

**Ministry of Housing
Innovation, Evidence, and Capacity Building (IEC) Fund
2017-18 Funding
Application Form**

Please read the Call for Grant Proposals before completing this form as it contains important information about the content of your application. Please complete all sections of this form with all requested details. The completed form should be **no longer than 18 pages**, including any appendices. Letters of reference or recommendation are not required. You may expand the boxes within the application form if more space is needed.

Project Name: Northern Ontario Energy Retrofit Research: Affecting policy and program development through an investigation into housing retrofit programs and the sustainable supply of housing.

Organization: Manitoulin-Sudbury District Services Board

Funding Requested:

Total Requested Amount
\$ 69,320

Organization Information

Provide administrative details of the organization that is making the application and any other organizations involved in the proposed project/initiative.

Lead Applicant

Organization Legal Name:	Manitoulin-Sudbury District Services Board
Website URL:	www.msdsb.net
Corporate Registration Number:	869262824 RT0001
CRA Business Number:	869262824 RT0001
Date of Incorporation:	April 1, 1999

Other Organization:(If applicable):

Organization:	University of Guelph
Contact Person:	Abhilash Kantamneni
Address:	124 Hutt Building, University of Guelph, ON, Canada, N1G 2W1
Phone:	1-226-500-4424
Email:	akantamn@uoguelph.ca

Organization:	Click here to enter text.
Contact Person:	Click here to enter text.
Address:	Click here to enter text.
Phone:	Click here to enter text.
Email:	Click here to enter text.

***Note:** If the proposed project is to have shared responsibilities, one lead applicant must be identified who will enter into a Transfer Payment Agreement and accept responsibility for accounting and reporting on the project. The lead applicant **must** meet the eligibility requirements as outlined in the Call for Grant Proposals.

Applicant Contact Information

Provide contact information for the organization who will be the sole contact responsible for all communication with the Ministry of Housing in regard to this application. This individual must be from the 'Lead Applicant' organization.

Salutation:	Mr. Patrick Wittmann
First and Last Name:	Patrick Wittmann
Phone Number:	705-862-7850 EXT 500
Address:	210 Mead Blvd., Espanola, Ontario, P5E 1R9
Email:	patrick.wittmann@msdsb.net

PART 1: Executive Summary

Provide a brief summary that outlines the key elements of the project. (250 words maximum)

Despite decades of programs and incentives, many housing managers continue to face challenges in planning and implementing comprehensive energy retrofits.

Unlocking the massive potential for energy retrofits in the social housing sector is the overarching goal of the project. The objectives are to

- identify and promote strategic partnerships with stakeholders that provide expertise beyond what is currently offered in the sector,
- build capacity for energy upgrades through the development of a long term energy management plan for social housing in Northern Ontario,
- leverage the proposed energy management plan to improve readiness within sector to emerging investment opportunities and challenges,
- mobilize lessons learned and best practice recommendations throughout and beyond the sector.

Researchers from University of Guelph and housing practitioners from Manitoulin-Sudbury District Services Board will collaborate on the following project activities -

1. Map the institutional landscape for energy sustainability programs
2. Develop partnerships with external stakeholders
3. Collaboratively develop best practice recommendations for long-term energy management plans.

The team will also conduct pre and post project evaluation of organizational capacity and readiness as a host for sustainable energy investments. The team will leverage partnerships disseminate project insights across and beyond the social housing sector.

Taken together, the overall mission of this project is to document evidence for an energy management framework that has the potential to build capacity for long-term comprehensive energy retrofits in social housing. Insights from this project will be mobilized to inform policy and program development for future investments across the entire sector.

PART 2: Objectives

List the key objectives or goals of the project.

(250 words maximum)

The overarching project goals are unlocking the massive potential for energy retrofits in the sector by building capacity and improving readiness to emerging opportunities and challenges. To this end, the objectives of the project are to

1. Map the institutional landscape for energy efficiency and sustainability in housing units throughout Northern Ontario
 - Identify local, provincial, and federal programs, policies, plans and funding opportunities for energy initiatives.
 - In addition to services already provided in the sector, map the actors, networks, institutions and coalitions that can lend expertise to support energy retrofits.
2. Collaboratively develop activities that strategically and systematically address barriers at each stage of the retrofit journey.
3. Translate activities into actions and roles within generic energy management framework that integrates seamlessly into existing MHO's best practices on Strategic Asset Management Framework¹.
4. Leverage partnerships (NOSDA, ONPHA, HSC) to mobilize project insights across and beyond the social housing sector.

