Leading the Way to Sustainability: A First Nation’s Case Study in Self-Sufficiency

by

Kimberleigh C. Schultz

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Royal Roads University
Victoria, British Columbia, Canada

Supervisor: Dr. Magdalena Smolewski
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COMMITTEE APPROVAL

The members of Kimberleigh Schultz’s Thesis Committee certify that they have read the thesis titled Leading the Way to Sustainability: A First Nation’s Case Study in Self-Sufficiency and recommend that it be accepted as fulfilling the thesis requirements for the Degree of Master of Arts in Environment and Management.

Dr. Magdalena Smolewski [signature on file]
Dr. Leslie King [signature on file]

Final approval and acceptance of this thesis is contingent upon submission of the final copy of the thesis to Royal Roads University. The thesis supervisor confirms to have read this thesis and recommends that it be accepted as fulfilling the thesis requirements:

Dr. Magdalena Smolewski [signature on file]
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Alderville is a First Nation community in southern Ontario, Canada. Recently, Alderville First Nation has emerged as a leader in clean energy. Guided by a shared community interest, Alderville has undertaken a large solar project, which is entirely owned by the community. The successful outcomes of the project to date has meant that Alderville First Nation is now positioned not only to expand their project, but also to consult with other First Nation communities regarding their own efforts to move towards sustainability.

This research paper explores the movement towards sustainable community development in the First Nation community of Alderville, using a case study approach to answer questions about the ways in which these types of projects support capacity building and promote self-sufficiency in First Nations Communities. It was guided entirely by Alderville First Nation and showcases the contributions of Alderville in the field of sustainable community development.

The resulting document includes a culturally relevant case study of Alderville First Nation’s solar farm that can be used to further support their own advocacy work and any work they undertake with other communities interested in moving towards similar sustainable development, as well as to provide evidence-based justification of positive outcomes that can be used to entice future investment in First Nations clean energy and other sustainable development projects.

The research also shows that self-sufficiency for First Nations communities can be supported by appropriate investments in culturally relevant sustainable development models like clean energy social enterprises. The research also identified opportunities for better policy alignment to support First Nations and other Indigenous communities as they undertake sustainable community development approaches that are grounded in renewable energy.
A First Nation’s case study in self-sufficiency

Contents

Creative Commons Statement ........................................................................................................ 3
Abstract ........................................................................................................................................ 4
Acknowledgements ..................................................................................................................... 6
Introduction ................................................................................................................................... 7
Purpose, significance and contribution to advancement of knowledge ...................................... 8
Sustainable Development in Indigenous Communities ..................................................................... 9
  Reconciling ecological, social and economic imperatives ......................................................... 11
  Market-based capitalist economies .......................................................................................... 12
  Indigenous economies ............................................................................................................. 14
  Social economy ...................................................................................................................... 16
  Reconciliation ......................................................................................................................... 18
Methodology ................................................................................................................................ 23
  Case study, observation, documentation and analysis .............................................................. 23
  Indigeneity, ethics and ownership in the research framework .................................................. 24
  Process ..................................................................................................................................... 27
  Establishing validity.................................................................................................................. 30
  Discussion of biases and assumptions: ..................................................................................... 32
Findings: Case study of Alderville First Nation’s solar farm ....................................................... 34
  Alderville First Nation and political context ............................................................................ 34
  Feed-in Tariff Program ............................................................................................................. 36
  Alderville Solar Project .............................................................................................................. 37
    Nbwaakaawin (Wisdom) ....................................................................................................... 38
    Zaagidwin (Love) ................................................................................................................... 39
    Mnaadendamowin (Respect) ................................................................................................ 41
    Aakdehwin (Bravery) ............................................................................................................ 43
    Gwekwaadziwin (Honesty) ................................................................................................... 45
    Dbadendizwin (Humility) ...................................................................................................... 46
    Debwewin (Truth) ............................................................................................................... 49
Findings, discussion and recommendations .................................................................................. 51
References ...................................................................................................................................... 56
Appendix A: research tools ........................................................................................................... 62
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“We live in an era of postmodern imperialism and manipulations by shape-shifting colonial powers; the instruments of domination are evolving and inventing new methods to erase Indigenous histories and senses of place.”

- Taiaiake Alfred and Jeff Corntassel

"If you have come here to help me, you are wasting your time. If you have come here because your liberation is bound up with mine, then let us work together."

- Aboriginal activists group, Queensland, 1970s, Lilla Watson, Indigenous Murri Elder
A First Nation’s case study in self-sufficiency

Introduction

This research project focuses on a case study of Alderville First Nation’s solar farm. It seeks to answer questions about the ways in which renewable energy projects can facilitate self-sufficiency in Indigenous communities. The research findings show that Alderville First Nation used culturally relevant principles to guide their solar project, which advanced the community’s self-sufficiency within social, economic and ecological spheres. It also provides a community-based narrative of the many successes and challenges of their Solar Farm, which other communities can ideally use to inform a model to guide similar endeavours.

In recent years, many First Nations communities across Canada have asserted themselves as leaders in sustainable development through the implementation of clean energy projects (Henderson, 2013). As clean energy projects represent an opportunity for productive investment in Indigenous communities, this phenomenon has caught the attention of provincial governments (Province of British Columbia, 2013) and leaders in energy within the private sector (Henderson, 2013); however, the move towards sustainable development among some First Nations communities through clean energy is not well documented in academic literature at this time.

Alderville is a First Nation community situated on the south side of Rice Lake in the township of Alnwick/Haldimand in the central Ontario county of Northumberland. It is approximately 30 kilometers north of Coburg and across Rice Lake from Nogojiwanong, now settled as the City of Peterborough. Within the last few years, Alderville First Nation has emerged as a leader in clean energy and sustainable community development in Ontario through the development and implementation of a 5-megawatt 23,000 panel solar farm owned entirely by the First Nation. On May, 2016 Aderville First Nation was awarded with the Canadian Solar
A First Nation’s case study in self-sufficiency industries Association’s 2016 Game Changer award for their innovative work, which some described simply as “harvesting the sunlight.” This researched followed the Alderville solar project to explore the question: in what ways can clean energy projects facilitate the advancement of self-sufficiency and promote sustainable community development in First Nations communities in Canada? It goes on to identify wise practices and Indigenous approaches that support capacity building and promote sustainability in First Nations communities, with the goal of demonstrating that the Alderville model is transferable to other First Nations.

Purpose, significance and contribution to advancement of knowledge

In addition to raising the profile of First Nations’ contributions in the field of sustainable, environmentally responsible community development in academic discourse, this research is intended to have utility for the participating community. The final product of this research represents practical, useful knowledge generated in a format that Alderville First Nation can use to support their own work around advocacy and expansion, as well as in any work they chose to undertake in consulting and advising other communities interested in moving towards self-sufficiency. The resulting document serves to provide a culturally relevant project management based review of clean energy projects to facilitate future development opportunities in Indigenous communities. Furthermore, this study also identifies links between traditional, generational Indigenous worldviews and sustainability practices.

The following pages will provide context for the case study with Alderville First Nation by providing an overview of the literature that is available in relation to clean energy projects and First Nation’s self-sufficiency. I have then outlined the research approach and methodology I used to work with Alderville as we developed this paper. The results of the case study have been
A First Nation’s case study in self-sufficiency

framed in the context of the Seven Grand Father teachings to be culturally appropriate and culturally relevant to the community. The paper then concludes with overarching policy recommendations based on the findings from the case study and literature review.

**Sustainable Development in Indigenous Communities**

Based on the lessons learned from Alderville, this chapter aims to provide context and wise practices related to the kind of systems that have the potential to support sustainable development in Indigenous communities in Canada. This section explores the relationship between Indigenous economic systems and the prevailing capitalist market-based economy in Canada—a system that arguably can be seen as unsustainable in its current form as it is largely driven by production and overconsumption, often at the expense of the environment and society as a whole. Sustainable development, on the other hand, requires the reconciliation of social, ecological, and economic imperatives (Dale & Sparkes, 2010; Robinson & Tinker, 1997). The Alderville Solar examples demonstrates that a social enterprise model is one way in which these imperatives can be successfully satisfied, and which would be well supported within an Indigenous context.

Social enterprises sit within social economy models and are more in keeping with Indigenous economic systems, which make them a potentially more attractive option for Indigenous communities and organizations seeking to engage in economic development activities but hesitant to participate in some mainstream markets (such as those primarily based on the exploitation of natural resources in their traditional territories). Alderville Solar is an excellent example of how this social enterprise model can be applied in a real world situation. Alderville First Nation chose to invest in a clean energy project, partly because it was more
consistent with their culture and values, and they did so with the intention of reinvesting revenue generated from the farm into the community to create opportunities to self-fund future community-based initiatives. Alderville First Nation also determined that revenue generated from Alderville Solar, Inc. will be used to allow the First Nation to self-fund other community-based projects and initiatives. Based on these characteristics, Alderville First Nations solar company, Alderville Solar, Inc., could be defined as a type of social enterprise. Social enterprise is business with a greater social agenda than to generate a profit within a specific, socially-minded framework, which may include the intent to reinvest future revenue back into the socially-minded business to fund their continued activities or back into the community to support a critical need. Social Enterprise can be further described as “a business model that operates to achieve a blend of social/ environmental/ cultural goals along with financial goals often referred to as achieving a ‘blended value’” (OFIFC, 2015, p.1). In the case of Alderville First Nation, the solar project created training and employment opportunities, and the future revenues can be used to self-fund any number of small businesses and other initiatives that are important to the community. It also has the public benefit of adding another supplier of sustainable clean energy into the power grid, helping to ease reliance on less sustainable methods of generating power.

