

QUALIFIED ENERGY CONSERVATION BONDS (QECBS)



June 2014



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 and mass transit projects, from which better informed requests for advice can be formulated.

IRS Circular 230 Disclosure: To ensure compliance with requirements imposed by the IRS, we inform you that any U.S. federal tax advice contained in or accompanying this document, unless otherwise specifically stated, is not intended or written to be used, and cannot be used, for the purpose of (i) avoiding penalties under the Internal Revenue Code, or (ii) promoting, marketing, or recommending to another party any transaction or matter that is contained in or accompanying this document.

TABLE OF CONTENTS

ABOUT ENERGY PROGRAMS CONSORTIUM (EPC)	1
ACKNOWLEDGMENTS	1
I. INTRODUCTION	2
II. QUALIFIED ENERGY CONSERVATION BOND PROCESS AND MECHANICS	2
III. CASE STUDIES	7
IV. UTILIZATION TRENDS	12
V. BARRIERS TO THE USE OF QECBS	14
VI. UNCERTAINTY, NOTICE 2012-44, AND SEQUESTRATION BACKGROUND	17
VII. UPDATES SINCE EPC QECB MEMO DATED DECEMBER 2013	21
VIII. TABLES AND CHARTS	23

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 (NASCS), 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 and renewable finance 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 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.

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.

Acknowledgments

This paper is an update to and expansion of EPC's periodic QECB Paper, last issued December 2013. I would like to thank Project Assistant Susan Rosenthal and Program Analyst Gabriel Weil for assisting with the updates to this paper. I would also like to thank EPC Research Associates Rebekah King and Sarah Sieting Alim for their many hours of phone calls, emailing, and tireless number crunching without which this paper would not be possible. It also would not be possible without the input of countless state and local energy officials, attorneys, bankers and contractors across the country. Thank you for sharing your experiences. We look forward to hearing from you.

I also need to thank Surdna for their continuing support of this endeavor. Without their support the completion of this paper and the periodic updates to it would not be possible. In addition, I would like to thank the Energy Foundation whose initial support enabled me to develop this project.

Elizabeth Bellis, Director, QECB Program, Energy Programs Consortium
EPC

1228 31st St., Suite 5
NW Washington, D.C.
20007
202.333.5915

68 Jay St., Suite 516
Brooklyn, NY 11201
718.596.5700

www.energyprograms.org
info@energyprograms.org

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 173 projects, totaling just over \$1 billion, have been funded to date. Projects have been financed with QECBs in at least 34 states. Some states, such as Kansas and Kentucky (with California, Colorado, Montana, Nebraska and South Dakota close behind) have exhausted or nearly exhausted their allocations², while up to 17³ states have yet to use any portion of their allocation. Issuances are being planned in at least 4 states that have yet to issue. Approximately 31.4% 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 states⁴ 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).⁵ 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)⁶**

² As of June 2014, percentages in these states are: Kansas, 99.98%; Colorado, 93.85%; Kentucky, 93.24%; Nebraska, 88.23%; Montana, 83.03%; California, 82.31%; and South Dakota, 78.81%.

³ States not yet known to have issued are: Alaska, Delaware, District of Columbia, Florida, Hawaii, Idaho, Iowa, Mississippi, New Jersey, New Mexico, North Carolina, Oklahoma, Rhode Island, Texas, Vermont, West Virginia, and Wyoming.

⁴ As per IRS Notice 2009-29, the term state includes the District of Columbia and any possession of the United States.

⁵ 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.”

⁶ 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

3. For rural development (including the production of renewable energy)
4. For certain renewable energy facilities (such as wind, solar, and biomass)⁷
5. For certain mass commuting projects

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

In assessing QECB 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 QECB issuances, see Appendix A.

B. Waivers: Returning Large Local Government Sub-Allocations to the State

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 counsel 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; (2) simultaneous allocation and waiver authorization through legislation; and (3) absence of any officially authorized waiver process.

At least six states utilized Executive Orders to implement and authorize the allocation of QECBs⁸. Of the six, one state, Idaho, used an Executive Order to simultaneously authorize allocations and a constructive waiver process. We are not aware of any state that has used an Executive Order solely for the purpose of clawing QECB 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 QECB proceeds to make loans directly to homeowners. See, for example, St. Louis County Saves, www.stlouiscountysaves.com.

⁷ 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. See 26 USC 54D for exact language.

⁸ 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 QECBs at all⁹. Some states (including Nebraska, Tennessee, and Texas) utilized a “Letter of Intent” (LOI) Approach that might be properly characterized as either an affirmative or a constructive waiver depending in part on state law (See Appendix E for LOI examples from Texas and Washington.) 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 QECB allocation. If the LLG checked “no” on the Letter of Intent the QECB funds were allocated back to the state.

There are still a few states that have not authorized the QECB funds and therefore have no QECB program in existence.¹⁰

Waiver Process Number of States

Affirmative ¹¹	24
Constructive ¹²	6
Letter of Intent ¹³	3
No Waiver Process ¹⁴	13
Unknown ¹⁵	8

C. Subsidy and Interest Rates

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

The QECB subsidy (70% of the Qualified Tax Credit Bond Rate) is generally correlated with Treasury yields and has historically ranged from 2.86% to 3.9%.¹⁶ This corresponds to net financing costs for issuers of around 0.338% to 1.5%¹⁷. 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.¹⁸ Up-to-date Qualified Tax Credit Bond Rates (with respect to which QECB 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

⁹ Confirmed via State Agencies website or employees. See Appendix H for relevant agencies.

¹⁰ See page 14 for discussion of state utilization and authorization.