PART 3: Project Description

Provide a detailed description of the project and proposed activities.

(1500 words maximum)

¹ Ontario Ministry of Housing. (2014). *Revitalizing and refinancing social housing: how do you get there?* Retrieved from: <http://www.mah.gov.on.ca/AssetFactory.aspx?did=10648>

Acknowledgement: The conceptual background for this project emerged from a literature review conducted by Mr. Kantamneni as a MiTACS intern when working on research project by Toronto and Region Conservation Authority (TRCA) and Evergreen CityWorks under the sponsorship of the Ontario Ministry of Housing.

BACKGROUND

Utility bills represent the single largest controllable operational costs for social housing in Ontario.² Consequentially, energy efficiency and sustainability upgrades can make social housing more comfortable, affordable and secure, while also meeting Ontario's strategic objectives and climate change goals. Yet, despite decades of provincial programs and utility rebates, many housing managers continue to face challenges in planning and implementing comprehensive energy retrofits. How can such barriers be overcome and the full potential of energy savings in social housing be unlocked?

BARRIERS TO SUSTAINABILITY

Challenges towards achieving greater energy sustainability in social housing can be classified into broad categories of *awareness*, *technical*, *institutional* and *financial* barriers. These barriers are not discrete and independent events. Instead, housing providers navigate through these challenges in sequential retrofit pipeline (Figure 1)..

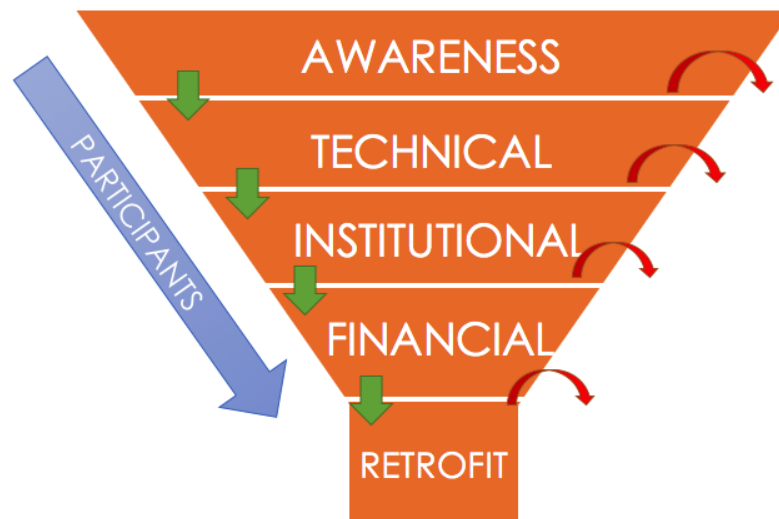


FIGURE 1: CONCEPTUAL DIAGRAM OF BARRIERS TOWARDS GREATER ENERGY SUSTAINABILITY IN SOCIAL HOUSING.

At each stage of the pipeline, the barriers³ can be strong enough to cause some participants to 'bounce off'. Similarly, strategic interventions through policy, planning and programs can act as strong drivers that help advance participants to the next stage of the pipeline.

For instance, a housing provider interested in implementing energy upgrades may not be aware of services offered outside the sector. Once resolved, providers may then lack the domain expertise to choose specific technology interventions for reducing energy use. Subsequently, institutional factors like the nature of "use it or lose it" funding is additionally constraining to Northern housing providers due to the short construction season and increased cost of contractors. Ultimately, making a business case for capital investment in energy upgrades may prove to be the biggest challenge for most providers

² HSC. (2015, Oct 15). Housing Services Corporation (HSC) Submission to EB-2014-0134, from <http://www.rds.ontarioenergyboard.ca/webdrawer/webdrawer.dll/webdrawer/rec/452483/view/>

³ Weber, L. (1997). Some reflections on barriers to the efficient use of energy. *Energy Policy*, 25 (10), 833-835.

