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RE: Final Report – NET-ZERO HOUSING AT CAMBRIDGE WEST DEVELOPMENT

Dear Ms. Souwand,

The attached report from Source Consulting is regarding the City of Cambridge's desire to promote Net-Zero housing developments at the Cambridge-West development site. Source Consulting has organized a complete summary of Net-Zero feasibility within Cambridge including a provincial energy policy case study, potential partnership options, an education strategy, and a marketing plan targeting the next generation of home buyers.

We are confident that this report will give you and the City of Cambridge a better understanding of what will be required in order to make Net-Zero housing developments in the Cambridge-West community feasible.

Please feel free to contact us via phone or email at any time if you have any questions about our final deliverable. Thank you for working with Source Consulting and we look forward to any potential consulting needs you may have in the near future.

Kind Regards,

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# Net-Zero Housing Development in the Cambridge West Community: Final Deliverable

Submitted by:



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## EXECUTIVE SUMMARY

Source Consulting has developed this strategy to help the City of Cambridge in their quest to develop Net-Zero housing developments on the Cambridge-West development site. By definition, Net-Zero housing is designed to offset the energy used within the residence by producing energy on-site through the use of renewable energy sources (i.e. solar panels, geothermal energy etc.). This design limits the residence's reliance on standard hydroelectric services such as Hydro One, and works to create a more sustainable living space.

Currently there are few developments across Canada that offer Net-Zero living and we at Source Consulting found that this is partially because of a lack of knowledge, both from developers and home buyers. Our plan outlines the critical need for engagement to ensure that everyone, from builders to buyers, understand the benefits and challenges that go along with Net-Zero.

This report will outline our findings to better understand the barriers to Net-Zero developments in the City of Cambridge and potential solutions to overcome these barriers. This required four key sections, each examining different aspects of the Net-Zero market. The first approach includes a comparative case study between provincial Net-Zero energy policies which explores provincial hydroelectric services. The second approach discusses the mutual benefits of creating partnerships between those who manufacture the technologies that Net-Zero developments require and those that are developing or purchasing Net-Zero homes. The third approach discusses the attempt to connect with local real-estate agents and how its success has lead Source Consulting to a potential solution. The final approach includes a comprehensive engagement plan which targets to educate and market Net-Zero homes to the next generation within Cambridge.

## BACKGROUND STATEMENT

The issue that provoked the initial RFP originates from the global concern about the impact humans have on the environment and the limited time we have left to fix our mistakes. It is important that we as a human race take appropriate measures in sustaining our planet for future generations to come. Our access to non-renewable resources are dwindling and Net-Zero homes can help to address this problem. The use of renewable energy sources and the efficient collection of on-site generated is what makes a Net-Zero home cutting edge in the housing market. The issue that we believe preventing Net-Zero from becoming the standard is the lack of knowledge of these developments.

Additionally, with recent changes from the Provincial government to the Growth Plan for the Greater Golden Horseshoe it is important to understand why Net-Zero development in Cambridge fits this change. Key words such as “long-term” and “Net-Zero” have been replaced with the broad term, “environmentally sustainable” (Ministry of Municipal Affairs and Housing, 2017). This term currently has no definition and as a result, Source Consulting believes that Net-Zero is a perfect fit. According to Source Consulting, creating a Net-Zero community in Cambridge goes above and beyond the term “environmentally sustainable”. Therefore, despite the vague policies and new amendments, the City of Cambridge should continue with implementing a Net-Zero community in the Cambridge West Development.

## INTRODUCTION

The aim of our plan regarding Net-Zero Energy Developments from the City of Cambridge is to present the barriers that Source Consulting has identified and potential solutions that should be implemented in order to overcome these issues. These solutions will generate interest in Net-Zero developments in Cambridge and put pressure on developers to create these properties. By conducting a case study on provincial energy policies, investigating the mutual benefits of partnerships, connecting with real-estate agents and engaging with the community, we believe that Net-Zero developments are feasible in the Cambridge West Community. Net-Zero Developments or Net-Zero Ready homes foster a community that promotes a more sustainable lifestyle and through the implementation of this plan, Cambridge can become a leading municipality in the race for sustainable housing.

