A Strength's Based Review of the High Efficiency Wood Stove Pilot Project in NunatuKavut – Preliminary Results

Report Prepared for: NunatuKavut Community Council

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1. Introduction

The NunatuKavut Community Council's (NCC) Department of Research, Education and Culture, has partnered with researchers from Dalhousie University's School for Resource and Environmental Studies, and the University of Prince Edward Island's (UPEI) Master of Arts in Island Studies Program, to conduct a review of the High Efficiency Wood Stove (HEWS) Pilot Project. The HEWS pilot project came as a result of NCC's community-specific energy planning process, which took place from 2018 – 2019 (Mercer, Parker, Martin, Hudson, 2018). The HEWS pilot project aimed to address the "immediate community concern" (pg. 3) of heat insecurity within the target community of Black Tickle, as well as to promote a model of a genuine community-led energy initiative (Mercer, Oxford, Wood, Martin, Battcock, Casper, Poole & Slade, 2022). Ultimately, 1 pellet stove and 13 high efficiency wood stoves were installed in the community of Black Tickle as a result of this project.

This review aims to evaluate the HEWS pilot project's effectiveness as an energy security project, and as a framework for appropriately working with Indigenous communities to achieve community goals. In doing so, this research hopes to inform future partnerships with NCC and NunatuKavut communities, as well as similar community-led projects globally.

2. Methods

This research has been reviewed and approved by NCC's Research Advisory Committee. Upon receiving approval from the NCC-RAC, research approval was sought from the Research Ethics Boards at Dalhousie University and the University of Prince Edward Island. This review is grounded in a Community Based Participatory Action (CBPAR) research framework, which has been identified as "a powerful tool for advancing research through its commitment to

amplifying and centralizing the voices of historically and marginalized communities" (Cannon et al., 2023, pg. 2). CBPAR is meant to be a largely adaptable process, driven by a desire for greater equity and inclusion. Knowledge is generated from the integration of community values and autonomy throughout all research stages, and through a focus on bi-directional learning, capacity building, and the usage of culturally appropriate methodologies (Cornwall & Jewkes, 1995).

The evaluation of the HEWS pilot project was conducted through two primary methods, which were determined through collaboration with NCC representatives. On November 2nd, 2023, a focus group session took place over Zoom with community members of Black Tickle. A total of 14 participants took part in the focus group discussion. This focus group session explored concepts of energy resilience & autonomy, community member perceptions on the process and outcomes of the HEWS pilot project, and provided a space for open dialogue regarding the HEWS project for community members (See Appendix A). Secondly, key informant interviews were conducted with NCC staff, knowledge keepers, and persons associated with the conceptualization, development, and/or implementation of the HEWS project. This document will lay out preliminary results from the focus group session that took place in November 2023. Focus group participants were recruited through advertising posters shared in the community and online by NCC, as well as through word-of-mouth, while participants of key informant interviews were contacted via email invitation.

Both the focus group session and key informant interviews have been transcribed verbatim by members of the research team. From these transcripts, as well as field notes taken by researchers throughout the process, key themes and perspectives were drawn (Braun & Clarke, 2006). Initial thematic findings have been reviewed by the research team, from which

came a request from NCC for a strengths-based analysis to be completed on the themes & perspectives gathered.

Strengths-based approaches are crucial in the ascension of research models that support local Indigenous self-determination and the decolonization of research (Sherwood & Anthony, 2022). They do not deny or ignore weaknesses, rather, they focus instead on the celebration and promotion of positive elements within research findings, such as "capacities, talents, competencies, possibilities, visions, values, and hopes to foster resilience and transformation" (Mercer, Martin, Wood, Hudson, Battcock, Oxford, 2024, pg. 26-27, *In Review*). Contrary to deficits-based or deficit-oriented approaches which provide evaluative benefits, yet risk the promotion of negative stereotypes, the disempowerment of communities, and the potential for ignoring the systemic basis of the identified deficits (Mercer, Martin, Wood, Hudson, Battcock, Oxford, 2024, *In Review)*.

