

Tower Renewal

Financing Options

Report

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Executive Summary

The Tower Renewal Program seeks to achieve a number of City goals, including the reduction of greenhouse gas emissions and water use, improvements in energy efficiency, and the strengthening of neighbourhoods which include apartment towers. There are over 1000 concrete slab apartment towers in the City of Toronto that were built before 1984. These are the primary targets for renewal projects. Retrofitting these buildings could potentially reduce the greenhouse gas output of the City of Toronto by over 700,000 tonnes CO₂e per year, and reduce the per building consumption of electricity by 50%, natural gas by more than 50%, water by 20%, and improve waste diversion by over 30%.

The retrofit projects envisioned by Tower Renewal are comprehensive and large scale, likely costing several million dollars per building. Since most of the buildings in question are in the hands of private sector persons, these projects must be demonstrated to be advantageous to building owners if they are to be undertaken voluntarily. A critical obstacle is financing, as it is unlikely that such major projects can be undertaken in the normal course of business by most building owners.

Financing must be both low cost from an interest rate perspective, and not consume high value building owner's equity. These conditions rule out self-financing by building owners through cash on hand, mortgage financing, and unsecured commercial debt.

At the same time, government support for financing should avoid substantial budgetary implications, given current fiscal challenges, and significant use of constrained government credit availability. These conditions mean that government subsidies should be minimized, and that government should not provide financing or guarantee what could amount to \$2 billion or more of financing.

The solution to these constraints is believed to be a credit-enhanced capital pool, backed not by mortgage security but rather by property tax-based security. In this scenario, private sector funds would be raised by a dedicated Tower Renewal Corporation in order to finance projects. In addition, government would contribute a relatively small amount of over-collateralization to improve the credit quality of the capital pool, and reduce the interest rate associated with it. To ensure payment of project obligations, failure of building owners to repay financing obligations would lead to a transfer of defaulted payment amounts to property tax, whereupon the City could use existing priority lien mechanisms to recover obligations.

Implementation of this financing option requires provincial amendment of legislation or regulations pertaining to property tax, and to certain City of Toronto powers. In addition, a new Tower Renewal Corporation would be required to create and manage the capital pool and associated programs.

Additional support from the provincial and federal governments would assist in making the program a success, and should be sought, both because the benefits of Tower Renewal for Toronto should be supported by other governments, and because a successful Tower Renewal Program in Toronto could be emulated and expanded across Ontario and Canada.

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Introduction

The Tower Renewal Program seeks to achieve a number of City goals, including the reduction of greenhouse gas emissions and water use, improvements in energy efficiency, and the strengthening of neighbourhoods which include apartment towers. Tower Renewal projects are intended to be long-term engagements where buildings are not only upgraded initially, but building owners, managers and tenants are engaged in a long-term process of education, training and behavior change. Only through this level of engagement can the maximum benefits of Tower Renewal be achieved across all the dimensions of benefit that are being sought.

The scale of the opportunity is very significant: there are over 1000 concrete slab apartment buildings in Toronto that were built before 1984. Retrofitting these buildings could result in the reduction of greenhouse gas outputs of over 700,000 tonnes CO₂[e] per year. At the same time, according to studies undertaken directly for the Tower Renewal Program, electricity consumption in retrofitted buildings could be reduced by 50%, natural gas by more than 50%, water by 20%, and waste diversion improved by 30%. All of these savings would be economically beneficial to building owners, and would represent significant benefits for the City.

More than 800 of these buildings are believed to be owned by private sector owners who operate them for profit, with the remainder in the hands of Toronto Community Housing Corporation, Co-ops, and other not-for-profit entities. The focus of this report is to examine options for successfully financing Tower Renewal projects in buildings that are operated for profit. Buildings operated in a not-for-profit manner present fewer obstacles to successful retrofit projects. As described more fully in Appendix II: Retrofit Economics, financial considerations at the not-for-profit level are relatively rudimentary. In addition, for buildings in government hands, Tower Renewal can simply be mandated as a requirement. Building owners in the private sector require active convincing that Tower Renewal projects will be beneficial to them as owners, as well as to City goals.

Retrofit projects, by their nature, require up-front expenditures in exchange for longer term savings. Tower Renewal projects, which are comprehensive in scope, entail substantial expenditures, usually in the millions of dollars. At this level, access to financing is crucial, as these projects cannot normally be accommodated by building owners within the normal course of business operation.

At the same time, the comprehensive nature of Tower Renewal projects, and the inclusion in the projects of such long-lived upgrades as new building cladding (which can last 30 years or more), result in projects which are expected to last 10 to 15 years or more, which is relatively unique from the perspective of retrofit projects that have been undertaken to date in Toronto and elsewhere.

This paper seeks to identify and analyze the various options for financing of substantial retrofit programs that might take place through Tower Renewal. The focus is on the most thorough and complex, and hence most expensive projects. If financing can be achieved for these projects in a way that is attractive to building owners and acceptable to the City, then the Tower Renewal Program will be on its way to success.

Financing Options for Tower Renewal

Comprehensive Tower Renewal projects for target buildings could cost several million dollars per building, including all initial reports and studies, construction, and program administration. Also included would be the cost of ongoing monitoring, reporting, tenant education and staff training that would be required throughout the life of the Tower Renewal project.

Financing for a project could consist of any of, or some combination of:

- a) Owner self-financing/cash. Given the expected size of Tower Renewal, this option might more properly be regarded as a contribution to another form of financing, where a building owner would pay a portion of the total cost only;
- b) Real Estate Mortgage. The building itself would have a new or second mortgage applied to it, or the existing mortgage would be refinanced and increased in size;
- c) Unsecured commercial loan;
- d) Government grant/subsidy;
- e) Government financing, with or without an alternative form of security (i.e., not a mortgage). In this instance a government is the actual lender to the projects, and assumes the risk of associated with default. The government may ultimately raise the money from the capital markets, but would stand in between capital providers and Tower Renewal Projects;
- f) Credit-enhanced capital pool, with or without an alternative form of security (i.e., not a mortgage). In this model, the City, or an entity controlled by the City, would sponsor and create a special purpose entity that would finance individual Tower Renewal Projects. Groups of projects would be pooled together, and financed through bond issues to the capital markets. This pooling approach would ensure efficient administration of the raising of funds, and the sharing of risk between individual projects in a pool would improve credit terms. In order to improve credit terms further, the City, or some other entity, would “over-collateralize” the capital pool, so that bond holders would be further protected from defaults that might occur among the projects.

Each of these options relates differently to building owners’ investment return requirements, debt ratios, and building values, and would be more or less attractive to the City of Toronto based on budget impact, credit impact, and impact on program viability.

The table on the following page summarizes these factors, which are explained further below:

Table 1: Summary of Financing Options

Option	Owner			City		
	Total Cost of Capital ¹	Debt Ratios	Building Value	Budget Impact	Credit Impact	Contribution to Program Success
Owner Cash	High	N/A	Positive	N/A	N/A	N/A
Owner Mortgage	High	Negative	Neutral to Positive	N/A	N/A	N/A
Unsecured Lending	High	Negative ²	Positive	N/A	N/A	N/A
Government Subsidy	N/A	Positive	Positive	Negative	Neutral to Negative	Mildly Positive at reasonable subsidy levels
Government Financing	Depends on nature of financing and security	Depends on nature of financing and security	Neutral to Positive	Neutral	Very Negative	Positive
Credit-enhanced capital pool	Depends on nature of financing and security	Depends on nature of financing and security	Neutral to Positive	Neutral	Neutral to Negative	Positive

¹ Including both posted interest rate, and the opportunity cost of the funds in question.

² Unsecured debt affects the overall debt ratios of a property owner, but not ratios focused on the building itself.

Impact on the Building Owner

Building owners own and operate their buildings to earn a return on their investment. In an environment where there is restricted ability to raise rents, and market pressure for the past few years has been negative, most building owners seek to maximize their income through careful management of expenses and investment expenditures.

Tower Renewal will only succeed in attracting the participation of skeptical building owners if it can be demonstrated that Renewal projects will have a positive impact on an owner's financial performance.

Cost of Capital

Options a), cash, and b), mortgage financing, require owners to spend their own capital. Note that adding a mortgage to an existing building is just a use of existing owner's equity capital that is tied up in a property. Instead of selling the building to liberate the available equity, a mortgage debt is the mechanism for accessing the available equity capital. Building owner's capital can be used for any purpose, so Tower Renewal projects will have to compete with all other potential uses of funds that a building owner might face.

Most building owner's have a "hurdle rate" for new investments, which is a target level of expected return below which an investment will be rejected.³ The higher this target rate of return, the less likely it is that a Tower Renewal Project would be attractive if financed through either cash or mortgage financing.

This is another way of saying that the payback period for Tower Renewal projects would need to be short. Since it is expected that Tower Renewal will focus on comprehensive projects with long payback periods, these sources of financing are unlikely to be attractive. Only the best Tower Renewal projects would gain support if these financing mechanisms were the only ones on offer.