## METHODS

### PROVINCIAL ENERGY POLICY CASE STUDY

#### PURPOSE OF CASE STUDY

With an increasing number of people, not only in Ontario but nationwide, implementing their own renewable energy producing systems such as, solar energy, geothermal energy, wind energy, agricultural biomass energy, on their own residential property it is important for the City of Cambridge to understand the limitations and willingness of Ontario's energy producers to account for Net-Zero technology. The following case study is a look not only at Ontario's current Net-Zero capabilities, but those of other Canadian provinces which indicates where our province is currently in terms of policy and where our province could possibly be headed. While we recognize that the City of Cambridge does not have any control over provincial energy policy we do believe that this information is vital in understanding how to make Net-Zero feasible.

#### ONTARIO LAW AND NET METERING

Within Ontario, provincial legislation (Regulation 541/05) prohibits the province's energy provider, Hydro One, from paying consumers for any energy produced on private residential property and sent back to the grid. Instead credits are given to customers through a billing system referred to as 'Net-Metering'.

Net Metering is a program that Ontario residents can apply for through their local energy providers. The process begins with a potential Net Metering customer submitting a 'Micro Generation Connection Application' (for projects 10kW or less in size) or a 'Connection Impact Assessment Form' (for projects greater than 10kW in size) (Hydro One Networks Inc., 2019). Once an assessment has been completed by the local service provider, a Bi-Directional meter is installed on the proposed residential dwelling. These meters make two monthly readings at the beginning of each month; the forward channel, amount of energy from grid to residence, and the reverse channel, amount of energy to grid from residence. The balance from these two measurements is calculated. If the forward reading is greater than the reverse reading, the customer will receive a bill with a balance owing. If the reverse reading is higher than the forward reading, then a credit is awarded the customer's account. While the customer's bill can be reduced, it can never be awarded enough credits to dip below \$0 (Hydro One Networks Inc., 2019). If credits remain in the customer's account after the bill has been reduced to its fullest potential, the credits carry over to future bills. Customer credits can be held in an account for up to 12 months until the new billing year begins (Hydro One Networks

Inc., 2019). The idea behind this is that customers will produce more kWhs (kilowatt hour) in the summer months than they will use and be able to bank enough credits to continue offsetting energy bills in the winter months when customers are producing less kWhs and consuming more energy.

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## OUT OF PROVINCE LAWS

Outside of Ontario, many provinces follow the same basic outline as the Ontario Net Metering system, like the use of a Bi-Directional meter but there are a few key differences to identify.

In British Columbia, BC Hydro will pay customers at the end of each billing year (12 months) for any surplus of credits remaining in their accounts at the rate of \$0.099 per kWh (BC Hydro, 2019). In Newfoundland and Nova Scotia, Newfoundland Power and Nova Scotia Power respectively will also purchase remaining credits at the end of a billing year, however they will purchase them at an equivalent price as the current rate of hydro (Newfoundland Power, n.d., and Nova Scotia Power, 2017). In Saskatchewan, SaskPower, like Ontario will not purchase excess credits from customers but will allow its Net Metering clients to hold credits in their account for a three-year period, 36 months, instead of just one year, 12 months (SaskPower, 2019). SaskPower will also offer start up clients a one-time rebate of \$0.61 per watt, which can roughly translate to 20% of total system start-up costs (SaskPower, 2019).

## PARTNERSHIPS WITH MANUFACTURERS

A main challenge of developing a Net-Zero Community in Cambridge is the price of building Net-Zero homes for builders and consumers. With a Net-zero home being \$25,000 to 50,000 more than to build an average home, it is crucial to develop ways to make Net-Zero homes more affordable in the Cambridge-West Development (Proskiw, 2010). The first course of action to address economic feasibility was to understand technology manufacturers and how their companies can provide the products and energy efficient technologies needed in Net-Zero homes. Next, the possibility of creating partnerships with manufacturers and the Cambridge West development was explored. Through a case study, it was found that these partnerships have been done in the past with Net-Zero housing and are proven to be effective along with mutually beneficial.

