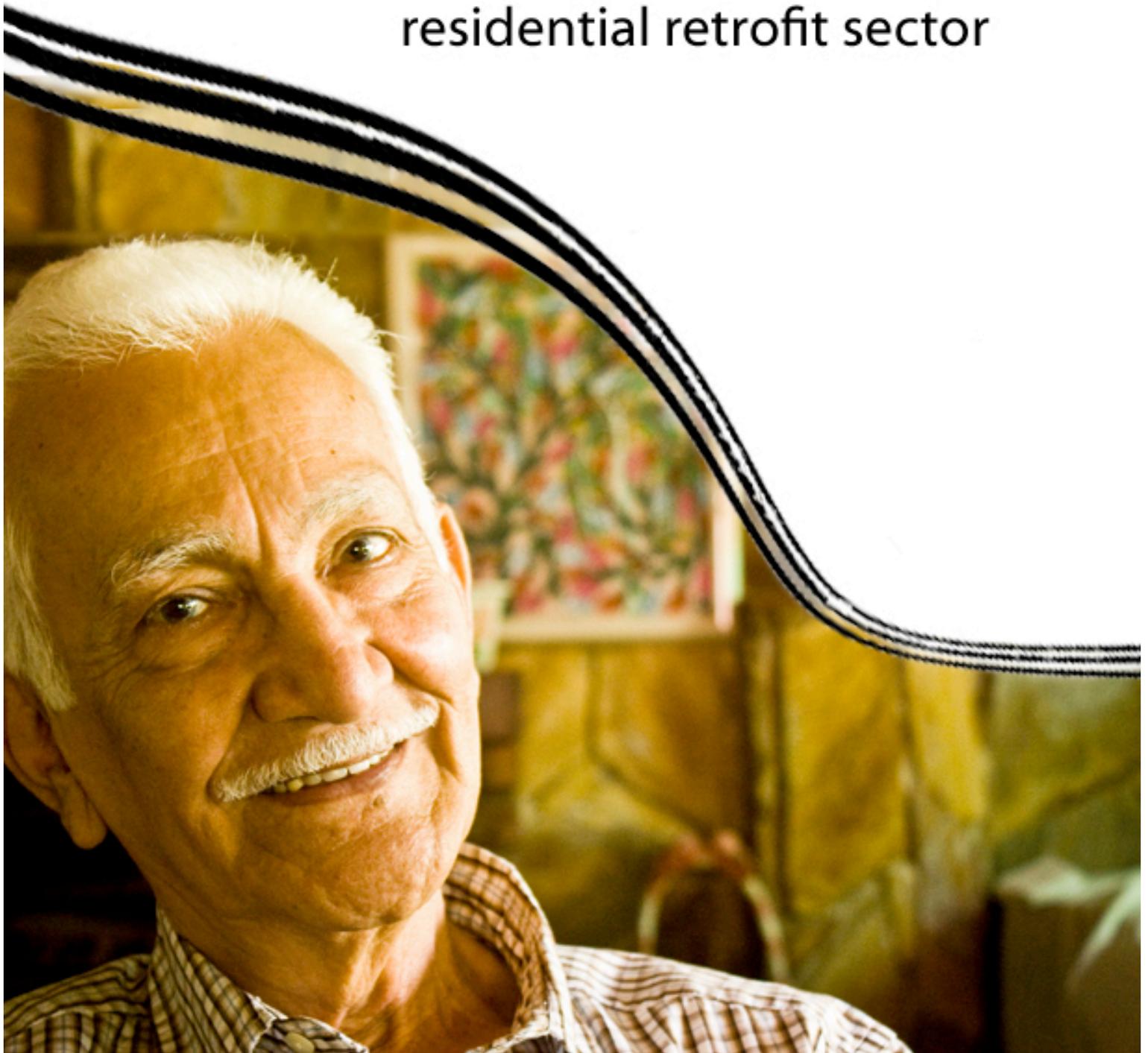


Community Wide Retrofits:

International best practices for the Canadian residential retrofit sector



Community Wide Retrofits:

International best practices for the Canadian retrofit sector

Kate Taylor, Clifford Maynes | November 2011



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This report is based on research conducted in 2011, including site visits to community-wide retrofit programs in the U.S and the U.K, consultation with program managers and designers, as well as a comprehensive review of the available literature.

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Introduction

Achieving residential energy efficiency retrofits at scale while capturing deep energy savings is no easy task. Although the practical technology for efficiency upgrades is well known and relatively straightforward, barriers to implementation include the sheer number of independent decision-makers, lack of information about cost-effective retrofits, upfront cost (combined with the positive but often long-term payback), lack of access to trusted, competent contractors, competing priorities, and so on. The process can be complex, with many opportunities to drop the ball along the way and fail to complete the task.

Canadian retrofit programs have generally relied on professional energy audits that provide advice tailored to specific measured conditions in each home, combined with cash incentives designed to reward and promote effective investments. Although this audit-plus-incentives approach has been credited with reaching more than five per cent of Canadian homeowners over the past decade, the great majority of homes have not been reached. Among the homes that have been reached, completed retrofits often fall significantly below the economic potential. As a result, most of existing Canadian housing stock does not meet standards appropriate to the 21st Century. New housing is built to higher standards, but only accounts for 1 per cent of the housing stock in any given year. Clearly, an energy efficient future is possible only by solving the problem of mass retrofits of existing homes.

Community-wide retrofit approaches – designed to retrofit entire neighbourhoods and communities in a concentrated time period rather than individual houses over a period of years – have the potential to help overcome barriers and achieve much higher market penetration of cost-effective energy improvements throughout the housing stock. Community-wide retrofit approaches systematically address barriers and mobilize participation to maximize energy savings.

A growing body of international experience demonstrates that community-wide retrofits (sometimes called area-based or neighbourhood approaches) have the potential to offer much greater uptake, combined with lower administration and installation costs than traditional residential retrofit programs.

Benefits include homeowner bill savings, healthier, more comfortable homes, improved real estate value, reduced “leakage” of energy dollars from local economies and consequent multiplier effects, job creation and business opportunities, system efficiencies for energy providers, and reduced greenhouse gas and other emissions associated with energy production. In some cases, community-wide retrofit programs can be used as a vehicle to provide targeted employment, including training and jobs for marginalized low-income populations.

