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ENERGY CONSERVATION PROJECT FUND

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS

DEPARTMENT OF ENERGY RESOURCES

FINANCING ENERGY EFFICIENCY IN MASSACHUSETTS:
ANALYSIS OF THE PROPOSED MASSACHUSETTS ENERGY
CONSERVATION PROJECT FUND

Harcourt Brown & Carey – Energy & Finance

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I. EXECUTIVE SUMMARY

Harcourt Brown & Carey (“HB&C”) submits this report pursuant to Section 92, Chapter 238 of the Session Laws of Massachusetts (2012). This report provides a review of energy efficiency financing mechanisms, including Property Assessed Clean Energy (“PACE”), that are available or contemplated to be implemented in Massachusetts for non-residential properties¹. The report and its conclusions draw on HB&C staff’s experience in designing and operating such financing programs around the United States as well as a detailed review of the specifics of Massachusetts’ energy efficiency laws, programs and experience. We also drew from an extensive set of stakeholder interviews and discussions, including discussions with financial institutions, utilities, state and local government representatives, and the advocate community.

A. Methodology

Our methodology for the report was as follows:

1. Review existing Massachusetts statutes and certain proposed legislation as it pertains to energy efficiency financing and, in particular, PACE.
2. Review demand for energy efficiency, examine existing supply of financing that could apply to energy efficiency projects.
3. Conduct interviews with stakeholders, in some cases through multiple discussions.
4. Review relevant experience with energy efficiency financing, and in particular PACE, in other jurisdictions.
5. Identify specific gaps in energy efficiency financing in Massachusetts.
6. Conduct detailed review of proposed 2012 legislation for energy efficiency financing, in particular as it pertains to PACE.
7. Provide recommendations on potential programmatic additions and enhancements as well as suggested legislative changes related to commercial sector energy efficiency financing. Develop draft legislative language to carry out these recommendations.

B. Review of Financing Context in the Commercial and Industrial Sector

Designing successful financing solutions to promote energy efficiency upgrades in the commercial and industrial (“C&I”) sector requires that attention be paid to a variety of factors affecting property owners and their motivations to undertake such upgrades. These variables include owner type, project size, payback period and technology type and require differing

¹ Our analysis focuses on energy efficiency and renewable energy improvements for properties other than residential properties containing fewer than five units.

approaches to program design. Consequently, achieving a comprehensive solution demands a portfolio of approaches to address these differing motivations and considerations. Some of the issues facing designers of such programs include:

1. Few commercial enterprises want to take on debt unless directly supporting their core business. Energy efficiency is rarely a core business.
2. Projects with payback periods of longer than 2-3 years generally are looked upon with skepticism by management.
3. Investor owned properties are typically held as free-standing limited liability companies (LLCs) – one for each property. In many cases, such LLCs are highly leveraged with little ability to take on additional debt.
4. Corporate (owner-occupied) real estate may offer an opportunity for financing in that the building owners are not already so highly leveraged as investor owned properties. Such properties may have the ability to take on additional debt, but still face the challenges listed in the first two points, above.
5. Financing structures that allow property owners to pass on the costs of upgrading energy efficiency systems to their tenants may hold promise; PACE, as a property tax assessment, is among the small number of structures that owners can use to pass on the costs of an efficiency upgrade or renewable system. Owners can typically pass on these costs because so-called “triple-net” leases (common in the commercial sector) usually allow owners to automatically pass increases in property taxes on to tenants through rent adjustments.
6. Financing structures that allow property owners to treat the costs of an energy efficiency upgrade as operating (as opposed to capital) expenses will be attractive to most property owners. Debt-based financing structures effectively exclude many property owners. PACE may provide a way to treat these energy efficiency upgrades as operating expenses, although the Financial Accounting Standards Board (“FASB”) is currently reviewing the accounting rules that will determine this treatment; the final outcome of this review is uncertain.

C. Analysis of the Massachusetts Situation

Our analysis of the existing statutes and programs as well as legislation proposed in the 2012 legislative session results in a number of conclusions.

With regard to PACE, PACE statutes and proposed legislation:

1. PACE, as generally understood nationally, utilizes the property tax mechanism to finance energy efficiency upgrades and distributed renewable energy systems (“Energy Improvements”) to private property in the same way that benefit assessments have been used for community improvements for over a century across the United States.

Property owners agree to place a voluntary tax assessment on their property to fund the Energy Improvements. Municipalities or another governmental authority then issues debt to private investors to generate the required funds. Investors are repaid via the property's periodic property tax payments and, as security, hold a lien on the benefitted property that is senior to all private liens, including mortgages. The debt is backed by the underlying real property and the associated stream of payments, but not guaranteed by the government.

2. PACE in the commercial sector is gaining traction across the country, and is beginning to attract the attention of banks and other investors, commercial property owners, and originators.² It is a financially viable approach that appears to be generating some new demand, although uncertainties about the overall level of demand in the commercial sector remain. We conclude that it is worthy of support from the Commonwealth, when viewed as one among a number of financial approaches to supporting Energy Improvements in the commercial sector.
3. The existing Massachusetts PACE statute and the PACE legislation proposed but not enacted earlier in 2012, a copy of which is attached as Exhibit C (the "2012 Proposal") establish a funding structure that is the inverse of that found in any other state that has implemented PACE. Specifically:
 - a. The approach proposed in the 2012 Proposal would issue bonds using the flow of Massachusetts system benefit charge ("SBC") funds as collateral and as an initial source of revenue to pay principal and interest on the bonds. Once created through the bond issuance, the new fund could support PACE in the private C&I sectors as well as other energy efficiency projects in the institutional and government sectors. This would have a major effect on any other current or planned energy efficiency program in Massachusetts because it (1) creates a lien on the SBC funds that makes uncertain the amount of SBC funds available to support other efficiency efforts, (2) spends some portion of the SBC funds to make principal and interest payments on bonds until PACE or other projects are closed and generating repayment revenues, and (3) could result in rate increases to consumers via the energy efficiency reconciliation mechanism.
 - b. The typical PACE approach, by contrast, identifies and originates a specific Energy Improvement project (or bundle of projects) and then issues a bond to fund that project. This approach matches the project's financing need to the amount and timing of the bond issued to support that project. It relies on the collateral value of the underlying property on which the project is implemented and the cash flows from that property via the property tax system.

² For a comprehensive listing of PACE statutes and programs, existing and under development, see www.pacenow.org

4. The 2012 Proposal's structure would limit financing from the proposed fund to energy efficiency projects because the SBC funds supporting and securing it are restricted to energy efficiency uses. Renewable energy projects that often drive customer demand, as well as natural gas thermal efficiency and conversion and combined heat and power projects would not be eligible for support from the fund.
5. The 2012 Proposal's structure appears to represent a viable approach from a financing perspective; proponents suggest that it would enable the bonds to achieve a high investment grade rating, which in turn would produce a lower interest rate than is otherwise currently available through the traditional PACE structure.
6. The proposed structure may also be attractive to investors because it relies, ultimately, on the SBC funds for collateral as well as the rating agencies' determination of risk -- investors would not have to conduct detailed due diligence on commercial property served as the primary source of repayment and collateral.
7. However, we conclude that the proposed structure places existing energy efficiency programs and funds at risk, could result in rate increases to consumers (see 2a above) and limits the type of projects that can take advantage of the financing mechanism. Given the uncertain, although promising, future of PACE as a way to generate new demand in the commercial sector, we believe it would be unwise to create a structure that draws so heavily away from other proven and approved efficiency programs at this point.
8. We believe that other approaches to PACE offer significant promise, as described below.

With regard to existing supply of financing for the Massachusetts commercial or other efficiency markets:

1. The Mass Save HEAT loan program has provided significant project volume in the residential sector and appears to be meeting expectations in this sector.
2. The Mass Save C&I Financing program in the commercial sector is new and needs to be developed further. Project volume has been slower to develop than in the residential sector, and reflects many of the challenges of any efforts to provide financing in the commercial sector. The program managers are examining ways to increase that project volume, such as increasing marketing budgets or raising project caps.
3. The utilities' on-bill/sundry-bill financing programs serve, for the most part, smaller efficiency projects in the public and commercial sectors and have experienced steady and significant uptake, although they are limited in available capital.

D. Recommendations

Our recommendations are as follows:

1. Adopt a PACE financing structure that mirrors the best practices used in other states. Specifically, originate projects first and then issue bonds based on the cash flows and collateral value of the projects. Facilitate private sector entities to bundle multiple smaller projects into larger bond issuances to enable economies of scale and lower transactions cost. Such a PACE program would be expected to fill a gap that currently exists for long-duration financing that would support deeper retrofits with longer payback periods as well as distributed renewable energy projects, thermal efficiency improvements and natural gas conversions.
2. The PACE program should be administered jointly by the Massachusetts Department of Energy Resources (“DOER”) and the Massachusetts Development Authority (“Mass Development”).
 - a. DOER should be responsible for technical underwriting standards development and implementation for PACE projects, including qualifying technologies and customer classes, required energy efficiency assessments or audits, measurement and verification requirements, overall program goals, integration with existing energy efficiency programs and credit enhancement funding and levels, if adopted.
 - b. Mass Development should be responsible for overall administrative oversight of the program (subject to DOER input), financial underwriting standards development and implementation, project intake, implementation and perfection of security interests, bond issuance, funds flow and exercise of remedies on default.
3. Consider, through administrative action, the use of credit enhancements that represent a fixed allocation of funds. Given the limitations on the SBC to electricity efficiency projects, utilize multiple funding sources in addition to the SBC that could fund gas efficiency/conversion and renewable energy projects.
4. Consider additions and enhancements to the Mass Save C&I Financing program to integrate a lease-based structure that is appropriate to the expected size and collateral value of many energy efficiency equipment purchases in the commercial sector.
5. Consider use of one among a number of flexible sources of capital to create a fund that could expand the capital available through utility on-bill/sundry-bill financing programs for local, municipal governments.

II. INTRODUCTION

Section 92 of Chapter 238 of the Session Laws of Massachusetts (2012)³ requires that the Massachusetts Executive Office of Energy and Environmental Affairs (“EEA”), in consultation with the Executive Office of Housing and Economic Development and the Executive Office of Administration and Finance conduct a study of:

the viability, fiscal impact, potential benefits, statutory and regulatory barriers and anticipated results of establishing a Massachusetts Energy Conservation Project Fund in order to make loans for the acquisition, design, construction, repair, renovation, rehabilitation or other capital improvement or deferred maintenance of an energy conservation project undertaken by a public body, municipality, institution or person.

In response to this legislative mandate, the Department of Energy Resources (“DOER”) contracted with Harcourt Brown & Carey (“HB&C”) to assess the need, viability, fiscal impact, potential costs and benefits, statutory and regulatory barriers and anticipated results of establishing a Massachusetts Energy Conservation Project Fund (the “Fund”) to capitalize energy efficiency improvements for the commercial, industrial and institutional sector, including via property assessed clean energy (“PACE”) assessments enabled by Section 53E-3/4 of MGL Chapter 44.

A. Background for this Report

On July 16, 2012, the Senate Bonding Committee of the Massachusetts General Court approved an energy efficiency financing amendment to the pending “jobs” legislation, and then on July 19, 2012, the Senate as a whole approved the amendment, a copy of which is attached as Exhibit C (the “2012 Proposal”). Proponents of the legislation intended it to create a statewide program for funding energy efficiency improvements in the municipal, governmental, institutional and commercial/industrial (“C&I”) sectors.⁴ Specifically, the 2012 Proposal would have created the Fund, to be capitalized from the proceeds of revenue bonds (the “PACE Bonds”) issued by the Massachusetts Development Authority (“Mass Development”). Moneys from the fund would be lent to property owners and municipalities and other governmental bodies, with funds used to finance energy efficiency improvements. The loans would be secured, in the case of loans to private or institutional property owners, by a betterment lien on the benefitted properties or, in the case of municipalities and other governmental borrowers, by an intercept of local aid payments from the State Treasurer. Additional security to support the revenue bonds would be provided by a first-priority lien on the flow of System Benefit Charges (“SBC”) paid by all classes of electric ratepayers in Massachusetts.

³ Attached as Exhibit A to this Report

⁴ For purposes of this Report, references to the C&I sector also include the institutional sector, particularly for-profit institutions that currently are subject to property tax and non-profit institutions with property capable of being part of the property tax collection system in the applicable jurisdiction, as discussed in Section II.A.1.

With respect to the C&I sector, the 2012 Proposal specified a type of centralized PACE financing program to make available lower cost, longer tenor debt financing than is currently offered in the marketplace to support energy efficiency improvements. The added security of a lien on the SBC funds may improve liquidity of the PACE Bonds, reduce the need for bond investors to conduct extensive property-by-property due diligence and, in the process, achieve a higher credit rating and lower interest rate on the PACE Bonds than would otherwise be achievable.

Due in part to the complexity of the topic and the limited time available before the scheduled vote, proponents of the legislation never achieved consensus among stakeholders on the proposed amendment and, instead, a House-Senate conference committee substituted the language commissioning this study, which was part of the legislation that the Commonwealth ultimately enacted.

1. PACE as a Mechanism for Financing Energy Efficiency

Over the past thirty years, state governments, utilities and others adopted a variety of mechanisms to finance energy efficiency improvements in the residential, C&I, municipal, institutional and governmental sectors. Experience shows that different mechanisms work best in different contexts; no single, universal, energy efficiency finance tool works for all sectors and applications. In recent years, state policymakers have focused attention on PACE as an additional financing tool to encourage commercial building owners to invest in energy efficiency and distributed renewable energy projects, particularly those entailing longer payback periods than those contemplated under existing financing programs. Initially, proponents viewed PACE as an ideal solution for the residential sector. At present, decisions of the Federal Housing Finance Agency issued in 2010 and 2012 effectively preclude PACE from being used to finance Energy Improvements in the residential sector. For this reason, our analysis of PACE will be limited to the C&I sector.

PACE represents an approach to mobilizing private capital to finance energy efficiency improvements and renewable energy systems (collectively referred to in this Report as “Energy Improvements”) using the mechanisms and good offices, but not the coffers, of local government. Specifically, PACE utilizes the property tax collection system to collect debt service payments from the owner of the property being improved and secures the debt issued to finance the project with a lien on the affected property as a whole (not just the assets associated with the Energy Improvements) that is senior to all commercial liens, including mortgages. Effectively, property owners agree to place a voluntary special tax assessment on the affected property to support the bonds that fund their Energy Improvements. For this reason, only property owners that pay or are able to pay property tax (i.e. their properties have tax identification numbers or are otherwise part of the relevant tax collection system) may utilize PACE. This can include voluntary participation by non-profit organizations whose property may have a tax identification number but not be subject to tax. Conversely, PACE does not work for properties owned by municipalities and other governmental bodies.

With PACE, both the source of repayment of, and the collateral for, PACE Bonds lies in the underlying real property being improved, so in that sense it looks much like a real estate

financing. As a result a significant portion of the underwriting process focuses on the real property aspects (e.g. in several PACE programs a requirement that total loan to value ratios including commercial mortgage plus the PACE assessment loan not exceed 80%). At the same time, an equally significant portion of the underwriting is project-based (i.e. does the project achieve the minimum technical requirements of the PACE program in areas such as cash flow and percentage improvement in efficiency).⁵ From either perspective, the defining characteristic of PACE is its “bottom up” or “project based” approach to financing, starting with the conceptualization of a viable Energy Improvements project. This approach is known nationally as the “Owner Arranged” or “Open Market” model.

a) How PACE Financing Works

In its simplest form, Property Assessed Clean Energy is just that: a voluntary property assessment placed on a specified parcel of property to finance Energy Improvements to that parcel. The basic steps comprising a simple, single-project PACE financing⁶ are as follows:

- (1) Property owner, often working with contractors, an ESCo and/or renewable energy developer, identifies a package of Energy Improvements to be financed, with cost figures and energy savings projections typically supported by an energy audit;
- (2) Application is submitted to PACE program administrator for approval and confirmation that project satisfies financial and technical underwriting requirements of the PACE program;
- (3) The taxing authority (whether a municipality or other governmental entity with bonding authority) issues debt (typically in the form of a single-project revenue bond – what we have termed a “micro” bond) in an amount equal to 100% of the project cost (including energy audit/feasibility study costs, project design, transaction fees and required borrower-funded reserves);
- (4) Investors purchase PACE Bond and proceeds are transferred to a trustee (under a revenue bond structure);
- (5) Program administrator instructs the applicable municipality to record an assessment and corresponding lien on the affected property; the lien is

⁵ Each PACE program sets its own financial and technical standards for project qualification, so these will differ from program to program.

⁶ There are, of course, any number of levels of complexity that could be added to this example, for example aggregating individual PACE assessments into larger portfolios before issuing bonds or layering on credit enhancements, each of which will be discussed elsewhere in this report. For purposes of introducing the PACE concept, we have elected to present the most straightforward approach.

pari passu or junior in priority to property taxes and senior to all commercial liens, including mortgages⁷;

- (6) Upon recording of the lien, funds are released to the property owner/contractors (as designated in the applicable Assessment Agreement, which may contain construction milestones for release of partial amounts);
- (7) The financed amount is then amortized over a period generally corresponding to the useful life of the Energy Improvements and repaid via an additional line item on the property owner's quarterly or semi-annual (as the case may be) property tax bill.

Local governments have used this type of financing structure for special assessments and districts for over a century. With PACE, the main difference is that instead of a special assessment for an entire city, neighborhood, development or set of buildings, a voluntary special assessment structure finances a betterment applicable to a single property.

b) Role of PACE Financing in the Energy Improvements Marketplace

PACE promises several significant advantages compared to other forms of private financing for Energy Improvements in the C&I Sector. Key examples include:

- (1) It permits financing of 100% of the installed costs of the Energy Improvements; no equity is required.
- (2) It offers durations of up to 20 years, depending on the useful life of the Energy Improvements in question. Based on HB&C's experience and discussions with financial institutions, today's commercial debt markets, rarely see commercial loans, even mortgages, with tenors beyond 10 years. These long tenors available through PACE permit property owners to undertake deeper retrofits and to install renewable energy systems, which require longer payback periods.
- (3) PACE financing encompasses a large percentage of the non-aesthetic property upgrades typically undertaken by C&I customers; as long as the upgrade demonstrably improves the efficiency of the property, PACE financing may be used.
- (4) PACE financing may be used in conjunction with most other rebate and incentives programs.
- (5) PACE assessments run with the land and do not accelerate on sale of the underlying property, this has led many to a view that PACE financing does not appear as debt on the property owner's balance sheet, as is the case

⁷ As discussed and explained in Section VII.F.2, we recommend that any PACE program implemented in Massachusetts require mortgage holder acknowledgement of the priority status of the PACE assessment lien.

with other special assessments and property taxes.⁸ If the FASB upholds the interpretation that PACE is not debt that should appear on the balance sheet, it would represent a major break-through for investor-owned commercial properties. Most investors create a stand-alone entity to hold each large property – each property is in effect its own corporate entity. Each property therefore has its own balance sheet, that is typically leveraged to the maximum extent that its lenders will allow. It is therefore frequently very challenging for any such property to take on new debt. PACE, if not considered debt from an accounting perspective, would allow these properties to implement Energy Improvements and treat them as operating expenses.

