

DATE OF MEETING April 22, 2024

AUTHORED BY DAVID STEWART, ENVIRONMENTAL PLANNER

SUBJECT HOME ENERGY RETROFIT FINANCING FEASIBILITY STUDY

OVERVIEW

Purpose of Report

To provide Council with the Nanaimo Region Deep Retrofits Financing Feasibility Study, the study's contents and recommendations, and seek Council direction to pursue a home energy financing program for Nanaimo residents.

Recommendation

That Council direct Staff to design a home energy retrofit financing program and bring a report to Council for consideration of implementing the program.

BACKGROUND

In September 2022, the City of Nanaimo in partnership with the Regional District of Nanaimo (RDN) received \$175,000 in funding from the Federation of Canadian Municipalities (FCM) Green Municipal Fund (GMF)'s Community Energy Efficiency Financing (CEF) program to complete a study to determine whether a local home energy retrofit program is feasible in Nanaimo and surrounding areas. The City and the RDN each contributed \$21,850 to support the study. A consultant was hired to prepare the retrofit financing feasibility study and conduct a community residential energy and emissions inventory.

A home energy financing program provides low to zero interest financing for homeowners looking to convert to a low-emission home heating or cooling system or to make their homes more energy efficient. The feasibility study is the first step that local governments are required to take before receiving program funds to support a home energy financing program. Additional funding is available through FCM's CEF program for local governments to design and manage a home energy retrofit financing program.

Through CEF, FCM currently offers funding to support municipalities that establish a local program to finance home energy upgrades through either a pilot or capital funding stream. In addition to funding, FCM offers learning resources and access to a community of practice that brings together other municipalities developing or operating similar programs. The CEF initiative is expected to end in March 2026.

Supporting the upgrade of existing buildings, so all buildings achieve net zero emissions by 2050, is included within City Plan as an important policy (C1.1.5) and is an essential step in helping the City meet its target of reducing greenhouse gas (GHG) emissions to 94-107% below 2010 levels by 2050.

Completing “an inventory of energy use and Greenhouse Gas emissions of all community buildings, to identify building energy upgrade opportunities and challenges by building type, and immediately develop a financing and rebate program to accelerate the replacement of high-carbon energy systems with low-carbon energy systems” is included as a priority action within the City’s Integrated Action Plan (Action Item #4). The feasibility study includes the residential GHG inventory and represents an important step towards developing a home energy retrofit financing program. |

DISCUSSION

Existing Retrofit Supports

The City currently supports home energy retrofits through the following actions:

- A \$350 top-up to Provincial heat pump and home energy retrofit rebates available through the CleanBC Better Homes program.
- A rebate of up to \$350 towards a Home Energy Assessment completed by a certified energy advisor.
- Participating and providing additional funding for the regional Home Energy Navigator energy ‘concierge’ program, which is created to provide homeowners with access to free expert support and guidance throughout a home retrofit process.
- Educating homeowners about available fuel conversion and home retrofit programs and rebate opportunities.

The Province of BC offers several rebates through the CleanBC Better Homes program. This includes up to \$6,000 in rebates for converting to a heat pump or up to \$33,900 for a deep home energy retrofit (insulation, doors and windows, heat pump) through the income qualified program. It also offered a retrofit financing program but participants in the Provincial financing program are not eligible to receive CleanBC rebates and the financing program ended on 2024-MAR-31.

The Canada Greener Homes Grant program previously provided additional rebates for home retrofits but the program closed on 2024-FEB-12. The Canada Greener Homes Loan and the Oil to Heat Pump Affordability programs remain open.

While the Greener Homes Loan program currently remains open, its status is uncertain. It often takes several months or even over a year for homeowners to receive federal financing. Developing a home energy retrofit financing program needs to be done in addition to, and in coordination with, the above supports and should remain flexible to respond to changes in other programs and supports.

Community Residential Energy and Emission Inventory

To support the retrofit feasibility analysis, the study included an energy and emissions inventory identifying energy use and emission sources by sub-region and housing type for all low-rise residential buildings in the region. This information will help both the City and the RDN tailor programming, including potential energy retrofit financing packages, to specific home types and areas where the government support will have the greatest impact on residents and community greenhouse gas emissions (GHG).

