

QUALIFIED ENERGY CONSERVATION BONDS (QECBS)



Nothing contained in this issue paper should be construed or relied upon as legal advice. Instead, this issue paper is intended as a general introduction to the subject of the use of qualified energy conservation bonds to finance energy projects, from which better informed requests for advice can be formulated.

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About Energy Programs Consortium (EPC)

The purpose of the Energy Programs Consortium (EPC) is to foster coordination and cooperation among state and federal agencies in the areas of energy policy and program development. EPC is a joint venture of the National Association of State Community Services Programs (NASCSPP), representing the state weatherization and community service programs directors; the National Association of State Energy Officials (NASEO), representing the state energy policy directors; the National Association of State Regulatory Utility Commissioners (NARUC), representing the state public service commissioners; and the National Energy Assistance Directors' Association (NEADA), representing the state directors of the Low Income Home Energy Assistance Program.

EPC supports an ongoing project to provide technical assistance to states to develop energy efficiency finance and renewable energy programs. We examine options for states to issue tax credit bonds to support the financing of energy projects. We also coordinate efforts with the National Association of State Energy Officials (NASEO), the U.S. Department of Energy, the National Renewable Energy Laboratory and Lawrence Berkeley National Laboratory to provide model documents and other QECB resources.¹

If you are a state or local official exploring your options for energy program financing through QECBs, EPC and NASEO can offer assistance by sharing state and local government officials' experiences, putting you in touch with issuers who may have dealt with similar issues, and providing comments and feedback. Conversely, if you have any experiences to share, we would very much like to hear from you so that other state and local governments may benefit from your work. This effort is being undertaken in a coordinated way with the NASEO Energy Financing Committee and EPC and NASEO will provide updates on these efforts on an ongoing basis.

If you would like more information on the issues listed above or if you have information on your state to feature, please contact Elizabeth Bellis at ebellis@energyprograms.org or Sarah Sieting Alim at ssieting@energyprograms.org.

Acknowledgments

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¹ The NASEO QECB resource page (<http://www.naseo.org/financing-resources-qecb>) contains helpful documents, including examples of authorizing orders and legislation and bond documentation.

I. INTRODUCTION

Qualified Energy Conservation Bonds (QECBs) were authorized by Congress in the 2008 Energy Improvement and Extension Act. The original legislation authorized just \$800 million of QECBs nationwide.

In 2009, Congress increased to \$3.2 billion the funding for states, territories, large local governments, and tribal governments to issue QECBs to finance renewable energy and energy efficiency projects. The total allocation was divided among the state and territorial issuers according to population, as shown in Table 1A.

At least 163 projects, totaling more than \$980.7 million, have been funded to date. Projects have been financed with QECBs in at least 28 states. Some states, such as Kansas and Kentucky (with California, Colorado, Montana, and South Dakota close behind) have exhausted or nearly exhausted their allocations, while up to 18 states have yet to use any portion of their allocation. Issuances are being planned in at least 6 states. Approximately 30.7% of the \$3.2 billion in funds provided by ARRA are now known to have been issued.

QECBs are among many federal programs that have experienced sequestration cuts. See Section VI. Under current federal law, however, the authority to issue these bonds does not sunset.

II. QUALIFIED ENERGY CONSERVATION BOND PROCESS AND MECHANICS

As described above, the U.S. Congress allocated QECB volume to the states and indicated that the states “shall” suballocate a portion of these allocations to large local governments and municipalities (those with a population of 100,000 or more).² These counties, municipalities or tribes may issue bonds up to the amount of their respective suballocations or waive their suballocations and return them to the states. See Appendix I for a list of known suballocations.

A. Qualified Projects

QECBs may only be issued for qualified conservation purposes as defined in section 54D of the U.S. Internal Revenue Code. “Qualified conservation purposes” include capital expenditures:

- 1. To reduce energy consumption in publicly owned buildings by at least 20%**
- 2. To implement green community programs (including the use of grants, loans, or other repayment mechanisms to implement such programs)³**
- 3. For rural development (including the production of renewable energy)**

² See IRS Notice 2009-29 (state-by-state allocations). The suballocation process has not been completed in some states. See Appendices for examples of state authorizing orders (Appendix C: State Executive Orders) and legislation (Appendix B: State QECB Legislation). Local governments often authorize issuances through a resolution or ordinance. See Appendix G: Local Resolutions. With respect to tribes, Notice 2009-29 provides: “Under § 54D(h), an Indian tribal government shall be treated as a large local government, except that (1) an Indian tribal government shall be treated as located within a State to the extent of so much of the population of such government as resides within the State, and (2) any bond issued by an Indian tribal government shall be treated as a qualified energy conservation bond only if issued as part of an issue the available project proceeds of which are used for purposes for which such Indian tribal government could issue bonds to which § 103(a) applies.”

³ Note: If QECBs are used to provide funding for loans, grants, or other repayment mechanisms related to green community programs, they are not treated as private activity bonds. See 26 USC 54D (e) (4). To operate a green community program as an energy efficiency loan program, the issuing government might partner

4. For certain renewable energy facilities (such as wind, solar, and biomass)⁴
5. For certain mass commuting projects

To ensure that bonds are being used appropriately, QECCB issuers should consider requesting an opinion of qualified and experienced bond counsel that the bonds will qualify as QECCBs.

In assessing QECCB questions, issuers should keep in mind that the IRS/Treasury, and not the Department of Energy, will audit bond issuances for compliance with section 54D. IRS/Treasury is not bound by Department of Energy interpretation of IRS and Treasury rules and regulations. A working relationship with experienced bond counsel is critical for potential issuers. For a list of counsel known to have advised on QECCB issuances, see Appendix A.

B. Waivers

States have used different approaches to the process by which large local governments return their sub-allocations to the states, including the following:

- (1) *Affirmative Waiver*: A large local government must affirmatively waive its suballocations (generally by an act such as a resolution or motion of the county or city council) or the state does not recognize the waiver.
- (2) *Constructive Waiver*: The state requests each large local government to notify the state by a certain date of its intent to utilize its suballocation, with failure to notify being treated as waiver.

See Appendix E for examples of waiver documentation jurisdictions have used.

Some outside bond counsel have questioned the validity of the latter approach and the issuances stemming from constructive waivers. In addition, some state counsels have questioned the authority of the state to require local government waivers. As such, affirmative waivers appear to be the more conservative approach. However, affirmative waivers are often more burdensome for states due to the difficulty of obtaining affirmative and proactive action by each large local government as a body. In addition, in some cases, local governments may be averse to “giving money back” even if there is no readily apparent use for the money at the present.

In our research we discovered a number of different approaches to putting waiver processes into place, including (1) simultaneous allocation and waiver authorization through Executive Order (EO); (2) simultaneous allocation and waiver authorization through legislation; and (3) absence of any officially authorized waiver process.

At least six states utilized Executive Orders (EO) to implement and authorize the allocation of QECCBs⁵. Of the six, one state, Idaho, used an EO to simultaneously authorize allocations and a constructive waiver process. We are not aware of any state that has used an EO solely for the purpose of clawing QECCB funds back to the state.

with a lender that in turn makes loans to homeowners. See Department of Energy Technical Assistance Program, “Taking Advantage of Qualified Energy Conservation Bonds” (September 22, 2010). Alternatively, the issuing government might use QECCB proceeds to make loans directly to homeowners. See, for example, St. Louis County Saves, www.stlouiscountysaves.com.

⁴ Other qualified purposes include geothermal, small irrigation power facilities, landfill gas facilities, trash to energy facilities, hydropower facilities, marine & hydrokinetic renewable energy facilities, and research activities, demonstration projects, and public education campaigns.

⁵ Confirmed via State Agencies website or employees. See Appendix H for relevant agencies.

A plurality of states has an affirmative waiver process. 22 states either have no waiver process or do not provide information on QECCBs at all⁵. Some states (including Nebraska, Tennessee, and Texas) utilized a “Letter of Intent” (LOI) Approach (See Appendix E for examples from Texas and Washington) that might be properly characterized as either an affirmative or a constructive waiver depending in part on state law. In these states, the authorized party or agency sent a “Letter of Intent” to each large local government (LLG) asking whether the LLG was going to use its QECCB allocation. If the LLG checked “no” on the Letter of Intent the QECCB funds were allocated back to the state.

There are still a few states that have not authorized the QECCB funds and therefore have no QECCB program in existence.

Waiver Process Number of States

Affirmative ⁶	25
Constructive ⁷	6
Letter of Intent ⁸	3
No Waiver Process ⁹	12
Unknown ¹⁰	8

C. Subsidy and Interest Rates

QECCBs are similar to Build America Bonds (BABs) in that the interest on QECCBs is taxable but the federal government offers a direct cash subsidy to the bond issuer to subsidize the interest costs. The subsidy on QECCBs is (unless reduced by sequestration or similar federal action) twice as large as the standard BAB subsidy, making QECCBs an extremely low-cost financing option for many issuers.

The QECCB subsidy is generally correlated with Treasury yields and has historically ranged from 2.86% to 3.9%.¹¹ This corresponds to net financing costs for issuers of around 0.338% to 1.5%¹². Actual market interest rates have ranged from a low of 0.28% to a high of 5.375%, however, meaning that actual interest payments may, in some cases, be higher than the amount on which the subsidy is based.¹³ Up-to-date “qualified tax credit rates” (with respect to which QECCB subsidies are set) can be found online at Treasury Direct’s website, sponsored by the U.S. Treasury Bureau of the Public Debt (www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm). According to the Department of Energy Clean Energy Finance Guide, the rate is set so that the present value of principal payments equals 50% of the original principal amount.¹⁴

⁶ Alabama, Arkansas, Connecticut, Florida, Georgia, Illinois, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Texas, Utah, Vermont, Virginia, Wisconsin

⁷ Arizona, California, Colorado, Idaho, South Carolina, Washington

⁸ Nebraska, Tennessee, Texas

⁹ Hawaii, Indiana, Maryland, Michigan, Mississippi, Montana, New Mexico, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota

¹⁰ Alaska, Delaware, DC, Kansas, New Hampshire, Vermont, West Virginia, Wyoming

¹¹ Wells Fargo Monthly QECCB Activity Updates (June 2011–January 2013).

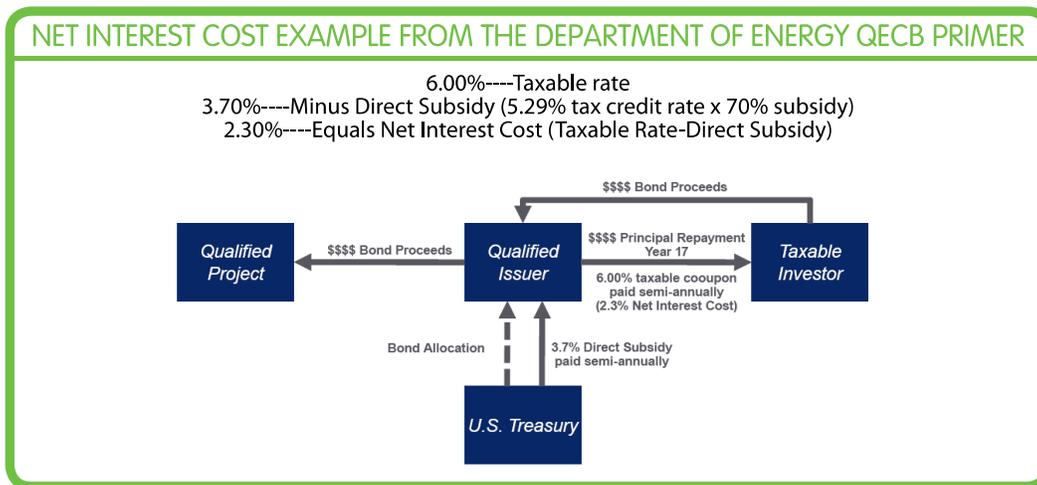
¹² Wells Fargo Monthly QECCB Activity Updates (June 2011–January 2013).

¹³ Bloomberg NYPL QECCB search, October 2013.

¹⁴ See Chapter 2 in U.S. Department of Energy Clean Energy Finance Guide (December 2010), p. 11,

Issuers can choose to issue taxable bonds with a corresponding tax credit to the holders of the bonds or (as is more commonly done) elect to receive a direct cash payment from Treasury in lieu of the allowance of the tax credit to the holders.¹⁵ Tax credit bonds, unlike direct pay bonds, do not (as of April 2013) appear to be subject to sequestration cuts.

