluation plan – This document will be a living document, thus making this step a never-ending process. Ensuring that the vision of the community is always being adhered to, even as it changed with the evolution of all things is critical to the relevance and success of the endeavour.

Community Engagement

As mentioned in the Stakeholder Analysis it is critical to ensure the community is engaged in the development of a CEP. Firstly, it is the community who provides the directives that Chief and Council and the administration must complete. Ensuring that the vision and key indicators are taken from the community will ensure that the strategic plan that is developed is a clear, concise and true depiction of the communities wants and needs.

Community engagement will also allow for key implementation officers to understand fully the capacities that are currently available within the community and to identify the gaps that must be addressed. It is critical that the plan actively has youth and elders involved in the process. Elders as they will provide the historical data and knowledge that often cannot be found in literature, and also to provide a traditional perspective that allows for adherence to Indigenous ways of knowing. The youth will be the future leaders and implementers of the CEP, so their input and understanding of the CEP is critical for continued success. The plan is set in place to ensure that the future generations, including the current youth enjoy the *Pimatisiwin* so keeping them close to the project is an important endeavour.

Lastly, it is the community that holds C&C and the administration accountable for the actions they take. This means that they are the ones who ultimately are in the driver seat for ensuring that the plan has the communities best interest in mind throughout all stages. The development of a steering committee with members from all of the above key engagement groups.

Energy Demand Assessment

This assessment focuses on the energy demand for both Community M and for the consumers of Manitoba Hydro. Understanding both specific sectors is integral to the development of a plan that not only considers the wants and needs of the community but that will be implemented in an effective manner. Knowing all of the factors at play within the energy sector will allow for informed and accurate decision making.

Environmental Assessment

As good stewards of the land, it is the job of Indigenous peoples to look after the environment. Ensuring that the ecosystems that are directly and indirectly impacted by the dam(s) is critical. Conducting an environmental assessment, both utilizing mainstream quantitative data and with Indigenous ways of knowing qualitative data will provide a full and accurate picture of what impact the dam is having and what potential hazards could come. In both this and the following step a community energy map could be utilized to detail the community's current energy story and identify the potential for the future energy opportunities that the community outlines.

Future goals for Community Energy

Understanding the vision of the community for the current and future goals in terms of energy is an integral part of a CEP. This will allow for strategic steps to be taken to work towards achieving the community goals. An example of this could be getting the community off the power grid and converting all energy to solar power. Being aware of these goals while developing and implementing a CEP can help to make positive and effective steps towards these goals. Due to the fact that this document is a living document changes that arise each phase of the CEP development, development, monitoring and evaluation can be easily included.

Monitoring and Evaluation

For this project to continue to have success and to evolve as demands arise a full and succinct monitoring and evaluation plan must be put in place. As stated above this plan will be a living document that changes with the community and the evolution of energy offering, thus making monitoring and evaluation a critical and forever continuous step.

Best practices

While not all of these apply to Community M, they may provide a useful guideline for creation, development, and implementation of a CEP. The best, most effective plans in regard to energy policy have historically been found in Europe - they have been working the longest in this specific field and have experienced different growth patterns, particularly in their urban environments that have necessitated the development of CEP's to address environmental and sustainability issues. It must be acknowledged that each community faces an entirely different and unique set of circumstances and conditions. Nevertheless, by exploring the positives and negatives of these plans we can observe and learn - leading to a more effective CEP. Further information can be found in Appendix F, G, H and I.

Conclusion

Effective CEP's share many features in common: demonstrating clarity of purpose, thorough effort to engage all stakeholders, holistic understanding of energy issues, communication and transparency, clearly outline responsibilities, are regularly monitored, tracked and revised, set realistic goals and tangible points of action, and endeavor to go beyond implementation while educating the community. While there are differences in how CEP's are formed, implemented, enforced, and monitored there is an overall similarity amongst their general goals of contributing to energy efficiency, climate change, sustainable development and health and well-being of the community and environment.

