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Voluntary Environmental Improvement Bond (VEIB) Programs

This report has not been reviewed for approval by the U.S. Environmental Protection Agency; and hence, the views and opinions expressed in the report do not necessarily represent those of the Agency or any other agencies in the Federal Government.

May 2011

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MAY 20 2011

Honorable Lisa P. Jackson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, DC 20460

Dear Administrator Jackson:

In a report issued on June 15, 2009 (Appendix A), the Environmental Financial Advisory Board (Board) presented its findings with respect to the benefits of Voluntary Environmental Improvement Bond (VEIB) programs and recommended that the Environmental Protection Agency encourage the use of such programs to finance a wider array of environmental improvements. Since then, we have been pleased to see the parallel development of Property Assessed Clean Energy (PACE) bond programs as a means to fund energy retrofits of residential and commercial properties.

On July 5, 2010, the Federal Housing Finance Agency (FHFA) issued a Statement on Certain Energy Retrofit Loan Programs that states that FHFA has determined that such retrofit programs "present significant safety and soundness concerns". We understand that FHFA is troubled, in particular, by the absence of underwriting standards regarding the value of the improvement and the property owner's ability to pay the assessment. FHFA is further of the opinion that "First liens established by PACE loans are unlike routine tax assessments and pose unusual and difficult risk management challenges for lenders, servicers and mortgage securities investors. The size and duration of PACE loans exceed typical local tax programs and do not have the traditional community benefits associated with taxing initiatives."

The purpose of this letter is to express the Board's concern that the FHFA's actions have halted the implementation of VEIB and similar PACE programs and to address concerns raised by the FHFA. The Board reiterates its support of these programs because they provide an important source of financial support for crucial community-wide environmental improvements. By supporting a variety of individual asset improvements, the aggregation of those improvements produce a significant, and in some cases unique, public benefit that would be unavailable otherwise. When individual assets become more resilient, overall economic and environmental resiliency is created to adapt to climate change and other natural resource constraints. As explained in our

previous letter, the use of VEIBs to support the installation of solar panels reduces emissions at conventional power plants, reduces transmission loads, and increases the reliability of the electric grid. Similar community benefits result from weatherization projects, the installation of point-of-use water treatment equipment and many other improvements to individually owned properties.

1. Essential Components of VEIB and similar PACE Programs

VEIBs are debt instruments issued by a locality to fund environmental improvements by making upgrades to individual properties. While the Board in its report highlighted the use of VEIBs for renewable energy projects such as residential solar panels, their use would not be limited to such purposes. The bonds are repaid by assessments on the individual property that are collected with property taxes and that have the same enforcement mechanisms such as tax liens and *in rem* foreclosure.

We note that VEIB programs, as described in our prior report, and PACE programs, as defined by the U.S. Department of Energy, are substantially similar concepts, focusing on reducing environmental impacts or energy use, respectively. However, some interpretations of the PACE concept differ from EFAB's VEIB proposal in important ways. We reiterate several of the essential features of the VEIB program:

- ⌘ The community, upon application by a sufficient number of property owners, finances a portfolio of environmental improvement upgrades, securing that investment with liens and benefit tax assessments on the affected properties.
- ⌘ We assumed that communities would finance these investments by issuing bonds, but the method of finance is the community's choice and not a defining characteristic of the VEIB program. Some communities, for example, may choose to finance the program from general revenues or may develop program funding pools that utilize private capital.
- ⌘ Where bonds are used, government issuance of a single bond to finance a portfolio of improvements minimizes the cost of the program in several ways, including reductions in risk and placement costs.

EFAB finds this approach to be completely consistent with established practices of public finance, and most PACE programs contain these essential features.¹

1 A recent Internet publication suggested a possible use of the PACE program that we find at odds with the VEIB concept. <http://www.hklaw.com/id24660/PublicationId3046/ReturnId31/contentid55329/> The authors describe the California PACE Commercial Pilot Program. This would appear to require a building owner wishing to finance an energy efficiency upgrade to begin by locating a willing lender. The local government would then execute a loan with that lender, as a private placement sale, for the benefit of the single property making the request. This proposal appears to be little more than the superposition of a private loan over existing mortgage indebtedness, as further evidenced by the authors' notation that consent of the mortgagee would be required. EFAB finds the California PACE Commercial Pilot Program, as described in the referenced document, to be inconsistent with the VEIB proposal and with established public finance practices. We do not support this use of government borrowing power.

2. The Use of Municipal Financing of Property Improvements to Produce Community Benefits is Well Established

VEIBs represent just the latest iteration of municipal financing of property improvements to achieve community benefits. For example, in the State of New Jersey, a municipality may issue bonds to fund a Local Improvement.² A Local Improvement is defined as an “improvement, the cost of which, or a portion thereof, may be assessed upon the lands in the vicinity thereof benefited thereby”³ and includes the following:

- A new or improved street, alley, or other public highway including curbs and gutters;
- Bridges and viaducts improvements;
- Beach or water front protection;
- Works for the sanitary disposal of sewage or drainage;
- The installation of water, gas, light, heat or power works service connections to a system;
- The installation of street lighting;
- Waterway widening and deepening;
- Obstruction removal.

These provisions were initially adopted in 1960.

Another example is the authorization and financial support that Massachusetts gives to local governments to finance the replacement of failing septic tanks. Under the Community Septic Management Program, Massachusetts offers 0% interest loans to local governments, which in turn provide low-interest betterment loans to eligible homeowners to repair or replace a failed septic system. Funds can be used to renovate the existing system, hook the system up to sewer lines, or to replace the system with an alternative system that complies with state standards.⁴ The community benefit comes from reduced nuisance and improved water quality. It should also be noted that these environmental improvements are achieved without a need for new regulations.

Similarly, the State of Arizona authorizes local water systems to install, maintain and monitor publicly-financed point-of-use water filtration devices in residential and commercial properties for the

2 NJS 40A:2-14. Local improvement obligations

3 Id., 40:56-1. Local improvements; definition and enumeration; doing work as general improvement

4 Massachusetts Department of Environmental Protection, Title 5/Septic Systems: Financial Assistance Opportunities for System Owners, <http://www.mass.gov/dep/water/assist.htm>; Massachusetts Department of Environmental Protection, Community Septic Management Program, <http://www.mass.gov/dep/water/wastewater/csmphl.htm>.

purpose of complying with state clean water requirements. The point-of-use approach is considered an attractive and cost-effective clean water compliance option for small water systems.⁵

As these examples demonstrate, the ability of a government to use its powers to undertake improvements has existed well prior to the development of VEIB and similar programs. This authority remains consistent with municipal powers to tax property to fund general improvements as well as fund the operations to provide for the health safety and welfare of its residents and to place liens on delinquent properties to compel payment.

The legitimacy of using tax-exempt state and local financing for certain privately owned and operated facilities that serve a community purpose has also been recognized in U.S. tax law. By maintaining federal tax-exemption privileges for certain qualified private activity bonds, the U.S. government has recognized that it is appropriate for states and municipalities to finance certain private activities that create public benefits. Mortgages for veterans' housing, privately-owned airport and port facilities, and high-speed rail systems are among the permitted public purpose uses.⁶ Private water companies can seek private activity bond allocations as public service corporations, yet another recent example of expanded eligibility for private activity bonds.

The Board believes that additional use of qualified private activity bonds would enable an efficient and cost-effective aggregation of public improvements on private properties at tax-exempt rates. In the VEIB context, federal tax exemption for certain private activity bonds further demonstrates the broad acceptance of using local and state financing for privately owned and operated improvements that serve a public purpose.⁷

3. Subordination Concerns are Unwarranted

We understand that FHFA concerns stem from the ability of these assessments to take the priority over all other property related obligations such as mortgages. However, if VEIBs finance public improvements, identify and assess or tax benefitting properties, and protect the interests of mortgage lenders in the event of foreclosure or tax sales, then FHFA should not oppose the application of a local government financing method that has existed throughout the United States since and before the early 1900's.

⁵ Arizona Department of Environmental Quality, "Arizona Point of Use Compliance Program," July 2005, <http://www.azdeq.gov/environ/water/download/pointofuse.pdf>. We note that, unlike resilience projects where the result is unique, there are circumstances where the public benefit to the water system can be achieved through public infrastructure project investment, so that the costs and benefits of each approach should be considered.

⁶ Internal Revenue Service, Office of Tax Exempt Bonds, *Tax Exempt Private Activity Bonds Compliance Guide*, 2005. <http://www.irs.gov/pub/irs-pdf/p4078.pdf>.

⁷ The Board also notes that additional financing structures are being explored at the state and local levels (Appendix B), and would be pleased to support the Agency's efforts to further evaluate these structures.