Community-wide retrofit programs generally strive to be inclusive and comprehensive, offering “something for everyone,” including low income as well as able-to-pay markets. The attention to low-income households is important in a Canadian context, where

traditional approaches have failed to adequately deliver savings to low-income households.¹

Early evidence suggests that these programs not only generate greater uptake rates in both able-to-pay and low income households, but also offer the potential for reduced costs through economies of scale and coordinated rather than one-at-a-time retrofit delivery.

A recent report by the City of London found that community wide retrofit approaches offer “the most cost effective ways of delivering insulation programs.”

While community wide retrofit approaches are new to the Canadian context, there is a growing body of delivery experience in the United States and United Kingdom. This report examines three successful community-based retrofit program models: Kirklees Warm Zone in West Yorkshire, England; RE:NEW in London, England; and Clean Energy Works Portland in the United States. Each of these programs have reported results and are currently used as the basis for replication for future program design.

This report will present each of the three program models and identify best practices applicable in the Canadian context.

¹ These households carry an energy burden at least double that of the average Canadian household, a situation that is likely to worsen as electricity prices continue to rise and with the introduction of time-of-use metering. To date, low income houses have largely been excluded from large-scale incentive programs such as the federal EcoEnergy program, which relies on homeowners to bear the upfront costs of retrofit work. Programs specific to low income households have been offered on a limited basis by local and regional utilities, and in many cases do not fund deep retrofit work.

Clean Energy Works Portland

Clean Energy Works Portland (CEWP) is a community-wide retrofit scheme based in Portland, Oregon.

CEWP was developed with the goal of providing accessible energy retrofits within the City of Portland through a program that is financially self-sustaining, drives growth in the residential efficiency sector, while creating local employment opportunity and economic development.

A revolving loan fund provides low interest financing for energy efficiency work, seeded with \$1.1 million dollars in Energy Efficiency and Conservation Block Grant Funds. The use of the revolving loan funds extends the impact of Recovery Act dollars by “recycling” the investment over many projects, as well as attracting an additional \$2 million in private investment.

CEWP is the first U.S retrofit program to establish a Community Workforce Agreement. The agreement establishes a set of contracting, training and employment standards to ensure that the program creates high quality local employment and career opportunities for low-income and historically marginalized populations.

CEWP completed a 500 house pilot phase that ran from June 2009 to March 2011 and is now moving ahead in delivering a 6,000 home state-wide program over the next three years. This report will focus on CEWP’s program model and pilot program results.

Project outcomes – pilot phase

Households assessed	500
Households receiving upgrades	434
Household investment generated	\$ 6,431,398
Projected annual savings per household	7,657 kWh
Participating prime contractors	15
Participating subcontractors	51
Construction workers employed	381

Poverty reduction measures:

CEWP aims to reduce energy poverty in the Portland area by increasing access to affordable energy retrofit work. This is achieved by:

1. removing upfront cost barriers for low income participants by providing low-interest financing to lower income participants
2. creating an inclusive loan risk assessment tool.

The CEWP Community Workforce Agreement developed a set of standards requiring contractors to hire new entry-level employees from targeted training programs. The Agreement also creates minimum wage standards for new hires. These standards ensure the program creates well paying career track employment for low-income populations and others with barriers to employment.

Economic development

The CEWP Community Workforce Agreement is a collaborative agreement signed by all program partners that defines a set of employment standards and incentives to ensure the creation of living wage employment opportunities as a result of CEWP.

Job quality standards:

1. Wages: participating contractors agree to pay employees prevailing wage standards or 180% of the state minimum wage, whichever is higher.
2. Benefits: contractors are evaluated based on the benefit package provided to employees.

Access:

1. Local first hiring: 80% of all employees hired must be local to the Portland area. Contractors must also source new hires from targeted job training programs.
2. Workforce diversity: 30% of project hours are to be performed by historically disadvantaged populations. This includes low income residents, people of colour, women, or those facing barriers to employment.
3. High quality training programs: CEWP identified a number of qualified training programs that worked with contractors to fill hiring requirements.
4. Diverse business participation: 20% of contracts were awarded to businesses owned by historically disadvantaged populations.

CEWP partnered with the Metropolitan Contractor Improvement Partnership to support contractors in meeting the standards laid out in the Community Workforce Agreement.

Environment

This program did not track CO₂ reduction numbers.

Program Management

The program was managed by the City of Portland, in partnership with a number of other entities.

Partnerships:

Partners included:

- **City of Portland** - played a lead role in developing the program, convening the stakeholders and providing seed money through Energy Efficiency and Conservation Block Grant funding. The City continues to actively pursue additional funds.
- **Energy Trust of Oregon** - a non-profit that works to help residents benefit from energy efficiency and renewable energy technologies. Energy Trust of Oregon coordinates the program, and guides participants through the process. The Trust developed a pre-screened pool of contractors.
- **ShoreBank Enterprise Cascadia** - a certified non-profit community development financial institution. ShoreBank operates and manages the revolving loan fund, and pays contractors directly when work is complete and has passed quality assurance.
- **NW Natural, Pacific Power, and Portland General Electric** - all utility partners who agreed to collect loan payments through regular customer billing. Utility bills are paid before loan proceeds are collected in the event of under payment, and the utilities are compensated for any costs incurred by the program.
- **Multnomah County** - working to ensure that CEWP is coordinated with its Weatherization Assistance Program.
- **Green For All** - a national organization dedicated to the development of a clean energy economy. Green For All worked with the project partners to develop the Community Workforce Agreement, and will assist in disseminating lessons learned from the model.
- **Worksystems Inc** - a local workforce investment board that is working with the program to develop and support a pipeline of trained workers from qualified training programs.
- **Stakeholder Evaluation and Implementation Committee** - brings together program stakeholders to implement various aspects of the Community Workforce Agreement into the pilot program.

Financing

CEWP established a \$2.5 million revolving loan fund, seeded with \$1.1 million from the Energy Efficiency and Conservation Block Grant Program under the U.S Recovery Act. The City of Portland attracted an additional \$2 million in private investments, which will return an estimated 2-3% annually. The loan fund is administered by ShoreBank Enterprise Cascadia.

CEWP also established a loan loss reserve fund at 10% of the total lending volume, which is set aside to repay lenders in the event of a default.

Borrowers enter into a loan with ShoreBank for a 20-year term. The loan is secured by a deed of trust against the mortgage, and is due upon the sale of the property. The loan can be transferred at the point of sale if both parties agree, with a one-time administrative fee of \$850. The program is looking to develop a system whereby the debt is transferred automatically upon sale of the property, but this remains in development at this point.

The interest rate scheme was developed to ensure that the program is accessible to lower income families, as well as to incentives maximum efficiency savings.

