

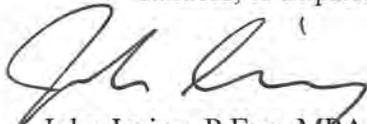


To: Public Works and Transportation Committee **Date:** March 28, 2014
From: John Irving, P.Eng. MPA **File:**
 Director, Engineering
Re: **Richmond Energy Challenge and the Climate Smart Program**

Staff Recommendation

That, as presented in the attached report titled “Richmond Energy Challenge and the Climate Smart Program”, dated March 28, 2014, from the Director, Engineering:

1. Staff’s development and implementation of a “Richmond Energy Challenge” for larger private buildings be endorsed, and
2. That the Chief Administrative Officer and the General Manager, Engineering and Public Works be authorized to execute a funding agreement with BC Hydro, and other potential funders, to implement this Challenge.


 John Irving, P.Eng. MPA
 Director, Engineering
 (604-276-4140)

REPORT CONCURRENCE		
ROUTED TO:	CONCURRENCE	CONCURRENCE OF GENERAL MANAGER
Economic Development	<input checked="" type="checkbox"/>	
REVIEWED BY STAFF REPORT / AGENDA REVIEW SUBCOMMITTEE	INITIALS: 	APPROVED BY CAO 

Staff Report

Origin

In November 2012, the City piloted the Climate Smart program to help businesses reduce their energy use and emissions. The City provided \$5000 to leverage funding from the Pacific Carbon Trust, Fortis BC, and participating businesses. This report reviews outcomes of the program.

Building on the success of the Climate Smart pilot, staff propose that Richmond implement an “Energy Challenge” for local businesses and multifamily properties over 2014-2015; the Richmond Energy Challenge will help building owners, managers and operators reduce energy use in their facilities, by providing training, services, tools, and a community of peers. The Challenge is part of the implementation of the City’s 2014 Community Energy and Emissions Plan (CEEP); Action #7 in the CEEP is “promoting building efficiency through outreach and education”. The Challenge supports Council Term Goal #8.1 on Sustainability: “Continued implementation and significant progress towards achieving the City’s Sustainability Framework.”

Analysis

Climate Smart Program - 2013 Pilot Results

The Climate Smart Program is offered in British Columbia by a social enterprise with the purpose of enabling small- and medium-sized enterprises (SMEs) to reduce their greenhouse gas (GHG) emissions while cutting costs and fulfilling their corporate social responsibility objectives.

In 2013, the City of Richmond partnered with Climate Smart, the Pacific Carbon Trust (\$5,000 contribution), and Fortis BC (\$3,000 contribution) to deliver a Program specifically for 10-12 Richmond-based businesses on a 1-year pilot basis. The City of Richmond also contributed \$5,000, and businesses each paid between \$250 and \$1,000 depending on their size.

The City’s Economic Development Office worked with Climate Smart to develop an appropriate communication and recruitment strategy that would engage the local business community. Eleven Richmond-based businesses registered for the Program, representing a cross-section of sectors including manufacturing, logistics, retail, food processing, agriculture, information technology and construction. These businesses collectively represent 1,830 employees, nearly 700,000 square feet of commercial space, and total revenue reported of over \$1.5 billion. The Richmond participant profile represents larger businesses than typical for Climate Smart members region-wide.

As of November 2013, the participation of Richmond businesses had resulted in over 13,000 tonnes of CO₂e (carbon dioxide equivalent) being inventoried. As part of ongoing engagement with the program, participating businesses are continuing to identify strategies to reduce these emissions. Emissions reduction strategies employed by participants range from behavioral changes (such as encouraging employees to take public transportation and turn off energy consuming devices when not in use) to capital projects (such as warehouse lighting retrofits and gradually replacing fleet vehicles to more fuel efficient models). Other reduction strategies

implemented include increasing the amount of green space at the company's facilities, reducing corporate flights taken, buying carbon offsets, and installing fleet tracking devices to increase efficiencies and reduce fuel consumption. Program-wide, Climate Smart businesses average 4% emission reductions in the first-year and \$397 in projected cost savings per tonne CO₂e reduced.