This type of revenue-generating economic development further represents a return to self-sufficiency as the First Nation can determine where and how to invest the income earned without any restrictions beyond those they chose to impose on themselves. Similarly, it also represents a return to a more Indigenous governance model as accountability for the revenue is owed to the community and not to a municipal, provincial, or federal government. When combined, these elements suggest that clean-energy based social enterprises facilitate economic
A First Nation’s case study in self-sufficiency and social self-sufficiency in First Nations communities, and that this process could be replicated more easily in the future by improved access to a social economy that is supported by all levels of government and the private sector.

Reconciling ecological, social and economic imperatives

Balancing ecological, economic and social interests presents a challenge for sustainable development (Dale, 2001; Robinson & Tinker, 1997). The issue of development is global in scope due to exceeding the potential for global carrying capacity, and will continue to worsen if developing nations follow industrialized countries’ current rates of consumption (Wackernagel & Rees, 1996). The world has seen rapid economic change due to the evolution of market driven economies on a global scale, but such widespread systems have the power to affect even the smallest communities (Robinson et al., 1997). A lack of central planning combined with ever increasing rates of production and consumption occurring in developed and developing nations has resulted in increasing economic interdependence between nations, a reduction in economic sovereignty on a global scale, and growing disparities between the rich and the poor (Robinson et al., 1997). In order for development to occur more sustainably, economic progress must be integrated with social and cultural imperatives and ecological capacity; reconciliation of these elements is necessary to ensure that there will be resources left for future generations (Dale & Sparkes, 2010). Unfortunately, social and ecological interests often take a back seat in market-based capitalist economies like Canada’s. While this can have negative consequences for society in general, it has additional harm for marginalized groups like Indigenous people. Interestingly, Alderville First Nation’s community-based development model holds valuable lessons for the broader society in terms of sustainable development.
Market-based capitalist economies

Canada’s natural resources remain its primary source of goods and services, but reliance on natural resource capital is not sustainable (Field & Olewiler, 2011). Current rates of industrialization, production, and consumption among developed nations come close to or already exceed the biophysical carrying capacity of the earth. Based on the rate productivity and renewability of lands, waters and regions, the earth has a finite carrying capacity to support human activities, and this is particularly true when considering the high levels of production and consumption in industrialized nations like the United States and Canada (Wackernagel & Rees, 1994). While Canada’s economy is not exclusively market driven, much of it is—and market-based capitalist economies are driven primarily by the production and consumption of goods (Rabbior, 2014). Unfortunately, the desire to maximize profits and the need to remain competitive results in pricing structures that are not representative of all the negative environmental and social costs associated with this type of production.

Many market-driven activities are at least to some extent undertaken at the expense of society who must, in general, bare the external (also called social) costs associated with this type of economic system. These costs to society are described by economists as negative externalities (Field et al, 2011). Pollution and resource depletion are examples of externalities that are not typically fully accounted for in production costs and consumer pricing structures because those responsible for producing them are often not required to consider the impacts to the full extent (Field et al., 2011). As an example, while the amount of greenhouse gases (GHG) a producer in Canada may emit might be subject to some legal restriction, there is still an appreciable amount of emissions that are considered allowable (meaning the acceptable amount of emissions will still be a number greater than zero, and producers are not currently required to abate emissions to
zero). In Ontario, there is currently no limit on GHG emissions, although as of May, 2016 producers are required to report if their activity (or activities) release 10,000 tonnes or more of greenhouse gases (*O. Reg. 143/16*). This new law is in preparation for the 2017 implementation of Ontario’s cap and trade program, which is expected to limit the amount of allowable emissions to 10,000 tonnes and will require those exceeding the limit to trade for credits from those who emit less than the allowable amount. However, even with programs like this there is always a certain amount of greenhouse gases that can be emitted without any financial repercussions for the companies that are releasing them. Instead, these emissions are negative externalities, creating social costs that manifest in society in many ways, including negative impacts on health and potentially irreparable harm to the environment. In this way, market-based development is unsustainable and yet it continues on a global scale where, in addition to environmental harm, it leads to increasing levels of absolute poverty and income disparity, and results in social instability and cultural erosion (Robinson et al., 1997).

The emphasis of capitalist market-based systems is on private, individual gain with minimal consideration given to the costs to society and the impact on future generations. It is no surprise that modern societies in general are becoming less cohesive. Robinson et al. (1997) observe:

Societal and cultural dislocation, fueled by the globalization of communication, is endangering the existence of many small cultures (especially those of indigenous peoples) and may threaten the health and integrity of many more; even cultures that feel invulnerable are experiencing a decline in sense of community. (p.11)
These marginalizing effects are no less present in Canada, where they likely exacerbate an already existing socioeconomic gap between Indigenous and non-Indigenous people, and where they are also inherently at odds with Indigenous economic systems.

**Indigenous economies**

Not unlike the current market system, economic systems of Indigenous communities were, and are often still, based upon tenets of trade, and they hold the potential for competition between nations within an open market. Their key differences from the prevailing capitalist market-based system is that Indigenous economic systems were (and still are) grounded in reciprocity, and are structured to advance the survivability of the community and promote more equitable distribution of wealth (Henderson, 2013; OFIFC, 2015). This is in opposition to capitalist market economies, which have a tendency to be less equitable in that they are structured to result in a wealth that is often concentrated privately and among relatively few individuals.

Indigenous economies also differ in that there is an expectation of accountability to the community as a whole, which begins with consultation and planning in matters that will impact the community and then continues throughout the entirety of the economic cycle. Despite operating in direct contrast to the dominant capitalist system, Indigenous economic systems continue to function successfully in many communities throughout Canada. As Chris Henderson (2013) notes, “Sharing is deeply rooted in Indigenous tradition. Families share supplies in hard times. Community feasts and potlatches for all” (p. 174). Communal hunting and gathering
practices, ceremonial giveaways\(^1\) and potlatching are all examples of how Indigenous economic systems continue, as they have always done, to redistribute wealth within the community. In this sense, profitability is not measured in material gains but in reciprocal relationships to land and community, manifesting as more balanced ecosystems and holistic, reciprocal exchanges.

Modern capitalist market-based systems, which tend to emphasize private gain, can be viewed as being inherently at odds with Indigenous worldviews and may at times discourage Indigenous participation (OFIFC, 2015). Further, a lack of understanding about the nature and complexity of Indigenous economic systems has lead the dominant western culture to often incorrectly perceive these systems as less formal and as having fewer mechanisms for accountability, which has created a challenge to First Nations-based economic development. As will be noted in the Alderville Solar case study, this confusion can further exacerbated by the lack of basic knowledge about the nature of First Nations assets in the business and financial sector, particularly in relation to property and reserve lands, but also inexperience in working with First Nations in general.

The desire to see generated economic wealth returned into the community—along with the emphasis on the importance of maintaining the environmental integrity of traditional territories to support the right to harvesting, hunting, and gathering wild foods, which remain a cornerstone of traditional First Nations economies to this day—embodies both social and cultural attributes that generate communal wealth and contradict non-Indigenous notions of profitability. The intangible monetary value of goods and services rendered through culture, environmental sustainability, and other traditional activities, as well as the importance of the relationship to the

\(^1\) According to legend, Nanaboozhoo was the first Anishinaabe to hold a giveaway. Giveaways are extended to communities and can be food, gifts or sometimes both. See imbedded in-text link or go to http://anishinaabemodaa.com/lessons?lesson_id=96 for an example.
lands and waters in traditional territories, have also made it more difficult for many First Nations communities to actively and fully participate in the broader Canadian economy in a culturally meaningful way. First Nations people must often leave their home communities to seek out educational and employment opportunities in larger, more developed settings. Accordingly, many First Nations people experience lower levels of employment, educational attainment, and socioeconomic status relative to non-Indigenous people (Statistics Canada, 2006 Census). In an effort to address these widening socioeconomic gaps, some First Nations are turning to extractive industries to bring much needed employment and training opportunities into their communities (Klein, 2014). However, some First Nations, Alderville included, are turning instead to social enterprise business models as they allow First Nations and other Indigenous communities and organizations to target these persistent inequalities while building a more sustainable economic system without compromising the environment. If supported more broadly, these development models will benefit not only Indigenous communities, but Canadian society as a whole. However, social enterprises work best when supported within the broader context of a strong social economy.