NEED FOR SECTOR-WIDE CAPACITY BUILDING

In the past, incentive programs for energy upgrades (REI, SHARP, SHEEP, SHIP) have offered up to 100 percent up-front capital cost subsidies to support a business-case for retrofits. In doing so, such programs directly tackle the biggest and final bottleneck in the energy retrofit pipeline –the lack of access to capital. When funding is limited and competitive however, program eligibility is restricted to a small percentage of housing providers and provides funding only for a portion of the necessary retrofit. An even smaller segment actually receives the full benefits of such programs.

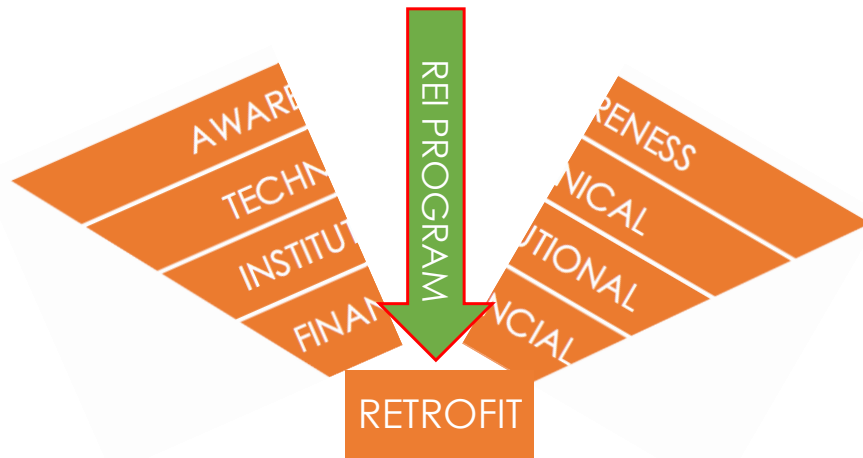


FIGURE 2: CONCEPTUAL OVERVIEW OF LARGE UP-FRONT CAPACITY PROGRAMS (LIKE THE REI PROGRAM), AND THEIR EFFECT ON THE RETROFIT PIPELINE.

Concentrating funding at only one stage of the retrofit pipeline can risk negatively disrupting the entire retrofit process (See Figure 2). Without support to address barriers at earlier stages of the pipeline, fewer and fewer providers are likely to advance through the retrofit pipeline. The scale and pace of necessary energy upgrades cannot be met exclusively through traditional public incentive mechanisms like up-front cost subsidies or fully funded projects. Successful implementation of comprehensive energy sustainability upgrades across the social sector requires a long term holistic retrofit program should seek to-

- Increase overall retrofit rate through strategic and systematic interventions at each stage of the retrofit pipeline.
- Build capacity and improve readiness within the sector to serve as a host for sustainable energy interventions.
- Leverage and mobilize emerging policy, technology, social, governance and financing innovations to develop a long term energy management plan.
- Integrate comprehensive energy management plans into existing asset management strategies.

LONG TERM ENERGY PLANNING IN SOCIAL HOUSING

To illustrate this at a high-level, consider the generic energy portfolio management framework, explicitly modeled after MHO's Strategic Asset Management Framework⁴.

⁴ Ontario Ministry of Housing. (2014). *Revitalizing and refinancing social housing: how do you get there?* Retrieved from: <http://www.mah.gov.on.ca/AssetFactory.aspx?did=10648>