If a Tower Renewal project is financed entirely with unsecured debt, option c), then a building owner would not be making use of their own equity capital. If another investment opportunity arose, the building owner could still access the equity in the building to pursue that new opportunity. In other words, the cost of unsecured debt is given by the interest rate charged by the unsecured debt provider, as opposed to the owner's hurdle rate.

However, unsecured debt is expensive, precisely because it is unsecured, and in fact may simply be unavailable for many projects. Unsecured debt is not uncommon, and even unsecured debt cannot be defaulted on with impunity, since defaulting on obligations has consequences for legal, credit rating and reputational consequences. However, in the event of financial distress or bankruptcy, unsecured debts are the last in line of obligations to be honoured. As a result, any lender that is unsecured will require considerable compensation for the risk being taken in the form of a high interest rate.

For Tower Renewal projects with long payback periods, high interest rates are fatal, making otherwise attractive projects financially untenable.⁴

³ For an explanation of hurdle rate and related terms used in this section, and for an overview of retrofit economics, please see Appendix II: Retrofit Economics.

⁴ See Appendix II: Retrofit Economics for further details.

Option d), government subsidies, are far and away the most attractive option from a building owner's perspective. Essentially, subsidies are "free" from the owner's perspective, and make any project more attractive to the extent that they are available. While many subsidies are offered, they are seldom sufficient on their own to finance projects, for reasons discussed below.

Direct government financing and credit-enhanced capital pools organized and supported by government, options e) and f), can have attractive rates of interest. Assuming that they are not secured against the property, they do not encumber owner's equity. Unless they entail some other form of security, again, discussed below, they are equivalent to unsecured debt in their impact, however, with substantially lower rates of interest.

Debt Ratios

A building owner's total debt to asset value is termed the debt ratio. For an individual building, this would be the outstanding mortgage principal as compared to expected market value of the building. For a company that owned one or more buildings, the ratio would be the sum of all outstanding debts as compared to the expected market value of all assets in the company.

Mortgage lenders would have a more restricted view of debt ratio, paying attention only to mortgage debt as compared to property value. If a business had unsecured debt in addition to secured debt, this unsecured debt could affect the financial health and reputation of the business, but not fundamentally the security of the mortgage lender.

Cash financing of a Tower Renewal project would not affect debt ratios. Cash financing is merely the conversion of one asset, cash, into another asset, an upgraded building.

Financing of a Tower Renewal project through 100% debt causes debt ratios to deteriorate. If the new debt is unsecured, then the total debt ratio is affected, while if the new debt is in the form of a mortgage, a building's debt ratio is affected.

Government subsidies are always positive for debt ratios. Assets are added to the business or building without any corresponding liability.

Financing by government, or through a credit-enhanced capital pool organized by a government may affect debt ratios, depending on the exact nature of the financing. Impacts can range from those of unsecured debt, to none at all.

Building Value

In virtually all cases, completion of a Tower Renewal project will add value to a building, if not immediately then over time. The net value of a building consists of its market value less outstanding debt secured by it. 100% mortgage financing would leave the net value of a building unchanged, assuming that the value of the building increases at least by the cost of the Tower Renewal project. The other financing options will have net positive impacts on building value in most cases.

City of Toronto Impacts

The City of Toronto, and many other governments, wish to support Tower Renewal or similar retrofit projects because of the many environmental, economic and social benefits they bring. However, the City

has many priorities, and many calls on its budget and credit. As a result, minimizing the budgetary cost and credit impact of the Tower Renewal program must be balanced against the likely success of the program that would result from the selected financing option.

The first three options all rely on building owners or capital market providers of financing, and hence do not involve government. By the same token, leaving financing entirely up to the market means that the City would have little or no control over the ultimate success of the program. Since the City is committed to action, then one or more of the government-based options should be pursued, either alone or in conjunction with one of the private sector options.

Budget Impact

Subsidies of many forms can be provided to Tower Renewal projects to help finance them. Examples include direct contributions to pay the cost of a project, or “interest rate buydowns”, where the government makes a payment to a financial institution to defray interest costs that would otherwise be included in loan/mortgage repayments. Through such a mechanism, for example, the cost of unsecured debt could be reduced to a level that would allow Tower Renewal projects to be economically viable. Thousands of energy efficiency subsidies are currently available across North America, often with several subsidy programs applying cumulatively to a given project.

Despite the multitude of subsidies that abound, subsidies by themselves are not likely to finance the whole of a Tower Renewal Project. Subsidies typically are used to reduce the payback time associated with a given project. The remainder of the financing is arranged by the building owner, who chooses from among the remaining available financing options.

Given that, according to recent surveys,⁵ approximately 50% of building owners and managers would be willing to accept projects with payback periods between 3 and 10 years, then the objective for subsidies would be to reduce payback periods as far below 10 years as possible. The challenge is that for major Tower Renewal projects, payback periods are usually in the 10 to 15 year range, and reducing that payback period to below 10 years would be prohibitively expensive. It would represent a major financial commitment of City, which the City might ill afford.

For example, if a Tower Renewal project required \$5 million, and could be financed at a 6% interest rate for 15 years, then annual savings required for the project to break even would be slightly more than \$500 thousand per year. If the savings could not be improved, but the project needed to be completed in 10 years or less, then the subsidy required would be almost \$1.5 million, or 30% of the project cost (to shorten the payback period to 7 years, for example, a subsidy of \$2.2 million, or almost 45%, would be required). Given that the City has a target of completing substantially all of the 1000 identified buildings over the course of 20 years, this would represent a subsidy of over a billion dollars, or an average of over \$50 million per year. Given the City’s budget constraints, spending a sum on this order of magnitude appears to be highly unlikely.

Government financing, or government-supported financing through capital pools, does not require budgetary expenditures. Instead, these mechanisms rely on the use of government credit capacity, as discussed below.

⁵ See Johnson Controls 2010 Energy Efficiency Indicator; North America Survey Results; April 19, 2010.

Either of the financing mechanisms e) and f) can and should be budget neutral for the City, as the full costs of administration should be included in the fees and charges associated with the program. In the initial start-up phase of a program, before actual projects have been undertaken, it may be necessary for the City to fund initial administrative costs through a loan, but this loan should be repaid over time.

Credit Impact

City subsidies for Tower Renewal projects would not have an impact on the City's credit capacity, except insofar as additional budgetary expenditures reduced the City's capacity to service its debts. Given the multi-billion dollar size of the City's budget, and the relatively small (though not insignificant) size of potential subsidies, it is unlikely that this impact would be notable.

Direct financing of Tower Renewal projects by the City, however, would have a significant impact on the City's available credit. Over the course of the expected life of the program, it is possible that \$2 billion to \$3 billion of Tower Renewal projects could be accumulated if the program were fully successful. If the City were financing these, it would in essence be borrowing the money from the capital markets, and would be fully liable for the debt. Given that the City of Toronto had outstanding debt of approximately \$2.75 billion at the end of 2008, the potential size of the Tower Renewal Program would be extremely problematic. Long before the full implementation of the program, the City's available credit capacity would be strained.

A credit-enhanced capital pool is funded primarily by the capital markets, through the issuance of bonds. The City's financial participation would be limited to a relatively small contribution of equity or subordinated debt that serves to "over-collateralize" the pool. Depending upon the credit quality of the underlying Tower Renewal projects, the size of the pool, the number of projects in it, and the desired overall credit quality target (and hence interest rate) of the pool, the City's contribution could range from 3% to 10% of the total funding.

Assuming that over the course of 10 to 15 years, Tower Renewal accumulated \$2 billion of projects, that would represent a potential commitment by the City of \$60 to \$200 million (or \$6 to \$20 million per year over 10 years, on average).

It should be noted that these sums could take two forms: they could be investments by the City as part of the City's normal investment portfolio, and therefore be assets on the balance sheet which earn a return; or alternatively the sums could be a pledge or loan guarantee extended by the City to the Tower Renewal program, in which case the City would earn a fee for providing the guarantee, but the pledged amount would consume the City's credit availability. Compared to direct financing of projects, however, in either construction a credit-enhanced capital pool would be a very minor burden on the City.

Program Impact

Subsidies to Tower Renewal projects would undoubtedly be a positive step to take to encourage building owners to participate. However, by themselves, subsidies are unlikely to overcome building owner reluctance to commit equity to projects, unless the subsidies were extremely large and reduced payback periods dramatically. If subsidies were the only step taken by the City, then the program would be unlikely to perform any better than existing subsidy programs.

Financing Tower Renewal projects, either directly or through capital pools, on the other hand, provides a mechanism to fully fund projects without recourse to owner's equity (assuming that government did not demand a mortgage interest in the property in question). While financing could be coupled with subsidy programs, providing a financing mechanism is a far more powerful and complete solution to the challenges faced by building owners.

Alternative Forms of Security

Mortgages provide security to lenders by giving the lender the right to seize ownership and control of a property in the event of non-payment of loan obligations. Regardless of the reason for non-payment – financial distress, bankruptcy, etc. – mortgage holders are secure in the knowledge that they can ultimately recoup some or all of their capital by seizing the mortgaged property and selling it.