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## NET-ZERO TECHNOLOGIES MANUFACTURER ANALYSIS

Initially to understand more about the economic feasibility, we studied energy and service companies. These included companies that manufacture solar panels who could

provide the energy efficient products that Net-Zero developments require. We looked to understand the philosophies of companies on a local, provincial and national level along with the products and technologies that they offer. The following section is a summary of four companies who produce and sell products and technologies that could be used in the construction of Net-Zero homes in the Cambridge-West development. The companies that were analyzed were those that are local and/or have a reputable name.

RenewABILITY Energy Inc designs, manufactures and sells the Power-Pie DWHR System, which can be used for energy saving solutions for institutional, commercial, industrial, and residential customers. Their technology can be used for water heating in Net-Zero homes. One of the many benefits of this company is that it is local, with its headquarters and manufacturing facility located in Kitchener, Ontario (RenewABILITY Energy Inc, n.d.).

The Bamco Group located in Guelph, Ontario, designs, manufactures and installs custom kitchen cabinets, bathroom vanities and other cabinetry. They have developed North America's first zero-VECs (valued ecosystem components) for cabinetry, branding with Bamco's Clean Air Kitchen. Their company is committed to adopting their own sustainable products by working closely with suppliers that ensure all components meet the highest green standards (The Bamco Group, 2019).

Dettson provides sustainable solutions to the HVAC (heating, ventilation, air conditioning) industry by offering systems to maximize residential comfort. The vision of the company is to become a reference in developing sustainable solutions that contribute to the different energy challenges of the Canadian climate. Its Smart Duct System is ideal for Net-Zero and Net-Zero ready homes (Dettson, 2019).

Canadian Solar operates as a global energy provider and is a leading manufacturer of solar PV modules and solar energy solutions. The prides itself in making a difference by delivering more clean, safe and affordable energy to the world. Although there are several different companies to choose from that produce solar panels, Canadian Solar is a reputable company that offers a selection that assists in customizing solar panels for homes. (Canadian Solar, n.d.).

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## PARTNERSHIP CASE STUDY

A project completed by Owens Corning Canada LP that was submitted to Natural Resources Canada demonstrates the feasibility of sourcing Net-Zero Energy components across Canada (Natural Resources Canada, 2015). In this project, they secured partnerships with energy companies which provided the Net-Zero technologies. These partnerships were with national companies including, JeldWen Windows, Rheem for air source heat pump water

heaters, Mitsubishi Electric for cold climate air source heat pumps, and Canadian Solar for solar photovoltaic (PV) systems (ecoEnergy Innovation Initiative, 2017). It is mentioned in the project that with the exposure and benefits of the project were seen by the manufactures. This resulted in the builders being able to negotiate steep discounts (ecoEnergy Innovation Initiative, 2017).

## IMPLEMENTING PARTNERSHIPS IN CAMBRIDGE

For the Cambridge West Development, partnerships with the same or similar manufacturing companies can help with the pricing and costs of products along with providing knowledge about these Net-Zero technologies. The manufacturers will benefit from this partnership as they will form relationships with builders. This relationship will ensure that builders consistently choose the same manufacturer which provides them with repeat business and exposure of their brand. In this relationship, builders can be seen as influencers in the industry due to their extensive connections. Influencers are certain individuals, groups, organizations or companies that have an ability to stimulate social changes as they are part of extensive social networks (Mulligan, 2018). Manufacturers see these partnerships as an opportunity to be a part of the builder's network enabling others to follow and use their technologies and products. In the project mentioned above, the manufacturers provided the builder with a discount as they recognized the benefits of the partnership.