4. Sufficient Underwriting Controls Exist

Underwriting concerns about the value of the benefitting property compared to the amount of the mortgage loan are readily addressed through existing underwriting practices. Retrofit underwriting standards already exist and can be applied to VEIB and PACE programs (Appendix C). Similarly, losses can be prudently minimized through financial structuring and program administration controls. (Appendix D).

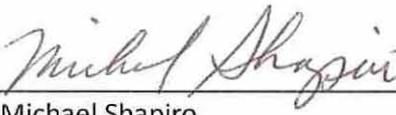
Conclusion

Contrary to FHFA's assertion that these programs "do not have the traditional community benefits associated with taxing initiatives," this letter demonstrates that the community benefits are the main reason for local governments to pursue these programs and the sole reason for the interest of the U.S. Environmental Protection Agency and the U.S. Department of Energy. But these programs only work if there are property owners willing to participate. The motivation for participation arises from the individual benefit received in the form of lower costs (e.g., for energy), the satisfaction of contributing to an environmental improvement or both. Regardless, VEIB programs can achieve their main purpose, a public good, by incentivizing property owners to make improvements that create long-term benefits for the community, for which the Board reiterates its support as an important source of financing for critical environmental and energy reduction improvements.

We hope that you will find the information provided in this letter helpful in formulating the Agency's views and positions on VEIB and PACE bonds for use in Administration discussions on this important issue. If you or your staff has any questions regarding this letter or issue, please do not hesitate to contact us.

Sincerely,


Bradley Abelow
EFAB Chair


Michael Shapiro
EFAB Designated Federal Officer

Enclosures

cc: Bob Perciasepe, Deputy Administrator
Gina McCarthy, Assistant Administrator, Office of Air and Radiation
Barbara J. Bennett, Chief Financial Officer
Joseph L. Dillon, Director, Center for Environmental Finance

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June 15, 2009

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Honorable Lisa P Jackson
Administrator
United States Environmental Protection Agency
1200 Pennsylvania Avenue, NW
Washington, D.C. 20460

Dear Administrator Jackson:

The Environmental Financial Advisory Board (EFAB) is pleased to transmit to you two reports dealing with an innovative environmental finance concept which, with certain additions, could produce significant environmental improvements across the nation.

This concept, the Voluntary Environmental Improvement Bond (VEIB) Program, produces long-term, low-cost incentives for installing improvements to reduce green house gas emissions, improve air quality and reduce non-point source water pollution. VEIBs can be used to finance a host of improvements including, but not limited to: (1) solar panels; (2) insulation; (3) insulating doors and windows; (4) new energy efficient tankless water heaters; (5) new EPA-certified wood stoves and hydronic heaters; (6) geothermal loops; (7) green roofs; (8) rain gardens; (9) permeable pavement; (10) septic tank replacements; (11) new clean agricultural diesel engines; (12) livestock feeding stations; (13) animal waste management facilities; (14) stream crossings; (15) stream buffers (trees and fences); and probably more.

The first report deals with the VEIB concept itself, and makes specific recommendations for the Agency to encourage states and local governments to adopt VEIB programs that embrace the types of environmental improvements mentioned above. To date, such programs have been limited only to energy efficiency devices. The Board believes that the country is missing an opportunity to do more environmental good by extending the VEIB concept to a wider array of environmental improvements.

The second report deals with the implementation of VEIB programs. As you will see, the VEIB concept breaks new ground in the field of municipal finance. As such there is a multiplicity of good underwriting, risk mitigation and consumer protection measures that should be observed in implementing any VEIB program. The report outlines them in detail.

We commend the VEIB concept to you and the Agency. We hope that this concept will indeed – in a far broader form – sweep the country and bring with it major improvements to the environment.

We would be pleased to answer any questions or brief you and any of your staff should you desire additional information about these reports. The Board looks forward to continuing to assist EPA in the mission of protecting human health and the environment.

Sincerely,



A. James Barnes
EFAB Chair



A. Stanley Meiburg
Designated Federal Official

Enclosures

cc: Scott Fulton, Acting Deputy Administrator
Michael Shapiro, Acting Assistant Administrator
Office of Water
Gina McCarthy, Assistant Administrator
Office of Air and Radiation
Maryann Froehlich, Acting Chief Financial Officer

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Voluntary Environmental Improvement Bonds: An Innovative, Local, Environmental Finance Concept for Mitigation of Climate Change Risk; Air Pollution Reduction; and the Reduction of Non-Point Source Water Pollution

This report has not been reviewed for approval by the U.S. Environmental Protection Agency; and hence, the views and opinions expressed in the report do not necessarily represent those of the Agency or any other agencies in the Federal Government.

June 2009

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**United States Environmental Protection Agency
Environmental Financial Advisory Board**

**Report on Voluntary Environmental Improvement Bonds:
An Innovative Local Environmental Finance Concept for Mitigation of
Climate Change Risk; Air Pollution Reduction; and the Reduction of Non-
Point Source Water Pollution**

In 2008, the Environmental Financial Advisory Board (the “Board”) submitted a report to the Administrator, entitled “Innovative Finance Programs for Air Pollution Reduction” (the “2008 Report”). In that report, the Board recommended that the Environmental Protection Agency (the “Agency”) encourage States to create Air Quality Finance Authorities (AQFAs) to finance air pollution reduction equipment and explained how such Authorities could be constituted, and would work.

This Report goes far beyond our 2008 Report. It identifies specific state and local initiatives that could, with modest changes, including specific risk management, underwriting and consumer protection actions, result in programs that would provide a dramatic breakthrough in financing programs to mitigate risks of climate change through the reduction of greenhouse gas emissions, to reduce air pollution, and to reduce non-point source water pollution. We call these financial innovations “Voluntary Environmental Improvement Bonds” (VEIBs)¹.

The genesis of the VEIB concept began in Berkeley, California, in 2008. The City formed a special taxing district – the “Sustainable Energy Financing District” – to finance the purchase and installation of solar panels on the homes of individual citizens if they consented to pay for this improvement through an annual tax assessment on their home to be paid along with their real property taxes. To test the financing method and administration of the program, the City authorized a pilot program on September 23, 2008 and partnered with Renewable Funding, LLC to fund and administer a \$1.5 million pilot program.

Enabling legislation has now been passed in California and Colorado where approximately a dozen municipalities are now implementing such programs.

¹ Voluntary Environmental Improvement Bonds (VEIBs) are a specialized form of “Property Secured Obligation”, a concept well understood in the municipal bond trade. The report advocates the use of VEIBs, as the centerpiece of local government finance programs to mitigate risks of climate change and improve air and water quality. VEIBs can be used to finance **property-owner owned and maintained environmental and energy efficiency devices and improvements** to reduce greenhouse gas emissions, reduce air pollution, and to reduce non-point source water pollution. Theoretically, VEIBs could be applied to any type of property, whether used by an individual homeowner or commercial entity or other ownership type.

Although the Board applauds these initiatives, we are concerned that States and communities across the country are missing an opportunity to do even more good for the environment. Specifically, although to date these programs have been limited to energy savings devices, VEIBs can, in fact, be used to fund a host of environmental and energy efficiency programs including but not limited to:

- Solar panels
- Insulation
- New insulating windows and doors
- Tankless water heaters
- Geothermal loops
- Replacement of old wood stoves and hydronic heaters with EPA-approved devices
- Permeable pavement
- Rain gardens
- Green roofs
- Replacement of failing septic systems
- Animal Feeding Operations
- Animal Waste Management Systems
- Structures for stream crossings
- Stream buffers (trees & fences)
- Replacement of agricultural diesel equipment

The Board's concern is that States are enacting legislation and communities are mounting only narrowly focused programs that could be expanded to become much broader and do much more environmental good.

Among the more attractive features of properly designed VEIBs are:

- They can provide long-term financing –longer than conventional financing². This drastically reduces monthly payments.
- They offer lower interest rates than conventional financing, in part because the rate is based upon the improved property securing the debt³.
- Property owners can request to finance improvements and consent to the imposition of an improvements based tax or assessment. No one is compelled to participate and only those property owners who requested the improvements pay.

² It is critical that the finance term not exceed the useful life of the improvement to avoid creating an imbalance between the value of the asset and the amount of the liability.

³ As used throughout this report, “improved property” means a property whose owner requested to finance environmental and energy efficient improvements and consented to the imposition of a tax or an assessment to pay for the improvements. However, the intent of VEIBs is to finance improvements which provide a wider public benefit. As such, the Board recommends that the sponsoring local government assure there is sufficient public benefit to be derived from using PSOs to finance improvements on individual properties.