Through a post-Program survey conducted by the City, Richmond businesses reported being very satisfied with the Climate Smart Program and the majority indicated they had one or more staff members dedicated to ongoing monitoring of GHG emissions. Eighty-three percent of respondents indicated they would continue using the Climate Smart tool to monitor GHG emissions. The respondents commended the City's involvement in this initiative, and encouraged ongoing participation in local businesses' sustainability efforts.

Businesses report that they value participation in Climate Smart, and participants continue to identify a wide array of GHG emissions reduction opportunities. Unfortunately, the Pacific Carbon Trust and Fortis BC have not renewed support for Climate Smart, and at this time no new funding partners have been identified for the Program. Moving forward, staff propose to support businesses' energy and emissions management through a "Richmond Energy Challenge". Leveraging funding from BC Hydro, and potentially other sources, the Challenge will provide training and resources to help local businesses and multifamily buildings pursue energy upgrades, building on the success of Climate Smart. The Richmond Energy Challenge is described below.

Richmond Energy Challenge

Expanding from the City's success with the Climate Smart program and businesses' feedback that City energy programs are valued, staff propose to develop a "Richmond Energy Challenge". The Richmond Energy Challenge supports the Community Energy and Emissions Plan Action #7 (CEEP p. 49) to "promote building efficiency through outreach and education". The Challenge will scale up the City's efforts to engage businesses and multifamily buildings in energy improvements, offering deeper engagement and opportunities for a larger number of buildings to participate.

The Challenge will respond to key barriers and opportunities that impede building owners and businesses from implementing energy improvements to their buildings. Attachment # 1 summarizes the barriers and opportunities to improving building energy performance for pertinent building sectors.

To address key barriers and capitalize on opportunities, the Challenge will provide a range of services to help commercial and multifamily building owners, managers, and operators reduce energy spending and emissions in their facilities, and pursue other green building management practices. The City will recruit building owners and managers into the Challenge, asking that they simply track their energy performance and commit to pursuing strategies to save money and help protect the environment.

The Challenge will be anchored by a "Peer Learning Group", which will convene participating property managers and building operators. The City will work with utilities and industry experts to deliver training and tools for this group, including:

- Training in building energy benchmarking, to track buildings' performance.
- Training in how to access utility energy efficiency programs, and building the business case for upgrades.
- Specialized seminars on energy upgrade opportunities.
- Connection to free/low-cost energy assessments provided by BC Hydro and Fortis BC.
- Ongoing peer support to share good practices in implementing upgrade projects, and provide the social "nudge" to follow through with upgrades.
- Opportunities for bulk procurement.
- Regular networking and mentorship.
- A forum to inform the ongoing development of City policy and programs to reduce energy and emissions in existing buildings.

As part of the Richmond Energy Challenge, the City will recognize participating buildings, and provide "Energy Awards" for high performing buildings.

BC Hydro has offered to provide \$47,875 in funding for the Richmond Energy Challenge and broader efforts to promote upgrades, and has provided funding agreements for the City. Staff have applied to Fortis BC (\$40,500 funding request) for additional support, and are exploring other sources to support the Challenge.

The Richmond Energy Challenge is anticipated to run from September 2014 to September 2015, with recruitment over summer 2014. Staff will provide an interim update on the Challenge to Council during its implementation, and a final report when completed.

Financial Impact

None. Staff estimate that implementing the Challenge will require a total budget of \$88,375. BC Hydro has offered to provide funding for the Richmond Energy Challenge and efforts to promote upgrades, totaling \$47,875. The remaining \$40,500 to implement the Richmond Energy Challenge and associated promotions are pre-existing in the City's 2014 capital budget. Additional funding from Fortis BC and/or other sources may reduce City spending.

Conclusion

Increasing the scale of energy upgrades in Richmond's residential and commercial buildings is critical if Richmond is to achieve the energy and emissions goals articulated in the Official Community Plan and CEEP. The Energy Upgrade Strategy presents a range of actions to catalyze deeper energy improvements in the community. Richmond can build upon and enhance previous efforts, such as its support of Climate Smart, by implementing these actions. The Richmond Energy Challenge represents an important early action in the Energy Upgrade Strategy, and a means of building on the success of the Climate Smart program.