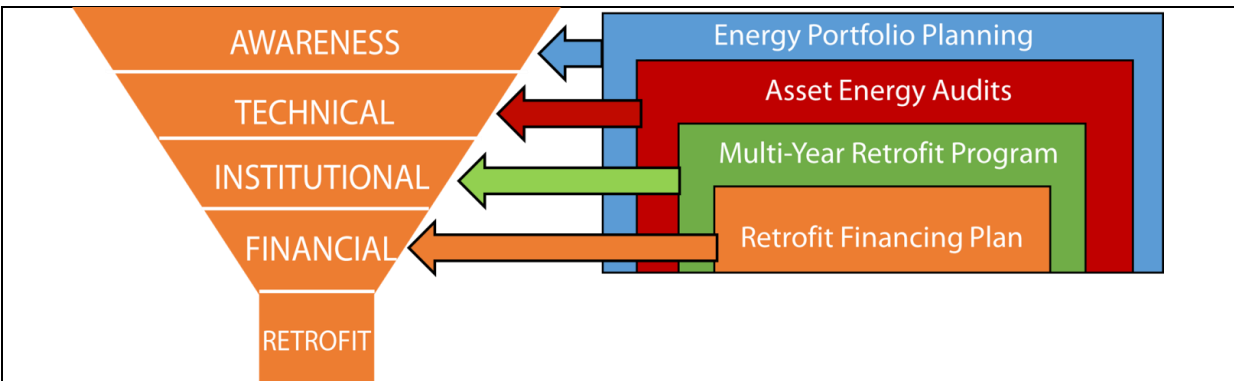


FIGURE 3: UNLOCKING THE FULL POTENTIAL OF ENERGY SAVINGS IN SOCIAL HOUSING THROUGH STRATEGIC AND SYSTEMATIC INTERVENTIONS.

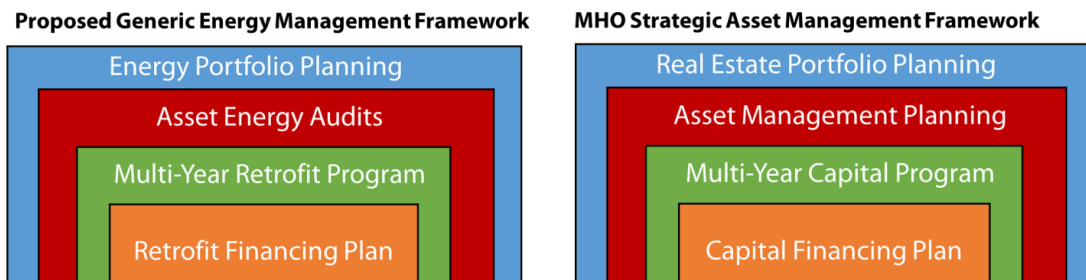


FIGURE 4: PROPOSED GENERIC ENERGY MANAGEMENT FRAMEWORK COMPARED TO MHO'S STRATEGIC ASSET MANAGEMENT FRAMEWORK.

The proposed framework provides guidance on how interventions for addressing critical barriers at individual stages of the retrofit pipeline can be stacked to create a holistic long-term plan for planning and implementing energy upgrades. Consider the following activities as an example –

1. Energy Portfolio Planning – Service managers develop portfolio wide energy needs assessment to identify buildings that need upgrades.
2. Asset Energy Audits – Service managers in consultation with housing providers perform energy audits to determine what energy upgrades to make.
3. Multi-year Retrofit Program – Service managers or housing providers develop a long-term plan to make energy performance upgrades.
4. Retrofit Financing Plan – Equipped with a retrofit plan and an M&V protocol, housing providers can solicit funding investments to support energy retrofits.

Northern Ontario Energy Retrofit Research Project –

Unlocking the massive potential for energy retrofits in the social housing sector is the overarching goal of the project. The objectives are to

- identify and promote strategic partnerships with stakeholders that provide expertise beyond what is currently offered in the sector,
- build capacity for energy upgrades through the development of a long term energy management plan for social housing in Northern Ontario,
- leverage the proposed energy management plan to improve readiness within sector to emerging investment opportunities and challenges,
- mobilize lessons learned and best practice recommendations throughout and beyond the sector.

Taken together, the overall mission of this project is to document evidence for an energy management framework that has the potential to build capacity for long-term comprehensive energy retrofits in social housing in Northern Ontario, and to mobilize insights to inform policy and program development for future investments across the entire sector.

To this end, researchers from University of Guelph and housing practitioners from Manitoulin-Sudbury District Services Board will collaborate on this project with activities occurring in three overlapping phases -

1. Landscape Mapping

- a. Identify local, provincial, and federal programs, policies, plans and funding opportunities for energy initiatives.
- b. In addition to services already provided in the sector, map available actors, networks, institutions and coalitions that can lend expertise to support energy retrofits. (example- Community Energy Plans)
2. Developing partnerships
 - a. Process planning workshops, to match needs and priorities of housing providers with cross-sectoral partners.
 - b. Collaborative design workshops, mapping barriers and exploring options for strategic and systematic interventions.
3. Documenting Evidence –
 - a. Document insights into best practice recommendations for a generic energy management plan for social housing providers.
 - b. Test extent to which such an energy management plan integrates into existing asset management plans.