Data was analyzed through a community energy framework, as laid out by Walker & Devine-Wright (2007). In this framework, community-based projects are defined by two dimensions: a process dimension, which refers to *who is involved with the development and implementation of a project*; and an outcome dimension, which refers to *who benefits from the project* on a social, economic, and spatial scale. This outcome dimension matches up well with the common "three-pillars" conceptualization of sustainability, which suggests that in order for sustainability to be achieved in a just and equitable manner, it must collectively address the needs of the environment, economy, and society (Kuhlman & Farrington, 2010). Walker & Devine-Wright argue that these dimensions of process and outcome exist on a spectrum, and there are many ways in which a project may be situated on that spectrum (See Figure 1). In the top right quadrant (C) of Figure 1, is where Walker & Devine-Wright would place an 'ideal'

community project, “one which is entirely driven and carried through by a group of local people and which brings collective benefits to the local community” (Walker & Devine-Wright, 2007, pg.498).

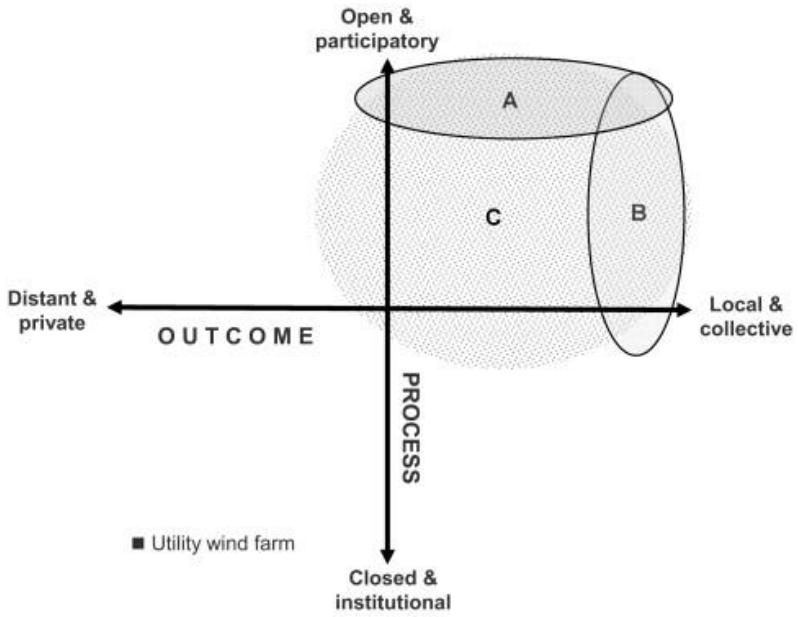

Figure 1: Understanding of community renewable energy in relation to project process and outcome dimensions. (Walker & Devine-Wright, 2007)

3. Process

Focus group discussion participants noted many procedural strengths associated with the HEWS pilot project, including communication between the research team, NCC, and the community, capacity building, and the championing of Inuit knowledge.

3.1. Communication & Capacity Building

The idea of installing high efficiency wood stoves arose in initial meetings in March 2022 between community members and NCC on the issue of heat insecurity (Mercer, Oxford, Wood, Martin, Battcock, Casper, Poole & Slade, 2022). Following this, there were multiple research design workshops and calls between community leaders & NCC, to develop the HEWS pilot

project, throughout the spring of 2022. Community members recall being heavily involved in the application/survey process from late June to early July of 2022 (Call for Expressions of Interest: High Efficiency Woodstove supply and installation in Black Tickle, 2022) (Living in Black Tickle and want to participate in the High Efficiency Woodstove Pilot Project?, 2022) Following the approval of applications, NCC shared posters, updates, and feedback to their website (See Appendix B: NunatuKavut Community Council installs high-efficiency wood stoves in Black Tickle) and through email to those who had been approved, advising them throughout the process.