- The sponsoring government finances the improvements by issuing Property Secured Obligations, or PSOs, or, in some circumstances, by finding other sources of long-term property secured debt.
- Those property owners pay for their improvements through semi-annual or annual special taxes or assessments that are paid in conjunction with their general property tax bills.
- The PSOs and the associated periodic payments are secured by a lien against the owner's real property.
- The real property liens can constitute a secure financing structure which results in favorable interest rates. Depending upon the state, these liens can be superior in priority to all home mortgages, home equity loans, deeds of trust or other commercial liens⁴.
- Depending upon the ownership and maintenance of the improvements, PSOs in the form of publicly offered VEIBs are likely to be taxable debt pursuant to current Federal tax law.
- Since PSOs can be structured as an obligation of the improved properties, authorization of the VEIBs can be limited to the owners of the properties to be improved, i.e. no referendum should be necessary.
- Historically, PSOs programs may, or may not, require the creation of special taxing districts. Whether a district is required or not, it is essential to authorize the sponsoring local governments to distinguish between improved and non-improved properties when imposing the special tax assessment. Ideally, because property owners can consent to participate, authorization to form a special taxing district and / or issue VEIBs should be limited to the owners of the improved properties.

The VEIB program could be implemented with modest changes to existing state and local PSO authority, including specific risk management, underwriting and consumer protection actions.

The local initiatives upon which the VEIB concept is based are beginning to sweep across the country. The Board believes strongly that the EPA should educate and advocate the creation of VEIB programs with proper controls.

There are two specific areas where the EPA could help. The first is to set forth the conditions and requirements of a properly structured VEIB program. In an accompanying report, the Board describes just such a set of underwriting guidance. The importance of such considerations cannot be underestimated. Municipal bonds are generally issued to pay for the actions of government. In this case, they are being issued to pay for the actions of individual citizens. There are a host of underwriting criteria and other vital considerations that need to be observed

⁴ As is common with PSOs, sponsoring governments must ensure that the value to lien ratio is sufficient to finance improvements through VEIBs. Obviously, if insufficient real property value existed, not only would the current lenders and lienholders be adversely affected, but subsequent marketability of the property might be affected, taking what should have been an environmental success story into an economic sinkhole.

for a successful program. And, ultimately, if VEIB programs are unsuccessful, a great opportunity will have been missed.

The second area where the EPA could help is to set forth the principles upon which state enabling legislation can be based. There are seven critical elements in amending or enacting appropriate statutes to adapt PSO authority for VEIB programs:

- 1) The statute must define public improvements – such as energy efficiency and environmental improvements – to include those owned and maintained by individual property owners.
- 2) The statute should authorize as many types of energy efficiency and environmental improvement devices as feasible.
- 3) The statute must enable sponsoring local governments or special taxing districts to distinguish between improved and non-improved properties.
- 4) The statute must authorize sponsoring local governments or special taxing districts to impose a discretionary special tax or assessment based upon the property improvements rather than a tax based on the assessed value of the property.
- 5) The statute must authorize sponsoring local governments or special taxing districts to impose the discretionary special tax or assessment on those improved properties whose owners have consented to the imposition of the special tax or assessment.
- 6) The statute must authorize the issuance of property secured debt by the sponsoring local government or a special taxing district and authorize the execution of property secured debt with other sources.
- 7) If a special taxing district is required, the sponsoring local government should be authorized to accelerate district formation by petition of property owners requesting the improvements and consenting to the imposition of a special tax or assessment.

In this regard, the Board specifically recommends:

- 1) The Administrator request that the President of the United States create an inter-agency task force to define the characteristics of a PSO based VEIB program and encourage the adoption of such VEIB programs by state and local governments. The task force could be composed of the Agency, the Department of Agriculture, the Department of Housing and Urban Development, the Department of Energy, the Department of Treasury and other agencies.
- 2) The Administrator encourage this inter-agency task force to study and recommend changes to the Federal Tax Code and other initiatives to enable the issuance of tax-exempt bonds to finance energy efficiency and environmental improvements owned and operated by property owners with appropriate linkages to the wider public good.

- 3) The Administrator create an intra-agency task force, with appropriate representatives of the Office of Water and the Office of Air and Radiation, as well as the Regional Offices to educate and advocate the adaptation of PSOs as the essential underlying security for VEIB programs throughout the country.
- 4) The EPA review its discretionary grant and other authority in any programs where properly designed VEIBs can be used with a view to creating further financial incentives for communities to adopt their own VEIB programs.

In summary, the Board believes that adapting existing PSO authority to create properly designed, implemented and managed VEIBs can offer an unprecedented opportunity to involve the people of the United States, individually and directly, in efforts to improve energy efficiency and to improve the quality of our environment. With authorization by the owners of improved properties, VEIBs can be voluntary and provide incentives for ordinary citizens to make valuable contributions to their own quality of life. If efforts to promote them are successful, and they are widely adopted, they will improve energy efficiency and significantly reduce both air and non-point source water pollution across the country.

It will be easier to change people's behavior on climate change and for the betterment of the environment if such efforts are as easy and affordable as possible. VEIBs make such measures both easy and highly affordable. VEIBs offer the most favorable financing terms possible; they carry the lowest available interest rates for the longest possible term.

Americans generally realize that we must all do our part to reduce the risks of climate change and improve the environment. We need to recycle more. We need to use fewer plastic shopping bags and buy more fuel efficient or less carbon intense cars. But the VEIB concept opens up whole new vistas of individual environmental initiatives. Under a VEIB program, individual families will have many low cost opportunities to do their part to reduce climate change and to improve environmental quality. The lower the cost, the more families will seize these opportunities.

We believe that the VEIB concept will recruit thousands of citizens to the cause of climate change and environmental quality and, in the course of doing so, produce significant benefits for the country in terms of energy efficiency, clean air, and clean water. Therefore, the Board highly commends the concept of Voluntary Environmental Improvement Bonds to the Administrator and to the Agency.

Environmental Financial Advisory Board

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Financial, Underwriting, Risk Mitigation and Consumer Protection Considerations for the Adoption of Voluntary Environmental Improvement Bond Programs

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June 2009

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Environmental Financial Advisory Board

Report on the Financial, Underwriting, Risk Mitigation and Consumer Protection Considerations for the Adoption of Voluntary Environmental Improvement Bond (VEIB) Programs

In an accompanying report, entitled, *Voluntary Environmental Improvement Bonds: An Innovative Local Environmental Finance Concept for Mitigation of Climate Change Risk; Air Pollution Reduction; and the Reduction of Non-Point Source Water Pollution*, this Board encouraged the Agency to assist States and communities across the country in implementing VEIB programs¹ to achieve a large number of climate change and other important environmental goals. This report deals with specific underwriting and risk management considerations involved in the implementation of properly designed VEIB programs which should be followed to assure that the maximum public and private environmental and economic benefits can be derived on a sustainable basis.

These VEIBs, if properly designed and deployed, can achieve both private asset improvement and environmental public benefit. This public benefit, mitigation of climate change risk, reduction of air pollution, etc., would be achieved through property-owner owned and maintained environmental and energy efficiency improvements. If appropriate quality underwriting controls are put in place as part of the VEIB programs, the likelihood that these private improvements will, in fact, perform in the long term and achieve the desired public benefit (reduction of climate change risk, reduction of air pollution, etc.) is high. Without appropriate underwriting controls, it is possible that these instruments could inadvertently leave the private asset holder with a non-performing asset and the public with an enforcement obligation against an effectively unsecured and /or unrecoverable tax debt.

This report details the design structure and uses of VEIBs and makes specific recommendations about underwriting their deployment, set forth with the goal of achieving actual environmental benefits.

Background

We preface our remarks by noting that government programs in the main, especially those funded by municipal bonds, most commonly involve the actions of the government itself in relatively large endeavors, and that they involve the creation of benefits for the population of the community-at-large. VEIBs certainly benefit the entire community (and country) in terms of

¹ Voluntary Environmental Improvement Bonds (VEIBs) are a specialized form of “Property Secured Obligation”, a concept well understood in the municipal bond trade. The report advocates the use of VEIBs, as the centerpiece of local government finance programs to mitigate risks of climate change and improve air and water quality. VEIBs can be used to finance **property-owner owned and maintained environmental and energy efficiency improvements** to reduce greenhouse gas emissions, reduce air pollution, and to reduce non-point source water pollution. Theoretically, VEIBs could be applied to any type of property, whether used by an individual homeowner or commercial entity or other ownership type.

cleaner air and water; but the beneficiaries of the individual energy efficiency, emissions reductions and / or pollution abatement devices themselves are individual property owners. In our 2008 report, entitled *Innovative Finance Programs for Air Pollution Reduction*, we discussed the difficulties of aggregating a multiplicity of small environmental projects and aggregating the security of individual properties.