In the more popular direct-pay QECCB, the issuer pays a taxable coupon to the investor and repays principal at the end of the term.¹⁶ Treasury pays the issuer the lesser of the taxable coupon rate or 70% of the tax credit rate.¹⁷



D. Maturity and Repayment Structures

QECCBs are fairly long-term financing options. The maximum amount of time the bonds can be outstanding (“maturity”) is set by the government periodically and has historically ranged from 12.5 to 25 years.¹⁸

Up-to-date maturities can be found online at Treasury Direct’s website, sponsored by the U.S. Treasury Bureau of the Public Debt (www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm).

Issuers can choose to issue bonds of any maturity **up to** the maximum maturity.

E. Call Provisions

QECCBs may be issued with one or more “call provisions.” Call provisions give the bond issuer the right to purchase (or “call”) part or all of a bond issue at specified times. Sometimes the bonds must be recalled if certain events occur (“mandatory redemption”); other provisions allow the issuer to decide whether to repurchase the bonds (“optional redemption”). If the issuer may recall the bonds if certain unusual or “extraordinary” events occur, the provision is known as an “extraordinary optional redemption.” In some cases, investors may demand a premium to be paid if the issuer calls the bonds early or before a specified

www4.eere.energy.gov/wip/solutioncenter/finance_guide/content/chapter_documents?print=1. =

¹⁵ H.R. 2847 Section 301.

¹⁶ In conjunction, the issuer may make level annual payments into a fund known as a “sinking fund,” for payment of principal. Sinking funds are invested at the permitted sinking fund yield established at pricing (not shown in the Department of Energy QECCB Primer illustration below). See: U.S. Department of Energy QECCB Primer, p. 12, http://www1.eere.energy.gov/wip/pdfs/qecb_creb_primer.pdf.

¹⁷ See IRS Notice 2010-35, p. 5

¹⁸ Wells Fargo Monthly QECCB Activity Updates (June 2011-January 2013).

date. The Municipal Securities Rulemaking Board (MSRB) provides a number of examples of redemption provisions that may be of interest to potential issuers.¹⁹

In 2012, EPC reviewed the subset of known QECB issuances for which we were able to obtain Official Statements and has identified two call provisions common to this type of bonds: (1) repurchase due to failure to expend proceeds and (2) repurchase due to failure to receive Treasury subsidy payments.

Unexpended Proceeds Provision: These provisions give the issuer the right to redeem the bonds if bond proceeds remain unexpended by a specific date (in this case, generally the date by which they must be used for the bonds to retain eligibility for subsidy payments). Some examples of this type of provision are Allegheny County, Pennsylvania, Itasca County, Minnesota, and Yakima County, Washington.²⁰ That is, the issuer will repurchase the bonds if proceeds are not spent on qualifying projects within the time required by the Internal Revenue Service (IRS), usually three years under current law. Note that once issued and repurchased, an allocation cannot be re-issued for another use and is effectively “lost”. As such, issuers may wish to consider whether their project will be able to expend proceeds within the required time frames.

Revocation of Subsidy Provision: These provisions generally allow for repurchase due to events such as a change in law that results in subsidy revocation and exclude cases in which the revocation is due to the issuer’s action or failure to act. Examples include Alma Center, Wisconsin, Yakima County, Washington, and Itasca County, Minnesota.²¹

In addition to these more common call provisions, some QECB issuers obtain the right to repurchase the bonds for any reason after a certain number of years. For example, Yakima, Washington, which issued \$2.5 million in QECBs in September 2010, can repurchase its bonds at “par²² plus accrued interest” after 10 years.²³

F. Securing QECBs

When a municipality issues QECBs, it promises to make the principal and interest payments on the bond to bondholders. Sometimes an issuer secures its promise with a specific and limited revenue stream (“revenue bonds”) and at other times it secures its promise more broadly as a general obligation backed by the full faith and credit of the issuer (“general obligation bonds”). In some cases, the issuer may offer specific equipment or property as collateral to secure its promise to pay the bondholders. Issuers may also provide for a debt service reserve fund to secure the bonds.

In 2012, EPC was able to identify the apparent bond security for 66 issuances for which Official Statements were publicly available (out of 120 known issuances). Of the 66 issuances for which the type of security were known, 38 (or 57.5%) appeared to be general obligation issuances.²⁴

¹⁹ “Optional redemptions often can be exercised only on or after a specified date, typically beginning approximately ten years after the issue date. Some types of mandatory redemptions occur either on a scheduled basis (made in specified amounts or in amounts then on deposit in the **sinking fund**) or whenever a specified amount of money is available in the sinking fund (“sinking fund redemptions”). An extraordinary redemption may be triggered by, among other things, **bond proceeds** remaining unexpended by a specified date (an “unexpended proceeds redemption”), a determination that **interest** on the bonds is taxable (a “tax call”), a change in use of a project financed with bond proceeds that would cause interest on the bonds to become taxable (a “change in use call”), a failure of the issuer to appropriate funds needed to pay **debt service on lease rental bonds** or **certificates of participation** that are subject to appropriation (an “appropriation or non-appropriation call”) or the destruction of the facilities from which the bonds are payable (a “calamity or catastrophe call”).” Source: <http://www.msrb.org/Glossary/Definition/REDEMPTION-PROVISIONS.aspx>.

²⁰ See Appendix G: Call Provisions

²¹ See Appendix G: Call Provisions

²² Par value is the value of a security expressed as a specific dollar amount marked on the face of the security, or the amount of money due at maturity. This is different from face value which is the value (i.e., principal or maturity value) of a security appearing on the face of the instrument. Face value is also known as principal value. Source:

²³ The 2010B Bonds are subject to redemption, at the option of the County as a whole or in part, on any date on or after December 1, 2020 at a price of par plus accrued interest to the date of redemption. Yakima County, Washington Official Statement Dated September 22, 2010 for Series 2010 B QECBs Due June 1, 2027, p. 10.

G. Nuts and Bolts

- QECB issuances often take several months to structure, market, price, and close.
- Once QECBs are issued, proceeds must be spent (or used to redeem bonds) within three years of issuance. U.S. Treasury can in theory extend the spending period if it finds reasonable cause to do so.²⁵ EPC is not aware of the IRS having done so for any issuance to date.
- Issuers must also have a binding commitment with a third party to spend at least 10% of the proceeds within six months of issuance.²⁶
- Issuers can use up to 2% of the bond proceeds to finance costs of issuance.²⁷
- Generally, QECBs are subject to rules that apply to tax-exempt bonds.²⁸
- State Energy Program (SEP) and Energy Efficiency and Conservation Block Grant (EECBG) funds can be used to support QECB issuances within the limitations set by the Department of Energy. Department of Energy Guidance on the use of QECBs in conjunction with SEP and EECBG funds was provided in July 2010.²⁹ Additional tax rules may further restrict the use of outside funds in conjunction with QECBs and may result in the need for careful structuring. Jurisdictions interested in leveraging funds should consult with their bond counsel. In addition, provisions such as HIPA, NEPA, Davis Bacon, and Buy American may apply differently to issuances utilizing EECBG and SEP funds than those that do not.
- The governing body may need to make a formal, irrevocable election to designate the bonds as QECBs. The authorizing document for the issuance should have a section that generally describes provisions of the QECB, including the discussion of the direct subsidy payment (if applicable).³⁰
- At least 30 days prior to the first interest payment date, the issuing authority must file Form 8038-TC with the US Treasury, along with the QECB debt service schedule.³¹
- At least 45 days prior to each corresponding interest payment date after the first payment date, Form 8038-CP must be filed. These forms are necessary to receive the subsidy.³²

²⁴ General obligation issuances include: Champaign County (2), Waterbury City, King County, Yakima County, Washington County Housing and Redevelopment Authority, Deerfield, Louisville-Jefferson County, Grant County, Itasca County, Fayette County, York County, Mount Horeb School District, Osseo Fairchild School District, Hartford No. 1 School District, Western Wisconsin Technical College (3), Jefferson School District, Alma-Hunter-Merrillan School District, Wyandotte County, State of Maryland, Belchertown, Lowell, ELY School District, Rochester City, Mandan School District, Allegheny County, Davison County, Menasha School District, Pleasant Prairie Village, Billings School District, Billings School District High School, Nashville and Davidson County, Thurston County, Rapid City, Spotsylvania County, and Goodhue County.

²⁵ See 26 USC 54A (d)(2)(a); see also IRS Notice 2010-35, available at www.irs.gov/pub/irs-drop/n-10-35.pdf.

²⁶ See 26 USC 54A (d)(2)(a); see also IRS Notice 2010-35, available at www.irs.gov/pub/irs-drop/n-10-35.pdf.

²⁷ See 26 USC 54A (e)(4).

²⁸ See IRS Notice 2010-35, available at www.irs.gov/pub/irs-drop/n-10-35.pdf.

²⁹ For EECBG and QECB guidance, please see "Guidance for Energy Efficiency and Conservation Block Grant Grantees on Qualified Energy Conservation Bonds and New Clean Renewable Energy Bonds," available at www1.eere.energy.gov/wip/pdfs/final_eecbg_guidance_qecbs_crebs.pdf, for SEP and QECB guidance, please see "Guidance for State Energy Program Grantees on Qualified Energy Conservation Bonds and New Clean Renewable Energy Bonds, available at http://www1.eere.energy.gov/wip/pdfs/final_sep_guidance_qecbs_crebs.pdf.

³⁰ See Department of Energy Technical Assistance Program "Taking Advantage of Qualified Energy Conservation Bonds" (September 22, 2010).

³¹ See: www.irs.gov/pub/irs-pdf/i8038tc.pdf.

³² See: www.irs.gov/pub/irs-pdf/i8038cp.pdf.

III. CASE STUDIES

Mass Commuting -- Spotsylvania, Virginia

Spotsylvania County issued \$1.2 million in QECBs on July 19, 2012. Spotsylvania County is using the proceeds (along with \$19.2m from a variety of sources including federal and state funds and other general obligation bonds) to construct and equip a passenger train station and 1,000 space parking area in the County along the Virginia Railway Express (VRE) rail line.

This project coincides with a VRE rail project through which commuter rail service is being extended from the neighboring city of Fredericksburg into Spotsylvania County. This will be Spotsylvania's first commuter rail station. About 900 Spotsylvania citizens are estimated to be VRE riders, but these riders had previously needed to drive a significant distance to reach the nearest VRE station in Fredericksburg.

Spotsylvania County estimates that up to 50 percent of the 900 drivers travelling the route from the existing VRE terminus by car will extend their VRE trip rather than drive this route when the station and the parking area are completed in December 2013.

The County, which was already familiar with the structure of QECBs because of its experience with BABs, chose to issue QECBs as part of the bond package for the deal because the debt service costs were significantly lower with QECBs than with tax exempt general obligation bonds. The County estimates the savings over the life of the bonds to be around \$180,000.

Municipal Energy Efficiency -- Waterbury, Connecticut

The City of Waterbury, Connecticut, issued \$4.7 million of general obligation QECBs³³ on August 12, 2010 to make heating and air-conditioning improvements and replace windows in the Waterbury city hall and library.³⁴ These bonds were issued as part of a larger issuance: Waterbury also issued tax exempt bonds, Recovery Zone Economic Development (RZED) bonds,³⁵ and Build America Bonds (BABs), for a total issuance of \$45 million. The bonds mature in 2027 and may be redeemed by the city (at its option) on or after September 1, 2010.

Multifamily Energy Efficiency – Boulder, Colorado

One of the first QECB issuances in the United States was the Boulder Housing Partners (BHP) August 25, 2010, issuance of \$1.44 million for energy efficiency improvements to public housing projects. BHP used the bond proceeds for an Energy Performance Contract to do weatherization and other energy-reduction improvements on BHP's eight public housing sites, work that is expected to reduce carbon emissions in BHP's housing by 6,915 metric tons over the life of the project.³⁶ These QECBs were issued jointly with \$120,000 of

³³ This QECB issuance is a Tax Credit issuance.

³⁴ See www.cteda.com/Financing/Bond_Financing/QUALIFIED_ENERGY_CONSERVATION_BONDS/.

³⁵ The BABs and RZEDs expired as of December 31, 2010. See www.irs.gov/pub/irs-drop/n-09-26.pdf and 26 USC 54AA.

³⁶ See <http://stateenergyreport.com/2011/05/05/using-qecbs-for-multifamily-housing-upgrades-a-case-study/-a-case-study/>.