¹¹ Alabama, Arkansas, Connecticut, Georgia, Illinois, Iowa, Kentucky, Louisiana, Maine, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Jersey, New York, North Carolina, Oregon, Pennsylvania, Tennessee, Texas, Utah, Virginia, Wisconsin

¹² Arizona, California, Colorado, Idaho, South Carolina, Washington

¹³ Nebraska, Tennessee, Texas

¹⁴ Hawaii, Indiana, Maryland, Michigan, Mississippi, Montana, New Hampshire, New Mexico, North Dakota, Ohio, Oklahoma, Rhode Island, South Dakota

¹⁵ Alaska, Delaware, DC, Florida, Kansas, Vermont, West Virginia, Wyoming

¹⁶ Wells Fargo Monthly QECB Activity Updates (June 2011–January 2013), www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm

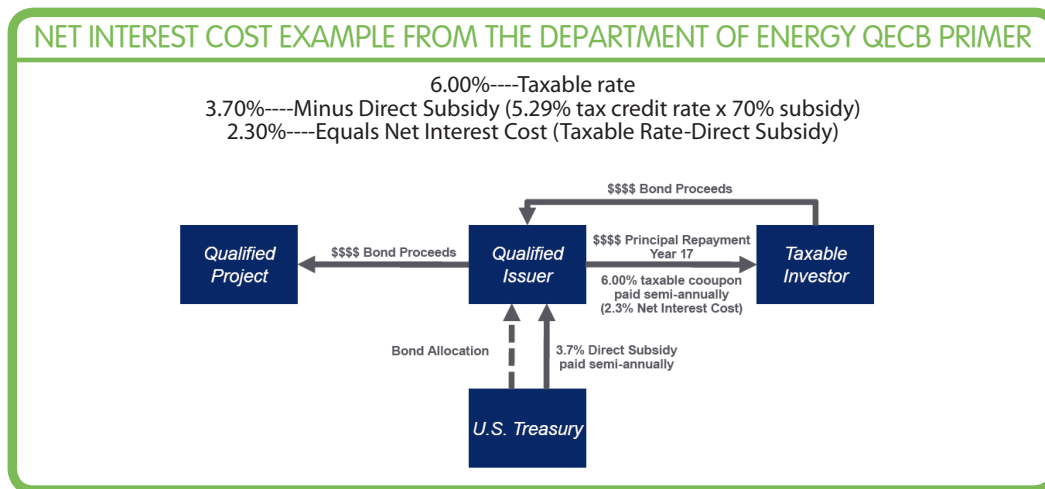
¹⁷ Wells Fargo Monthly QECB Activity Updates (June 2011–January 2013), www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm

¹⁸ Bloomberg NYPL QECB search, October 2013.

Clean Energy Finance Guide, the rate is set so that the present value of principal payments equals 50% of the original principal amount.¹⁹

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.²⁰ Tax credit bonds, unlike direct pay bonds, do not appear to be subject to sequestration cuts but no written guidance confirming this is available as of May, 2014.

In the more popular direct-pay QECB, the issuer pays a taxable coupon to the investor and repays principal at the end of the term.²¹ Treasury pays the issuer the lesser of the taxable coupon rate or 70% of the tax credit rate.²²



D. Maturity and Repayment Structures

QECBs 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 26 years.²³

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

QECBs 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

¹⁹ 13 See Chapter 2 in U.S. Department of Energy Clean Energy Finance Guide (December 2010), p. 11, www4.eere.energy.gov/wip/solutioncenter/finance_guide/content/chapter_documents?print=1.

²⁰ H.R. 2847 Section 301.

²¹ 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 QECB Primer illustration below). See: U.S. Department of Energy QECB Primer, p. 12, http://www1.eere.energy.gov/wip/pdfs/qecb_creb_primer.pdf.

²² See IRS Notice 2010-35, p. 5

²³ Wells Fargo Monthly QECB Activity Updates (June 2011-January 2013); www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm.

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 date. The Municipal Securities Rulemaking Board (MSRB) provides a number of examples of redemption provisions that may be of interest to potential issuers.²⁴

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.²⁵ 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 can not 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.²⁶

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 "par²⁷ plus accrued interest" after 10 years.²⁸

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.

²⁴ "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>.

²⁵ See Appendix G: Call Provisions

²⁶ See Appendix G: Call Provisions

²⁷ 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:

²⁸ 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.

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.²⁹

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.³⁰ 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.³¹
- Issuers can use up to 2% of the bond proceeds to finance costs of issuance.³²
- Generally, QECBs are subject to rules that apply to tax-exempt bonds.³³
- 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 2010.³⁴ 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).³⁵
- 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.³⁶
- 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.³⁷

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

²⁹ 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.

³⁰ 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.

³¹ 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.

³² See 26 USC 54A(e)(4).

³³ See IRS Notice 2010-35, available at www.irs.gov/pub/irs-drop/n-10-35.pdf.

³⁴ 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.

³⁵ See Department of Energy Technical Assistance Program "Taking Advantage of Qualified Energy Conservation Bonds" (September 22, 2010).

³⁶ See: www.irs.gov/pub/irs-pdf/i8038tc.pdf.

³⁷ See: www.irs.gov/pub/irs-pdf/i8038cp.pdf.

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.

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 QECBs³⁸ on August 12, 2010 to make heating and air-conditioning improvements and replace windows in the Waterbury city hall and library.³⁹ These bonds were issued as part of a larger issuance: Waterbury also issued tax exempt bonds, Recovery Zone Economic Development (RZED) bonds,⁴⁰ 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.⁴¹ These QECBs were issued jointly with \$120,000 of 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.⁴²

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

³⁸ This QECB issuance is a Tax Credit issuance.

³⁹ See www.ctcda.com/Financing/Bond_Financing/QUALIFIED_ENERGY_CONSERVATION_BONDS/.

⁴⁰ 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.

⁴¹ See <http://stateenergyreport.com/2011/05/05/using-qecbs-for-multifamily-housing-upgrades-a-case-study/-a-case-study/>.

⁴² 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/>

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.⁴³

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).⁴⁴ LADWP installed, owns, and operates the Adelanto system.⁴⁵

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.⁴⁶ 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.⁴⁷ 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.⁴⁸

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 annually⁴⁹. 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 QECBs that were issued by the Washington State Housing Finance Commission⁵⁰ – marking a first in the United States for a wind project of its kind.

⁴³ 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/>

⁴⁴ 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=o&_afWindowId=qXKWgDe4#%40%3F_afWindowId%3DqXKWgDe4%26_afLoop%3D379084052200628%26_afWindowMode%3Do%26_adf.ctrl-state%3Dc7x7wmzkm_17. Also see the official statement.

⁴⁵ See <http://www.solarworld-usa.com/news-and-resources/news/ladwp-solar-project.aspx>.

⁴⁶ See www.ladwpnews.com/go/doc/1475/986259/LADWP-and-SolarWorld-Partner-to-Develop-11-6-Megawatt-Solar-Power-System-for-Los-Angeles.

⁴⁷ See www.ladwpnews.com/go/doc/1475/986259/LADWP-and-SolarWorld-Partner-to-Develop-11-6-Megawatt-Solar-Power-System-for-Los-Angeles.