VEIBs do both. The local government is the aggregator of the individual projects. And, the credit problem is addressed by having the individual project payments secured by a tax lien on the property – a financing technique that largely obviates the thorny problem of dealing with property owner credit.

Risk Management Essentials

That said, the implementation of VEIB programs presents many new challenges to local governments undertaking them. There are risk mitigation and consumer protection considerations to be observed, where hapless property owners might find themselves having to pay for improvements that are faulty or otherwise do not work if certain underwriting and other technology / service provider pre-qualification requirements are not put in place. There is also the serious risk of placing additional liens on properties already overburdened with mortgages or home equity loans if proper underwriting techniques are not prescribed. Communities must take these considerations into account when implementing VEIB programs. Furthermore, although VEIBs are officially classed as “special revenue bonds” and are technically not the official debt of the issuing community; they nonetheless carry a heavy burden of municipal fiduciary responsibility for tax lien enforcement in the event of non-payment to bondholders. Communities must be fully prepared to undertake the unpleasant task of enforcing these tax liens and, if necessary, foreclosing on the property in order to assure an orderly stream of payments to bondholders.

This report deals with these considerations in depth.

This report is organized into three relevant sections. The first deals with the genesis of VEIB programs in Berkeley, California in 2008. The second deals with how other jurisdictions, including the rest of California, Colorado, Massachusetts and Annapolis, Maryland, are organizing their efforts. The third deals with the several specific underwriting considerations necessary to assure that such programs achieve their desired goals.

The Berkeley FIRST Program: Basic Characteristics and Legislative / Charter Requirements

The genesis of the VEIB concept began in Berkeley, California, in 2008. The City formed a special taxing district – the “Sustainable Energy Financing District” – to finance the purchase and installation of solar panels on the homes of individual citizens if they consented to pay for this improvement through an annual tax assessment on their home to be paid along with their real property taxes. Under the Berkeley program which was officially launched on November 5, 2008, a homeowner can finance up to \$37,500 per home for new solar panels through property

secured debt. The homeowners can select solar panels from a list of approved² products and select an installer from a certified list of installers³. Given that solar panels have a long useful life, the City's special taxing district can issue bonds with a term of 20 years or use PSO authority to secure other sources of long-term debt. The City supports this program as a means to address climate change risk.

When other cities like San Francisco, Santa Cruz, Palm Desert, San Diego and San Jose learned about the Berkeley initiative, they decided to implement similar financing mechanisms. Initially, these cities learned they could not legally do so because Berkeley is a "charter city" with special tax and assessment authority that enabled it to include solar panels in the definition of public improvements eligible for financing through a Berkeley sponsored special taxing district.

Subsequently, two bills were introduced to amend California's special taxing district statutes to: (1) include solar panels and other energy efficiency improvements as a public improvement eligible to be financed by a special taxing district, (2) enable local governments more discretion in defining improved properties, and (3) accelerate the formation of a special taxing district based on consent from property owners requesting the improvements.

Both bills passed both houses of the California legislature and one was signed into law by the Governor. In the rush of business in the closing days of the legislative session, however, the second bill was inadvertently vetoed. It has been reintroduced with strong indications that it will become law in 2009.

Federal and California tax law provide that the interest component of special tax/assessment payments are deductible from both federal and state income taxes – as are the interest payments on home mortgages and home equity loans. There is no other loss of income to government.

Possible Coordination of Benefits Under ARRA

When investigating facts for this report, we also became aware of a community seeking a determination of whether PSOs financing privately owned and maintained improvements can be used in conjunction with the energy efficiency tax credits offered in the American Recovery and Reinvestment Act of 2009. The combination of favorable financing, lower energy costs, and federal tax credits, will be a powerful inducement for property owners, particularly homeowners, to finance these investments in our nation's environmental future.

The Colorado Program

As Berkeley was organizing its program, the State of Colorado amended its PSO statutes to enact a similar financing program. The Colorado statutes are slightly broader than the California statutes. They not only finance solar panels but also insulation, new doors, windows and certain

² For a product to be listed as approved a mere listing in a voluntary service was required. No assurance or warranty was provided by such product manufacturers as a condition of approval.

³ For an installer to become certified, the installer must be a licensed solar installer and registered with the California Solar Initiative (CSI). These criteria did not provide assurance that if the installation was not up to standard, that appropriate repairs could be made or compensatory damages could be paid.

other energy saving improvements. However, in contrast to California, Colorado's statutes do not enable sponsoring local governments to accelerate formation of a special taxing district based on consent of property owners requesting the improvements; rather Colorado requires a referendum to organize the district. As such, the program is more difficult for Colorado local governments to implement than the Berkeley program. Boulder County was the first county to take advantage of this new amended statutory authority with a proposition on its ballot on November 4, 2008. The proposition passed with 64% of the vote. The cities within Boulder County that want to participate must pass their own ordinances to opt into the county program. Some already have.

Annapolis' Program: Public/Private Partnership Approach

The City of Annapolis, Maryland, has adapted its existing PSO authority to create its own variation of a VEIB. As described by Mayor Ellen Moyer, Annapolis allows property owners to finance any project that will "reduce the carbon footprint of a home". The Annapolis program has assembled a public/private partnership where a pool of funds will be provided by local banks to the Chamber of Commerce Foundation from which homeowners will borrow. The trade off, however, for this simplicity of funding is a shorter term. The banks' maximum loan term is 10 years, irrespective of the useful life of the improvement. Thus a \$20,000 solar panel array will cost Annapolis residents about \$2,600 a year, as opposed to about \$1,600 a year in Berkeley. As in the other programs, the loan will be secured by an assessment against individual homes and the payments will be collected as part of their real property taxes. Annapolis is implementing their program without a district, based on their existing PSO authority to impose discretionary taxes or assessments upon participants requesting the improvements.

The Massachusetts Program

Similar to other states, the Commonwealth of Massachusetts relies on PSO authority to finance new septic tanks without the necessity of districts. In Massachusetts the homeowner makes an agreement for the city or town board of health to replace or repair a septic tank at the owner's expense. The city pays for this, what in Massachusetts is called a "betterment", by borrowing the money from the Commonwealth's Clean Water State Revolving Fund (CWSRF). Cities in Massachusetts have the power to issue PSOs to fund this program, but have apparently found it more convenient to borrow from their CWSRF which offers very low rates and 20-year terms. Failing septic tanks are a non-point source of water pollution; so they qualify for CWSRF assistance. As in California and Colorado, annual principal and semi-annual interest payments are secured by a tax assessment against the homeowner's property. Massachusetts has financed over 3,000 new septic systems since 1995, substantially reducing non-point source pollution from these sources. No districts and no referenda were required.

Discussion of Broader Applications for More Environmental Benefit

All of these adaptations of existing PSO authority are highly innovative and are highly commendable programs, in and of themselves; but they have far broader applications.

The Board believes that all of these various applications – in California, Colorado, Maryland and Massachusetts – can be combined into a single concept that can be used to finance a multiplicity of improvements for the environment. We call this environmental finance concept: Voluntary Environmental Improvement Bonds (VEIBs).

Among the many things that can be financed with VEIBs are: solar panels, insulation, insulating doors and windows, new energy efficient tankless water heaters, new EPA-certified wood stoves and hydronic heaters (outdoor, wood fired water heaters), geothermal loops, green roofs, rain gardens, permeable pavement, septic tank replacements, new clean agricultural diesel engines, livestock feeding stations, animal waste management facilities, stream crossings, stream buffers (trees and fences), and probably more. Any type of improvement that can be linked to real property by a tax lien and that can be reasonably expected to remain with the property when ownership changes, can be financed using a PSO. Furthermore, and even more importantly, is the fact that with VEIBs individual property improvements can be pooled and financed together, at the same time. One district (if necessary) could be created where all of the above environmental improvements could be financed together.

Adapting existing PSO authority for VEIBs could be relatively simple. First, sponsoring governments could create a special taxing district or could directly finance these environmental improvements or energy efficiency improvements on behalf of property owners who consent to the imposition of property secured tax or assessment. Second, the property owners would finance the improvements over an extended period of years at comparatively favorable rates.

Underwriting & Risk Management Conditions & Warranties Essential to Sustainability

Risk management conditions are recommended as an integral component of any PSO program designed as a VEIB because once owners agree to the assessment and the device is duly purchased and installed, the obligation of the owner to make payments, which secure the bond, are unconditional and irrevocable, irrespective of whether the device performs as advertised or expected. The sponsoring local government must ensure that an improvement is likely to last for the term of the assessment. As such, certain adaptations of existing PSO authority are recommended to increase the likelihood that the public benefit will be realized in the long term. The structure must not only ensure a public benefit, but must also ensure a level of consumer protection by mitigating the risk of non-performance of the improvements through required risk management terms and conditions.