One community member recalled the process leading up to the conceptualization of the HEWS project and being involved heavily from start to finish.

> *"…it started with the project where they brought in the wood. And they were having a hard time finding people to do that contract, to bring the wood in. So, they were asking, if we can't keep bringing wood into the community, what would be the next step to make that whole process easier for a community that basically um… burns wood. And I can't remember who it was or who said it on the meetings, but somebody brought up about the high efficiency wood stoves, and the pellet stoves, about how they don't… one of them don't burn wood, and the other burns less wood. And that's how basically it all started in talks, and I was the one that done most of the applications for them. I called people to see if they were interested, sent in the applications, done the house inspections, done what needed to be done in terms of measurements and pictures…"*

3.2. Championing Inuit Knowledge

Community members believe that NCC and the larger research team did "*a great job*" in honouring local knowledge and expertise throughout the development and implementation of the

HEWS pilot project. Specifically, regarding how the priorities of the community were included in the application and approval process. Community members were adamant that seniors should get priority when applying for the new high efficiency wood stoves, due to the aging population of Black Tickle, and the increasing difficulty and cost associated with getting wood into the community. Participants in the focus group session expressed how proud and grateful they were that, throughout the HEWS pilot project, NCC was able to value local knowledge and desires laid out in the research design process (Mercer, Oxford, Wood, Martin, Battcock, Casper, Poole, Slade, 2022). Additionally, community members shared that they felt as if they had control over key aspects of installation within their home, and that the installation team listened to what homeowners had to say.

4. Outcomes

When asked to speak on the outcomes of the HEWS pilot project, focus group discussion participants shared many environmental, economic, and social benefits. These outcomes are summarized in Figure 2.

Environmental	Economic	Social
- Reductions in the amount of wood burned. - Reduced reliance on fossil fuels products. - Lower emissions.	- Decrease in costs associated with home heating (wood, oil, etc.). - Decreases in money spent on fuel oil. - Initial upfront cost of HEWS was covered.	- Less labour required to meet home heating needs. - HEWS are safer for children and elderly. - Familiarity - More time spent with family.

Figure 2: Outcomes of HEWS pilot project

4.1. Energy Consumption & Economic Improvements

Every home burns a different amount of energy, but overall, there have been decreases to the amount of money spent to heat homes. Many residents share that their electricity bill has increased, due to the motors and fans in the high efficiency wood stoves that allow for heat to be transferred throughout the house. However, not having to spend as much money on fuel oil leads to overall savings in home heating. One resident noted that they went from burning two drums of fuel oil to half a drum of fuel oil per month, effectively cutting costs from $400 per month to $100 per month. Other residents shared that they used to burn up to four and half drums of fuel oil per month, but with the installation of their high efficiency wood stove, they barely burn any fuel oil now.

For residents of Black Tickle, there is a familiarity associated with wood heating, and community members are noticing changes in the amount of wood that is being burnt when using the high efficiency wood stoves, as opposed to older wood stoves. One resident mentioned that they used to burn ten loads of wood per year, but now only burn around seven loads per year, effectively saving themselves from burning one cord of wood, per year. High efficiency wood stoves can cost thousands of dollars to purchase and install, and residents noted how helpful it was to have this large upfront capital cost covered for them.

4.2. Wood Stove Improvement

Overall, initial experiences with the new high efficiency wood stoves have been largely positive, with many community members agreeing that the HEWS pilot project *"met and exceeded expectations"*. Not only are the new high efficiency wood stoves safer, as they do not give off excess heat on their sides, but the amount of work required to keep them running throughout the day is significantly lower. Residents are noticing massive differences in how

often they must tend to the fire in their wood stove, and the amount of wood needed to generate heat for their home.

> *"…any other year we used to burn around ten loads of wood a year. But putting those stoves in, we've cut it back to seven loads a year, so we're saving three loads just for a year."*

4.3. Changes to Labour Associated with Home Heating

There are differences in experiences between households, as there are many factors that influence home heating, such as the layout of the house, positioning of the wood stove, and desired temperature. However, residents are seeing the difference that high efficiency wood stoves make in the amount of work required to meet home heating needs. The new high efficiency wood stoves require residents to fill-up much less than older wood stoves.