To date, loans have averaged about \$9000, with monthly payments averaging \$46.

Program Offerings:

Package	Eligible Measures	Rate	Term
Basic Weatherization	Attic insulation, air sealing, duct sealing	7%	20 years
Extended Weatherization	Above + wall and floor insulation	5%	20 years
Extended + space or water heater	Above + furnace/heat pump and or hot water system (excluding solar)	3%	20 years
Near Low Income (200 – 250 of Federal poverty level)	Any weatherization service	2%	20 years

Marketing:

Clean Energy Works Portland used a mixed marketing strategy to attract interest in the program. The most effective marketing technique used during the pilot was a direct mail campaign conducted in partnership with local utilities. The mail-out was sent in an envelope from the local utility, which resulted in a high “open” rate and an excellent response to the campaign.

Clean Energy Works Portland experimented with a door-to-door campaign in a low income neighborhood, but got a limited response rate and ended trials of this marketing strategy. The fact that the door-to-door campaign was only trialed in a low income neighborhood may have impacted the low response rate, as there was a high incidence of rental housing and homeowners may have been unwilling to take on more debt.

Other marketing techniques have included billboard, print and radio advertising, as well as maintaining a presence at community events.

The state-wide roll-out of the program, Clean Energy Works Oregon, has developed an incentive program to encourage contractors to market the program independently. Contractors are given a unique rebate code, which can then be used by homeowners to receive up to \$3K in additional incentives and rebates when they sign up for a retrofit. Contractors receive all new clients bearing their rebate code, providing an incentive for contractors to market the program. This has proven to be a very effective method for engaging contractors in sales work and engaging new clients.

Quality control

All houses undergo a pre- and post-retrofit audit by a third party energy advisor, to guarantee that the actual savings match projections. This element of the program was seen as crucial to gaining the trust of households.

Pilot phase challenges

A number of challenges were identified during the pilot phase, which will be addressed in future program development:

- Reaching rental properties: In the pilot phase, CEWP was not successful in engaging tenants and landlords to participate in the process.
- Engaging low income populations: While Clean Energy Works Portland designed a loan tool that aimed to be inclusive to low income households, uptake rates were very low. This is largely due to reluctance by lower income homeowners to take on more debt. The state-wide roll out of the program will no longer seek to engage low income households in financing for energy efficiency work. Future iterations of the program will instead try to partner with grant-based low income energy efficiency programs to offer basic weatherization work free of charge.
- Pre-weatherization services: Many homes in need of weatherization work need up front work on safety issues such as lead, mould and asbestos. Many households, low-income households especially, cannot afford the upfront cost of this additional work, and it becomes a barrier to participation in CEWP. In the future, CEWP would like to overcome this barrier by tapping into additional funding to do health and safety work on homes, including the cost of these improvements in the loan, or establishing a separate fund to cover this work.
- Bundling properties: Combine work on adjacent properties to achieve greater efficiencies in service delivery.
- Clean Energy Works Portland was administered by the City of Portland. The state-wide rollout of the program will be administered through the creation of non-profit organization.

Kirklees Warm Zone

Kirklees Warm Zone was a community-wide retrofit program that ran from 2007-10 in the Kirklees Council district of West Yorkshire, England.

Kirklees Warm Zone was the largest local authority home insulation program in the UK at the time and was the first to offer free attic and cavity wall insulation to every suitable property in the area. The program brought energy efficiency to the homes of area residents using an integrated marketing and doorstep assessment process, coordinating and leveraging existing funding to create a ‘one-stop-shop’ approach to energy efficiency for area residents.

The program was developed by the Kirklees Council and managed by Yorkshire Energy Services. Kirklees Warm Zone was developed to increase take-up of existing residential energy efficiency program by creating a ‘one-stop shop’ which would combine and leverage existing funding to increase householder value. The program aimed to reduce energy poverty, meet carbon reduction targets and stimulate job creation and economic development.

Project outcomes

Households assessed	133,746
Households insulated	51,155
Insulation measures installed	64,472
Projected energy savings	105,913 MWh
Direct FTE jobs created	126
Households taken out of energy poverty	1,375
Net economic benefit	£249 million

Poverty reduction

Kirklees Council estimates that there are between 35-45,000 homes in energy poverty in Kirklees. The development of the Kirklees Warm Zone scheme aimed to alleviate energy poverty by creating a bundled turnkey approach to energy retrofits, bringing a coordinated marketing and door to door campaign to the homes of area residents. This, in addition to the availability of free measures, aimed to lower the barriers to program participation for low income residents.

The program partnered with a number of local agencies to maximize the impact of door-to-door contact with area residents, providing a range of additional services aimed at increasing the programs poverty reduction impacts. This included connecting residents with debt counseling, state benefit checks, additional funding for household health and safety upgrades, fire safety inspections and the provision of free water saving measures and carbon monoxide detectors. These partnerships will be discussed in more detail, below.

Economic development

Kirklees Warm Zone included a commitment to local hiring in its contracting requirements, creating 126 full time equivalent positions through the project.

Environment

This program did not track CO₂ reduction numbers.

Program management

Kirklees Warm Zone was developed by the Kirklees Council and delivered by Yorkshire Energy Services, a nonprofit established by the Council in 2000. Project oversight was provided by a governance board established by the Council, consisting of Council staff and project partners, including a representative from Scottish Power. The Board met every two months to track progress and keep project partners informed. Procurement, both the supply side and for retrofit delivery, was managed directly by Council.

Partnerships

The Kirklees Warm Zone was viewed as a unique opportunity for outreach with Council residents, and the development of partnerships with local organization aimed to maximize the impacts of the doorstep visits. The role of partnerships greatly increased the poverty reduction impacts of the program. Partnerships included:

- Benefits advice and debt counseling: Through partnerships developed with Kirklees Revenue and Benefits, Kirklees Benefit and Advice Service and Kirklees Citizens Advice Bureau and Pension Service, the project was able to refer households for state benefits checks and debt counseling.
- Fire safety checks: Household fire safety checks were provided to vulnerable households through a partnership with Fire Services.
- Long-term care support: Through a partnership with Carers Gateway, the project was able to refer residents who provided long term care to support and respite services.
- Water conservation measures and advice: A partnership with Yorkshire Water allowed the program to offer water conservation advice and measures to participating households.