Although government agencies – as in California and Maryland – may publish list of “approved” products and/or installers, these government lists in and of themselves do not constitute warranties of the devices themselves or the workmanship of the installation. Therefore, any subsequent failure of, or defect in, the device or installation must be dealt with by the homeowner and the vendor/installer directly either through warranties, insurance or other legal remedies. If the property owner refuses to pay - for any reason - the sponsoring local government must have the authority to initiate foreclosure proceedings to cure the delinquency and retire the PSO.

To reduce the likelihood of such failures, appropriate underwriting should be integrated into the program design. Prior to issuing the PSO, the sponsoring local government must review the value to lien ratio for all properties to be improved on an individual basis to ensure adequate security. A full assessment of current liens against the citizen applicant's current real property should be made to assure that the proposed tax lien would not place the property or owner in compromised position, where the debt exceeded the real property value. The value of this property assessment is that it should be one defense against the inadvertent individual property delinquencies and consequential enforcement obligation for the local government as a result of the program.

Underwriting activities should include development of a screening process designed to confirm that before inclusion on an approved list, businesses offering products / installation carried appropriate levels of insurance and bonding for the precise work to be performed or product to be provided, have good standing with the Better Business Bureau or equivalent, have not been debarred from government contracts, and have a history of good product performance – at least for the period equivalent to the PSO terms (e.g. tax lien payoff period). Additionally, the sponsoring local government should require warranties, insurance, and performance bonds from the manufacturers and installers of the improvements sufficient to repair potential damages incurred during installation and as necessary to restore the improvement or product to good working order.

In summary, underwriting criteria should include: (1) verification of sufficient real property value (which the Board understands is generally required by law before a PSO can be issued); (2) for the product manufacturer - minimum general liability coverage, including a product liability extension with limits of liability of no less than \$1 million per occurrence and \$3 million in the aggregate; (3) for the installer, a valid license to operate in the jurisdiction plus general liability insurance, with a completed operations extension of \$1million for each event and \$3 million in the aggregate with a minimum claims' period of five years.

VEIBs : Positive Cash Flow Impact with an Environmental Benefit

A roof full of solar panels can cost a family \$20,000 – \$40,000. A houseful of new energy efficient windows and doors can run \$7,500. Replacing a failing septic tank can cost \$15,000. A new wood stove is \$3,500. Even new tankless water heaters can cost \$1,000. Most American families cannot just walk into an appliance store and put down a credit card - at 18.9% interest - and take one of these devices home. Nor are American families particularly attracted by the enticement of a second mortgage to take on such projects because the mortgage payments may be higher than the concurrent expense reductions resultant from the installation of the improvement and because a mortgage may impair credit, whereas a tax lien may not. Thus, because these devices are not economic for the homeowner, most people just don't buy them.

With VEIBs, provided that the useful life of the appliance or other real property improvement is sufficient to make annual payments feasible, the \$20,000 upfront cost of a solar panel can be reduced to less than the equivalent of \$120 a month payment. The \$15,000 septic system becomes \$82 a month. The \$7,500 of new insulating windows and doors becomes less than \$41 a month. The \$3,500 wood stove becomes less than \$19 a month. And even the new tankless

water heaters go from \$1,000 to less than \$11 a month. These are significant financial incentives that avoid the burden of additional consumer or mortgage debt obligations for homeowners and replace same with a tax debt that travels with the land, as will the real property improvement. In addition, energy saving devices also result in lower power costs that further offset the monthly payment expense and may be further subsidized by federal tax credits.

The third and final step requires the sponsoring government to issue district PSOs or limited PSOs (the VEIB) to raise the cash to pay for the individual environmental improvements. *Only those homeowners who request the improvements are responsible for the debt service.* With authority to distinguish between improved and non-improved properties, a sponsoring local government can impose a discretionary tax or assessment on the improved properties. Not all taxpayers pay for these bonds, only those who request the improvements do. It is truly a *Voluntary* Environmental Improvement Bond. That is the key to broad acceptance of this revolutionary concept. The local government issues a bond, but only those who benefit pay it off. No other taxpayers pay a penny.

There are three critical elements in the VEIB concept. The first, of course, is its voluntary nature and the fact that those who do not participate do not pay. The second is that the VEIB is a PSO and is thus secured by a lien against the owners' property. If the owner sells the property, then the subsequent owner – who then enjoys the improvement - continues to pay for it: the lien goes with the property. When citizens agree to participate in the program, they agree to accept this special assessment against their property. Thus, an assessment and lien against the property is created by contract. In the commercial world, craftsmen have long secured for their services to property owners by filing what are known as Mechanics' Liens. These liens arise out of the contract between the homeowner and the craftsman; they secure the homeowners' promises to pay for the craftsman's services. This is a similar type of lien; although since it is a PSO lien, it can be superior in priority to all commercial liens and mortgages⁴.

Local governments should also consider the impact of VEIB assessments on prior secured lenders. Depending on state law, such lenders may be able to accelerate assessment payments on sale, which would vitiate a major benefit of the program.

The importance of this lien and assessment cannot be underestimated. The lien enables the sponsoring local government to issue or oversee the issuance of PSOs and obtain comparatively better rates than conventional financing. Generally, bonds secured by an unlimited general obligation of the local government receive lower rates. However, with sufficient value to lien, PSOs can still attract comparatively favorable rates. Bondholders know that if the individual property owners do not make their payments, that the local government can initiate foreclosure proceedings, cure the delinquencies, and retire the related debt. By adapting existing PSO authority, VEIBs can achieve similar rate results.

The third critical element is that the term of payment can be extended far beyond conventional financing from banks or finance companies. *The longer the term, the lower the annual payment.*

⁴ As noted above, the underwriting of the bond (VEIB) must assure that applicants with properties that do not have sufficient real property value and/or cash flow are not permitted to participate in the program in order to mitigate the risk of bad debt and adverse impact to existing lenders and lienholders.

This is what makes this program so attractive. The long term matches the useful of the asset and enables the property owner to make affordable, lower payments over the term of the PSO. However, as noted above, the term should not exceed the life of the useful life of the real property improvement – as that would be economically unjustified. As such, the importance of design controls cannot be over-emphasized.

Commercial banks prefer not to make unsecured loans for more than five to seven years. But with VEIBs either the sponsoring local government or a special taxing district can issue the debt, rather than a personal loan. That can change credit considerations dramatically. In the field of municipal finance, the rule is that the term of debt should be commensurate with the service life of the assets being financed by the debt. “Service life” essentially refers to how long something will last before it has to be replaced. This means that if a water pump lasts 10 years, it can be financed for ten years. If a school bus last 15 years, it can be financed for fifteen years. Rural water and sewer systems projects are traditionally financed by the U.S. Department of Agriculture’s Water & Environment Program for forty years.

Solar panels can last up to 25 years. Insulating windows and doors can last for 30 years. So can the new EPA-certified wood stoves. New tankless water heaters can probably last 10 years. Therefore, with a VEIB, all of these different property improvements can be financed for their full service lives – not just according to a conventional lender's internal credit policy.

In addition, most homes change hands every 7-9 years. Homeowners may be loathe to make large investments for improvements such as these with home equity loans, because they will have to pay these second mortgages off when they sell the house and leave the improvements behind. Depending on the state, the property buyer’s lender may or may not be able to require prepayment of PSO assessments. Generally, the property buyer’s lender cannot require prepayment of special taxes that resemble traditional property taxes. Accordingly, it is possible that the assessment will stay with the property and the new owners continue the payments just as they continue to enjoy the improvements.

Finally, one of the attractive features of VEIB programs is that the owner does not have to pay off the debt upon sale of the property. The theory, of course, is that the improvement stays with the property and so should the financial obligation. The other side of this argument is that the new property owner is saddled with an unwanted financial burden, notwithstanding the benefit received. These issues need to be carefully aired by local governments contemplating VEIB programs.

How can existing PSO authority be adapted to create VEIB programs in other jurisdictions? The answer will be, in most cases, by the amending or enactment of legislation at the state level.

Certain cities – like Annapolis and Berkeley – may have inherent PSO authorities in their charters to conduct such programs. But most often local governments act under broad authorities that the states grant to classes of jurisdictions, not individual ones. It is most likely that statutes similar to those in California, Colorado and Massachusetts will be necessary.