- (6) Under most triple-net leases, debt service on a PACE assessment may be passed through to the tenants, just as other property tax-related charges are. Consequently, tenants both receive the benefits of the Energy Improvements in the form of lower utility bills, and pay for Energy Improvements via these pass-through provisions. This aligns the interest of the landlord and its tenants and vitiates the typical disincentive to landlords who would have to pay for the Energy Improvements that benefit their tenants with no direct way to recover those costs. From the tenants' point of view, the increased tax pass-through charges should be more than offset by the energy savings attributable to the PACE-funded Energy Improvements, particularly where PACE programs require projects to demonstrate positive cash flow.
- (7) From an investor standpoint, a PACE Bond is very secure, benefiting from a lien on property (rather than just on the Energy Improvement itself) that is senior to all private liens; even if a property owner were to default on paying its property taxes and special assessments (which mortgage holders typically would not permit to happen), the municipality would then be obligated to foreclose on the property and sell it for the back taxes/assessments owed, with the proceeds used for debt service payments.

c) Status of PACE Implementation Nationwide

Oregon (2007), California and Colorado (2008) were the first states to pass PACE enabling legislation.⁹ Currently, 28 states (including Massachusetts) plus the District of Columbia have

⁸ Note, however, that this issue of whether an assessment such as PACE should be considered off-balance sheet is currently under consideration by FASB and other accounting standards setting bodies. The primary concern of FASB is transparency and disclosure, particularly of financial obligations, consequently they may determine that a PACE assessment should be listed as a debt on the balance sheet. It is not possible to predict accurately how FASB will rule.

⁹ Hawai'i enacted legislation in 1976 that, while not specifically addressed to PACE, permits PACE financing.

PACE enabling legislation on the books.¹⁰ To date, however, only a handful of states have seen actual commercial PACE financings closed¹¹ and only two, California and Connecticut, have what we would consider scalable, replicable, widespread, open-market programs launched or about to be launched.¹² This relative paucity of commercial-scale, operating PACE programs stems largely from the fact that the focus on Commercial PACE is relatively new, gaining momentum only following the FHFA's 2010 decision that stymied residential PACE.¹³ With the operationalization of several new programs in California over the past year, including in Los Angeles, Western Riverside County and San Francisco plus the California First multi-county program, as well as the significant progress being made by the Connecticut Clean Energy Finance and Investment Authority ("CEFIA") in Connecticut, the Northeast Ohio Advanced Energy District in metropolitan Cleveland and the municipal group led by several towns in Westchester County, New York, momentum only now appears to be building for Commercial PACE, as exemplified by the General Court's mandating this study.

In most states, PACE statutes are structured as a "local option" program, allowing municipalities, counties and/or special taxing districts or joint powers authorities to implement separate PACE programs. This is the model being used in California, where PACE programs have been implemented by counties,¹⁴ Joint Powers Authorities,¹⁵ municipalities and aggregations of counties.¹⁶ Connecticut's legislation, enacted earlier this year, is the first to contemplate a truly statewide commercial PACE program, administered centrally by the CEFIA, into which municipalities may opt by contract.¹⁷

In stakeholder discussions with market participants in these programs, the paucity of closed PACE financings to date belies the encouraging signs that exist in the marketplace. Sonoma County, California's, program has been among the most successful since its inception in March,

¹⁰ States with legislation that would enable PACE financing include: California, Colorado, Connecticut, District of Columbia, Florida, Georgia, Hawai'i, Illinois, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Ohio, Oklahoma, Oregon, Texas, Vermont, Virginia, Wisconsin and Wyoming.

¹¹ These include California, Colorado, Minnesota, Wisconsin and Ohio.

¹² In addition, we are aware of three programs under development in Florida (of which at least one has been launched), as well as programs under development and approaching launch in the District of Columbia and Missouri, but have no information regarding closed transactions in those jurisdictions. For a listing of PACE programs in existence and under development, see www.pacenow.org.

¹³ A number of states with PACE enabling legislation, including North Carolina, Texas and, to some extent, New York, require amendments to that legislation to support the implementation of a viable PACE program.

¹⁴ For example, the County of Los Angeles, City and the County of San Francisco have well developed and operational commercial PACE programs.

¹⁵ For example, Western Riverside Council of Governments (WRCOG) and Fig Tree Company.

¹⁶ For example, Renewable Funding's California First program, which encompasses 14 counties and provides for municipalities within those counties to "opt in" to PACE.

¹⁷ Colorado's legislation contemplates a statewide program similar to Connecticut's, but imposes a \$25,000 maximum financing amount for PACE transactions, rendering it appropriate only for residential and only the smallest commercial projects.

2009, with 57 commercial financings achieved to date.¹⁸ The programs in Western Riverside County and Los Angeles County, California, have been operational for just over one year and are now beginning to show promise of growth. Other programs in California have been in place for less than one year and the Connecticut program will not formally launch until early in 2013. Investors and originators of PACE assessments interviewed for this study report transaction pipelines approaching \$100 million in California alone.¹⁹ This suggests significant pent up demand for this financing product. Further, our discussions with several banks indicate that they are seeing a significant growth in interest for PACE.

Stakeholders report that the primary challenges to scaling commercial PACE under the California programs to date have been the amount of education required of all participants in the PACE process, including property owners, contractors, mortgage holders, whose consent to a PACE assessment is required, and investors/lenders. Specialized PACE originators have stepped in to fill that educational gap.²⁰ Once the program has been explained and understood, we are advised anecdotally that the acceptance rate is high among all of these stakeholder groups.

2. Massachusetts' Approach to PACE To Date

In 2010, Massachusetts adopted a municipal PACE enabling statute (the "2010 Statute").²¹ To date, no Massachusetts municipality has implemented a PACE program under the 2010 Statute. The 2012 Proposal was, among other things, designed to enable a centralized approach to funding PACE assessments. The 2012 Proposal passed the Massachusetts Senate but was defeated in Conference Committee.

Massachusetts has taken a fundamentally different approach to PACE than the models implemented elsewhere, including in California and Connecticut. As discussed in Section II.A.1 above, PACE as understood nationally is a "bottom up" or "project based" approach to financing, using the Owner Arranged, Open Market model. Massachusetts, in contrast, has to date taken a top down approach, first creating one or more "funds" to finance Energy Improvements and then financing individual projects using moneys in that fund. The primary challenge posed by such a "top down" or "fund based" structure is that without having the projects first, there is no internal source of either collateral or repayment on which revenue bonds or other debt instruments could be issued to raise capital for the fund. Consequently, this model only works when a separate source of startup capital is available. The 2012 Proposal would have tapped the flow of SBC funds to serve this role, but, facing concerns about the inefficiency of this "top down" approach, that such a use of the SBC could lead, among other

¹⁸ See [www. http://www.sonomacountyenergy.org/](http://www.sonomacountyenergy.org/).

¹⁹ These figures represent PACE projects in several of the existing California programs, including Los Angeles County, WRCOG, California First, San Francisco and Fig Tree's program.

²⁰ We have identified a number of these specialty originators operating in California, including Clean Fund, Structured Finance Associates, Samas Capital and Fig Tree Energy Resource Company.

²¹ M.G.L. Chapter 44, Section 53E3/4, a copy of which is attached as Exhibit B.

things, to curtailment of existing energy efficiency programs, cross subsidization between customer classes and rate increases the General Court was not prepared to adopt this approach without further study, which resulted in its commissioning of this report to enable these concerns to be explored more fully prior to being considered for passage.

In the absence of such external capital, any PACE program would need to be largely self-funding, suggesting that the fund approach be replaced with the more typical Owner Arranged approach seen in other jurisdictions.²² Such an approach:

- Better matches financing demand with supply: The PACE program administrator arranges for bond issuance when project demand materializes – not before.²³
- Avoids a timing mismatch: The program administrator arranges for bond issuance when a PACE assessment exists to pay debt service – not before.
- Creates its own collateral instead of relying exclusively on the SBC: The program administrator arranges for bond issuance when a PACE project financing closes, and that project's underlying land serves as collateral for the bond.

As a result of these factors, we believe that the Owner Originated, Open Market approach that we recommend is more sustainable than the top-down approach over the long run.

a) 2010 Statute

The 2010 Statute authorizes cities and towns in Massachusetts to “establish an Energy Revolving Loan Fund to provide loans to owners of privately-held real property in the city or town for energy conservation and renewable energy projects.” As noted above, no city or town has yet availed itself of this legislation to establish a PACE program. We believe that certain provisions of the 2010 Statute create structural barriers to its success and that, in order to achieve its intended results, the 2010 Statute will require very significant revision (see Exhibit D for a copy of our proposed revised PACE legislation). Key problematic elements in the 2010 Statute include the following:

- (1) The 2010 Statute is designed to be implemented by individual municipalities rather than on a statewide basis.²⁴ Given the technical

²² Such an Owner Arranged, Open Market approach is not inconsistent with the use of credit enhancements to achieve all or some of the objectives of the 2012 proposal, as is discussed in Section VII.F.3, below.

²³ Some jurisdictions have considered implementing a warehouse financing facility to provide interim funding for PACE projects, which funding would be replaced by the proceeds of a bond issuance once sufficient projects have been aggregated to justify the cost of such an issuance. Programs such as that in Westchester County, New York, favor a government-funded or supported warehouse, whereas others contemplate private financial institutions filling that role. Discussions with DOER and Mass Development suggest little support for a state-funded warehouse due to increased transaction costs and rate payer impact, but leave open the option for private warehouse facilities to participate in a Massachusetts PACE program.

underwriting required for Energy Efficiency Improvements and the general lack of capacity by most municipalities, we would expect participation rates to be significantly higher for a PACE program with centralized administration into which municipalities could opt by contract. Connecticut, the most recent state to enact PACE enabling legislation, adopted this approach, and our own discussions with local government stakeholders in Massachusetts have led us to believe that this more centralized approach to PACE program administration will be attractive to local governments as well; it provides them with the ability to market the program, to have input in to program design, to retain control over their property tax assessments, and for their citizens to benefit from PACE – but does not require an active operational role that could require new staff.

- (2) As noted above, the 2010 Statute creates a “revolving loan fund” without specifying a source of funding (although there is a reference to the city or town applying for “grants and gifts”). Without either an external source of capital or specific projects that can be underwritten and on the basis of which external funding can be obtained, these municipal revolving loan funds will remain challenged to fund Energy Improvements.
- (3) Although a “betterment” is recorded on the property records, the actual PACE lien does not attach until the day after the assessment is due (i.e. only attaches on default), unlike a mortgage, which attaches as a lien upon its being recorded. Investors typically would require the perfection of the security interest as of the date the funds are advanced (for example, to ensure that in the event of a default under the mortgage the mortgage holder’s remedies would be subordinate to the investors’) and so likely would view this structure as less secure, despite the higher notional priority level.
- (4) The 2010 Statute specifies that the loan agreement between the revolving loan fund and the property owner “shall not be considered a breach of limitation or prohibition contained in a note, mortgage or contract on the transfer of an interest in property.” Effectively, this provision deprives mortgage holders of their freely negotiated contractual right to call a default and exercise remedies, in the event that a property owner voluntarily agrees to permit more a senior encumbrance on its property. Lenders likely would view enforcement of such a provision as tantamount to a taking by government. Based on conversations with mortgage holders and other stakeholders, we believe that absent advance mortgage holder consent for the PACE lien, such a

²⁴ The 2010 Statute does contemplate joint administration of a PACE program by multiple municipalities.

structure would subject the property owner and the municipality to the risk of legal challenge from mortgage holders. This would likely inhibit participation in the program by both municipalities and property owners.

- (5) The 2010 Statute requires that property owners assume personal liability for “repayment of the total costs incurred by the city or town” in connection with a PACE financing. Although the language is not clear on the extent of this liability, such a provision typically does not appear in PACE enabling statutes and could further chill acceptance of the program by property owners.

Energy efficiency programs have historically proven challenging from a marketing and sales point of view, as is discussed in Section III.A. below. Designers of PACE programs should bear in mind the potential impact of decisions on program elements and the need to make the program as simple and straightforward as possible to promote acceptance by both municipalities and property owners.

b) 2012 Proposal

The 2012 Proposal, although not exclusively directed to PACE, adopted the same top-down approach to financing energy efficiency projects as the 2010 Statute.²⁵ It would have created the Fund, administered by Mass Development, to support energy efficiency projects for public bodies, municipalities, institutions or persons, with owners of privately held real property participating through the PACE program established by the 2010 Statute. Specifically, Mass Development would (i) make direct loans to public bodies and municipalities to finance energy efficiency projects and (ii) fund the PACE loans that municipalities make to property owners under the 2010 Statute.

The Fund would be capitalized with the proceeds of bonds issued by Mass Development. The bonds, in turn, would be collateralized by a pledge of loan repayments received from direct borrowers and from cities and towns on behalf of property owners under the 2010 Statute’s PACE program. In addition, for loans made to municipalities, the Fund would have the right to intercept local aid payments otherwise payable from the Commonwealth’s treasury. The bonds would be revenue bonds with “recourse only to the related loan repayments by eligible borrowers and other monies available in the reserve account within the fund or held under the related financing documents.” They would not be general obligations of the Commonwealth or of Mass Development.

As noted above, this “top down” approach to energy efficiency financing only works in conjunction with an external source of revenue. Investors in the Fund look to the anticipated revenues from property owners’ debt service payments as the source of repayment. Where, as contemplated in the 2012 Proposal, issuing bonds to raise the Fund will precede the origination

²⁵ Unlike the 2010 Statute which contemplated both energy efficiency and renewable generation projects, the 2012 Proposal only addressed energy efficiency.

of loans to projects (as opposed to the two occurring simultaneously), at the closing of the bond sales for the Fund, debt service revenues likely will not yet exist to provide an assured source of repayment to bondholders, significantly eroding the credit quality, and consequently increasing the price, of the bonds, if they are marketable at all. In addition, even if Mass Development were able to sell the bonds under these circumstances, without project revenues, there likely would not be cash flow available to make initial debt service payments to bondholders. That source of cash would need to come from some other flexible funding source, as discussed in Section VII.F.3.c)(2), below.

The 2012 Proposal addressed these concerns by providing that the Fund would be granted “a statutory first priority lien in all or a portion of the system benefit charges.”²⁶ In addition, it contemplated the Department of Public Utilities (“DPU”) issuing a financing order that permitted transfer of SBC funds to a reserve account established by Mass Development, without specifying the details of such order. With an annual flow of approximately \$80 million from the C&I sector, proponents, including potential investors in the Fund, believed that this credit enhancement alone would be sufficient to enable the bonds to achieve a high investment grade credit rating without requiring investors to conduct the specific, property-by-property due diligence typically required for PACE Bonds. Stakeholders from the financial sector interviewed suggested that this would result in a significant reduction in the interest rate required to be charge to PACE borrowers compared to traditional PACE structures.²⁷ In addition, the funding of a reserve from SBC funds under a DPU financing order would solve the timing mismatch between initial debt service payments to bondholders and the receipt of debt service payments from borrowers from the Fund.

The 2012 Proposal encountered significant opposition upon its introduction. The underlying issues with the 2012 Proposal included:

- Opposition from environmental organizations, business trade associations, program administrators and DOER that the call on the SBC funds was essentially uncapped, which would have the potential (albeit with a low risk) to absorb the entire amount of SBC funds, making it unavailable for any other uses or programs, including the existing energy efficiency programs in place in Massachusetts;

²⁶ Although this language could result in the entire SBC fund being encumbered, proponents interviewed indicated that the intent had been to encumber only that portion of the SBC funds received from C&I customers.

²⁷ The most recent significant commercial PACE transaction of which we are aware occurred in October in San Francisco for between \$1 – \$1.5 million and carried an interest rate of approximately 7% over a 20-year term. Financial stakeholders, including major investment banks with experience in PACE, interviewed suggested that the addition of the pledge of SBC revenues and establishment of a reserve fund from SBC moneys could, all other thing being equal, reduce this rate by 200 bps or more. Without running an actual transaction through the bond issuance cycle and process, however, we are not in a position to confirm this reduction. We would expect that, over time, as the volume of PACE transactions increase, with its resulting improvement in liquidity for PACE Bonds, that these rates would reduce even in the absence of credit enhancements such as the proposed pledge of SBC funds.

- Concern that the proposed structure would require that the SBC funds be used for the initial debt service payments, until sufficient projects have been approved and implemented, to generate the amount of revenue required to cover obligations to bond holders.
- Issues raised by utility representatives, environmental organizations, business trade associations, and DOER that, given the zero-sum nature of the SBC funds, the reservation of SBC funds for the Fund would significantly decrease the amount of SBC funds available for existing energy efficiency programs, increasing electric rates for customers (in order to fund those existing programs) and threatening their ability to meet the efficiency targets in their respective three-year plans;
- Use of SBC funds would limit financing to only electric efficiency upgrades, making financing unavailable for gas efficiency upgrades (which typically comprise a significant portion of energy efficiency upgrade costs), renewables, combined heat and power (CHP) units and other distributed generation.
- Concerns about cross subsidization; that funds raised from residential customers, especially those of lower incomes, would be used to subsidize large C&I and governmental customers;
- A desire that any PACE or other financing program for energy efficiency also include renewable energy investments and permit joint energy efficiency/renewable energy projects.
- Fear that the hurried manner in which it was introduced and considered by the General Court would not allow for careful consideration of the implications of the 2012 Proposal.

In preparing our recommendations for a C&I financing program for Energy Improvements, as set out in Section VII we have attempted to take the objections posed by stakeholders into account, crafting a proposal that we hope will address all or most of their concerns while avoiding the downsides of an uncapped call on SBC funds or a timing mismatch between debt service payments owed to investors and debt service payments received from property owners, as proposed in the 2012 Proposal.

B. Methodology of Study

1. Best Practices Review (across United States)

HB&C has substantial experience in establishing financing programs across the country, and brings to this effort in-depth knowledge of these financing programs. The programs we view as most relevant in this context include:

- Connecticut PACE programs: Connecticut has been developing a PACE program pursuant to state law enacted in 2012. This program uses uniform and statewide

project and financial qualifications, operates a single intake and origination structure and relies heavily on a single entity, in this case CEFIA (along with its subcontractors), to conduct these functions. Local governments provide marketing and related support to the PACE program, record the assessment and related lien, place the assessment on the property tax bill collect and forward the revenues received for distribution to investors.

- California efficiency financing programs (including PACE): California adopted a PACE structure that is in many respects similar to Connecticut's, but it relies on a mix of single-county regional, multi-county collaboration and Joint Powers Authorities ("JPAs") for project intake as well as financial and project evaluation. Some large counties, Los Angeles County, for example, operate their own PACE programs while the California First multi-county structure supports the multi-county effort and the WRCOG²⁸ and Fig Tree programs operate under the JPA model. Counties and JPAs will levy their own tax assessments and issue their own bonds.

In addition, California is developing a variety of new financing structures to bear on its energy efficiency programs across all sectors (commercial, residential, government and multi-family). Some of these rely on on-bill collection mechanisms, but a typical theme is that they attempt to access private capital from banks, credit unions or other investors by putting up some public or ratepayer capital to cover the possibility of losses.

- Minnesota: Only two PACE financings have closed in Minnesota to this point, and they have been small. The State is, however, examining ways to scale up its PACE programs through greater standardization and centralization of intake, project origination, and marketing. HB&C is working with the State to help guide these efforts. HB&C reviewed Minnesota experience with selling commercial energy efficiency upgrades to commercial property owners as part of this effort.