As discussed above, building owners are reluctant to finance building retrofits through mortgages because this represents a use of building owner's equity, which could be used for other investment purposes. The retrofit project would be required to meet the hurdle rate that the building owner would apply to any other investment opportunity.

Unsecured lending leaves the lender exposed to potential loss of their capital. In the event of non-payment, an unsecured lender has no choice but to seek repayment of their capital by suing the borrower. In the case of a bankruptcy, there could be any number of unsecured claimants, and the likelihood of any of them receiving full repayment of their claims is very limited. As a result, lenders require a much higher rate of interest to compensate them for the risk of loss of unsecured funds. For building retrofits, where borrowing costs can powerfully affect the economic viability of a project, high rates of interest are fatal, and unsecured credit is unlikely to be of use.

Between these two extremes are other options that may be available in certain circumstances.

- In the case of utilities, obligations can be secured to some degree through association with the utility service provided.
- In the case of municipalities, obligations can be secured through association with property tax assessed against property located in the municipality.

Utility-based obligations

Electricity, gas and water utilities are typically provided to property owners on a metered basis. Customers pay for utility service based on usage, which provides a direct incentive to reduce usage through retrofit investments. A utility may choose, or be directed by regulators, to encourage such retrofits by offering financing for projects. This financing could be directly related to the savings expected to be achieved ("pay as you save", or "tariffed installment payment" systems).⁶ In these structures, repayment of the financing of the retrofit project occurs through utility bill payments, usually as a separate line item on the monthly bill.

This mechanism provides two principal advantages: some superiority over unsecured financing, and a mechanism to ensure orderly transfer of obligations for Tower Renewal in the event of a voluntary sale of the building from one owner to another.

⁶ Please see Appendix I for case studies.

From a security perspective, the notable feature of these structures is that non-payment of the financing obligation would incur the cut-off of utility service. This added incentive encourages payment of the obligation beyond the threat of potential legal action for non-payment of an unsecured loan. Given that the cut-off of service usually can occur after a relatively short period of non-payment, the mechanism ensures greater payment regularity.

The limitation on this mechanism, however, is the lack of protection for the utility in the case of bankruptcy of the property owner. In Ontario and in many other jurisdictions, regulated gas and electricity distribution service providers are unsecured creditors in the event of a customer bankruptcy. Outstanding gas and electricity obligations would be treated similarly to any other unsecured financial claim.

While utility-based obligations would be superior to a purely unsecured financial obligation, they would be far less comforting to investors than mortgage security.

The other advantage of utility-based mechanisms is that the obligation could be easily transferred from one building owner to another. Since the charges appear on the utility bill, and utility bills are disclosed during a sale process, knowledge of the Tower Renewal relationship between buyer and seller can be ensured. At the same time, a condition of the Tower Renewal program could be that all Tower Renewal project obligations should be transferred to a purchasing party in the event of building sale. This would avoid the need to make the whole outstanding amount of the Tower Renewal project building due upon sale, which would be a typical feature of mortgages, but not unsecured debts.

Property-based obligations

The most significant source of revenue for municipal governments is tax on the property located within the municipality. Property taxes are the contribution of property owners for many local services from which they benefit, including police, fire, ambulance, road maintenance, etc. All property owners face this obligation, and are assessed property taxes based on rules and regulations in place at the time.

Non-payment of property taxes would undermine the ability of municipalities to offer these essential services. Hence, municipalities have a special right to collect property taxes, and enforce that right in the event of non-payment. Property tax benefits from “priority lien” status in Ontario, meaning that in the event of non-payment of property tax, the City can enforce its claim ahead of all other claimants, including mortgage lenders. In the event of a bankruptcy process, municipalities are paid first from any proceeds of the bankruptcy. If a property owner does not go bankrupt, but yet fails to pay property taxes for an extended period of time, the municipality ultimately has the right to seize the property and undertake a “property tax sale” to collect unpaid taxes.

It should be noted that in some ways mortgage security is superior to property tax priority lien. In the case of mortgage lenders, the lender has the right to seize the property and assume ownership and control after a relatively brief period of non-payment. In the case of property tax, the delay before action can be taken is longer, particularly with respect to property tax sale. In addition, in the event of bankruptcy, mortgage lenders seek to recover the entire outstanding obligation under the mortgage, regardless of how many payments have been missed. Property tax priority liens apply exclusively to unpaid property tax amounts, not any future obligation. In other words, as soon as outstanding property tax amounts have been cleared, the property is in good standing. If any future non-payment were to occur, then the property tax enforcement process would have to begin anew.

For building retrofits and the Tower Renewal program, potential access to property tax payment enforcement mechanisms represents a significant opportunity.

In the United States, “Property-Assessed Clean Energy” programs (PACE) have been implemented in a number of states to encourage the construction of clean energy projects and retrofits. Financing of the energy-related projects is provided, and the length of the repayment term is geared to the savings that result from the project. The obligation is attached to the property, and if the property owner fails to make payments, payments are then enforced through property tax mechanisms. Moreover, because the obligation is related to the property, in the event of sale of the property, the obligation automatically transfers to the new property owner.⁷

This mechanism provides a high degree of security that the retrofit obligation will be repaid, *without* requiring a mortgage interest in the property.

A critical issue with PACE programs, and with property tax-related programs in general, is the relationship between new obligations arising out of retrofit programs, and existing mortgage holders. Mortgage holders are aware of existing property tax-based obligations, and were aware of the same at the time they agreed to a mortgage-based financing.

(Note that the City of Toronto, under the *Toronto Act*, currently has the right to enforce several obligations through the property tax mechanism. In addition to property tax itself, the City can enforce payment of water, sewage, and solid waste fees, as well as certain outstanding obligations relating to business improvement areas. Mortgage lenders have obviously taken these into account in their current and historical mortgage lending practices and standards.)

A new property tax-based obligation results in an expansion of the financial obligation that is ahead of mortgage lenders in a situation of building owner distress. If a mortgage holder seizes a property due to non-payment, the mortgage holder automatically becomes liable for outstanding property taxes (and other obligations enforceable through property tax), which reduces the potential value of the property for the mortgage holder. In the event of bankruptcy, the proceeds of the bankruptcy process are first used to pay outstanding property-based obligations, and only then used to clear outstanding mortgage obligations.

Two features of property-based financing mitigate the potential concern of mortgage holders. First, retrofit programs add value to properties by upgrading existing equipment and building structures, and by reducing the operating costs associated with the building. This additional value is over and above the value ascribed to the property by the mortgage lender at the time of providing a mortgage. In the event of financial distress, sale of the property should command a higher value, and hence allow for satisfaction of the mortgage obligation, as well as the property tax-based obligation. Second, in the case of building owner financial distress, only actual unpaid property tax-based amounts come due, unlike mortgages, where the full obligation becomes due.

For example, if a \$5 million retrofit project were undertaken on a building through a 15-year contract at an interest rate of 6%, the annual obligation would be \$515 thousand. At the same time, that building might have an outstanding mortgage of \$15 million (or 60% of an assumed value of \$25 million). In the event of financial distress, and non-payment of obligations by the landlord for a year, the mortgage lender

⁷ See Appendix I for additional information on PACE programs and case studies.

could potentially seize the property. That property could be sold by the mortgage lender to recover the outstanding mortgage obligation. In order for the mortgage lender to be fully satisfied, proceeds of approximately \$17 million would be required: \$515 thousand to clear the unpaid obligation to the retrofit program, \$15 million for the mortgage lender, and an additional sum for the costs of the process. The new owner of the property would assume the obligation to continue paying the \$515 thousand per year relating to the retrofit until the completion of the contract term.

Choosing Among the Options

Retrofitting existing buildings is not a new concept. Some companies have been in the retrofitting market for many years, and some subsidy programs have existed for many years, across North America. Mortgage lending has always been available to finance projects, and unsecured loans are possible. Yet building retrofits have not been occurring, particularly not at the scale and depth proposed by the Tower Renewal Program.

Some buildings do gain the benefit of some retrofitting, but the most common project involves lighting systems. These are quick payback projects that are not capital intensive. Achieving significant adoption of large scale Tower Renewal projects will require a new and innovative policy.

At the same time, the City's budget is constrained, as are those of virtually all other governments in a post recession environment. Moreover, the City has substantial future obligations to build infrastructure which will test the City's credit capacity.

From the City's perspective, the creation of a credit-enhanced capital pool is the option that places the least burden on City finances, while still actively contributing to the success of Tower Renewal.

Private sector building owners would likely prefer Tower Renewal to be supported by subsidies (the larger the better!). However, a financing mechanism which does not entail mortgage interest in buildings, and preferably one which does not affect debt ratios, would provide substantial benefits to building owners at little or no cost.

Finally, in order to ensure the highest possible credit quality, and hence the lowest possible interest rate for Tower Renewal, securing projects through property tax enforcement mechanisms would avoid mortgage impacts, but still provide security far superior to unsecured loans.

The financing option that appears to best satisfy the various needs of the parties involved is a credit-enhanced capital pool, supported by a property tax-based security mechanism.

Implementation Issues

If a credit-enhanced capital pool, backed by a property tax-based payment security mechanism, is the preferred financing option to implement Tower Renewal, then several obstacles and issues must be addressed.