Program offerings

- free cavity wall insulation
- free attic insulation
- four free low energy light bulbs
- free carbon monoxide detector
- free benefits advice check
- free debt counseling
- free home fire safety check
- free water saving advice
- access to central heating upgrades through the federal Warm Front scheme and local and regional funding scheme.
- free energy savings advice pack
- access to home improvement loans where housing safety was a concern
- advice and support to residents providing long term care

In cases where pre-existing factors blocked the installation of insulation in otherwise suitable properties, Council provided limited funding to address pre-existing housing conditions. This included installing new attic and eaves hatches, scaffolding, asbestos remediation and loft emptying for low income households.

Financing

Financing for low income attic and cavity wall insulation was available through the federal WarmFront scheme. Kirklees Council funded measures for the able to pay market through pre-existing council funding streams for insulation schemes, plus matched utility funding. This program included a large financial investment by the Kirklees Council to extend the offer of free measures to the able-to-pay market. This investment was justified as an investment in the Council district housing stock, and as an effort to meet the Council's carbon reduction targets.

Marketing

The Council area is divided in twenty three wards. The program was delivered on a "ward by ward, street by street, door by door" basis, with a coordinated marketing and leafleting campaign, followed by doorstep audits by trained energy advisors. In order to relieve pressure on partner agencies, it was decided to target first the most deprived neighborhood, followed by the most affluent neighborhood, and to continue to alternate in this fashion. This decision was made to allow partnering agencies to cope with the large volume of referrals from lower income neighborhoods. The program would be available in each targeted area within a given ward for a limited time only, to maximize contractor efficiencies and to create a sense of urgency for area residents.

The program developed a consistent branded marketing campaign that operated on a neighborhood level, which consisted of billboards and posters; ads on transit and local

radio stations; information on the Council website; contact with local community groups and tabling at local events. This ad campaign was followed by door-to-door delivery of a flyer and letter explaining the program and letting residents know when the program was going to be visiting their location.

Doorstep Assessments

After a targeted neighborhood was introduced to the program, households were visited by doorstep assessors. The doorstep assessors were hired by Yorkshire Energy Services, and trained to identify properties eligible for program participation. All homes in the Council district were visited by a doorstep assessor up to three times, with program information left at the household if contact could not be made. If after three attempts no contact could be made, households were left a self-assessment form to fill out and mail in.

Contractor delivery

The Council initially intended to engage a number of retrofit contractors, but in the end awarded the contract for the Kirklees Warm Zone project to a single firm, Miller Pattison. Miller Pattison had included in their bid the establishment of a local training depot, and a commitment to train and hire local residents to deliver the program.

One of the challenges in program delivery was the initial lag time between approved assessments and measures installation, as Miller Pattison struggled to scale up operations. In the early stages of the program, some households dropped out of the program due to frustrations over long wait times. After the initial scaling-up phase, lag times decreased to an acceptable level.

Mop up phase

At the end of the project an additional six month mop-up phase was introduced, allowing households from all across the Council area a final opportunity to participate in the program. This phase proved to be very successful, as households who may have been initially reluctant to participate in the program when it was available in their ward took advantage of a last chance to participate. The understanding that there was a closing date on the program worked to incentivize participation.

RE:NEW

RE:NEW is a community-wide retrofit program based in London, England.

RE:NEW is a partnership between the London Development Agency, the Greater London Authority, London's boroughs, London Councils and the Energy Savings Trust. The program offers doorstep energy conservation assessments by a trained energy advisor, with a package of easy measures installed free of charge. Participants are provided with a tailored energy conservation advice pack, and referrals for deeper retrofit measures where appropriate. The program combines currently available funding for deeper retrofit measures into a single integrated delivery scheme in an effort to reduce the barriers to participation.

RE:NEW has been rolled out in three stages. Initially, the program was introduced with a series of three technical trials in the boroughs of Croydon, Hillingdon and Southwark between April and July 2009, in which 817 homes received visits. Following this, a series of nine demonstration projects were introduced, running between November 2009 and July 2010. In this pilot phase, 8,119 homes received visits throughout the boroughs of Camden, Croyden, Haringey, Harrow, Havering, Hillingdon, Kingston, Lewisham and Southwark. Currently, the program is being rolled out across the City of London, with the aim of treating 1.2 million homes by 2015.

With the roll out of the national government's Green Deal in 2012, it is estimated that the RE:NEW program model will be adjusted to deliver the pay as you save financing scheme within able to pay markets.

This report will be focusing on results and lessons learned in RE:NEW's technical trial and pilot phase.

Project outcomes – pilot phase

Homes treated	8,119
Referrals for deeper measures	49%
Homes receiving insulation	13%
Average cost per home – including administration	£158
Annual carbon savings per home	0.79 tonnes CO ₂
Savings from easy measures	0.3 tonnes
Savings from deeper measures	0.49 tonnes
Annual fuel bill savings per home	154£ per home
Savings from easy measures	£76
Savings from deeper measures	£78
Total annual Co ₂ savings – project-wide	2,958 tonnes CO ₂
Savings from easy measures	2,439 tonnes CO ₂
Savings from deeper measures	520 tonnes CO ₂

Total annual fuel bill savings	£700,600
Savings from easy measures	£617,500 saved
Savings from deeper measures	£83,100 saved

Poverty reduction measures

This program aimed to maximize accessibility to low income participants, reducing the incidence of energy poverty through fuel bill reduction. The pilot phase of the project saw £700,600 in fuel bill savings annually across all homes treated.

In most cases, low income participants with eligible properties could have insulation work funded through the national Warm Front initiative, a process which was managed internally by the delivery agent. As a result, low-income participants faced no upfront cost barriers to program participation.

Additionally, for low-income participants receiving state benefits, the program offers free income maximization services to ensure that participants are receiving all of the benefits they are entitled to. This is intended to further reduce the incidence of energy poverty. In the pilot phase of the program, 241 referrals were made to income maximization services.

The installation of deeper retrofit measures in rental apartments remained a challenge throughout the pilot phase of the project. In the future, program delivery agents should be encouraged to work closely with landlords and landlord associations.

Economic development

This program did not have a specific focus on job creation.

Environment

Thirty-six per cent of London's carbon dioxide emissions are produced by its housing stock. The Mayor's Climate Change Mitigation and Energy strategy aims to reduce carbon emissions London-wide by 60% by 2025, with the retrofit of housing stock forming a central tenant of this plan.

There are an estimated 800,000 empty wall cavities in London, and 150,000 virgin attics, and an additional 700,000 attics that could benefit from top-ups. In recent UK experience, area-based (community-wide) approaches have proven to be the most cost effective means of delivering insulation programs^[1]. Through the RE:NEW program, the City of London aims to insulate the majority of wall cavities and virgin attics, or 1.2 million homes in total, by 2015.