2. Legislative Review (Mass)

The next step in this effort was to review legislation relevant to PACE and other clean energy financing mechanisms in Massachusetts. HB&C reviewed the 2010 Statute as well as the legislation requiring this study and the 2012 Proposal, as outlined above. As part of this legislative review, HB&C discussed the legislative proposals, the context for these proposals, and perspectives on these proposals with multiple stakeholders.

²⁸ Western Riverside Council of Governments.

3. Stakeholder Interviews

HB&C devoted substantial effort to stakeholder outreach. As a firm with a Massachusetts presence, we began this effort with a strong knowledge of the energy efficiency marketplace in the state, but without a detailed knowledge of recent PACE or related commercial efficiency developments. The stakeholder interviews were invaluable in informing the recommendations and discussion in this report. The full list of stakeholders interviewed is attached as Exhibit F. This included stakeholders in the following sectors: Massachusetts state government agencies, representatives of municipalities, utilities, the banking & finance sector, industrial/commercial customers (i.e. potential consumers of energy efficiency financing) and environmental NGOs.

III. **DEMAND EVALUATION – ALL MARKET SECTORS**

A. **Energy Efficiency Commercial Finance and Policy Context**

Commercial and industrial properties remain, after many years of effort and innovative approaches, a challenging market sector for energy efficiency. Utilities operate programs with incentives and rebates – and some of these programs achieve impressive results. But commercial property owners typically prove reluctant to deploy internal funds or take on debt unless non-core business projects provide rates of return greater than 30% (the discount rate at which the outgoing and incoming cash flows equal zero).²⁹ Consequently, based on project count in Massachusetts, the limited scope, one- and two-year paybacks projects are most common (based on total dollars the larger, multi-measure projects consume the greatest share of the available funds). Getting property owners to perform comprehensive projects with longer paybacks, remains a challenge. HB&C identifies the following barriers that reduce the uptake of commercial energy Improvements.

1. Resistance by customers/hosts to taking on debt for non-core business activities

Commercial property project decisions depend on competition for capital within an organization. In most cases, energy upgrades and related physical plant upgrades fall below investments in core business activity (purchasing new machinery, upgrading information technology etc.) on the priority list. Taking on debt to fund non-core activity is another, still more difficult challenge. Overall commercial property owners' willingness to take on debt is usually reserved for core business activity.³⁰ That said, some commercial, multi-tenant property owners, for whom operating a building is the core business, may be willing to devote time and capital to building upgrades that involve energy efficiency – particularly if they can pass the financing obligation, through rents, operating expense adjustments or property tax pass-through, to their tenants.

²⁹ See "Mind the GAAP," Johnson Controls, S. Lines, September 2010, page 8.

³⁰ *id.*

2. Tenor of loans is typically too short to achieve monthly net positive cash flow

One of the advantages of energy efficiency financing is that loan payments can often be structured, by varying loan duration, to match energy cost savings – meaning that customers benefit from immediate savings even after considering the financing costs. However short-duration loans, of 2-5 years, that are typically available to commercial properties in the marketplace do not allow a long enough amortization period to produce this immediate savings benefit for deeper and more comprehensive energy efficiency retrofits. Fast-payback retrofits, such as lighting upgrades, can consistently produce this benefit. The result is that financing structures for deeper and comprehensive retrofits are minimally attractive to commercial properties.

3. Disparate decision-makers

Most large commercial properties employ a facility manager to operate the boiler, lighting, energy controls etc. However that facility manager typically has little to no control over major financing decisions, and has little to no ability to commit the property to a debt obligation. As a result, discussions that involve debt financing for energy efficiency between a utility account representative and facility managers often go nowhere. Corporate officers such as the Chief Financial Officer make decisions about most debt obligations, but are typically removed on a day-to-day basis from the facility management decisions, including decisions about energy usage.

4. Balance sheet impact of a loan, impeding the ability to take on additional debt (or violating covenants of existing senior debt)

Loans or other types of debt, for any purpose, are challenging for commercial properties for several reasons, chief among them:

- Any debt shows up on a property owner's balance sheet, and in any calculations of that property owner's overall debt service requirements, and debt to income ratios. These ratios, among others, are fundamental to a lender's evaluation of whether a property owner is able to borrow new capital for core business activity. The fact that new debt, taken on for non-core activities, even if reducing current and future operating costs, could impede the property owner's ability to take on debt for core activity, logically will significantly diminish interest in taking on that debt.
- Loans that attach a lien to equipment permanently installed in a property are challenging because senior lenders may either outright prohibit any new liens, or only allow such new liens after they consent. Consent is frequently difficult to secure in this context.

5. Insufficient security/collateral to satisfy investors

Most energy efficiency equipment is difficult or impossible to remove from a building, so lenders take little comfort in its collateral value. Further, many commercial property owners already have one or more senior liens attached to their property. So the value of any equipment or real estate lien is not high in most traditional lending cases. As a result, lenders may be reticent to make loans at rates and terms that approach traditional real estate loans.

6. Inadequate credit standing of borrowers

The credit quality of commercial property owners varies tremendously – and rarely approaches the credit quality of, for instance, local governments. This fact, combined with the questionable collateral value of many efficiency loans, makes many financial institutions reluctant to lend through traditional structures.

7. Deals may be too small to be attractive.

Few banks see much profit in commercial lending below a level of about \$50,000; it costs a bank about the same amount to underwrite a \$50,000 loan as a loan of five or ten times that size. As a result, the typical size of many of the small loans discourages banks from actively pursuing them; most single technology and non-comprehensive energy efficiency projects fall below the \$50,000 mark. Only the larger projects are truly attractive to banks - but in many cases these loans run up against collateral value issues raised above. We do note that the Mass Save C&I Financing program, which allows for loans as low as \$5,000, provides an exception to this general rule. Additionally, a number of the participating lenders have closed such very small Mass Save loans.

B. Demand for Clean Energy Financing

Based on the 2010 base year, HB&C calculates that commercial and industrial entities participating in Massachusetts' 2013- 2015 approved energy efficiency programs will need to provide a total of \$247 million of internal and external (financing) capital. Data is not available to determine the percentages of internal versus external capital expected to be utilized.

HB&C's calculations are based on the 2010 data provided by the DOER (2010 Annual Report Summary). HB&C assumes that the average installed costs per project and the percentage of volume uptake across market sectors will remain the same. As the existing financing programs do not strongly incent long-payback, deeper and comprehensive retrofits, it is likely that the average project cost and size will increase with a financing program that allows for longer tenure.

Program Participants

Year	Commercial & Industrial		
	Small	Medium	Large
2010(base year)	6,024	2,402	3,397
2013	7,082	2,824	3,994
2014	8,333	3,323	4,699
2015	8,453	3,370	4,767

Year	Metrics	Commercial & Industrial	
		Small	Large
2010 (Base Year)	Participant Contribution (\$)	11,664,824	35,445,796
	Participant Incentive (\$)	22,126,452	35,209,741
	Total Install Costs	33,791,276	70,655,537
	Average Install Cost	\$5,610	\$20,800
	Participant Contribution/install	\$1,936	\$10,435
	Participant Incentive/install	\$3,673	\$10,365

Year	Metrics	Commercial & Industrial	
		Small	Large
2013	Total Install Costs	39,728,921	83,070,797
	Participant Incentive (\$)	26,014,408	41,396,631
	Needed Participant Contribution (\$)	13,714,513	41,674,165
2014	Total Install Costs	46,745,792	97,742,653
	Participant Incentive (\$)	30,609,040	48,708,051
	Needed Participant Contribution (\$)	16,136,752	49,034,603
2015	Total Install Costs	47,417,468	99,147,088
	Participant Incentive (\$)	31,048,851	49,407,922
	Needed Participant Contribution (\$)	16,368,616	49,739,166

Total Projected financing demand for 2013-2015: \$246,691,696

Assumptions:

- Average install costs, will remain the same for 2013-2015 projection
- Number of retrofits per sector for 2013-2015 based on 2010 percentages.
- Commercial & Industrial buildings are the same cost to retrofit
- Average install costs lighting only retrofits, non-lighting only retrofits, & a combination of both
- The figures presented are based on existing programs which typically retrofit the "low hanging fruit" this may not be a true indicator of financing demand for deeper retrofits

Sources:

- 2010 Base data provided by DOER (2010 Annual Report Summary)
- 2013-2015 projected total participating accounts provided by Lawrence Masdan DOER (2010 Annual Report Summary)
- 2013-2015 participation accounts calculated by applying the same percentage of small/medium/large to the total accts from 2010.
- 2013-2015 projected participant incentive and needed participant contribution calculated by obtaining the average participant contribution and incentive per install from 2010 and multiplying that by the projected number of accounts for 2013-2015.

IV. SUPPLY EVALUATION – ALL ENERGY EFFICIENCY FINANCING OPTIONS

A. General Outline of Available Programs

	Existing Forms of Clean Energy Financing in Massachusetts (based on limited utility information available at time of writing)					
Market Sector	Loan and Bonds	Leases	Efficiency Services Agreements (ESA/MESA)	Utility On-Bill (or sundry bill)	On Property Tax Bill	Power Purchase Agreement
Single Family Residential	Loans from Financial institutions, Mass Save	Solar PV leases	NA		NA	Solar PV
Government Institutional	Loans from Financial institutions, Mass Save, various bonds	Solar PV leases, Tax Exempt Municipal Lease	National providers, Federal Energy Services Financing	National Grid, NSTAR, WMECO	NA	Solar PV, Combined Heat and Power
Commercial Industrial	Loans from Financial institutions, Mass Save, Local/MA Dev. Corps.	Commercial Equipment Lease	National providers	National Grid, NSTAR, WMECO	NA	Solar PV, Combined Heat and Power

The three building-type market sectors for Energy Improvements: residential, institutional and commercial, are served by numerous forms of financing. Most of these financing products are limited to the individual market sectors. The table above lays out the various products by market sector for which they are available.

Single Family Residential. This market is composed of owner-occupied, one to four unit homes, based on the definition established by the federal housing agencies. Financing for projects within these properties is either a form of unsecured funding or mortgages secured with the property. The unsecured financing ranges from revolving credit card debt to so-called signature loans, which can be originated as either a direct or dealer loan. Direct loans, typically originated by banks or credit unions, provide funds directly to the borrower and do not set restrictions for the use of funds. Dealer loans are obligations established between a contractor (dealer) and the borrower, under which the borrower agrees to pay for a purchase by signing a “retail installment contract”.

In addition to these conventional forms of financing, recent developments on the national efficiency financing market have added on-bill financing provided by utilities, property tax assessments (effectively not available because of government regulator prohibition on purchasing loans with such assessments) and various forms of Power Purchase agreements, typically for acquiring solar PV systems. This market is also served by the 0% interest rate Mass Save Heat Loan program.

Government Market. As noted above, because property owned by municipalities and other governmental bodies is not subject to property tax, a property-tax-based financing mechanism such as PACE does not work for them. This market is composed of properties owned and occupied by private and public (government) non-profit entities. Neither of these owners typically access bank credit. In most cases, small projects would be funded from budgets and larger projects funded with tax-exempt municipal lease money (available to non-profits through a conduit structure). Government entities may also access the bond markets for very large projects or if they are able to combine a clean energy project with other bond-funded acquisitions.

Commercial and Industrial. This market is composed to two sub-segments: (1) owner-occupied corporate properties and (2) investor-owned real properties. These two sectors represent approximately 45% of the square footage of properties in most states and are characterized by large properties with complex, energy intensive lighting and climate control systems.

- Owner-occupied corporate-owned properties represent a significant minority of all the commercial and industrial space. These properties are typically long-term owners and are likely to be less capital constrained than investor owned properties, pay the operating (energy) costs of their properties and are therefore more likely to perform energy improvements than a typical investor owned property. They typically fund clean energy through their capital budget process, with debt or commercial equipment leases.

- Investor-owned properties, which represent the vast majority of the commercial sector, pose a different challenge to proponents of clean energy finance. These investor-owned properties usually turn over every few years – much faster than the typical life of many loans. While some property owners may seek higher levels of energy efficiency, perhaps in the form of LEED certification, to maintain or burnish their reputations or to make their buildings more attractive to potential lessees, it is unclear at this point how strong that market is.

The ideal financing for investor-owned properties would be a low-rate, long term, off-balance sheet funding. It is possible that any of the three financing developments: PACE, On-Utility Bill or Efficiency Services Agreements, could serve this need. That said, significant uncertainty remains as to the size of the market for energy efficiency that will take up financing. We discuss this in greater depth below.

V. GAP ANALYSIS – WHAT DEMAND IS NOT BEING MET BY EXISTING SUPPLY OF FINANCING

A. Traditional lending products (real estate secured mortgages, corporate lines of credit).

Loans come in two forms: loans secured by real estate or other collateral and unsecured loans. Corporate lines of credit represent a variation on these structures. Loans are the best-known and a common way to finance traditional, core business functions. In addition to the general description above, the following is a review of the core features of lending products.

- Real estate secured loans represent the best product from a lender's perspective, and offer the best interest rates and terms to borrowers. But they are poorly suited to most energy efficiency projects because (1) it is almost impossible for efficiency projects to secure a senior lien position, given already-existing liens on most commercial properties (2) most borrowers are not willing to spend the effort to secure such a senior lien, even if a lender were willing to allow it.
- Unsecured loans may be available, and in some cases may be the best option for energy efficiency projects. However, they, along with subordinate secured loans such as second mortgages or equity lines of credit are more expensive than a typical secured loan and are not generally attractive to most lenders. An exception to this may be in the case of lenders who have a long-standing relationship with a borrower, and may be willing to lend on the basis of little to no collateral, and with limited amounts, to these borrowers.

Leases:

- Our experience is that one of the most common energy efficiency finance products will be a capital lease, appearing on the host's balance sheet as debt, for small efficiency

projects that are less than approximately \$250,000. In general, leases are finance products originated by specialty lease companies with strong expertise in intake and origination for small efficiency projects. Many leases are structured as equipment leases with limited collateral value or liens available, so leases can, for this reason, also be appropriate for the energy efficiency market.

B. Utility On-Bill (and Sundry Bill) Programs

Many Massachusetts utilities have operated an on-bill/sundry-bill financing program for many years that has been successful for lighting and other small-ticket projects. HB&C has experience in operating and designing similar programs financing around the country, and notes that the project volume is both significant and impressive. Few other utilities have been able to achieve the level of project volume seen in Massachusetts. The table below illustrates the major elements of an on-bill/sundry-bill program offered in Massachusetts (which is or will be offered by other Massachusetts utilities in a similar form) serving the local government and C&I sectors.

Typical Program Terms – on-bill/sundry-bill financing	
Program Goal	Increase kWh savings over conventional DSM programs
Target Sector	All C&I except very large
Eligible Technologies	HVAC, lighting and process, including CHP
Source of Funding	System benefit charges
Loan Product Elements	
Qualification for loan	Bill payment history
Down payment or no down payment?	No
Finance ranges	\$3k to \$1 million
Financing Term Maximum	1-2 years
Interest Rate	0%
Program Fees	\$0
Customer Charge Calculation	Total loan amount divided by months
Security (lien etc.)	None
Partial Payment	Negotiable
Transferability	Due on sale
Rebates	Yes, up to 50% of project cost, deducted from loan amount
Average Loan amount	\$6,500

As discussed above, the volume of financing is large, likely reflecting the fact that these are small dollar financings at zero percent interest. HB&C understands from discussions with program administrators that, in general, companies seem to treat the payments as part of the

utility bill – meaning that they do not view them as debt – and they may be offset by reductions in the bill because of reduced electricity usage. As a result, facility managers are often able to make the decision about whether to commit to the installation and the payment on the utility bill. In addition, project sizes are in general small, and unlikely to attract the attention of (or require permission from) the CFO or similar level executive.

HB&C notes, however, that while the on-bill structure has evidently enjoyed considerable success, it is designed for one part of the market – specifically, the fast payback, single measure financing structures that are typically small. This on-bill program does not serve the deep retrofit, multi-measure, larger project sizes that might be addressed by, for instance, a commercial PACE program.

C. Mass Save Financing Program

Massachusetts’ utilities work with Massachusetts’ banks to offer a financing program to residential and commercial customers – the Mass Save program.

The Mass Save Heat Loan program has experienced considerable success in the residential sector by using system benefit money to buy down interest rates from a base (referred to as a “floor” in program terminology) of 5% to 0% for loans up to 7-year terms. The interest rate buy-down equates to approximately 15% of the project amount. This program allows banks to use their own underwriting process to provide mainly unsecured loans to utility customers; utility involvement is modest as they do not take loan applications, perform underwriting, service the loans or engage in other finance-related functions. Their engagement is limited to providing the interest rate buy-down. The program has committed in excess of \$180 million to fund 21,000 loans since 2006, clearly the largest and most successful residential energy efficiency program in the nation.

The Mass Save C&I Financing program has, like many commercial financing programs around the country, been challenged to produce significant early loan volume in the year and a half since its inception, although HB&C interviews with stakeholders reveal that utilities are working actively to increase such volume – examining new mechanisms such as better program marketing and higher loan size caps. HB&C discussed the Mass Save C&I Financing program with multiple stakeholders, including almost all of the banks that participate in the program. A summary of the HB&C observations follows.

1. Limited demand from facility managers and companies

Our general observation is that commercial properties respond to financing offers through facility managers if the repayment can be made on the utility bill and the repayment obligation does not appear to be a debt obligation. A debt obligation typically requires sign off from higher level people in an organization than the facility manager, likely limiting demand for commercial financing. Our review of the program shows that fewer than 30 loans have closed at this point, encompassing both multi-family and commercial properties.

2. Limited Amounts

Mass Save C&I Financing is available to customers who wish to borrow up to \$100,000 (although larger projects of up to \$1 million have been considered on a case-by-case basis). We note that while there are many projects that fall below the \$100,000 threshold, some projects exceed that level. We understand that the utilities and lenders are looking at raising that threshold to \$500,000, which would seem to be a reasonable way to increase project volume.

3. Limited Tenor (loan duration)

Loan durations are capped at 7 years for the Mass Save commercial program. While it would be difficult to access bank capital for commercial loans that exceed 7 years (and we therefore understand why the 7 year cap exists), it is also true that many more comprehensive or deeper improvements require a 10-20 year amortization period in order to have energy cost savings equal or exceed debt service payments. As a result, the 7 year cap on the term may be a barrier to marketing the program to customers.

4. Limited Technologies

The Mass Save commercial financing program covers only energy efficiency upgrades and combined heat and power investments and does not allow for renewable energy upgrades or natural gas conversions. Again, we understand why this is the case, given that the limitations on the funding source that provides the interest rate buy-down restrict the program to energy efficiency only. However, in our experience with other jurisdictions, commercial property owners are often motivated to install both energy efficiency and renewable technologies.

5. Tradeoff between Interest Rates and Other Incentives

The Mass Save commercial program requires that property owners choose between a rebate and a 0% interest loan. Given the other limitations on a debt-based program described above and potentially more favorable short-term borrowing costs, we understand that many property owners find it simpler and more cost effective to use the rebate.

6. Cost of the MA Save program (cost of rate buy-down)

The Mass Save financing programs rely on an interest rate buy-down to reduce interest rates to 0%. DOER provided information that indicates the buy-down ranges between 3-19% of the principal value depending on the tenor of the loan, which can range from 1 to 7 years. We understand that all loans to this point have had a 7-year duration. It should be noted that this rate buy-down does not increase the cost of the energy efficiency program as it is offered to customers through the rebate mechanism -- in other words, customers choose between the rebate and the buy-down. If the buy-down is chosen, then a portion of the customers' otherwise-available rebate is used to pay for the buy-down.