These will include:

- **Authorities.** The City does not have the ability, currently, to extend the property tax-based payment enforcement mechanism beyond its current uses. In addition, the City cannot set up and provide seed money to a new corporate entity to manage the Tower Renewal financing pool.
- **Governance, Administration and Financial Controls.** In order to ensure the highest credit rating and most favourable credit terms for the capital pool, a corporation will be required that administers the financing program over the course of many years. Moreover, in order to limit the financial exposure of the City, careful structuring of all financial relationships between the City and the new corporation will be required.
- **Treatment by other governments, including tax treatment.** Support for the Tower Renewal Program from other governments would be very beneficial, whether in the form of complementary subsidies, or contribution to the capital pool. In addition, favourable tax treatment of the program and financing mechanism could enhance the economics further, and help to ensure the participation in the program of building owners.

Authorities

City Council is ultimately in control of all programs and services offered by the City. Council approval would be required to implement any and all portions of the Tower Renewal Program financing mechanism as envisioned above.

However, the scope of authority of City Council is set out in legislation and regulations by the Province. Given that some aspects of the proposal to finance Tower Renewal projects go beyond the current scope of authority of the City, a request to the Province for expanded authorities will be required.

Property Tax-based Security Mechanisms

The *Toronto Act*, which is provincial legislation, governs the powers of the City of Toronto and its sub-entities. Regulation 594/06 specifically addresses the City services which may be protected by a property tax-based payment security mechanism. These include, for example, water, wastewater, solid waste disposal, and steam heat. In addition, there are special provisions which deal with charges relating to business improvement areas.

In order for the City of Toronto to extend the use of the property tax-based mechanism, the Province must be asked to amend either or both of the Toronto Act or its regulations. The exact nature of the changes which would best implement the program's intent should be determined in cooperation with the Province.

The critical issue is the priority lien status property tax, which places it ahead of all other obligations in the event of property owner bankruptcy, including secured mortgages. As discussed above, however, the

potential impact on existing mortgage lenders is, relative to the size of existing mortgages, not likely to be a significant concern. Discussions with financial institution representatives have suggested that, fully informed about the operation of the proposed program, there would be relatively little concern about the change.

Experience in the United States with the PACE program has borne this out. Federal Mortgage bank “Fannie Mae” has expressed some concern about the details of administration of PACE, because it is new and innovative, but has not expressed fundamental concern with the program.⁸

Tower Renewal Program Financing Entity

In order to create and administer the credit-enhanced capital pool that will provide financing for Tower Renewal projects, a new dedicated corporation will be required. The program will potentially grow to include a large number of projects and significant sums of money. It will require the careful attention and administration that can be provided by a dedicated management and board. While this corporation will be self-sustaining once the program is up and running, in its initial stages it will require funding from the City in the form of a loan to pay for start-up costs.

Currently, the City is prohibited by the *Toronto Act* and its regulations from providing any financial assistance to a City-owned corporation. As a result, a request to the province to have this restriction lifted will be required.

Finally, in order to over-collateralize and enhance the credit of the capital pool used to finance Tower Renewal, the City would be providing either equity or subordinated debt to the pool as projects were added to it over time. This would amount to an investment by the City in the pool. Currently, the City is prohibited from making investments in any financial asset that is below investment grade credit rating. Given that the Tower Renewal Program is a policy priority, and the financing mechanism is a critical means of advancing policy objectives, an exception to this restriction should be sought from the Province.

Governance, Administration and Financial Controls

The new Tower Renewal corporation may ultimately administer more than \$2 billion in retrofit projects. To manage this sum of money efficiently and effectively, in keeping with City priorities, appropriate governance, administration and financial controls will be required. These should be developed and implemented coincident with the creation of the Tower Renewal Corporation by City Council.

A critical issue will be the financial relationship between the new corporation and the City, and the impact of the former on the balance sheet of the latter. Relationships should be carefully structured and managed to ensure that City financial obligations are not affected by the new Corporation. Since the pool will match its assets (Tower Renewal Projects) with its liabilities (bonds issued to capital markets), the remainder should be the over-collateralization provided by the City. This amount should be the limit of the City’s exposure arising from Tower Renewal. In addition, as the new corporation will be a not-for-profit entity, there should be no impact over time on the City’s budget.

⁸ See for example Fannie Mae Lender Letter 07-2009, dated September 19, 2009. For a fuller discussion of PACE programs, see Appendix I: Literature Review.

Treatment by Other Governments

Tower Renewal is an initiative of the City of Toronto, focused on the substantial opportunity inherent in the more than 1000 large apartment buildings in the City. Making the most of this built environment should be a priority not only of the City of Toronto, but also of other orders of government. Consequently, the provincial and federal governments should be supportive of this initiative, and consider ways to contribute to its success.

A critical provincial contribution is amendment of relevant legislative and regulatory authorities, as discussed above.

One obvious additional positive step could be contributions by one or both of the other governments to the credit-enhanced capital pool. Such contribution would reduce the burden on the City of supporting the program over time. Given the far larger financial resources of both the Province and the Government of Canada, contributions should not be burdensome. Discussions with both governments should raise this possibility for their consideration.

The implications of Tower Renewal projects for tax treatment are also an area worthy of discussion, particularly with the federal government. While there is a degree of flexibility inherent in the economics of Tower Renewal projects, and they could be structured to account for a variety of different tax treatments depending on the specific circumstances of building owners, attention to this issue by the federal government could ensure that the most favourable treatment obtains. Providing tax incentives for building owners to participate in the Tower Renewal Program could be a powerful way the federal government could contribute to the environmental, economic and social benefits that will result from Tower Renewal.

Both the federal and provincial governments should be interested in the program because Toronto is not unique in having a stock of buildings of the sort targeted by Tower Renewal. While the City is definitely unique in terms of the quantity of such buildings, there are similar, if smaller stocks in other cities across Ontario and across Canada. If the Tower Renewal program is successful in delivering benefits in Toronto, the model could be emulated in other communities, preferably with the support of the province and federal government.

The experience in the United States with the PACE program is telling. Originally developed in California, the program has now expanded to 17 states (and counting), with specific support expressed by the Obama administration in Washington.

Conclusion

The City of Toronto has the opportunity, through Tower Renewal, to contribute significantly to the environmental, economic and social performance of a significant part of its built infrastructure. Retrofitting hundreds of buildings over the next number of years will not only benefit communities and stakeholders, but represents substantial construction activity and the potential development of supportive “green” jobs.

Developing a financing model which is not dependent on mortgages or building owner’s equity, and does not burden the City budget or the City’s credit capacity, is crucial to the future success of the program. The City’s adoption, with the province’s support through legislative or regulatory change, of a credit-enhanced capital pool model, coupled with reliance on a property tax- based mechanism to secure payment, would meet the conditions required. On this basis, the Tower Renewal Program should have crucial building blocks for success.

Appendix I: Literature Review

Introduction

The following literature review outlines a variety of no-first-cost programs intended to connect energy efficiency and renewable energy initiatives to underlying sources of capital. All programs obviate the need for initial capital investments and are generally structured so that the underlying energy savings fund the loan necessary to purchase the energy savings measures.

Programs reviewed include property assessed clean energy (“PACE”), tariffed installment payments (“TIPs”), state revolving funds, and subsidy programs.

Property-Assessed Clean Energy Programs

Introduction

Property-assessed clean energy (“PACE”) programs provide property-owners with a no-first-cost option to finance energy efficiency upgrades through long-term loans repaid via a periodic property tax assessment, known as a Special Property Tax Assessment (“SPTA”). Loans under PACE programs are secured by placing an additional lien on a property that is senior to the existing mortgage debt – the PACE lien assumes a first position (beside existing property tax collections). The lien is then used as a means of collateral to encourage loan repayment and, if applicable, reduce the cost of funds employed to capitalize the program. At the time of writing, 17 states have adopted PACE-enabling legislation, with 3 additional states currently in process. The PACE market, which includes both residential and commercial real estate, has been valued at approximately US\$500 billion in the United States⁹.

Overview

PACE overcomes first-cost hurdles by allowing residential or commercial property owners to apply for loans to install energy efficiency and renewable energy measures permanently attached to property. The loan is secured by a priority lien attaching to the property and taking precedence over existing mortgage liens (or the first deed of trust). Where the property is sold before the end of the loan term, the lien remains with the property (ie. runs with the land) and the obligation to meet the special assessment is assumed by the new property owner. In consequence, loans made under PACE regimes are collateralized through a priority tax lien that may reduce the cost of funds employed to capitalize the program. Property owners are then able to access financing for energy efficiency measures at or near the cost of funds available to a local government, often a lower cost of financing than otherwise available. Borrowings are repaid over a period of time through the monthly energy savings realized from the installation of energy efficiency measures. PACE financing is non-recourse and backed solely by the assessment lien.