Solutions to these issues may require a change in overall perspective – a psychological paradigm shift within the social sphere as much as technological improvement. Some believe revolutionary change is needed and that this will rely heavily on social movements and bottom up solutions to sustainable development.³⁰ It will also depend on the development of understanding these different issues, and ongoing efforts of inclusive communication among all actors involved.

³⁰ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy* 30, no. 3 (2012): 381-400. doi:10.1068/c10222.

Appendix A

Important Steps to Consider when Developing an Energy Map³¹

<p>1. Survey available data and evaluate usefulness</p>	<ul style="list-style-type: none"> a. Set up meetings with Data managers b. Discuss what information to collect that support groups priority c. Engage data providers ex. Gas, electricity, utilities, transport etc. and land use plan.
<p>2. Establish Energy and Baseline emission; To achieve the second stage stakeholders and community would</p>	<ul style="list-style-type: none"> a. Establish benchmarks targeting energy emissions reduction b. Determine target for energy and emission reductions so that progress can be measured. c. Include a breakdown of energy use and emission by sector ex. residential, industrial, agricultural, transportation, water and waste plus energy use and emission sources by fuel type.
<p>3. Develop Scenarios</p>	<p>This stage allows stakeholders to understand how much energy the community might use if no action is taken, if moderate or incremental action is taken or if more substantive effort is made. Below are some common CEP priorities and how the data help establishes scenarios and target for each.</p> <ul style="list-style-type: none"> a. Target and promote conservation and efficiency program - tax assessment data b. Put data on a map to identify neighborhoods where conservation and efficiency will be largest c. Implement distributed and renewable projects (tax roll, land use, gas, electricity utility data can be used to quantify opportunity to use district energy d. Managing growth - municipal permits and development applications e. Promoting local prosperity

³¹ "Advancing Integrated Community Energy Planning in Ontario ..." Accessed February 28, 2018. [http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The Primer - reduced size.pdf&p=DevEx.LB.1,5243.1](http://www.bing.com/cr?IG=64810E85807E49CF8ADE707FB83CA0F2&CID=38DEFEB0092860A72357F28F08D5614D&rd=1&h=95tpfMrTZC7WLZJcKIM6qBcc84yup0nlf3rqWxU_VMQ&v=1&r=http://www.questcanada.org/downloads/The+Primer+-+reduced+size.pdf&p=DevEx.LB.1,5243.1)

Appendix B

**Stakeholders Analysis Matrix:
Table 1**

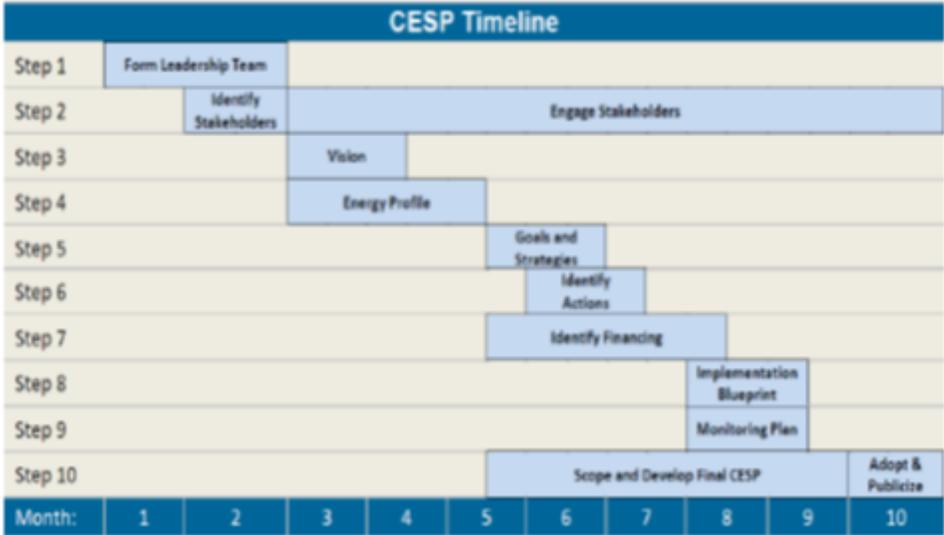
Stakeholders	Interest	Influence	Power	Engagement
Chief	<i>High level</i> Interest based on strategic direction from community.	<i>High level</i> Must act as per directives from the Council.	<i>High level</i> Power as a political figure head.	<i>High level</i> Actively engaged.
Council	<i>High level</i> Interest specifically for the Councilor whose portfolio is relevant.	<i>High level</i> Provides directives to the Chief, so high level of influence.	<i>High level</i>	<i>High level</i> Actively engaged
Community Members	<i>High level</i> This impacts their well-being and future generations.	<i>Medium</i> It is the community that gives directives to Chief and Council, so their level of influence is important.	<i>Medium</i> The community can exercise power in multiple different ways, voting etc.	<i>Medium</i> Ratification of a decision about Hydro initiatives may be required, increasing the level of engagement.
Elders Steering Committee	<i>High level</i> Caretakers of the traditions and looking after the future for generations to come.	<i>High level</i> C&C accountable to the community including the Elders Steering Committee	<i>Medium</i> Depending on the relationship with C&C	<i>Medium</i> Usually the influencers within their families, thus making their opinion important.
Stakeholders	Interest	Influence	Power	Engagement