Other uses of ratepayer funds can produce similar results with more capital efficiency for longer tenored loans. For instance, programs that we have established in other states use a 20% to

30% loss reserve coverage ratio to attract private capital for longer duration. Although these programs do not create zero interest programs, they create programs with attractively priced capital that may be more cost efficient from a customer value perspective; a 20% loss reserve is only expended when actual losses occur, so unused amounts go back in to the fund to cover additional lending.

Our overall view is that Mass Save clearly demonstrates significant success in the residential sector, and that it may indeed be successful in the future in the commercial sector for loans of less than \$100,000 to \$500,000. We offer some perspective on possible additions to the Mass Save program that might address some of these gaps in the next section. However, just as the sundry/on-bill programs serve the very small size investments, and Mass Save C&I Financing program serves the mid-size projects, a gap still remains for the larger, deeper energy efficiency retrofit, or combined energy efficiency/renewable energy projects.

VI. SOLUTIONS TO THE GAPS

A. Additions to Mass Save Program

We offer for consideration additions to the Mass Save program as follows.

1. Potential role for an equipment lease product offering

As we described above, commercial financing for energy efficiency is challenging for customers and financial institutions alike, although for different reasons. From the lenders standpoint the deal sizes are too small to cover overhead and generate profit to make deals attractive – it takes as much time to underwrite, process and service a \$25,000 loan as a \$250,000 loan.

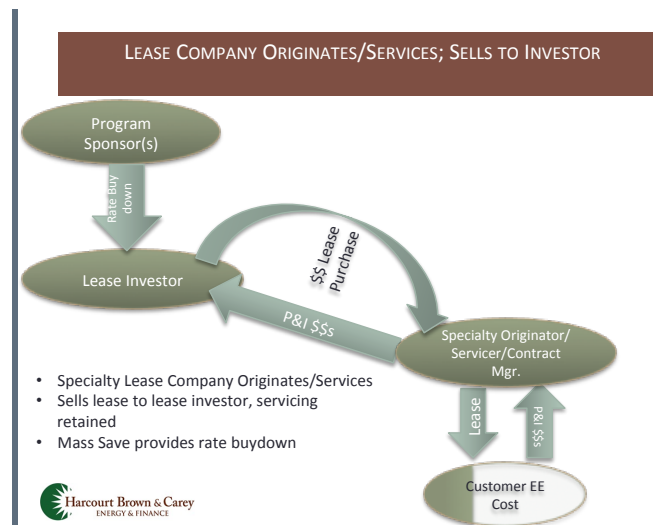
From the customer's standpoint, acquiring the capital to fund the upfront cost is generally an issue. The commercial equipment industry dealt with this barrier by offering an equipment lease that eliminates first cost. Lease companies are efficient at processing applications, performing origination and servicing functions for small ticket transactions of the size that is typical for the on-bill/sundry-bill financing and Mass Save programs. A typical lease company is specialized as an origination and servicing provider. They operate by originating leases, holding them for a short period, and then bundling them for sale to an investor. The investors could include those lenders that currently serve the Mass Save commercial program.

An equipment lease works as follows:

- a. Customer, working with a contractor identifies a need for an energy efficiency upgrade from among standard and approved Mass Save efficiency measures.
- b. Contractor puts customer in touch with Mass Save program (or customer knows about Mass Save program through a utility account executive
- c. Mass Save has among its offerings an equipment lease

- d. The lease company, operating as part of Mass Save, does all project and financial intake for the lease (taking relevant financial and project information)
- e. The lease company approves the lease (or rejects the lease) application.
- f. Lease company closes the lease and holds on its books for a short period.
- g. Lease company bundles and sells to lease investors, potentially including the Mass Save lenders.
- h. Lease company services the lease over its life. Lease investor continues to own the lease over its life.

The following diagram shows the generic structure for such a lease program.



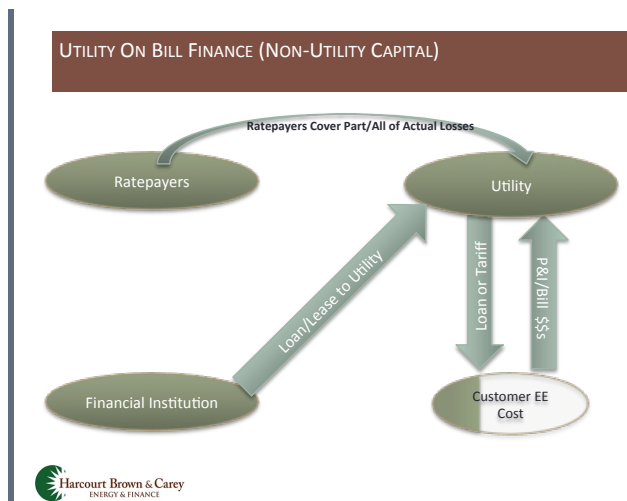
This structure has the advantage of providing the most well known product and process for financing commercial equipment – the commercial lease and the most experienced originators/servicers and investors of commercial equipment financing. In addition to their knowledge and experience, they would bring the benefits of hundreds of existing customer and vendor relationships to the Mass Save financing program. Under such an arrangement, Mass Save funds could be used as a rate buy-down, as they currently are, or a reserve-based credit enhancement, or a combination of the two. Such an enhancement to the Mass Save program could broaden the market for energy efficiency upgrades under the program. We have developed a similar program, in coordination with our client Michigan Saves, in Michigan.

Note also, that this structure, if developed using a credit enhancement, has the effect of creating a fund – or committed source of capital based on the existence of the loss reserve.

2. Potential for development of a government/institutional capital source (fund), using on bill/sundry repayment

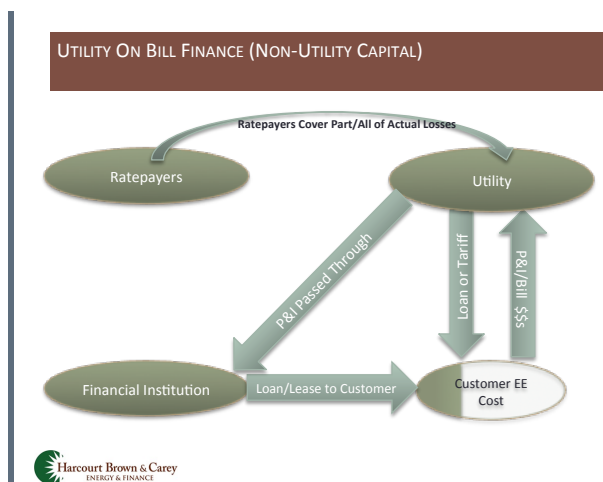
We note, through discussions with stakeholders and particularly Massachusetts utilities, that on-bill/sundry finance programs have received consistent and strong interest from municipal governments in the state. Stakeholders also tell us that the interest level has increased to the point that at least one utility is looking for alternative sources of capital. Therefore, based on our experience in other jurisdictions we offer the following option for creating a private sector capital-funded source of money – a fund for energy efficiency.

- a) Identify a flexible source of capital that may include Alternative Compliance Payments, System Benefit Funds, Regional Greenhouse Gas Initiatives funds, energy efficiency reconciliation charges, US DOE grant funds, Renewable Energy Trust funds or some combination of these or other funds. Consider using an existing funding source, including one of these, and allocating a portion of funds currently used towards incentives, towards a loss reserve.
- b) Set these funds aside in an independent account that serves as a loss reserve account.
- c) Identify participating financial institutions that are willing to provide capital on the basis of a loss reserve.
- d) Establish a loss reserve agreement with a financial institution that addresses conditions under which that financial institution could access loss reserve funds. Such conditions would include the amount of loss reserve funds available, the loss reserve amount expressed as a percentage of outstanding financed portfolio, definitions of default, likely underwriting standards required, eligible uses of funds etc.
- e) Agree on the structure for financing repayment, and methods for integrating the loan repayment in to the utility bill (as currently done through some utility programs). Develop this structure such that, from the customer perspective, the payment is viewed as it now is – a component of the utility or sundry bill. An exploration of the structure of the financing would be required, but two options are likely:
 - Establish a master lease or loan to the utility with repayment through the utility bill, secured by some level of fixed loss reserve from the sources identified above (see diagram below);



or

- Establish leases/loans directly between the financial institution and the customer, with repayment through the utility bill.



We note that this program has the advantage of providing a leveraged source of private capital, acting as a fund for energy efficiency in public facilities. We note, also, that absent a rate buy-down, it would not be a zero percent rate to the borrower – although it would still be possible to integrate a buy-down into the program. In the short term, we believe that a loss reserve would be useful to bring kick-start the program and to bring in private capital. That loss reserve may not be required in the longer run, once the program has a demonstrated history of producing loans and of strong credit performance.

B. PACE for C&I Energy Efficiency and Renewable Energy Finance.

Based on our evaluation of the financing options, as well as stakeholder input, we recommend that Massachusetts modify the 2010 Statute to implement PACE to finance Energy

Improvements in the C&I sector for financing both energy efficiency and distributed renewable energy projects. Commercial PACE provides a financing option that supplements the existing on-bill/sundry-bill and Mass Save C&I Financing programs (i.e. fills the gaps) by, among other things:

- Enabling financing for deeper, multi-measure Energy Improvements, including energy efficiency, gas efficiency, natural gas conversions and distributed renewable generation, in contrast to the existing programs which are limited to just energy efficiency upgrades;
- Bringing longer-duration financing to the marketplace, with tenors up to 20 years, to support longer-payback measures and deeper retrofits, unlike the current programs which have durations limited to 7 years under Mass Save and even shorter under the on-bill/sundry-bill programs;
- Improving the capital efficiency for customers who would like to take advantage of full incentives/rebates and low-interest private capital serving the market for Energy Improvement financing, a development made possible by the low-risk nature of an investment that is significantly over-collateralized (i.e. by the entire property value which will be many times the cost of the Energy Improvements) and secured by a super-priority lien, subordinate only to property taxes and credit enhancements; and
- Aligning the interests of commercial landlords and tenants, by enabling property owners to make improvements to their properties that benefit tenants in the form of lower energy costs, who will pay for those improvements via the property tax adjustment under their leases.

Parameters of the program proposed are set out in the following section of this report.

VII. EVALUATION AND PROPOSED STRUCTURE OF COMMERCIAL PACE PROGRAM FOR MASSACHUSETTS

As noted above, commercial PACE, if properly implemented, affords many advantages that should lead to greater uptake for Energy Improvements in the C&I sector. We have reviewed the commercial PACE programs that are in operation and under development and, based on that review, are able to recommend certain key attributes that are likely to improve the chances that a Massachusetts commercial PACE program would be successful. For purposes of this Report, we are addressing issues from a high-level policy perspective. We anticipate that detailed program design would take place by the administering agencies following adoption of commercial PACE enabling legislation. We note that, of all of the programs adopted or under development, the Connecticut program, which is the most recent to be adopted with the enabling legislation having been enacted in mid-2012, appears to have taken the best aspects of the previously adopted programs and has eschewed many of the program elements that have proven problematic in other jurisdictions. For this reason, we have borrowed liberally from the Connecticut program in formulating our recommendations.

As a threshold matter, we recommend that the Commercial PACE program adopt the project-based, “bottom up”, Owner Arranged, Open Market approach discussed above. This basic structural element informs the balance of our recommendations for a Massachusetts commercial PACE program.

A. Nature of Commercial PACE Program

We have observed three primary organizational models for Commercial PACE programs being adopted across the United States: a decentralized model, a statewide program run by one or more governmental agencies or authorities and a so-called “turn key” privatized model where a private company runs a PACE program serving a number of municipalities, counties or other political subdivisions of the state and typically includes financing.

Under the first model, reflected in the 2010 Statute, each municipality or voluntary group of municipalities, county or special taxing district or joint powers authority (depending on the state) designs and implements its own PACE program. Stakeholder discussions with municipalities suggest resistance to such an approach given the complexity of a PACE program and constrained resources at the local level. Further, with 351 cities and towns in the Commonwealth, a decentralized program runs the risk of introducing significant inconsistencies between the various programs, reducing the liquidity of the PACE Bonds in the financial markets. In turn that would hamper marketability of the PACE Bonds, causing interest rates to rise.

In contrast, a “local option” statewide Commercial PACE program into which municipalities may opt by contract shows greater promise of adoption. Connecticut recently adopted this model for its Commercial PACE program. Cities and towns that we interviewed suggested support for a program administered by the Commonwealth and made available to local governments. New York’s Energy Improvement Corporation (“EIC”) program, currently centered on 14 municipalities in Westchester, New York, represents a variation on this theme. EIC is a public benefit corporation under New York law that is developing a PACE program into which municipalities and counties in New York may opt.

Renewable Funding’s California First Program and Fig Tree’s Commercial PACE programs in California represent yet another twist on a statewide program. These programs, which have relationships with joint powers authorities that have bond issuing capabilities under California law, have entered into contracts with a number of counties (in the case of California First) and municipalities (in the case of Fig Tree) to operate programs on their behalf, sometimes in competition with one another or with other programs also established within those counties. While we generally support maximized private sector participation in energy efficiency programs, we do not believe that the relatively small size of Massachusetts compared with California justifies opening the door to competing PACE programs of this type in the Commonwealth.

We believe that the statewide model, as adopted by Connecticut, affords the greatest likelihood of adoption by Massachusetts cities and towns, creates a uniform offering to

financial markets and enables a uniform set of technical standards and therefore recommend this approach.

B. Eligible Projects

For a project to be eligible, the host property must qualify for the PACE program, comprise eligible technologies and meet any applicable size requirement, each as detailed below.

1. Qualifying Real Property

As discussed above, we propose that Massachusetts adopt a statewide Commercial PACE program with a municipal local option. Consequently, the first criterion for eligibility will be that the property in question be located within a municipality that has opted in to the Commercial PACE program. Secondly, the property must be used for commercial or industrial purposes.³¹ Finally, PACE is designed to encourage retrofits and upgrades, so it is not typically made available for new construction.

2. Eligible Technologies

As a general matter, an eligible project under a PACE program would include (i) any renovation or retrofitting of a qualifying property that reduces energy consumption (whether of electricity, gas or both)³² and (ii) the installation of a renewable energy system, in each case that is permanently affixed to the qualifying real property. If the objective of the program is, as stated in the 2012 Proposal, to “benefit the people of the Commonwealth by increasing the energy efficiency of buildings in the Commonwealth”, then we recommend that eligibility requirements focus on the results achieved, rather than attempting to favor specific technologies over others.

We further recommend that any energy efficiency retrofit installations be harmonized with the eligible technologies for Mass Save; renewable technologies are not funded through Mass Save and will need to have separate guidelines established as part of the PACE program design.

This approach is consistent with that adopted by other jurisdictions. Connecticut’s PACE statute, for example, requires that its PACE program contain “standards to ensure that the energy cost savings over the useful life of [the Energy Improvements] exceed the costs of such improvements.”³³ CEFIA has interpreted this mandate to require that each project’s savings to investment ratio is greater than one, meaning that projected annual savings exceed annual debt service on the PACE assessment. At the same time, CEFIA lists in its Program Guidelines

³¹ California, Florida and Colorado enabling legislation also includes residential properties. In contrast, Connecticut’s program, enacted after the FHFA ruling that effectively killed residential PACE, applies solely to commercial and industrial properties or multifamily residential properties.

³² California programs also include increasing water use efficiency.

³³ See S.B. 501, Connecticut General Assembly, Special Session (2012), Section 157(b)(3)(E).

those measures that it considers “predominant, long-standing, proven energy efficiency technologies” that will be presumed to qualify. It considers other technologies on a case-by-case basis.

Los Angeles County’s program requires that the improvements be proven to either save energy or water, or to generate clean power.”³⁴ Like Connecticut, it lists examples of eligible upgrades, but provides for consideration of other technologies on a case-by-case basis. The California First program, which operates in 14 counties in California, has published an “initial list” of eligible improvements, suggesting that supplemental lists will be forthcoming. In contrast, WRCOG’s PACE program specifies an exhaustive list of eligible technologies rather than granting discretion to the program administrators.

Given the rapidly evolving field of energy efficiency technologies, we recommend that Massachusetts adopt the more flexible approach utilized by Connecticut and Los Angeles County of publishing an exemplary list of eligible technologies and considering other technologies on a case-by-case basis.

Most PACE programs require an ASHRAE Level 2 energy audit. Program designers should establish auditing and M&V standards that balance the need to meet the requirement for energy savings with the need to avoid overly burdensome and costly administrative requirements.

In addition, DOER has identified the need to provide a financing mechanism (similar in structure to a benefit assessment) for customers unable to invest in high-efficiency gas system upgrades due to the cost of bringing natural gas distribution lines to their property. Consequently, our proposed draft legislation includes language permitting such conversions to utilize PACE financing.

3. Size limitations and Expected Project Sizes

Because of (i) the longer durations available for financing under PACE, which permit financing for Energy Improvements with longer payback periods, (ii) the availability of Mass Save subsidized loans for transactions below \$100,000-\$500,000, and (iii) the relatively high and fixed transactions costs entailed in a PACE financing, which do not decrease proportionately with decreases in transaction value, we believe that Commercial PACE will be better suited to more comprehensive, multi-measure, longer payback projects than those served by the on-bill/sundry-bill financing or Mass Save C&I financing program, although there could be some overlap at the upper limits of Mass Save C&I Financing program and lower limits of Commercial PACE program. That said, it is entirely possible for Commercial PACE to work for smaller projects, if a project originator has the ability to aggregate commercial projects for a bundled-project bond issuance; such a bundled issuance makes PACE possible for small commercial

³⁴ Los Angeles County has an additional requirement that in order for PACE to be used to finance renewable generation, the project must also include at least a 10% improvement in energy efficiency.

projects as well as large projects. We do not recommend setting a size limits for PACE financings, since we expect that these will effectively be set by the market.

C. Project Costs Financeable Under PACE

One of the most attractive features of Commercial PACE to property owners is the ability to finance up to 100% of the costs of the selected Energy Improvements. This principle has been adopted by programs across the country, including in California and Connecticut. Consequently, we recommend that Commercial PACE be available to finance all of the cost of design, procurement, development, installation and commissioning of the applicable Energy Improvements, plus the related energy audits, feasibility studies, measurement and verification efforts and reports as well as all transaction costs such as (without limitation) origination fees, program administration fees, underwriting fees, rating-agency fees, bond issuance fees, legal fees and related closing costs.

With respect to program administration costs, we would expect such costs (other than startup costs, which may require appropriations of funds) to be recoverable in whole or part from fees imposed on approved transactions.

D. Terms of PACE Financing

1. Interest Rate

The interest rate for projects will ultimately be determined by what the financial markets will demand for this type of instrument and will depend largely on the financial structure that the Commonwealth adopts, particularly the decision that the State makes with regard to any kind of credit enhancement. Based on the limited number of PACE assessments funded to this point around the country (fewer than 100 as of earlier in 2012), we would expect that initial interest rates, absent a credit enhancement, will approximate 7%, the rate at which the most recent large-scale PACE financing achieved in California. This rate, while high compared to real estate secured loans that are more familiar to the market, is reasonable given the long duration of PACE financing, and given the fact that PACE bonds currently have little to no liquidity (investors that buy them must hold them for the foreseeable future, and have little to no ability to sell them to other investors). With time, we would expect this liquidity penalty to decrease, the credits become better understood, and, consequently, rates to fall significantly.