As such, there are seven critical elements in amending or enacting appropriate statutes to adapt PSO authority for VEIB programs:

- 1) The statute must define public improvements – such as energy efficiency and environmental improvements – to include those owned and maintained by individual property owners.
- 2) The statute should authorize as many types of energy efficiency and environmental improvement devices as feasible.
- 3) The statute must enable sponsoring local governments or special taxing districts to distinguish between improved and non-improved properties.
- 4) The statute must authorize sponsoring local governments or special taxing districts to impose a discretionary special tax or assessment based upon improvements to the property rather than a tax based on assessed value of the property.
- 5) The statute must authorize sponsoring local governments or special taxing districts to impose the discretionary special tax or assessment on those improved properties whose owners have consented to the imposition of the special tax or assessment.
- 6) The statute must authorize the issuance of property secured debt by the sponsoring local government or a special taxing district and authorize the execution of property secured debt with other sources.
- 7) If a special taxing district is required, the sponsoring local government should be authorized to accelerate district formation by petition of property owners requesting the improvements and consenting to the imposition of a special tax or assessment. .

If properly understood, we believe there would be widespread support for amending or enacting this type of legislation. If the last twelve months of activity are a precursor of what is to come, the VEIB concept might well sweep the country.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

AUG 31 2009

OFFICE OF
AIR AND RADIATION

Mr. A. James Barnes
Chair
Environmental Financial Advisory Board
Professor of Public and Environmental Affairs
Adjunct Professor of Law
Indiana University
Bloomington, Indiana 47405

Dear Professor Barnes:

Thank you for transmitting to the Administrator two reports from the Environmental Financial Advisory Board (EFAB) regarding the innovative concept of Voluntary Environmental Improvement Bonds (VEIB). I am responding on her behalf and appreciate the Board's willingness to think about innovative finance options to reduce greenhouse gases and air pollution.

I have asked my staff to work with EFAB on exploring the VEIB program's potential to finance a variety of environmental and energy efficiency programs. During the past two years, OAR has followed with interest the development of the City of Berkeley VEIB program to encourage private adoption of GHG-reducing technology, and is supporting the use of such finance tools to help communities with air pollution problems. We believe that the use of VEIBs could contribute to our nationwide effort to replace old, polluting wood stoves and hydronic heaters with more efficient, EPA-certified devices. This could help enable areas plagued by wood smoke to improve air quality and meet national standards for particle pollution.

In addition, as recommended in the June report, we are investigating ways to work with other federal agencies for promoting this sort of innovative financing option. We look forward to working with EFAB as your recommendations will inform our discussions.

I appreciate the assistance that you and all of the members of the Board have provided to the Agency. Your advice and detailed recommendations represent well-reasoned and thoughtful ideas about how to advance environmental protection.

Sincerely,

A handwritten signature in black ink, appearing to read "Gina McCarthy".

Gina McCarthy
Assistant Administrator

U.S. DEPARTMENT OF
ENERGYEnergy Efficiency &
Renewable Energy

Managed by UT-Battelle for the Department of Energy

Options for Raising Capital (and Leveraging Public Funds) for

Residential Energy Loan Programs¹

1/25/2011

UNC Environmental Finance Center

As of January 2011, the USDOE supported Database of State Incentives for Renewables and Efficiency (DSIRE)² includes information on 224 energy efficiency loan programs across the country. These programs use a wide range of subsidization and leveraging techniques designed to increase the pool of available capital and/or reduce the cost of capital to borrowers. This document outlines capital leveraging models and examples from across the country in which public funds were used to influence energy loan program capital.

The document focuses on programs designed to reach borrowers that possess a base level of credit worthiness and does not look at programs specifically designed to reach consumers with limited credit worthiness. Developing energy loan programs to reach credit-impaired borrowers poses a unique set of challenges and risk mitigation obstacles that typically require significantly more public funds.

The summary table at the end of this document lists different models along with implementation examples. Most of the examples have been in place for several years; however, some programs were only recently rolled out and provide limited historical information to analyze.

To put the impact of public funds on capital into perspective, it is helpful to analyze a widely available and well-established energy efficiency loan program that is relatively free of public fund influence. The **Fannie Mae Energy Loan Program**, supported by three lenders and marketed primarily by contractors, provides consumers with capital for small-scale energy investments at rates of between 14 to 16 percent for periods of 8 to 9 years. The capital behind the Fannie Mae Energy Loan Program comes directly from Fannie Mae with an expectation/requirement of return on their capital in the range of 12 to 13 percent. This rate

¹ This work has been performed by the Environmental Finance Center at the University of North Carolina at Chapel Hill (under sub-contract with Center for Climate Strategies) under the BOA Task # 4200000344 with Oak Ridge National Laboratory which is managed by UT-Battelle, LLC under Contract with the US Department of Energy No. DE-AC05-00OR22725.

² <http://www.dsireusa.org/>

covers the cost of capital and the transaction costs of Fannie Mae making that capital available. It does not cover servicing or other lender costs.

Options for Lowering Cost of Capital

Several energy finance programs, including the **Pilot Residential Energy Loan Program** in Connecticut, have been designed to inject public funds into existing loan programs such as the Fannie Mae program in a way that lowers the effective capital cost to consumers. This interest rate buy down typically occurs by paying investors an upfront lump sum equal to the present value of forgone interest payment reductions over the life of the loans. This approach has been used in Connecticut and elsewhere to take advantage of an established contractor network, marketing, origination, and servicing infrastructure. Another benefit of this approach is that it can be rolled out relatively quickly, an important consideration for communities under strict timelines to expend ARRA funds. The major disadvantage of this approach is that it may require a significant public subsidy to reduce interest rates, and the funds allocated for this approach are fully “consumed” and not available for future rounds of capital support. The amount of funds expended for interest rate buy down depends on the loan term, the unsubsidized interest rate, and the target subsidized interest rate to borrowers. During the first phase of the Connecticut program, approximately \$1.2 million in public funds (rate payer benefit funds) were consumed to generate \$2.7 million in project financing in the form of consumer loans at 0 percent and 2.99 percent³.

The high cost of capital behind the Fannie Mae program and several other national loan programs (e.g. Wells Fargo, GE Capital) has led many program designers to look for alternative sources of capital. One place to look for lower-cost alternatives is in the country’s capital markets, loosely defined as the complex finance system linking diverse investors to borrowers through the bond market. Lamont Financial Services Corporation (Lamont), working on behalf of the Connecticut Fund for the Environment (CFE), has drafted a leveraging proposal founded on tapping into the taxable bond market⁴. Lamont estimates that public funds could be used to provide an initial capital pool that, once lent out, would generate a stream of P&I payments that could be used to securitize a taxable bond issuance. Proceeds from the bond issuance could then be used to fund additional loans. Lamont estimates that the consumer loan payments further supported by a funded reserve pool could access capital at rates in the range of 400 basis points (4%) greater than the treasury rate. Adding bond issuance costs and considering current treasury rates, this would generate capital at a 9 to 10 percent rate available for consumers. This rate, while significantly less than the un-enhanced Fannie Mae rate for capital, does not include servicing and other program management costs and is still higher than what many program managers believe is necessary to spur consumer uptake. Lamont’s proposal also includes an interest rate buy down within their model that would lower the consumer rate to 5.99 percent. Lamont estimates that these mechanisms will lead to \$28 million in project funding over a period of 5 years, with \$9.6 million of public funds invested in the first year. Unlike in the model where public funds are used solely for an interest rate buy down, some of the initial public funds in

³ Implementation of an Energy Efficiency Revolving Loan Program in Connecticut. Presentation made to Connecticut Health and Educational Facilities Authority (CHEFA) dated 8/18/2010.

⁴ Information based on Draft Memo sent to CFE from Lamont Financial on September 21, 2010 and a phone conversation between the authors and Chris Valentino of Lamont Financial on January 14, 2011.

Lamont's model stay in the system through time; however, since the cost of capital is still significantly higher than the rate offered to consumers, the public funds eventually will be consumed fully, and additional public subsidization will be required to continue the program.

The Lamont model is based on using public funds to leverage taxable bond capital. Several communities across the country are considering similar models that would tap into tax subsidy bonds in the form of Qualified Energy Conservation Bonds (QECBs). Under the QECB program, bond proceeds can be used to fund community energy programs including loan programs to residents and businesses. Based on recent pricing, some QECBs have reduced the bond issuer's borrowing costs by at least 3.5 percent. The QECB interest payments that issuers pay to investors (bondholders) are considered taxable; however, issuers are paid a significant stream of direct subsidy payments over the life of the bonds that offset their higher interest payments and result in effective capital costs that are even lower than traditional tax exempt private activity bond issues. Theoretically, the cost of capital for QECBs could be lower than the taxable rate Lamont estimates, possibly as low as 2 to 3 percent, not including issuance costs. Simply deciding to apply a QECB designation for an eligible bond issue will not magically create low cost capital. The underlying security of the bond is essential to assuring that there will be a market for its purchase.