BABs, which were needed to finance planned water-conservation improvements after the IRS refused to rule that such improvements would count as energy reducing under the 20% test.³⁷

The timeline for BHP's QECB issuance was as follows: BHP applied for the QECB allocation on November 16, 2009, and received its allocation from the state on February 11, 2010. In May 2010, it issued a Request for Proposals for bond counsel. In August 2010, BHP issued \$1.45 million of 16-year QECBs to finance the improvements as well as issuance and bond counsel costs associated with the offering. BHP experienced some difficulty placing the bonds due to the small size of the offering. However, BHP's QECBs were successfully sold in a private placement to Bank of America. Construction commenced in September 2010 and is now complete. The energy savings realized, combined with the U.S. Department of Housing and Urban Development subsidy, cover the interest and principal payments on the bonds. BHP estimated that traditional financing would have cost 2 percentage points more than was achieved with this offering.³⁸

Renewables -- Los Angeles, California

The Department of Water and Power of the City of Los Angeles (LADWP) used its QECB allocation for three renewable energy facilities: the Pine Tree Wind Turbine Expansion, the Pine Tree Solar Project, and the Adelanto Solar Project.

LADWP issued \$131 million of revenue bond QECBs and \$8 million of Clean Renewable Energy Bonds (CREBs) on August 17, 2010. These bonds mature in 2027 and are subject to redemption at the Department's option prior to maturity. The proceeds were used to (1) expand an existing facility, the Pine Tree Wind Turbine facility, with the addition of ten 1.5 MW wind turbines; (2) build a new photovoltaic generator targeted at 10 MW with an output of 34.5 kv (the Pine Tree Solar Project); and (3) build another 10 MW photovoltaic generator with an output of 4.16 kv and generating 20 Gwh per year (the Adelanto Solar Project).³⁹ LADWP installed, owns, and operates the Adelanto system.⁴⁰

The Adelanto system features several innovative design elements, including interconnection with a critical bulk-grid substation as well as a more efficient, 1,000-volt solar power system.⁴¹ The system also incorporates ground-mounted systems--solar panels held in place by racks or frames that are attached to ground-based mounting supports--to reduce site-preparation costs.⁴² According to Northwest Community Energy, ground-mounted systems are best suited for utility-scale power or for an application where roof space is not available, and they can be oriented to capture more sunlight than rooftop solar panels.⁴³

³⁷ See www.boulderhousing.org/sites/default/files/Final%202010%20Audit%20report%20BHP.pdf and <http://stateenergyreport.com/2011/05/05/using-qecbs-for-multifamily-housing-upgrades-a-case-study/>

³⁸ See www.boulderhousing.org/sites/default/files/Final%202010%20Audit%20report%20BHP.pdf and <http://stateenergyreport.com/2011/05/05/using-qecbs-for-multifamily-housing-upgrades-a-case-study/>

³⁹ See https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-projects/aboutus-projects-adelanto?_adf.ctrl-state=yd6e86crz_4&_afLoop=379084052200628&_afWindowMode=0&_afWindowId=qXKWgDe4#%40%3F_afWindowId%3DqXKWgDe4%26_afLoop%3D379084052200628%26_afWindowMode%3D0%26_adf.ctrl-state%3Dc7x7wmzkm_17. Also see the official statement.

⁴⁰ See <http://www.solarworld-usa.com/news-and-resources/news/ladwp-solar-project.aspx>.

⁴¹ See www.ladwpnews.com/go/doc/1475/986259/LADWP-and-SolarWorld-Partner-to-Develop-11-6-Megawatt-Solar-Power-System-for-Los-Angeles.

⁴² See www.ladwpnews.com/go/doc/1475/986259/LADWP-and-SolarWorld-Partner-to-Develop-11-6-Megawatt-Solar-Power-System-for-Los-Angeles.

⁴³ See <http://nwcommunityenergy.org/solar/siting-and-system-design/pv-system-design> and http://www.getsolar.com/residential_Solar-Roof-vs-Ground-Installation.php.

Renewables – Washington State

In Washington, the owners of Swauk Creek Ranch, a privately owned land reserve in Kittitas County, partnered with Seattle-based energy and facility services firm McKinstry to develop and construct five wind turbines, which were completed in early 2013. The wind turbines, five Gamesa 850 kW, G58 model wind turbines are projected to deliver 4.25 megawatts of electricity for consumption in Kittitas County. This is enough to power more than 1,000 homes annually⁴⁴. The turbines will connect to the existing power grid, thereby not requiring new, expensive transmission lines. The project was financed in part through a \$9 million allocation of QECCBs that were issued by the Washington State Housing Finance Commission⁴⁵ – marking a first in the United States for a wind project of its kind.

Green Community Programs -- Commercial PACE -- Boulder, Colorado

In November 2010, Boulder County issued \$1.515 million in QECCBs for a Property Assessed Clean Energy (PACE) commercial program. PACE financing is an approach by which a municipality can fund commercial and/or residential energy improvements; those improvements are repaid through a yearly property assessment (rather than by traditional unsecured loan).⁴⁶

Boulder County negotiated a private placement of the bonds with UMB Bank. The bonds have one maturity date and one interest rate.⁴⁷ These bonds were issued in three parts: \$115,000 for 5-year loan terms, \$1.4 million for 10-year loan terms, and \$30,000 in non-QECCBs.⁴⁸ Interest rates to consumers are below 3% for both the 5-year and 10-year term options.⁴⁹

Commercial entities interested in the PACE commercial program had to submit project applications by August 2010.⁵⁰ Eligible entities included non-profits, apartment buildings, small manufacturing facilities, and multifamily, low-income, and/or elderly housing complexes. The county then pre-qualified and approved all of the improvements that would be funded before the QECCBs were issued.⁵¹ By requiring that applications be submitted prior to bond issuance, Boulder County could determine exactly how large a bond issuance it needed; the process also gave the county more confidence about bond repayment.⁵²

Twenty-nine projects had been approved as of March 23, 2011 and the program is now fully subscribed. The average project size is \$51,000. Fifty-five percent of the measures known funded through the Boulder PACE QECCB proceeds are energy efficiency improvements: HVAC units (30%), cool roofs (11%), insulation of doors and/or windows (8%), and other insulation (6%). Sixteen percent are renewable energy improvements: solar

⁴⁴ http://www.nawindpower.com/e107_plugins/content/content.php?content.11302

⁴⁵ <http://www.wshfc.org/admin/releases/2013.03.27SwaukWind.pdf>

⁴⁶ The U.S. Department of Energy has indicated that it considers PACE programs green community programs. However, issuers should note that the IRS has not provided any guidance or confirmation to this effect, and it is the IRS/Treasury that will perform audits and determine eligibility for the QECCB subsidy payments.

⁴⁷ See University of North Carolina at Chapel Hill Environmental Finance Center "Qualified Energy Conservation Bonds: Potential for Energy Loan Programs Case Analysis" Case Analysis (January 2011), p. 3, http://www.efc.unc.edu/projects/EnergyFinance/QECCBMemo_BoulderCounty.pdf.

⁴⁸ The \$30,000 issuance helped cover issuance costs.

⁴⁹ See Renewable Funding, Clinton Climate Initiative, and Lawrence Berkeley National Laboratory, "PACE Financing: Update on Commercial Programs" Policy Brief (March 2011), p. 6, <http://emp.lbl.gov/sites/all/files/POLICY%20BRIEF%20pace%20ofinancing.pdf>.

⁵⁰ See University of North Carolina at Chapel Hill Environmental Finance Center, "Qualified Energy Conservation Bonds: Potential for Energy Loan Programs" Case Analysis (January 2011), p. 3.

⁵¹ See Glenn Barnes, "Using Qualified Energy Conservation Bonds to Promote Energy Efficiency in the Community" Blog Post (September 27, 2011), <http://soqweb.sog.unc.edu/blogs/ced/?p=3404>.

⁵² See University of North Carolina at Chapel Hill Environmental Finance Center, "Qualified Energy Conservation Bonds: Potential for Energy Loan Programs" Case Analysis (January 2011), p. 3.

(11%) and solar hot water (5%). Twenty-nine percent of the projects are other measures, such as lighting, retro commissioning,⁵³ and energy managements systems.⁵⁴

Green Community Programs--Residential Energy Efficiency Loans -- St. Louis, Missouri

In April 2011, St. Louis County issued \$10.3 million in QECCBs, in addition to EECCBG funds, for a residential energy efficiency loan program. The program provides loans in amounts ranging from \$2,500 to \$15,000 with terms up to 10 year at a rate of 3.5%. Only owner-occupied, single-family homes are eligible, and homeowners must have credit scores of 660+ with a maximum debt-to-income ratio (DTI) of 45%.⁵⁵ In January, 2013, the program was expanded to include commercial loans. These loans can be used to upgrade lighting, HVAC, and weatherization. The interest rates are fixed at 3.5% and loans ranging from \$50,000-\$250,000.

The county had originally planned to create a PACE residential program, but had to choose a different approach after the Federal Housing Finance Agency announced its decision on PACE in the summer of 2010.⁴⁹ On May 5, 2010, Fannie Mae and Freddie Mac alerted their seller-servicers that programs with first liens run contrary to the Fannie Mae-Freddie Mac Uniform Security Instrument. Those lender letters remain in effect.⁵⁶

The St. Louis program is anticipated to fund 1,400 home energy retrofits, which is 5 times more than could have been retrofitted if the county had used its EECCBG funds for a rebate program. As of May 20th, 2013 206 retrofits have been completed under St. Louis SAVES. The EECCBG funds helped cover issuance and program administrative costs.⁵⁷ The QECCBs are secured by the county's annual appropriation pledge,⁵⁸ with the designation of loan proceeds as the source of repayment.⁵⁹ The issuance was for serial bonds⁶⁰ with a final maturity of 15 years, with some bonds starting to mature annually in 2013.⁶¹

University Improvements -- Louisville, KY

In 2006, the Kentucky general assembly passed HB 380, which authorized energy performance contracts in the state. In 2007, the University of Louisville completed its first project, under a master equipment lease structure with Siemens. In 2010, Phase II of the project was approved: improvements to the health science

⁵³ Retro commissioning is a systematic process for identifying less-than-optimal performance in a facility's existing equipment and control systems and making necessary repairs or enhancements to save energy and cost Source: www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/retrocommissioning/.

⁵⁴ An energy-management system can refer to a computer system which is designed specifically for the automated control and monitoring of the heating, ventilation and lighting needs of a building or group of buildings such as university campuses, office buildings or factories.

Source: www.nationalgridus.com/niagaramohawk/non_html/ee_conference/EnergyMgt.pdf.

⁵⁵ See Lawrence Berkeley National Laboratory, "Using Qualified Energy Conservation Bonds (QECCBs) to Fund a Residential Energy Efficiency Loan Program: Case Study on Saint Louis County, MO" Clean Energy Financing Policy Brief (June 2011), p. 3, <http://emp.lbl.gov/sites/all/files/POLICY%20BRIEF%20QECCB%27s%20MO.pdf>.

⁵⁶ See: www.fhfa.gov/webfiles/15884/PACESTMT7610.pdf.

⁵⁷ See Lawrence Berkeley National Laboratory, "Using Qualified Energy Conservation Bonds (QECCBs) to Fund a Residential Energy Efficiency Loan Program: Case Study on Saint Louis County, MO" Clean Energy Financing Policy Brief, (June 2011), pp. 3-4.

⁵⁸ According to the MSRB, an annual appropriation pledge is typically found in the bond resolution and/or trust indenture for lease revenue bonds or securing a certificate of participation financing. It commits the issuer to make lease payments or periodic debt service payments to the extent that monies are budgeted and appropriated on an annual basis by the issuer's or obligor's governing body. The governing body is not legally obligated to make such appropriation in any year. An annual appropriation pledge is generally used only with projects that are considered to be essential to the issuer's operations so the governing body is likely to appropriate the money needed to pay debt service. An annual appropriations pledge can allow an issuer to undertake a long-term certificate of participation or other lease revenue obligation financing without technically incurring debt. Such obligations are not considered debt in most states and thus are not subject to debt limitations and/or referendum requirements. A certificate of participation is an instrument evidencing a pro rata share in a specific pledged revenue stream, usually lease payments by the issuer that are subject to annual appropriation. The certificate entitles the holder to receive a share, or participation, in the lease payments from a particular project. Source: <http://www.msrb.org/glossary/definition/certificate-of-participation-cop.aspx> and <http://www.msrb.org/Glossary/Definition/ANNUAL-APPROPRIATION-PLEDGE.aspx>

⁵⁹ St. Louis County, Missouri Official Statement Dated May 18, 2011 for Series 2011 A QECCBs Due December 1, 2025, p. 14.

⁶⁰ Serial bonds mature in consecutive years. See: <http://www.msrb.org/glossary/definition/serial-bonds.aspx>.