Social economy

The term social economy encompasses a broad range of social activities and strategies that harness market mechanisms for public benefit. Social economy is grounded in the understanding that social and economic forces can be reconciled within a market economy framework to create a distinct social value, and this can form the basis for more sustainable community development (OFIFC, 2015). According to Michael Edwards (2009), organizations that participate in the social economy “accept less profit to do more good” using innovative tools and drawing on ideas
from a variety of other sectors (p. 35). Cooperatives, not-for-profit organizations, social enterprises, some larger scale clean energy projects, and other socially responsible business models are all examples of how market mechanisms can be harnessed towards the creation of a public good. These types of businesses can generate profits that are then reinvested into providing services to meet a need in the broader community, whether it be in the form of social services or environmentally friendly, sustainable renewable energy.

A social economy model is predicated on the idea that a significant portion of income should still come from earned revenue, as opposed to sources like charitable donations or large public and private grants, making it congruent with for-profit business models. The critical difference is what happens to the profit once it is generated. Social economies see the revenues reinvested to meet a social need and “the nature of the social economy, also referred to as the solidarity economy, is of reciprocity and community” (OFIFC, 2015, p.10). This practice of generating income to benefit the community lends itself well to First Nations communities, particularly in cases where the community currently relies more heavily on government funding.

There are significant opportunities for First Nations communities to develop approaches to internally generate earned income through clean energy projects that also provide a public benefit. Many Indigenous communities and organizations have already done so through the development of clean energy projects (Henderson, 2013), and Alderville Solar is an excellent example of just how successful this model can be. Social enterprises, social innovation, and community-based and driven economic development models are representative of strategies that embody a broad range of social activities that have the potential to harness market mechanisms and create a public benefit. Ideas that inform the development of a social economy lay
somewhere in between the not-for-profit and the for-profit domain and are equally premised on a notion that social and economic imperatives can and must be reconciled within a market-based framework. Implicit in the notion of the social economy is that the current economy has fundamentally failed to address persistent inequities in the free market. The disequilibrium has exacerbated the ever-widening gap between marginalized groups like racialized and First Nations people and the rest of society.

Reconciliation

Attempts to draw First Nations communities into capitalist markets, particularly those associated with resource development, have not always been successful, and this has been especially true when they are positioned in the context of promoting sustainable community development. While many First Nations communities in Ontario are currently involved in mining and other extractive industries, there are a number of First Nation communities that are simultaneously actively protesting development of this kind on their lands and raising concerns about negative social and environmental impacts that have resulted from these practices (McKie, 2013). By contrast, participation in the social economy through the clean energy sector has helped many Indigenous communities move towards a more sustainable future (Henderson, 2013). Clean energy initiatives are more in keeping with the historical and traditional roles related to environmental stewardship and reciprocity held by many Indigenous cultures as they focus on working with the natural world in a sustainable way. Further, it supports the link between economic development and ecological stability, representing a move towards reconciling the three imperatives, specifically, ecological, social, and economic considerations. It also employs a place-based approach, which is significant because “place-based approaches
address social, environment or economic issues and thus offer the promise of operationalizing sustainable development principles” (Policy Research Initiative, 2010, p.7). The clean energy sector represents development for a public good and advances a social economy.

In terms of community-based economic development, this represents a continuous trend towards a bottom-up approach or grass roots approach to socioeconomic development in that it is mainly driven by specific interests to the community (as is true the case of Alderville First Nation), including the need for job creation and economic self-sufficiency, which can be extended to meet an anticipated need for affordable, reliable, and environmentally responsible energy at some point in the future. According to the Canada’s Policy Research Initiative publication Sustainable Places (2010), community-based economic development practices can assist individual communities in developing and implementing their own solutions to economic problems while building community capacity over the longer term and fostering the integration of economic, social, and environmental objectives. They further note that community-based economic development inherently prioritizes a holistic approach to development. These models tend to be committed both to business development and employability, as well as to job creation and the social integration of excluded people. It is not surprising that many First Nations and other Indigenous communities are more comfortable with development that is focused in this way.

Social economy is not a new concept for Indigenous peoples, who have consistently strived to find sustainable options for their communities while looking for alternative ways of surviving based on an evolving relationship to an increasingly developed landscape. Unlike traditional modes of economic development, the modern iteration of an Indigenous social
A First Nation’s case study in self-sufficiency

economy must explicitly aim to not only recognize the importance of a community’s total asset, which goes beyond human capital to include culture and the relationship to land, but also how to leverage these resources for the production of social, public goods. As Amyot, Downing, and Tremblay (2010) observe, “social economy is not the goal, but rather it is a single tool among many others to achieve a more democratic society” (p. 35). The Ontario Federation of Indigenous FriendshipCentres further describes social economy as an alternative framework that Indigenous communities can use to become self-sufficient and sustainable.

Bolstering a social economy presence and activities either through capacity development or the creation and operation of a social enterprise are ways that . . . [Indigenous] community-driven organisations can continue to help meet the needs of their community while also progressing towards self-sufficiency. (2015, p.15)

Social economy represents another opportunity to address multifaceted “wicked” social problems, including environmental degradation and widening socioeconomic gaps between First Nations people and non-Indigenous Canadians, while simultaneously generating a public good. This type of economic practice is particularly important in the case of First Nations people as the government is continually failing in its obligations to more marginalized citizenry in general, and Indigenous peoples in particular.

Indigenous societies have embodied a traditional sense of economy based on principles of shared value, respect, trust, and reciprocity. In the context of today’s Indigenous experience, it is fair to say any and all factors contributing to a social economy must not only continue to build on traditional ways of practice but must also aim to reclaim traditional principles of Indigenous economy. With this in mind, the social economy must actively seek to build upon Traditional
Knowledge as means to realize self-determination in First Nations communities and in an Indigenous context more broadly. Galloway and McLean (2010) note that Traditional Knowledge offers potential opportunities “to help modern society address significant challenges such as those that arise from climate change” and to find “new pathways for sustainable development for poor indigenous and local communities” (p. 12). Indeed, Traditional Knowledge played a critical role in the early planning and development of the solar project undertaken by Alderville First Nation.

In recent years, many First Nations communities have become more interested in social economy and social enterprise initiatives that prioritize earned revenue streams. In large part this trend is driven by the potential for decreasing or inadequate federal funding and a desire to be more self-reliant. This has compelled many First Nations communities to find alternative ways to deliver on the social obligations they have to their members while moving toward greater self-sufficiency without compromising their culture and values. The journey, however, has not been without its challenges.

Unfortunately, there has long been difficulty in holding governments accountable for upholding their responsibilities to First Nations and other Indigenous peoples. The federal government provides some funding to recognized First Nations Reserve communities and their status membership; however, federal funding is occasionally inconsistent between First Nations communities and often comes with complicated agreements and restrictions that make it difficult for First Nations communities to self-determine where and how to invest the money. More broadly, funding does not flow to every recognized Indigenous group nor is the funding always adequate for those who do receive it. Status First Nations people living off reserve, non-status
First Nation people, and Métis, and Inuit communities are often caught between municipal, provincial, and federal governments who do not want to provide or match supports, funding, and services available for people living in First Nations Reserve communities, despite overwhelming socioeconomic gaps present among all of these peoples. As a result, First Nations and other Indigenous communities across the country are seeking ways to address these issues for their membership, including increasing participation in the social economy through an emerging, service oriented non-profit sector, social enterprises, communal harvesting practices to address food security (especially in rural and remote communities), a burgeoning cultural tourism industry, and growing involvement the clean energy sector. These operations are sometimes able to secure federal and/or provincial funding, however, in recent years, this type of public financing has become elusive as governments across all sectors of society have slashed social spending, ostensibly in an effort to eradicate deficits.

The frequently changing political climate and occasional ill-informed public backlashes against spending on First Nations and other Indigenous peoples cast a shadow of doubt on the continuance of current funding arrangements in perpetuity for First Nations and other Indigenous communities, despite the fact in many cases they stem from obligations to Indigenous people under the treaties and in the constitution. For this, and many other reasons First Nations and other Indigenous communities are seeking alternative mechanisms to becoming more self-sustainable.
Methodology

Case study, observation, documentation and analysis

Case study methods have been criticized for not moving beyond the descriptive and into the realm of utility (Corcoran, Walker, & Wals, 2004). In order to address this concern, one of the goals of this research was to help facilitate the community’s progress, both in terms of future expansion of their existing project and opportunities for undertaking new initiatives. Other goals were to assist in Alderville’s support of other Indigenous communities choosing to undertake economic development of a similar nature and also to identify a model that will not only help with replication but also provide a foundation to attract external investors.

While Alderville quickly enjoyed significant success from their solar project, they did not have a document that outlined the challenges that they overcame and the lessons that they learned. A case study approach is helpful when answering questions about how and why (Baxter & Jack, 2013, p. 545) the project in Alderville has been so successful. The final product of this applied research project is a culturally appropriate case study of Alderville First Nation’s solar project that is guided by their community vision and honours the Seven Grandfathers teachings. This study used Participatory Action Research (PAR), which is an inclusive method for conducting qualitative research (MacDonald, 2012) where the community has input into the development and direction of the research content and an interest in the outcome. For the purposes of this research project, I have expanded on the definition of action research developed by Gillis and Jackson (2002) to include \textit{community directed participation} in the “systematic collection and analysis of data for the purpose of taking action and making change” (p. 264). The final product is intended to support Alderville First Nation in their work with partners and
with other communities. Further, by applying the PAR approach, this study supports community-based and community-driven research and provides evidence-based justification of positive outcomes that can be used to entice future investment in First Nations’ clean energy and other sustainable development projects and initiatives. In addition, the final document is reflective of the fact that the participants and the community of Alderville are partners in, and authors of, the research and are the experts on the research subject. It was also hoped that this inclusionary approach would help to ensure that the research is useful for the community.