The housing stock analysis focused exclusively on low-rise (Part 9) residential buildings including single-family dwellings, duplexes, triplexes, quad-plexes, and mobile homes. These housing types represent approximately 73% of the housing stock in the city and are the primary targets for a home retrofit.

The analysis combined data from BC Hydro, BC Assessment, and real estate listings to determine the number of dwellings in the city and regional district by market segment (e.g. single-family dwelling), size (e.g. medium), vintage (e.g. pre-1976), and primary heat source (e.g. natural gas). The study noted that the majority of the homes in the region were built before 1996 (66%) when energy efficiency and emissions standards were lower than currently required.

Table 1: Summary of the Estimated Number of Low-Rise Homes and GHG emissions by Primary Heat Source – City of Nanaimo

Primary Heat Source	Electricity	Natural Gas	Oil	Propane	Wood	Total
Estimated number of homes	20,597	9,478	1,551	827	2,218	34,671
Share of total number of homes	60%	27%	5%	2%	6%	100%
Estimated emissions (tCO₂e)	5,434	37,034	9,189	3,099	4,767	59,523
Share of total emissions	9%	62%	16%	5%	8%	100%

It is estimated that homes that are primarily heated by electricity make up 60% of all low-rise residential dwellings but only account for 9% of their GHG emissions due to its low emission factor. Collectively, homes that use fossil fuels as primary heat sources make up 34% of the low-rise residential building stock but are estimated to produce 83% of their emissions.

Older homes and/or homes heated with a fossil fuel represent a significant opportunity to reduce residential GHGs and improve energy efficiency and homeowner comfort through a retrofit. The detailed analysis is included in the final report (Attachment A).

Why Retrofit Financing

Home energy retrofits targeted at reducing the consumption of fossil fuels via electrification and energy efficiency upgrades are critical to decarbonizing existing homes in the city. Residential buildings accounted for 15% of the city’s 2021 GHG emissions, with a significant portion (57%) of those coming from low-rise residential buildings. While the adoption of the Zero Carbon Step Code will significantly reduce emissions from new buildings, more needs to be done to retrofit existing buildings in order to meet the City’s climate targets.

City residents are interested in retrofitting their homes to install a heat pump or improve energy efficiency. However, financing remains a barrier for many residents. A municipal-run retrofit financing program can potentially help overcome market barriers (e.g. upfront costs, access to

financing), be easily accessible to local residents, fill gaps in existing offerings (including providing short-term gap financing), allow the City to customize the program to meet and adapt to the needs of the residents, and may be able to provide preferential financing terms at competitive/below-market rates.

Homeowner Survey

The study included a phone and web-based survey of 1,050 respondents in the region, with 82% of them within the City of Nanaimo. Survey respondents confirmed that financing and costs are a significant barrier discouraging homeowners from completing a retrofit. A full 60% of respondents agreed that they anticipate needing support in finding money (including financing and rebates) to cover the cost of upgrades, and an additional 12% were not sure. Respondents also noted concerns over some other financial issues related to inflation, increased debt, and fixed incomes.

By converting to heat pumps, homeowners have already lowered their GHG emissions. More respondents have made the conversion in the electoral areas (37%) compared to those in the city (26%). Approximately another third of respondents in the whole region plan to install heat pumps in the future.

While 28% of respondents have already installed a heat pump, the same proportion upgraded their furnace or boiler to a higher efficiency model instead, which represents a missed opportunity for fuel conversion. Encouragingly, there may be a change in decision making to move away from upgrading a furnace or boiler (only 17% planning – the least planned retrofit).

More detailed survey results and analysis are included in the study (Attachment A).

Diversity, Equity, and Inclusion

Diversity, equity, and inclusion (DEI) need to be integrated and central to any successful retrofit financing program. Targeted DEI consultations were held with five community organizations representing a diversity of vulnerable communities in the region. A DEI analysis is incorporated in the report analysis and recommendation.