PACE first requires the establishment of a *special assessment district authority or clean energy improvement district* (the “CE improvement district”) by a local (often municipal) government. State legislation is necessary before a local government may authorize a CE improvement district to finance the installation of certain approved clean energy equipment, and the legislation may include the option for a CE improvement district to issue bonds (the “PACE bonds”) to fund energy efficiency improvements

⁹ Carbon War Room, p. 9.

through disbursements to property owners. The PACE bonds are secured against a pledge of SPTA collections. With such legislation in place, a local government may then authorize a SPTA on the property tax bill of residents within its jurisdiction. This special assessment will then amortize the cost of energy efficiency improvements over periods no greater than 20 years. CE improvement districts may also borrow from commercial lending institutions who could capitalize PACE programs at tranche sizes of between \$10 - \$15 million (see below – case study).

While PACE bonds will be secured by SPTAs, absent any credit enhancement it is highly unlikely that PACE bonds will secure investment grade credit quality from a ratings agency as i) PACE bonds are backed only by SPTAs on a limited number of self-selecting municipal properties and ii) the CE improvement district will have (at best) a limited history of collecting on SPTAs as compared to the broader *ad valorem* (tax levied on real or personal property) municipal property tax. Further, an investment grade credit rating may not be sufficient of itself to sell PACE bonds at reasonable rates of interest, as many municipal bonds in the United States currently require an unenhanced credit rating of AA- or better to secure placement.

It is likely that PACE bonds will require some measure of credit enhancement to secure placement given the considerations noted above. Credit enhancement could take the form of either i) a pledge of the general obligation of a province or municipality, or ii) a provision for some measure of insurance from a highly-rated municipality, provincial or federal government. PACE bonds issued on the strength of some measure of credit enhancement would be assigned a credit rating based on the strength of the credit enhancement rather than the underlying credit of the SPTAs, and credit default risk would be borne by the credit enhancer rather than the underlying CE improvement district. PACE bonds carrying the general obligation credit rating of the credit enhancer can expect a credit rating above those that are subject only to appropriation or are moral obligation credit enhancements. The County of Boulder, Colorado recently completed a PACE financing, issuing the Boulder County Clean Energy Options Local Improvement District \$7.5 million special assessment bonds, series 2009, and rated A+ by Standard and Poor's. The general obligations of Boulder County, Colorado are rated AAA. The Boulder County Clean Energy Options Local Improvement District bonds require only the moral obligation of the County of Boulder to fund the debt service reserve fund if necessary, subject to annual appropriation, and likely reduced the credit rating on the bonds by a full two rating categories *vis-à-vis* the general obligation credit.

Capital markets access is likely restricted to those issuers who can issue PACE bonds in sufficient size (approximately \$50 - \$100 million per offering), with a high investment grade credit rating and with the issuer's general or moral obligation pledge on the bonds. Issuers who cannot issue PACE bonds of that size may access the capital markets through a pooling structure, aggregating PACE bonds to achieve scale economies and better pricing. In either case, the interest rate set on PACE bonds when issued would be used to set the underlying interest rate on the SPTAs so that payment on the SPTAs would be sufficient to cover the full cost of debt service on the PACE bonds. PACE bonds, as currently structured, are taxable, unless relief is provided by Congress.

PACE is often used in conjunction with other energy efficiency and renewable energy initiatives, including rebates and grants relating to (*inter alia*) the purchase and installation of energy efficiency upgrades and the costs associated with an energy audit (if performed). These grants and rebates then lower loan requirements under PACE reducing the claim of the priority lien attached to the property.

Case Study

At the time of writing, 17 states have adopted PACE-enabling legislation, with 3 additional states currently in process. These programs are financed either through the municipalities' general fund or some variation thereof.

The most comprehensive PACE programs to date may be found in California in consequence of that state's adoption of Assembly Bill 811 ("AB811"). AB811 was adopted in 2008 to facilitate California's goal of reducing greenhouse gas emissions to 1990 levels by 2020. The Bill allows local governments to fund 100% of the upfront costs associated with an energy efficiency measure, and to collect on such expenditures through a special assessment, senior to existing mortgage liens, for up to 20 years at a rate of 7.0%.

There are currently three operational AB811 programs in California – Berkeley, Sonoma County and the City of Palm Desert - with several additional programs in the development stage. Palm Desert was the first city in California to launch an AB811 program (2008) and has, to date, issued \$2.7 million in PACE related financing. The city's PACE initiatives were initially capitalized through a \$2.5 million loan from the city's general fund, and subsequently expanded through two bond placements by the city's Redevelopment Agency (for \$2.5 million and \$1.1 million, respectively). To further expand the program through access to private capital, the city has announced a partnership with Wells Fargo Bank – Wells Fargo will lend \$5 million to the city, half of which will be used to retire the initial \$2.5 million loan, with the balance earmarked to fund future PACE initiatives. The Wells Fargo loan is secured through lease-revenue from city-owned buildings.

The Office of Energy Management ("OEM") administers PACE financing in Palm Desert, offering 100% financing for approved energy efficiency measures. Loans are for no more than 20 years, offer financing at a rate of 7.0% and are repaid through a semi-annual special assessment. Loans are administered directly to the property owner, and the property owner and/or contractor are responsible for securing any applicable rebates and/or grants available to the project. The property owner is responsible for paying the energy contractor, not the OEM.

The OEM has established a series of loan guidelines regarding PACE disbursements in Palm Desert including i) projects greater than \$30,000 require the signed, written consent of the mortgagee (if any) and ii) maximum loan size per parcel is \$100,000. The former is designed to mitigate (to an extent) the concerns of a mortgagee regarding the introduction of a priority lien (see below – potential obstacles), while the latter is designed to prevent undue concentration of PACE financing into a small series of large projects.

Potential Obstacles

PACE does not, of itself, address the challenges that a local government faces in securing capital to fund clean energy initiatives and cover program administration expenses. The issuance of PACE bonds is both time-consuming and costly, and this source of financing may not be available to those CE improvement districts whose energy efficiency measures fail to meet a certain size threshold. Similar considerations, albeit to a lesser extent, exist with respect to securing commercial bank financing.

Mortgagees have expressed understandable concerns with respect to the placement of a first or priority lien on a property senior to the existing mortgage debt. The subordination of the existing mortgage debt to a priority lien in consequence of PACE initiatives may increase the riskiness of repayment on the underlying mortgage debt and may increase the cost of funds associated with mortgage liability. These

concerns may be allayed through a variety of considerations including the increase in value associated with the underlying property in consequence of energy efficiency measures at the end of the loan period. Put another way, PACE initiatives should ultimately increase the value of a property undertaking energy efficiency and renewable energy projects, assuring mortgagees of the repayment of mortgage debt (*The Appraisal Journal* estimates that home values increase \$20 for every \$1 in annual energy savings). Further, PACE retrofits are comparatively small relative to property value, averaging between 5 – 10% of total property value¹⁰.

In the event of partial or complete non-payment of property taxes leading to foreclosure, only delinquent assessments are paid, not the entirety of the outstanding loan balance. On a model portfolio of homes, each with a \$250,000 outstanding mortgage, the PACE lien seniority in foreclosure amounts to less than \$200¹¹. The mortgagee would then only be liable for the delinquent assessment of, on average, \$200, and the new homeowner would assume the remaining balance. Alternatively, the signed, written consent of a mortgagee prior to the installation of PACE initiatives greater than a certain threshold may be a collaborative solution in overcoming mortgage debt subordination (similar to the City of Palm Desert's requirement for measures over \$30,000 – see above). It is, however, anticipated that mortgagees will continue to register some measure of wariness with respect to PACE priority liens.

To date, municipal PACE initiatives largely target the residential sector to the exclusion of the commercial and multi-tenant opportunity. While PACE may represent a \$500 billion market in the United States, the program will not come close to that total unless a concerted effort is made to reach the commercial and multi-tenant markets. These later markets will likely require greater amounts of capital than state public benefit funds are able (or willing) to provide. In consequence, the PACE bond and commercial banking market will need to develop significantly to adequately capitalize PACE program needs beyond the requirements of the residential sector alone.

Tariffed Installment Payments

¹⁰ *Pacenow.org*

¹¹ *Ibid.*

Introduction

Tariffed installment payments (“TIPs”) provide utility consumers with a no-first-cost option to finance energy efficiency upgrades through long-term loans repaid via a periodic utility bill assessment. Funds borrowed are used to finance energy efficiency upgrades, and are repaid over the course of the expected payback period. The obligation attaches to the meter, and obviates the need for third-party financing given the pre-existing relationship between property owner and utility. TIPs remain relatively uncommon, however there is growing interest in utility programs that secure the loan against the meter throughout the United States.

Overview

TIPs overcome first-cost hurdles by allowing utility consumers to apply for loans to install energy efficiency and renewable energy measures permanently attached to the meter. TIP measures are administered and funded by the electric and natural gas utilities – these utilities fund the cost associated with the purchase and installation of energy efficiency upgrades and the costs associated with an energy audit (if performed). Consumers who have elected to finance energy efficiency measures through a TIP are then responsible for two separate charges on their monthly utility bill. The first consists of standard charges for utility delivery, reduced by the amount of monthly energy savings incurred in consequence of energy efficiency upgrades. The second is a monthly charge incurred in consequence of the above, including principal and interest payments. TIPs strive for bill neutrality, such that monthly energy savings exceed (or are at least equal to) the associated cost(s) of the energy efficiency upgrade.