In addition to an interim and final report, regular updates and Insights from the project will be mobilized to a broad multi-sectoral audience.

The impacts of this project will be measured through a pre and post-project evaluation of organizational capacity using the following performance indicators –

- Inputs – Resources invested in retrofit programs., (before vs after)
- Process – Activities carried out to achieve program objectives, (before vs after)
- Outputs – Immediate results from executing program activities (before vs after)
- Outcomes – Near-term effects of program within the sector (before vs after)

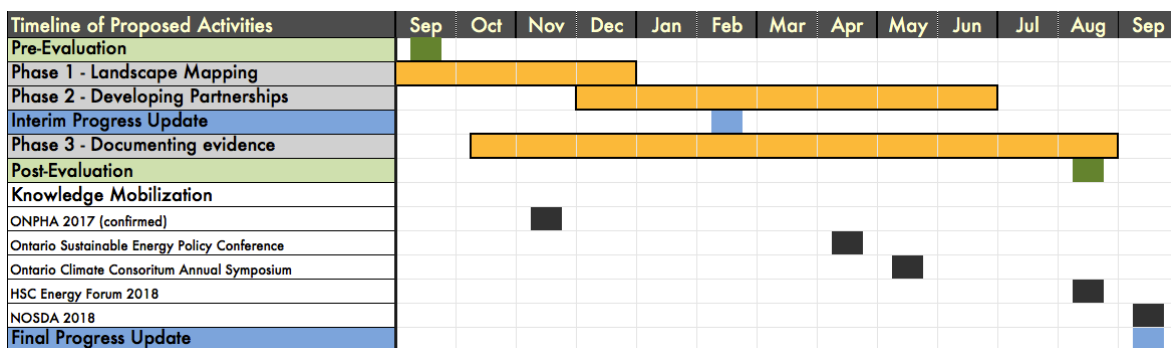


FIGURE 5 GANTT CHART OF PROPOSED ACTIVITIES AND TIMELINES

PART 4: Alignment with LTAHS Update Theme(s)

Identify which LTAHS Update themes the project will support and outline how the project will support the capacity of the system in relation to each of the themes identified. For additional information regarding these themes, please refer to the document “Ontario’s Long-Term Affordable Housing Strategy Update” available at <http://www.mah.gov.on.ca/AssetFactory.aspx?did=13683>.

(250 words maximum per theme)

Sustainable supply of housing stock

Goal of ending homelessness

- Fair system of housing assistance Indigenous housing strategy
- Coordinated and accessible support services Effective use of evidence and practices

Sustainable supply of housing stock-

- Utilities are the single largest operational costs social housing. Reducing energy use can make housing more affordable, with cost savings potentially reinvested into new affordable housing stock.
- Integrating energy management into asset management strategies provides opportunities for leveraging energy upgrades for the regular maintenance and upkeep of housing stock.

Effective use of evidence and practices

- The project uses evidence based framework for planning long-term energy retrofits, and tests its potential to build capacity and readiness in the social housing sector.
- The results are intended to inform future Green Fund Initiative and other cross-sectoral future investment strategies.

PART 5: Innovation, Evidence, and Capacity

Describe how the public benefits of this project demonstrate at least one of the following:

- An approach that enhances services currently provided in the sector;
- Potential to build and increase sector capacity – manage change, develop new skills and/or take advantage of new opportunities; and/or
- Encourage the development of an evidence-informed system that has the capacity to respond effectively to changing needs and/or promote culture of continuous improvement.

(250 words maximum)

Despite decades of programs and incentives, many housing managers continue to face challenges implementing comprehensive energy retrofits. In the past, incentive programs for energy upgrades (REI, SHARP, SHEEP, SHIP) have offered up to 100 percent up-front capital cost subsidies to support a business-case for retrofits. When funding is limited and competitive however, program eligibility is restricted to a small percentage of housing. An even smaller segment actually receives the full benefits of such programs.

A long term energy management plan can identify the poor energy performers across a housing manager's building portfolio. This helps providers prioritize energy projects, improving their readiness in responding to changing needs and future funding opportunities.