Seventy-two per cent of London's housing stock is classified as hard to treat. These homes lack wall cavities, are classified as heritage sites, or are rental apartments of high rise blocks. While all of these homes may receive doorstep energy conservation advise

and the installation of easy measures, all of these sites present challenges for deeper measures at this point.

In the pilot phase, RE:NEW is estimated to have saved 2,958 tonnes CO₂. All carbon savings associated with the program are independently verified by the Energy Savings Trust, to provide impartial and consistent assessment numbers.

Program management

The RE:NEW program is centrally administered by the City of London, but the program is managed and delivered by London's Local Authorities, i.e., borough municipal governments. Local Authorities bid annually to deliver the program.

The role of the central RE:NEW administration

The central RE:NEW administration offers core program design, coordinated program branding and outreach materials, and administrative support. The central administration brokers relationships with major funding partners, although reporting to funding partners is managed at a local level by participating local authorities.

The central administration offers a simplified procurement process for participating Local Authorities. Local Authorities are invited to engage in a 'mini tendering' process among a pool of pre-approved delivery agents, each with a demonstrated ability to meet core program requirements. Program pilots revealed that without the benefit of centralized procurement process procurement, this can be a prohibitively lengthy process, limiting the time available for program delivery.

The central RE:NEW administration developed an in-depth 'good practices' manual to guide Local Authorities in managing the program.

The role of Local Authorities

Local Authorities are responsible for managing program delivery. Participating boroughs are able to customize program design to integrate local priorities and program partners. Local leadership enhances program outcomes, since authorities know their housing stock, and can add local funding and program offerings.

While relationships with funding programs are managed by the central administration, the Local Authorities are responsible for coordinating referrals, arranging ordering, delivery or collection of products and reporting.

Financing

One of the central roles of the RE:NEW program is to coordinate previously existing funding for energy retrofit work, offering a single streamlined delivery approach.

Funding for operational and marketing costs of the program are provided by the Local Development Authority. Funding for retrofit work is provided through:

- Carbon Reduction Emissions Target (CERT), a program that obliges utility companies to meet carbon reduction targets through the delivery of energy efficiency and renewable energy programming.
- Warm Front, a program that provides insulation grants for vulnerable households. This program specifically covers low income insulation.
- Water utilities, which have partnered with the program to provide water efficiency measures.
- Additional local funding, managed by participating Local Authorities, including partnerships with local health departments, the private sector, and the third sector.

Program offerings

1. Doorstep assessment, basic measures installed in every household by a trained energy advisor, conversation on behavior change.
2. A tailored advice pack reminding them of steps they can take to reduce energy use.
3. Income maximization services for those receiving state benefits/help to reduce energy poverty.
4. Referrals for heating, insulation, solid wall insulation and renewable technologies wherever potential is identified by a trained energy advisor.
5. Referrals for unsubsidized measures are made for those able and willing to pay.
6. Data captured through the program allows the City to build an information database and identify potential for future programs.
7. Basic measures are defined on the borough level, based on the nature of the housing stock, cost and carbon effectiveness.
8. Focus on converting visits to bookings for deeper measures.

Marketing

Effective marketing has proven to be critical to the success of RE:NEW. Throughout the technical trial and pilot phases of the project doorstep visits were found to be the most time- and cost-effective way of engaging program participation. In some neighborhoods doorstep visits achieved 50-60% penetration rates.

The next most cost-effective marketing strategy was direct mail, achieving penetration rates between 20-40%, and doorstep leafleting, which achieved 16-40% penetration rates.

All three of these approaches can be concentrated with a specific geographic area, helping to concentrate deeper measure referrals and facilitating economies of scale through coordinated installation work. Additionally, by focusing marketing in specific neighborhoods Local Authorities often received a large number of additional bookings through neighbour-to-neighbour referrals, leading to deeper penetration rates.

Additional marketing approaches included billboard advertising, promotion at community events and through community groups.

Some marketing is managed by the central RE:NEW administration, including a London-wide press release.

Doorstep Assessments/Referrals

Home visits by trained energy advisors provide customers with the installation of an array of easy measures, in-person advice about energy saving behavior change, and an assessment of the opportunities for the installation of deeper measures. While RENEW does not offer full energy audits, the home energy advisors are trained to assess a households eligibility for available grant and rebates programs offered through RENEW, and to provide households with an estimate of potential savings. Energy advisors are provided with a letter from the Borough Council explaining the program and the role of the energy advisor. This letter is important to gain the trust of customers.

The pilot phase demonstrated that the home visits are most effective if energy advisors are able to provide accurate referrals and are able to book follow up visits on site. This creates a more integrated customer journey, and reduces drop out rates.

In cases where the home visit is made through the delivery agent's booking system, the visit is generally made within two to three days of the booking. The visits take an average of 90 minutes to complete. After the home visit is complete, a tailored advice pack is mailed to the home within two weeks of the home visit. Retrofit work should be completed between 4-6 weeks of the initial referral.

Central RE:NEW administration recommends regular audits of the referral process, to identify if and where in the process participants are dropping out of the program, and to address any problems that have developed.

Contractor delivery

Contractor delivery is managed by the program delivery agent.

Customer satisfaction

Delivery Agents are asked to provide a central 1-800 number which is used to book appointments, make inquiries, and provide feedback and report complaints.

Local Delivery Agents receive and handle customer complaints reporting to Local Authorities as required. Serious complaints are dealt with by the Local Authorities and, if necessary, by the Local Development Authority.

Information management

RE:NEW provides an unprecedented opportunity for London's Local Authorities to capture data on local private sector housing stock. The program aims to capture all relevant data, which can serve to inform the continued delivery of RE:NEW, future program development and carbon reduction initiatives.

Data collection is the responsibility of participating Local Authorities, which is collected and processed by the managing agent. All data collected is held as confidential.