2. Duration of Financing

Typically, PACE assessments have durations of up to 20 years, but they are fundamentally limited by the life of the underlying improvements; financing a 10-year life improvement with a 20 year bond makes little sense. We therefore recommend that the duration of the financing not exceed the shorter of (i) useful life of the Energy Improvements and (ii) 20 years. Where Commercial PACE is being used to finance a package of Energy Improvements, the program administrator will need to develop a formula for establishing the appropriate duration in a manner so as not to provide a disincentive for adoption of additional Energy Improvements.

E. Financial Underwriting Requirement

Financial underwriting standards will be driven by requirements of bond investors and rating agencies as well as mortgage holders who are being asked to consent to the transaction, but will likely include loan to value ratios, debt service coverage ratios and creditworthiness measures such as property tax payment histories and whether the property or property owner has been involved in a recent bankruptcy. Specific criteria should be developed by the program administrator in consultation with these stakeholders to ensure that the PACE bonds will be marketable to the investment community and to facilitate mortgage holder consent.

F. Security and Credit Enhancements for PACE

1. Security

A fundamental feature of PACE is the recording of an assessment lien (termed a “betterment” in Massachusetts) that is senior to all commercial debt. We also recommend that, to make the PACE bonds as attractive to investors as possible, the assessment lien be subordinate only to the lien for property taxes.³⁵

Other critical factors to take into consideration in designing the commercial PACE program include a commitment by participating municipalities to exercise all remedies, up to and including foreclosure, as promptly as possible and structuring cash flows to ensure to the extent possible that they are not pulled into the estate should the municipality enter bankruptcy.

2. Lender Acknowledgement Requirements

As discussed above in our critique of the 2010 Statute, we believe that requiring a lender acknowledgement of the PACE assessment and related lien is critical to the success of the Commercial PACE Program. Moreover, any transaction that does not secure such a lender acknowledgement would remain at risk for legal action from the holder of the mortgage, which we believe will chill participation in the Commercial PACE program by property owners. A recent “Lender Support Study” by PACE Now (December 2012) interviewed 25 mortgage lenders and, among its findings was that the underlying basis for the lender/borrower relationship is trust; a borrower that did not seek prior approval in agreeing to a senior lien would violate that trust. It is not necessarily required that the lender acknowledgement requirement be specified by statute. It may be preferable to impose this requirement as part of program design to avoid creating a statutory precedent for requiring lender consent for other benefit assessments, such as water and sewer improvements.

Based on conversations with originators and mortgage lenders, requiring mortgage holder consent, while likely increasing the time required to close a PACE financing, should not prove to

³⁵ This is the case for the California programs. In Connecticut, a PACE assessment lien is subordinate only to real estate taxes.

be an insurmountable obstacle. Indeed, at least one nationally recognized mortgage lender interviewed suggested that it intends to purchase the PACE bonds that fund Energy Improvements on its customers' properties as a means of further extending its customer relationships. Further, the PACE Now study pointed out that, after trust, the cash flow of its borrower was of critical importance. Because Energy Improvements financed under PACE must have positive cash flow, implementing such measures should only improve the cash flow of the underlying property, making it in the lender's interest to consent. The study also identified the overall cost impact of the upgrade as an important factor to lenders. Experience under PACE suggests that the overall impact of the payment obligation is likely relatively small (probably 1-3% of the property value on average), suggesting that lenders would not view this as a material impairment of their security. Finally, the fact that PACE assessments do not accelerate on default means that the lender would only be subordinate to the defaulted payments, not to the entire outstanding balance of the PACE assessment, again suggesting that lenders should be able to get comfortable with consenting to the senior PACE lien.

3. Role of Credit Enhancements

The legislation that requested this study focused on a review of possible uses of credit enhancements, with a focus on the System Benefit Charge moneys. Our stakeholder discussions and our detailed review of the 2010 Statute and the 2012 Proposal reveal that the primary use of the SBC money contemplated in the legislation was as security for the Fund that would be used to fund PACE loans as well as loans to municipalities and other governmental bodies and institutions for energy efficiency upgrades. In effect, the structure that the legislation proposed would have (i) created a fund that used system benefit funds as collateral for bonds and (ii) an initial source of bond repayment. This proposed structure is the inverse of PACE programs that other states have adopted and raises significant concerns, as discussed in Section II.A.2.b), above.

As we described above, in the more traditional PACE structure, a program administrator approves an energy efficiency project and issues bonds to fund a PACE loan, the proceeds of which pay for the project. Debt service payments on that PACE loan, made semi-annually through property tax payments, then repay PACE Bond investors; the property on which the project was installed serves as collateral for the bond. Our focus is on the use of credit enhancements, including the possible use of SBC funds, to support this latter structure. We review this in three steps:

- a. A review of what credit enhancements could achieve, if they were to be adopted;
- b. A discussion of whether credit enhancements are required; and
- c. A discussion of the structure of credit enhancement.

a) What do credit enhancements achieve?

We define credit enhancements as any source of credit support (typically in the form of cash, or a guarantee like the federal Small Business Administration loan guarantees) that reduces risk for investors. Investors' risk may arise from the possibility of default or delinquent (late) loan payments. Credit support is typically required where investors express discomfort with the credit risk of a project or a financial structure. This investor discomfort usually results from concerns about (i) unpredictable default or delinquency rates, (ii) predictable, but high, default and delinquency rates, (iii) uncertain value of collateral, (iv) uncertain access to collateral given other senior claims on that collateral, and (v) uncertain timing of repayment -- even if the expectation for defaults is low and the claim on collateral of known value is high. These risks, absent credit enhancements will cause investors to either (x) not invest in a project, or (y) choose to invest, but do so at high rates or for shorter durations.

Credit enhancements can be designed to cover any of the risks identified above, and should (generically) result in some combination of lower interest rates, longer loan durations and more flexible terms (such as more relaxed underwriting). There is, of course, no guarantee that credit enhancements generally or any specific credit enhancement would achieve these results, although our experience is that they will produce positive and measurable results.

In the case of PACE, our discussions with investors reveal that they view the first four of the risks we mention above as acceptable. For instance, default risk is acceptable assuming typical underwriting guidelines for PACE programs, as described above, and the repayment mechanism through property tax bills is strong, with robust counterparties in the form of state and local governments. Investors also view the claim on collateral that results from the priority lien as highly attractive, assuming that it is structured with consent of mortgage holders, even trumping that senior lender claim.

Investors' hesitations about the security of PACE Bonds stem largely from the fifth of the risks mentioned above -- that the foreclosure process takes time and that debt service payments on the PACE Bonds may not be made during the (indeterminate) period in which the applicable municipality is pursuing its remedies against the collateral. Bondholders expect to be paid on time, so any uncertainty about the timing of their payments makes the PACE bonds riskier -- and more costly. Therefore, if adopted, the goal of a credit enhancement in the case of PACE would be to serve as what we refer to as a "liquidity reserve," meaning a reserve fund that temporarily covers debt service payments to bondholders but is replenished once the foreclosure process is complete.

The result of this credit enhancement should be to improve cash flows for bondholders (investors) and as a result improve the credit rating from rating agency. This improved rating should result in a lower interest rate than is typically available for PACE Bonds. Our view is that a credit enhancement in the form of a liquidity reserve would reduce these interest rates; it is impossible to prospectively provide a number for how much of an interest rate reduction might result, but we believe that it could be in the range of 150-225 bps below the typical approximately 7% rates seen in the PACE market today. We are unable to offer a precise projection of exact impact of a credit enhancement since PACE programs have to this point

been rolled out without a credit enhancement. The Massachusetts discussion of a credit enhancement represents an innovation for PACE that we believe would provide a significant benefit, but for which we can offer no precise quantification beyond what is stated above.

Note that we do not expect that a credit enhancement would have any effect on the duration of PACE assessments -- we still expect a maximum term of 20 years (discussed elsewhere in this document) and standard underwriting guidelines that should be comparable to underwriting guidelines in other PACE programs nationwide.

b) Are credit enhancements required?

PACE programs can and do now operate without credit enhancements. Recent transactions have closed with the expected terms (up to 20 years) and underwriting guidelines. The interest rate for these transactions is often in the range of approximately 7%, however, which is high enough to make PACE unattractive to some property owners. Therefore we conclude that the PACE program as we suggest it here is workable. However we believe that credit enhancements – even credit enhancements offered for a limited “pilot” period of 2-3 years -- would offer a major boost to the C&I efficiency market, likely putting Massachusetts in the forefront of all states with commercial PACE programs.

c) Credit enhancement options

This section reviews the major features of a credit enhancement. It is intended to aid in the DOER’s decision as to the structure of a credit enhancement, should the DOER decide to put one in place.

(1) Functional Operation of Reserve

If Massachusetts were to provide a credit enhancement, we propose that it be structured in the form of a liquidity reserve. That liquidity reserve would operate as follows:

- Funds are reserved or a funding mechanism is created to form the reserve through one of the mechanisms described below;
 - If a cash reserve fund is created, those funds would be held by an independent entity, likely the bond trustee who is otherwise responsible for managing cash flows for the bond investors;
- In the case of a delinquency in property tax payments, the reserve fund is tapped to cover that delinquency and to keep bondholders’ principal and interest payments current;
- Subsequent property tax payments (if the delinquency is cured by a late payment from a property owner) are used to replenish the reserve fund;

- If the property goes into foreclosure resulting from failure to pay the full property taxes and assessments due, proceeds from the foreclosure sale replenish the reserve fund.

(2) Source of Reserve Funding

We have identified several different sources of reserve funding. These include:

- **Borrower Funded Reserves:** Borrower funded reserves are reserve funds that a borrower contribution creates. They can come in two forms:
 - Borrower funded reserves whose benefits inure directly to the borrower who is obligated to pay the PACE assessment. They are typically held in reserve until the final payment is due, and used to cover the final borrower payment. These reserves are self-funding, and need to be sized large enough to make a material difference to investors but not so large that they discourage borrowers from taking on the payment obligation. We believe that it is reasonable to establish a borrower funded reserve of six months debt service, as was suggested by Mass Development. The amount of that borrower-funded reserve should, to the extent practicable, match the expected duration of a foreclosure process.³⁶ Borrower funded reserves of this type are useful only when each project is funded with its own bond – and is viewed on the basis of its own credit. If, as PACE takes hold in Massachusetts or elsewhere, a large enough portfolio of PACE assessments can be aggregated and pooled, such a borrower funded reserve (in which benefit inure only to the single borrower) becomes impractical.
 - Borrower funded reserves whose benefits inure to a pool of PACE loans. Such a reserve would reside in a pooled account that would be available as a liquidity reserve benefiting the pool of PACE loans/bonds. These reserves can be viewed similarly to an origination fee, and must be small in order not to discourage property owners from taking on the PACE assessment. We believe that a borrower-funded reserve of from 1-3% of the total funded amount is reasonable, subject to confirmation in the market as the PACE program is being designed. A reserve of this type remains small, but is more easily transferrable to a pooled structure.
- **Energy Efficiency Reconciliation Funds (EERF) and System Benefit Charges:** Exclusive use of the combination of EERF and SBC funds would mean that projects could only fund energy efficiency. Limited amount of funds results from the fact that the

³⁶ Mass Development has suggested a six-month borrower-funded reserve. Program designers should set the actual size of this reserve by balancing the need for it to cover the length of the foreclosure process with an awareness of the impact of establishing such a reserve on the marketability of the PACE financing: at what point do the funds required to be paid at closing, including this reserve, deter property owners from using PACE.

legislature created a customer usage-based charge in statute for the SBC, and that any increase in the EERF would flow through to customers as a rate increase.

- Renewable Energy Trust: Limited in total amount. Funds could support renewable energy.
- Alternative Compliance Payments: Limited in total amount, and unpredictable amounts available in the future, however, funds are currently available. Flexibility in usage may allow for funding of both renewable energy and energy efficiency investors.
- US DOE Funds: Some restrictions on use of funds, although they can be used for loss reserves or debt service reserves. Other claims on these funds may make it challenging to use them. Limited amount, and one-time availability.

(3) Structure of Reserve

We offer two options for the structure of the reserve fund that is capitalized by public moneys. Note that the first of these structures likely needs to rely on legislative authority and a DPU funding order, while the other likely does not require legislation.

Option 1: Flow-Based Reserve

A flow based reserve takes advantage of the promise of a constant flow of incoming SBC or other moneys, dedicated through legislative authority to PACE that places a lien on the system benefit funds. This flow-based reserve is the structure contemplated in 2012 Proposal.

This structure provides the ability to tap the flow of system benefit funds – only tapping that flow when funds are actually required. It relies, in other words, more on the promise of available funds (at some capped level, although the legislative language of the 2012 Proposal suggested that the level could remain uncapped, or be capped at a level determined by the DPU) than on a specific amount that is sitting in a reserve account (see Option 2). It could be structured to place a lien on the full flow of system benefit funds (meaning the flow of funds coming from all sectors) or as a lien on just the funds contributed from C&I customers. Discussions with proponents of the 2012 Proposal reveal that their intent had been to encumber only the flow of SNC funds from C&I customers for the proposed credit enhancement.

The advantages of this structure are:

- It only draws on funds when they are needed -- i.e. when a delinquency occurs.
- As with all the liquidity reserves, the reserve funds are replenished upon subsequent payment of late property taxes and/or a foreclosure sale of the property.

- Because it acts much like a guarantee, the investors' risks are related to how much they can depend on the guarantee – not to the underlying commercial real estate property. Investors could conduct a one-time evaluation of the viability of the lien on system benefit funds, instead of having to rely on the individual project underwriting.
- This structure, to the extent that the aggregate of underlying deal sizes does not exceed the amount of system benefit funds available, could produce a very highly rated bond – perhaps as high as AA or AAA, according to some stakeholders interviewed who have experience with municipal finance and the related bond rating process and who have held discussions with rating agencies on this topic. This high rating would be expected to yield interest rates far lower than what is available anywhere else in PACE markets.

The disadvantages of this structure are:

- It places a senior lien on the system benefit fund, thus making it very difficult to plan for any other uses of the system benefit fund which, in turn, could affect utilities' ability to meet their goals established in their three-year efficiency plan. This senior lien places the full SBC fund (or, if limited to SBC paid by C&I customers, that portion of the SBC fund) at risk; even though likely calls on the SBC would be small, the SBC would be bearing the full risk of default. According to proponents of the 2012 Proposal, it might be possible to structure the pledge of the SBC funds with a cap, for example, some multiple of annual debt service, so long as the multiple were sufficient and the pledge represented a first call on SBC funds. It is not possible to know with certainty that such a strategy would be effective, however, until an actual transaction were brought to the rating agencies for their consideration.
- Use of the SBC or related EERF would limit that the list of approved measures to electric only, since all uses of the SBC/EERF must match with the source of such funds – and these funds derive entirely from a fee based on electricity rates.
- Even though the likely call on the system benefit fund should be very small (and could be estimated based on a projected deal flow and expected delinquency percentages), and even though the foreclosure sale would replenish the system benefit fund in all but a few cases, the fact remains that some amount of the flow of system benefit funds is subject to a call.
- To some degree, this level of guarantee may in fact cover too much risk – meaning that the system benefit fund covers so much risk that the incentive to invest in high quality, well-underwritten projects is diminished. Note, however, that we believe that the project-level underwriting could be established and controlled such that it should not suffer from these undesirable incentives.
- Many stakeholders expressed considerable resistance to using the system benefit fund in this way, given the previous points.

Option 2: Fixed-Fund Based Reserve

A fixed-fund reserve can come from a flexible source of capital (as laid out in options above), borrowers (capitalized in to project costs) or a combination of those two sources.

Flexible Capital Sources: The flexible capital sources (described in Section VII.F.3.c)(2) above) could capitalize a reserve fund in the form of cash sequestered in a reserve account, likely managed by the trustee managing the flow of funds for bondholders. The reserve fund should supplement the borrower-funded reserves described below. Further, because we recommend that PACE be available to support both renewable energy and energy efficiency, we recommend that the capital source or sources have among its/their allowable uses both renewable energy and energy efficiency.

We recommend that each of these sources be used, with the borrower funded reserves bearing a first loss position – but noting also that these borrower funded reserves will only be available once transactions close. This structure requires that the DOER or other relevant agency allocate a sum of money from the flexible capital sources up front, to PACE enhancement.

(4) Risk to Reserve

The risk to the reserve is a function of (1) timing and (2) requirement to cover default without full recovery from foreclosure sale.

- **Timing:** Structured as a liquidity reserve, the reserve funds are consistently replenished when a foreclosure sale occurs. For instance, if the reserve funds are tapped to cover a delinquency, and it takes 18 months to sell the underlying property, then the reserve funds will be “out” for 18 months. If a borrower-funded reserve covers the first six months of the reserve, then the reserve is out for two debt service payments, assuming semi-annual property tax payments. Again, as a liquidity reserve, the reserves are replenished by the foreclosure sale.
- **Default or Insufficient Recovery:** The ultimate risk to the reserve funds comes when a foreclosed property has zero collateral value, or when it sells for less than the amount of the outstanding tax assessments. Note that the underwriting standards that we propose would limit total property loan to value (including the mortgage loan plus the PACE assessment) to 80% of the property value. In addition, the property taxes and PACE assessment have a first claim on the proceeds of the foreclosure sale. So the real risk to the reserve funds comes in to play when those funds must cover debt service when the property does not sell at all. That risk is real, but small.

Overall, we suggest that the risk to the reserve funds be viewed in the following context:

- **Incidence:** How often will losses occur? Will many losses occur, no matter how small, that could together compromise the full fund.

- *Severity*: How large will individual losses to the fund be? Could one loss be large enough to compromise the full fund?

We believe that the incidence of loss will be very small, given (a) underwriting guidelines and (b) strong collateral position (c) the fact that, after a foreclosure sale, all tax assessments outstanding are recovered first and before any private mortgage liens. PACE programs have not, however, been in place long enough to make any kind of informed prediction about likely losses. PACE losses have been zero percent up until now, but almost no seasoned PACE assessments exist, so a zero loss rate at this point is meaningless.

(5) Size of Reserve

The sizing of the reserve depends on the type of reserve structure that the State ultimately chooses (flow-based or fixed-fund based). Based on our comprehensive assessment, we strongly recommend that the State consider a credit enhancement based on a fixed-fund reserve. The sizing of that reserve should be based on the following factors:

- The reserve fund size that is large enough to support a PACE market that is significant enough attract market actors (PACE originators and investors) to Massachusetts.
- The amount of funding available from funds that can support energy efficiency and that can support renewable energy.
- A credit support amount that is meaningful to investors. We recommend that for a three year pilot period, a credit enhancement be made available to in the form of a liquidity reserve, supporting new transactions as they are closed during that period. This liquidity reserve would support any new qualifying PACE financings closed during the three year pilot, and be available to those deals through their lifetimes.
- It is impossible to know with any certainty in advance how large of a reserve will satisfy financial markets. Based on conversations with financial stakeholders, we suggest that a multiple of 1.5x annual debt service would be a good starting point (subject to confirmation or revision as market conditions dictate) and could either be set up based on projections of total volume or funded on a transactional basis, as PACE transactions close. For example, if the Commonwealth were to have \$2.1 million initially available to fund this reserve, assuming an average amortization of 20 years at a higher-than-expected 7% rate, this would yield a program size of \$15 million. The table below specifies the program size that different reserve fund sizes will support, given the above assumptions.