> *"…for me and my family in my home, when we had the stove that was there prior to it, you'd be constantly going at like, it'd be you'd fill it up and poof! Gone. Fill it up and poof! Gone. So, you're filling up the stove anywhere from 3 – 4 times a day. And then you'd stop usually the fourth time at night. But now, I usually top my stove at seven in the morning when I get up, I usually fill up my stove and set her up for the day, then I don't touch her no more till I tops it for the evening!"*

It is important to note, that while the day-to-day labour required to meet heating needs at home has decreased, residents are still finding it difficult to obtain firewood. Residents must travel far to obtain wood or pay to get it delivered; an option that is becoming increasingly popular as the population continues to age, and as residents notice the changes to their winter season and shifts in the reliability of sea ice. Having the wood shipped is expensive, but residents find comfort in the ease and convenience that comes with it.

4.4. Environmental Improvements

The new high efficiency wood stoves are reducing the amount of wood needed to heat homes. Many residents still use similar amounts of wood, as they are able to lengthen their wood burning season and stay warmer for longer. Overall, however, there is a decrease in the amount of wood needed by the community; over time, this lessened load will reduce the impact on local forests and wood lots.

The high efficiency wood stoves installed in Black Tickle have an emissions rate of 0.4g/hr (Princess 32 (PE32), 2023). In Canada wood appliances are regulated to have emissions rates below 4.5g/hr, however, this standard has not always been in place, and older, conventional wood stoves previously used in the community may have much higher emission rates (CSA/EPA Standards on Wood Heating, n.d.). While wood burning in Black Tickle contributes a miniscule amount to global greenhouse gas emissions, a cleaner burn means cleaner air for the homeowners and community members.

4.5. Social & Cultural Improvements

Within the focus group session, there was conversation surrounding the concept of energy resilience, and what it means for the residents of Black Tickle. For many, resilience is associated with affordability, accessibility, and reliability. For community members, building this resilience comes from building upon community strengths and relationships. Currently and historically, relationship building has always been viewed as a way to improve resilience and security, so residents appreciate NCC-led programs such as the HEWS pilot project, for its ability to address community challenges.

Programs built through relationships between the community and NCC, such as the HEWS pilot project, can also help reinvigorate community traditions and culture. As mentioned

previously, wood burning is viewed as familiar and comfortable for members of the community. The HEWS pilot project has allowed for many residents to reconnect with tradition through time spent with family preparing and cutting the wood, the aesthetic comfort that the wood stoves provide, and the sense of security that comes with a warm home. Residents shared comforting experiences associated with their new wood stoves, like watching dogs and cats sleeping peacefully by the fire or roasting marshmallows and making smores. One resident shared that *"when my kid says to me, 'it feels so good to be warm in the house'... that means the world to me."*

It is important to recognize the social and cultural benefits that come from such projects, as they are often overlooked in favour of environmental or economic benefits, yet they carry an equally important impact on community members.

5. Recommendations

While there were many strengths associated with the HEWS pilot project, residents shared some comments, concerns, and recommendations for improvements.

1. Future installations should be mindful of wood stove components that may lead to challenges, such as chimney caps and offsets.

- Residents mentioned that there is a lot of cleaning required to ensure that chimney offsets aren't blocked by ash or soot.
- In the windy and snowy winter environment of Black Tickle, chimney caps can blow over and get covered by snow and/or ice, leading to smoke not being able to escape and filling up the house, instead.

2. Further steps need to be taken to ensure proper maintenance of the high efficiency wood stoves.

- Residents have found that it is very difficult to get replacement parts, or to contact outside companies for help in troubleshooting problems. Most end up having to solve problems themselves as they arise, which speaks volumes about the adaptability of residents, but is a concerning trend that needs to be addressed.