Indigeneity, ethics and ownership in the research framework

The Royal Roads University Research Ethics Policy and review process was in place to protect the rights of people participating in the research. An ethics review of the proposed research took place before the project officially began. However, part of the ethics review included an overview of proposed research tools, such as the survey (see appendix). As I wanted the research approach to be co-developed with the community, I did informally engage in relationship building with Alderville First Nation prior to the formal research process beginning. Part of the engagement process included a review of the proposed draft research tools required by the ethics review. Although the university is aware and accepting of the need for Indigenous people and communities to retain ownership of the research products they are involved in, I believe additional guiding principles are needed to ensure that research involving Indigenous people is representative of a partnership. Specifically, I wanted to ensure that this research was inclusive, respectful, culturally appropriate, reflective of Indigenous knowledge and that ownership of the material and intellectual property within it remains with the Indigenous partners. Early in the research process I provided two models, outlined below, as examples of
approaches that could be used and that my supervisory committee and I agreed would satisfy our additional ethical concerns and guidelines. Ultimately, I determined that the approaches were not necessarily incompatible and that they could be applied congruently; therefore, with direction from the community regarding what guidelines that they wanted to have in place, I applied elements of both approaches as was deemed appropriate.

**Approach one.** The research adheres to the principles of ownership, control, access and possession (OCAP) as outlined by the National Aboriginal Health Organization. In this case, the descriptions of the principles (Schnarch, 2004) were applied to the research in the following way:

- **Ownership,** which refers to the collective ownership of knowledge, information and data used in research, by extension, shall apply to the research itself. All digital and hardcopy materials provided by Alderville First Nation were returned to the community after the research project.

- **Control,** which relates to the right to control research and information management processes, will be upheld by ensuring community participation and approval in the design and development of the research project at every stage, as well as ongoing involvement in the review and analysis of data collected. The community will be added as a copyright holder and will make the determination about whether to allow publication.

- **Access,** which states the importance of ability to access to data and information about themselves, will mean that, in addition to ownership of the research project, copies of the final project will be provided to the community.
Possession, in this case of data, will mean that the community will retain original data collected for the purpose of the project at the time the research is concluded, with the exception of interview notes based on responses that were collected anonymously.

**Approach two.** The research still followed the principles outlined in the Utility Self-voicing Access Inter-relationality (USAI) Research Framework developed by the Ontario Federation of Indigenous Friendship Centres (2012) specifically for Indigenous community-driven research to the degree that it was possible to do so. In this case, the guiding principles were as follows:

- **Utility,** which ensures that the research topic is useful, appropriate, and of benefit to the community.
- **Self-voicing,** in recognition of the fact that the communities are the knowledge holders and ensuring that it is their voices that are reflected in the writing and documentation.
- **Access,** to ensure that the research is a living process that is respectful of the many types of knowledge, experiences, and practices, and that these forms are accessible by all.
- **Inter-relationality,** to ensure that the context in which the research is situated is recognized.

While the research did not adhere to USAI as it was not initiated by the community, it adhered to the governing principles in every way possible. The current guidelines developed by Royal Roads University do not allow for Alderville First Nation to be listed as an author, however the First Nation will be added to the copyright. This is also consistent with the Ownership component of OCAP. Currently the academic climate is one that favours the recognition of a single author perspective in graduate research, although it is my perspective that this paper shares authorship with Alderville First Nation. I hope that the success of this research paper will
help create the case for changing policies to allow appropriate recognition of Indigenous approaches to and in academic work.

Process

In order to provide context, a literature review was completed to identify, define and expand key concepts, terms and themes related to the research project. Before the research project could formally begin, I also needed time to build an initial relationship with the Alderville community. My initial introduction to Chief Marsden, Chief of Alderville First Nation was by email and was facilitated through a shared contact. The Chief eventually agreed to meet with me in November 2015 to discuss the possibility of a research project based on Alderville First Nation’s solar project. After approximately four months of relationship building and site visits I was able to present the proposed research project to Chief and Council. While completing the literature review of the existing information and academic discourse on Indigenous culture and participation in the energy sector, I also worked with Chief and Council to finalize research tools, including sample questions. After some discussion with Chief and Council, the proposed research project received official approval to go ahead in February 2016 and I was then able to submit the draft research tools Alderville First Nation had approved as part of my submission to the Ethics Review Committee at Royal Roads University.

I initially worked with the Chief to identify stakeholders, such as the contractors and project leaders hired by Alderville First Nation, business partners, as well as interested community members and academics who were involved in the solar project. Throughout May and June 2016 I gathered information through a series of interviews in person and/or over the phone, as well as by email, to gain insight into participants’ observations, thoughts, opinions, and
perspectives, and to determine the direction of the research in terms of desired outcomes. I also received recommendations to reach out to other contacts while conducting interviews, and in consultation with existing community representatives, they were invited to participate. It was hoped that a variety of different individuals would be identified through appropriate networking, and that they would be interested in participating. This proved to be the case, and I was able to involve a cross-section of individuals involved or impacted by the solar farm—community members, traditional people, Elders, First Nation employees, external employees and consultants, and other interested parties—who were ultimately able to provide a wide variety and diversity of social and cultural variables and perspectives critical to the research.

Participant interviews were semi-structured with open-ended questions. Questions related to the participant’s social background, including their history with the community and their connection to Alderville First Nation were posed. The interviews also focused on: the content, context, and interactional dynamics of cultural beliefs about the local cultural relationship with the environment; the perception of the clean energy projects and related development; involvement in the solar farm; perceived changes in community wellness; and sought other comments, thoughts, and information that the participants deemed relevant to the conversation. I made several visits to Alderville to conduct a mix of in person interviews, and I also conducted telephone interviews and engaged in correspondence by email. In the initial research proposal, I had noted an intention to distribute surveys, which would have covered similar topics but designed to include more pointed questions with the hope of generating a focused response from a broader number of respondents. However, everyone I contacted about participating in the research agreed to an interview (although, in a few cases, there was some reticence until a
A First Nation’s case study in self-sufficiency

relationship was established). As more people participated in interviews than I expected, and because a personal connection often had to be established to encourage participation, I eventually chose not to distribute the surveys as I had originally planned. There were staffing changes that created some difficulty in scheduling meetings with Alderville leadership, which led me also to conclude that there would have been logistical challenges in coordinating the approval and dispersal of surveys. At the end of recruitment, sufficient participants were involved to corroborate the findings from the various interviews as well as to enhance the data content, therefore I determined the surveys would not have added significant value and were not needed.

There was also an ongoing process to analyze and evaluate data throughout using NVivo qualitative data analysis software to assist in identifying key themes as identified by multiple participants. The analysis of participant responses also followed the methodological perspectives briefly outlined in the work of Seidel (1998), which describes general qualitative data analysis through the ongoing process of “noticing, collecting and thinking” (p. 1). This form of direct interpretation (Stake, 1995) might raise concerns regarding community involvement and ownership, which is why there were review stages incorporated into the timeline helping to ensure the research process remained iterative. The materials were returned to the community for review, revision, and approval in order to ensure that the content and analysis are accurate reflections of the contributions made by the community. Several drafts of the thesis were returned to the community for input and to ensure perspectives have been accurately captured. I had also noted that there was an opportunity for Alderville First Nation to put forward possible candidates to serve as an external reviewer on the thesis review committee, although they chose not to identify anyone. These steps were undertaken to ensure accountability to the community in
the research process and to support First Nation ownership and control over the research project. I also wanted to create opportunities for ongoing feedback will help to determine where there is agreement on the research or where interpretation appears to diverge. As previously noted, the community did have opportunities for input into the design of the interviews and the nature of the research and research products was open to their influence throughout the research process. The research was approved by Chief and Council in October, 2016.

Establishing validity

I employed triangulation in order to establish validity of the case study. Due to the nature of PAR, there were stakeholders involved in the research beyond the student researcher, including community members, community leaders, and project managers, as well as participants from the solar energy sector, business sector, and other areas external to the community. Therefore, an approach that incorporated different sources of information, including community members as knowledge holders and experts from outside of the community, was, in many ways, already inherent to the process. As Avison, Lau, Myers, and Nielsen (1999) explain: “action research is an iterative process involving researchers and practitioners acting together on a particular cycle of activities, including problem diagnosis, action intervention, and reflective learning” (p. 94). The inclusion of multiple perspectives through a variety of sources was a form of triangulation in this research project.