Debt Service Reserve Size	Expected Program Size
\$2.1MM	\$15,000,000
\$4.2MM	\$30,000,000
\$6.3MM	\$45,000,000

As the volume of transactions grows, additional funding could be dedicated by DOER to the reserve fund to support the increased size of the PACE program, if continuation of the reserve fund was deemed necessary.

d) Conclusion on Credit Enhancements

Our view is that PACE has many advantages, as described above, in a very tough commercial energy efficiency market. PACE is also new, with a limited history of uptake. Our overall take on PACE is that it has a great deal of potential, and our discussions with stakeholders reveal that it is also gaining traction in the places where it is well-executed. A Massachusetts version of PACE, with the kick-start of a liquidity reserve could, in our view, provide a significant and useful boost to this new mechanism. Given that PACE is also new and relatively untried in the marketplace, we also suggest that any funds devoted to credit enhancements for PACE be devoted to it on a pilot basis³⁷ – but they provide sufficient certainty to investors to know that the credit enhancement is real.

G. Issuance of Bonds

As noted above, PACE Bonds comprise revenue (as opposed to general obligation) bonds with the underlying real property as the primary source of both security and repayment. We have observed two approaches to issuing PACE Bonds: (i) individual “micro” bonds for each PACE project and (ii) aggregation of projects into larger, single PACE Bonds. All things being equal, the aggregated approach would be more efficient than issuing individual bonds for each project. Aggregation, however, requires either an external source of “bridge” capital to fund the PACE assessments until the corresponding PACE Bond can be issued and purchased or a willingness of property owners to wait to fund their project for an indeterminate period of time until sufficient projects have been aggregated to enable the PACE Bond to be issued, which could provide a disincentive for property owners to participate. The EIC program being developed in New York contemplates the establishment of an internal short-term revolving loan facility to fund the Energy Improvements. Once a sufficient volume of transactions have been aggregated, then EIC would issue PACE Bonds to take out the interim financing, thereby replenishing their revolving short-term line. EIC representatives interviewed suggested that, since EIC’s cost of capital is expected to be low, this approach would enable significantly lower interest rates than would be the case if private sector aggregators, warehouse facility providers and originators/aggregators, each of which would require compensation, handled the aggregation of PACE assessments in the primary market.

Because no consensus has yet been reached as to an acceptable external funding source for Massachusetts, the options are (i) to force property owners to wait to begin their project until a sufficient volume of project has been aggregated or (ii) to issue micro bonds on a project-by-project basis, eliminating the requirement to wait. Both WRCOG and Los Angeles have adopted

³⁷ Of course, if the volume were to exceed the \$100,000,000 level during the pilot period, additional PACE transactions could be closed without recourse to the liquidity reserve enhancement.

the micro bond approach. They have created standard bond indentures, legal opinions and other documents to facilitate an expedited and efficient issuance process for their PACE Bonds. Connecticut has not determined yet how to approach bonding, but, in the interim, still plans to issue PACE loans (via promissory notes) on a project-by-project basis. The delays involved in the aggregation approach could lead a significant percentage of property owners to defer their Energy Improvements, contrary to the objectives of the PACE program.

While we recommend adopting the individual, project-specific “micro” bond approach for most PACE assessments issued in Massachusetts, we also recommend that the program be designed with sufficient flexibility to permit the program administrator to aggregate assessments should it be beneficial to the program, for example for smaller assessments, where the transactions costs of bond issuance represents a greater proportion of the principal amount. The program should also be designed to permit financiers to offer “warehouse” lines of credit to enable project aggregation without the requirement that property owners wait until sufficient project volume has been aggregated to enable a bond issuance before receiving their project funding.

H. Cost of Administering the Program

Ultimately, we would expect the PACE program to be self funding via fees charged on completed transactions. Initially, however, a source of outside funding will need to be identified for startup and program design expenses incurred by both Mass Development and DOER.

I. Roles: What agencies and authorities play what roles

1. MASS DOER

We recommend that the Mass DOER be responsible for overall program oversight. DOER should further be responsible for approval of overall program, with guidance from the Energy Efficiency Advisory Council. Specifically, we believe that DOER should be responsible for providing guidance to the program administrator on:

- Overall program goals;
- Project underwriting standards (not including financial underwriting standards) that govern:
 - Qualifying technologies;
 - Qualifying customer classes;
 - Any energy assessments required as part of overall project evaluation;
- Integration with existing programs including utility rebate programs, other loan programs;

- Credit enhancement funding and levels;
- Program marketing, jointly, as deemed appropriate, with existing utility programs, including the development of a public-facing presence on the Internet and other related outreach activities; and
- Project measurement and verification (“M&V”) requirements.

2. Mass Development

Mass Development should maintain overall administrative oversight for the program, subject to DOER input. Mass Development should be responsible for:

- Developing financial underwriting standards, consistent with Mass Development’s knowledge of bond markets.
- Implementation of a system to conduct project underwriting consistent with guidelines prepared by DOER. This may involve hiring of an outside firm to conduct such underwriting.
- Implementation of a system to conduct financial underwriting consistent with Mass Development-developed standards. This may involve hiring of an outside firm to conduct such underwriting.
- Project intake, that may involve hiring of an outside firm to conduct such intake.
- Issue bonds to fund projects. Remit proceeds of bond issuance to a bond trustee for further distribution.

3. EEAC

The EEAC should advise the DOER on development of overall project qualification, M&V, project assessment and program integration guidelines, to be implemented by the program administrator.

4. Department of Public Utilities

Since we are not recommending the granting of a lien on SBC funds as was contemplated by the 2012 Proposal, we do not currently see an immediate requirement for direct DPU engagement.

Municipal governments will be responsible for:

- Contracting with the program administrator agreeing primarily to the items listed below.

- Program marketing, by “adopting” the program as a priority among local government officials interested in promoting economic development and energy efficiency in their communities.
- Levying (or causing its contractor to levy, if applicable) an assessment on the burdened property and collecting the debt service payments via the tax bill and forwarding those funds to the trustee for transfer to bondholders, as specified in the PACE agreement signed by a participating municipality.
- Foreclosing, through normal foreclosure process, on a property that has defaulted on tax payments. As part of that foreclosure process, abiding by the agreed-upon priorities in distribution of revenues resulting from the foreclosure.

5. Outsourcing of Functions

As noted above, many functions may be outsourced to other parties. These may include:

- Program Evaluation, including periodic reviews of program performance.
- Program Administration, including project or financial underwriting.
- Trustee Functions, including serving as a bond trustee to manage intake and out-flow of funds from bond investors, to projects, and back to investors.
- Financial Advisory, in connection with bond issuance.

6. Role of the Private Sector

PACE at its core is a private sector program that utilizes the mechanisms of government. Consequently program designers should consider the impact on private sector participation of the decisions being taken. In particular, the program should be designed to maximize participation of property owners, qualified contractors/installers/developers, originators and capital providers.

a) Property Owners

From the property owners’ perspective, the process for approval and funding PACE assessments should be simple, straightforward and timely. Materials explaining the program should be understandable to lay persons. Applications forms should be readily available and user friendly to complete. Turn around times for approving completed applications should be short and expectations set regarding closing timing should be met.

b) Contractors/Installers/Developers

The contractors, installers and developers of Energy Improvements will be key marketing agents for the PACE program. The program should be designed to ensure that contractors will

be qualified and reputable, but should also avoid barriers to participation by the smaller, local contractors.

c) Originators

Stakeholder interviews revealed that specialized originators serve a critical role in educating property owners, contractors and the financial community about PACE and marketing the program. They also serve a critical role in obtaining the mortgage holder acknowledgement of the PACE assessment. Originators typically seek to be compensated via “points” on the PACE assessment at closing, plus a back end participation in the secondary market for PACE Bonds via their relationships with investors. Program designers should endeavor to accommodate such originators and avoid imposing impediments to their earning reasonable fees for their services. Particularly for a new program such as commercial PACE, uptake rates should be significantly higher if private sector players are actively selling the solution; and they will only do so if they are permitted to be appropriately compensated for such activities, whether in the form of origination fees or otherwise.

d) Capital Providers

It goes without saying that investors in the PACE Bonds will be the key to success of the program. We would expect financial players to participate in both the primary market for PACE Bonds, perhaps by purchasing the PACE Bonds for their own portfolio or investing in a warehouse line of credit under which they would aggregate PACE Bonds and then securitize them in the secondary market. Program designers should remain mindful about the requirements of the financial sector and ensure, to the extent possible, that they refrain from implementing program elements that introduce unnecessary risk or the perception of risk, to potential investors.

VIII. Legislation Required

As noted earlier in this Report, we recommend that the 2010 Statute be replaced (or at a minimum supplemented³⁸) with a more typical, Owner Arranged, Open Market PACE enabling act. We have attached proposed legislative text as Exhibit D.

IX. CONCLUSIONS AND RECOMMENDATIONS

Our recommendations are as follows:

³⁸ To the extent that municipalities would prefer to retain the option to pursue the revolving loan fund approach enacted in the 2010 Statute, that provision could remain on the books without interfering with the commercial PACE program proposed in this report. As noted above, however, absent an external source of funding, we view it as unlikely that such a program would be widely adopted, if at all, or reach scale.

1. Adopt a PACE financing structure that mirrors the best practices used in other states. Specifically, originate projects and then issue bonds based on the cash flows and collateral value of the projects. Facilitate ways to bundle multiple smaller projects.
2. Consider, through administrative action, the use of credit enhancements that represent a fixed allocation of funds. Given the limitations on the SBC, use other funding sources in addition, that can fund gas efficiency projects and that can fund renewable energy projects.
3. Consider additions and enhancements to the Mass Save C&I Financing program to consider integration of a lease-based structure that is appropriate to the expected size and collateral value of many energy efficiency equipment purchases in the commercial sector.
4. Consider use of one among a number of flexible sources of capital to create a fund that could expand the capital available through on-bill financing programs for governmental entities.

Specifically, with regard to PACE, we offer the following summary of the proposed structure:

Element	HB&C PACE Proposal	
Key Feature		
Administrator	Mass Development joint with Mass DOER	
Process and Roles	Intake/Origination	Mass Development
	Marketing	Local gov't, private originators, state support
	Bond Issuance	Mass Development
	Project technical underwriting/project qualification	DOER
	Financial underwriting	Mass Development
	Credit enhancement funding and levels	DOER
	Integration with other energy efficiency programs	DOER
	Overall program oversight	DOER and Mass Development
Property Tax Assessments		
Eligible properties	All properties in Massachusetts other than residential properties with fewer than five units.	
Eligible technologies	Energy efficiency (consistent with Mass Save definitions) and Renewable Energy (see report body)	
Technical Underwriting	Energy savings exceed cost of Energy Improvements over life of the energy improvement	
Financial Underwriting	Market-driven, LTV, DSCR, creditworthiness tests	
Rate	Market-determined	
Term	Up to 20 years	

Originator	Private entities
Origination Fees	Allowed
Bonds (backed by PACE)	
Type	Revenue
Issuer	Mass Development
Collateral	Subject property
Debt Service Reserve	Subject to administrative action, from sources that support efficiency and renewables. Fixed reserve amount.

Exhibit A: Section 92 of Chapter 238 of the Session Laws of Massachusetts (2012)

SECTION 92. The executive office of energy and environmental affairs, in consultation with the executive office of housing and economic development and the executive office of the administration and finance, shall conduct a study of the viability, fiscal impact, potential benefits, statutory and regulatory barriers and anticipated results of establishing a Massachusetts Energy Conservation Project Fund in order to make loans for the acquisition, design, construction, repair, renovation, rehabilitation or other capital improvement or deferred maintenance of an energy conservation project undertaken by a public body, municipality, institution or person. The study shall consider how the fund would be administered, including the designation of the Massachusetts development finance agency established in section 2 of chapter 23G of the General Laws or a special purpose entity as the administrator of the fund; how the administrator would issue energy project bonds on behalf of the fund; how monies would be disbursed from the fund, including the process and criteria for determining the eligibility of energy conservation projects; how security would be provided for the fund, including the use of first priority lien on the system benefit charge funds; and the long-term impact on the energy efficiency programs funded through the system benefits charge. The study shall also consider the energy efficiency program process under section 21 of chapter 25 of the General Laws and the functions of the department of energy resources, the energy efficiency advisory council, and the electric and natural gas distribution companies and municipal aggregators to ensure that the program would complement and be coordinated with the energy efficiency programs designed and approved through the existing energy efficiency advisory council process. The study shall further consider the process for securing department of public utilities approval to provide for the first priority lien on the system benefit charge funds that would be used as security for the loans from the project fund.

The executive office of energy and environmental affairs shall submit a copy of the study and recommendations, together with any drafts of legislation necessary to establish a Massachusetts Energy Conservation Project Fund to the clerks of the house of representatives and the senate, who shall forward a copy of the study to the joint committee on telecommunications, utilities and energy not later than December 31, 2012.

Exhibit B: 2010 Statute - M.G.L. Chapter 44, Section 53E3/4

Section 53E3/4. (a) Notwithstanding section 53 to the contrary, a city or town may establish an Energy Revolving Loan Fund to provide loans to owners of privately-held real property in the city or town for energy conservation and renewable energy projects on their properties so as to prioritize energy efficiency as the first step toward reducing greenhouse gas emissions associated with buildings.

(b) The fund shall be established by ordinance or by-law. Before adoption of the ordinance or by-law, the board of selectmen, town council or the city council, as the case may be, shall conduct a public hearing on the question of its adoption. The ordinance or by-law shall designate an administrator for the fund and may provide for rules, regulations and procedures for administration of the fund and eligibility for loans the city or town considers necessary or proper to carry out this section. The administrator may consult with the division of green communities established in section 10 of chapter 25A in developing such regulations, rules and procedures for administration of the fund. The fund administrator may be a board, department or officer, or may consist of 1 or more members from 1 or more boards, departments or officers, of the city or town. A city or town which is a member of a regional planning commission may enter into a cooperative agreement with that commission to perform as administrator for the fund. A regional governmental entity or county, if the county may incur debt under chapter 35 or any other general or special law extending a county's debt limit, may establish a fund subject to this section and may appoint a person to be the administrator of the fund.

(c) As authorized by section 4A of chapter 40, 2 or more municipalities may, in a city by vote of the city council, or, in a town by vote of the board of selectmen, enter into an agreement to jointly establish and administer a common fund.

(d) The fund administrator shall have the following powers and duties:

(1) to make loans to owners of real property to finance or refinance the costs of energy conservation and renewable energy projects on their properties; provided, however, that no loan shall be made unless an energy audit of the property has been conducted on or after July 2, 2008, and any energy conservation measures established by the fund administrator for participation in the program have been implemented;

(2) to execute and deliver on behalf of the city or town all loan agreements and other instruments necessary or proper to make the loan and secure its repayment;

(3) to record the notice of the agreement required by subsection (f) and any other loan instruments;

(4) to apply for and accept grants or gifts for purposes of the fund; and

(5) to exercise any other powers or perform any other duties that the city or town may grant by ordinance or by-law to carry out this section.

(e) The city or town treasurer shall be the custodian of the fund, which shall be maintained as a separate account and into which shall be deposited:

(1) all monies appropriated and all proceeds from bonds issued under clause (3C) of the first paragraph of section 7 for purpose of providing loans to private property owners for energy conservation and renewable energy projects;

- (2) all funds received from the commonwealth or any other source for those purposes;
- (3) all repayments of the loans made by property owners under this section and any reserve or other required payments made by the owners in connection with the loans; and
- (4) any other amounts required to be credited to the fund by any law.

The city or town treasurer may invest the monies in the manner authorized in section 55 and any interest earned thereon shall be credited to and become part of the fund.

The city or town treasurer shall annually certify, not later than June 30, in writing to the fund administrator and auditor or similar officer in cities or the town accountant in towns having a town accountant, the principal and interest due in the next fiscal year on any bonds issued under clause (3C) of the first paragraph of section 7 and not otherwise provided for, and the amount certified shall be reserved for payment of that debt service without further appropriation. Loans may be made from the fund by the fund administrator without further appropriation, subject to this section; provided, however, that no loans shall be made or liabilities incurred in excess of the unreserved fund balance and unless approved in accordance with sections 52 and 56 of chapter 41.

(f) Whenever a city or town enters into a loan agreement with a property owner under this section, a notice of the agreement shall be recorded as a betterment and shall be subject to chapter 80 relative to the apportionment, division, reassessment and collection of assessment, abatement and collections of assessments, and to interest; provided, however, that for purposes of this section, the lien shall take effect by operation of law on the day immediately following the due date of the assessment or apportioned part of the assessment and the assessment may bear interest at a rate determined by the city or town treasurer by agreement with the owner at the time the agreement is entered into between the city or town and the property owner. In addition to remedies available under said chapter 80, the property owner shall be personally liable for the repayment of the total costs incurred by the city or town under this section; provided, however, that upon assumption of the personal obligation by a purchaser or other transferee of all of the original owner's interest in the property at the time of conveyance and the recording of the assumption, the owner shall be relieved of the personal liability.

A betterment loan agreement between an owner and a city or town under this section shall not be considered a breach of limitation or prohibition contained in a note, mortgage or contract on the transfer of an interest in property.

Notwithstanding any provision of chapter 183A to the contrary, the organization of unit owners of a condominium may enter into a betterment loan agreement under this section to finance an energy conservation and renewable energy project, provided that the project comprises part of the common areas and facilities; provided, however, that section 18 of said chapter 183A shall not apply to any improvements undertaken pursuant to an agreement entered into under this section. Such agreement shall: (i) be approved by a majority of the unit owners benefited by the project; (ii) include an identification of the units and unit owners subject to the agreement and the percentages, as set forth in the master deed, of the undivided interests of the respective units in the common area and facilities; and (iii) include a statement by an officer or trustee of the organization of unit owners certifying that the required number of unit owners have approved the agreement. As between the affected unit owners and the city or town, the certification shall be conclusive evidence of the authority of the organization of unit owners to enter into the agreement. A notice of the agreement shall be recorded as a betterment in the registry of deeds or registry district of the land court wherein the master deed is recorded and shall be otherwise subject to chapter 80 as provided in this section. The assessment under the agreement shall be charged or assessed directly to the benefited unit owners and if unpaid shall be added to the annual tax bill for their units in accordance with section 13 of said chapter 80. The allocable share of the assessment, prorated on the basis of the percentage interests of the benefited units in the common areas and facilities, shall attach as a lien only to the units identified in the recorded notice and benefited by the project and the owners of those units shall also be personally liable for their allocable share of the assessment as provided for in this section. For the purposes of this paragraph, the terms

“common areas and facilities”, “common expenses”, “condominium”, “master deed”, “organization of unit owners”, “units” and “unit owners” shall have the same meanings as ascribed to them in section 1 of said chapter 183A.

(g) The fund administrator shall file annually, not later than June 30, a report detailing the amount of money in the fund, loans made and repayments received, and shall also include the types of projects financed. The report shall be filed with the chief executive officer of the city or town, the executive office of administration and finance, the joint committee on municipalities and regional government, the senate and house committees on ways and means and the clerks of the senate and the house of representatives.

Exhibit C: 2012 Proposed Legislation

Chapter 23G, Section 46. (a) As used in this section, the following words shall, unless the context clearly requires otherwise, have the following meanings:

“Agency”, the Massachusetts Development Finance Agency established in chapter 23G.

“Department”, the department of public utilities established in section 1 of chapter 25.

“EEAC”, the energy efficiency advisory council established in section 22 of chapter 25.