Both the DEI consultation and the survey noted energy efficiency is often a low priority for low-income households, especially when weighted against food, health, and housing. While a retrofit program should be designed to be equitable and accessible to all households, any program supporting low-income households should ensure they do not encourage participants to take on more debt without a sustainable way of paying the debt off, such as through energy bill savings or guaranteed rebates.

The DEI assessment emphasized that reducing risks associated with participation in home retrofit financing is equally, if not more important than removing barriers. Risks can be reduced through a flexible loan program (similar to the Rent Bank operated by Connective Support Society) that allows homeowners to pay off debt early or pause payment if necessary.

Retrofit Financing Options in BC

There are several financing mechanisms that can be used to help finance residential building retrofits. The most common three, which are discussed in detail in the study, are as follows:

1. Property Assessed Clean Energy (PACE) financing:

Sometimes referred to as Local Improvement Charges (LIC) financing, a PACE loan is typically provided by a local government or a program partner. Loans are affixed to the property (rather than the individual) and repaid through the property tax bill. By securing the loan to the property, PACE loans generally can offer long-term financing with fixed low-interest rates and have a high rate of repayment.

Without BC provincial enabling legislation in place, municipalities can only offer a PACE-style loan program using Local Improvement Charges. Local governments are unable to borrow funds to capitalize the program due to BC's municipal financing rules. Despite this limitation, the Districts of Saanich and Central Saanich have developed pilot LIC financing programs with municipal funding and grant support, but the number of retrofits such a program can support is limited.

2. Direct Lending or Third-Party financing:

Within a Direct Lending model, often referred to as third-party financing, a private lender offers eligible participants an unsecured consumer loan product for home energy upgrades. Lending can be done directly through the financial institution or managed through a separate organization, often a non-profit energy concierge service similar to the Home Energy Navigator program. As this model often involves a for-profit bank or credit union and unsecured loan, interest rates can often be higher than those secured through PACE financing. The municipality may work with the lender to de-risk the loan and lower the interest rate and/or extend the loan term through credit enhancement tools, such as providing a loan loss reserve. CEF funding can be used to provide credit enhancement.

A Direct Lending program can be scaled up easily with access to market capital and requires the least amount of resource commitment by the City in terms of both capital funding and Staff capacity. For these reasons the consultant report recommends this financing delivery model for the City and RDN. However, this model has not been tested in BC yet. The success and uptake of a direct lending program strongly depends on how attractive this option is compared to other financing options available to homeowners. Given today's high interest rate environment, it may be challenging to achieve the desired uptake.

3. Utility on-bill financing (OBF):

On-bill programs provide financing that are repaid through customers' utility bills, typically the energy bills. Lending capital can either be provided directly by the utility or through a third-party lender, such as a bank. The City does not have its own energy utility and therefore isn't able to offer a municipal utility program as done in the City of Nelson and City of Penticton. An OBF program will require a clear commitment from an energy utility and as such is largely outside the City's ability to control.

Estimated Impact and Uptake

Establishing a retrofit financing program in Nanaimo could potentially help reduce the city's community residential GHG emissions. The study estimates a medium program uptake scenario of 1,078 participants in the region over five years, including 593 participants in the city. Emission reductions will depend not only on uptake but on program design, specifically on the retrofit packages offered and retrofits completed.

The study also provided an annual emission reduction estimate that could be achieved for each retrofit package offered. For example, an oil to heat pump retrofit for a medium sized single family dwelling would result in an annual GHG savings of 4.8 tCO₂e per home and \$2,100 in energy bill savings per year, whereas a natural gas to heat pump conversion for a similar home would result in an annual GHG savings of about 2.6 tCO₂e per home but may or may not have energy bill savings unless energy efficiency measures (e.g., insulation, windows and doors) are also taken. Of the archetypes listed, older homes with heating oil as the primary heat source represent the greatest opportunity for GHG emissions reduction in an individual home.