⁴⁸ See <http://nwcommunityenergy.org/solar/siting-and-system-design/pv-system-design> and http://www.getsolar.com/residential_Solar-Roof-vs-Ground-Installation.php.

⁴⁹ http://www.nawindpower.com/e107_plugins/content/content.php?content.11302

⁵⁰ <http://www.wshfc.org/admin/releases/2013.03.27SwaukWind.pdf>

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).⁵¹

Boulder County negotiated a private placement of the bonds with UMB Bank. The bonds have one maturity date and one interest rate.⁵² 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.⁵³ Interest rates to consumers are below 3% for both the 5-year and 10-year term options.⁵⁴

Commercial entities interested in the PACE commercial program had to submit project applications by August 2010.⁵⁵ 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.⁵⁶ 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.⁵⁷

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 (11%) and solar hot water (5%). Twenty-nine percent of the projects are other measures, such as lighting, retro commissioning,⁵⁸ and energy managements systems.⁵⁹

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%.⁶⁰ In January, 2013, the program was expanded to include commercial loans. These loans can be used to upgrade

⁵¹ 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.

⁵² 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.

⁵³ The \$30,000 issuance helped cover issuance costs.

⁵⁴ 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>.

⁵⁵ 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.

⁵⁶ See Glenn Barnes, "Using Qualified Energy Conservation Bonds to Promote Energy Efficiency in the Community" Blog Post (September 27, 2011), <http://sogweb.sog.unc.edu/blogs/ced/?p=3404>.

⁵⁷ 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.

⁵⁸ 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/.

⁵⁹ 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/niagamohawk/non_html/ee_conference/EnergyMgt.pdf.

⁶⁰ 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%2075%20MO.pdf>.

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. 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.⁶¹

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 EECBG funds for a rebate program. As of June 3, 2014 262 retrofits have been completed under St. Louis SAVES. The EECBG funds helped cover issuance and program administrative costs.⁶² The QECCBs are secured by the county's annual appropriation pledge,⁶³ with the designation of loan proceeds as the source of repayment.⁶⁴ The issuance was for serial bonds⁶⁵ with a final maturity of 15 years, with some bonds starting to mature annually in 2013.⁶⁶

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 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.⁶⁷ On December 15, 2010, the University of Louisville issued \$20,942,000 in QECCBs. 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.⁶⁸

The University of Louisville issued BABs with an interest cost of 3.28% and QECCBs with an interest cost of 1.64%. The term of the bonds was 17 years, and a QECCB sinking fund is being utilized.⁶⁹

⁶¹ See: www.fhfa.gov/webfiles/15884/PACESTMT7610.pdf.

⁶² 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.

⁶³ 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>

⁶⁴ St. Louis County, Missouri Official Statement Dated May 18, 2011 for Series 2011 A QECCBs Due December 1, 2025, p. 14.

⁶⁵ Serial bonds mature in consecutive years. See: <http://www.msrb.org/glossary/definition/serial-bonds.aspx>.

⁶⁶ St. Louis County, Missouri Official Statement Dated May 18, 2011 for Series 2011 A QECCBs Due December 1, 2025, p. 2.

⁶⁷ U.S. Department of Energy, "QECCB Updates from the Field"

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

⁶⁸ See U.S. Department of Energy Technical Assistance Program, "Taking Advantage of Qualified Energy Conservation Bonds" (September 22, 2010).

⁶⁹ U.S. Department of Energy, "QECCB Updates from the Field" Webinar, <http://www1.eere.energy.gov/wip/solutioncenter/media/Qualified%20Energy%20Conservation%20Bonds-QECCBs-Updates%20From%20the%20Field%20Slides.pptx>.

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).⁷⁰

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.⁷¹

IV. UTILIZATION TRENDS

*Note: Although the IRS collects information on QECB issuances on Form 8038-TC, it has 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,⁷² state agencies⁷³ and finance authorities,⁷⁴ territories, municipalities,⁷⁵ municipal utilities,⁷⁶ municipal agencies,⁷⁷ counties, tribes, school districts,⁷⁸ and higher education institutions.⁷⁹ See Tables 1C and 1D.

The most common use of QECBs to date, as of May 2014, has been capital improvements to reduce energy consumption in publicly owned buildings by at least 20%. (See Table 1B at the end of this paper). For example, such issuances make up almost all known issuances in the Northwest and Southeast regions⁸⁰ and around 70% of total known QECB 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).

⁷⁰ <http://financing.lbl.gov/reports/street-lighting-qecb.pdf>

⁷¹ <http://financing.lbl.gov/reports/street-lighting-qecb.pdf>

⁷² For example, in July 2011 the state of Maryland issued \$6.5 million of QECBs for improvements to public schools (direct issuance by state).

⁷³ The Commonwealth of Pennsylvania issued \$15.8 million for retrofit projects for corrections facilities.

⁷⁴ For example, the Kansas Development Finance Authority issued \$17.8 million for university projects.

⁷⁵ The city of Waterbury, Connecticut issued \$4.7 million for city facilities retrofit projects (direct issuance by city).

⁷⁶ The Los Angeles Department of Water and Power issued \$131 million for solar and wind projects.

⁷⁷ In Minnesota, the Washington County Housing and Redevelopment Authority issued \$2.375 million for energy efficiency improvements.

⁷⁸ The Menasha School District in Wisconsin issued \$1.69 million for school improvements.

⁷⁹ The University of Colorado issued \$4.375 million for university projects.

⁸⁰ **States in each region (as per NASEO):** Central: Colorado, Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, 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.

Although energy efficiency improvements are the most popular use of QECBs overall, investments in renewables are particularly popular in the Southwest. Of the QECBs issued in the Southwest, 67% have been used for renewable energy facilities, such as installing solar panels at public schools.

At least eleven 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; Washington State Housing Finance Commission, WA; GreenFinanceSF, CA; South Carolina SAVES, SC; Kitsap County, WA; NYSERDA, NY; and Roaring Fork Transportation Authority, CO. Known public education campaign issuances are 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 May 2014, EPC is not aware of any QECB issuances used for rural development or research or demonstration projects.

Private Activity Bond Issuances

At least seven QECB issuances to date have been private activity bond issuances, including three in Massachusetts⁸¹, one in Lawrence, Kansas⁸², one in Washington state, and two in Colorado.