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BM:bm

Market Analysis of Larger Private Building Segments

This Market Analysis profiles the barriers and opportunities to implementing energy improvements (or “upgrades”) to larger private buildings that will be eligible to participate in the proposed Richmond Energy Challenge. The Market Analysis is based on multiple interviews with utility program administrators, energy service providers, representatives of the building owners and managers industry, and energy service providers, as well as a literature review. It identifies five building segments which might participate in the Richmond Energy Challenge, noting the particular barriers and opportunities to proceeding through energy upgrades for each. Key barriers are summarized in the table below.

The proposed Richmond Energy Challenge is intended to address many of these barriers. Notably, the program will:

- Improve knowledge of existing energy improvement programs and incentives provided by utilities.
- Increase building operators’ and managers’ understanding of energy issues, and ability to implement energy saving projects.
- Reduce the hassles and transaction costs associated with implementing energy upgrades.
- Provide a forum to liaise with members of the building ownership and management industries, to identify how to overcome persistent barriers to energy improvements, including “Hold Barriers” (owners are hesitant to invest in energy improvements when they may sell, or tenants may leave the property); “Split-incentives” (owners pay the cost of energy improvements, while tenants save on energy costs); and a lack of appropriate financing tools.

Barriers	Commercial, Industrial & Institutional			Residential	
	Small & Medium Business	Large, professionally managed buildings	Large Institutions	Condo	Rental Apt.
Knowledge of energy programs	✓			✓	✓
Building operator energy literacy	✓	✓	✓	✓	✓
Hassle / transaction cost	✓	✓	✓	✓	✓
“Hold Barrier” – owner/tenant may leave property	✓	✓		✓	✓
“Split-Incentives” ¹	✓	✓		✓	✓
Lack of appropriate financing tools	✓	✓		?	?

¹ A “split-incentive” refers to conditions where owners must cover capital cost of upgrades, while tenants reaps lower utility bills; in this case, the owner has limited incentive to invest in upgrades. Alternatively, it may refer to a case where an owner/strata pays energy costs, and the occupant has limited incentive to control energy spending.

Commercial Buildings

This analysis differentiates between smaller businesses with less energy upgrade capacity, and larger businesses with greater capacity. In reality, businesses fall along a spectrum of energy management capacity; the “smaller” and “larger” subsectors are used to highlight conditions at different ends of this spectrum. Across these different segments, there are commonalities, including:

A wide variety of building sectors, with individual upgrade needs

The commercial sector encompasses a wide variety of building types and industries, each with its own energy upgrade opportunities and barriers. Important sectors to address in Richmond include offices; retail; warehousing and logistics; manufacturing; and food services.

“Base-building” versus tenanted space upgrades

Some buildings are owner-occupied, while others include spaces leased to tenants. Energy consumption in buildings with leased space can be divided into two broad sources: “Base-building” and tenanted spaces. The base-building includes common areas, and also often includes common HVAC services that are provided to all building spaces. Owners are billed for base-building costs; however, under the structure of many real estate leases, they will pass some or all of these utility bills through to tenants. Owners and their building management firms are typically responsible for making upgrades that reduce base building energy use costs.

Tenants’ energy costs often include electricity consumption billed for their leased spaces, include lighting and plug-loads; they may also pay for some or all HVAC services for these spaces. It is also important to note that in many leased commercial buildings, tenants occupy an entire building and pay for all costs.

Smaller Businesses with Less Energy Upgrade Capacity

Market description

Roughly, this segment covers buildings less than 50,000 square feet in size, occupied by small and medium businesses. Smaller businesses will often not have full-time, dedicated property management or buildings operations staff. Where management and operations staff are present, they are typically responsible for a wide range of duties, and frequently have limited experience nor time to devote to upgrade projects.

Utility/Provincial Programs

LiveSmart BC Small Business Program (expired March 31, 2014) – Historically, the Province administered the LiveSmart BC Small Business Program. It provided free energy assessments. Utilities provided incentives for energy upgrade measures completed as part of the program. The LiveSmart program expired March 31, 2014.

Future utility-administered home energy upgrade program – In late April, BC Hydro and Fortis BC are expected to announce energy efficiency program(s) that will effectively replace the LiveSmart BC Small Business Program. The program(s) will likely feature an energy assessment, and access to utility incentives. Whether multi-fuel assessments will be available, and the depth of assessments required, remains uncertain.