⁶¹ St. Louis County, Missouri Official Statement Dated May 18, 2011 for Series 2011 A QECCBs Due December 1, 2025, p. 2.

campus. Phase II will make improvements to 17 educational and general buildings. The estimated savings are \$4,930 per day, totaling \$1.8 million annually.⁶² On December 15, 2010, the University of Louisville issued \$20,942,000 in QECBs. It combined this funding with BABs to finance \$25 million for these improvements. The improvements consisted of lighting retrofits, HVAC system replacement, building controls, motors, belts, water conservation, commissioning, and training.⁶³

The University of Louisville issued BABs with an interest cost of 3.28% and QECBs with an interest cost of 1.64%. The term of the bonds was 17 years, and a QECB sinking fund is being utilized.⁶⁴

Green Community Programs – Streetlight Programs – San Diego, CA and Richmond, CA

In 2011, San Diego used their \$13.1M allocation to replace the cities HPS and LPs streetlight with induction lighting – which have an expected lifetime of 20 years and typical energy savings of 40% per-light. San Diego determined that the Broad Spectrum Street Light Conversion Program (BSSLCP) qualified for QECB use under the Green Community Program designation since it benefited the whole community of San Diego. The use of QECB funds allowed the program to replace a total of 39,000 streetlights (approximately 60% of the city's lights).⁶⁵

In 2010, the City of Richmond, CA issued their \$1.05M QECB allocation to fund energy efficiency project on city facilities and street lighting. Over \$500,000 in QECBs was used for street lighting upgrades – they replaced incandescent street lighting with more efficient LED fixtures. These replacements are estimated to have an average energy savings of 45%, these energy savings combined with reduced maintenance costs should lead to significant savings.⁶⁶

IV. UTILIZATION TRENDS

*Note: Although the IRS collects information on QECB issuances on Form 8038-TC, it has so far declined requests to disclose this information publicly. As such, it is not possible to ascertain definitively the exact number and quantity of QECB issuances to date. The information in this section has been gathered from various sources, including IRS Notice 2009-29, Bloomberg, the Municipal Securities Rulemaking Board, the U.S. Department of Energy, Lawrence Berkeley National Laboratory, Wells Fargo, state and local issuer websites, and state and local energy, development, finance, and commerce officials who have graciously spoken to or corresponded with EPC and/or NASEO regarding their issuance statuses. EPC's inventory and knowledge of QECB issuances is likely incomplete. **We welcome and are grateful for your feedback regarding any issuances we have missed or errors contained in this memorandum.***

Eligible issuers of QECBs include states,⁶⁷ state agencies⁶⁸ and finance authorities,⁶⁹ territories, municipalities,⁷⁰ municipal utilities,⁷¹ municipal agencies,⁷² counties, tribes, school districts,⁷³ and universities.⁷⁴

⁶² U.S. Department of Energy, "QECB Updates from the Field" Webinar,

<http://www1.eere.energy.gov/wip/solutioncenter/media/Qualified%20Energy%20Conservation%20Bonds-QECBs-Updates%20From%20the%20Field%20Slides.pptx>.

⁶³ See U.S. Department of Energy Technical Assistance Program, "Taking Advantage of Qualified Energy Conservation Bonds" (September 22, 2010).

⁶⁴ U.S. Department of Energy, "QECB Updates from the Field" Webinar,

<http://www1.eere.energy.gov/wip/solutioncenter/media/Qualified%20Energy%20Conservation%20Bonds-QECBs-Updates%20From%20the%20Field%20Slides.pptx>.

⁶⁵ <http://financing.lbl.gov/reports/street-lighting-qecb.pdf>

⁶⁶ <http://financing.lbl.gov/reports/street-lighting-qecb.pdf>

⁶⁷ For example, in July 2011 the state of Maryland issued \$6.5 million of QECBs for improvements to public schools (direct issuance by state).

⁶⁸ The Commonwealth of Pennsylvania issued \$15.8 million for retrofit projects for corrections facilities.

⁶⁹ For example, the Kansas Development Finance Authority issued \$17.8 million for university projects.

Issuer	Number of Issuances to Date
Municipal government	93
School district	24
University	20
State/state agency	7
Utility agency	5
Municipal agency	8
Financing authority	5
Nonprofit	1
Total	163

The most common use of QECCBs to date, as of June 2013, has been capital improvements to reduce energy consumption in publicly owned buildings by at least 20%. (See Graph 7 at the end of this paper). For example, such issuances make up all known issuances in the Northwest and Southeast (regions⁷⁵ with the highest proportion of allocations used for 20% issuances) and 63% of total known QECCB issuances nationwide. A large number of bonds issued for this purpose are being used for school and university projects. (See Graph 6 at the end of this paper).

Although energy efficiency improvements are the most popular use of QECCBs overall, investments in renewables are particularly popular in the Southwest. Of the QECCBs issued in the Southwest, 69% have been used for renewable energy facilities, such as installing solar panels at public schools.

At least seven issuances nationwide to date are known to have been used for green community programs: St. Louis, MO; Boulder, CO; San Diego, CA; Richmond, CA; Las Vegas, NV; San Antonio, Texas; and Roaring Fork Transportation Authority, CO. Known public education issuances are similarly rare, but one example is Western Wisconsin Technical College's July 2010 issuance. Similarly, the Spotsylvania, VA rail station and parking lot issuance in July 2012 is the only known mass commuting issuance to date. As of June 2013, EPC is not aware of any QECCB issuances used for rural development or research or demonstration projects.

Private Activity Bond Issuances

At least six QECCB issuances to date have been private activity bond issuances, including three in Massachusetts (Fairhaven Wind, Scituate Wind and Westford Solar), one in Lawrence, Kansas⁷⁶, one in Washington state, and another apparent issuance in Denver, CO. The Colorado Governor's Energy Office indicated a \$6.7 million private issuance for a solar project with the Denver Housing Authority in April 2012.

⁷⁰ The city of Waterbury, Connecticut issued \$4.7 million for city facilities retrofit projects (direct issuance by city).

⁷¹ The Los Angeles Department of Water and Power issued \$131 million for solar and wind projects.

⁷² In Minnesota, the Washington County Housing and Redevelopment Authority issued \$2.375 million for energy efficiency improvements.

⁷³ The Menasha School District in Wisconsin issued \$1.69 million for school improvements.

⁷⁴ The University of Colorado issued \$4.375 million for university projects.

⁷⁵ **States in each region:** **Central:** Colorado, Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, And Wyoming. **Midwest:** Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin. **Northeast:** Connecticut, Delaware, District of Columbia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, West Virginia. **Northwest:** Alaska, Hawaii, Idaho, Oregon, Washington. **Southeast:** Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia. **Southwest:** Arizona, California, Nevada, New Mexico, Utah.

⁷⁶ Interview with Diane Stoddard, Assistant City Manager for the City of Lawrence.

Although Official Statements are not available to confirm, we have learned through interviews with Massachusetts that a state agency, MassDevelopment, issued the bonds on behalf of each private entity.⁷⁷ The Fairhaven Wind project issued approximately \$3 million in QEGBs in November 2011 and will use the proceeds to build two 1.5 MW wind turbines. The Scituate Wind project issued approximately \$1.5 million in August 2011 and will use the proceeds to build one 1.5 MW wind turbine. The Westford Solar project issued \$5.8 million in August 2011 and will use the proceeds to help fund a 4.5 MW ground-mounted solar project. In Washington, a \$9M wind turbine project was completed in early 2013. It is projected to produce 4.25 megawatts of electricity annually.

Energy Performance Contract Issuances

At least nine QEGB issuances (as of 2013) are known to have utilized energy performance contracts.⁷⁸ One example is the University of Louisville, which issued \$20.9 million in QEGBs for such a project. Energy performance contractors generally provide a detailed energy audit and documentation of measurement and verification of energy savings.

Utilization of QEGB Allocations State-by-State

Across the United States, state utilization rates range from complete lack of known utilization to complete exhaustion of allocation (100% issued in Kansas); see Table 1C. In addition to Kansas, known state leaders include Kentucky (93%), Colorado (84%), Montana (83%), South Dakota (79%), California (79%), and Louisiana (66%). Eighteen states are not known to have issued any QEGBs. Four states have confirmed that QEGBs have not been authorized: Florida, New Hampshire, New Mexico and West Virginia. In addition, EPC has been unable to locate authorizing documentation for Alaska, Hawaii, Mississippi and Wyoming. QEGB Authorization efforts in Hawaii (HB 1033, 2013) appear to have stalled in 2012.

Regional Utilization of QEGB Allocations

Regionally, known utilization rates range from about 11.6% in the Southeast to 65.3% in the Southwest (see Graph 5). The Northeast, Midwest, Northwest, and Central regions have utilization rates ranging from about 19.8% to 38.5%. See Graphs 3 and 4 at the end of this paper.

Local Utilization and Issuance Sizes

At the municipal level, known issuances have ranged from as small as \$120,000 for Rantoul Township High School District 193 in Champaign County, Illinois, to as large as \$131 million for the Los Angeles Department of Water and Power in California (see Table 1B). Large metropolitan areas that have issued QEGBs include Albany, NY, Chicago, Philadelphia, Nashville and Davidson Counties (TN), Las Vegas, Los Angeles, San Diego, St. Louis, and San Antonio. Many large metropolitan areas are not yet known to have utilized their allocations, however, and might benefit from coordination with state and territorial energy officials.

⁷⁷ Interview with Elise Avers, Massachusetts Department of Energy Resources.

⁷⁸ These issuances are the Colorado School of Mines; Commonwealth of Pennsylvania, Fayette County; Kansas Development Finance Authority, Louisville-Jefferson County Metro Government; University of Kentucky; University of Louisville; Department of Corrections, Louisiana; and the Town of Marshfield, Massachusetts.

V. BARRIERS TO THE USE OF QECBS

In December 2011, EPC and NASEO reached out to state governments to confirm issuance data and ask questions about state experiences with barriers to issuing QECBs. Twelve states⁷⁹ provided information about barriers to issuances in their state. The most commonly cited barriers were (1) small allocations (four states, or 33% of those that provided information), (2) debt aversion at state and local levels (three states, or 25%), and (3) lack of awareness, familiarity, and/or understanding of QECBs or bonds generally at the state and local levels (two states, or 17%). More recently, in 2012 and 2013, a number of large local governments have pointed to sequestration concerns, including Schenectady County, NY and Gresham, Oregon.

Throughout 2013, EPC reached out to large local governments in 11 states⁸⁰ to discuss QECBs and inquire about reasons for nonuse. A total of 230 counties were contacted, with a response rate of 37%. Of the 86 counties who responded 33 provided reasons for nonuse; the most commonly cited barriers were: (1) unaware of QECB allocation (13 LLGs, 39% of respondents), (2) No current project (9 LLGs, 27% of respondents), (3) Debt Capacity (5 LLGs, 15% of respondents), (4) Sequestration (4 LLGs, 12% of respondents).

Small Allocations

If a state has many local governments with populations greater than 100,000, this necessitates dividing up the total resource into many pieces and also can increase administrative burdens and implementation delays. Small allocation sizes make it challenging to pay issuance costs because small allocations often mean high transaction costs per dollar of bonds issued. This is particularly difficult as only 2% of QECB issuance proceeds may be used for issuance costs.⁸¹ Transaction costs in many cases are relatively fixed regardless of the size of an issuance.⁸²

In 2012, EPC reviewed 66 available official statements to learn more about issuance costs. Of the 66 available, 52 official statements contained information on issuance costs. Based on those statements,⁸³ EPC found that issuance costs ranged from a low of \$2,400 (Champaign County Township High School District 193, Illinois) up to \$399,000 (Tempe, Arizona)⁸⁴ for issuing QECBs. The median issuance cost is approximately \$53,325 and the median as a percent of total proceeds was 2%. 42% of issuances for which we were able to find information noted issuance costs of 1% or less of total proceeds.

Small issuances may also be difficult to sell.

⁷⁹ Those 12 states are Arizona, Arkansas, District of Columbia, Illinois, Maine, Maryland, New Mexico, North Dakota, Tennessee, Texas, Virginia, and Wyoming. The city of Las Vegas also provided information.

⁸⁰ Illinois, Michigan, New York, North Carolina, Pennsylvania, Virginia, Minnesota, Missouri, Iowa, Alabama, Wisconsin.

⁸¹ See 26 USC 54A (e)(4).

⁸² "NASEO and EPC Summary of Barriers for Increasing QECB Activity at the State and Local Levels" (February 2012); "NASEO State Briefing on Qualified Energy Conservation Bonds" (March 2012).