When done properly, PAR incorporates investigator or observer triangulation through the inclusion of different perspectives when conducting a study. In this case, the perspectives of the researchers—the student researcher and participating community members—were reflected in design of the research, the evaluation of the research, and also in the collection and analysis of
information (which came from a variety of sources, including sources external to the community). I want to note, however, that triangulation in qualitative research does not necessarily reduce or eliminate bias (as the observations are not likely to be effectively analyzed by anyone other than myself,) and neither is it my intention to try and eliminate bias. Nevertheless, triangulation does still improve research “rigour” (Cooper & Endacott, 2007). As a student researcher, I collected information in a variety of ways; in addition to observation and interviews, I located documents related to the solar farm and analyzed them to further examine the issue. The use of different methods does help to control the potential for bias stemming from a single researcher or research methodology, and thereby ensures greater overall quality in research (Johnson & Onwueguzie, 2004).

When applied properly, triangulation is a mechanism for increasing validity by cross referencing data to reduce the potential for bias (Kern, 2016), when acknowledged properly, bias in research does not necessarily have to compromise the quality of the findings. In the case of PAR in this study, it was likely there would be a clear preference in determining the direction and content of the research as it was driven by the participants themselves. As long as it is conducted ethically and with great transparency of process, it is my opinion that this bias should not compromise the utility of the final product nor the integrity of the research. In this case, while triangulation was less likely to eliminate the potential for bias, it did contribute to more detailed, higher quality research.
In the spirit of second order science and acknowledging bias in research, I have some additional comments to make in relation to this research project. Second Order Science is based on the premise that we as researchers may have fundamentally differing worldviews from one another, and that we hold hidden, uncritically examined presuppositions that could potentially mean that our conception of basic science might be different from another’s. As well, these differences can inform how observers inadvertently affect or influence the science they do as a researcher is a part of the research process (Alrøe & Noe, 2014; Lissack, 2015). As a result, I must take some time to acknowledge some personal biases. As a person of Indigenous ancestry, I hold some basic understandings and assumptions about Indigenous cultures and communities. While I do not wish to perpetuate pan-Indigenous or pan-Indigenous approaches to understanding cultures, I do believe that there are some underlying values, beliefs, and other cultural elements that are similar or shared between Indigenous cultures in Canada, and which is certainly true for communities in Ontario. The cultural underpinnings that link our cultural fabrics together include a strong connection to language and land, and the understanding that we are a part of our environment and the natural world and we do not necessarily see ourselves as separated from it. This represents a shift from westernized perspectives, in which I sometimes perceive the understanding that humanity’s role is more closely related to dominion and control over the natural world. This notion that we are all interconnected remains a critical component of Indigenous worldviews—it informs Traditional Knowledge, including traditional ecological or environmental knowledge, and serves as one of the mechanisms for Indigenous understandings of the natural world.
Furthermore, I believe that research is very much subjective, which is very much consistent with how I understand the Indigenous epistemological perspective of interconnectedness (McCormick, 1996, pp. 168). I view the subjective nature of research as an enhancement to existing and accepted methods than as something which compromises the integrity of the research. As a part of the research process, I am interacting with the research and, as a result, I will affect it whether I realize it or not and whether I intended to or not. My observations, which are based on these interactions, will form my understanding of the research and the analysis (Alrøe et al., 2014; Lissack, 2015). To that end, while I tried to do whatever I could to refrain from inadvertently or deliberately influencing the responses of the people I engaged, I still must reject the assumption that there was true objectivity in the research approach, and that I cannot and did not make any attempt to present myself as an objective observer in this research process.

Lastly, I must also acknowledge that I firmly believe and support the inherent Indigenous right to self-determination, and the right to see upheld the spirit of Treaty Rights negotiated between Nations. It is my intention to support Indigenous self-determination through this research as I believe economic self-sufficiency and sustainable community development can serve as a platform to further assert Indigenous political, social, and cultural rights. In the case of the research, one assumption I made was that the Alderville solar project facilitates self-determination through self-sufficiency, and that this represents a positive outcome for the community. Another assumption I made was that the research model, at least in terms of capacity building, is replicable. Furthermore, I also assumed that one of the underlying reasons these types of sustainable, clean energy initiatives have been so successful is because they are more
closely aligned with Indigenous worldviews than other types of development (such as those rooted in resource extraction and environmental exploitation). I acknowledge that I entered the research process expecting to find that the clean energy project in Alderville has led to positive social outcomes in the community, including a sense of pride and wellbeing among community members, and that I found these assumptions to be corroborated in the research findings.

**Findings: Case study of Alderville First Nation’s solar farm**

Alderville First Nation and political context

Alderville First Nation is a thriving community about 45 minutes driving distance from the area the Anishinabek referred to as Nogojiwanong, what is now commonly known as the major urban centre of Peterborough, Ontario. Evidence of Indigenous presence in the area is present in the oral traditions of the existing communities, the archaeological record, and the proximity of important First Nations cultural places, which includes protected areas like Petroglyphs Provincial Park and Serpent Mounds Park (both named for the significant cultural sites found within them). Alderville now stands on what was once known as the Alnwick Reserve. While the region itself was inhabited by Indigenous peoples since time immemorial, the reserve itself was initially established as a Methodist mission in 1837 for Mississauga² people from the severely overcrowded Society of Methodist Indians of Zhoomin Mniss (which was a First Nations Methodist community on what is now also known as Grape Island in the nearby Bay of Quinte). Within a few short years, however, Alderville would come to house one of the first manual labour schools in Canada (Clarke, 1999). By the spring of 1861, the labour school had been converted to a residential school. At that time, the population of Alderville was 45

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² The Mississaugas are one of several culturally distinct peoples that together comprise the Anishinaabek Nation.
families, or approximately 220 people (Clarke, 1999). The number of band members living in the area today is approaching 1000, with approximately 300 people living in the community.

Alderville First Nation is presently a member of the Anishinabek Nation - Union of Ontario Indians (AN-UOI), a Political Territorial Organization that originated out of alliances formed within the Anishinabek Nation through the Three Fires Confederacy. AN-UOI was officially incorporated in 1949 by the Anishinabek Nation to formally advocate for the collective social and political interests of the First Nations membership it continues to represent. The work of AN-UOI is supported by several regional Tribal Councils, including the Ogimawahj Tribal Council, which represents the specific interests of the six member First Nations in the southeast region, including Alderville First Nation.

Alderville First Nation is in the Treaty 20 (1818) area and is also one of the Williams Treaty with the Mississauga (1923) First Nations, denoting a unique relationship with the lands, water, and resources. The Williams Treaty First Nations have identified that, in the interest of protecting and ensuring harvesting rights and opportunities for the communities represented, the principles of protection, conservation, and collaborative management of the environment and natural resources are a priority (http://www.williamstreatiesfirstnations.ca/). It is clear that Alderville First Nation takes the commitment to environmental sustainability seriously in its approaches to social and economic development.

Upon entering the administrative office in Alderville, visitors are greeted by a sign posted high on the wall that reads:

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3 The Three Fires Confederacy is comprised of the Council of Three Fires (N’swi mishkodewin), which Indigenous oral histories confirm is a political alliance between the Ojibwe, Odawa, and Potawatami, and which has existed long before European settlers came to Turtle Island.
“Alderville First Nation is committed to honouring the seven following values:

- Wisdom;
- Love;
- Respect;
- Bravery;
- Honesty;
- Humility; and
- Truth

through the development, enhancement and delivery of economic, social, health, education and environmental resources.” I used these values as a framework for the case study description. I have also structured the case study of Alderville First Nation’s solar project in accordance with these values to ensure the values of the community are reflected in the research and to further demonstrate how they apply in the context of Alderville First Nation’s work.

Feed-in Tariff Program

In 2009, the Government of Ontario sought to stimulate economic growth by positioning the province as a hub for innovation in the clean energy sector by enacting the *Green Energy and Green Economy Act*. The *Green Energy and Green Economy Act, 2009* also aimed to increase Indigenous participation in the renewable resource sector by included $250 million in funding for the Aboriginal Loan Guarantee Program, to be administered by the Ontario Financing Authority, and to support Indigenous communities to develop green energy infrastructure ([https://www.ofina.on.ca/algp/](https://www.ofina.on.ca/algp/)). The following year, 2010, the province introduced the Feed-in Tariff (FIT) Program, which was administered by the Ontario Power Authority (OPA). The first of its kind in North America, the FIT Program was created to encourage the development of renewable energy capacity projects by introducing a guaranteed pricing structure over a fixed
The program featured two streams, the microFIT, which was designed for smaller scale and home projects producing less than 10 kW, and the FIT stream for renewable energy developers. The program also featured a provision that reduced security payments and a price incentive called a “price adder” to encourage Aboriginal and community-based projects by reducing costs to make them more viable and/or competitive with commercial developers. The incentives depended on the percentage of Aboriginal ownership, and projects that could identify as 50% or more Aboriginally-owned would maximize the benefits. These incentives were aimed not only at encouraging Indigenous enterprises, but were also intended to incentivize commercial developers to partner with First Nations and other Indigenous communities and businesses.