3. NCC should explore potential options to improve wood supply and access for their wood burning communities.

- While the wood stoves, themselves have been a "blessing", there are still some challenges associated with wood supply and heat retention in the houses. There was unanimous agreement among the community members present at the focus group session, that previous programs that supplied wood to the community were incredibly helpful, given the aging population, and the increasing difficulty in accessing firewood.

4. NCC should explore the potential for a home retrofit program, in order to increase heat retention in houses.

- Some residents expressed concern around their houses not retaining heat produced by the wood stoves properly. Increasing the ability of homes in Black Tickle to retain heat will be critical to the success of future energy projects related to heat insecurity.

6. Conclusions

The findings from the community member focus group session, discussed in this document, will eventually be supplemented by findings from key informant interviews. Similarly, within key informant interviews, there is a large focus placed on the process and outcome dimensions of the project, reflecting the community energy framework presented by Walker & Devine-Wright (2007).

Through the focus group session, community members shared key perceptions and experiences with the HEWS pilot project. Many themes arose, with conversations taking place regarding communication throughout the project between NCC, researchers, and the community; capacity building; championing Inuit knowledge; economic, environmental, social, and cultural benefits of the project; and recommendations for the future.

Following review and approval of this document by NCC representatives, researchers plan to bring these findings directly to community members, to receive their feedback and approval of the key themes and perspectives shared throughout this document.

6.1. Feedback from Results Dissemination Event

On February 21st, 2024, members of the research team, including representatives from NCC, held an in-person results dissemination event in the partner community of Black Tickle, to share the findings of this report, along with feedback from on-going communication with the installers of the high-efficiency wood stoves, and to respond to any comments, questions, or concerns from community members. Following a short presentation, feedback was sought from community members on the content of the presentation. Of the 18 community members present, there were no comments made in opposition to the contents of the presentation. However, community member did share updates on challenges in acquiring and storing wood throughout the winter months, particularly in regard to keeping the wood dry. Members of the research team have begun to discuss possible solutions to the challenges brought up by community members.

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Appendix

Appendix A: Focus Group Discussion Script

Focus Group Discussion Script: Envisioning and Advancing Energy Autonomy in NunatuKavut

Name of Facilitator: _____

Number of Participants: _____

Date of Focus Group: _____

Description: This research project is being co-led by the NunatuKavut Community Council's [NCC] Department of Research, Education and Culture, researchers from the Institute of Island Studies at the University of Prince Edward Island, as well as researchers within Dalhousie University's School for Resource and Environmental Studies. The primary objective of this focus group discussion is to gather community-member feedback on the recently implemented High Efficiency Woodstove Replacement pilot project in the community of Black Tickle, NunatuKavut. Specifically, we are seeking community-member feedback on the process, implementation, and outcome of the pilot project.

Section 1: Background and Context

1.1. Why did you choose to participate in today's workshop? What do you know about the HEWS pilot project?

_____

_____

_____

_____

_____

1.2. What do the terms ‘energy resilience’ and ‘energy sovereignty’ mean for Black Tickle, the Island of Ponds, and its residents?

1.3. What are the benefits that you have seen of firewood heating and the HEWS pilot project?

1.4. What limitations or risks are associated with firewood heating or the HEWS pilot project?

Section 2: HEWS Pilot Project Feedback (Process)

2.1. How were you, as community members, involved in the day-to-day management (or development) of the HEWS Pilot Project?

2.2. Did NCC's HEWS project reach those who were most in need? If not, who was left out and how can they be reached?

2.3. Do you feel as if local expertise and knowledge was valued throughout the implementation of the HEWS pilot project?

2.4. Do you feel as if the NCC research team shared the results and knowledge generated from the HEWS pilot project in an acceptable manner?

Section 3: HEWS Pilot Project Feedback (Outcome)

3.1. How has the HEWS project affected energy usage and consumption in the community?

Think specifically about:

(a) When, where, why, and how energy is being used in the community.