To implement these partnerships, phone calls and meetings will need to be arranged with the developers and the product manufacturer to discuss the details of a potential partnership. The Bamco Group, as mentioned above, has the opportunity for home builders to partner with them. There is a home builders FAQ that can be found on their [website](#) that is useful to understand how a partnership with this company may be created.

Source suggests that creating partnerships with Net-Zero technology manufactures is possible and should be implemented in the development of the Cambridge West Community to assist with the financial barriers of building Net-Zero homes.

## CONNECTING WITH REAL ESTATE AGENTS

One of our original ideas consisted of reaching out to real estate agents that serve the Cambridge area. Our intent was to uncover the knowledge gaps and basic understanding that real estate agents have of Net-Zero housing. We reached out to 12 agents over the phone and using email to ask if they would be interested in a short survey that we had created. We were looking to compare their responses to indicate gaps in knowledge which would lead us to creating educational materials for real estate agents to use in the future. Unfortunately, none of the contacted agents were interested in participating in our research project. This obstacle

we faced through the lack of participation presented us with an un-expected solution. We believe that the lack of participation was due to the lack of education on the topic, lack of incentives and the current state of the real estate market.

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## EDUCATION

Currently there are no Net-Zero developments in the City of Cambridge which may be why real estate agents were not interested in our research. The purpose of educating real estate agents about Net-Zero homes is so that they can share their knowledge with home buyers to promote these developments. Although Net-Zero homes may not be suitable for all home buyers, some people might not realize that this is an option. We believe that a great way to educate real estate agents and market consumers is through webinars. A webinar is simply a seminar that is conducted over the internet. These webinars are short audio seminars that can be accessed by both agents and buyers in order to gain a better understanding of what Net-Zero homes are. They will consist of frequently asked questions about Net-Zero and the resources that these homes use that set them apart. We believe that webinars are an important tool to integrate into the Net-Zero housing market to educate people about this new topic.

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## INCENTIVES

A limitation to selling Net-Zero is that there is no local or provincial incentives to selling these energy saving homes. It is understandably tough for a municipality to give an incentive to someone for selling a house but we believe that this would be effective. The purpose of providing incentives to agents is to promote and influence the sales of Net-Zero homes. To make this feasible, we have investigated two main strategies. The first strategy is monetary incentives from the municipality. These can be made available through government rebates, like the rebates that used to exist for LED lightbulbs or windows in Ontario. The second strategy which is more feasible is the offering of free advertisement for the agent on municipality owned land, in Cambridge City Hall, local community centres, and other public spaces. A reward system could be implemented in which a certain number of Net-Zero houses sold equates to free advertisement at one of the locations listed above. It is seemingly difficult for the City of Cambridge to provide real estate agents with incentives when the government lacks the budget but Net-Zero may see extreme growth if the agents are rewarded for their participation in making Net-Zero in Cambridge a reality.

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## MARKET

As Net-Zero homes are typically 5-10 percent more than conventional homes there needs to be an appropriate bridge between these two to eliminate the huge change in price and difference in materials. Within Cambridge this bridge is called Riverstone Urban Townhome living. The Riverstone community is to be located on Munch Avenue in Galt (the downtown core of Cambridge) and encompasses an energy efficient living approach (Rego Reality Inc. Brokerage, n.d.). The house includes 5 energy star appliances, triple pane windows, and energy efficient heating and cooling systems that control the heat. These homes are created by Reid's Heritage Homes, who also have experience building Net-Zero homes in Guelph. These houses are a great segue into totally efficient homes, those being Net-Zero. If there is more exposure to these types of homes people will be interested in how they can get more out of their homes and will offer a bridge between conventional homes and Net-Zero developments.