Developing strategic partnerships with stakeholders outside the sector will provide housing providers to plug into new networks, and leverage new opportunities. Participation in collaborative design workshops with a diverse stakeholder group can help build capacity for innovation, creative problem solving and the development of new skills

PART 6: Outcomes Approach

Identify the need(s) being addressed within the housing and homelessness sector, and the positive and broad impacts to the sector that the project/initiative will achieve relative to the need(s) identified.

(250 words maximum)

Needs	Outcomes
A comprehensive energy retrofit strategy that works.	Project builds evidence - based energy management plan that demonstrates building capacity within the sector for planning and implementing energy upgrades .
Social enterprise for innovative responses to emerging challenges	Partnerships with key stakeholders, including ones outside the sector, can help housing providers enhance skills, arrive at new solutions and design effective strategies to tackle barriers to energy upgrades.
Sustainable housing stock	Energy management, when successfully into asset management strategies can help social housing providers leverage energy retrofits to perform much-needed asset upgrades, elevating the quality of their housing stock.
Make housing more affordable	Project seeks to unlock the massive potential of energy savings in the social housing sector. With utility rates being a significant portion of annual operating costs, reducing energy use makes housing more affordable.
Secure alternative revenue streams	The proposed energy management plan helps housing providers develop a multi-year retrofit strategy and a 'budget wishlist', improving their readiness to host emerging public and private sustainability investments. For instance, social housing providers can leverage emerging funding, policy and technology support for local community energy plans in Ontario to pursue new investment opportunities.

Describe the approach that will be taken to assess the following and how the following will be publically shared.

- Results of the project (e.g. performance indicators, a summary of the outcomes, a deliverable that was provided);
- Best practices identified; and/or
- Lessons learned.

(250 words maximum)

Capacity' can be defined as the *ability of an individual or institution to carry out stated objectives*. Capacity building, therefore, is strengthening the ability of an individual or institution to perform specified activities. Building capacity can also improve organizational readiness in response to emerging challenges and opportunities.

The results of this project can be assessed by mapping the components of capacity before and after project implementation using the following performance indicators -

- Inputs – Resources invested in retrofit programs.
 - What % of DSSBs have allocated or secured additional resources for energy upgrades? Resources can include financial incentives, technical tools, social innovation, strategic partnerships, institutional or organizational support.
- Process – Activities carried out to achieve program objectives
 - What % of DSSBs have changed their activities, partners, networks, or tools used for planning and implementing energy upgrades?
- Outputs – Immediate results from executing program activities

<ul style="list-style-type: none"> ○ What % of DSSBs have taken steps towards adopting the energy asset management framework? • Outcomes – Near-term effects of program within the sector <ul style="list-style-type: none"> ○ What % of DSSBs report a change in organizational readiness towards leveraging emerging opportunities for public and private investments in energy sustainability? <p>Mr. Wittmann and Mr. Kantamneni have been invited to host a workshop on energy upgrades at the 2017 ONPHA annual conference. Mr. Kantamneni regularly presents at academic and practitioner conferences on the subjects of energy retrofits in social housing. The team will continue leveraging such opportunities to mobilize insight on key lessons learned from this project. A detailed knowledge mobilization plan is included in project timelines.</p>

PART 7: Feasibility & Value For Money

Identify key milestones and activities for the duration of the project/initiative using the chart below. You may expand the chart or attach it as an appendix to provide additional information if required. Projects are expected to be implemented within 12 months of receipt of funding.

Activity/ Milestone	Start Date	End Date	Description
Mapping the components of capacity	4-Sep-17	30-Nov-17	Investigate the Inputs: the energy retrofit projects invested in through federal/provincial retrofit programs.
Procedural review	4-Sep-17	30-Mar-18	Investigate the energy retrofit grant funds and other resources allocated to sustainability, energy management, and upgrades.
Output investigation	2-Apr-18	4-Jun-18	Investigate the output results of the steps taken toward sustainability including a review of the energy asset management framework.
Outcomes	4-Jun-18	31-Aug-18	Develop a comprehensive report on the sustainable strategies in place and clear results of these efforts. This will feed the subsequent activity of a Federal/Provincial Energy retrofit program review.
Federal/Provincial Energy Retrofit Program review and comparison.	1-Feb-18	2-Apr-18	The program review will provide the necessary historical context of past retrofit program requirements. The results of this review will be combined with the results of the earlier investigations to inform policy and procedural considerations for future Federal/Provincial energy retrofit programs.
Engage with the Ministry of Housing.	1-May-18	1-Jun-18	Arrange opportunities for the NOSDA leadership to meet with the appropriate Ministry representatives to develop improved and more effective energy retrofit programs for SM's in Northern Ontario.