3.2. How has the HEWS pilot project impacted the labor, effort, and travel required to meet home heating needs?

3.3. Have you seen any cultural or social changes due to the implementation of the HEWS pilot project?

Think specifically about:

Sense of pride

Optimism

Sense of security

3.4. Do you feel as if the HEWS pilot project achieved its desired outcome(s)?

Section 4: Research Team and Concluding Thoughts

4.1. Do you have any final thoughts on the HEWS pilot project? Think specifically about community member's engagement, inclusion, ownership, and governance over the implementation and outcome(s) of this project.

Appendix B: NunatuKavut Community Council installs high-efficiency wood stoves in Black Tickle.

November 25, 2022

NunatuKavut Community Council installs high-efficiency wood stoves in Black Tickle

HAPPY VALLEY-GOOSE BAY, LABRADOR, November 25, 2022 – The NunatuKavut Community Council (NCC) today announced the implementation of a high-efficiency wood stove pilot project in Black Tickle, NunatuKavut. This project involves the installation of 13 high-efficiency wood stoves that significantly reduces wood consumption and lowers airborne pollutants.

The community of Black Tickle faces challenges in accessing sources for home heating and the cost of electric heat is prohibitive for most households. The high-efficiency wood stove pilot project helps address immediate concerns of access to clean, affordable, and reliable heat. Eligible applicants included NunatuKavut members who live in the community year-round. NCC will monitor the impacts of the wood stove installations, including wood consumption, and report findings back to the community. The project is part of a series of clean energy initiatives that NCC's Research, Education and Culture (REC) department is leading with funding provided by the Government of Canada's Indigenous Off-Diesel Initiative (IODI). NCC plans to expand this work into other NunatuKavut Inuit communities if funding can be secured.

The high-efficiency wood stove pilot project is the result of past community energy planning research and a research partnership between the REC department and researchers from Dalhousie University's School for Resource and Environmental Studies. The research partnership was funded primarily through a Social Sciences and Humanities Research Council (SSHRC) post-doctoral fellowship that is being held by Dr. Nick Mercer. It was supplemented with funding through the multi-year Canadian Institutes of Health Research (CIHR) Environment and Health Signature Initiative entitled A SHARED Future.

NCC seeks to advance and model community-led sustainable energy initiatives that are reflective of Inuit values and culture. This will be instrumental in building a strategic energy plan for NunatuKavut.

Quick Facts

- NCC is the representative governing body for approximately 6,000 Inuit who reside primarily in south and central Labrador.
- NunatuKavut means “Our Ancient Land” in Inuttitut and is the traditional territory of the Inuit who belong to this territory.
- In July 2018, NCC entered into talks with the Government of Canada on the Recognition of its Indigenous Rights and Self-Determination (RIRSD). In September 2019, a Memorandum of Understanding (MOU) was signed.

Quotes

“The NunatuKavut Community Council is so pleased to work with residents and the local service district to provide high-efficiency wood stoves for eligible households in Black Tickle, especially in time for cold winter temperatures. This project is a great example of using community-based research to respond to very real and tangible energy and heat security needs across our territory. Energy security is a vital component of the well-being of NunatuKavut Inuit and our communities and we are looking forward to developing an energy plan that is reflective of their needs.”
— *Todd Russell, President of NCC*

“Thank you to the NunatuKavut Community Council for your continuous support in countless ways. It was a very professional installation done in record time and I’m so proud to finally have wood heat again.”
— *Laura Keefe, Black Tickle resident*

Associated Links

- A final report on the Black Tickle High Efficiency Wood Stoves Pilot Project Preliminary Results can be found at https://nunatukavut.ca/documents/black-tickle-high-efficiency-woodstove-pilot-project-preliminary-results/
- Further information on NCC can be found at www.nunatukavut.ca. Please join in the conversation at Facebook.com/nunatukavut, Twitter @nunatukavut and YouTube by searching NunatuKavut.

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