Alderville First Nation applied to develop a ground-mounted solar PV project under the first iteration of the FIT program, hereafter referred to as FIT 1. Under this stream, the project had to be greater than 10 kW and less than 10 megawatts (MW). Alderville ultimately proceeded with a 5 MW (5000 kW) 23,000 panel solar project, which formally became Alderville Solar, Inc.

### Alderville Solar Project

**Timeline:**

<table>
<thead>
<tr>
<th>Month</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2009</td>
<td>Project application</td>
</tr>
<tr>
<td>April 2010</td>
<td>FIT contract offer received from Ontario Power Authority</td>
</tr>
<tr>
<td>June 2010</td>
<td>Panel manufacturer selected</td>
</tr>
<tr>
<td>May 2011</td>
<td>First OFINA templated agreement in place</td>
</tr>
<tr>
<td>May 2011</td>
<td>First credit terms negotiated with BMO (EPC requirement)</td>
</tr>
<tr>
<td>July 2011</td>
<td>EPC contract with Johnson Controls</td>
</tr>
<tr>
<td>July 2012</td>
<td>BMO withdraws project debt offer (keeps offer for equity portion)</td>
</tr>
</tbody>
</table>
A First Nation’s case study in self-sufficiency

July 2012  Stonebridge Financial finances project under 20 year agreement
April 2013  Loan with Stonebridge closes
April 2013  OFINA loan guarantee negotiation
September 2013  Project completed
October 2013  Commercial Operations begin
May 2016  Alderville First Nation Solar Inc. awarded 2016 CanSIA Game Changer
http://www.aldervillefirstnation.ca/solarfarm.html

Nbwaakaawin (Wisdom).

“Traditional ecological knowledge can be defined as the collective wisdom of the composition of the environment, including humans, shared inter-generationally, and occurring within a community” – Participant.

Alderville First Nation was informed about the opportunity to develop a solar farm under the FIT program by a business savvy community contact. In keeping with accountability to community and environment, the Alderville Solar project began with a Traditional Knowledge Assessment completed by a well-qualified community member. It was meant to serve as culturally relevant environmental impact assessment. A Traditional Knowledge Assessment is one that considers cultural significance and traditional ecological knowledge as part of the environmental impact analysis, making it more comprehensive than a typical environment impact assessment and also more useful at the local level. Using local resources (where the capacity exists) is an important part of reclaiming and reasserting Indigenous control in research and development (OFIFC, 2015). In addition to ensuring that indigeneity was represented in the environmental impact assessment, employing a local community member to do this work had the added benefit of facilitating the inclusion of local knowledge through existing relationships with the community, while also creating a local contract employment position.

Through the research I undertook with Alderville First Nation it became apparent that the Traditional Knowledge Assessment extends beyond the research approaches used in more typical
environmental impact assessments as it considers not only the impact on local species, but the impact on harvesting rights and traditional use of the land by the community as well. It is also noteworthy that the recommendations in the Traditional Knowledge Assessment were co-developed by the author of the assessment and the community as a whole through the consultation process, representing a divergence from the more common approach to developing recommendations on a community’s or a peoples’ collective behalf. The Traditional Knowledge Assessment noted potential impacts on existing flora and fauna, with particular emphasis on species at risk. It also highlighted the possible impacts to land use for community members who exercise hunting and harvesting rights in the surrounding areas, as well as addressed the possible concerns arising from cutting off access points to recreation areas frequently used by locals. As the plan to explore the development of a solar project began to take shape, it became clear to Alderville First Nation leadership that, while there were key local resource people available, there was a need to hire an expert in the area of solar energy to consult with the community on how best to proceed. The solar energy consultant worked with the community to determine their vision and helped them connect with business partners who would be able to support their vision.

Zaagidwin (Love).

“We are doing what the creator gave [the sun] to us for – harvesting Grandfather Sunshine for sustenance and warmth” – Participant.

Through the Additions to Reserve process, Alderville First Nation had purchased 2000 acres of land from the municipality in 1996. An Addition to Reserve (ATR) allows property to be added to an existing First Nation’s land base for the purposes of accommodating normal community growth, adding land needed for economic development, or to fulfill legal obligations.
like Treaty Land Entitlements or other negotiated settlements (Government of Canada, 2003). As the community thought about what Alderville could do with the land, there had been some discussion about developing it as a golf course, creating a spa, or building a residential subdivision. The community, however, eventually concluded that developing housing and significantly building up the area might pose unwanted risk to the environment. One community member, who was a biologist, also advised against such development due to the presence of a rare Black Oak Savanna in the area.

Black Oak Savannas are rare ecosystems containing tall prairie grasses and oak forests. In keeping with the principle of Indigenous stewardship and respect for the land, the First Nation decided against development in the interest of protecting and preserving the savanna because, as one participant noted, “it was the right thing to do.” When a community member sold a property containing the same savanna as the adjacent protected area, the First Nation purchased it as well for the same reason. While the protected savanna biome is quite close to the solar farm, at the time the solar farm was proposed, the property on which it now sits had been used for the cultivation of corn for many years (the First Nation had also briefly entertained farming hemp and other cultivars on the land). Ultimately, the Traditional Knowledge Assessment revealed that even with limited action towards mitigation and planning, the solar farm would ultimately be less detrimental to the area than the previous agricultural use, which rendered the case for possible continued agricultural use of the land moot.

Traditional Ecological Knowledge is not always perceived as credible in the mainstream. While the Traditional Knowledge Assessment was viewed as a valuable enhancement to the planning process by many who were involved on the business side of the project, the community
still had to hire an outside consultant to complete a soil study and ground assessment (which considered movement, climate and choice of substrate) to determine the type of foundation that was appropriate for the planned solar structures. Currently, the community successfully uses timed and seasonal mowing and other low-cost mitigation approaches based on Traditional Ecological Knowledge to manage weeds and encourage the return of native species. Over the last few years, Alderville Solar employees have observed changes in the micro-local ecosystem underneath the solar panels, including the return of grasses and the presence of a variety of native birds and insect species. Some participants have expressed the expectation that some of the income generated from the farm may be eventually used to further reduce the environmental impact of the solar farm.

Mnaadendamowin (Respect).

“Working with the community was amazingly good. There was a great alignment of values... and they stayed with us even when those other guys tried to undercut us.” – Participant.

Throughout the interview process for this research project it was apparent that community involvement and general consensus were an integral part of the planning and development of the Alderville solar farm. The first FIT program offered the opportunity of potential income for the community of Alderville First Nation. Several respondents, however, noted that the solar project was not without risks and that it would have been inappropriate to move forward on a solar project without the support of the community behind them. As previously noted, the community was involved in the Traditional Knowledge Assessment, participating not only in the research and impact study, but also in formulating the recommendations through the consultation process. The community was also involved in the decision-making process through a series of planned community engagement sessions. Some
respondents noted that these meetings were particularly contentious at times as it was generally only those who had questions or concerns who made a point of attending. The final decision to move on the project was also completed through a community-wide survey process. Every home received a survey and the responses received by the deadline were counted and considered. Ultimately, the majority of the community voted in favour of proceeding with the solar project and the official implementation and planning process began. The project would not have moved forward without community support.

To ensure the continued involvement of the community throughout the planning and implementation process, a working group comprised of Alderville leadership, band employees, an advisor from the Ogemawahj Tribal Council, two external advisors, and two additional community members of one senior and one youth. Including a youth and a senior representative as part of the working group is indicative of the Indigenous practice of considering and including all the stages of the lifecycle in the community planning process. While there are several Anishinaabe perspectives and teachings on continuum of life (Anderson, 2011), it can be generally understood to progress from infancy, which begins before birth, into youth, adulthood, and finally old age (Johnston, 1976). This can be further understood as a progression from preconception and life before birth, into infancy, childhood, adolescence, adulthood, parenthood, and into old age where it is possible to become an Elder.

While many cultures appreciate the gifts of wisdom and experience that come with advanced age, an Elder is a position which garners additional respect in Indigenous communities. Specifically, an Elder often gains a respect that goes beyond that which would normally be
accorded by virtue of age alone as an Elder will continue to serve the community by providing the wisdom that comes with age (Johnston, 1976).

The recognition of the need to consider subsequent generations in the planning and implementation process is one of the hallmarks of Indigeneity, and many respondents spoke to (and one respondent directly referenced) the importance of planning for the next Seven Generations. This type of planning requires true, deep consideration of the implications that present day actions and activities will have not only for the short-term, but for the legacy that will be left for the generation 100 years and beyond (which some Indigenous peoples refer to as the Seven Generations principle). Several of the study participants felt that Alderville First Nation might not see significant, immediate benefit from the solar farm. From the outset they were aware that it is unlikely the project will have paid for itself in less than 20 years; nevertheless, the solar farm represented a good investment for the community now because it would result in an independent revenue stream for the next generation of community leaders, and for the following generations. As an additional positive, this financial benefit could be achieved without compromising the community’s present physical environment.

**Aakdehwin (Bravery).**

“It was hard at first but we kept going... People didn’t understand it before. Now they can see the big picture and the rewards for the future.” – Participant.