Key Barriers

“Hold barriers” due to potentially short-term building tenure – Many owners anticipate they might sell their property within a few years. Likewise, tenants may leave leased spaces. The potential that owners/tenants may leave the property limits their interest in investing in energy improvements.

Limited knowledge – Many small and medium business owners are unaware that energy efficiency incentive programs are available to help reduce emissions.

Transaction costs & limited staff capacity – Smaller business owners and managers face multiple demands on their time. They often cannot expend significant time navigating utility programs.

Split-incentives – Energy upgrades are hindered in many commercial properties where owners are responsible for upgrades, but tenants pay utility bills. Conversely, in properties where owners pay utility bills, tenants have no incentive to save. “Green lease” terms that align responsibility for energy upgrades with utility payments are required, and/or financing mechanisms that can pass through repayments for capital spent on upgrades under the structure of existing leases.

Lack of appropriate financing mechanisms – While various loans and lease financing mechanisms are offered by financial institutions and vendors for commercial upgrades, these products do not address some of the commercial sectors’ key requirements. Notably, existing financing mechanisms:

- **Cannot be readily passed to future building owners** – Many commercial real estate owners anticipate potentially selling their property within a few years. They are often hesitant to finance upgrades whose repayment cannot be readily passed to future owners.
- **Do not address split-incentives** – Financing repayments are not readily passed through to tenants under the structure of many existing leases. Thus, owners hesitate to invest in upgrades that reduce tenants’ utility bill payments, a “split-incentive”.
- **Reduce borrowers’ debt service capacity** – When a business takes on debt it typically reduces their debt service capacity, limiting what they may borrow in the future. Businesses have multiple demands on their limited cash reserves and debt capacity. Thus, they hesitate to finance upgrades.
- **Are not available for smaller projects** – Many upgrade financiers note that they will not finance upgrades of less than \$100,000-\$500,000 in value. Smaller businesses thus may not be able to access financing for upgrades. While some emerging equipment lease services are financing projects for lower values, there remains the need to aggregate projects and serve smaller customer sizes.

For these reasons, few commercial property owners will invest in upgrades with greater than a 2 year simple payback. Financing mechanisms that address these barriers have the potential to significantly increase these investment thresholds, and enable deeper energy upgrades to be realized.

Key Drivers & Opportunities

Recognition and awards – Many commercial building owners and businesses are keen to differentiate their practices, and be recognized for green building achievement. Facilitating existing building rating systems and providing recognition for green building performance can drive better building upgrade practices.

Tenant improvements – Tenant improvements at the time of re-leasing spaces present an opportunity to implement more efficient lighting and equipment in tenant spaces.

Norms and peers’ actions – Building owners are influenced by peers actions and market norms.

Small Business Upgrade Process



	Current Process	Existing Barriers	Potential Solutions
Sign Up	Recruitment - Business schedules assessment	Low knowledge of programs' existence Low motivation to participate	Increase direct marketing (letters, etc.) Provide informative indirect marketing Leverage social norms through "Community based social marketing"
Business Energy Assessment	Business Energy Advisor (BEA) conducts assessment Report provided to business owner BEA may provide further assistance to business	Time & hassle of assessment Difficulty interpreting assessment Contractor is not involved in assessment, missing a sales opportunity	Simplify assessment Involve the contractor; use assessment as a sales opportunity
Procure Contractor	Business accepts bids from contractors Contractors visit business to inform quotes Business chooses best bid	Hassle and uncertainty of procuring contractor Additional time for contractor visits	Provide pre-approved contractor to reduce hassles Facilitate bulk procurement of contractors by community organizations, to reduce transaction costs (the "Solarize" model). Provide technical assistance during procurement
Finance Upgrades	Businesses may finance upgrades through cash reserves, debt	Many business do not have cash, available debt capacity, or cannot secure financing at good terms Short (2 year) investment thresholds Businesses may anticipate selling/moving before term of financing Split-incentives – owner responsible for upgrade, tenant pays bill	Provide financing tools that: <ol style="list-style-type: none"> 1. Are available in small amounts 2. Pass with property/utility meter 3. May be readily passed through to utility bill paying tenants 4. Are considered "off balance sheet" "Property Assessed Payment for Energy Retrofits" are a promising model
Upgrades	Contractor implements upgrades	Hassle of coordinating contractors	Provide streamlined, rapid upgrade

Note: This process is based on experience with LiveSmart BC program. Future programs may differ.