Activity/ Milestone	Start Date	End Date	Description
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Provide a detailed budget that outlines the costs that would be incurred for the project. You may use the chart below or attach a budget separately. Provide a brief explanation of why each budget item is needed. Total costs must add up to the funding requested.

Description of Expense (include quantities where applicable)	Cost (also include per unit cost where applicable)	Reason for Expenses
Graduate Research Stipend	\$30,000 (\$10,000 per term)	Require a complete year (3 term) to accomplish the intended project.
Travel, Materials	\$10,000	The NOSDA area spans all of Northern Ontario north of Muskoka. In order to fulfill the breadth of research, long distance travel is an unavoidable cost to ensure representation from across the north.
PHD Advisor (Professor Dr. Kirby Calvert) for methodology, output and project management/oversight.	\$9,000	The oversight of the faculty advisor is critical to ensuring a high quality of research can be produced as scoped within timelines projected.
Research Assistant Stipend	\$15,320	The research assistant works in tandem with the graduate student to collect data and provide administrative support.
Meetings	5,000	Meetings will be held at various locations throughout the district to engage with stakeholders and SM's during each stage of the research project.
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Description of Expense (include quantities where applicable)	Cost (also include per unit cost where applicable)	Reason for Expenses
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Using the table below list the outcome(s) or target(s) that the project expects to achieve and the indicator(s) that will be used to measure success. Depending on the nature of the project, outcomes and indicators do not necessarily have to be quantitative or numerical targets – qualitative measures can also be used.

Outcome(s)/Target(s)	Indicator(s)
Develop an energy management plan that works	A measure of how many Northern SM's have adopted the generic energy management plan
Build capacity in the sector for undertaking energy upgrades.	Pre and post project evaluation of organizational capacity (inputs, process, outputs, outcomes. + A measure of how many providers have planned retrofits in the pipeline.
Improve readiness within the Northern SM's to successfully and appropriately apply for and deliver on future funding programs.	Pre and post project evaluation of self-reported confidence and readiness
Mobilize insights and lessons learned across the social housing sector	Number of individuals and types audiences engaged across all events. Fraction of housing sector engaged. Number of housing providers (outside NOSDA) attempting to replicating the framework.
Develop energy management plan that integrates into existing asset management practices	Number of housing providers that have successfully incorporated energy management into their portfolio management strategies.
Use project results and best practices to Inform policy and future program design consideration	Subsequent energy retrofit programs and policies will take into account the results of the research and adapt accordingly to enable successful and significant energy retrofits in Northern Ontario and across the sector.
Build strategic partnerships for social innovation with key stakeholders outside the sector	Post project evaluation of process to measure how many providers not include other stakeholders in the retrofit process.

Describe how your proposed project/initiative could be adjusted to require a smaller budget.

(250 words maximum)

The Graduate Research Stipend is \$10,000 a term. It is expected that this work will take 3 terms to complete. If the project is faster than expected, there could be a savings of ½ of a term or \$5,000. It is important to maintain the pace of the project and to avoid an interruption so that the results of the study can feed future retrofit programs before they are released.

The Manitoulin-Sudbury DSB Infrastructure Supervisor is a key contributor to the project and costs are 100% funded by the DSB for his efforts, thus the project is less expensive than if these efforts had also required grant funding.

Other SM's and DSSAB's who will provide information for this study will be funded through their organizations. NOSDA housing providers have consistently expressed an interest in supporting research of this very nature, given past experiences of inadequate or inaccessible funding, and other barriers as discussed in sections prior.

Describe current or anticipated other funding sources that are being leveraged.