<p>Youth</p>	<p><i>Medium</i> As the future of the community it is an important factor.</p>	<p><i>Medium</i> A Youth council could potentially have influence if there is a position that is filled at the C&C table.</p>	<p><i>Medium-low</i> This depends on the level of engagement at the C&C level.</p>	<p><i>High level</i> The youth are the future leaders, so ensuring that the knowledge and sense of importance is passed along is integral.</p>
<p>Neighbouring communities</p>	<p><i>High level</i> Likely their views will be similar as the hydro initiative has the same level of impact on their community and environment.</p>	<p><i>Low</i> Development and implementation of the CEP happens regardless of the outside communities, however having multiple complementary CEP's could provide more power to the communities.</p>	<p><i>Medium</i> Other communities will have a moderate level of power as they may have CEP's themselves.</p>	<p><i>Medium</i> Unity among the communities could bring more power to their CEP's and the adherence and implementation of.</p>
<p>Manitoba Hydro</p>	<p><i>High level</i> Do not want to have communities impede their ability to gain economically.</p>	<p><i>High level</i> Must be the ones to ultimately implement.</p>	<p><i>High level</i> Not a lot of regulatory bodies to hold accountable for implementing CEP's.</p>	<p><i>Low</i> During the creation of the CEP engagement is not critical.</p>