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## NET-ZERO COMMUNITY TARGETS

There are a few Net-Zero communities in Canada, one of the more prominent developments that is close to Cambridge is the West5 in London, Ontario. To see the full potential of Net-Zero it takes more than a few houses, it needs a community. The West5 promotes a high level of community living but it is tough to identify what exactly that is. They encourage a green lifestyle, which includes healthy eating, outdoors, and activity (West Five, n.d.). West5 has plenty of walkways that are shared both by pedestrians and bicyclists along with green space for picnics and physical activity. Most of the community is mixed-use buildings which means that buildings consist of both shops and apartments. This not only promotes good use of space but influences people to shop at local stores and interact with each other. Along with this, the community also hosts music festivals in the green space, farmers' markets, and food festivals that also promotes interactions with people in their community. Everything within the West5 community has a community engagement focal point and this is what Cambridge needs to adopt to create their own community in Cambridge West.

## COMMUNITY ENGAGEMENT SYSTEM

The purpose of creating an engagement system was to address one of the main challenges that we have encountered when completing this project. This issue was the lack of interest and therefore inability to engage with members of the Cambridge community on the topic of Net-Zero. To engage better with the community, we have created three approaches which we believe will increase engagement with the topic of Net- Zero in Cambridge.

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## BETTER MARKETING

The first approach is to create better marketing materials to advertise the ideas of Net-Zero. One of the first things we must do is establish a clear definition of what Net-Zero is and what it entails. This could then be delivered through many mediums such as billboards, newspapers, brochures and more. These materials could then be distributed in the community at Community Centers, municipal offices, in local newspapers and more.

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## MORE EDUCATION

The second approach we believe will be extremely effective is weaving the idea of Net-Zero developments into the to the Ontario curriculum to create a better education of Net-Zero starting with the younger generations. We strongly believe that this will help to build a new Net-Zero energy aware generation. The Ontario curriculum for grades 1-8 now incorporates environmental education into its science curriculum (The Government of Ontario, 2007). Through this we could include education on Net-Zero using a workshop much like those that are currently used such as Scientists in School workshops. These are discovery based, experiential learning experiences based on real world problems from field professionals. A study conducted in 140 schools in Canada showed that 83% of teachers felt that these workshops encouraged their students to use critical-thinking skills, evidence-based reasoning and argumentation (Scientist in School, 2019). Additionally, 86% of teachers felt that workshops helped their student better understand their work done in class and 94% discovered new ideas to use in their classroom to teach similar material (Scientist in School, 2019).

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## GREATER ONLINE PRESENCE

The third approach that will help Net-Zero be achievable in Cambridge is through the creation of a better online presence to engage with potential buyers. Using webinars, people can become more educated on popular topics and frequent questions regarding Net-Zero developments. This allows people to connect and become educated within the comfort of their own homes on their own schedule. The ease of accessibility to these webinars will allow more people to engage with these resources because it does not require people to be in the same place at the same time. Some Net-Zero webinars exist already, some of the topics include Five Things You Wanted to Know About Our Net Zero Future and Perspectives on The Cost of Zero Net Energy Retrofits (New Buildings, 2019). Cambridge could create their own webinars based on the needs of the Cambridge Community. Additionally, the use of social media has a growing importance in our society, especially with the younger generation. We believe that using twitter, Instagram, Facebook and YouTube we can share relevant information about Net-Zero to different audiences in forms of posts, videos and images. This will help people understand Net-Zero as well as be able to be in contact with industry professionals about the topic.



## CONCLUSION

By conducting a case study on provincial energy policies, investigating the mutual benefits of partnerships, connecting with real-estate agents and engaging with the community, we believe that Net-Zero developments are feasible in the Cambridge West Community.

As seen in the above sections, we believe that the key to making Net-Zero housing developments feasible on the Cambridge West development site is through partnerships, connecting with real estate agents, incentives, better education and better marketing. Education for both developers and Cambridge residents will be key as people are more likely to purchase a Net-Zero house if they fully understand the benefits that come with it. Marketing will also be a key component as seen by our inability to connect with local real estate agents. Currently there is little to no demand for Net-Zero within Cambridge and so key stakeholders within the market, are not pressured to adapt to Net-Zero developments. Through better promotion, a greater interest could be sparked within the City of Cambridge and will drive the market towards Net-Zero developments. By implementing better education programs and a better marketing strategy, we are confident that the City of Cambridge will be able to generate the interest needed to drive a Net-Zero housing development forward.