“Eligible borrower”, a public body, municipality, institution or person; provided, however, that an owner of privately-held real property may participate through the municipal PACE program.

“Eligible project”, the acquisition, design, construction, repair, renovation, rehabilitation or other capital improvement or deferred maintenance of an energy conservation project undertaken by an eligible borrower calculated to produce lifetime cost savings in excess of its cost and, in the case of owners of privately-held real property, “eligible project” shall include, but not be limited to, an energy conservation project eligible under section 53E of chapter 44.

“Energy project bonds”, bonds, notes, certificates of participation or beneficial interest, or other evidences of indebtedness or ownership, issued under an executed indenture, financing document or other agreement of the financing entity, the proceeds of which shall be used to finance loans for eligible projects, and that are payable from loan repayments and are further secured by system benefit charges.

“Energy savings analysis”, an analysis performed by an energy efficiency specialist to quantify the costs of the energy efficiency improvements, and total energy and water cost savings realized by the owner, or the owner’s successor, during the useful life of, and estimated carbon impacts of, the energy efficiency improvements, including an annual cash flow analysis.

“Financing entity”, (i) the agency; or (ii) any special purpose entity.

“Financing order”, an order of the department issued under section 19 of chapter 25 which shall provide for a first priority lien on all or a portion of the system benefit charges to further secure energy project bonds.

“Loan”, a direct loan of monies or any other financing arrangement from the agency to an eligible borrower to finance all or a portion of an eligible project.

“Municipal PACE program”, a program implemented and administered by a city or town under section 53E of chapter 44.

“Special purpose entity”, a partnership, limited partnership, association, corporation, limited liability corporation or other entity established and authorized by the agency to issue energy project bonds, subject to approval by the agency as provided by the agency in its resolution authorizing the special purpose entity to issue energy project bonds.

“System benefit charges”, the mandatory charge imposed under section 19 of chapter 25.

(b) The agency shall make loans to or enter into other financing arrangements directly with eligible borrowers for eligible projects or, in the case of eligible projects under the municipal PACE program, shall fund

loans made by municipalities to property owners under such program. Such loans shall be funded from energy project bonds issued by the agency or a special purpose entity in accordance with this section or from amounts held in the fund. The agency shall pledge loan repayments received directly from eligible borrowers or from cities and towns on behalf of real property owners under the municipal PACE program to the repayment of the related energy project bonds issued by the agency or by a special purpose entity, as applicable. As further security for any such bonds or debt obligations, the department shall issue financing orders in accordance with section 19 of chapter 25, granting a statutory first priority lien in all or a portion of the system benefit charges as set forth in the financing order.

(c) There shall be a Massachusetts Energy Conservation Project Fund, under the control of the agency, and all energy project bond proceeds of the agency or a special purpose entity, together with any other monies lawfully made available to the fund in order to make loans, shall be credited to the loan account within the fund. The loan account within the fund shall make loans to finance eligible projects. The agency may make loans to eligible borrowers for eligible projects from amounts on deposit or credited to the loan account within the fund. The agency shall hold the fund in a separate account, segregated from all other agency funds. Except as provided in this section, the agency may invest and reinvest the loan account within the fund and the income thereon: (i) in making loans to eligible borrowers for eligible projects; and (ii) in investing funds not required for immediate disbursement in the purchase of such securities as may be lawful investments for fiduciaries in the commonwealth.

(d) Each loan shall be made under a loan agreement between the agency and the eligible borrower. In the case of the municipal PACE program, the agency may accept loan agreements entered into by the municipality and the property owner. All loan agreements, including those entered into under the municipal PACE program, shall specify the security for the loan and the repayment and other terms of the loan.

(e) Under the financing order, the agency shall have a first priority lien on all or a portion of the system benefit charges to provide additional security for any energy project bonds it issues or that are issued by the special purpose entity. Amounts transferred to the agency under any such financing order that are not needed to pay debt service on energy project bonds shall be held in the reserve account within the fund or in a reserve fund created under the financing documents and, in either case, as a reserve securing the energy project bonds in accordance with the financing documents governing the energy project bonds. Any amounts in excess of the required reserve shall be transferred by the agency to the department in accordance with the financing documents governing the energy project bonds. The agency shall hold the reserve account within the fund in a separate account, segregated from all other agency funds. The amount of system benefit charges pledged to secure an energy project bond in accordance with a financing order shall not be limited or adversely affected; provided, however, that a financing order and all rights thereunder shall not be altered or limited until the energy project bonds, together with the interest thereon, are fully met and discharged.

(f) The exercise of the powers granted in this section shall be in all respects for the benefit of the people of the commonwealth by increasing the energy efficiency of buildings in the commonwealth. As the exercise of such powers shall constitute the performance of essential government functions, the financing entity shall not be required to pay any taxes or assessments upon the property acquired or used by the financing entity under this section or upon the income therefrom. The energy project bonds issued under this section, their transfer and the income therefrom, including any profit made on the sale thereof, shall at all times be free from taxation within the commonwealth.

(g) Upon the written approval of the secretary of administration and finance and the secretary of energy and environmental affairs, the agency or the special purpose entity may issue energy project bonds on behalf of the fund. Proceeds of energy project bonds shall be used for the purposes authorized in this section. Energy project bonds issued by any such agency shall be issued as revenue bonds and shall be recourse only to the related loan repayments by eligible borrowers and other monies available in the reserve account within the fund or held under the related financing documents. The agency's energy project bonds shall not be general obligations of the agency or the commonwealth. The agency's energy project bonds shall be issued in accordance with section 8;

provided, however, that the agency shall not be required to make the findings set forth in subsections (a) and (b) of said section 8. Agency bonds issued in furtherance of this section shall not be subject to, or otherwise included in, the principal amount of debt obligations issued under section 29.

(h) The agency shall be reimbursed from the loan account within the fund for all reasonable and necessary direct costs and expenses incurred in any fiscal year associated with its bond issuance, administration, management and operation of the funds, including reasonable staff time and out-of-pocket expenses and the reasonable and approved administrative costs incurred by any qualified organizations which the agency may contract for services. The agency may establish a minimum reserve to be maintained by the fund to ensure the satisfaction of the administrative costs of the agency and its agents.

(i) In accordance with applicable law, the agency may enter into contracts through a competitive process with qualified organizations to manage all or a portion of the administrative aspects of managing the loan program on behalf of the agency and on behalf of municipalities participating in the municipal PACE program. Contracts executed under this section shall address, but shall not be limited to: (i) proposed rules and guidelines for the funds; (ii) providing technical assistance to potential eligible borrowers and to cities and towns in implementing and managing their municipal PACE programs; (iii) reviewing and evaluating loan applications; (iv) providing findings and recommendations to the agency as to which loans should be approved and awarded; and (v) servicing such loans once they are awarded and funded.

(j) If the agency makes a loan directly to a city or town for an eligible project owned or leased by the city or town in accordance with this section and the city or town fails to pay to the agency when due and after demand any principal, interest or other charges payable under its loan agreement, in addition to other remedies of the agency under the applicable loan agreement, the agency may certify to the state treasurer the amount owing to the agency by the city or town. The state treasurer shall promptly pay over to the agency for application in accordance with the agency's trust agreement, without further appropriation, any local aid distributions otherwise certified to the state treasurer as payable to the city or town. Payment by the state treasurer under this section shall continue to be made until any deficiency in the city or town's payments to the agency shall have been offset by the payments from the state treasurer. Any amount paid to the agency by the state treasurer under this section which is later determined, upon audit, to be in excess of the actual amount due to the agency shall, upon demand of the city or town, be repaid from the fund to the state treasurer. The agency may also recover from a city or town in an action in superior court any amount due to the agency together with any other actual damages the agency shall have sustained from the failure or refusal of the city or town to make payments owing to the agency.

(k) For energy efficiency improvements that exceed \$500,000, the contractor installing the improvements or the property owner shall provide an energy savings analysis and shall obtain a guarantee on the analysis by obtaining a security in the full amount of the cost savings. The security shall be in any of the following forms, which shall be further specified in regulation: (i) an energy savings insurance policy issued by an A.M. Best "A" or better rated carrier; (ii) an investment grade guarantee; (iii) an energy efficiency bond; (iv) a letter of credit; or (v) cash collateral.

(l) The agency shall develop program guidelines governing the terms and conditions under which state financing may be made available to the commercial sustainable energy program, including, in consultation with representatives from the banking industry, municipalities and property owners, developing the parameters for consent by existing mortgage holders; provided, however, that the agency shall work in consultation with the EEAC, the department of energy resources and electric and natural gas distribution companies and municipal aggregators to ensure that the program will complement and be coordinated with the energy efficiency programs established in sections 19 and 21 of chapter 25. The activities of municipal PACE programs supported by the Massachusetts Energy Conservation Project Fund and subject to the program guidelines shall be reviewed in the 3-year planning process and annual reviews undertaken pursuant to said section 21 of said chapter 25

Exhibit D: 2013 PACE Legislation Draft

DRAFT

188th MASSACHUSETTS GENERAL COURT

2013 SESSION

AN ACT ESTABLISHING A COMMERCIAL AND INDUSTRIAL PROPERTY ASSESSED CLEAN ENERGY FINANCING MECHANISM

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same as follows:

SECTION 1. Chapter 23G of the General Laws, as so appearing in the 2010 Official Edition, as amended by section 12 of chapter 238 of the Acts of 2012, is hereby amended by adding the following section:

Section 46. (a) As used in this section, the following words shall, unless the context clearly requires otherwise, have the following meanings:

“Agency”, the Massachusetts Development Finance Agency established in chapter 23G.

“Betterment Assessment,” an assessment of a betterment on qualified Commercial or Industrial Property in relation to Energy Improvements established under the Commercial Sustainable Energy Program, that has been duly assessed in accordance with chapter 80.

“Benefitted property owner”, an owner of qualifying commercial or industrial property who desires to install energy improvements and provides free and willing consent to the betterment assessment against the qualifying commercial or industrial property.

“Commercial or industrial property”, any real property other than a residential dwelling containing fewer than five dwelling units.

“Commercial sustainable energy program” a program that facilitates PACE projects and utilizes the betterment assessments authorized by this section as the source of both the repayment of and collateral for the financing of the PACE projects.

“Department”, the Department of Energy Resources established in chapter 25A.

“Energy improvements”, (1) any renovation or retrofitting of qualifying commercial or industrial real property to reduce energy consumption or installation of a renewable energy system to serve qualifying commercial or industrial property, provided such renovation, retrofit or installation is permanently fixed to such qualifying commercial or industrial property, or (2) the

construction of an extension of an existing natural gas distribution company line to qualifying commercial or industrial property to enable such qualifying commercial or industrial property to obtain natural gas distribution service to displace utilization of fuel oil, electricity or other conventional energy sources.

“EOEEA”, the Executive Office of Energy and Environmental Affairs established in Section 1 of Chapter 21A.

“Financing entity”, (1) the agency; or (2) special purpose entity duly authorized by the agency.

“PACE bonds”, bonds, notes or other evidence of indebtedness, in the form of revenue bonds and not general obligation bonds of the Commonwealth or the financing entity, issued by the financing entity related to the commercial sustainable energy program established by this section.

“PACE project”, with respect to a parcel of qualifying commercial or industrial property, (1) design, procurement, construction, installation and implementation of energy improvements; (2) related energy audits; (3) renewable energy system feasibility studies; and (4) measurement and verification reports of the installation and effectiveness of such energy improvements.

“Participating municipality”, a municipality that has entered into a written agreement with the agency as contemplated by subsection (b)(3) of this section 46.

“Qualifying commercial or industrial property”, any commercial or industrial property owned by any person or entity other than a municipality or other governmental entity, that meets the qualifications established for the commercial sustainable energy program in accordance with the program guidelines established under subsection (d) and subsection (13) of section 6 of chapter 25A.

“Special purpose entity”, a partnership, limited partnership, association, corporation, limited liability company or other entity established and authorized by the agency to issue PACE bonds, subject to approval by the agency as provided by the agency in its resolution authorizing the special purpose entity to issue PACE bonds.

(b) (1) The agency, in consultation with the department, shall establish a commercial sustainable energy program in the Commonwealth, and in furtherance thereof, is authorized to issue PACE bonds (either directly or through a special purpose entity) for the purpose of financing all or a portion of the costs of the activities comprising one or more PACE projects.

(2) Upon the approval of a PACE project by the department, the financing entity, may issue PACE bonds. Such PACE bonds shall be issued in accordance with Section 8; provided, however, that the agency shall not be required to make the findings set forth in subsections (a) and (b) of section 8. PACE bonds issued in furtherance of this section shall not be subject to, or otherwise included in, the principal amount of debt obligations issued under section 29. Such PACE bonds may be secured as to both principal and interest by a pledge of revenues to be derived from the

Commercial Sustainable Energy Program, including revenues from betterment assessments on qualifying commercial or industrial property on which the PACE projects being financed via the issuance of such PACE bonds are located, as well as any reserve funds or other credit enhancements created in connection with the commercial sustainable energy program.

(3) Each municipality in the Commonwealth shall have the option to participate in the commercial sustainable energy program as a participating municipality by executing a written agreement, as approved by majority vote of the city council for a city, or by majority vote of the board of selectman for a town, with the agency pursuant to which the municipality has agreed to assess, collect, remit and assign betterment assessments, in return for energy improvements for a benefitted property owner within such municipality and costs reasonably incurred in performing such duties.

(c) The agency, (1) working in conjunction with the Department, shall develop program guidelines governing the terms and conditions under which financing for PACE projects may be made available to the commercial sustainable energy program which shall include standards to ensure that the energy cost savings of the energy improvements over the useful life of such improvements exceed the costs of such improvements; (2) Provide information as requested by the department regarding expected financing costs for PACE projects (3) may serve as an aggregating entity for the purpose of securing state or private third-party financing for energy improvements pursuant to this section; (4) may establish one or more a loan loss and/or liquidity reserves and/or other credit enhancement program to support PACE bonds issued under this section from funds made available for such purpose, which may include borrower funds; and (5) may use the services of one or more private, public or quasi-public third-party administrators to administer, provide support or obtain financing for PACE projects under the commercial sustainable energy program.

(d) If a benefitted property owner requests financing from the agency for energy improvements under this section, the agency shall:

(1) Refer project to department for approval under of guidelines set by subsection (13) of section (6) of chapter 25A;

(2) Upon confirmation of project approval by the department, evaluate the project for compliance with the financial underwriting guidelines established by the agency;

(3) Impose requirements and conditions on the financing to ensure timely repayment, including, but not limited to, procedures for placing a lien on a property as security for the repayment of the betterment assessment;

(4) Require that the property owner provide a copy of a contract duly executed by the contractor performing the energy improvements.

(5) Require that the property owner obtain the consent of any existing mortgage holder of such property to the property owner's intent to finance such energy improvements pursuant to this section; and

(6) If financing is approved by the agency, require the participating municipality to levy a betterment assessment, pursuant to this section and in a manner consistent with chapter 80 insofar as such provisions may be applicable and consistent with this section, on the qualifying commercial or industrial real property with the property owner in a principal amount sufficient to pay the costs of the energy improvements and any associated costs the agency determines will benefit the qualifying commercial or industrial real property including costs of the agency.

(e) (1) The agency may enter into a financing and assessment agreement with the property owner of qualifying commercial or industrial real property. The agency may raise funds to supply the financing under such agreement by issuing PACE bonds. Upon execution of such agreement and immediately prior to funds, which may constitute all or a portion of the proceeds from the issuance of such PACE bonds, being made available to such property owner for the PACE project under such agreement, and upon notice from the agency, the participating municipality or its designee shall record the betterment assessment and lien on such qualifying commercial property.

(2) The agency shall disclose to the property owner the costs associated with participating in the commercial sustainable energy program established by this section. The agency shall disclose to the property owner the effective interest rate of the betterment assessment, including fees charged by the authority to administer the program, any fees charged by third parties such as originators or other intermediaries.

(f) The agency shall set the term and amortization schedule, as well as a fixed or variable rate of interest and, for the repayment of the betterment assessment amount at the time the betterment assessment is made, as well as any required closing fees and costs. Such amortization schedule shall provide for an amortization period of no longer than the lesser of (i) the useful life of the longest-lived of the energy improvements comprising the PACE projects being financed by such betterment assessment and (ii) 20 years. Such interest rate, as may be supplemented with state or federal funding as may become available, shall be sufficient to pay the principal and interest and may be calculated to include the financing and administrative costs of the commercial sustainable energy program, including delinquencies.

(g) When the agency has authorized, but not issued, PACE bonds for PACE projects and other costs of the commercial sustainable energy program, including interest costs and other costs related to the issuance of PACE bonds to finance the appropriation, the agency may require the participating municipality in which the qualifying commercial or industrial property is located or a program administrator duly approved by the agency to record the agreement between the agency and the property owner as a betterment pursuant to Chapter 80 (except that such betterment may apply to a single parcel of qualifying commercial property) and a lien against the qualifying commercial or industrial real property especially benefited thereby.

(h) Betterment assessments levied pursuant to this section and the interest, fees and any penalties thereon shall constitute a lien against the qualifying commercial or industrial real property on which they are made until they are paid, notwithstanding the provisions of Section 12 of Chapter 80, and shall continue notwithstanding any alienation or conveyance of the subject qualifying commercial or industrial real property by one property owner to a new property owner. A new property owner shall take title to such qualifying commercial or industrial real property subject to the betterment assessment and related lien. Such lien shall be levied and collected in the same manner as the property taxes of the participating municipality on real property, including, in the event of default or delinquency, with respect to any penalties, fees and remedies and lien priorities. Each such lien may be continued, recorded and released (upon repayment in full of the benefit assessment) in the manner provided for property tax liens, and shall take precedence over all other liens or encumbrances except a lien for taxes of the municipality on real property.

(i) Any participating municipality may sell or assign to the agency any and all liens filed by the tax collector, as provided in the written agreement between the participating municipality and the agency. The consideration received by the agency shall be negotiated between the agency and the assignee. The assignee or assignees of such liens shall have and possess the same powers and rights at law or in equity as the agency and the participating municipality and its tax collector would have had if the lien had not been assigned with regard to the precedence and priority of such lien, the accrual of interest and the fees and expenses of collection. The assignee shall have the same rights to enforce such liens as any private party holding a lien on real property, including, but not limited to, foreclosure and a suit on the debt. Costs and reasonable attorneys' fees incurred by the assignee as a result of any foreclosure action or other legal proceeding brought pursuant to this section and directly related to the proceeding shall be due in any such proceeding against each person having title to any property subject to the proceedings. Such costs and fees may be collected by the assignee at any time after demand for payment has been made by the assignee.

(j) The exercise of the powers granted in this section shall be in all respects for the benefit of the people of the commonwealth by increasing the energy efficiency of buildings in the commonwealth. As the exercise of such powers shall constitute the performance of essential government functions, the financing entity shall not be required to pay any taxes or assessments upon the property acquired or used by the financing entity under this section or upon the income therefrom. The PACE bonds issued under this section, their transfer and the income therefrom, including any profit made on the sale thereof, shall at all times be free from taxation within the commonwealth.

(k) The activities of the commercial sustainable energy program shall be reviewed in the 3-year planning process and annual reviews undertaken pursuant to section 21 of chapter 25.

(l) The agency may promulgate such rules and regulations as are necessary to implement the purposes of the program, including procedures describing the application process and criteria to be used in evaluating application for PACE bonds under this section.