⁸³ Official statements with breakdown of issuance costs: Allegheny County, PA; Belchertown, MA; Bellingham, WA; Boulder County, CO; Boulder PACE, CO; Chicago, IL; Commonwealth of Pennsylvania; Deerfield, IL; Ely ISD, MN; Fayette County, PA; Foothills, CO; Fort Collins, CO; Grant County, MN; Greene County, MO; Itasca County, MN; Kansas Development Finance Authority; King County, WA; Kitsap, WA; Lake County, SD; Los Angeles Department of Water and Power, CA; Louisville, KY; Mandan School District, ND; State of Maryland; McHenry School District, IL; Menasha School District, WI; Mitchell School District, SD; Pleasant Prairie, WI; Rancho Water District Financing Authority, CA; Champaign County School District 193, IL; Champaign County School District 116, IL; Rapid City, SD; Somerton, AZ; St. Louis County, MO; Tempe, AZ; Thurston County, WA; University of Colorado; University of Kentucky; Washington County Housing and Redevelopment Authority, MN; Waterbury, CT; Western State College, CO; Wyandotte, KS; Yakima County, WA; York, PA; Yuba Community College, CA; Billings School District, MT; Billings School District High School, MT; Spotsylvania County, VA; Nashville and Davidson Counties, TN; Knox County IN; Philadelphia Municipal Authority, PA; Goodhue County, MN.

⁸⁴ The University of Colorado had an issuance cost of \$1.2 million but this was for the entire issuance, which included other bonds in addition to QECBs. The cost for the QECB issuance alone was not broken out in the official statement.

Techniques for Addressing Small Allocation Issues

Bundling. One approach to dealing with small allocation sizes is to bundle QECCBs with other bonds. Of the 79 issuances⁸⁵ for which information about bundling was available at the time of our 2012 inquiry into this issue, 60 were issued as part of a bundled issuance with at least one other bond issuance. QECCBs have been issued simultaneously with other taxable bonds, tax exempt general obligation bonds, revenue bonds, Air Quality Development Bonds,⁸⁶ Build America Bonds,⁸⁷ Clean Renewable Energy Bonds,⁸⁸ Qualified Zone Academy Bonds,⁸⁹ Recovery Zone Economic Development Bonds,⁹⁰ and Recovery Zone Facility Bonds.⁹¹

Energy Efficiency and Conservation Block Grants. Other jurisdictions have used their EECCBs to help cover issuance and administrative costs. The City of Los Angeles used EECCB funding to help cover interest costs for the first two years of the bond term. St. Louis County used EECCB funding to buy down customer interest rates and to cover the county's program administration costs.⁹²

Pooling. Jurisdictions may be able to pool their allocations in order to reduce the transaction cost per dollar financed. This may be done simply by waiving sub-allocations back to the state, but in cases in which this is not possible or desirable, local jurisdictions may in some cases be able to pool their sub-allocations without state involvement. For example, jurisdictions have pooled other tax credit bonds. The Wisconsin Public Finance Authority has facilitated pooled issuances of variable rate revenue bonds,⁹³ multifamily housing revenue bonds,⁹⁴ disaster revenue bonds,⁹⁵ and various other types of revenue bond issuances. Similar to Wisconsin's PFA, the California Statewide Communities Development Authority (CSCDA) provides local governments with a tool for financing public agency, private activity, and energy finance programs. They have helped finance low-income multifamily and senior housing projects, energy and conservation measures, street lighting, and energy efficiency retrofits. New York has pursued MBBA pooled Financing of QECCBs, meaning that local counties could join their QECCB allocations together and issue as one entity. Unfortunately there has not been as much interest as expected. An effort to authorize similar pooling in Hawaii stalled earlier in 2012 after legislators and advocates were unable to obtain guidance from IRS, and an effort led by MBBA in 2013 has not yet resulted in any issuances.⁹⁶

⁸⁵ EPC was able to locate publicly-available official statements for sixty-six issuances. The additional 13 issuances included in this figure are Ohio issuances for which bundling information was obtained from review of the Ohio Air Development Authority website, press releases, and interviews with staff.

⁸⁶ Twelve of the fourteen issuances in Ohio have involved bundling QECCBs with Air Quality Development Bonds: South Euclid, Findlay, Licking County, Pickaway County, Owens State Community College, Ravenna, Hamilton County, three Kent State University issuances, City of Trotwood, Jefferson County, and Ohio University. The Pickaway County issuance involved bundling with Recovery Zone Economic Development Bonds.

⁸⁷ Twelve issuances were bundled with BABs: June 2010 Tucson issuance, University of Kentucky, University of Louisville, Commonwealth of Pennsylvania, Thurston County, City of Chicago, University of Colorado, Champaign County School District 193, Champaign County School District 116, Waterbury City, King County, Kitsap County. Only the University of Kentucky and University of Louisville were issuances of QECCBs and BABs alone. The other issuances were bundled with other types of bonds as well.

⁸⁸ Only the Los Angeles Department of Water and Power bundled their QECCBs with CREBs.

⁸⁹ Four QECCB issuances are known to have been bundled with Qualified Zone Academy Bonds: Alma Center School District, Billings School District High School, Champaign County School District 116, and the state of Maryland. The Alma Center and Billings School District High School issuances were a combination of QECCBs and QZABs. The other issuances were bundled with other types of bonds as well.

⁹⁰ Seven issuances are known to have been bundled with RZEDs: Wyandotte County, Champaign County School District 193, Champaign County School District 116, King County, Kitsap County, Pickaway County and Waterbury City. Only Wyandotte and Pickaway Counties bundled QECCBs and RZEDs without any other bonds included.

⁹¹ Lawrence, Kansas bundled its QECCBs with Recovery Zone Facility Bonds.

⁹² See Lawrence Berkeley National Laboratory, "Using Qualified Energy Conservation Bonds (QECCBs) to Fund a Residential Energy Efficiency Loan Program: Case Study on Saint Louis County, MO" (June 2011), p. 3.

⁹³ February 15, 2012 issuance. See Official Statement at <http://emma.msrb.org/ER57249-ER448110-ER850651.pdf>.

⁹⁴ September 27, 2011 issuance. See Official Statement at <http://emma.msrb.org/EP571658-EP448706-EP848602.pdf>.

⁹⁵ September 22, 2011 issuance. See Official Statement at <http://emma.msrb.org/EP572032-EP449005-EP848916.pdf>.

⁹⁶ Interview with Colin Bishopp.

Debt Aversion and Debt Caps

Some state and local governments are unwilling to take on more debt in the current economic climate. Other jurisdictions have statutory debt volume caps, which may decrease their motivation to “spend” their volume cap on QECCBs versus other types of bonds. In these instances, QECCBs and energy efficiency projects may not rank high enough on the state or local government’s overall set of priorities for bond issuances.⁹⁷

In some cases, a state may be averse to debt whereas some of its municipalities lack financing options. In these instances, a state might consider an application and award process such as the one Colorado utilized.⁹⁸ In this process, the state requests applications for allocation awards and cedes portions of its allocation to local applicants who can utilize the funding. Because the allocations are issued by local issuers, they need not increase state-level debt.

Alternatively, debt averse issuers may prefer to cede up to 30% of their allocations (or sub-allocations, as applicable) to private developers for private activity bond issuances.

Familiarity and Coordination

In some states a designated agency must be utilized whenever bonds are to be issued; in others a number of different agencies were possible candidates for implementing the QECCB program and one was chosen and designated in an executive order or state legislation authorizing the QECCB program and suballocations. At least 22 State Energy Offices (SEOs) have been charged with implementing QECCBs. See Appendix H for an unofficial list of apparent administering agencies. In other states, bonding authorities, development authorities, or other agencies have been authorized to run the QECCB programs. In some instances, the bonding authority may be unclear about eligibility of projects or methodologies for measuring 20% savings. In instances in which the SEO is the designated agency, the SEO may not have bonding experience or may not have a working relationship with bond professionals. In short, increased coordination across state agencies would facilitate implementation in some states.⁹⁹

Similarly, technical assistance and support from the state is helpful and, in some cases, necessary for local governments to use QECCBs.¹⁰⁰

Some state agencies administering the QECCBs did extensive outreach to local governments to make them aware of this funding opportunity. For example, Maryland Energy Administration (MEA) wrote and distributed QECCB information papers and worked with the state Treasurer and the Governor’s office.¹⁰¹ In Fall 2009, the Governor’s office sent letters to executives and council presidents of each “large local government”, as applicable, with copies to finance directors. The letters included a table of suballocations, MEA/Treasurer contact information, and were followed by a series of phone calls with local government finance staff soliciting feedback on the QECCB program and helping establish the groundwork for issuances in Maryland. MEA, the Treasurer, and the Community Development Administration (CDA) continue to consult with suballocates re QECCBs.

⁹⁷ “NASEO and EPC Summary of Barriers for Increasing QECCB Activity at the State and Local Levels” (February 2012).

⁹⁸ See Appendix D: State Applications for examples of state application process documentation.

⁹⁹ “NASEO and EPC Summary of Barriers for Increasing QECCB Activity at the State and Local Levels” (February 2012).

¹⁰⁰ “NASEO and EPC Summary of Barriers interview with Dan Bresette of the Maryland Energy Administration. Or Increasing QECCB Activity at the State and Local Levels” (February 2012).

¹⁰¹

Uncertainty

Regulatory and legal concerns also presented a barrier to QECB issuances, particularly in the first years of the program before Notice 2012-44 was issued in June 2012; those concerns and the notice are discussed below. Similarly, since September 2012, the threat of cuts to subsidy payments on QECBs has been cited by at least one state and one local government as a barrier to issuance. See Section VI.

VI. UNCERTAINTY, NOTICE 2012-44, AND SEQUESTRATION BACKGROUND

A. Introduction

During the early years of the QECB program, a number of legal and regulatory issues delayed or postponed issuances. On June 25, 2012, the IRS issued Notice 2012-44 and resolved many of these issues. Some questions remain. These issues are discussed further below.

Only months after Notice 2012-44 seemed to resolve the most commonly raised concerns regarding QECBs, budget talks surrounding the “fiscal cliff” resulted in a different but equally problematic uncertainty: it was no longer clear how much, if any, subsidy payment QECB issuers would receive, even if they had issued bonds prior to the date on which sequestration cuts were to occur.

B. Sequestration

The White House Office of Management and Budget (OMB) released a report on September 14, 2012 noting potential spending cuts that could come into effect on January 2, 2013, if Congress did not act to modify the Budget Control Act of 2011. With the passage of The American Taxpayer Relief Act of 2012 (H.R. 8), March 1st, 2013 replaced January 2nd, 2013, as the date when cuts will occur should Congress fail to reach an agreement on budget cuts. Since Congress did not provide otherwise, a “sequestration” process occurred that reduced funding for a wide range of government programs, including QECBs.

The OMB report indicated that among the potential cuts under sequestration are an estimated \$2 million reduction to the Qualified Energy Conservation Bond (QECB) program which would likely affect the issuers of existing bonds. Reuters and the Bond Buyer reported that similar cuts to the Build America Bond program could take away subsidy payments on existing bonds. Although the FY 2013 and FY 2014 sequester amount for QECBs are not very large in the context of the overall program, the difference could be significant for issuers on tight margins.

To access OMB’s report, please

visit: http://www.whitehouse.gov/sites/default/files/omb/assets/legislative_reports/stareport.pdf.

Sequester Effects on QECBs

In September 2013, the IRS issued a statement regarding the effect of sequestration on QECB issuers. The sequester reduction is applied to section 6431 amounts claimed by an issuer on any Form 8038-CP filed with the Service which results in a payment to such issuer on or after October 1, 2013. The sequestration reduction rate will be applied unless and until an intervening Congressional action, at which time the sequestration rate is subject to change, effectively making these cuts permanent. As determined by OMB, payments to issuers

from the budget accounts associated to these qualified bonds are subject to a reduction of 7.2% of the amount budgeted for such payments.

The prior sequester notice, issued in March 2013, had a reduction of 8.7% and was effective through September 30, 2013. In the most recent sequester notice; the rate of reduction has been decreased by 1.5% to 7.2%. The new rate is effective unless and until Congress takes action, with no specified end date.

The sequester's effect on QECCBs issued as tax credit bonds (with tax credits for the holders rather than cash subsidies for the issuer) remains unclear, as it is not specifically mentioned in any IRS guidance. It appears that tax credit QECCBs may not be subject to the cuts.

In Spotsylvania, the reduction in interest subsidies equates to about \$1,400 less for the county between now and the end of September. Luckily, the reduction hasn't affected the project itself. The completion target date of the VRE station is still December 2013.¹⁰²

Six counties have cited sequestration as a reason for not actively pursuing QECCBs. Two of these counties have expressed reluctance to issue tax credit bonds in general, due to the effect of sequester on BABs, and their experience with those.

C. Notice 2012-44

Intended Scope

The Notice confirms that Congress intended to give state and local governments "wide" and "broad" discretion issuing QECCBs. This confirmation should guide IRS auditors when reviewing issuances and provide some additional comfort to issuers and their counsel.