Staffing Needs

The amount of staff capacity needed to establish and manage a home energy finance program depends on the financing mechanism and program model, as well as whether the RDN will develop a regional program. A direct lending program will initially require legal consultation, negotiation with a financial institution and potentially a third-party operator, and grant funding application. This model hasn't been tested in BC. The consultant estimated close to 0.5 FTE would be required for a region-wide program.

Setting up a PACE style program will require legal consultation, homeowner financing agreements, program-establishing bylaw, and setup of tax roll. The consultant estimated close to 1 FTE for a City-run program. However, Staff will be able to learn from existing programs in Saanich and Central Saanich which is expected to reduce the effort required to establish a PACE style program.

The consultant estimated 0.1 FTE would be required for ongoing administration. For either model, the staffing needs are estimated assuming the continuation of the regional Home Energy Navigator program.

Regional Cooperation

The study was done in cooperation with the RDN in anticipation of a potential regional financing program. A regional program can access a larger market, which increases potential program impact and adds value for prospective lending partners. With collaboration with the RDN, the program can also be more easily integrated within the RDN managed Home Energy Navigator program and improve administrative efficiencies.

A PACE program is untested for a regional district and is potentially not feasible for the RDN. As such, if the City would like to offer PACE program, the City will likely have to administer it on its own.

If the RDN decides not to pursue a financing program, the study notes that the City has a significant enough potential uptake to support a program on its own. The study concludes both PACE-style program and a Direct Lending program are feasible options for the City.

Next Steps

If Council directs Staff to design a home energy financing program, Staff will complete the following tasks:

- Continue to work with the RDN and confirm if a regional program is supportable.
- Investigate the viability of a direct lending program and explore potential partnership with a financial institution.
- Further refine the types of retrofit packages to be included in the program.
- Complete the 'program design' requirements for FCM's CEF pilot or capital funding streams. FCM does provide program design funding. However, given the length of time it typically takes to apply for and receive this funding, Staff recommend applying directly for pilot or program funding.
- Bring forward a report to Council in mid-2024 on a home energy financing program design and seek direction to secure FCM funding and implement this program. |

OPTIONS

1. | That Council direct Staff to design a home energy retrofit financing program and bring a report to Council for consideration of implementing the program.
 - The advantages of this option: This option will allow the City to provide residents with a new financial tool to help complete retrofits necessary to meet the City's climate reduction targets, reduce electrical demand, lower utility costs, and improve home comfort.
 - The disadvantages of this option: Establishing a financing program will likely take considerable staff time and resources. Program uptake and impact are variable depending on interest rates, other financing programs and rebate options, and consumer knowledge.
 - Financial Implications: By acting quickly in developing a retrofit financing program, the City can access FCM funding. While the FCM funding is expected to cover 50% to 80% of eligible program costs, additional City funding will be required. FCM does require a municipal contribution for all CEF funding programs, the amount of required contribution varies based on program design and CEF funding streams (i.e. pilot or capital). More financial details will be included in a follow-up report.
2. That Council direct Staff to no longer consider a retrofit financing program.
 - The advantages of this option: This option will free up Staff time and resources to pursue other strategic priorities.
 - The disadvantages of this option: The City will likely not be able to leverage available FCM funding to develop a custom financing program that addresses Nanaimo homeowners' needs. When provincial and federal grants and loans are not available, residents may not be able to complete home retrofits due to financial barriers.
 - Financial Implications: This option will not require any City financing. |

SUMMARY POINTS

- A financing feasibility study to determine whether a local home energy retrofit program is feasible was recently completed for the City and RDN.
- The study included an inventory of low-rise residential building emissions, a homeowner survey on barriers and perceptions, a diversity, equity, and inclusion analysis, an analysis of financing program models, and estimated program uptake and impact.
- The study concluded a home energy financing program is feasible for both the City and the Regional District of Nanaimo.

ATTACHMENTS:

ATTACHMENT A: Link to “Nanaimo Region Deep Energy Retrofits Feasibility Study” |

Submitted by:

Ting Pan
Manager, Sustainability

Concurrence by:

Wendy Fulla
Director, Finance

Jeremy Holm
Director, Planning & Development

Laura Mercer
General Manager, Corporate Services |