Larger Businesses with More Energy Upgrade Capacity

Market description

Roughly, this segment encompasses buildings greater than roughly 50,000 square feet, which often have more sophisticated ownership, property management and buildings operations. Some of the more energy intensive and/or most valuable properties are served by dedicated energy managers, with sponsorship from utilities. This sector also encompasses building spaces occupied by some large chains that have some energy management expertise serving their various locales.

Energy Service Companies (ESCOs), engineering design firms, contractors, and equipment vendors have established markets providing upgrade services for larger commercial and industrial buildings. These service providers frequently drive upgrade projects and participation in upgrade programs.



Utility/Provincial Programs

A wide range of utility programs provide incentives and services for upgrades to commercial and industrial buildings. BC Hydro offers the Power Smart Partners program, geared towards larger commercial clients that spend \$50,000 or more per year on electricity. Participants have access to a range of incentives, key account managers that provide advice on appropriate programs, sponsored energy managers, continuous optimization and other programs. Likewise, Fortis BC offers a Custom Design program for upgrade assessments, a range of incentives, and sponsored Energy Specialist positions for qualifying customers.

In recent years, both BC Hydro and Fortis BC have expanded their Energy Manager and Specialist programs across networks of buildings; for example, the Building Owners and Managers Association (BOMA) has an Energy Manager on staff who can support upgrade work for BOMA members.

Key Barriers

Many of the barriers to upgrades in larger commercial buildings are similar to those facing smaller properties (see subsection above). However, larger properties face relatively less transaction costs, and will have greater capacity to implement upgrades if the barriers listed below are ameliorated.

“Hold barriers” due to potentially short-term building tenure – Owners/tenants may sell/leave the property in a few years, limiting their interest in investing in energy improvements.

Split-incentives – Energy upgrades are hindered in commercial properties where owners are responsible for upgrades, but tenants pay utility bills.

Lack of appropriate project financing – Commercial properties will rarely pursue upgrades with longer than a 2-year simple payback. This is because owners will typically seek to keep cash and debt service capacity available for other uses, and due to “hold barriers” and “split-incentives”. Financing mechanisms are needed that do not reduce debt service capacity and that can pass with the property in future years.

Need for skill-building and continuous energy optimization – Larger buildings are complex; significant amounts of energy can be saved through operational improvements. Implementing and maintaining these operational improvements is a challenge for building operators, who need access to training and services.

Key Drivers & Opportunities

Established service providers – Energy service firms and contractors currently serving the commercial market are crucial allies in providing innovative services and driving deeper energy upgrades.

Higher capacity operations staff – Management and operations staff in larger buildings typically have more experience and resources to implement upgrade projects. Training and further capacity building can enable further upgrade projects.

Recognition and awards – Many commercial building owners and businesses are keen to differentiate their practices, and be recognized for green building achievement.

Tenant improvements – Tenant improvements and times of re-leasing spaces present the opportunity to implement upgrades to tenant spaces.

Norms and peers' actions – Building owners are influenced by peers' actions and market norms.



Larger Business & Institutions Upgrade Process

	Current Process	Existing Barriers	Potential Solutions
Ongoing Energy Management	Buildings may benchmark energy performance	Lack of building manager/operator training & capacity	Facilitate training
	Ongoing monitoring and optimization of energy use	Limited mandate from ownership	Encourage owners to direct staff to focus on energy savings
Energy Assessment	Owner/manager opts to undertake comprehensive assessment	Operations staff can be hesitant to facilitate assessments that find range of opportunities for improvement, as this may reflect poorly on their performance	Involve operations and management staff; have them "own" the project
	Internal management staff or external consultant provide assessment		
Project Development & Approval	Assessment & business case provided to building owners/managers and/or tenants	Management and operations staff often lack business case development experience and skills	Provide business case training
		Split-incentives – owners & tenants hesitant to negotiate payment of upgrades mid-lease	Green lease education Target assessments & upgrades at re-tenanting
Finance Upgrades	Owners and/or tenants secure financing for upgrades	Many business do not have cash, available debt capacity	Provide financing tools that:
		Short (2 year) investment thresholds	<ol style="list-style-type: none"> 5. Are available in small amounts 6. Pass with property / utility meter 7. May be readily passed through to utility bill paying tenants 8. Are considered "off balance sheet"
		Businesses may anticipate selling/moving before term of financing	
		Split-incentives – owner responsible for upgrade, tenant pays bill	"Property Assessed Payment for Energy Retrofits" are a promising model
Complete Upgrades, Commissioning	Contractors install upgrades, commission systems	Construction practices may be subpar. Systems commissioning requires skilled practitioners	Facilitate improved commissioning and ongoing energy management & monitoring services