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.⁸³ The Fairhaven Wind project issued approximately \$3 million in QECBs in November 2011 and used the proceeds to build two 1.5 MW wind turbines. The Scituate Wind project issued approximately \$1.5 million in August 2011 and used the proceeds to build one 1.5 MW wind turbine. The Westford Solar project issued \$5.8 million in August 2011 and used 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.

In Colorado, the Colorado Housing Finance Authority (CHFA) completed two QECB issuances on behalf of private entities. In April 2012, they issued \$6.7 million in QECBs to a private developer with the proceeds used to finance the installation of solar panels on Denver Housing Authority properties. In August 2013, the CHFA issued \$4.9 million in QECBs to various private entities to finance solar facilities for Denver International Airport, The City of Greeley and the State of Colorado Department of Corrections.

Energy Performance Contract Issuances

At least ten QECB issuances (as of May, 2014) are known to have utilized energy performance contracts.⁸⁴ One example is the University of Louisville, which issued \$20.9 million in QECBs for such a project.

Utilization of QECB 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 1A. In addition to Kansas, known state leaders include Colorado (94%), Kentucky (93%), Nebraska (88%), Montana (83%), California (82%), South Dakota

⁸¹ Fairhaven Wind, Scituate Wind and Westford Solar

⁸² Interview with Diane Stoddard, Assistant City Manager for the City of Lawrence.

⁸³ Interview with Elise Avers, Massachusetts Department of Energy Resources.

⁸⁴ 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, Washington County Housing and Redevelopment Authority; and the Town of Marshfield, Massachusetts.

(79%), and Louisiana (66%). Seventeen states are not known to have issued any QECBs. Three states have confirmed that QECBs have not yet been authorized: Florida, New Mexico and West Virginia. In addition, EPC has been unable to locate authorizing documentation for Alaska, Hawaii, Mississippi, New Hampshire⁸⁵ and Wyoming. QECB Authorization efforts in Hawaii appear to have stalled in 2012.

Regional Utilization of QECB Allocations

Regionally⁸⁶, known utilization rates range from about 17.7% in the Southeast to 65.7% in the Southwest (see Graph 5). The Northeast, Midwest, Northwest, and Central regions have utilization rates ranging from about 19.8% to 37.9%. 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 little as \$120,000 for Rantoul Township High School District 193 in Champaign County, Illinois, to as much as \$131 million for the Los Angeles Department of Water and Power in California (see Table 1B). Large metropolitan areas that have issued QECBs include Albany, NY, Chicago, Philadelphia, Nashville and Davidson Counties (TN), Las Vegas, Los Angeles, San Diego, and St. Louis. 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.

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 states⁸⁷ 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 governments⁸⁸ have pointed to sequestration concerns.

Throughout 2013, EPC reached out to large local governments in 11 states⁸⁹ 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), and (4) Sequestration (4 LLGs, 12% of respondents).

Small Allocations and Issuance Costs

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.

⁸⁵ New Hampshire indicated that no legislation was required to issue QECBs. As of June 2014 we are aware of one QECB issuance in New Hampshire.

⁸⁶ States in each region (as per NASEO): Central: Colorado, Kansas, Montana, Nebraska, North Dakota, Oklahoma, South Dakota, Texas, 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.

⁸⁷ 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.

⁸⁸ Examples include Schenectady County, NY and Gresham, Oregon.

⁸⁹ Illinois, Michigan, New York, North Carolina, Pennsylvania, Virginia, Minnesota, Missouri, Iowa, Alabama, Wisconsin.

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.⁹⁰ Transaction costs in many cases are relatively fixed regardless of the size of an issuance.⁹¹

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,⁹² 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)⁹³ for issuing QECBs. The median issuance cost was 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.

Techniques for Addressing Small Allocation Issues

Bundling. One approach to dealing with small allocation sizes is to bundle QECBs with other bonds. Of the 79 issuances⁹⁴ 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. QECBs have been issued simultaneously with other taxable bonds, tax exempt general obligation bonds, revenue bonds, Air Quality Development Bonds,⁹⁵ Build America Bonds,⁹⁶ Clean Renewable Energy Bonds,⁹⁷ Qualified Zone Academy Bonds,⁹⁸ Recovery Zone Economic Development Bonds,⁹⁹ and Recovery Zone Facility Bonds.¹⁰⁰

Energy Efficiency and Conservation Block Grants. Other jurisdictions have used their EECBGs to help cover issuance and administrative costs. The City of Los Angeles used EECBG funding to help cover interest costs

⁹⁰ See 26 USC 54A(e)(4).

⁹¹ "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).

⁹² 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.

⁹³ 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.

⁹⁴ 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.

⁹⁵ Twelve of the fourteen issuances in Ohio have involved bundling QECBs 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.

⁹⁶ 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 QECBs and BABs alone. The other issuances were bundled with other types of bonds as well.

⁹⁷ Only the Los Angeles Department of Water and Power bundled their QECBs with CREBs.

⁹⁸ Four QECB 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 QECBs and QZABs. The other issuances were bundled with other types of bonds as well.

⁹⁹ 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 QECBs and RZEDs without any other bonds included.

¹⁰⁰ Lawrence, Kansas bundled its QECBs with Recovery Zone Facility Bonds.

for the first two years of the bond term. St. Louis County used EECBG funding to buy down customer interest rates and to cover the county's program administration costs.¹⁰¹

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,¹⁰² multifamily housing revenue bonds,¹⁰³ disaster revenue bonds,¹⁰⁴ 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 QECBs, meaning that local counties could join their QECB 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.¹⁰⁵

Debt Aversion and Debt Caps

Some state and local governments are unwilling to take on additional debt. Other jurisdictions have statutory debt volume caps, which may decrease their motivation to "spend" their volume cap on QECBs versus other types of bonds. In these instances, QECBs and energy efficiency projects may not rank high enough on the state or local government's overall set of priorities for bond issuances.¹⁰⁶

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 ones Colorado and Tennessee utilized.¹⁰⁷ 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 QECB program and one was chosen and designated in an executive order or state legislation authorizing the QECB program and suballocations. At least 22 State Energy Offices (SEOs) have been charged with implementing QECBs. 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 QECB programs. In some instances, the

¹⁰¹ See Lawrence Berkeley National Laboratory, "Using Qualified Energy Conservation Bonds (QECBs) to Fund a Residential Energy Efficiency Loan Program: Case Study on Saint Louis County, MO" (June 2011), p. 3.