Capital Expenditure Requirement

The QECCB legislation requires for some uses that QECCB proceeds be spent on capital expenditures. Notice 2012-44 provides guidance on determining whether an expenditure is a "capital expenditure" for purposes of the QECCB rules, helpful clarification for issuers of any type of QECCB.

20% Savings

As noted earlier, a common use of QECCBs is to reduce energy consumption in publicly owned buildings by at least 20% through capital improvements. Prior to the publication of Notice 2012-44, however, there was a great deal of uncertainty about how exactly issuers were required to estimate or measure the required energy savings.

Notice 2012-44 provides pages of information on how issuers can properly estimate projected reductions in energy consumption due to improvements financed by QECCBs. It explicitly distinguishes the rules applicable in the context of Internal Revenue Code section 179D, another provision that provides tax benefits for reductions in energy consumption in government buildings.

Instead, the Notice provides specific guidelines for QECCB issuers. Energy savings can be measured building by building or across all the buildings improved with the QECCB proceeds. They can also be measured by a

¹⁰² Bonnie L. Jewell, Senior Financial Analyst, Spotsylvania County Government

component or multiple components of the energy system of the building or buildings in question (e.g., HVAC, hot water, lighting, building envelope, or “plug load” due to items plugged into outlets such as refrigerators).

The issuer must “reasonably expect” that the capital expenditures to be financed with the bond proceeds will result in a 20 percent or greater reduction in energy consumption for the selected building, buildings or building system component using a “common energy unit” such as a MMBtu (one million British thermal Units).

In order to determine whether the issuer’s expectation was reasonable, Treasury will look to whether the issuer or its engineer used such tools as an ASHRAE level 3 audit, building energy use simulation techniques and estimating software (including the DOE (Department of Energy) 2 based Quick Energy Simulation Tool (eQUEST)) or other qualified computer software for calculating commercial building energy and power cost savings that meet federal tax incentive requirements as listed by Department of Energy’s Building Technology Program at: http://apps1.eere.energy.gov/buildings/tools_directory/.

The issuer must use a “reasonable and consistently applied” method to measure (actual or projected) energy savings over a “reasonable and consistent time period” of at least one year (e.g. energy use in the year before the improvements were made and in the year following the improvements). The issuer need not subsequently demonstrate energy savings. An issuer may rely on an engineer’s certification (an example is provided in the notice) if the actual capital improvements financed by the QECB proceeds are substantially similar to those contemplated as the basis for the certification.

Green Community Programs

Despite great interest, the small number of green community program issuances may be due in part to the fact that the term “green community programs” was not defined in the statute or IRS guidance until June 2012; Notice 2012-44 addresses this issue. To qualify as a “green community program” for QECB purposes, the Notice provides that a program must both promote “energy conservation, energy efficiency or environmental conservation initiatives related to energy consumption, broadly construed” and either involve property that is available for “general public use” (such as replacing streetlights on public roads with LED bulbs) or loans/grants that have “broad public availability” (including residential housing or private building energy efficiency initiatives that provide grants or loans that are broadly available for homeowners or businesses).

The Notice incorporates the frequently-cited conference report that indicates that a green community program can finance retrofits of existing private buildings through loans and/or grants to individual homeowners or businesses, or through other repayment mechanisms.¹⁰³ Retrofits can include heating, cooling, lighting, water¹⁰⁴, conservation, storm-water reduction, or other efficiency measures.¹⁰⁵

¹⁰³ The conference report provides: “...the provision clarifies that capital expenditures to implement green community programs includes grants, loans, and other repayment mechanisms to implement such programs. For example, this expansion will enable States to issue these tax credit bonds to finance retrofits of existing private buildings through loans and/or grants to individual homeowners or businesses or through other repayment mechanisms. Other repayment mechanisms can include periodic fees assessed on a government bill or utility bill that approximate the energy savings of energy efficiency or conservation retrofits. Retrofits can include heating, cooling, lighting, water-savings, stormwater-reducing, or other efficiency measures.” See H.R. Report 111-16 Conference Report to Accompany H.R. 1: Making Supplemental Appropriations for Job Preservation and Creation, Infrastructure Investment, Energy Efficiency and Science, Assistance to the Unemployed, and State and Local Fiscal Stabilization, for the Fiscal Year Ending September 30, 2009 and for other purposes. February 12, 2009 p. 627

¹⁰⁴ One issuer reported that the IRS declined to rule favorably on whether water-conserving improvements were valid uses of QECBs issued under the 20% reduction in energy consumption prong of the eligible conservation purposes definition.

¹⁰⁵ See: www1.eere.energy.gov/wip/solutioncenter/pdfs/taking_advantage_of_qualified_energy_conservation_bonds_qecbs_presentation.pdf

Effect of IRS Notice 2012-44

In July of 2012, IRS issued notice 2012-44, which provided clarification on eligible QECB projects and Green Community Programs. The issuance of the notice was followed by a \$21.73M increase in issuances over two quarters (\$77.94M in Q3 and Q4 as compared to \$56.21M in Q1 and Q2). Soon afterwards, however, the increasing threat of sequester (among other factors) brought an apparent reduction in known issuances. In Q1 2013, there is only 2 known issuances, \$11.2M, \$9.88M were issued in 2013 Q2, \$44.03M issued in 2013 Q3, and so far \$11.13M issued in 2013 Q4. This is a drastic decrease when compared to the preceding years. See Graph 2: Amount of QECBs Known to be issued by Quarter.

VII. UPDATES SINCE EPC QECB PAPER DATED SEPTEMBER 2013

Since EPC's QECB paper dated September 2013, the total number of known QECB issuances has increased to 163 projects in 33 states, up from 131 projects in 28 states. The increased figure reflects both new issuances as well as previously unknown issuances.

The increase in known projects from 131 to 163 consists of 11 new QECB issuances since our June report and 21 previously unknown issuances. See Table 1B for a complete list.

Taking into account all of these issuances, total known QECB issuances have now reached \$980.73 million. See Graph 1 at the end of this paper. This figure represents an increase of \$205.63 million (21 percent) since June 2013.

Due to the addition of new and previously unknown issuances, known state utilization rates increased in 17 states: Alabama, Arkansas, California, Illinois, Maine, Maryland, Massachusetts, Michigan, New York, Ohio, Oregon, Pennsylvania, Tennessee, Texas, Virginia, Washington, and Wisconsin.

Known utilization rates have increased in all six regions. The Midwest increased to 38.5%, primarily due to the previously unknown issuances in Ohio, Michigan, and Wisconsin, and a new issuance in Illinois. The Central region figure increased slightly to 25% due to previously unknown issuance in Texas. Utilization in the Northeast also increased to 19.8% because of the new issuances in Maryland, Pennsylvania, and New York. Known utilization in the Southeast increased to 11.6% due to both new and previously unknown issuances in Alabama, Arkansas, and Tennessee. The Northwest increases slightly to 27.6% because of two new issuances in Washington. Known utilization in the Southwest increased 5% to 65.3% due to a new QECB issuance in California.

Graph 2 shows the rate of QECB issuances on a quarterly basis beginning in the first quarter of 2010. Only \$76.26 million are known to have been issued so far in 2013, making 2013 known issuance volume the lowest of any year since 2012 and significantly lower than the comparable volume of issuance of \$134.15 million in 2012. The volume of issuance in the first quarter of 2013, at \$11.2 million, is 73% lower than the fourth quarter of 2012. At \$42.3 million, the volume of issuance in the fourth quarter of 2012 represents a 14.5% increase in the quarterly QECB issuance rate from the third quarter of 2012.

VIII. Tables and Charts

Table 1A: State and Local Issuances of QECBs (11/29/2013)

State	Amount	Known Issued	Remaining
Alabama	\$48,364,000	\$26,842,186	\$21,521,814
Alaska	7,120,000	0	7,120,000
Arizona	67,436,000	16,023,804	51,412,196
Arkansas	29,623,000	9,125,000	20,498,000
California	381,329,000	302,583,750	78,745,250
Colorado	51,244,000	43,190,321	8,053,679
Connecticut	36,323,000	10,700,000	25,623,000
Delaware	9,058,000	0	9,058,000
District of Columbia	6,140,000	0	6,140,000
Florida	190,146,000	0	190,146,000
Georgia	100,484,000	5,372,000	95,112,000
Hawaii	13,364,000	0	13,364,000
Idaho	15,809,000	0	15,809,000
Illinois	133,846,000	74,680,000	59,166,000
Indiana	66,155,000	19,500,000	46,655,000
Iowa	31,150,000	0	31,150,000
Kansas	29,070,000	29,065,000	5,000
Kentucky	44,291,000	41,297,000	2,994,000
Louisiana	45,759,000	30,318,244	15,440,756
Maine	13,657,000	4,097,100	9,559,900
Maryland	58,445,000	10,665,000	47,780,000
Massachusetts	67,413,000	31,232,237	36,180,763
Michigan	103,780,000	10,880,736	92,899,264
Minnesota	54,159,000	16,025,000	38,134,000
Mississippi	30,486,000	0	30,486,000
Missouri	61,329,000	11,435,000	49,894,000
Montana	10,037,000	8,334,000	1,703,000
Nebraska	18,502,000	0	18,502,000
Nevada	26,975,000	8,135,950	18,839,050
New Hampshire	13,651,000	1,129,348	12,521,652
New Jersey	90,078,000	0	90,078,000
New Mexico	20,587,000	0	20,587,000
New York	202,200,000	29,469,870	172,730,130
North Carolina	95,677,000	0	95,677,000
North Dakota	6,655,000	3,780,000	2,875,000
Ohio	119,160,000	82,860,638	36,299,362
Oklahoma	37,787,000	0	37,787,000
Oregon	39,320,000	7,600,000	31,720,000
Pennsylvania	129,144,000	40,335,000	88,809,000
Rhode Island	10,901,000	0	10,901,000
South Carolina	46,475,000	0	46,475,000
South Dakota	8,343,000	6,575,000	1,768,000
Tennessee	64,476,000	7,681,344	56,794,656
Texas	252,378,000	14,067,032	238,310,968
Utah	28,389,000	6,918,774	21,470,226
Vermont	6,445,000	0	6,445,000
Virginia	80,600,000	3,710,000	76,890,000
Washington	67,944,000	40,780,000	27,164,000
West Virginia	18,824,000	0	18,824,000
Wisconsin	58,387,000	26,322,883	32,064,117
Wyoming	5,526,000	0	5,526,000
Territories	45,559,000	0	45,559,000
Total	\$3,200,000,000	\$980,732,217	\$2,219,267,783

1. The information attached hereto has been gathered from various sources, including IRS Notice 2009-29, Municipal Securities Rulemaking Board, Department of Energy (DOE), Wells Fargo, state and local issuer websites, state and local government contacts. The amount issued figure may be rounded.

2. Chart compiled by Elizabeth Bellis, Director, QECB Program, and Sarah Sieting Alim, EPC, and was funded by the Energy Foundation, Ford Foundation, and others. Chart includes all known QECB issuances through November 29, 2013 but may not include all QECB issuances.