As the meter is assigned to repay costs associated with TIPs, the tariff remains with the meter when (if) the customer moves before repayment is completed. The upshot being that meter liability is transferred to and assumed by subsequent occupant(s) of the premises, potentially impeding a future sale of the property (see below – potential obstacles). However, attaching the obligation to the meter (and not the customer) allows for a longer payment term than would otherwise be possible, allowing loan terms to approach the expected payback period of the energy efficiency measure. This, in turn, would decrease the customer’s monthly payments. Longer amortization periods also facilitate the adoption of more capital intensive (ie. expensive) energy efficiency measures without necessarily requiring the use of public subsidies.

TIPs are often used in conjunction with other energy efficiency and renewable energy initiatives, including rebates and grants relating to (*inter alia*) the purchase and installation of energy efficiency upgrades and the costs associated with an energy audit (if performed). These grants and rebates then lower loan requirements under tariff-based initiatives, reducing the claim set against the meter.

Unlike a PACE regime, TIPs do not require state implementing legislation, however state governments can (and do) adopt legislation or regulations to encourage and enable their adoption. Often such legislation or regulation is necessary to facilitate the capitalization of TIPs through disbursements of the state benefit fund. TIPs do however generally require the regulatory approval of state utility commissions. Further, regulatory policy has a crucial role to play in encouraging the adoption of TIPs. Such programs may not be financially viable in the absence of financial incentives that address the throughput incentive ie. the direct link between utility profits and the amount of energy sold.

Case Study

TIPs remain relatively uncommon, however all but one of the existing programs incorporate a pay-as-you-save (PAYS)[®] system. PAYS[®] requires i) an independent energy audit to assure savings, ii) expected payments are no more than 75% of anticipated savings, and iii) the term of repayments to be no more than 75% of the expected life of the energy efficiency measure.

Hawaii's utility commission has approved applications by the Hawaiian Electric Company, Hawaii Electric Light Company and Maui Electric Company to implement PAYS[®] pilot programs, and New York and Michigan have directed their respective utility commissions to look into tariff-based systems. First Electric Cooperative, an Arkansas-based electric utility, allows homeowners with good credit to secure a loan of up to \$15,000, and Pennsylvania provides loans of up to \$35,000.

Some of the most comprehensive PAYS[®] programs may be found in New Hampshire, given the state utility commission's early adoption of two pilot PAYS[®] programs in 2004 at two utilities - Public Service New Hampshire ("PSNH") and New Hampshire Electric Cooperative ("NHEC"). The PSNH program, now called Smart\$tart, focused on financing energy efficiency improvements for a municipal government (primarily energy efficient street lighting), while the NHEC program focused on electric and liquefied petroleum gas efficiency improvements such as lighting, weatherization, water savings devices and heating and air conditioning upgrades.

Three PAYS[®] program requirements were of specific concern to those who participated in the New Hampshire programs including i) sellers are required to disclose a property's participation in PAYS[®] to buyers (potentially leading to increased reluctance on the part of a potential buyer to purchase the property), ii) property-owners and not tenants are required to keep and maintain energy efficient measures (leading to increased costs for property-owners for which they receive no immediate benefit) and iii) non-payment may lead to disconnection given the inclusion of failed-payment disconnection penalties (see below – obstacles).

To date, PSNH has completely exhausted its pool of available capital to fund PAYS[®] projects notwithstanding a 20% reduction in available rebates from the state public benefit fund.

Maui Electric Company's ("MEC") pilot program plans for 50 solar water heater installations each year throughout the life of the three year pilot (beginning in 2007). The program is capitalized by the state benefit fund, and secured through a failed-payment disconnection penalty. Customers work with contactors to apply for the initial loan, and MEC attaches responsibility for repayment to the utility meter. The program is available to both owner-occupied and rental properties, although tenants require landlord approval before proceeding with the project. The program offers 0% financing over an average term of 8 years, and MEC provides a standard \$1,000 rebate for solar water heaters. The program is not currently running at capacity.

Obstacles

TIPs address the problem of non or partial-payment through the inclusion of a failed-payment disconnection penalty, where utility service may cease in the event of non or partial-payment. Failed-payment disconnection penalties are designed to create a more secure payment stream reducing the risk of default in the underlying portfolio. Where utilities issue bonds to capitalize TIPs, failed-payment disconnection penalties may lower the cost of funds as investors (and ratings agencies) are provided

additional comfort concerning timely repayment. However, utilities are typically more reluctant to trigger failed-payment disconnection penalties where the underlying efficiency measures have been financed with public funds (usually in the form of a state benefit fund or similar program). Ultimate liability for the defaulted loans of non-paying customers may rest with the utilities, unless specified to the contrary in the program design. The cost of defaulted loans is often ultimately borne by the state public benefit fund through some manner of loss reserve or system-benefit charge, or may be addressed (as in the case of Sempra – California) through a focus on commercial and government credits to the exclusion of the residential sector.

TIPs are not uniform in addressing the problem of measure repair, and specifically how these costs are borne between property-owner and tenant. Whether the landlord or tenant pays for energy efficiency improvements, and their subsequent upkeep and repair is a crucially important issue where the meter in question is attached to rental premises. This problem attaches to the larger issue of the split incentive for energy efficiency upgrades – tenants, not property-owners, pay utility bills, so property-owners have little immediate incentive to invest the capital necessary in energy efficiency measures. Midwest Energy (a Kansas cooperative utility) PAYS® program requires property-owners to finance measure repair, the upshot being that property-owners may partially subsidize the utility bills of their tenants.

Practical concerns include the complications associated with revising a billing system to incorporate tariffed installment payments. United Illuminating (Connecticut) reported few difficulties integrating a TIPs charge onto existing billing structures, while Connecticut Light and Power required systematic modifications to incorporate on-bill financing into existing billing structures.

State Revolving Funds

Overview

Local government entities (utility authorities and municipalities) access state credit through a state revolving fund ("SRF") or pool structure, a government public purpose pool backed by water and sewer pledges or general obligations ("GOs"). State bonds secured by a pool of municipal asset obligations are sold into the capital markets, with debt service on the bonds financed through the debt service obligation of the municipality assumed under the program. Loans are then administered to local government entities who could not otherwise access the capital markets given size impediments, or could not do so on terms comparable with their obligations under an SRF given credit quality. Loans made under an SRF to a municipality are not at a subsidized rate of interest and generally reflect the rate at which the state may itself borrow in the capital markets.

SRFs play a key role in achieving crucial infrastructure and state policy objectives as SRFs connect municipalities to capital at a cost of funds otherwise unattainable to local government entities. SRFs are considered to be the strongest municipal pools, as program administrators, along with associated state environmental and health agencies, usually have significant regulatory powers with which to compel participant compliance, and the participants themselves (predominately municipalities and utility authorities) are themselves of generally high credit quality. Further, many SRF programs have implemented cross collateralization features between their clean water and drinking water programs to enhance credit quality.

Case Study

The SRF vehicle has become an important tool in many states to fund water and wastewater infrastructure projects, a notable example being New York State Environmental Facilities Corporation - State Revolving Funds / Pools. The state of New York issued \$152 million in 30-year state clean water and drinking water revolving fund revenue bonds (pooled financing program) series 2007D due 2037. This bond was rated AAA (stable) by Standard and Poor's at time of issue and is current rated the same. The strong credit rating reflects the i) considerable scale of the issue, ii) diversity of underlying municipal and utility issuers, iii) strong credit quality of this pool of borrowers and iv) substantial reserve funds established under the program.

The New York State Environmental Facilities Corporation ("EFC") issued the clean water and drinking water revolving fund revenue bonds to finance 21 clean water and four drinking water projects in 22 municipal entities throughout New York state. The bonds are secured by the program participants' guarantee of repayment to EFC and the various existing reserve accounts established under the master-financing indenture ("MFI"). The MFI is EFC's primary borrowing vehicle.

The bonds are a special obligation of EFC, secured by loan repayments from the portfolio of underlying municipal issuers, and amounts held in pledged reserve accounts. EFC uses bond proceeds to fund loans to local government entities throughout the state, with individual local government entities responsible for sufficient repayments to pay a like amount of debt service on the EFC bonds. Most borrowers under the EFC have a GO pledge, but there are several water and solid waste agency borrowers providing a revenue pledge.

Legal covenants under the MFI stipulate that each borrower maintain a debt service reserve account equal to at least one-third of the principal outstanding on each loan. Debt service reserve accounts are funded through state and federal grants.

As part of this financing, EFC is providing approximately \$20 million in drinking water funds to Monroe County Water Authority (“MCWA”) to be repaid over a 30-year period, although SRF’s typically have an amortization schedule of no more than twenty years.

Obstacles

SRFs are subject to some uncertainty regarding total loan issuance in the medium to long-term, the potential for dilution of overall pool credit quality as lending (potentially) increases to sectors with riskier credit profiles, the potential mismatching of loan and bond terms, and the number of loans made to more questionable credits.