Institutions – Government, Hospitals, Schools, Higher Education

Market description

Many public and non-profit institutions own substantial portfolios of buildings in Richmond, with owners including government, hospitals, schools and higher education. Institutions typically own and occupy their properties, and expect have a long tenure on most of these properties.

Utility / Provincial Programs

Institutions are generally eligible for the same array of programs as larger commercial properties.

Key Barriers

Need for skill-building and continuous energy optimization – Larger buildings are complex; significant amounts of energy can be saved through operational improvements. Implementing and maintaining these operational improvements is a challenge for building operators, who need access to training and services.

Key Drivers & Opportunities

Availability of financing tools – Financing tools, such loans for performance guaranteed energy savings contracts, are relatively well established for large institutions.

Carbon neutral commitments and environmental responsibility – Institutions typically lead in commitments to climate action. This includes the public sectors' commitments to achieve carbon neutrality.

Norms and peers' actions – Institutions are influenced by peers' actions.



Multifamily Condominiums

Market description

BC assessment and census data suggest that as of 2011, there were about 34,000 housing units in stratas (about 50 per cent of Richmond's housing units) of which about 23,000 were apartments with common corridors.¹ Condominiums thus comprise an important market for energy upgrades.

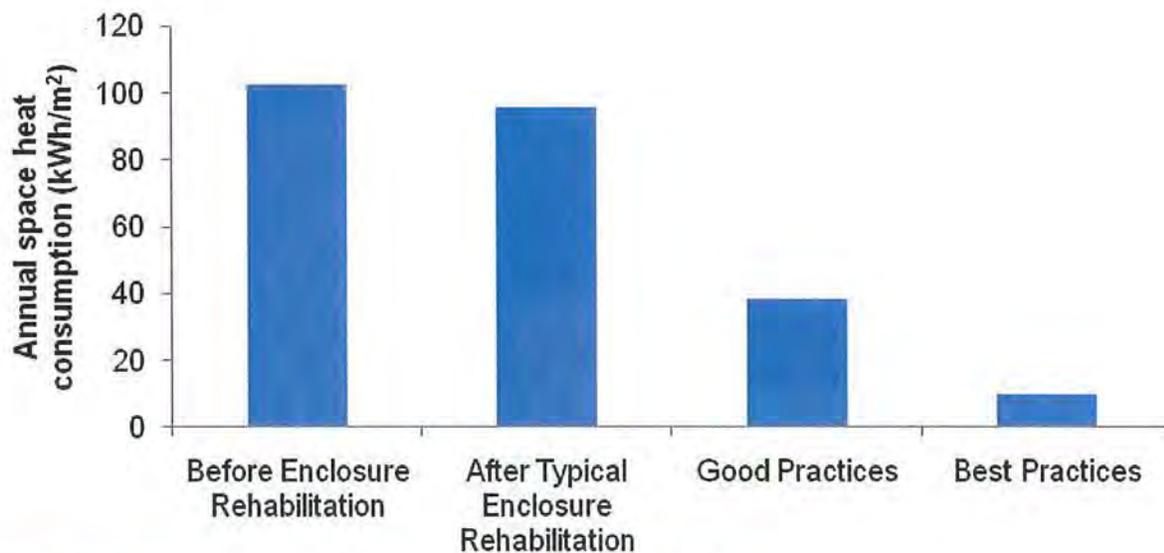
Base building versus in-suite upgrades

Condominium's energy consumption can be divided into two broad sources: Common energy costs, which are paid via strata fees; and in-suite energy costs, paid by unit owners. Common costs include common area lighting and conditioning, as well as much in-suite heating—many stratas have only one gas account, and do not individually meter unit heating costs such as fireplaces, heated ventilation air, or hotwater. These common sources account for about 70% of unit heating, and represent the greatest opportunities for efficiency improvements.² In-suite costs include electric equipment such as baseboard heating, lighting, appliances and plug-load. In-suite upgrades generally require action only by suite owners.