¹⁰² February 15, 2012 issuance. See Official Statement at <http://emma.msrb.org/ER577249-ER448110-ER850651.pdf>.

¹⁰³ September 27, 2011 issuance. See Official Statement at <http://emma.msrb.org/EP571658-EP448706-EP848602.pdf>.

¹⁰⁴ September 22, 2011 issuance. See Official Statement at <http://emma.msrb.org/EP572032-EP449005-EP848916.pdf>.

¹⁰⁵ Interview with Colin Bishopp.

¹⁰⁶ "NASEO and EPC Summary of Barriers for Increasing QECB Activity at the State and Local Levels" (February 2012).

¹⁰⁷ See Appendix D: State Applications for examples of state application process documentation

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.¹⁰⁸

Similarly, technical assistance and support from the state or the federal government is helpful and, in some cases, necessary for local governments to use QECBs.¹⁰⁹

Some state agencies administering the QECBs did extensive outreach to local governments to make them aware of this funding opportunity. For example, Maryland Energy Administration (MEA) wrote and distributed QECB information papers and worked with the state Treasurer and the Governor's office.¹¹⁰ 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 QECB program and helping establish the groundwork for issuances in Maryland. MEA, the Treasurer, and the Community Development Administration (CDA) continue to consult with suballoctees re QECBs.

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, after September 2012 but prior to sequester becoming a reality, the threat of cuts to subsidy payments on QECBs was cited by at least one state and one local government as a barrier to issuance. See Section VI for an update on sequestration.

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.

¹⁰⁸ "NASEO and EPC Summary of Barriers for Increasing QECB Activity at the State and Local Levels" (February 2012).

¹⁰⁹ "NASEO and EPC Summary of Barriers (Interview with Dan Bresette of the Maryland Energy Administration, or Increasing QECB Activity at the State and Local Levels" (February 2012).

¹¹⁰

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. At the time, 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 reports on sequestration, please visit: http://www.whitehouse.gov/omb/legislative_reports/sequestration .

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 QECBs 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 QECBs may not be subject to the cuts.

In Spotsylvania, the reduction in interest subsidies to date equates to about \$3,571 less for the county. Luckily, the reduction hasn’t affected the project itself but the completion target date of the VRE station is currently unknown.

Six counties have cited sequestration as a reason for not actively pursuing QECBs. 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 bonds.

Intended Scope

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

Capital Expenditure Requirement

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

20% Savings

As noted earlier, a common use of QECBs 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 QECBs. 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 QECB issuers. Energy savings can be measured building by building or across all the buildings improved with the QECB proceeds. They can also be measured by a 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, there have been relatively few of green community program issuances. 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.¹¹¹ Retrofits can include heating, cooling, lighting, water¹¹², conservation, storm-water reduction, or other efficiency measures.¹¹³

Issuance Trends since IRS Notice 2012-44 & The Sequester

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 \$21.73 million increase in issuances over two quarters (\$77.94 million in Q3 and Q4 as compared to \$56.21 million in Q1 and Q2). Early in 2013 the increasing threat of sequester (among other factors) began to loom and coincided with a reduction in known issuances. In Q1 2013, there were only 2 known issuances totaling \$11.2 million. Q3 of 2013 saw a dramatic increase in issuances with a total of \$99.39 million issued and, while this helped boost the total issuances for 2013 to \$183.96 million (a 37% increase over 2012), it appears to be an anomaly. The low volume of issuances has continued for both of the last two quarters, Q4 2013 issuances totaled \$16.15 million (a decline of 65% from the amount issued in Q4 2012) and Q1 2014 issuances totaled only \$14.45 million. See Graph 2: Amount of QECBs Known to be issued by Quarter.

Notice 2012-44 indicates that the contact at the IRS is Zoran Stojanovic. The phone number listed in the notice has been updated to: (202) 317-4564

¹¹¹ 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

¹¹² 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.

¹¹³ See: www1.eere.energy.gov/wip/solutioncenter/pdfs/taking_advantage_of_qualified_energy_conservation_bonds_qecbs_presentation.pdf.

VII. UPDATES SINCE EPC QECB MEMO DATED DECEMBER 2013

Since EPC's QECB memo dated December 2013, the total number of known QECB issuances has increased to 173 projects in 34 states, up from 163 projects in 32 states. The increased figure reflects both new issuances as well as previously unknown issuances.

The increase in known projects from 163 to 173 consists of 10 new QECB issuances since our December report and 3 previously unknown issuances. Newly reported issuances include:

- Nebraska Utilities Corporation, Nebraska, \$5.5 million, February 6, 2012, peak demand reduction projects
- Nebraska Utilities Corporation, Nebraska, \$6.5 million, February 11, 2014 central renewable energy system for Nebraska Innovation Campus
- Washington State Housing Finance Commission, Washington, \$1.15 million, March 6, 2014, energy efficiency upgrades to Town & Country Market (part of Kitsap County green community initiative)
- Illinois Central College / Tazewell County, Illinois, \$1.3 million, March 13, 2014, sustainability center
- University of Nebraska, Nebraska, \$4.33 million, April 1, 2014, energy monitoring system for university medical center
- City of Trussville, Alabama, \$2.49 million, April 20, 2014, energy efficient upgrades to lighting at city sports facilities
- South Carolina SAVES/ Randolph Trucking, \$2 million, May 24, 2014, replace truck fleet with energy efficient gas-compressed vehicles (part of South Carolina SAVES Green Community Program)

See Table 1B for a complete list of known issuances. In addition, we have removed 3 previously reported issuances which have since been determined not to have closed: San Antonio, TX, Ravenna, OH, and Lake County (Madison) Local School District, OH.

Taking into account all of these issuances, total known QECB issuances have now reached \$1.006 billion. See Graph 1 at the end of this paper. This figure represents an increase of only \$25.3 million (2.58 percent) since December 2013.

Due to the addition of new and previously unknown issuances, known state utilization rates increased in 9 states: Alabama, California, Colorado, Illinois, Massachusetts, Nebraska, Pennsylvania, South Carolina and Washington.