SECTION 2. Section 6 of chapter 25A of the General Laws, as appearing in the 2010 Official Edition, is hereby amended by striking section 12 and adding the following subsections: -

(12) intervene and advocate on behalf of small commercial and industrial users before the department of public utilities in any dispute between such businesses and generation or distribution companies, as defined pursuant to section 1 of chapter 164; and

(13) plan, develop, oversee, and operate the commercial sustainable energy program, with the Massachusetts Development Finance Agency, in accordance with the provisions of section 46 of chapter 23G. In accordance with this section, the Department shall approve each PACE project prior to the issuance of a PACE bond under section 46 of chapter 23G and in so doing shall ensure that the energy cost savings of the energy improvements over the useful life of such improvements exceed the costs of such improvements.

Exhibit E: Summary of Survey of Bank Participants in Mass Save Commercial Program

Financial Institution	Approved Loans	Approximate Loan Amounts
Bank Five	2	\$50k, \$700-800k
Bridgewater Savings Bank	0	
Bristol County Savings Bank	0	
Century Bank		
Bay Coast Bank	0	
Commerce Bank	3	\$5,000, \$16,000, \$10,000
Eastern Bank	20	Avg. \$10-15k largest \$40k
East Cambridge Savings Bank		
Enterprise Bank & Trust Company		
Framingham Cooperative Bank	0	
Greenfield Co-operative Bank	2 or 3	\$275k, others small
Hoosac Bank	0	
Mayflower Co-operative Bank		
Mechanics Cooperative Bank	0	
Middlesex Savings Bank	0	
Pentucket Bank	0	
The Provident Bank		
Webster Five	0	
Weymouth Bank	1	\$11k

Exhibit F: Stakeholders Interviewed for this Study

Last Name	First Name	Organization
Altman	Eric	JP Morgan Chase
Bailey	Jessica	CEFIA
Besser	Janet	New England Clean Energy Council
Bolduc	John	Cambridge, City of
Bosley	Dan	New England Clean Energy Council
Burrington	Steve	Serrafix
Child	Jon	PV Squared: small developer Western MA
Codner	Bill	NGrid
Cullen-Hitt	Carrie	Solar Energy Industries Association: represents bigger solar developers
Dunn	L. Jean	Structured Finance Associates, LLC
Dvorchik	Bob	Western Ma. Electric Co.
Floreen	David	MA Bankers Assoc
Giguere	Paul	Bay State Gas Co; d/b/a Columbia Gas
Gyurjan	Robert	The Berkshire Gas Company
Hale	Greg	NRDC
Hall	John	Salem Five Bank
Kane	Peter	Swampscott, Town of
Kaplan	Seth	Conservation Law Foundation
Karlosky	Michael	Wells, Fargo & Co.
Kimball	Derrick	Fitchburg Gas & Elec Light Co

Korpi	Ellen	Wellesley Sustainable Community
Mason	Chris	Northampton, City of
McDairmid	Jeremy	Environment North East
Phillips	Geoff	NStar
Rio	Bob	Associated Industries of Massachusetts
Shah	Mahesh	Figtree Energy Resources
Small	Tamara	NAIOP
Stone	Michael	My Generation Energy Inc: medium developer
Straus	David	A Better City
Swing	Brad	Energy
Thielking	Mark	Town of Bedford, NY/Energy Improvement Corp.
Vassil	Greg	Greater Boston R.E. Board
Walker	Trish	New England Gas Co
Zinny	Matt	Western Mass Electric

Exhibit G: Survey Results from Commercial Property Owners

NAIOP/DOER Energy Efficiency Survey

Have you identified possible energy efficiency upgrade projects in your facilities? What kind of projects might these be (HVAC, lighting etc.) and what size of retrofit project (in dollars) might you be considering?

Answer Options	Response Count
	17
<i>answered question</i>	17
<i>skipped question</i>	0

Number	Response Text
1	Yes, exterior lighting (\$100K), HVAC (\$2-4M), CoGen (\$300K), Solar HW (\$15K), Solar Energy (\$1-2M)
2	Yes. A mix of HVAC and lighting projects. Total of these projects in 2012/2013 will be approximately \$375,000.
3	Lighting, Exit signage, roof replacement, windows, and HVAC. \$\$ Depends on asset type and location
4	Lighting. \$75-\$250k.
5	Since 2006 we have spent over \$1.5million on energy efficiency projects throughout our portfolio many of which we have received significant rebates from the utility. These projects have focused on HVAC, HVAC controls and lighting, both interior and exterior.
6	HVAC Motors, boiler retrofits, Control systems Lighting improvements sensors. We own multiple buildings so the from A few hundred thousand per building to several million dollars per building
7	Lights, HVAC, windows. Pricing varies from a few thousand for to related light replacement to millions for full building upgrades.
8	Yes. Lighting, HVAC, Motor Replacement Upgrades, Variable Speed Drives, Kitchen Exhaust Fan Controls, Building Controls, Plug Load Controls

9	<p>Yes, more than 100 ECMs were implemented since 2009. some of the projects are Occ/UnOcc schedule, HVAC recommissioning, lighting control, light fixtures retrofit, etc.. most of the projects cost are range from 50K to 300K</p> <p>Yes , VFD, BAS, Lighting, demand ventilation</p>
10	<p>We will consider projects with a 3 year or less payback.</p> <p>HVAC, lighting, lighting controls, DDC controls,</p>
11	<p>Projects range from \$40,000 to \$200,000.</p> <p>There are numerous energy efficient upgrades that could be done at our facility.</p> <ol style="list-style-type: none"> 1. Adding occupancy and/or vacancy sensors to classrooms, offices, meeting rooms, etc. projected retrofit costs \$30,000. 2. Expanding current BMS (building management system) to include all buildings and to have automated control throughout campus. Improve and update current VAV systems. Projected retrofit costs are unknown but approximately \$1 million. 3. Upgrade lighting throughout campus to replace outdated incandescent, and fluorescent lighting with energy-efficient fluorescent or LED technology. This could be done in many of the classrooms, cafeteria, office and meeting locations. projected retrofit budget \$70,000. 3. Installation of combined heat and power or fuel cell to produce electricity efficiently on site. Approximate scale of the project would be 400 kW system at a rough initial investment of 1.5 million. Would contribute to approximately \$300,000 in savings per year from purchasing power from the grid.
12	<p>4. New curtainwall for Tower Building. Projected cost 20 million.</p>
13	<p>Yes, many. Lighting, control system scheduling upgrades, pneumatic to DDC upgrades, heat recovery, etc. Annual expenditures typically mid to high six figures.</p>
14	<p>We do about \$.5-3 million a year in energy projects in our building - programming changes, equipment upgrades, lighting retrofits, HVAC modifications, etc.</p>
15	<p>We have been actively conducting EE projects over the past 7 years in all areas of EE upgrades. presently looking at new identified projects with estimated budget cost \$3-\$4 million</p>
16	<p>We have conducted a wide range of energy efficiency projects ranging from water saving devices at about \$10/unit to lighting in roughly for \$1000 per property.</p>
17	<p>Parking Lot lighting, changing to LED.</p>

What do you believe are the major barriers to implementation of energy efficiency in the buildings you are own/operate?

Answer Options	Response Count
	17
<i>answered question</i>	17
<i>skipped question</i>	0

Number	Response Text
1	Utility Company does not provide large enough incentives/rebates to justify reasonable payback periods. For solar energy only, current electrical code requires expensive and unnecessary service upgrades.
2	Unless payback is three years or less we are reluctant to proceed.
3	Having assistance from the utility companies - i.e. rebate \$\$ or consultation
4	proper allocation of expenses & benefits. We own mostly NNN office and lab so it has to be defensible as operating expenses based on payback period. 3 yrs. max.
5	the buildings themselves - some are old with inefficient HVAC systems and no energy management systems in place.
6	Leases with tenants may not allow for financing of the improvements. The tenant derives the benefit and the owner may now get an adequate rate of return. The tenants may also not want to pay extra additional rent to pay for the improvements.
7	Cost.
8	Identifying the right projects, tenant usage patterns, making it a recurring priority to implement them
9	there are no major barriers because most of our ECMs are implemented during off hours with no impact to end users
10	The key is be able to identify projects that meet our payback requirements, 3 year or less. And having preferred engineering consultants and contractors that can provide the calculations.
11	Simple payback is an issue. Many of these projects have a higher payback in markets that are "gross" whereas Mass tends to be a "gross plus electric" market. . One way to motivate lighting retrofits, would be to create incentives to tenants, who reap most of the benefit of lighting cost in the Massachusetts markets.

	1. Funding sources and reasonable ROI on sustainability projects.
	2. Project supervision and development.
	3. Behavioral change among students, employees and faculty.
	4. Labor
12	5. Buy in from administration.
13	For my organization, documenting and managing such upgrades is a challenge. For most organizations, though, I would imagine funding to be a major barrier.
14	Return on investment of less than three years
15	Capital Funding priorities
16	The major barriers are payback and upfront costs.
17	Space energy usage controlled completely by tenants, not LL.

Is the lack of capital (or competition for capital) an issue in finding ways to allocate money to energy efficiency?	
Answer Options	Response Count
	17
<i>answered question</i>	17
<i>skipped question</i>	0

Number	Response Text
1	No
2	No.
3	Yes.
4	no
5	Yes - we demand a payback of 2 - 3 years and that is often hard to come by.

6	It can be the lack of capital or its return. It also stems from GAP accounting rules as we cannot dilute our public returns with new capital projects.
7	No.
8	Not for the right types of projects that have multiple benefits.
9	Some time
10	No
11	It can be. Depends on the project and where you are in the leasing cycle.
12	Of course capital will always be an issue. There is only so much to go around. Added federal rebates, grant money, in incentives would make energy efficiency easier.
13	We are fortunate enough to have a capital budget dedicated to energy and cost savings projects
14	If the ROI is there, we do not have an issue getting funding.
15	Yes
16	More often we look at payback.
17	Generally if payback period 5 years or less, capital is not a problem.

Who is the decision maker when it comes to making a go/no go decision on an energy efficiency project? Facility manager? CFO or similar?	
Answer Options	Response Count
	17
<i>answered question</i>	17
<i>skipped question</i>	0

Number	Response Text
1	CFO/VP or similar
2	Senior VP of Property Management.

3	Again depends on asset type (multi-family Vs. commercial) and underwriting of acquisition. Was it a value add play or development? Those types are more likely to have energy efficiency projects proposed. Typically the asset manager will present to the Investment Committee.
4	Asset manager.
5	Asset Manager
6	CEO,CFO of Landlord. Tenant leadership and Asset Manager.
7	CFO or CEO
8	Facility engineers, managers, and facility operations executives.
9	Both, Facility manager and CFO
10	Director of Engineering and Vice President of Operations
11	Principal, Asset Management
12	These citizens would ultimately be made by the director of facilities, Executive Vice President, and President of the college
13	The CEO initially provided a capital set aside for energy and cost savings. The Facility Manager and Utility Manager jointly review potential projects and decide which are most beneficial for the organization. Thus, operational considerations can factor into decision making on energy projects.
14	Facility manager for good ROI projects, energy manager for other projects
15	CFO or similar
16	There is an energy committee consisting of Energy Efficiency Manager, Executive VP, and Director of Maintenance.
17	Consensus of property manager and owner.

What type of financing would you now consider for making upgrades? Loans (real estate secured, unsecured) or leases? Why do these forms of financing work or not work for you?

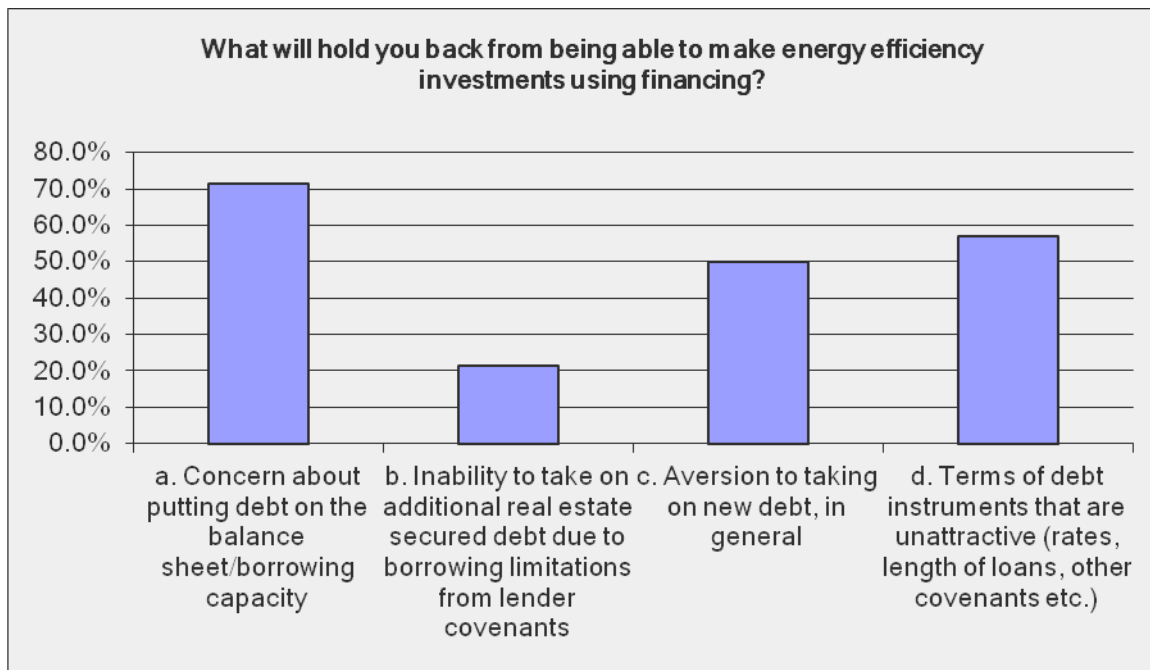
Answer Options	Response Count
	17
<i>answered question</i>	17

Number	Response Text
1	All projects internally financed.
2	Financing is not an issue. We have paid out-right in some cases and financed others.
3	If it is a large capital project we typically do not encourage leases. A loan from vendor or utility company can work
4	Unsecured loan maybe if capital was an issue. If leases implies turning over control of a portion of the asset to someone else, a la a roof top lease for a solar operator where he now controls our rooftop, forget it.
5	We will not finance improvements. Rebates are most important to us.
6	Capital markets are constrained now for capital project. The public markets demand that we are in a capital-rationing mode. Operating assets line up behind non-operating assets when capital is needed to make non-operating asset operational.
7	Not going to finance upgrades
8	We fund smaller projects in our operations budget and larger projects in our recurring capital budget for .
9	N/A, all ECMs projects are internally funded
10	We do not utilize financing models. If the project meets the max payback 3 years we will invest our own capital in the project.
11	Usually funded from operations.
12	Unknown
13	We have participated in performance contract arrangements. However, because we have capital, we typically prefer to self-fund if the project NPV is competitive with other internal investment options.
14	this is a dow 30 company, we use corporate bonds when we borrow money, but our energy projects are mostly funded from existing capital
15	We are in the near future entertaining the thought of third party financing, or low interest financing not on balance sheets
16	We consider grants and rebates. We do not use financing for projects.
17	Secured real estate, but work needs to be done at the time of refinancing as lenders usually won't increase the present loan.

What will hold you back from being able to make energy efficiency investments using financing?

Answer Options	Response Percent	Response Count
a. Concern about putting debt on the balance sheet/borrowing capacity	71.4%	10
b. Inability to take on additional real estate secured debt due to borrowing limitations from lender covenants	21.4%	3
c. Aversion to taking on new debt, in general	50.0%	7
d. Terms of debt instruments that are unattractive (rates, length of loans, other covenants etc.)	57.1%	8
Other (please specify)		4
<i>answered question</i>		14
<i>skipped question</i>		3

Number	Other (please specify)
1	All projects internally financed
2	has to be pain free on covenants, reporting etc....
3	N.A
4	Prepayment penalties on existing debt, limit its flexibility to finance new needs.



How important is it to you for a financing product to produce positive cash flow (i.e., energy cost savings exceed debt service)?

Answer Options	Response Count
	16
<i>answered question</i>	16
<i>skipped question</i>	1

Number	Response Text
1	N/A
2	Very Helpful.
3	Vital
4	very.
5	Very
6	Very important and tenant must be willing to pay.

7	Case by case
8	Not important
9	Important but not a driving force. most of our ECMs are 1-5 years simple payback
10	Not interested in financing projects
11	It is a high priority to show cost savings. It is more important to show the value of the "capped" savings as it relates to the value of the property.
12	Incredibly important. If the project does not have a excellent return on investment is difficult to persuade administration to make changes. Typically they are looking for complete return on vestment within two years.
13	I think this is relevant to many financing deals and their subsequent approval for many organizations. If you can implement long-term energy savings projects while simultaneously lowering your near-term operating costs, why not?
14	Extremely Important
15	Very important
16	Very.

Are you familiar with PACE financing? If so, how attractive might PACE be to meet your needs?	
Answer Options	Response Count
	16
<i>answered question</i>	16
<i>skipped question</i>	1

Number	Response Text
1	No

2	No
3	No, I am not familiar with PACE
4	no
5	No
	PACE may only work if the gov't authority mandates the improvements. Most but not all leases allow that gov't impositions back on to tenant.
6	There also has to be enough term left in the lease to have an adequate return on investment to not dilute returns as measured by GAP.
7	No
8	No
9	No
10	No not familiar, would be interested in learning more information.
11	No.
12	Not familiar
13	No.
14	not Familiar
15	No
16	No

Are you familiar with the Mass Save efficiency financing program (0% debt)? If so, how attractive is this program to meeting you needs?	
Answer Options	Response Count
	16
<i>answered question</i>	16
<i>skipped</i>	1

question

Number	Response Text
1	Yes. Internally financed.
2	Yes...no issues.
3	Yes - it is a very attractive program
4	Yes. Good concept but too small to bother with. 100k is the max amount, we would probably spend more in legal review than that unfortunately. It would have to be bigger, several million dollars and for unique projects like a rehab/repositioning maybe.
5	No
6	Has not been efficient to use.
7	No
8	Yes, not attractive at this time as we have internal funding options
9	No
10	yes, If the projects eligible meet our max payback 3 years or less.
11	No. Please send more information.
12	Do not qualify, to small-scale.
13	No. However, were I lacking capital money, a 0% debt financing arrangement would obviously be something to look at.
14	not familiar
15	Yes. Not very attractive because they require audits when it is easier to just get the rebates from the utility company.
16	No

If you are familiar with either of these financing types, how do they compare to the more typical lease or loan financing you may currently use?

Answer Options	Response Count
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	11
<i>answered question</i>	11
<i>skipped question</i>	6

Number	Response Text
1	N/A
2	Competitive.
3	Many times the details and documentation of the programs hold us back from employing them. Often they are too burdensome and too long term.
4	na, we don't at present.
5	We do not want to have something that looks like additional debt.
6	Similar
7	N/A
8	Not interested in financing types and having these on our books.
9	n/a
10	Unknown
11	We do not use lease/loan financing.

Number	Company:
1	office and lab developer
2	office, multifamily, mixed use developer
3	multifamily and mixed use developer
4	office and lab developer
5	all product types except multifamily
6	primarily research and lab space

- 7 office
- 8 institutional - office
- 9 institutional - healthcare
- 10 office
- 11 office
- 12 institutional - education
- 13 institutional - hospital
- 14 institutional - research
- 15 institutional - hospital
- 16 multifamily developer
- 17 retail developer