Pilot phase challenges

1. Lengthy procurement processes: in some pilot areas, contractor procurement delays seriously undermined the time available for program delivery. In one borough, Haringey, a six-month procurement process left just six weeks for delivery seriously restricting the time available for marketing, engagement and delivery. Haringey ultimately had the lowest number of homes visited across all participating boroughs. Procurement processes should be as streamlined as possible.
2. Three boroughs, Camden, Haringey, and Lewisham, spent over £20,000 pounds establishing call centres. There is little evidence that this added any benefit, increased the number of homes visited or improved uptake. Moving forward, it is recommended that delivery agents avoid the use of call centres, establishing a 1-800 number for bookings and customer complaints, handled in-house.
3. Reduce the number of steps in the referral process. It is critical that doorstep assessors have the basic technical knowledge to correctly provide referrals at the doorstep and to book follow-up work on the spot. It is better if they are capable of carrying out eligibility checks and technical surveys to reduce the number of steps in the referral chain, and are able to make full bookings at the doorstep. A lengthy referral process allows households to become disengaged – the referral process should have as few steps as possible. Time lag caused significant numbers of referrals to be lost.
4. Throughout the project, there were challenges engaging rental housing units for deeper retrofit work. It is recommended that Local Authorities attempt to contact and engage landlords in the program directly.

Lessons Learned: Best Practices for the Canadian Context

The case studies in this report suggest a number of lessons learned and program design elements that could be replicable in the Canadian context.

Integrated delivery

A central strength of community wide retrofit programs is a bundled turnkey service offering that systematically addresses homeowner barriers to completion of recommended retrofits.

All three programs featured in this report worked to make the retrofit process as simple as possible for participants, from the first point of contact through the retrofit and quality control processes.

Application processes for traditional retrofit programs can be complex and require significant homeowner initiative. They may have confusing or limiting eligibility rules.

The programs may be limited to particular fuels, measures, income levels, or housing types – requiring the homeowner to make multiple applications for several different programs with different eligibility rules and different service offerings.

Program participation may involve multiple steps, requiring additional homeowner initiative at each step, for example, organizing energy audits, securing financing, identifying and engaging retrofit contractors, and applying for grants. In other words, they may have multiple hoops to jump through, each of which can discourage action.

Community-wide retrofit programs offer ‘something for everyone,’ regardless of fuel type, income level or housing tenure. Programs aim to streamline the participant journey as much as possible, by providing:

- a single streamlined application process that may incorporate multiple grant and incentive offers from partnered agencies
- an all-fuel, all-measures program that integrates retrofit work into a single work plan
- program variations designed to serve all forms of tenure and housing types
- energy audits to determine house-specific retrofit needs and priorities
- simplified access to financing on attractive terms (see below)
- minimal requirements for the participant in arranging contracting
- third-party quality control and troubleshooting on behalf of the participant

Clean Energy Works Portland provided a certified energy advocate to guide participants through every step of the audit and retrofit process, providing hand-holding and problem-

solving, a personal point of contact with the program, and a clear line of communication to answer questions or concerns about the retrofit process.

Participants reported that certification of contractors by Clean Energy Works Portland, combined with post-retrofit audits, created a sense of safety. Participants also said they might not have known where to find reputable retrofit contractors, but they trusted that the selection and quality control practices of Clean Energy Works Portland would ensure the work was properly done and would deliver projected energy savings.

Where Clean Energy Works Portland focused on offering a simplified financing and delivery process, both Kirklees Warm Zone and RE:NEW work to combine available grant and incentive programs into an integrated application and delivery scheme.

One of the strengths of this approach is that works in partnership with existing grant and incentive offerings, increasing uptake rates and guiding program participants through the application process. It offers a single, branded ‘face’ for community energy efficiency, attracting increased community attention and support and simplifying the grant application process.

Economies of scale

By coordinating the delivery of grant and incentive programs, Kirklees Warm Zone and RE:NEW are able to achieve economies of scale on the administration and delivery of the program, with savings estimated at 30-40% by Yorkshire Energy Services, the managing agent of Kirklees Warm Zone.

Focused delivery

Traditional retrofit programs are typically offered over an extended period of time to large populations, for example, everyone in a province or political jurisdiction, or every customer of a utility. Retrofits are completed one-at-a-time, scattered geographically.

Community-wide programs benefit from being offered within a limited time frame, usually measured in months rather than years, and in a geographically concentrated area, like a neighbourhood or a municipality. This focused approach has two main benefits:

- helps to mobilize participation
- helps to create delivery efficiencies and cost savings

Spatially and chronologically focused delivery permits locally concentrated marketing, creating a neighbourhood “buzz,” raising profile, and mobilizing word-of-mouth marketing and partnerships. Participants are motivated to engage proactively in a “limited time offer” that they will miss if they don’t act quickly. They are influenced by peers and community leaders.

All three programs profiled reported that neighbour-to-neighbour engagement generated a large number of referrals to the program.

Another potential benefit of geographically focused delivery is that retrofit work can be scheduled so that contractors have limited downtime and next to no losses from travel time between jobs. This improves efficiency and reduces costs.

In the case of Kirklees Warm Zone, it was found that some properties failed to apply to participate in the program by the deadline for their location. In order to address these properties, the program introduced a ‘mop-up’ phase at the end of the delivery period. During this phase, households that did not initially participate were given one last chance to take advantage of the offer, across all delivery areas. This proved to be a very successful model to engage households that did not initially participate in the program.

Community-based marketing

Traditional retrofit programs typically rely on mass marketing, including media advertising and bill stuffers.

Community-wide retrofit programs leverage a variety of community-based marketing strategies that tend to be much more personally engaging, and are often lower cost. These can include:

- recruitment of a variety of community champions and partners in actively promoting the program, including political leaders and community agencies and organizations of all types (social, environmental, faith, trade unions, etc.)
- face-to-face presentations, and outreach at local events, tables, etc.
- branded signage at retrofit sites and on crew vehicles to establish street-level visibility
- posters, bus ads
- earned media (free news coverage, which also tends to be more effective than paid advertising)
- door-to-door marketing

An intensive, geographically targeted marketing campaign is crucial to the success of a community-wide retrofit program. Marketing efforts create community momentum and engages neighborhoods to participate in the program, contributing to higher participation rates.

Both Kirklee’s Warm Zone and RE:NEW took their programs *directly to households* through aggressive doorstep outreach campaigns, which were seen as critical to their success. Both campaigns engaged in comprehensive neighborhood marketing campaigns which included billboard and bus ads, booths at local events, door-to-door leafleting and canvassing.

RE:NEW tracked the penetration rates achieved by each of its marketing approaches, and found doorstep canvassing to be the most effective, achieving 50-60% penetration rates in some neighborhoods. The next most cost effective marketing strategy was direct mail, which achieving penetration rates between 20-40%, followed by doorstep leafleting which achieved penetration rates in the range of 16-40%.

Clean Energy Works Portland's marketing strategy combined a direct mail campaign with billboard, print and radio advertising and tabling at community events. The most effective single approach was direct mail. This success was due to a partnership between Clean Energy Works Portland and local utilities, which facilitated the co-branding of the direct mail with the utility. This was an effective engagement technique, leading to a high response rate.