Rented condominium units

About 23% of condominium units in suburban Metro Vancouver are rentals. Like owner-occupants, owners of rented units have an interest in reducing common strata fees through energy upgrades, but have less interest in reducing energy costs for in-suite energy loads. Coordinating upgrade projects with investor owners can add to transaction barriers.



Multifamily heating consumption, pre and post rehabilitation. Source: RDH 2012.

¹ Of the remaining units, some would be strata townhomes and duplexes with individual heating systems and better served through "home energy upgrade" services described above.

² RDH Building Engineering. 2012. *Energy Consumption and Conservation in Mid- and High-Rise Residential Buildings in British Columbia*. Prepared for: CMHC; Province of BC, Homeowner Protection Office; City of Vancouver; BC Hydro; & Fortis BC.

Opportunities for deep energy upgrades during building enclosure rehabilitation

Many multi-unit residential buildings may undergo comprehensive building enclosure rehabilitation to address moisture issues. To date, few buildings in British Columbia have sought to improve the thermal performance of the building enclosure during these renovations. However, they present the potential to achieve deep energy savings. One study found that advanced building remediation efforts could reduce heating and ventilation requirements 60 to 90 per cent.³

Utility/Provincial Programs

There is currently no utility sponsored program that provides assessments for multiple fuels (both electricity and natural gas) for condominiums; rather, current programs provide upgrade services for just one fuel type. BC Hydro's residential program offers incentives for electrical equipment upgrades for residential account holders, which can cover activities in units. BC Hydro's Power Smart Partner's Express Program will launch on April 30, 2014; it will facilitate upgrades for common areas of condominium buildings. Fortis BC's Energy Assessment Program facilitates subsidized audits for condominiums.

Key Barriers

Difficulty coordinating upgrades amongst stratas – Convincing a strata to undertake energy upgrades to common spaces presents transaction costs and organizational challenges.

Hesitancy to invest reserves in upgrades when unit owners may move – Unit owners face a “hold barrier”—they may resist supporting investing cash reserves in energy upgrades when they may sell the unit. To overcome this challenge, greater buyer recognition of the energy performance of buildings is required or financing provided that is repaid by the strata corporation over time.

Property managers have limited incentive to develop projects – Many condominiums are managed by property management firms. While these property managers will typically conduct simple energy upgrades, they have generally do not have direction to develop deep energy upgrade plans.

Limited financial incentives for unit occupants to conserve energy – Unit owners frequently do not pay for many sources of heating in their units, including gas fireplaces, heated ventilation air, and hotwater; these are paid via strata councils. Thus incentives for individual units to change behaviour to conserve energy are limited.

Key Drivers & Opportunities

Opportunities to integrate deeper energy measures into depreciation reports and building enclosure rehabilitation – A depreciation report help strata corporations plan for the repair, maintenance and replacement of common property. Strata corporations in British Columbia need to obtain depreciation reports every three years, unless a 75% vote of their strata council opts out of the report. Integrating energy considerations in depreciation reports, and in condominiums' subsequent capital plans, has potential to facilitate deeper energy upgrades.

Peer examples – Stratas can be influenced by examples of similar buildings that have improved energy performance, reduced net maintenance fees, and increased value of building.

Use simple in-suite upgrades to drive deeper upgrade activities – In-suite upgrade opportunities include low-flow water fixtures, appliances, lighting, and other measures. In-suite programs can serve as a gateway for upgrades to base building systems.

³ Ibid.