Subsidies

Overview

PACE, TIPs and on-bill financing systems can be paired with state public benefit funds to provide a variety of local, state and federal subsidies to fund energy efficiency and renewable energy measures. Such measures may include interest rate buy-downs, the establishment of a loss reserve to cover potential customer payment defaults, capital for a loan program, tax credits, or a rebate to reduce project cost and consequently reduce payback period.

Loans are usually below-market and are often combined with other measures including grants, rebates and interest-rate buy-downs (0% loan financing is available). Subsidized loan programs are junior to existing mortgage debt where the loan is secured against the underlying property. Unsecured financing is available (albeit in smaller amounts) - the loan does not attach to the underlying property or meter and is due upon sale of the property (the loan does not run with the land or meter, unlike PACE and TIPs programs - see above).

Loan programs, rebates, tax incentives and other subsidies are capitalized through a series of grants (local, state/provincial and federal), often through a state's public benefit fund in the United States.

There are hundreds of subsidy programs throughout North America. In the United States alone, there are currently 969 rebate programs, 210 loan programs, 68 grant programs and 35 various and sundry tax incentive measures concerned with energy efficiency at the state level. A similar number of measures exist for renewable energy initiatives. Federal programs advancing energy efficiency and renewable energy measures are relatively minimal (more information on subsidy programs existing in the United States may be found at www.dsireusa.org).

Similar initiatives exist in Canada, albeit in smaller numbers, and are compiled by the Office of Energy Efficiency ("OEE") - Natural Resources Canada, and by the Federation of Canadian Municipalities - Municipal Building Retrofit Guide - at www.fcm.ca.

Obstacles

Subsidy programs cannot achieve the scale necessary to fund comprehensive energy efficiency and renewable energy adoption without significant public expense, and tend to focus on the single-family residential market to the exclusion of the multi-tenant, commercial and industrial markets. Further, loans subsidized with public funds place a lien against the underlying property, albeit subordinated to the existing mortgage debt. Comprehensive adoption of energy efficiency policy by the multi-tenant, commercial and industrial markets will likely require a capital markets solution of sufficient size to fund systematic retrofit adoption without placing a lien against the underlying property.

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Appendix II: Retrofit Economics

Building retrofits are considered to be economically viable if they can “repay” their cost of implementation through savings over the course of their useful life. For example, if a heating system retrofit costs \$100,000, and results in savings of \$10,000 per year because of reduced heating fuel consumption, then the construction cost would be “repaid” over the course of 10 years (this is known as the “simple payback period” of the retrofit). If the life of the heating system equipment was expected to be 20 years, then the savings for years 11 through 20 would be a net benefit for the building owner. As long as the retrofitted equipment has a life span longer than the simple payback period, then it can be considered to be *prima facie* economically viable (note the assumption that the *building itself* has a lifespan longer than the retrofitted equipment. Obviously, if that were not the case, the life expectancy of the building would be the limiting factor).

Retrofits often cost substantial amounts of money, and it is most often not possible to pay for them with cash on hand. As a result, funds are often borrowed to finance retrofit projects, and interest costs must be factored into calculations. In the above example, borrowing and paying back a \$100,000 loan over 20 years at an interest rate of 5% requires an annual repayment of approximately \$8,000. If the building owner preferred to repay the loan as fast as possible by using the full amount of the savings available, then the loan could be repaid in 15 years (at a cost of \$9,600 per year). The building owner would then benefit from the full amount of the savings for the last 5 years of the life of the equipment. The longest loan term available is determined by the useful life of the retrofitted equipment, hence 20 years.

Interest rates have a powerful impact on retrofit economics, and are crucial to any retrofit program. In the example above, if interest rates were 7% instead of 5%, then annual payments on a 20 year loan would be \$9,400. At 10% interest, annual payments would be \$11,700, and could no longer be fully matched by expected savings. Projects that make sense in a low interest rate environment will simply be out of reach in a high interest rate environment. *Ensuring that retrofit programs benefit from interest rates that are as low as possible should be a key priority.*

In the public and not-for-profit sectors, the payback calculation, adjusted based on the interest rate that would apply to financing, is potentially sufficient to identify worthwhile retrofit projects. The ancillary benefits of the retrofit, including reduced carbon output, and the community benefit derived from upgrading buildings, means that retrofits will be pursued as long as the remaining life of the building in question and the upgraded equipment is at least as long as the payback period on the retrofit.

Return on Investment

In the private sector, however, building owners are focused on delivering returns to shareholders. Every investment alternative can be analyzed and compared to determine which will deliver the highest, most consistent level of returns, and retrofit projects are just another form of investment.

To continue with the example from above: a retrofit project costs \$100,000, and offers savings of \$10,000 per year, in each of 20 years of expected life (note that all inflation and other escalations are being ignored). If the equipment were purchased for cash and installed, then the return on the investment would be \$10,000 per year for the 20 year life of the equipment (ignoring taxes, inflation, etc.). This is equivalent to a 7% pre-tax return on investment. A property owner would examine this investment

opportunity, compare it to other opportunities to invest money, and decide whether it would be worthwhile to proceed.

An important issue is also the risk that an investment opportunity might arise tomorrow that is not apparent today. If a building owner were to spend available funds on a retrofit today that had an expected return of 7%, because today there was no other superior investment opportunity available, but tomorrow an opportunity arose that had a 10% expected return, then funds might not be available to pursue the new alternative. As a result, building owners often have a “hurdle rate” below which they will typically not pursue projects. The hurdle rate is a form of discipline that helps to ensure that funds are available for “good” projects over the long term, rather than being spent on projects that might be mediocre, but still happen to be the best available at a given time.

Hurdle rates apply to equity investments by businesses, so it is crucial to understand how a project is being financed. If a project is financed with cash, then the property owner’s hurdle rate applies to the full investment. If the project is financed with a combination of cash and debt financing, then only the net proceeds beyond the repayment of debt will be used in the return calculation. For example, if the project referred to above were financed with \$25,000 of cash, and \$75,000 of 20-year debt at 5%, then the total return on equity (before tax) would be approximately 15%. However, in a 7% interest rate environment, when more of the proceeds are required to repay the debt, the return on the equity investment falls to 10%.

When considering building retrofits, it is important to also note that “equity” includes not only cash and other liquid assets a business may have on hand, but also equity in the building itself.

Typically, mortgages on real estate range up to approximately 75% of the market value of the property. If a building owner currently has a mortgage that is less than 75% of property value, then additional mortgages could be taken out and used for business investment purposes. While a mortgage is a “debt” instrument, in this instance, it is actually better understood as equity in the building that is being accessed through a mortgage. Instead of selling a building to make use of the equity value in it, a property owner can take out a mortgage and use the funds to invest in new opportunities. In other words, the equity hurdle rate will apply to projects that are funded through access to mortgage financing of existing properties.

This is a crucial point for building retrofits, because from the perspective of a property owner, building retrofits that rely on mortgage financing must compete with all other potential investments. This is a very high standard.

Return Requirements

For the past four years, Johnson Controls and the International Facilities Management Association have conducted a survey across North America of building owners and managers relating to retrofits and efficiencies measures. They have consistently found that nearly 50% of their respondents will not consider a retrofit project with a payback period longer than 3 years. For a typical energy-related upgrade that has a 15 year life, this represents an equity hurdle rate of over 35%. Virtually all of their respondents said that the longest payback period they would accept is 10 years, even if upgrades were significant.¹²

¹² Johnson Controls 2010 Energy Efficiency Indicator; North America Survey Results; April 19, 2010

These survey results are consistent with findings in other studies¹³, and are consistent with comments made by parties consulted for this report. In addition, the relative success of energy efficiency incentive programs focused on lighting and air conditioning, which often have paybacks in the 3 to 7 year range, confirms the willingness of property owners to pursue smaller scale building retrofits.¹⁴

The market acceptability of retrofit projects that have paybacks between 3 and 10 years appears to be remarkably durable, since studies dating back to the 1980s found the same results.¹⁵

Retrofit Impacts on Building Value

Building retrofits represent investments in buildings, and hence have an impact on building value.

Estimating Building Value

Commercial buildings, including multi-residential apartment buildings, are valued on the basis of what potential buyers in the market would be willing to pay at any given time. A commonly used shorthand mechanism to estimate this value is based on the concept of Net Operating Income (NOI). This is given by the formula:

$$\text{NOI} = \text{Rental Income} - \text{Operating Costs} - \text{Property Taxes}$$

Operating Costs include all expenses (but not debt or other capital costs) charged to the building, such as utilities, routine maintenance, security, administration, etc.

The value of the building is given by the formula:

$$\text{Market Value} = \text{NOI} / \text{CapRate}$$

CapRate (Capitalization Rate) is a real estate concept which defines the average return expected on a given class of building in a market. Normally, it is derived by examining many real estate transactions involving a certain class of building using the formula:

$$\text{CapRate} = \text{NOI} / \text{Market Value}$$

For example, if over a period of years a number of 20 storey buildings changed hands, and the average outcome of those transactions was the following:

$$\text{CapRate} = \$8 \text{ million per year of NOI} / \$100 \text{ million building market value}$$

$$\text{CapRate for 20-storey apartment buildings} = 8\%$$

In this case, if another 20-storey building came on the market, and it had annual NOI of \$6 million, then its value would be estimated at:

¹³ Unlocking Energy Efficiency in the US Economy, McKinsey & Co, July 2009

¹⁴ Toronto's own Better Buildings Partnership has successfully completed over 850 projects since 1996. Many of the projects, and particularly those involving a private sector building, have been limited to lighting projects.