Clean Energy Works Portland experimented with a door-to-door campaign in a low income neighborhood, but got a limited response rate and ended trials of this marketing strategy. However, poor results may be attributable to the high incidence of rental housing and the program offering to low-income customers, which involved low-interest financing. Despite the break on interest rates, low-income households are often reluctant to take on additional debt.

As Clean Energy Works Portland has moved beyond the pilot phase, the program has developed a strategy to engage contractors in marketing the program. Contractors are given a unique rebate code, which can then be used by homeowners to receive up to \$3,000 in additional incentives and rebates when they sign up for a retrofit. Contractors retain the clients that sign up using their rebate code. This has proven to be a very effective strategy for engaging contractors in marketing the program, and has led to improved uptake rates.

Job creation

Energy retrofits create 20 local jobs for every million dollars invested, almost four times as many jobs as a comparable investment in the oil and gas sector². Money invested in energy efficiency creates jobs that are tied to the local economy and concentrated in the construction trades, many of which provide entry level opportunities for local workers.

The one-retrofit-at-a-time approach of traditional retrofit programs generates jobs and business opportunities, but does not generally permit the deployment of an organized job creation strategy.

Community-wide retrofit programs offer the potential for a more focused approach. Given the scale of retrofit activity and geographic concentration, job creation becomes a driver for investment in community wide programs. There is also an opportunity to

² No listed author(s) (2011) "This Green House: Building Fast Action for Climate Change and Green Jobs." Columbia Institute. Accessed at www.columbiainstitute.ca/news-events/green-house-building-fast-action-climate-change-and-green-jobs.

incorporate objectives such as local hiring, and hiring of women, minorities, low-income people, combined with job training.

While Kirklees Warm Zone did not have an explicit focus on job creation, contracting was awarded to a firm that agreed to source all new hires locally through the creation of a local hiring depot. This created 126 direct full-time equivalent positions within the local economy. While there were some early delivery challenges as the contracting firm struggled to keep up with increasing demand, the decision to incorporate local hiring was seen to strengthen and support the economic justification for the investment in energy efficiency at the Council level.

Clean Energy Works Portland identified targeted job creation as a core design element. Through the creation of a Community Workforce Agreement, the program established a set of contractor standards and incentives that worked to create living wage, entry level employment opportunities for low income and historically marginalized populations.

Contractors wishing to participate in the program were selected both on their ability to meet quality standards at a competitive price, and their ability to meet the requirements of the Community Workforce Agreement. Requirements included:

1. paying employees at 180% of the state minimum wage or at prevailing wage standards, whichever was higher,
2. providing a competitive benefits package to employees,
3. hiring 80% of new employees from the Portland area, and from targeted training programs, as well as a number of incentives that aimed to increase the diversity of the workforce.

Clean Energy Works Portland certified local training centers which provided basic retrofit training programs with a focus on engaging low-income individuals, and those with past barriers to employment. Participating contractors worked with these training centers to meet local and targeted hiring requirements. Contractor hiring for the project was done in phases, to allow contractors who may not have been able to meet the hiring requirements initially time to develop the necessary capacity to participate in the program.

Clean Energy Works Portland facilitated the creation of 48 new jobs, and created employment opportunities for over 60 contracting companies and over 380 construction workers. While Clean Energy Works Portland provides an excellent model of an integrated approach to job creation and retrofit delivery, this approach can be very challenging without the full support of local unions, the municipality, and all other project partners.

Incorporating job creation initiatives to community wide retrofit projects may provide opportunities to leverage funding associated with job training, economic development and recovery, as well as maximizing the economic benefits associated with the project³.

Financing and incentives

The cost of retrofits is a significant barrier to participation. Costs can range from a few thousand dollars for conventional upgrades (insulation, draftproofing, heating system), to \$10-20,000 for deep retrofits, or exterior/interior cladding for buildings without wall cavities. Installing micro-renewables like solar PV can add tens of thousands of dollars more to the cost.

There are often significant net savings from the energy savings over the lifetime of energy-saving measures. However, costs are up front; savings gradually occur over a period of many years. A further barrier: the house may be sold before net savings are realized, and retrofit upgrades may not be reflected in the resale value. All of these factors undermine homeowner motivation to make what appear to be economically rational investments.

One clear approach to overcoming financial barriers is to provide the retrofits free of charge. Kirklees Warm Zone adopted this delivery approach, offering wall and attic insulation free of charge to any property regardless of income. The retrofits were financed, where possible, by bundling available financing sources as well as through an investment by the Kirklees District Council.

The main difficulty with providing free retrofits is the large expense, and the impact on the tax base and/or energy rates. Further, where tax/ratepayer funds are limited, it would seem more appropriate to direct spending to low-income households rather than able-to-pay households (which can afford to pay for the work, and accrue substantial private benefits in bill savings and increased home value).

Less expensive than providing free retrofits is to offer cash incentives that cover a portion of the cost. As noted above, incentives have been a common tool in Canada for overcoming financial barriers, including the EnerGuide for Houses and ecoENERGY for Homes retrofit incentives and matching provincial programs. These have been highly effective in stimulating the demand for retrofits.

However, concerns about cost are also affecting incentives, with Canada's federal ecoENERGY home retrofit incentive program currently scheduled to end in March 2012. Further, with incentives as with free retrofits, where funds are limited it would seem appropriate to direct support to low-income rather than middle-class households.

³ Warm Up Winnipeg provides an example of a Canadian retrofit program where targeted job creation is a primary component of program design. For more information, please see www.WarmUpWinnipeg.ca.

It seems likely that the era of full blown incentives is coming to an end in Canada, at least for able-to-pay households, in favour of innovative financing tools that make it easy for benefiting homeowners to pay their own way.⁴ Properly managed, financing tools can be largely or entirely financially sustainable, which means they ought to be permanently available, and not on-again-off-again as we have seen with incentive programs in this country, to the great detriment of the cause of energy efficiency and the development of a mature energy efficiency industry.

Elements of innovative financing can include streamlined eligibility, below market interest rates, extended pay-back (e.g., 10-20 years), and convenient repayment mechanism, including automatic payments on utility or municipal property tax bills.