For more information, please contact Elizabeth Bellis at ebellis@energyprograms.org or Sarah Sieting Alim at ssieting@energyprograms.org or 202-333-5915

Table 1B: Qualified Energy Conservation Bonds Known Issued by State (as of 11/29/2013)

Issued To	State	Issue Date	Amount Issued	Use of Proceeds
Montgomery County Commission	Alabama	3/9/2012	\$4,416,936	Energy efficiency improvements to government buildings
Scottsboro- City	Alabama	11/29/2012	\$5,750,000	Energy efficiency
City of Foley	Alabama	1/30/2013	\$2,900,000	City-wide energy efficiency retrofits
City of Vestavia Hills	Alabama	5/15/2013	\$4,245,000	Sports field lighting
Madison County Board of Education	Alabama	7/3/2013	\$9,530,250	Energy efficiency improvements to schools
Tucson City	Arizona	6/23/2010	\$5,590,000	Capital improvements
Tucson City	Arizona	6/9/2011	\$1,430,000	Energy efficiency
Tempe	Arizona	7/1/2011	\$7,300,000	Capital improvements
Somerton	Arizona	11/22/2011	\$980,000	Renewable generation
Navajo County/City of Show Lo	Arizona	1/3/2012	\$723,804	Energy savings contract
Arkansas Development Finance Authority	Arkansas	5/23/2013	\$4,630,000	DHS energy conservation and capital improvements @ DHS.
Arkansas Development Finance Authority (Osceola School District)	Arkansas	10/30/2013	\$4,495,000	Energy conservation & capital improvements at Osceola School District facilities
Irvine Unified School District	California	7/29/2010	\$4,840,000	Unknown
Sonoma County	California	8/6/2010	\$1,977,500	Renewable generation
Los Angeles Dep't of Water & Power	California	8/17/2010	\$131,020,000	Solar & wind
Oxnard Union High School District Project	California	9/29/2010	\$19,067,730	Solar improvements in schools
Fallbrook Public Utility District Project	California	11/18/2010	\$7,227,000	Solar improvements
Lodi Unified School District Project	California	11/18/2010	\$9,915,000	Solar improvements in schools
Richmond	California	12/1/2010	\$1,070,000	Streetlights and municipal capital improvements
Santa Clara County Photovoltaic Project	California	2/10/2011	\$20,368,000	Renewable generation
Yolo County	California	3/16/2011	\$2,019,214	Renewable generation: 1MW solar project
Kern County	California	4/12/2011	\$4,337,131	Solar project
San Diego	California	4/15/2011	\$13,141,596	Lighting conversion program
Santa Barbara County	California	5/25/2011	\$4,170,000	Renewable generation; solar project at Calle Real campus
Yuba College Central Plant Efficiency Project	California	6/3/2011	\$6,324,000	Unknown
Yuba Community College	California	6/21/2011	\$15,040,000	Renewable generation
Los Angeles County	California	8/31/2011	\$14,000,000	Solar projects
San Francisco County	California	10/1/2011	\$8,291,079	Public facilities retrofit
Los Angeles	California	10/25/2011	\$11,920,000	City facilities retrofit
Rancho Water District Financing Authority	California	11/7/2011	\$9,870,000	Capital improvements to water/wastewater facilities
Boulder County	Colorado	2/2/2010	\$5,800,000	Capital improvements
Fort Collins City	Colorado	6/28/2010	\$6,410,000	Smart Grid
Foothills Park & Rec Department	Colorado	8/13/2010	\$1,000,000	Recreational capital improvements
Western State College	Colorado	8/19/2010	\$1,635,000	Higher ed capital improvements
Boulder Housing Partners	Colorado	8/25/2010	\$1,443,881	Multi-family capital improvements
City of Englewood	Colorado	9/15/2010	\$1,286,440	Municipal capital improvements
City of Boulder	Colorado	9/27/2010	\$1,500,000	Capital improvements
Regents of the University of Colorado	Colorado	10/20/2010	\$4,375,000	University improvements
Mesa County School District #51	Colorado	10/29/2010	\$2,000,000	School improvements

Boulder PACE	Colorado	11/5/2010	\$1,515,000	PACE - commercial
Colorado School of Mines	Colorado	4/12/2011	\$2,800,000	School improvements
Private Issuance	Colorado	4/20/2012	\$6,775,000	Renewables
Roaring Fork Transportation Authority	Colorado	8/21/2012	\$6,650,000	Energy Efficiency
East Hartford	Connecticut	4/10/2010	\$6,000,000	Municipal capital improvements
Waterbury City	Connecticut	8/11/2010	\$4,700,000	Unknown
Fulton County	Georgia	8/23/2011	\$5,372,000	School improvements
City of Chicago	Illinois	11/4/2010	\$29,665,000	Energy efficiency; wastewater reclamation facility reconstruction
Champaign County School District 116 (Urbana)	Illinois	12/14/2010	\$585,000	Energy efficiency in water system
McHenry Community Consolidated School District	Illinois	8/31/2011	\$1,500,000	Unknown
Deerfield	Illinois	9/26/2011	\$12,500,000	School improvements
Southern Illinois Univ. board of trustees	Illinois	12/6/2012	\$5,365,000	Energy Efficiency
Cook County	Illinois	7/23/2013	\$24,945,000	Facility upgrade - correctional facilities, health hospital nursing home improvements.
Champaign County (Rantoul) Township High School District 193	Illinois	12/20/2020	\$120,000	School improvements
Ivy Technical Community College	Indiana	10/1/2010	\$3,300,000	Energy improvements to hospital
Knox County	Indiana	4/12/2012	\$16,200,000	Unknown
Wyandotte County/Kansas Unified Govt.	Kansas	11/18/2010	\$2,530,000	Municipal energy improvements
Kansas Development Finance Authority	Kansas	12/21/2010	\$17,815,000	Kansas State University projects
Lawrence City	Kansas	3/10/2011	\$8,720,000	Renewable generation
Louisville-Jefferson County Metro Govt.	Kentucky	9/14/2010	\$7,400,000	Gov. energy improvements
University of Kentucky	Kentucky	11/19/2010	\$12,955,000	School improvements
University of Louisville	Kentucky	12/20/2010	\$20,942,000	School improvements
Public schools	Maryland	7/27/2011	\$6,500,000	School improvements
Montgomery County Equipment Lease	Maryland	10/3/2013	\$4,165,000	Financing qualified conservation projects
City of Northampton	Massachusetts	12/22/2010	\$1,698,790	Energy efficiency improvements in public buildings
Scituate Wind/Town of Scituate	Massachusetts	8/10/2011	\$1,531,480	Renewable generation
Cathartes Private Investments/ Westford Solar	Massachusetts	8/22/2011	\$5,800,000	Renewable generation
Town of Gill	Massachusetts	8/25/2011	\$127,500	School improvements by energy performance contract
Belchertown	Massachusetts	9/20/2011	\$3,140,000	Energy efficiency
Pentucket Regional School District	Massachusetts	10/21/2011	\$4,567,510	School improvements
Fairhaven Wind	Massachusetts	11/7/2011	\$3,035,957	Renewable generation
Lowell City	Massachusetts	12/2/2011	\$2,648,000	Energy efficiency
Town of Marshfield	Massachusetts	7/2/2012	\$5,000,000	Energy efficiency performance contract
Lancaster Town	Massachusetts	9/18/2012	\$1,484,000	Renewable generation
Georgetown	Massachusetts	10/15/2012	\$2,199,000	Energy efficiency
Saginaw	Michigan	12/20/2010	\$2,088,779	EE upgrades to county facilities
City Greenville	Michigan	Unknown	\$800,000	Unknown
Genesee County	Michigan	Unknown	\$4,515,976	Energy Efficiency & Conservation Block Grant
Osceola County	Michigan	Unknown	\$650,000	County funds
Ottawa County	Michigan	Unknown	\$2,825,981	Unknown

Grant County	Minnesota	2/1/2011	\$2,000,000	Capital improvements
Itasca County	Minnesota	2/8/2011	\$3,690,000	Energy efficiency
Ely Independent School District #696	Minnesota	5/19/2011	\$2,810,000	Energy efficiency in schools
New Hope Economic Development Authority	Minnesota	11/18/2011	\$3,505,000	Energy efficiency
Washington County Housing and Redevelopment Authority	Minnesota	2/22/2012	\$2,375,000	Energy conservation improvements to Authority properties
Gilbert City	Minnesota	6/26/2012	\$22,367,040	Energy efficiency
Goodhue County	Minnesota	8/16/2012	\$1,295,000	Energy efficiency
Greene County	Missouri	3/3/2011	\$1,130,000	Energy efficiency
St. Louis County	Missouri	4/29/2011	\$10,305,000	Green community loan program
Billings High School District #2	Montana	7/12/2012	\$3,780,000	School improvements
Billings School District #2	Montana	7/12/2012	\$4,554,000	School improvements
City of Reno	Nevada	6/1/2010	\$2,261,650	HVAC retrofit for Reno City Hall
Las Vegas	Nevada	3/16/2011	\$5,874,300	City facilities retrofit
Manchester	New Hampshire	11/1/2010	\$1,129,348	School improvements
Rochester City	New York	6/16/2010	\$2,166,400	HVAC replacement
Chautauqua County	New York	1/19/2011	\$1,403,470	Financing expansion of electric generation plant
Albany County - New York	New York	12/13/2012	\$1,600,000	Energy efficiency
NYSERDA	New York	8/13/2013	\$24,300,000	Energy audits and residential EE improvements for eligible applicants pursuant to NYSERDA's Green Jobs- Green NY program
Morton County (Mandan School District)	North Dakota	2/9/2011; 5/4/2011	\$3,780,000	School improvements
Owens State Community College	Ohio	3/18/2010	\$3,125,000	Energy efficiency and conservation improvements
Kent State University (Stark Campus)	Ohio	6/11/2010	\$672,130	Energy efficiency and conservation improvements
Pickaway County	Ohio	12/15/2010	\$1,479,810	County facilities retrofit
Kent State University (Regional Campus)	Ohio	3/30/2011	\$2,693,610	Energy efficiency and conservation improvements
Kent State University (Main Campus)	Ohio	5/31/2011	\$7,000,000	Energy efficiency and conservation improvements
Findlay	Ohio	6/30/2011	\$518,010	County facilities retrofit
City of South Euclid	Ohio	8/31/2011	\$386,145	Energy efficiency
Licking County	Ohio	9/29/2011	\$2,121,000	County facilities retrofit
Hamilton County	Ohio	10/22/2011	\$2,750,000	Energy efficiency and conservation overhaul of county buildings.
City of Ravenna	Ohio	2/22/2012	\$2,912,499	Overhaul of equipment and systems at six municipal buildings and the majority of the city's traffic signals.
Williams County (Edgerton) Local School District	Ohio	2/23/2012	\$595,000	School improvements
Ohio University	Ohio	8/1/2012	\$8,500,000	School improvements
Lake County (Madison) Local School District	Ohio	10/2/2012	\$1,455,000	Unknown
Kent State University	Ohio	10/25/2012	\$7,500,000	Energy efficiency retrofit
Licking County	Ohio	11/20/2012	\$796,252	Energy efficiency retrofit
The Ohio State University	Ohio	12/20/2012	\$2,340,000	Energy efficiency retrofit
Wright State University	Ohio	2/28/2013	\$8,312,700	Energy efficiency retrofit
Central State University	Ohio	5/16/2013	\$7,000,000	Energy efficiency retrofit
Franklin County	Ohio	5/23/2013	\$3,806,167	Energy efficiency retrofit
City of Akron	Ohio	8/15/2013	\$2,355,914	Energy efficiency retrofit
The University of Akron	Ohio	9/30/2013	\$15,000,000	Energy efficiency retrofit
Gresham	Oregon	7/30/2013	\$7,600,000	LED streetlights

Commonwealth of PA	Pennsylvania	9/30/2010	\$15,810,000	Capital improvements to prison facilities
Allegheny County	Pennsylvania	11/22/2010	\$9,385,000	City facilities retrofit
Fayette County	Pennsylvania	9/28/2011	\$1,490,000	County facilities retrofit
York County	Pennsylvania	12/28/2011	\$2,200,000	City facilities retrofit
Philadelphia Municipal Authority	Pennsylvania	5/11/2012	\$6,250,000	City facilities retrofit
Lancaster County	Pennsylvania	8/7/2013	\$5,200,000	Electric and power improvements
Davison County (Mitchell) #17-2	South Dakota	11/10/2010	\$1,725,000	1.5 MW wind turbine
Lake County	South Dakota	6/1/2011	\$850,000	Renewable generation
Rapid City	South Dakota	11/1/2011	\$4,000,000	School improvements
Nashville and Davidson County	Tennessee	8/15/2012	\$6,440,000	Energy efficiency
Clarksville	Tennessee	8/30/2013	\$1,241,344	LED Streetlights
Utah County	Utah	10/22/2010	\$5,000,970	Energy efficiency
Salt Lake County	Utah	7/12/2011	\$1,917,804	Renewable generation
Spotsylvania County	Virginia	7/19/2012	\$1,240,000	Transportation
Norfolk County	Virginia	11/7/2013	\$2,470,000	Capital improvements
Yakima County	Washington	9/8/2010	\$2,430,000	Energy efficiency in courthouse
Thurston County	Washington	10/26/2010	\$2,040,000	City facilities retrofit
King County	Washington	11/15/2010	\$5,825,000	Energy efficiency and HVAC project
Kitsap County	Washington	12/16/2010	\$1,110,000	Sewer financing
Bellingham City	Washington	4/13/2011	\$6,480,000	Energy efficiency
King County- Washington	Washington	12/10/2012	\$6,020,000	Energy efficiency
Swauk Creek Ranch	Washington	12/27/2012	\$9,000,000	Wind farm
Longview	Washington	4/18/2013	\$3,560,000	City facilities retrofit and vehicles
Renton	Washington	7/1/2013	\$3,200,000	LED streetlights
Okanogan County	Washington	8/22/2013	\$1,115,000	Correctional facility improvements
Western Wisconsin Tech College	Wisconsin	7/21/2010	\$1,500,000	Energy conservation/public education program
Pleasant Prairie Village	Wisconsin	8/16/2010	\$1,890,000	City facilities retrofit
Osh Kosh School District	Wisconsin	1/26/2011	\$1,817,883	Energy efficiency improvements to schools
Western Wisconsin Tech College	Wisconsin	1/27/2011	\$1,500,000	School improvements
Jefferson School District	Wisconsin	3/18/2011	\$2,345,000	Energy efficiency
School Dist. Hartford No. 1 (Dodge and Washington Counties)	Wisconsin	4/11/2011	\$2,295,000	Renewable generation
Dane County (Mount Horeb) School District	Wisconsin	4/18/2011	\$2,500,000	Renewable generation
Menasha School District (Winnebago County)	Wisconsin	6/28/2011	\$1,690,000	School improvements
Western Wisconsin Tech College	Wisconsin	7/27/2011	\$1,200,000	School improvements
Alma Center-Humbird-Merillan School District	Wisconsin	8/18/2011	\$4,600,000	Energy efficiency improvements to schools
Osseo Fairchild School District	Wisconsin	11/1/2011	\$750,000	Energy efficiency improvements to schools
Rock County (Beloit) School District	Wisconsin	8/28/2012	\$2,215,000	School District EE
Racine Unified School District	Wisconsin	6/10/2013	\$2,020,000	Improve overall EE of district buildings
Total			\$934,739,980	