(250 words maximum)

A portion of Mr. Kantamneni's time and travel expenses are paid for by Social Sciences and Humanities Research Council (SSHRC) partnership development grant, funded through Community Knowledge-Action Partnership (CEKAP). There are no future funding sources planned to be leveraged at this time.

It is likely that partnerships between housing providers and stakeholders can create opportunity for leveraging new streams of funding, but will not have an impact on the scope of this work.

PART 8: Experience & Expertise

Describe the lead organization's capacity and expertise to carry out this project. This includes, but is not limited to demonstrating familiarity with the housing and homelessness sector, and past success in implementing initiatives of similar size and scope. Where there are multiple organizations involved, briefly explain each organization's expertise and their specific role in the project.

(250 words maximum)

Mr. Kantamneni is a PhD Candidate at the University of Guelph. His work in leading successful community engaged energy retrofit programs have received wide recognition, including being named a '40 Under 40 Energy Transition Leader' by the Midwest Energy News. Over the last few months, Mr. Kantamneni worked with Toronto and Region Conservation Authority (TRCA) in evaluating energy sustainability initiatives in Ontario social housing. The research was conducted in partnership with Evergreen and under the sponsorship of the Ontario Ministry of Housing.

To this project, he brings his expertise in community engagement and research design. He will be responsible for institutional landscape mapping, stakeholder engagement, results evaluation, and implementing a knowledge mobilization plan.

Mr. Wittmann has completed his Master's in International Construction Management with a focus on sustainable development through the University of Bath, England. As the infrastructure and asset supervisor for the Manitoulin-Sudbury DSB, and a Certified Housing Professional through CIH Canada, Mr. Wittmann brings

significant experience to the project. He is the Co-Chair of the NOSDA Housing Services Working Group and leverages that position to collate the sustainability concerns of housing providers across Northern Ontario.

PART 9: Sustainability

Identify any risks to delivery of the project and mitigation strategies.

(250 words maximum)

- Resource issues and team turnover – A small team faces the risk to project delivery due to the loss of a core team member due to unforeseen circumstances.
 - Some of the risk can be mitigated by consistently using best practices to document the research and preserve institutional knowledge,
- Stakeholder expectations, scope creep and the allure of a silver bullet solution. Housing providers might not intuitively grasp the capacity-building mandate of this project. Housing providers might expect the project team to perform energy audit or make recommendations about specific technological interventions.
 - Risk can be avoided by engaging with the community early, and often. Set and manage expectations through clear and regular communication about project goals, outcomes and methods.
- Managers and staff in social housing may express reluctance in participating in a research project and remain disengaged.

A lot of ground work and community engagement on this issue started much before this funding proposal was announced. As early as December 2016, the project team identified, among the Northern Ontario Housing Services Working Group, a willingness to participate in a research project investigating energy retrofit strategies. In January 2017, an informal Northern Energy Working Team for Sustainability (NEWTS) made up of NOSDA Housing Services Working Group members was formed to mobilize participation in research activities and to support data collection efforts, in anticipation of an opportunity like this IEC Fund. Having laid the groundwork over the last few months we are confident about securing the participation of NOSDA housing sector stakeholders.

Provide the plan to ensure completion of the project/initiative if it is expected to continue beyond the end date of the IEC Fund Grant. The plan should not be dependent on additional funding from the IEC Fund. If it is not applicable, please explain why.

Capacity-building is a long term endeavor but the tangible results of the study, within the grant timeframe, are achievable. The IEC Grant will provide for the review, assessments and subsequent development of policy/program development for future retrofit programs.

The capacity building through social innovation will come through the results of the investigations and sharing through the NOSDA Housing Services Working Group. Dissemination of the research results by the NOSDA group to Indigenous, non-profit and other housing providers will further increase the sector capacity and sustainability of housing stock. Program evaluation at the end of the project timeline represents just a snapshot in time of the organizational capacity. As scoped, capacity-building is likely to continue in a self-sufficient virtuous cycle. Beyond the timelines of the IEC Grant, any support from the project team will come from their normal course of duty, (Mr. Wittmann as the Co-Chair of the NOSDA Housing Services Working Group, and Mr. Kantamneni as a PhD Candidate studying energy planning and transitions). If there is a strong request from housing managers in NOSDA for this project to continue, alternative funding streams for graduate research like MITACS may be leveraged.