Known utilization rates have increased in five of six regions. See Graph 5 at the end of this paper. The Central region increased to 26.6% (despite the removal of a Texas issuance that failed to close) as a result of 3 new issuances in Nebraska and one previously unknown issuance in Colorado. The Southwest increased slightly to 65.7% due to one new and one previously unknown issuance in California. The Southeast also showed a small increase to 17.7% because of new issuances in Alabama and South Carolina. The Northwest increased to 35.6% due to one new and one previously unknown issuance in Washington. The Northeast increased by less than one percentage point to 19.8% as a result of two small new issuances in Massachusetts and Pennsylvania. The Midwest saw a small decrease to 37.9% despite a new issuance in Illinois, due to the removal of two issuances in Ohio that failed to close.

Graph 2 shows the rate of QEBC issuances on a quarterly basis beginning in the first quarter of 2010. \$183.96 million of QEBCs were issued in 2013, a 37% increase over the total of \$134.15 million issued in 2012. 2013 was an inconsistent year for the totals issued by quarter, while the fourth quarter total issued of \$16.15 million represented a 65% decrease from the amount issued in the same quarter in 2012, the third quarter of 2013 saw a total issued of \$99.39 million, a 276% increase compared to the third quarter of 2012.

\$14.45 million of QEBCs are known to have been issued in the first quarter of 2014, a 10.5% decrease from the total of \$16.15 million issued in the fourth quarter of 2013 but a 28.9% increase over the \$11.21 million issued in the same quarter of 2013.

VIII. Tables and Charts

Table 1A: State and Local Issuances of QEBCs (as of June 10, 2014)

State	Amount	Known Issued	Percent Issued	Remaining
Alabama	48,364,000	29,327,186	60.64	19,036,814
Alaska	7,120,000	0	0.00	7,120,000
American Samoa	673,000	0	0.00	673,000
Arizona	67,436,000	16,023,804	23.76	51,412,196
Arkansas	29,623,000	9,125,000	30.80	20,498,000
California	381,329,000	313,853,250	82.31	67,475,750
Colorado	51,244,000	48,090,321	93.85	3,153,679
Connecticut	36,323,000	10,700,000	29.46	25,623,000
Delaware	9,058,000	0	0.00	9,058,000
District of Columbia	6,140,000	0	0.00	6,140,000
Florida	190,146,000	0	0.00	190,146,000
Georgia	100,484,000	5,372,000	5.35	95,112,000
Guam	1,826,000	0	0.00	1,826,000
Hawaii	13,364,000	0	0.00	13,364,000
Idaho	15,809,000	0	0.00	15,809,000
Illinois	133,846,000	75,980,000	56.77	57,866,000
Indiana	66,155,000	19,500,000	29.48	46,655,000
Iowa	31,150,000	0	0.00	31,150,000
Kansas	29,070,000	29,065,000	99.98	5,000
Kentucky	44,291,000	41,297,000	93.24	2,994,000
Louisiana	45,759,000	30,318,244	66.26	15,440,756
Maine	13,657,000	4,097,100	30.00	9,559,900
Maryland	58,445,000	10,665,000	18.25	47,780,000
Massachusetts	67,413,000	33,133,237	49.15	34,279,763
Michigan	103,780,000	10,880,736	10.48	92,899,264
Minnesota	54,159,000	16,025,000	29.59	38,134,000
Mississippi	30,486,000	0	0.00	30,486,000
Missouri	61,329,000	11,435,000	18.65	49,894,000
Montana	10,037,000	8,334,000	83.03	1,703,000
Nebraska	18,502,000	16,325,000	88.23	2,177,000
Nevada	26,975,000	8,135,950	30.16	18,839,050
New Hampshire	13,651,000	1,129,348	8.27	12,521,652
New Jersey	90,078,000	0	0.00	90,078,000
New Mexico	20,587,000	0	0.00	20,587,000
New York	202,200,000	29,469,870	14.57	172,730,130
North Carolina	95,677,000	0	0.00	95,677,000
North Dakota	6,655,000	3,780,000	56.80	2,875,000
Northern Marianas	899,000	0	0.00	899,000
Ohio	119,160,000	77,806,888	65.30	41,353,112

Oklahoma	37,787,000	0	0.00	37,787,000
Oregon	39,320,000	7,600,000	19.33	31,720,000
Pennsylvania	129,144,000	41,835,000	32.39	87,309,000
Puerto Rico	41,021,000	0	0.00	41,021,000
Rhode Island	10,901,000	0	0.00	10,901,000
South Carolina	46,475,000	2,000,000	4.30	44,475,000
South Dakota	8,343,000	6,575,000	78.81	1,768,000
Tennessee	64,476,000	7,681,344	11.91	56,794,656
Texas	252,378,000	0	0.00	252,378,000
US Virgin Islands	1,140,000	0	0.00	1,140,000
Utah	28,389,000	6,918,774	24.37	21,470,226
Vermont	6,445,000	0	0.00	6,445,000
Virginia	80,600,000	3,710,000	4.60	76,890,000
Washington	67,944,000	43,550,000	64.10	24,394,000
West Virginia	18,824,000	0	0.00	18,824,000
Wisconsin	58,387,000	26,322,883	45.08	32,064,117
Wyoming	5,526,000	0	0.00	5,526,000
Total	\$3,200,000,000	\$1,006,061,935	31.44	2,193,938,065
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, Gabriel Weil, EPC, and Susan Rosenthal, EPC, and funded by the Energy Foundation, Ford Foundation, and others. Chart includes all known QECB issuances through May 13, 2014 but may not include all QECB issuances.				
For more information, please contact Elizabeth Bellis at ebellis@energyprograms.org , Gabriel Weil at gweil@neada.org or 202.999.996, Susan Rosenthal at srosenthal@energyprograms.org .				