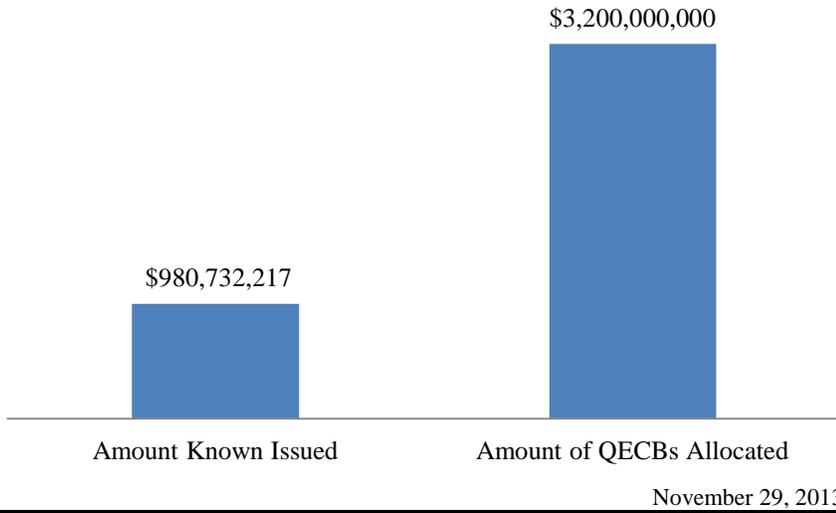
Note: Abbreviation "EE" is energy efficiency; abbreviation "res" is residential; "HVAC" is Heating, Air Conditioning, and Ventilation; "ed" is education; "bldgs" is Buildings.

**Table 1C: Proportion of Qualified Energy Conservation Bonds Known Issued by State
11/29/2013**

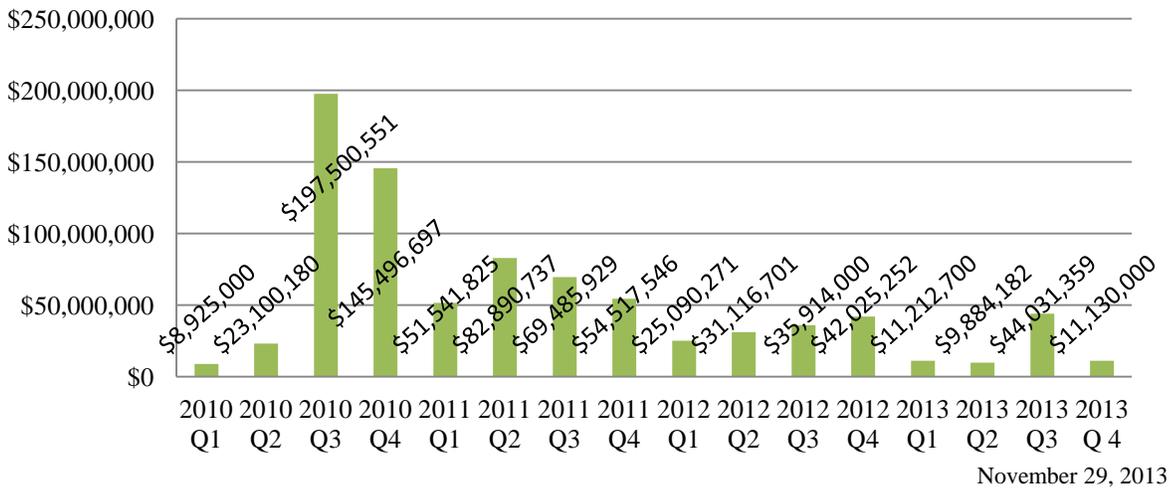
State	Percent Issued
Alabama	56%
Alaska	0%
Arizona	24%
Arkansas	31%
California	79%
Colorado	84%
Connecticut	29%
Delaware	0%
District of Columbia	0%
Florida	0%
Georgia	5%
Hawaii	0%
Idaho	0%
Illinois	56%
Indiana	29%
Iowa	0%
Kansas	100%
Kentucky	93%
Louisiana	66%
Maine	30%
Maryland	18%
Massachusetts	46%
Michigan	10%
Minnesota	30%
Mississippi	0%
Missouri	19%
Montana	83%
Nebraska	0%
Nevada	30%
New Hampshire	8%
New Jersey	0%
New Mexico	0%
New York	15%
North Carolina	0%
North Dakota	57%
Ohio	70%
Oklahoma	0%
Oregon	19%
Pennsylvania	31%
Rhode Island	0%
South Carolina	0%
South Dakota	79%
Tennessee	12%
Texas	6%
Utah	24%
Vermont	0%
Virginia	5%
Washington	60%
West Virginia	0%
Wisconsin	45%
Wyoming	0%
Territories	0%
Total	30.6%

Chart includes all public QEBC issuances through November 29, 2013, but may not include all private QEBC issuances.

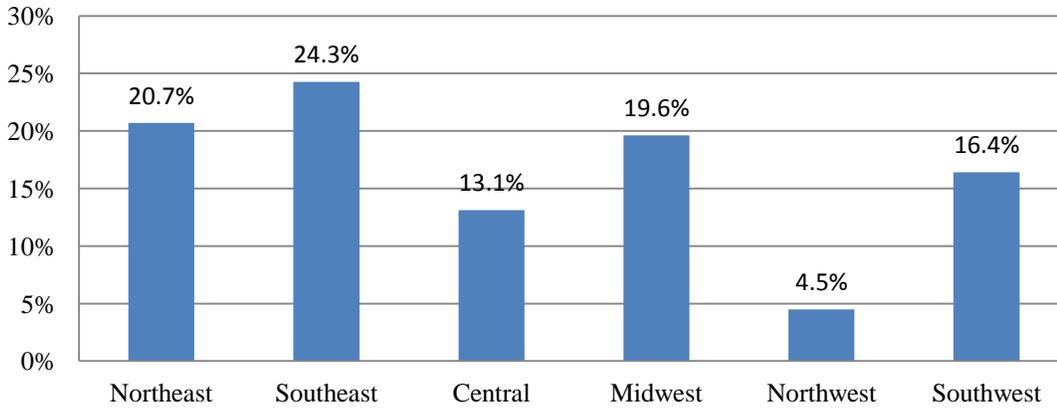
Graph 1: QECCBs Known to be Issued v. Allocated



Graph 2: Amount of QECCBs Known to be Issued By Quarter

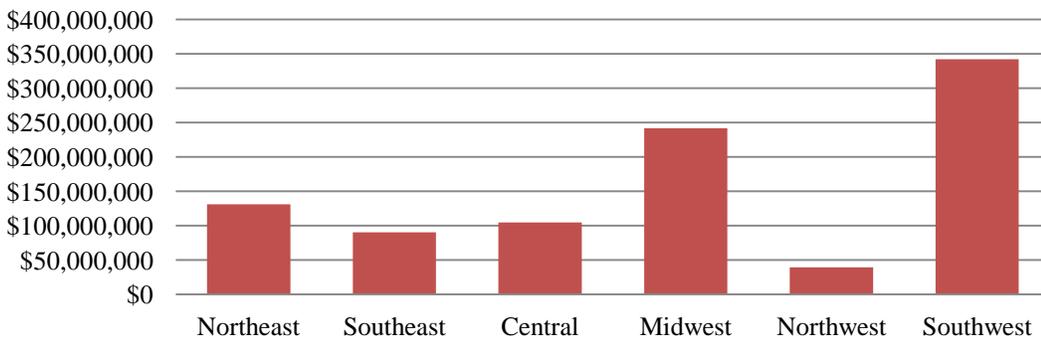


Graph 3: Percent of Total Allocation, By Region



November 29, 2013

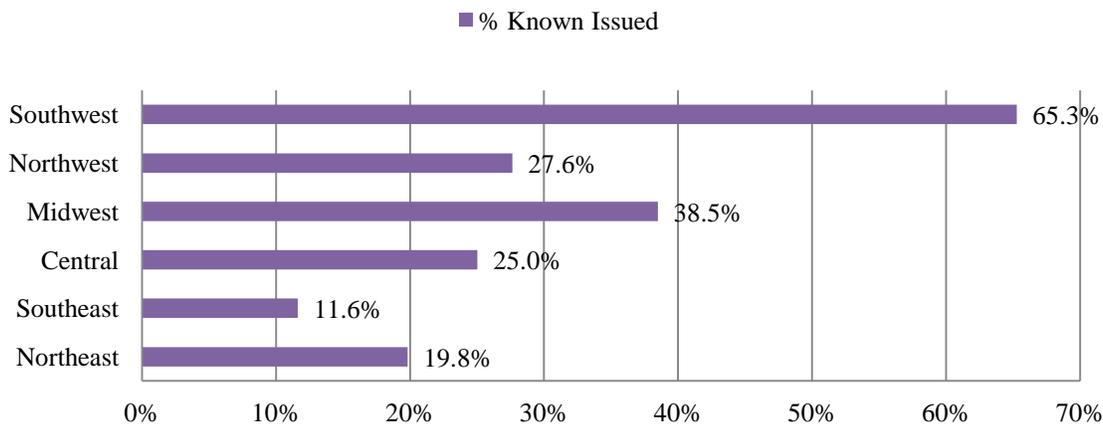
Graph 4: Known QECC Issuances by Region



■ Known Amount Issued

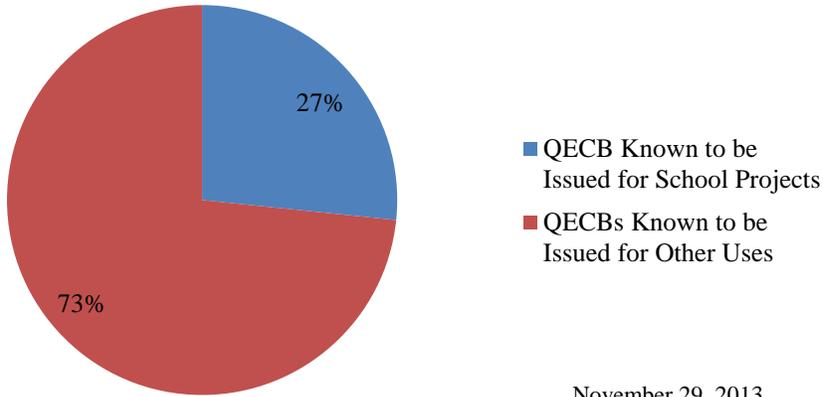
November 29, 2013

Graph 5: Proportion of Allocations Utilized, by Region



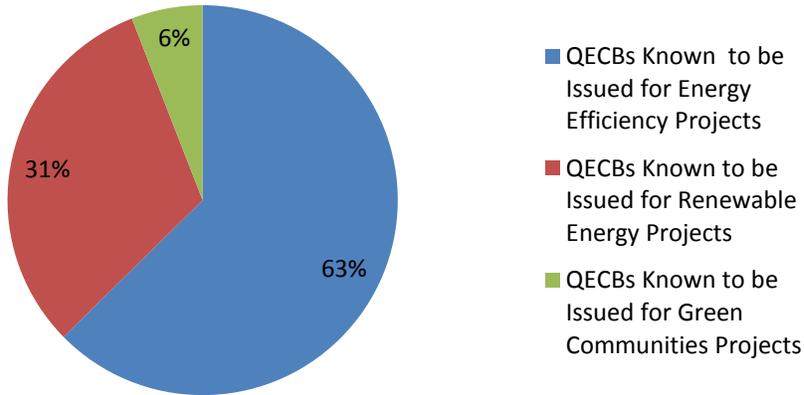
November 29, 2013

Graph 6: Known QECCB Issuances



November 29, 2013

Graph 7: Use of QECCBs



November 29, 2013