This is a sample list and is not exhaustive

Appendix C

Figure 1: Timeline for creation of Energy Plan



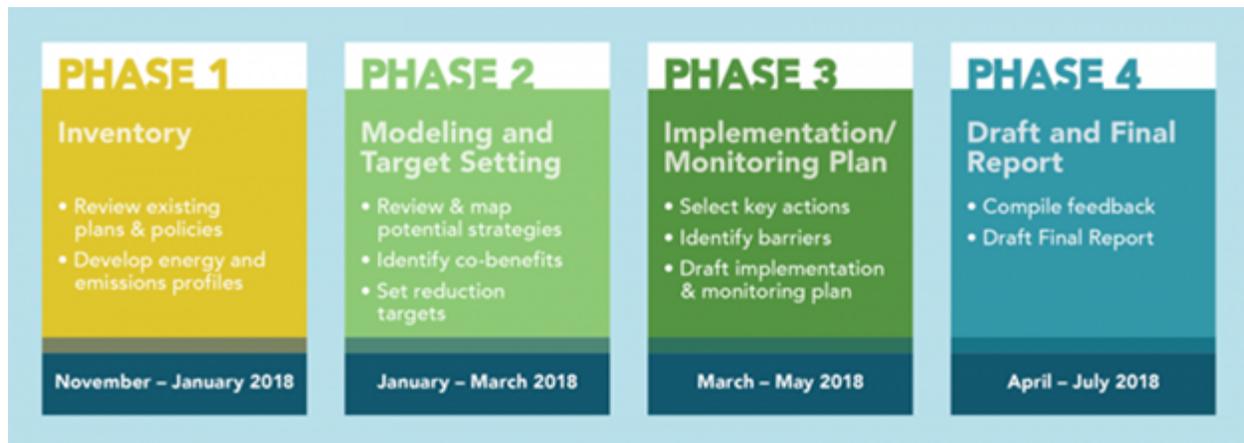
Conceptual timeline

US Department of Energy - Energy Efficiency and Renewable Energy³²

³² Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

Appendix D

Figure 2: Phase breakdown for creation of Energy Plan³³



³³ Dercole, F., M. Westin, and D. Mason. "The DNV Earthquake Ready Action Plan." 2015. doi:10.4095/296274.

Appendix E

Resource Tools³⁴

Examples of energy plans

Although CEP's are relatively recent, many different plans have been created within different contexts, and different jurisdictions. More environmentally progressive parts of the world such as Europe have been developing CEP's for a number of years already, while more Canadian communities are developing CEP's more recently in accordance with sustainable development objectives.

The process of CEP creation has been developed through trial and error - some cities achieve outstanding energy performance, and many have not. Luckily, we have more information in our arsenal now than ever before - as a result, CEP effectiveness is improving consistently. Implemented in 2010, Japan's Basic Energy Plan (BEP) was the country's 3rd plan since 2002 and its most substantial. The 2002 BEP was the fundamental law on energy policy and set the general direction for Japan's future policy. Japan is consistently found to be a leader in climate change and energy sustainability amongst technologically advanced nations.³⁵

The township of Newmarket, Ontario developed a strategic community energy plan through the advisement of a stakeholder steering committee. The objective of the document is to develop a plan that will enable the community to prosper from a sustainable and viable energy plan. The community has coined this particular document as a living document to allow for necessary adjustments along the implementation journey. This community is a non-indigenous community located in the south of Ontario.³⁶

Most plans are created by a committee or department - the Halifax Regional Municipality (HRM) Community Energy Plan was created by the Environment and Sustainability Standing Committee (ESSC).³⁷

Embracing another Nation that has completed a CEP or something that resembles such can help to aid in the ease of development of a CEP. It can provide insight into aspects that might be unidentified until the time of implementation. Below are two examples of First Nations lead initiatives that could be utilized as examples. The first is a clean energy toolkit that clearly identifies

³⁴ Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

³⁵ Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." Egyptian Journal of Medical Human Genetics. April 19, 2011. Accessed August 02, 2018.

<https://www.sciencedirect.com/science/article/pii/S0301421511002837>.

³⁶ "Town of Newmarket Community Energy Plan." Accessed February 28, 2018.

[http://www.bing.com/cr?IG=EF1A114B915B4F32B60305EA023C8703&CID=182A35A277CE606633C3399D763361E4&rd=1&h=dcoCWpswLbI89WO2VeyvtKXKJC60RfspUv1YX56evvk&v=1&r=http://www.newmarket.ca/LivingHere/Documents/Planning Department/Community Energy Plan/Newmarket Community Energy Plan.pdf&p=DevEx.LB.1,5532.1](http://www.bing.com/cr?IG=EF1A114B915B4F32B60305EA023C8703&CID=182A35A277CE606633C3399D763361E4&rd=1&h=dcoCWpswLbI89WO2VeyvtKXKJC60RfspUv1YX56evvk&v=1&r=http://www.newmarket.ca/LivingHere/Documents/Planning%20Department/Community%20Energy%20Plan/Newmarket%20Community%20Energy%20Plan.pdf&p=DevEx.LB.1,5532.1).

³⁷ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

steps in creating the plan and the second is a brief look at a mentorship that took place between two Nations and the success that the resulted due to the relationship.