Only a few local or state governments have used or are close to using QECBs for energy loan programs, and the access and use of these funds fall under IRS regulations, allocations, and caps. In October 2010, **Boulder County, Colorado** issued two taxable special assessment bonds designated as QECBs in the amounts of \$115,000 and \$1.4 million for their commercial PACE program.

The **Keystone Help Loan Program** in Pennsylvania takes another approach, accessing capital from the Pennsylvania State Treasury (PAST) with a rate of return of approximately 5.6 percent, which does not include the servicing and program management costs applied by the program's lender (an additional approximate 4 percent). This rate of return on the capital depends on a loan loss reserve pool equal to 5percent of the loan portfolio. PAST intends to limit the total amount of capital it provides for this loan pool and plans on moving to a system where the capital for these loans comes from the secondary market (investors purchasing the aggregated loan pool managed by a new independent aggregation facility). Based on communication with PAST officials, the cost of this capital pool will end up being higher than 5.6 percent when their new model is implemented -- probably closer to 7 to 8 percent. After servicing and management costs are added, the rate will climb to 10 to 12 percent. Keystone Help relies on interest rate buy down subsidies to provide much lower rates to borrowers (see table).

Other programs, such as **Michigan Saves Energy Loan Program**, have turned to regional banks and/or credit unions for their underlying capital. The Michigan Saves program and other similar announced and pending programs have capital rates in the range of 5 to 8percent, which includes some servicing and program management costs. In Michigan, six credit unions are currently marketing loans directly to their members⁵. Credit unions are receiving interest rates up to 7

⁵ See <http://www.michigansaves.org/Portals/0/Lenders/Participating%20Lenders%20and%20Service%20Areas.pdf>. The program anticipates adding more credit unions to serve the rest of the state within the next month.

percent for their capital – this covers their rate of return on capital as well as some servicing and administration. Contractors pay a one-time fee of 1.99 percent of the loan amount to the program that will cover quality assurance, and that cost is likely passed on to loan recipients as well. The administration of this program is done by the non-profit group Michigan Saves and is heavily subsidized by public funds from a variety of sources. As a result, it is difficult to determine the actual leveraging ratios for this type of program accurately. The Michigan Saves program enhances each energy loan made by a participating credit union through a 20:1 loan loss reserve pool, but this does not include administration services covered by other sources of revenue and grants.

The main difference between Michigan Saves and some of the other loan loss reserve models being rolled out in areas like Washington State is the number of credit unions participating. By comparison, a single credit union was selected to lead the program in Washington State through a competitive process⁶ and has committed to lending capital to consumers at rates between 4.74 to 6.24 percent for terms ranging from several years to more than ten years. What is particularly impressive about these rates is that they include servicing charges. The loans will be backed by public funds held in a loan loss reserve portfolio equal to 5 percent of the overall loan portfolio, leading to a 20:1 leveraging ratio. The capital rates for these loan loss reserve model programs are clearly much lower than many of the other sources of capital available for energy loans. These low rates may be explained in part by the lower expected rate of return that some credit unions have for their capital in comparison to private banks or capital market investors. The lower cost of servicing is likely tied to the institution’s ability to add the servicing and originating into its current loan infrastructure—essentially, they have staff already servicing and originating loans and may not need to hire additional staff. Credit unions also likely view these attractive loan terms as a way of providing services to their existing members and as a way of attracting new members.

Rate payer funds are another common source of capital that can be used directly for loans or used for leveraging. In some cases, revenues from utility surcharges are transferred to special funds designed to promote public policy goals such as energy efficiency and renewable energy. Once these surcharges are transferred into the special public benefit funds, they are often viewed as “public funds,” though utility regulators still monitor their use to insure that the benefits of the funds are accrued to the utility customers that generated them. These funds do not normally carry an expectation of a return on capital and are often used to leverage private capital or as a source of direct grants. For example, **NYSERDA’s home energy program** has tapped into these types of funds to support energy upgrades in 33,000 homes since 2001. NYSERDA partners with local banks and credit unions to finance energy loans, uses funds from the rate payer fund to offer 4 percent interest rate buy-downs. This strategy often brings interest rates down below 5 percent, but, as with the pilot program in Connecticut, these funds are fully consumed at the time the loans are made and do not provide on-going credit enhancement.

Other utilities simply allocate some of their available cash flow to serve as capital for loans. In this case, the utility commonly expects a return on these funds. The energy loan program with the likely highest volume in all of North America, the **Manitoba Hydro Power Smart**

⁶ Information presented at DOE Finance Workshop on November 16th, 2010 by Dan Clarkson, Energy Efficiency Finance Corporation.

Residential Loan Program, is funded in this manner using rate payer capital. Since 2001, Manitoba Hydro has issued more than \$200 million in energy loans to approximately 51,000 residences. All of the capital comes directly from the public utility.

Some utilities design their programs to rely less on utility capital and more on their ability to aggregate loans, collect payment, and/or cut off service for non-payment. The Tennessee Valley Authority's (TVA) **Energy Right Heat Pump Loan** program is a partnership between their power distributors and Regions Bank (TVA is a power producer, not a power distributor). TVA guarantees the outstanding loans. Regions Bank provides capital for the loans at a rate under a formula based on several factors and the treasury rate (now running at approximately 8 percent). This rate generates the rate of return the bank demands to cover their administration costs, their cost of capital, and a fee/premium that they pay to TVA which is turn is used by TVA to fund the guarantee pool. TVA's power distributors serve as the collection agent for these loans.

A similar concept to using rate payer capital is the use of Regional Greenhouse Gas Initiative (RGGI) auction proceeds, which are available to Connecticut. Ten northeast and Mid-Atlantic states including Connecticut sell emission allowances through auctions and invest the proceeds in customer benefits including energy efficiency and renewable energy programs⁷. **NYSERDA's Green Jobs / Green New York Financing** program has approximately \$51 million available for energy loans from RGGI auctions. This new program was launched in November 2010 and right now is structured as a revolving loan fund, with the RGGI auction proceeds loaned directly to customers. NYSERDA is considering using some of the funds for credit enhancements and rebates as well.

General Strategies for Reducing Capital Costs

There are some general strategies and approaches that programs have used to reduce their cost of capital that are independent of the actual capital raising mechanism. For example, having a competitive RFP process for financial institutions is typically more likely to generate better terms than if the bank were selected outright. Bids that came in through competitive RFP processes in Michigan and Washington, for example, varied widely in terms of interest rates to customers and administrative costs to programs, allowing the program to select the offers of the best lender(s). Also, programs often continue to negotiate with the "winners" of the lender RFP before signing a final lender agreement, which could lead to improved terms and/or lower costs of capital.

The scale of programs can have a major influence on the capital savings that reach consumers. Some costs of raising capital are relatively fixed regardless of how much capital is generated. For example, the ability to spread bond issuance costs over larger capital pools (at least \$5 to \$10 million) leads to lower capital rates filtering down to consumers than for smaller issuances. Program sponsors should also consider how many different approaches are used to raise capital for similar programs in close proximity to each other. Employing similar and more consistent approaches especially if they allow for larger capital raising initiatives may reduce administrative costs and lead to more streamlined marketing.

⁷ See <http://www.rggi.org/home>

Another way that programs have lowered their program costs is through centralized marketing and program administration. This is true for both the Michigan Saves and Pennsylvania Keystone Help programs, which have been able to reduce the cost of each loan through economies of scale. Some programs, as noted above, not only centralize their marketing and program administration but also subsidize these activities with grants and other public funds. In particular, Michigan Saves and Boulder County are able to offer lower interest rates to consumers by covering their administrative costs through other funds. This strategy may make the loan program more attractive to potential borrowers from the outset, but may lack sufficient revenues to cover long term administrative costs.

Examples of Energy Program Loan Capital

Capital Model	Examples (Start Date)	Program Information	Amount of EE/RE investments made (through Date)	Credit Enhancement	Amount of Public Funds or subsidies Allocated	Cost of Capital	Current Capacity of Program	Interest Rate to Consumers	Leveraging
Fannie Mae with Interest Rate Buy Down	CT Residential Loan Pilot (6/1/2010)	Fannie Mae Program has been active since 1995. CT Program runs through 6/30/2011	Through July 2010, \$2.7 M in loans	Interest rate buy down	\$1.1 M	12 to 13% for access to Fannie Mae capital with an additional 2 to 4% added for servicing and program management	Limited by amount of interest rate buy down funds available	0 to 2.99%. Terms vary	2.45:1
Rate Payer Capital	Power Smart Residential Loan, Manitoba, Canada (March 2001) Program Website	Manitoba Hydro, a government-run energy utility, operates the largest loan program in North America. The utility serves 500,000 customers	Through October 2009, more than \$200 M and 51,000 loans ⁸	Utility has tied up capital that could have been used for investments that may have generated higher returns	No public funds linked to capital terms. Incentives from the Canadian Public Utilities Board to run program	6.5% includes servicing costs and return paid to utility	Based on capital allocated for program from utility	Annual interest rate of 4.9% (recently reduced from 6.5%). Term of loan is up to five years	NA
Credit Union Capital	Michigan Saves, Michigan (2010)	Program is operated by a nonprofit and has six credit union lending partners	Through December 31, 2010, 84 loans totaling \$545,000	Publicly funded loan loss reserve fund using DOE and Public Service Funds	\$3.4 M committed to LLR pool	6 to 8%, which includes servicing costs (Additional 1.99% of loan is charged to contractor)	\$68 M based on current commitment; defaults will reduce the capacity in the future	Up to 7%	20:1, though the ratio does not reflect subsidized program admin

⁸ Brown, M. and B. Conover, 2009. Recent Innovations in Financing for Clean Energy. ([http://www.swenergy.org/publications/documents/Recent Innovations in Financing for Clean Energy.pdf](http://www.swenergy.org/publications/documents/Recent_Innovations_in_Financing_for_Clean_Energy.pdf)).