Table 1B: Qualified Energy Conservation Bonds Known Issued by State (as of June 10, 2014)				
Issued To	State	Issue Date	Amount Issued	Use of Proceeds
Montgomery County Commission	Alabama	3/9/2012	\$4,416,936	EE government buildings
Scottsboro- City	Alabama	11/29/2012	\$5,750,000	EE retrofit – schools
City of Foley	Alabama	1/30/2013	\$2,900,000	EE retrofits - citywide
City of Vestavia Hills	Alabama	5/15/2013	\$4,245,000	Lighting - sports fields
Madison County Board of Education	Alabama	7/3/2013	\$9,530,250	
City of Trussville	Alabama	4/20/2014	\$2,485,000	EE - lighting - sports complex - projected 20% energy savings
Tucson City	Arizona	6/23/2010	\$5,590,000	EE / generation - cooler towers, boilers and chillers at central energy plant serving municipal facilities
Tucson City	Arizona	6/9/2011	\$1,430,000	EE
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	EE / Capital Improvements - DHS
Osceola County School District	Arkansas	11/1/2013	\$4,495,000	EE – schools
Irvine Unified School District	California	7/29/2010	\$4,840,000	EE – schools
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	Renewable generation - solar & wind
Oxnard Union High School District Project	California	9/29/2010	\$19,067,730	Renewable generation - solar improvements in schools
Fallbrook Public Utility District Project	California	11/18/2010	\$7,227,000	Renewable generation - solar improvements
Lodi Unified School District Project	California	11/18/2010	\$9,915,000	Renewable generation - solar improvements in schools
Richmond	California	12/1/2010	\$1,070,000	Lighting - 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 - solar project - 1MW
Kern County	California	4/12/2011	\$4,337,131	Renewable generation - 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	EE – university
Yuba Community College	California	6/21/2011	\$15,040,000	Renewable generation
Los Angeles County	California	8/31/2011	\$14,000,000	Renewable generation - solar projects
San Francisco County	California	10/1/2011	\$8,291,079	Retrofit - public facilities
Los Angeles	California	10/25/2011	\$11,920,000	Retrofit - city facilities
GreenFinanceSF (City and County of San Francisco)	California	10/12/2012	\$1,400,000	EE / renewable energy upgrades - multi-tenant commercial buildings - C-PACE
Los Angeles Dep't of Water & Power	California	6/4/2013	\$27,855,000	EE – university

Rancho Water District Financing Authority	California	11/7/2011	\$9,870,000	Water / wastewater capital improvement
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 Dt	Colorado	8/13/2010	\$1,000,000	Capital improvements - recreation
Western State College	Colorado	8/19/2010	\$1,635,000	Capital improvements - university
Boulder Housing Partners	Colorado	8/25/2010	\$1,443,881	Multi-family capital improvements
City of Englewood	Colorado	9/15/2010	\$1,286,440	Capital improvements - municipal
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	Capital improvement - university
Mesa County School District #51	Colorado	10/29/2010	\$2,000,000	EE - lighting / HVAC - schools
Boulder PACE	Colorado	11/5/2010	\$1,515,000	C-PACE
Colorado School of Mines	Colorado	4/12/2011	\$2,800,000	Energy performance contract - water fixture retrofits, irrigation controls, energy recovery coils, and lighting upgrades.
Colorado Housing Finance Authority (private issuance)	Colorado	4/20/2012	\$6,775,000	Renewable generation - solar - 2.5 MW PV project for Denver Housing Authority (DHA). The developer will be installing and operating installations on over 700 DHA housing units over the next 10 months, providing DHA with cost savings, hedges against spiking residential power prices and a major advancement of its sustainability goals.
Roaring Fork Transportation Authority	Colorado	8/21/2012	\$6,650,000	EE
Colorado Housing Finance Authority	Colorado	8/30/2013	\$4,900,000	Renewable generation - solar - Denver Airport, City of Greeley, CO Dept. of Corrections
East Hartford	Connecticut	4/10/2010	\$6,000,000	Capital improvements - municipal
Waterbury City	Connecticut	8/11/2010	\$4,700,000	EE – municipal
Fulton County	Georgia	8/23/2011	\$5,372,000	Capital improvements - schools
City of Chicago	Illinois	11/4/2010	\$29,665,000	EE - wastewater reclamation facility reconstruction
Champaign Cty School District 116 (Urbana)	Illinois	12/14/2010	\$585,000	EE - water system
Champaign Cty (Rantoul) Township High School District 193	Illinois	12/20/2010	\$120,000	Capital improvements - schools
McHenry CCSD	Illinois	8/31/2011	\$1,500,000	EE – schools
Deerfield	Illinois	9/26/2011	\$12,500,000	Water / wastewater capital improvement
Southern Illinois Univ Bd of trustees	Illinois	12/6/2012	\$5,365,000	EE
Cook County	Illinois	7/23/2013	\$24,945,000	Capital improvements - county facilities - otherwise not specified in OS
Illinois Central College / Tazewell County	Illinois	3/13/2014	\$1,300,000	Sustainability Center
Ivy Technical Community College	Indiana	10/1/2010	\$3,300,000	EE retrofits - hospital
Knox County	Indiana	4/12/2012	\$16,200,000	EE retrofits - hospital

Wyandotte County/Kansas Unified Govt.	Kansas	11/18/2010	\$2,530,000	EE improvements - municipal
Kansas Development Finance Authority	Kansas	12/21/2010	\$17,815,000	Capital improvements - university KSU
Lawrence City	Kansas	3/10/2011	\$8,720,000	Renewable generation
Louisville-Jefferson County Metro Govt.	Kentucky	9/14/2010	\$7,400,000	EE improvements - government
University of Kentucky	Kentucky	11/19/2010	\$12,955,000	Capital improvements - schools
University of Louisville	Kentucky	12/20/2010	\$20,942,000	Capital improvements - schools
Department of Corrections	Louisiana	12/15/2011	\$30,318,244	EE
Portland Housing Authority, Portland	Maine	6/7/2013	\$4,097,100	EE improvements
State of Maryland - St. Mary's County Public schools - Leonardtown Middle School	Maryland	7/27/2011	\$6,500,000	Capital improvements - schools - specific use not specified in OS
Montgomery County Equipment Lease	Maryland	10/3/2013	\$4,165,000	
City of Northampton	Massachusetts	12/22/2010	\$1,698,790	EE improvements - 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	Energy performance contract - schools - capital improvements
Belchertown	Massachusetts	9/20/2011	\$3,140,000	EE
Pentucket Regional School District	Massachusetts	10/21/2011	\$4,567,510	EE - schools - insulation, windows, roofing, boiler repairs / replacement
Fairhaven Wind	Massachusetts	11/7/2011	\$3,035,957	Renewable generation
Lowell City	Massachusetts	12/2/2011	\$2,648,000	EE
Town of Marshfield	Massachusetts	7/2/2012	\$5,000,000	Energy performance contract - schools and public buildings
Lancaster Town	Massachusetts	9/18/2012	\$1,484,000	Renewable Generation
Georgetown	Massachusetts	10/18/2012	\$2,199,000	EE
South Hadley	Massachusetts	12/18/2013	\$1,901,000	EE capital improvements
Saginaw	Michigan	12/20/2010	\$2,088,779	EE improvements to county facilities
Osceola County	Michigan		\$650,000	EE - county annex building
Genesee County	Michigan		\$4,515,976	EE & Conservation Block Grant
City of Greenville	Michigan		\$800,000	
Ottawa County	Michigan		\$2,825,981	
Grant County	Minnesota	2/1/2011	\$2,000,000	Capital improvements
Itasca County	Minnesota	2/8/2011	\$3,690,000	EE
ELY ISD #696	Minnesota	5/19/2011	\$2,810,000	EE – schools
New Hope Economic Development Authority	Minnesota	11/18/2011	\$3,505,000	EE
Washington County Housing and Redevelopment Authority	Minnesota	2/22/2012	\$2,375,000	EE
Gilbert City	Minnesota	6/24/2012	\$350,000	EE
Goodhue County	Minnesota	8/16/2012	\$1,295,000	EE
Greene County	Missouri	3/3/2011	\$1,130,000	EE
St. Louis County	Missouri	4/29/2011	\$10,305,000	Green community loan program