B.C. First Nations Clean Energy Toolkit

Sayers, Judith. "B.C. First Nations Clean Energy Toolkit." Kekinesuqs. 2015. Accessed February 20, 2018. <https://www.cleanenergybc.org/wp-content/uploads/2016/04/BC-FN-Toolkit.pdf>.

Under the advisement of the First Nations Clean Energy Working Group this document was develop with the idea of providing a complete step by step process for Indigenous communities to develop a clean energy plan. It is a 120-page document that clearly lays out all steps, including the foundational pillars that are necessary, in completing an energy plan. It is also is developed by Indigenous Peoples, for Indigenous Peoples with the purpose of being implemented through and with Indigenous Peoples. The working group looked at other documents that were available for community usage and recognized that there was a gap in some of the documentation provided. This document was developed with the idea that the gaps must be acknowledged and addressed, including things like financial guidance.

Between T'Sou-ke Nation and Skidegate Band

"TOWARDS FIRST NATIONS ENERGY SELF-SUFFICIENCY: ANALYZING ..." Accessed February 26, 2018. <https://www.bing.com/cr?IG=ACEEA825CD1342EB9BC0BEBD5E5363A0&CID=1B92C0129EBF684F0952CC2D9F4269E0&rd=1&h=-l2V8tB8lpJi7ZJt5N0cXmXyjIC1cgq4ZVF9BgcZlew&v=1&r=https://www.collectionscanada.gc.ca/obj/thesescanada/vol2/002/MR87550.PDF&p=DevEx.LB.1,5038.1>.

This document discusses the relationship between two First Nations in a mentorship fashion for a solar energy plan. It reviews the successes had through looking at both the functionality and productivity of the mentorship and the social aspect of relationship for the two nations. While this document does not focus on the development of a community energy plan, it is important to acknowledge, understand and utilize the notion of a mentorship. A mentorship would be an important step for York Factory First Nation to consider in the development of their CEP as it would allow for the community to have a sounding board for issues and opportunities that arise. It would also provide an opportunity for the potential utilization of already developed documentation, to learn from implementation strengths and weaknesses, for funding tips and for knowledge sharing. While there is no set template that would be used, having a community to fashion a CEP after that has similar values and epistemologies would allow for a more streamlined and successful document development.

Appendix F

Best Practices: Creation^{38 39 40}

Research: Good energy plans and frameworks are guided by comprehensive and thorough research. The more information, the more effective and efficient policy will be.

Purpose: A CEP must begin with a clear purpose and vision that informs and guides goals and policy.

Holistic: A CEP must be complete and holistic in its approach and understanding of environmental and climate issues for long term systemic change, and is active within a range of economic, social, environmental and personal systems. Within energy plan there are many tools, options, and technologies that can be used - it is crucial to explore all options available.

Proactive: Governing bodies must demonstrate early action and be proactive, not reactive in their approach. This means staying abreast of relevant issues and information, while ensuring ongoing communication and collaboration with other plans and organizations.

Engagement with stakeholders:⁴¹ Involving all stakeholders is necessary to create a comprehensive plan – this includes government actors, businesses, communities, and individuals. It is imperative to focus on the ground level by establishing community owned renewable energy organizations, promoting local activities, promoting education and learning, encouraging involvement, demonstrating sustainable living, and building supportive and inclusive communities around these objectives.

Recognizing knowledge and experience limits: Along with undertaking sufficient background research, policy must also be informed by an understanding of a community's limitation in regard to knowledge, experience, and its capacity for action and execution - this will serve as a tool to guide action.

Importance of structured CEP decision making and creation process: If the process of creation and decision making is structured this can lead to a better understanding of responsibility and action, and ultimately a more efficient and effective path. Without structure, the process can become inefficient and cumbersome.

Manage expectations realistically: It is important to manage expectations for multiple reasons: goals and targets must be achievable in order to actually fulfill these objectives, and it is imperative not to discourage and ultimately diminish momentum and effort of organizations and individuals - a critical ingredient in effective CEP's.

Commitment to improvement: The best plans took the issues of climate change and energy security seriously and aimed to consistently achieve objectives. Without a serious commitment a CEP is nothing but a promise.