Source Consulting would like to thank the City of Cambridge and Manager of Policy Planning, April Souwand for collaborating with us on this project. We look forward and hope to build upon this relationship in the future.

## APPENDIX

### AUDIO FILE FOR WEBINARS

This short script of an audio clip will help parties such as realtors and contractors build an appropriate approach towards selling and promoting Net Zero Homes. Some may struggle to know what a Net-Zero home is and what it does. Essentially a Net-Zero home produces as much energy as it uses. Every part of the house works together to provide consistent temperatures throughout, prevent drafts, and filter indoor air to reduce dust and allergens.

The introduction of Net-Zero housing started in the early 2000s as the awareness of the human footprint became evident on the earth's natural resources. In an attempt to minimize energy use in homes, developers created the first Net-Zero home that essentially allowed the home owners to generate energy onsite through the use of several technologies such as solar panels.

**Some frequently asked questions consist of:**

**1) How does a Net-Zero home produce all of this energy?**

Well, solar panels are attached to the roof of the house to collect as much sunlight as possible. This sunlight is stored in batteries within the home and helps produce heat and lighting energy. A water tank collects rainwater that uses technology to refill toilets and reuse shower water through a filter. The homes technology takes advantage of the sun's heat all year round and can heat the home using "passive heating" by allowing the sun's energy through windows. All the appliances are high efficiency which help keep the energy use down.

**2) How much more expensive is it to buy a Net-Zero home?**

Generally, these homes are more expensive and will cost anywhere from 25,000 – 50,000 dollars more than a home that meets the minimal building codes.

**3) Will families have to change their lifestyles to ensure that they don't run out of energy?**

These homes are made to run sustainably and have the energy they collect be used by the homeowners. Homeowners, must be aware that they should not leave lights, TVs, and other home appliances on that are not being used.

**4) What happens if we use too much energy?**

Fortunately, for people that use too much energy, there is a backup plan. These houses are still connected to the grid. In this scenario, Net-Zero houses in Cambridge would still be connected to Energy Plus and have the capability of using energy from the city if they use too much of the renewable energy the house has produced.

**5) Is there any government incentives for buying a Net-Zero home?**

There are no monetary incentives directly from the government for purchasing a Net-Zero home. The incentives are that the home owners are taking an environmentally sustainable approach to living. In the long run, homeowners will be able to reduce their hydro bills which will save them money.

**6) Will this eliminate hydro bills?**

Unfortunately, this will not eliminate all the home owners' hydro bills. Delivery charges and other surcharges will still be on the bill. Generally, Net-Zero homes typically will have a monthly hydro bill of just 10 percent of what regular home owners will pay.

## REFERENCES

- BC Hydro. (2019). *Generating Your Own Electricity*. Retrieved March 8, 2019, from <https://www.bchydro.com/work-with-us/selling-clean-energy/net-metering.html>
- Canadian Solar. (n.d.). *The Canadian Solar difference*. Retrieved March 12, 2019, from <https://www.canadiansolar.com/en>
- Dettson. (2019). *Products and Documentation*. Retrieved March 12, 2019, from <http://www.dettson.com/>
- ecoEnergy Innovation Initiative. (2017). *Integrating Renewables and Conservation Measures in a Net Zero Low-Rise Residential Subdivision*.
- Hydro One Networks Inc. (2019). *Net Metering*. Retrieved March 7, 2019, from <https://www.hydroone.com/business-services/generators/net-metering>
- Ministry of Municipal Affairs and Housing. (2014). *Provincial Policy Statement*. Toronto: Government of Ontario.
- Ministry of Municipal Affairs and Housing. (2017). *Growth Plan for the Greater Golden Horseshoe*. Toronto: Government of Ontario.
- Ministry of Municipal Affairs and Housing. (2017). *Proposed Amendment 1 to the Growth Plan for the Greater Golden Horseshoe*. Toronto: Government of Ontario.
- Mulligan, M. (2018). *An Introduction to Sustainability: Environmental, social and personal perspectives*. (2nd edition) New York: Routledge.
- Natural Resources Canada. (2015). *Affordable Net Zero Energy Homes*. Retrieved from March 10, 2019, from <https://www.nrcan.gc.ca/energy/efficiency/housing/research/5133>
- New Buildings Institute. (2019). *Archives: Webinars*. Retrieved from March 19, 2019, from <https://newbuildings.org/webinar/>
- Newfoundland Power. (n.d.). *Service Option: How Net Metering Works*. Retrieved March 8, 2019, from <https://www.newfoundlandpower.com/-/media/PDFs/My-Account/Usage/Net-Metering-Fact-Sheet.pdf>
- Nova Scotia Power. (2017). *Enhanced Net Metering*. Retrieved March 8, 2019, from <https://www.nspower.ca/en/home/for-my-home/make-your-own-energy/enhanced-net-metering/default.aspx>

