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# Evaluating Energy Efficiency Financing Programs

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## Issue

According to the Mckinsey & Company report, "Curbing Global Energy Demand Growth" residential energy efficiency improvements offer great conservation potential[i]. This is good news for BC residents who are facing higher energy prices including a projected 33% BC Hydro electricity price increase over the next four years[ii]. Rising energy costs provide incentives for home and building retrofits that can often be recouped through energy savings in less than a decade. However, high up-front costs of renovations split incentives, and short-term ownership retention[iii] may deter homeowners from making this investment. For example, only 3% of Vancouver homeowners opted for energy efficiency retrofits in 2009[iv]. It is time to consider new energy efficiency financing options to encourage more people to invest in energy efficiency upgrades.

## Background

Although regulations, incentives, audit programs and education are important for encouraging residential energy efficiency, financing programs play a vital role in supporting energy upgrades. BC has implemented regulations to ensure new homes are energy efficient. However, a large proportion of the existing building stock remains energy inefficient.[v] Barriers to providing energy efficiency retrofits include high up-front costs, short ownership cycles, and split incentives - owners who pay for the retrofits do not reap the benefits of the energy savings. Energy efficiency financing addresses the first two barriers. Retrofit financing programs can help overcome challenges associated with high up-front costs and short ownership cycles. When properly planned, financing programs are economically self-sustaining and can create positive cash flow for renovators, whose loan repayments can be

less than their energy savings. These loans can be set at or below market rates depending on the relative importance of the economic and environmental goals for the program. Financing programs also have their drawbacks.Tradition financial institutions may be reluctant to provide these loans due to their small average size and the lack of collateral. Currently financing options for tenant-occupied residences where the tenant is responsible for utility bills are limited.

Over 160 innovative financing programs have emerged across North America[vi] which provide positive examples of what types of incentives and instruments can be most effective. Manitoba Hydro's program, which has had the highest homeowner uptake, has delivered energy efficiency loans to over 41,000 households[vii]. This program is supplemented by an energy efficiency rebate program, which, like the loan program, is funded largely through the utility company's energy export revenue. The loans have proven popular. They are mostly in small amounts (<$5,000) and approval can be granted within 24 hours.

However, some programs have not been as successful. Berkeley's FIRST solar energy loan program, which provided only 13 loans after 2/3 of applicants withdrew from the program, have been disappointing[viii]. Applicants were dissuaded by the high interest rate (7.75%) and the program was unable to mobilize new applicants. Program organizers have noted that many of those who withdrew still planned to obtain funding through other means.

## Options

There are a number of financing strategies that overcome short-ownership time and high up-front costs and could be applicable to BC:

**On-tax bill financing:** Loans are financed through city bonds (for instance, Property Assessed Clean Energy or PACE bonds) or debentures and repayments that occur on the property tax bill as special assessments. This loan is attached to the property and so is transferred to the new owner upon sale of the property. This makes the loan attractive to homeowners who only plan to own their home for a short period. Default risk is low because the loan has a senior lien on the property and does not affect the recipient's credit rating. It also does not significantly affect the mortgage lender because only the outstanding payments are given priority over the mortgage debt. In many communities, these programs have been politically popular but it is necessary to ensure the public understand that this is not in fact a universal tax—it is a special assessment paid only by those who take out the loan.

**On utility-bill financing:** These loans are financed and/or administered by the utility companies and are repaid on the monthly utility bill. The advantages of these loans are that they are transferred upon sale of the property, they have a low default rate (due to threat of disconnection) and they are convenient for condominiums, solving the short-term home ownership problem. Implementation requires legislation that will facilitate this type of loan, and it may require adjustments to the utility companies' charters, as currently they are only able to fund programs that reduce usage of the type of energy that they exclusively supply.

**Traditional financing**: While traditional energy efficiency financing programs already exist in the province and provide loans at or below market rates, the programs are challenged by the typically small size of loans and the lack of collateral that can increase lender risk. Transfer of the loan to the new owner upon sale of the property is usually disallowed, thereby limiting

lending to those who plan to own their residence long enough to fully pay off their investment. One variation on traditional financing is the Green Fund, like the Toronto Atmospheric Fund, which has funded comprehensive retrofits in single-family and multiple unit residential buildings. A variety of different governmental, crown corporation and private organizations support this program (thus diluting the risk) and are able to finance more energy efficiency measures than utility-bill financing currently could in BC.

It is important to note that the split incentive problem between homeowners and renters remains difficult to overcome.

## Conclusion

The province has an opportunity through legislative initiatives to develop stronger energy efficiency financing programs that should involve utility providers (e.g. Terasen, BC Hydro, Fortis), municipalities and financial institutions.

The effectiveness of such programs is often determined by their ability to "do the little things right". Based on investigation of 15 such programs, the "little things" that need serious consideration are:

- Marketing programs through non-profits and building contractors.
- Incorporating audits to reduce borrower risk and to ensure cost-effective retrofitting.
- Setting application costs low enough to avoid deterring borrowers but high enough to discourage frivolous applicants and to support the viability of the program.
- Withholding rights to any carbon credits generated as part of the program as a possible future revenue source.
- Serving as a "one-stop-shop" for information about loans and any other existing rebates and incentives.
- Implementing the program on the long-term at fixed rates can help increase certainty for both the construction industry and homeowners and for the lenders themselves.

## Further Reading

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