Revision: Plans must consistently be assessed to their efficacy and revised as needed. In Japan, the government was held accountable to review the BEP at least every 3 years and revise as necessary.

³⁸ Environment and Climate Change Canada. "ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Annex 4: Theme IV." ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Protecting Nature, Goal 5: Wildlife Conservation , Conserving Wildlife. August 08, 2017. Accessed February 28, 2018. <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=D39CB7AC-1>.

³⁹ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy*30, no. 3 (2012): 381-400. doi:10.1068/c10222.

⁴⁰ Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." *Egyptian Journal of Medical Human Genetics*. April 19, 2011. Accessed August 02, 2018. <https://www.sciencedirect.com/science/article/pii/S0301421511002837>.

⁴¹ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

Appendix G

Best Practices: Execution^{42 43 44}

Leadership: Leadership from civic leaders and concerned citizens is a critical component that provides the backbone for any strong energy policy. It is imperative that leadership be non-partisan because real environmental and sustainability commitments go beyond electoral cycles and achieve its long-term objectives. Leaders that have courage and drive, are inspiring and thorough, can have a tremendous impact - the impact of civic and community champions is seldom quantified but cannot be understated.

Clarity and transparency: Cities that are most effective at energy management communicate objectives, goals, and progress clearly and consistently to citizens – this encourages understanding and participation while improving morale among all actors involved. Easily understood strategies and goals make the plan accessible to all – this happens through clear graphs, visuals, and clear dialogue. Transparency is a critical tool for ensuring accountability.

Accountability: The best plans demonstrate accountability to stakeholders through clear communication and transparency, and ensuring the plan pursues and achieves its objectives. The plan is for the community and ultimately will only be successful with their support.

Tracking: It is critical to track energy performance accurately and consistently. Use this data to inform the revision of targets and plans along the way while assessing the efficacy of the plan. This can be difficult as tracking climate data is relatively new and improvements are ongoing. Per capita energy and greenhouse gas indicators are a useful measuring tool in attempting to measure and categorize the community's energy use.

Clarify responsibility: It is necessary to clearly define roles and obligations of all key actors and stakeholders to best enable activities within the actors and communities of the CEP. Lack of clarification in this manner can be a tremendous barrier to plan effectiveness.

Education and inclusivity: Effort must be made towards developing an understanding among all stakeholders - citizens, politicians and investors. Not only do people have the right to be informed and to understand, this can lead to further community support and give the CEP more acting power. This can be done through inclusive communication and educational programs and workshops

Networking: It is critical to build networks, partnerships and broad-based coalitions with other groups and organizations – partnering groups can inspire, encourage, support and enable action, and increase CEP effectiveness. A strong CEP focuses on building within the objectives of the plan and beyond, with resourceful actors and stakeholders to reach a wider audience. It is also critical to understand the jurisdiction of other plans.

⁴² Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

⁴³ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy* 30, no. 3 (2012): 381-400. doi:10.1068/c10222.

⁴⁴ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

Appendix H

Best Practices: Focus Areas for CEP's⁴⁵

World class energy efficiency and technology: Explore all of your available options to utilize energy and reduce waste.

Integrated energy approach: exploring more efficient ways of heating, cooling, electricity and gas. Widespread integrated district systems are more environmentally sound efficient, cost effective, while allowing for flexible means of addressing energy needs.

Energy flexibility: Within the transition to a lower fossil fuel economy we need flexibility amongst primary energy sources such as coal, gas and oil, along with renewables such as solar, biomass, biogas, municipal waste, wind, and solar. Many CEP's are focusing on multi-fuel strategies with a transition to more efficient energy sources as the goal.

Urban design:⁴⁶ Urban environments have substantial energy demands and environmental impacts - the way we structure and organize these environments can have a tremendous impact on energy usage and the goal of sustainable development. Strategies such as low-energy transport, densification, green buildings, and sustainable urban design are critical to addressing larger energy issues.