¹⁵ See, e.g., Review of Government and Utility Energy Conservation Programs. J Clinton, H Geller, and E Hirst. Annual Review of Energy, Vol. 11: 95-142, November 1986.

Estimated Market Value = NOI of \$6 million / CapRate of 8%

Estimated Market Value = \$75 million

In other words, investors would be expected to be willing to pay \$75 million for a building that produces \$6 million per year of NOI, if that building were in the class covered by a Caprate of 8%.

Retrofits and Building Value

This market value formula offers an explanation for the value of building retrofits. Retrofits reduce operating costs in a building, and hence have a positive impact on perceived value. However, the cost of the retrofit must be commensurate with the increase in value.

For example, if the building described above currently produces NOI of \$6 million, and a retrofit project could reduce operating costs sufficiently so that NOI would rise by \$1 million to \$7 million, then the value of the building would be given by:

Current Estimated Market Value = \$6 million NOI / CapRate of 8% = \$75 million

Post-retrofit Estimated Market Value = \$7 million NOI / CapRate of 8% = \$87.5 million

In this example, a retrofit which brings about a cost savings of \$1 million would *prima facie* be a net-positive investment if it cost \$12.5 million or less. This would be a limiting case. In reality, the project would likely have to cost less than that, and have a shorter simple payback period, because of normal business risks that need to be taken into account.

Retrofits, Building Value and Mortgages

Building owners often do not own their buildings debt-free. They often have mortgages on their buildings. As a result, the building owner's equity in the building can be estimated as:

Owners' Equity = Current Estimated Market Value – Outstanding Mortgages

In the example above, if the property had outstanding mortgages of \$50 million (67% of the \$75 million estimated value of the building), then owner's equity would be:

Owner's Equity = Market Value of \$75 million – Mortgage of \$50 million = \$25 million

If the owner decided to pursue the retrofit project described above, which could cost up to a maximum of \$12.5 million, assuming it creates \$1 million in energy and other operating savings per year, and the owner chose to finance the project with a new mortgage for the whole amount, then some changes to certain of the financial values would result.

First, the owner's equity in the building would not change at the time of project construction:

post retrofit Equity = new Market Value of \$87.5 million – new Mortgage of \$62.5 million = \$25 million

As the debt incurred in the retrofit is paid off over time, then owner's equity would increase (presumably other mortgage debt would be decreasing at the same time, unless new mortgage financing was used to

raise money for other purposes). The retrofit would be expected to build value over time, which is consistent with the idea of a retrofit delivering a return on investment, as described above.

Second, mortgage debt would now take up a larger portion of the building value:

Pre-retrofit debt ratio = mortgage of \$50 million / Value of \$75 million = 67%

Post-retrofit debt ratio = mortgage of 62.5 million / Value of 87.5 million = 71%

From the owner's perspective, this change is crucial, because it describes why the use of mortgages for retrofits must be considered an equity investment by building owners. In the example above, it was assumed that the maximum mortgage available was 75% of value. On a \$75 million building, the maximum mortgage would be \$56 million. Since the owner had a mortgage of only \$50 million, the owner had *access* to \$6 million of building equity that could be used for investment purposes. After the retrofit project, the building is valued at \$87.5 million, 75% of which is \$65.6 million. Since the post-retrofit mortgage is now \$62.5 million, *accessible* equity has fallen from \$6 million to \$4.1 million, even though the building owner's total equity in the building is still \$25 million. In effect, the retrofit project has "spent" \$2 million of equity that the building owner previously had access to, even though the project was nominally financed exclusively through a mortgage debt instrument. The return on that equity, from the owner's perspective, must meet the owner's hurdle rate.

The change in ratio is also a concern for mortgage lenders, because the debt ratio is an important factor in the risk associated with a property. The higher the debt ratio, the less buffer a mortgage lender will have in the event of a downturn in property values (and the lower the degree of security in the event of a default by the property owner, forcing the mortgage lender to seize the property and sell it to recover the outstanding mortgage obligation).

A closely related concept is "Debt Service Coverage Ratio" (DSCR), which is also watched carefully by mortgage lenders. It is given by the formula:

$$\text{DSCR} = \text{NOI} / \text{Annual Debt payment obligation (principal and interest combined)}$$

In the example above, the DSCR would also normally be expected to deteriorate post-retrofit (the exact impact will depend on the interest rates and amortization periods applicable to the pre-existing mortgage and the retrofit mortgage).

Retrofits as Expenses

If a retrofit was NOT financed through a mortgage, then the financial characterization would be different. If, for example, a retrofit were considered to be an expense, then impact on mortgages would not appear.

For example, assume, as above, that a retrofit would generate \$1 million in savings per year to a building. However, the annual cost associated with the retrofit project is also \$1 million, for the 15 years following the retrofit. In this case, NOI would still equal \$6 million, because \$1 million of energy and other operating costs have been saved, but a new \$1 million obligation has taken its place. There is no impact on owner's equity, no impact on debt ratios, and no impact on debt service coverage ratios.

At the end of the 15 year period and the expiration of the retrofit contract, however, the NOI of the building would rise by \$1 million, and value would rise to \$87.5 million. Assuming that the retrofit had a

life expectancy of 25 years, this benefit would accrue to the building owner for 10 years before the equipment needed to be replaced.

The characterization of retrofits as capital upgrades (which affect building value, debt ratios, etc.) vs. expenses (which may not, at least for a period of time) is a crucial distinction. Typically, this distinction has taken the form of an “operating lease” vs. a “capital lease”, upon which there is substantial legal and economic literature.

On the other hand, where public services are involved, distinctions are not necessarily as clear. For example, a regulated electricity distributor charges customers in its territory for the services it provides, the costs for which are a mix of operating costs, and capital costs for the equipment used. Often there is an inverse relationship between capital spending and operating costs: i.e., new equipment often results in lower operating costs because of lower maintenance and operation requirements, etc.

For large customers, customized equipment and services are often required, which are charged back to the customers (often there are a relatively small number of such customers in a territory, and sometimes only one). If a distributor were to upgrade the systems relating to such customers and amortize the costs over a period of time shorter than the useful life of the equipment (which is not uncommon with long-lived assets), then the customers would benefit in later years, once debts associated with the equipment purchases are paid off, but operating costs continue to be lower than they otherwise would be. The reduction in electricity prices that would occur in the future would be a benefit that would accrue to the customers because of the spending decision taken today, even though prices may not change for many years. In the future, when prices fall, the customers would record that their operating income has improved, and they would accrue the value accordingly.

Appendix III: Report Process

Morrison Park Advisors was selected by the City of Toronto to consult on Tower Renewal through a request for proposal process in February 2010. MPA developed *Tower Renewal: Financing Options* on the basis of an extensive review of retrofit economics literature, as well as consultations with interested stakeholder parties including mortgage lenders, property owners, energy service companies and government. The representations and interests of the above parties were taken into due consideration in preparing Morrison Park's conclusions and recommendations found herein.

Appendix IV: Morrison Park Advisors

Morrison Park Advisors is a Toronto-based, partner owned and operated, independent investment. We are a dynamic, entrepreneurial firm that can quickly adapt to the rapidly changing economic and market environment in order to create solutions for our clients that best achieve their objectives.

We work on a wide variety of transactions including strategic advisory, financial advisory, mergers and acquisitions, and debt and equity capital raising. Our ability to deliver top tier financial advisory services is based on decades of combined experience and expertise developed at some of Canada's leading investment banks, while serving many of Canada's largest and most sophisticated corporate clients as well as governments. MPA has served many of these same clients in situations where they required state of the art advice from an independent source.

We work for a variety of clients in a number of sectors but infrastructure remains our largest area of practice. Some examples of recent or current clients include Ornge, Toronto Community Housing Corporation, the Ontario Power Authority, Hydro One, Altagas Utilities Group, Manulife, Canadian Press, and Brookfield.

MPA also specializes in helping clients access capital markets for the first time. Capital raising is a very complex, work intensive process full of strategic and tactical decision making that is necessary to arrive at the best possible outcome while properly managing costs. MPA has successfully completed a number of assignments of this nature and we believe we are industry leading experts in this area.

In addition to these more traditional assignments, MPA has assisted a variety of clients with projects that do not fall into standard investment banking categories. For example, MPA has in the past assisted the Ontario Ministry of Finance with respect to the value of potential private sector investment in the province, and the quantification of government incentives that should be offered in response to interest by the manufacturer to locate a facility in Southern Ontario. MPA personnel acted as negotiators on behalf of the Province of Ontario with respect to the Bruce Nuclear refurbishment project, and MPA has advised the Ontario Power Authority on overall strategy, stakeholder management, and policy development in the electricity sector.