- Proskiw, G. (2010). *Identifying affordable net zero energy housing solutions*. Retrieved February 22, 2019, from [http://www.hme.ca/reports/Identifying\\_Affordable\\_Net-Zero-Energy\\_Housing\\_Solutions.pdf](http://www.hme.ca/reports/Identifying_Affordable_Net-Zero-Energy_Housing_Solutions.pdf)
- Rego Reality Inc. Brokerage. (n.d.) Riverstone. Retrived March 15, 2019, from <https://register.riverstonecambridge.com>
- RenewABILITY Energy Inc. (n.d.). *Home of the Power-Pipe Drain Water Heat Recovery System*. Retrieved March 14, 2019, from <http://renewability.com/>
- SaskPower. (2019). *Net Metering Power Program*. Retrived March 8, 2019, from <https://www.saskpower.com/our-power-future/powering-2030/generating-power-as-an-individual/using-the-power-you-make/net-metering-program>
- Scientists in School. (2018). *2017-2018 Program Catalogue*. Retrieved March 12, 2019, from [https://www.scientistsinschool.ca/wp-content/uploads/2017/07/Catalogue\\_CALCARY\\_Sci\\_in\\_School\\_2017-2018.pdf?fbclid=IwAR2HACqJIUBm85zXkguh8oOj2HX6OAGGZ6osudZtKs87rL6xeePU-glwVo](https://www.scientistsinschool.ca/wp-content/uploads/2017/07/Catalogue_CALCARY_Sci_in_School_2017-2018.pdf?fbclid=IwAR2HACqJIUBm85zXkguh8oOj2HX6OAGGZ6osudZtKs87rL6xeePU-glwVo)
- Scientitsts in School. (2018). *2018-2019 Scientists in School Program Catalogue*. Retrived March 12, 2019, from [https://www.scientistsinschool.ca/wp-content/uploads/2017/05/Catalogue\\_TDSB\\_Sci-in-School\\_2018-2019\\_web.pdf?fbclid=IwARoYkUy51ow3dYhkRNynXolvNB8uwCEkYkYdQ678K4p6AkBDzC1G4EEJoGQ](https://www.scientistsinschool.ca/wp-content/uploads/2017/05/Catalogue_TDSB_Sci-in-School_2018-2019_web.pdf?fbclid=IwARoYkUy51ow3dYhkRNynXolvNB8uwCEkYkYdQ678K4p6AkBDzC1G4EEJoGQ)
- The Bamco Group. (2019). *About Bamco*. Retrieved from <https://thebamcogroup.com>
- The Government of Ontario. (2007). *The Ontario Curriculum Grades 1-8: Science and Technology*. Retrieved March 12, 2019, from <http://www.edu.gov.on.ca/eng/curriculum/elementary/scientec18currb.pdf?fbclid=IwAR26UMGgGETL1XkcfAE8oIV1f5EPNoO-MQVGivK6beqakNoOYq2eTQNW2rM>
- West Five. (n.d.). *London Feel the Energy*. Retrieved March 15, 2019, from <https://west5.ca/>