Taking Action

CEP's can be structured in different ways in regard to how they can facilitate and enable action. Amongst various CEP's, there are different frameworks that will provide different breakdowns as to how actions will be utilized. The HRM's plan broke actions down to Corporate and Community realms. As mentioned in best practices it is critical to clarify responsibilities of all actors and stakeholder groups, clearly communicate CEP objectives and goals, clearly communicate methods and processes of action, estimated time for completion, and financial implications.⁴⁷

⁴⁵ Community Energy Planning - Best Practices." BC Hydro - Power Smart. June 9, 2009. Accessed February 26, 2018.

https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/power_smart/sustainable_communities/global_best_practices_model.pdf.

⁴⁶ Environment and Climate Change Canada. "ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Annex 4: Theme IV." ARCHIVED - Environment and Climate Change Canada - Sustainable Development - Protecting Nature, Goal 5: Wildlife Conservation, Conserving Wildlife. August 08, 2017. Accessed February 28, 2018. <https://www.ec.gc.ca/dd-sd/default.asp?lang=En&n=D39CB7AC-1>.

⁴⁷ Faribault, E. R. "Province of Nova Scotia, Halifax County (City of Halifax Sheet, No. 68)." 2016. doi:10.4095/107885

Appendix I

Challenges

Difficulty in achieving targets: Feasibility is always an issue – it's easy to develop an ambitious plan but there is often a disconnect between aspirations and actual implementation. There are many factors that make achieving energy targets difficult and unpredictable.

Economic factors: The global economy, local markets, and corporate pressure manifest in powerful economic limitations to implementation. There is also the trend of diminishing returns in regard to sustainability and efficiency measures - typically, the easiest gains have already been made. In a profit driven world, corporations will primarily make decision that make the most sense financially, disregarding larger sustainability, environmental and general objectives of well-being.

Sources of Energy: New energy sources can be difficult to access, expensive and require substantial up-front investment, require specific infrastructure and technology, and unreliable in regard to meeting existing energy requirements. The process of transition can be difficult as the capacity to efficiently utilize new energy sources often does not presently exist.

Support: Support for CEP objectives can be difficult to gain from stakeholders. Unfortunately, reservations within industry stakeholders carry considerable weight - this support is crucial for results. Community stakeholders are even more critical - unfortunately, getting people involved can be challenging, and it can be a struggle to attract interest and maintain momentum, develop the group, manage the group dynamic, while building and fostering relationships and connections with other groups and actors. Additionally, resources involved in stakeholder engagement such as time and money can be limiting.⁴⁸

Cooperation: CEP implementation can be difficult without stakeholder cooperation. If a plan is too substantial, the industry will not cooperate willingly. If the community is not properly consulted, they will be reluctant to engage.⁴⁹ As such, transparency, accountability, and well-informed policy will be key tools to cultivate strong relationships.

Policy: Existing structures of governance and policy can slow and even prevent the inaction of CEP Policy. Policy can become cumbersome and difficult to navigate, discourage progress, render CEP development and implementation inefficient and ineffective, and create a direct barrier to action. Ultimately, many policies are flawed - misplacing their focus and efforts. Often, policy focuses on technological aspects of socio technical transitions at the expense of the social movement - missing an opportunity to meaningfully address issues from the root, instead pursuing shallow, reactive attempts at solving issues.⁵⁰

⁴⁸ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy*30, no. 3 (2012): 381-400. doi:10.1068/c10222.

⁴⁹ Duffield, J. S., and B. Woodall. "Japan's New Basic Energy Plan." *Egyptian Journal of Medical Human Genetics*. April 19, 2011. Accessed August 02, 2018. <https://www.sciencedirect.com/science/article/pii/S0301421511002837>.

⁵⁰ Seyfang, Gill, and Alex Haxeltine. "Growing Grassroots Innovations: Exploring the Role of Community-Based Initiatives in Governing Sustainable Energy Transitions." *Environment and Planning C: Government and Policy*30, no. 3 (2012): 381-400. doi:10.1068/c10222.