The proposed solar farm was not without risks. Alderville First Nation had no experience whatsoever with solar farming or clean energy of any kind. Respondents noted that there was a very small window of opportunity to take advantage of the FIT 1 program at the time it was proposed. Among the requirements for early FIT 1 projects were an application and a substantial
fee of $250,000. Under the Aboriginal Participation Project sub-component of FIT, the fee was reduced to ten percent; however, this cost still represented a substantial amount of money to the community. Due to the tight timeline, Alderville leadership decided to move ahead with the application letter in the interest of holding a spot for the project, despite having had insufficient time to schedule a general meeting for the community about the proposal. They had concluded that it would be better to risk losing the fee if the community vetoed the project than to lose the opportunity altogether. This process represented a risk in and of itself as it was possible that the community might have been angered and alienated by not having been involved at the onset, which would have made garnering community support more difficult going forward.

The project also represented a significant financial risk to the community. In addition to the upfront cost associated with the FIT application process, the community recognized the need to reach out to experts in solar technology and clean energy development, which resulted in significant overhead costs associated with hiring consultants and legal experts. Despite these risks and some early setbacks with potential partners, the proposed solar project began to take shape. In short time, the idea that the proposed solar farm should be entirely owned and operated by Alderville First Nation became a critical vision of the project. A variety of financing models were considered but all of them required some investment or leveraging of community funds upfront. The significant upfront cost, potential for additional planned and unanticipated investments, and the lack of local solar expertise within the community (resulting in an inevitably steep learning curve to make the project successful) were all risks that initially created a lot of opposition within the community. In spite of these risks, the community of Alderville First Nation courageously chose to move forward with a solar farm.
Gwekwaadziwin (Honesty).

“One thing I know - you don’t always know what you don’t know.” – Participant.

Once the decision had been made to move forward, for several of the respondents involved in the planning, there came a moment where Alderville First Nation community leadership had to face the reality of the massive task they had committed to undertake. An important part of that process was the realization that, due to the lack of expertise in the area of solar energy, there was a need to seek the support of outside resources to be truly successful. In particular, the need for experts in solar technology and engineering was obvious. While solar technology had been in use for decades in Europe, at the time Alderville First Nation was exploring their options, solar power and solar based technology was a relatively new to the energy and technology sectors in Ontario. The community began by hiring Dr. Nazir Kherani from the University of Toronto as a consultant to help identify the best panel manufacturing company to work with Alderville. The community felt a logical first step would be to hire someone to help fill in the knowledge gaps. The community had a vision, but recognized there was a clear need to work with many different sectors to achieve it. As no other First Nation had undertaken any project of this type, there was no existing model to draw on.

Dr. Kherani helped Alderville to identify Silfab Solar, a company new to Canada but that had a long history of work in solar energy in Europe where the technology has been applied successfully for more than 40 years. After some negotiation and a memorandum of understanding, Alderville became the first customers in Canada to sign with Silfab Solar. Respondents from both sides noted that from the beginning this relationship was based on honesty, integrity, mutual respect, and goodwill. The solar panel manufacturer agreed to a three-
fold plan to support Alderville, including a personnel agreement, a supplier component, and an installation approach. Within this framework, the solar panel manufacturing company offered consultative services in developing and validating a preliminary design on behalf of the community, assisted in the project management, and provided some oversight alongside Alderville leadership, as well as producing components (including the solar panels themselves) and elements of the housing (such as structures and mounts for the project).

Dbadendizwin (Humility).

“As a project it was very successful, but it was more painful than it had to be... although I guess sometimes I guess we learn the most about ourselves from those [painful experiences].” – Participant.

While the solar farm is already a definite success, most community members who participated in the interviews reflected back on the many challenges they faced. As the first project of its kind to be completely First Nation owned and operated in Ontario, Alderville First Nation had to overcome many obstacles to achieve their solar farm vision and learned many lessons in the process. As Alderville leadership began to make initial inquiries about the FIT program, they were approached by a non-Indigenous commercial developer who was interested in partnering with them to build a solar farm on their lands. However, the developer eventually backed away from the project when the First Nation community took longer than they had anticipated in deciding if and how to proceed. The community then chose to move forward on their own, driven by the laudable vision of a solar operation owned entirely by the First Nation. Although they found in Silfab an eager partner that was able to supply both materials and expertise to support their vision, Alderville First Nation encountered challenges again during the design and implementation process when they needed to engage with additional partners.
In Alderville First Nation’s experience, many lenders had difficulty understanding the nature of First Nation Reserve lands and ownership. While First Nations have a right to the exclusive use of Reserve lands, under the *Indian Act* of 1876, the legal title to Reserve lands is held by the crown and it cannot be mortgaged outside of the First Nation. This meant that it was difficult for the First Nation to find lenders to approve loans as many of them required collateral, which is typically a physical property. Due to the nature of Reserve lands, this collateral was not something the community could realistically put up against the loan. The provincial government anticipated this issue during the roll-out of the Aboriginal FIT program and included in it the option for First Nations to secure a guarantee on up to 75% of the loans they secured for their project through the Aboriginal Loan Guarantee Program administered through Ontario Financial Authority (OFINA). Despite the guarantee backed by OFINA, lenders found the FIT contracts too complicated and viewed the project as too risky. Further, the paperwork and contracts detailing the conditions Aboriginal Loan Guarantee Program proved confusing to lenders, who lacked knowledge and understanding of the program. Instead Alderville First Nation and their partners had to rely on building a solid business case for a loan based on revenue forecasting, which came with its own set of challenges due to the relative newness of solar energy in Canada at the time.

In Alderville First Nation’s experience, most of the larger, institutionalized lenders lacked the understanding or capacity to fund projects based on forecasting revenue as this type of business lending model in a solar energy context was relatively new and innovative in Canada. Lenders did not fully understand how to calculate the future value of the project as there was limited data on how much energy certain types of photovoltaic panels would produce over a
A First Nation’s case study in self-sufficiency
certain term in Ontario, and the provincial contracts to guarantee 75% of any loan through
OFINA and to buy back the energy produced at a guaranteed premium were somewhat
convoluted. Eventually, the First Nation found a potential lender in the Bank of Montreal, but
their proposed credit agreement came with the provision that the community work with an
Engineering, Procurement, and Construction (EPC) firm to develop a performance guarantee for
the project. The result was a partnership between the First Nation and an EPC firm called
Johnson Control, a major multinational conglomerate.

Originally, the First Nation was going to work with Johnson Control for the purposes of
guaranteeing a minimum performance of 80% of the forecasted energy return from the proposed
project, as had been required by the bank. However, this arrangement fell through when the bank
ultimately withdrew the debt offer for the project, but they kept their agreement to maintain the
equity portion of the loan. The First Nation was still forced into a contracting arrangement with
the EPC firm as Johnson Controls had what the bank felt was a “strong balance sheet” that
satisfied the concerns they had around backing the equity portion. Unfortunately, Johnson
Controls, despite having a strong presence in Canada, was not accustomed to working with First
Nations in Ontario, and the relationship deteriorated quickly partly due to concerns that the firm
did not respect or understand the First Nation’s interests and cultural practices. The First Nation
had been clear from the onset that the expectation was that Johnson Controls would provide
training and education for community members throughout every phase of the project so that the
First Nations could create employment opportunities internally. The firm instead wanted to use
their own employees in the construction of the solar farm, rather than work with the community
to develop local capacity. They also made attempts to insert themselves into the supplier
relationship the First Nation community had with the European company. Despite the EPC firm coming in at a lower cost for solar panels and mounts, the First Nation elected to stay with their original supplier, Silfab, as the quality of the panels and racking was superior and the relationship stronger.

Making matters worse still, the Bank of Montreal eventually backed away from the credit arrangement, and the First Nation had to continue searching for another financial institution to support their work. Eventually they found a lender in Stonebridge Financial, a company that had previous experience in similar project financing for wind powered energy projects. While the First Nation was ultimately successful, due to the many challenges the community faced in navigating the financial system, Alderville’s solar project experienced significant delays in its implementation and the project was almost completed by the time the money was released. These setbacks meant that the community fronted far more of the cost than anticipated, creating an unnecessary hardship on the First Nation’s resources.

**Debwewin (Truth).**

“Truthfully, there were headaches all the way through. It was the right opportunity and we would do it again, but if we can help smooth the way for others by sharing our experience we want to do that.” – Participant.

Lack of understanding in the financial and business sector created many challenges for Alderville First Nation. To have a First Nation community seeking to undertake a clean energy project presented a challenge for financial intuitions, which was further compounded by multiple regulatory factors. The Aboriginal Participation Projects component of the FIT program was (and is) a good theoretical concept but many major lenders were unfamiliar with the clean energy sector in general and working with First Nations in particular. Stringent requirements by lenders
resulted in a difficult and costly business relationship with an EPC firm, a requirement that was external to those defined under the FIT program and therefore not strictly necessary. The relationship building required to maintain a functional working relationship with Johnson Control was taxing on the First Nation’s internal capacity as staff had to be dedicated to monitor their activities closely and advocate as needed. The setbacks Alderville First Nation experienced in the financial sector also further delayed the project, which unfortunately resulted in the accrual of penalty fees for late completion of the FIT project. In the end, the project took longer and was more costly than anticipated.