Capital Model	Examples (Start Date)	Program Information	Amount of EE/RE investments made (through Date)	Credit Enhancement	Amount of Public Funds or subsidies Allocated	Cost of Capital	Current Capacity of Program	Interest Rate to Consumers	Leveraging
Regional Bank Capital	TVA Energy Right HVAC Loan Program	Program uses lender fees (premiums) to fund a guarantee pool to cover defaults	Exact number not available—millions of loans made through January 2011	Borrower funded guarantee pool administered by TVA	Majority of credit enhancement pool funded by lender premium	Approximately 8% covers return to lender as well as funds lender pays to TVA to support guarantee pool	No set limit.	6 to 8%	NA
State Capital Intended linked to Secondary Market Capital	Keystone HELP, Pennsylvania (2006) Program Website	Keystone HELP is a state-wide financing program. AFC First administers the program with capital funds from the PA State Treasurer (PAST)	Through August 2010, 6,000 residential loans totaling \$37 M	Loan loss reserve and interest rate buy downs	\$3M ⁹	5.6% covers rate of return for PAST capital. Approximately 4 % goes to program mgmt. and servicing	PAST has limits on how much capital they are willing to provide. Efforts are underway to sell portfolio on secondary market to generate recycled capital	2.99-8.99 %	20:1, though the ratio does not take into account sizable interest buy down
Regional Greenhouse Gas Initiative (RGGI) Funding	Green Jobs, Green New York NYSERDA, New York (2009, Loan Program Launched Nov. 2010) Program Website	Program takes advantage of Regional Greenhouse Gas Initiative (RGGI) auction proceeds	Through December 2010, program has closed 9 loans, with 48 more loans approved and awaiting closure	\$112 million allocated for entire program (\$39.2 M for residential and \$15.7 M for multi-family)	Currently no leverage, as RGGI auction proceeds being used for a revolving loan fund.	NA	Limited by RGGI funds available	3.49 – 3.99% Borrowers can be lent \$3,000 - \$13,000 at fixed rate loan terms of 5, 10 or 15 years	NA for now, though RGGI auction proceeds may be used for LLR in the future

⁹ Fuller, M., 2009. Enabling investments in energy efficiency: a study of energy efficiency programs that reduce first-cost barriers in the residential sector. (<http://ciee-dev.eecs.berkeley.edu/energyeff/documents/resfinancing.pdf>).

APPENDIX C

SUMMARY OF RETROFIT STANDARDS, GUIDELINES & ASSESSMENT TOOLS THAT CAN BE USED TO DEVELOP PACE/VEIB PROGRAMS

Numerous energy-efficiency standards, guidelines and evaluation tools have been developed and can be used to guide PACE underwriting protocols.

Residential Retrofit Standards, Guidelines and Assessment Tools. A number of national standards, guidelines and assessment tools provide guidance in the development of PACE underwriting standards for residential properties. Among them:

- **HERS/RESNET.** The Mortgage Industry National Home Energy Rating System or HERS has been in use throughout the United States since the 1980s to evaluate home energy efficiency. The HERS standards were developed and have been updated and maintained by a private, non-profit organization, the Residential Energy Services Network (RESNET) and are implemented by a national network of RESNET-accredited home energy raters.

- **DOE Weatherization Guidelines.** In December 2010, the Department of Energy issued draft Workforce Guidelines for Home Energy Upgrades. The Guidelines, developed with the assistance of the National Renewable Energy Lab and over 150 industry professionals, include:
 - Technical Standards Reference Guide, which references third party standards for residential energy retrofits developed by the American Society for Heating, Refrigerating and Air Conditioning Engineers (ASHRAE); the American Society of Testing and Materials (ASTM); the Building Performance Institute; and others.

 - Standard Work Specifications for Energy Efficient Residential Retrofits.

 - Job Task Analyses for Energy Auditors, Installers/Technicians; Crew Chiefs; and Quality Assurance Professionals/Inspectors.

 - Essential Knowledge, Skills and Abilities Guidelines for energy retrofit work groups.

- **Energy Star Assessment Tools.** The EPA/DOE Energy Star program offers the online Home Energy Yardstick to assess a home's energy use relative to comparable properties, and provides a Home Energy Advisor tool to suggest location-based recommendations for energy-saving improvements.

Commercial Retrofit Standards, Guidelines and Assessment Tools. Commercial real estate retrofit standards, guidelines and assessment tools—which can be utilized for multi-family housing—include:

- EPA/DOE Energy Star, first introduced as a voluntary product labeling system in 1992, and since extended to include a commercial/multi-family building energy use assessment system and associated online scoring tools.
- LEED EBOM (Existing Buildings Operation and Maintenance), a green rating system for building retrofits, in use since 2009. LEED EBOM incorporates the Energy Star system to assess and measure building energy use.
- ASHRAE Procedures for Commercial Building Energy Audits, in use since 2004.
- COMNET (Commercial Energy Services Network, an affiliate of RESNET), *Commercial Buildings Energy Modeling Guidelines and Procedures*, adopted in 2010.
- ASTM's Building Energy Performance Assessment Standard, approved in January 2011.

APPENDIX D

FINANCIAL STRUCTURING & PROGRAM ADMINISTRATION GUIDELINES THAT CAN BE USED TO STRUCTURE PACE/VEIB PROGRAMS

Numerous financial structuring and program administration recommendations have been issued by the White House¹ by EFAB in its June 2009 report to the Agency, and by others to ensure the security of PACE programs for bondholders and lenders who provide capital for PACE financing, and for first mortgagees who subordinate to PACE tax liens. Among them:

Financial Structuring Recommendations

- Establish appropriate bond or program reserve funds to minimize default risk exposure.
- Ensure that the term of each energy-efficiency loan does not exceed the useful life of the energy efficiency improvements.
- Limit PACE assessments to a prudent percentage of the value of the property collateralizing the loan. A 10% limit has been suggested by the White House.
- Ensure that the property owner has clear title and that the title is free of easements and subordination agreements that conflict with the assessment.
- Ensure that there is no current default on property taxes; that the property is free of outstanding or unsatisfied tax liens or notices of default; that the property is current on all mortgage debt; and that the property has been free of delinquency for a period satisfactory to the PACE lender.
- Ensure that the value of the property collateralizing the PACE financing be valued in excess of all outstanding debt plus the PACE assessment, and that the value to lien ratio provides adequate security.

Program Administration Recommendations

- Invest only in improvements relying on proven technologies with well-documented efficiency gains.
- Document the efficacy of proposed improvements through a required energy audit performed by a recognized energy audit professional.
- Ensure that product installations are covered with warranties, insurance or performance bonds sufficient to repair potential damages incurred during installation and as necessary to restore the improvement to good working order.
- Require that product manufacturers carry appropriate general liability and product liability insurance. In its June 2009 report to the Agency, EFAB recommended that product manufacturers carry minimum general liability coverage, including a product liability extension with limits of liability of no less than \$1 million per occurrence and \$3 million in the aggregate.
- Require that energy-efficiency improvements be undertaken by licensed contractors or installers, in good standing with the Better Business Bureau or the equivalent, who have not been debarred from government contracts. Contractors and installers should have adequate

¹White House, *Policy Framework for PACE Financing Programs*, October 18, 2009.

insurance; in its June 2009 report to the Agency, EFAB recommended that contractors and installers have minimum general liability insurance, with a completed operations extension of \$1million for each event and \$3 million in the aggregate with a minimum claims' period of five years.

- Require that energy-efficiency improvements be inspected prior to final payment to ensure satisfactory completion.
 - Collect PACE assessments through escrow accounts administered by the property's primary mortgagee.
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