Condominium Upgrade Process

	Current Process	Existing Barriers	Potential Solutions
Opt to Pursue Upgrades	Strata decides to pursue upgrades to address common energy costs	Limited understanding & motivation to pursue energy improvements	Market directly to condos; document & present benefits at strata meetings
	Service provider promotes upgrade opportunities	Little condo-focused programming	Include energy considerations in depreciation reports
	Strata or property manager makes assessment application (Fortis BC)	Low motivation for property manager to organize project	Provide simple in-suite upgrades to jump-start conversations at strata council about deeper upgrades
Energy Assessment	Strata opts to undertake assessments for gas and/or electricity	No multi-fuel assessment provided by existing programs	Provide multi-fuel assessment
Project Development & Approval	Strata/property manager evaluate assessment and decide on appropriate upgrade scope	Limited understanding of upgrade measures Difficulty organizing strata	Provide assistance & capacity building to help interpret assessment & define project scope
Procure Contractor	Strata/property manager procure upgrade contractor	Limited knowledge of upgrade process; limited trust in contractors	Provide assistance & capacity building to help procure contractors
Finance Upgrades	Strata may fund upgrades through reserves, and/or debt/levies	Strata members wary of additional assessments	Document cash-flow implications of decreasing common utility bills, increased upgrade assessments. Connect with potential financiers
Complete Upgrades, Test Out & Commissioning	Upgrades completed Rebate incentives submitted to utilities		Improved commissioning process could strengthen upgrade performance

Multifamily Rental Housing

Market description

Richmond has a relatively small stock of multifamily rental housing. According to an inventory of rental housing developed for Metro Vancouver in 2012, there are about 2,259 rental units at 27 purpose-built rental housing properties in the City of Richmond, and approximately half of these properties may be redeveloped in the near term.⁴

Utility/Provincial Programs

Currently, no multiple fuel assessment program is available in Richmond. Owners and managers of multifamily rental housing may apply to the BC Hydro Power Smart Partner Express and/or various programs offered by Fortis BC.

BC Hydro, Fortis BC and the industry organization Landlord BC recently introduced a pilot Apartment Energy Incentive Pilot (also called the Multi-Unit Residential Buildings Pilot), which is being offered in various local governments. The program offers multiple fuel assessments, and also compensates owners for upgrades made in tenants' suites. Richmond is not currently participating because of its limited stock of rental apartments relative to other municipalities in the region. The program covers both common area and in-suite upgrades. The program may be available in the future.

Key Barriers

Split-incentives – Currently, owners have limited financial incentive to make upgrades for systems where tenants pay the utility bill. Conversely, tenants have limited incentive to conserve energy from sources provided via common areas.

Limited knowledge of upgrade opportunities – Owners and managers have limited knowledge of upgrade opportunities.

Limited access to capital – Owners may have limited cash on hand for upgrades.

Hold barriers – Owners may anticipate selling the property before energy savings pay off efficiency investments. This is especially a barrier in buildings on parcels that may be redeveloped in the near term.

Key Drivers & Opportunities

Peer examples – Owners may have limited cash on hand for upgrades.

⁴ Coriolis Consulting Corp. 2012. *Metro Vancouver Purpose-Built Rental Housing: Inventory and Risk Analysis*. Prepared for Metro Vancouver.

Multifamily Rental Upgrade Process

	Current Process	Existing Barriers	Potential Solutions
Opt to Pursue Upgrades	Owner decides to pursue upgrades to address common area & unit energy costs	Limited understanding & motivation to pursue energy improvements Limited marketing to multifamily building owners Owners face split-incentives Low motivation for property manager to organize project	Market directly to owners Include energy considerations in capital planning Provide simple in-suite upgrades to jump-start deeper upgrades
Energy Assessment	Owner opts to undertake assessments for gas and/or electricity	No multi-fuel assessment	Provide multi-fuel assessment
Project Development & Approval	Owner/manager must interpret report Submissions & approval to utilities	Limited understanding of upgrade measures	Provide assistance & capacity building to help interpret assessment & define project scope
Procure Contractor	Owner selects contractor	Limited trust in contractors	Provide assistance & capacity building to help procure contractors
Finance Upgrades	Owner may fund upgrades through reserves, and/or new debt	Owner may face hold barriers, split-incentives	Sponsor in-suite upgrades Consider individual unit metering, with financial protection for tenants Consider financing repayment pass through mechanisms, with financial protection for tenants
Complete Upgrades, Test Out & Commissioning	Upgrades completed Rebate incentives submitted to utilities		Improved commissioning process could strengthen upgrade performance