Despite the many challenges the community and its leadership faced over the course of the planning and implementation of their solar farm, with only a few years of active solar harvesting, Alderville First Nation is already enjoying many successes. Alderville First Nation currently employs two people full-time, and approximately 30 community members were employed during the contracting process and physical installation of the solar farm. During the planning and implementation process, there were also positions created on the administrative side to support the solar project. Community members have received on the job training in the installation of photovoltaic panels and mounts/racking, as well as additional training and education in several related areas, including electrical, pesticide use, and health and safety. Many of those trained were younger community members. In a climate that sees First Nations people and youth disproportionately underemployed relative to rest of the province, the opportunities Alderville created are a significant success. If other First Nations in southern Ontario chose to follow a similar path, the technical expertise of Alderville First Nation’s community members will undoubtedly be beneficial.
From the project’s early stages, the goal was to create jobs and opportunities for job training and education for Alderville First Nation community members. It had the added benefit of creating pride and a strong sense of ownership over the solar project. Alderville First Nation chose a development model that was in keeping with their views on environmental sustainability and that would leave a positive legacy for future generations. Many of those who worked on the solar project also returned home to their families in the evenings and talked about the project. This helped dispel remaining concerns about the solar farm among community members by raising awareness of the nature of the work being conducted.

**Findings, discussion and recommendations**

Alderville First Nation’s solar farm has increased self-sufficiency in a variety of ways. It advances social sustainability within the community by creating permanent local employment at Alderville Solar Inc., and increasing the skills for those involved, including hands-on training and education, but also project management experience at the planning and leadership level. An ecological imperative is also met in that the solar farm creates clean energy local. Further, depending on how the community chooses to direct this energy, it could be used as a source of clean energy for the First Nation itself – eliminating the need to buy power from the grid. Lastly, the economic imperative is met as the solar farm will generate income that the community can self-direct. It is clear that investing in Indigenous renewable energy ventures is wise, and governments should be doing more to support communities in this area. This should not be thought of a replacement for existing fiduciary responsibilities to First Nations stemming from the treaty relationship, but rather as a means to enhance First Nation and Indigenous control by creating a context that supports communities to generate income that can be reinvested as
communities see fit. This facilitates self-sufficiency and advances the Indigenous right self-determination.

While governments continue to be reluctant to commit to multi-year funding agreements, some have at least demonstrated more openness in favor of short term project-based funding. As a result, investing in clean energy start-up projects can be an attractive option. Project-based funding is described as the purchase of defined services informed with specified outputs with closely controlled funding; meaning that it is often accompanied with strenuous accountability requirements that limit organizational flexibility and usually impose onerous administrative burdens. Such constraints can pose a barrier for many First Nations and other Indigenous communities and organizations, which may lack the capacity to meet the reporting and administrative requirements effectively (OFIFC, 2015). The constraints of project funding are also exacerbated by rigid contribution agreements that prevent the redirection of costs. First Nations and other Indigenous communities and organizations must now seek out newer mechanisms for development to become more self-sustainable. Accordingly, many communities have integrated business-like practices to address the gaps with the current funding regime and attract private sector investors (Henderson, 2013). Alderville Solar, Inc. is one such example. The First Nation has created a business to generate income to allow the community greater flexibility in directing funds for future investments. As one participant noted, a “hallmark of an Indigenous economy is reinvestment in community”.

It is worth noting that “business-like development” is a catchall phrase that is currently being used to describe a number of innovations in management and governance structures. In fact, many First Nations communities, Political Territorial Organizations, and other Indigenous
A First Nation’s case study in self-sufficiency

Communities and organizations have begun developing long-term strategic plans, and continue to develop partnerships in the private sector and with various levels of government in attempts to identify new sources of funding for various enterprises through the public and private sector in an effort to become more competitive and self-sustaining. While earned revenues are an important component of all social economy activities there continue to be other essential aspects to consider and contend with as well, including challenges in the risk-averse Canadian financial sector and reluctance to challenge the status-quo. Alderville First Nation’s experience with various lenders is an example of how these challenges can impact progress. Supporting the advancement of a strong social economy could enable First Nations and other Indigenous communities and organizations to develop innovative and efficient responses to a variety of issues and barriers confronting First Nations and other Indigenous peoples in Canada, and Canadian society more broadly.

There are plenty of parallel or congruent definitions associated with the concept of a social economy. Unfortunately the ambiguity surrounding social economy is reflected in the policy landscape, which serves to encompass all levels of government. The federal government has yet to develop an overarching policy framework that would support social economy initiatives, and the Province of Ontario continues to lag behind as well. This continues to hinder social enterprises, including clean energy-based development in First Nations and other Indigenous communities. In order for Indigenous communities to thrive in the social economy, federal and provincial legislation must be better aligned to allow or enable greater engagement strategies rather than stifling innovation. As Crystal Tremblay (2010) notes, social economy frameworks must aim to capture information on the ways governments are creating new policies
and programs that strengthen the social economy in response to challenges such as poverty, social exclusion, income inequality, rural and urban decline, unemployment, environmental and ecological degradation, and community sustainability.

Investment in Indigenous clean energy projects provides First Nations and other Indigenous communities with opportunities for innovative approaches to sustainable community development while promoting self-sufficiency. Alderville First Nation’s solar farm is a proven example of how a community-based development model that is grounded in culture can increase self-sufficiency. It is time for provincial and federal governments to create appropriate policies that will support a landscape that promotes social innovation and facilitates self-sufficiency for First Nations and other Indigenous communities. Market-based globalization marginalizes First Nations and other Indigenous peoples. Supporting Indigenous social enterprise models helps advance opportunities for Indigenous participation in the broader economy, paving the way for a more sustainable future for everyone.

Ontario is the third largest solar power producer in North America (Brooks, 2016), and is continuing to assert itself as a leader in clean energy investment and production nationally. This leadership would be supported by complimentary policies and programs in complimentary areas, such as social economies.

Recommendations:

1. That the Government of Ontario work with Indigenous peoples to co-create and implement short term project-based funding grants and lending programs with flexible repayment options or partial loan forgiveness opportunities that can support Indigenous communities
interested in social enterprises like clean energy start-ups, particularly where limited opportunities to put forward land or other assets as collateral exist.

2. That the Government of Ontario work with Indigenous peoples to co-develop a Social Economy Framework with an Indigenous-specific component to support a policy context that facilitates innovation, opens space for public and private sector partnerships and investment opportunities, and is culturally appropriate and supportive of Indigenous social enterprise.

3. That the Government of Ontario commit to ongoing investments in the clean energy sector and work with the financial and private sector to improve clarity about financing these types of initiatives, particularly with respect to the Aboriginal Loan Guarantee Program to ensure future Indigenous-led projects will not face unnecessary challenges.
References


A First Nation’s case study in self-sufficiency


Appendix A: research tools

Semi-Structured Interview: Sample Questions

**How are you connected to Alderville First Nation?** There may be multiple connections: For example, are you a Band/community member, an Employee of the First Nation, an external partner, a non-member employee or contract employee, etc.

**What has been your involvement with Alderville’s Solar project, if any?** Examples include involvement in the visioning and planning process, the implementation process, financing, training (someone who received training related to the solar farm, or someone who provided training related to the solar farm), current or past employee of the solar farm or Alderville First Nation, etc. or, you may not have been directly involved.

Collect information on process of planning, development of project with Alderville leadership/administration respondents as appropriate:

- **Was there any consideration given to other development models?** Anything extractive or resource based? Why or why not?
- **Is the Black Oak Savannah of significance to the community?** Was it something that was considered when the project began? Why or why not? And if yes, how?
- **Were there other ecological considerations made?** What was the land before/how was it used?

**If you were directly involved with the Solar Project, how were you involved?** Please provide additional details related to your role, responsibilities or work as it relates to the Solar Project.

**What were your experiences?**

**Were there any challenges related to the design, development, implementation or operations of the solar farm that you are aware of?** Please tell me about them

**What about successes?** In your view, have there been any successes associated with the project? Please tell me about them.

**Has anything changed for you as a result of the solar project?** Answers will vary based on role in project, but could include: training, education, employment, partnership development, experience working with First Nation, energy sector, economic benefits, etc.

**Do you feel there have been changes in the community as a result of the project?** Please explain.

**What role, if any, do you think Culture [Indigenous/Anishinaabe culture] had a role to play in the development or outcomes of this project?**
- do you feel a personal relationship with land/environment?

**If you were not directly involved with the Solar Project, what do you think about the project?** This includes your opinion about the planning process, and how the project is working so far.

**Were there any challenges related to the design, development, implementation or operations of the solar farm that you are aware of?** Please tell me about them.

**What about successes?** In your view, have there been any successes associated with the project? Please tell me about them.

**Has anything changed for you as a result of the solar project?** Please explain.

**Is there anything else about the solar project you would like to tell me about?**

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**Sample Size:**

Interviews were conducted with 14 individuals with direct or indirect involvement and knowledge of the Solar Project.