A common theme of many innovative financing schemes is that participants should be able to “pay as you save,” that is, receive monthly energy bill savings that exceed loan payments, thereby establishing positive cash flow. However, bill savings are only one benefit of energy efficiency retrofits. Benefits also include improved comfort, added functionality (e.g., ability to use a room that was previously too hot in summer and/or too cold in winter), solutions to home performance problems like ice-dams, and improved resale value. A strict positive cash-flow rule undervalues the other benefits of retrofits. Therefore, we recommend greater flexibility in extending loans that may cost more in a given month than they save in bill reductions alone.

Clean Energy Works Portland created a sustainable financing mechanism design to maximize the impact of their Energy and Conservation Block Grant from the US government. They did this through the establishment of a revolving loan fund, and by partnering with local utilities to allow for on-bill loan repayment.

Clean Energy Works Portland seeded its revolving loan fund with their \$1.1 million federal grant and leveraged an additional \$2 million in private investment. A non-profit community development financial institution, Shorebank Enterprise Cascadia, hosted the fund. A loss reserve fund was established at 10% of the total lending volume to manage the risk of defaults. The revolving fund allows Clean Energy Works Portland to recycle program dollars over many projects, contributing to the financial sustainability of the program and offering more flexibility in the development an energy efficiency loan tool - allowing the program to offer lower interest rates and longer amortization periods than a traditional financing institution might have allowed.

Clean Energy Works Portland incentivized deeper retrofit work within the able-to-pay market through a progressive interest rate scheme, with lower interest rates offered to

⁴ The Save ecoENERGY Coalition of industry and environmental associations is calling for a four-year extension of incentives, but only as a bridge to implementation of self-financing mechanisms in combination with other enhancements. It has also been suggested, by Green Communities Canada among others, that there should be a continuing role as part of a comprehensive program offering for “smart incentives”, i.e., less costly payments that are carefully targeted where they can do the most good, and help to achieve market transformation.

those investing in deeper measures. Low income participation was also incentivized through a lower interest rate, although the project found that low income households were largely unwilling to take on more debt to finance retrofit work.

Loans are amortized over a 20 years, a long period designed to bring loan payments into line with cost savings associated with the retrofit work. Participants made loan payments through monthly payments on their utility bill. This simplified the re-payment process for participants (one bill instead of two), and reduced the risk of nonpayment since payment of the loan is attached to utility account health.

Under the Portland scheme, when a home is sold, the homeowner must repay the loan in full or negotiate a transfer to the new owner. In future phases of the program, Clean Energy Works Portland aims to have the loan payments “tied to the meter,” meaning that the loan would remain with the home in the event of a sale.

Another option, not used by any of our case studies, is for municipalities to arrange financing for energy retrofit work, and have homeowners repay the loan through an additional charge on their property taxes. This would also allow the loan to be tied to the property rather than the property owner, so a homeowner could invest in energy efficiency work on a home they might be planning to sell or move out of. Property assessment based loans are another way to offer households a low-interest long-term loan to finance energy efficiency work. *This Green Home* (2011), published by the Centre for Civic Governance, provides further information about these models, as well as an analysis of the potential and barriers to implementation of this model in Ontario.

Low income housing

Low income individuals and families are likely to live in older under-insulated housing with high heating costs and low comfort levels (sometimes to the point of being unhealthy). These houses are low hanging fruit, with the potential to achieve high energy reductions and cost savings through energy efficiency work, while reducing energy poverty and contributing to increase occupant health and comfort.

Low-income households are by nature of their limited income unable to take part in incentive programs, however generous, because they are unable to afford the upfront cost of the retrofit.

Clean Energy Works Portland tried to include low-income households by offering low-interest financing to qualifying households. However, the program failed to attract participation. Low income households were reluctant to take on any debt, especially where the monthly loan payments could be higher than monthly energy savings. Consequently, the state-wide roll-out of the program will no longer seek to engage low income households in financing for energy efficiency work. Instead the program is working to partner with grant-based low income energy efficiency programs to offer retrofit work free of charge to low income households.

Community-wide retrofit projects should include the offer of free retrofits to low income households. Experience shows that any financial barrier will result in non-participation. Where there are existing grant-based low income retrofit programs, these should be integrated into the community-wide project, offering a single application and delivery process to low-income participants.

Integrated partnerships for non-energy programs

Community-wide retrofit programs offer an opportunity to engage government and community partners to maximize benefits. These partnerships can broaden the economic, social and environmental co-benefits of the program through the co-delivery of program offerings.

For example, the Kirklees Warm Zone incorporated referrals to state benefits checks, debt counseling and long term care support into its doorstep marketing plan, along with the installation of water conservation measures, carbon monoxide detectors and fire safety checks.

Health and safety upgrades

In each of the three programs profiled in this report, pre-existing household health and safety problems presented a barrier to program delivery in low-income households. The presence of asbestos, mold, inaccessibility of loft spaces are all examples of health and safety barriers that could prevent retrofit installation.

Programs need to address this barrier, ideally by providing minor repairs as an integral part of the program, and by integrating outside funding streams to facilitate major repairs.

In Canada, partnership with the federal Residential Rehabilitation Assistance Program is an option for facilitating health and safety upgrades when necessary for energy efficiency upgrades to take place.

Private rental

All three programs profiled in this report reported difficulties in engaging the private rental sector in energy efficiency upgrades. A primary barrier is split incentives: if the tenant pays the energy bill, the landlord has limited incentive to invest in energy efficiency upgrades.⁵

In the case of RE:NEW, the program had some success offering free, light measures to private rental houses, but deeper retrofits remained a challenge even in cases where the

⁵ There is a landlord incentive if there is a tight rental market and energy costs for the unit are disclosed prior to signing a rental agreement - in other words, if inefficient units become difficult to fill. Landlords also have an indirect incentive to reduce energy bills for tenants to help avoid rent arrears or turnover.

retrofit work could be offered free of charge. The program is currently working to better communicate the benefits of the program to private landlords.

In the United Kingdom there has been some move toward the use of regulation, including a provision in the government's 2010 Energy Bill "giving tenants the right to request reasonable energy efficiency improvements to their homes, if a review finds that standards have not improved sufficiently by 2014 and that regulation does not decrease the amount of properties available for rent."⁶ "Reasonable" in this case is defined as measures that can be funded under the U.K. Green Deal. Stronger minimum standards have been recommended.⁷ In order to ensure full participation of private rental in community-wide retrofit programs in Canada, a regulatory "stick" should be considered in combination with the "carrot" of bundled turnkey service and access to financing[2].

⁶ p3, A Private Green Deal: The case for minimum energy efficiency standards in the private rental sector, William Baker and Liz Lainé, Consumer Focus, 2011. See: www.consumerfocus.org.uk

⁷ *ibid.*

Resources

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