Billings High SD #2	Montana	7/12/2012	\$3,780,000	EE - HVAC , windows, and roof upgrades – schools
Billings SD #2	Montana	7/12/2012	\$4,554,000	EE - HVAC , windows, and roof upgrades – schools
Nebraska Utilities Corp	Nebraska	2/1/2014	\$6,500,000	Renewable generation
Nebraska Utilities Corp	Nebraska	2/6/2014	\$5,500,000	EE - peak demand reduction demonstration projects - Energy Service Agreement
University of Nebraska	Nebraska	4/1/2014	\$4,325,000	EE - University - energy monitoring system at medical center
City of Reno	Nevada	6/1/2010	\$2,261,650	EE retrofit - municipal - Reno City Hall
Las Vegas	Nevada	3/16/2011	\$5,874,300	EE retrofits - streetlights and municipal buildings
Manchester	New Hampshire	11/1/2010	\$1,129,348	EE – schools
Rochester City	New York	6/16/2010	\$2,166,400	EE - HVAC replacement
Chautauqua County	New York	1/19/2011	\$1,403,470	Renewable generation
Albany Co - New York	New York	12/27/2012	\$1,600,000	EE
NYSERDA	New York	8/13/2013	\$24,300,000	EE - retrofits and audits for eligible residential application - finance and refinance loans made by NYSERDA's Green Jobs - Green NY program
Morton County (Mandan S.D.)	North Dakota	2/9/2011; 5/4/2011	\$3,780,000	Water / EE (plumbing and lighting) – schools
Owens State Community College	Ohio	3/18/2010	\$3,125,000	EE and conservation improvements
Kent State University (Stark Campus)	Ohio	6/11/2010	\$672,130	EE and conservation improvements
Pickaway County	Ohio	12/15/2010	\$1,479,807	EE retrofit - county
Kent State University (Regional Campus)	Ohio	3/30/2011	\$2,693,612	EE and conservation improvements
Kent State University (Main Campus)	Ohio	5/31/2011	\$7,000,000	EE and conservation improvements
Findlay	Ohio	6/30/2011	\$518,010	EE retrofit - county
City of South Euclid	Ohio	8/31/2011	\$386,145	EE
Licking County	Ohio	9/29/2011	\$2,121,000	EE retrofit - county
Hamilton County	Ohio	10/22/2011	\$2,063,750	EE retrofit - county
Williams Co (Edgerton) LSD	Ohio	2/23/2012	\$595,000	School improvements
City of Trotwood	Ohio	4/12/2012	\$883,361	EE
Jefferson County	Ohio	5/12/2012	\$658,040	EE
Ohio University	Ohio	8/1/2012	\$8,500,000	EE - university - air system and tower condition improvements; direct digital control system expansion, upgrade and integration; variable-frequency drive installation on up to four dozen fan motors; kitchen hood improvements; pipe and blanket installation; water conservation measures and other improvements.
Kent State University	Ohio	10/25/2012	\$7,500,000	EE retrofit

Licking County	Ohio	11/20/2012	\$796,252	EE retrofit
Ohio State University	Ohio	12/20/2012	\$2,340,000	EE retrofit
Wright State University	Ohio	2/28/2013	\$8,312,700	EE retrofit
Central State University	Ohio	5/16/2013	\$7,000,000	EE retrofit
Franklin County	Ohio	5/23/2013	\$3,806,167	EE retrofit
City of Akron	Ohio	8/15/2013	\$2,355,914	EE - municipal facilities
University of Akron	Ohio	9/30/2013	\$15,000,000	EE / renewable generation - lighting, HVAC, & solar
Gresham County	Oregon	7/30/2013	\$7,600,000	Renewable generation - wind
Commonwealth of PA Department of Corrections	Pennsylvania	9/30/2010	\$15,810,000	Capital improvements - prison facilities
Allegheny County	Pennsylvania	11/22/2010	\$9,385,000	Retrofit - municipal facilities
Fayette County	Pennsylvania	9/28/2011	\$1,490,000	Retrofit - municipal facilities
York County	Pennsylvania	12/28/2011	\$2,200,000	Retrofit - municipal facilities
Philadelphia Municipal Authority	Pennsylvania	5/11/2012	\$6,250,000	Retrofit - city facilities
Tri-Valley School District	Pennsylvania	12/30/2013	\$1,500,000	EE – schools
Lancaster County	Pennsylvania	8/7/2013	\$5,200,000	EE
South Carolina SAVES/Randolph Trucking	South Carolina	5/24/14	\$2,000,000	GCP – Gas compressed vehicles for trucking company
Davison County (Mitchell) #17-2	South Dakota	11/10/2010	\$1,725,000	Renewable generation - wind 1.5 MW turbine
Lake County	South Dakota	6/1/2011	\$850,000	Renewable generation
Rapid City	South Dakota	11/1/2011	\$4,000,000	Capital improvements – schools
Nashville and Davidson County	Tennessee	8/15/2012	\$6,440,000	Energy efficiency
Clarksville	Tennessee	8/30/2013	\$1,241,344	EE lighting - LED Streetlights
Utah County	Utah	10/22/2010	\$5,000,970	EE
Salt Lake County	Utah	7/12/2011	\$1,917,804	Renewable generation
Spotsylvania County	Virginia	7/19/2012	\$1,240,000	Transportation
Norfolk	Virginia	11/7/2013	\$2,470,000	EE – municipal
Yakima County	Washington	9/8/2010	\$2,430,000	EE – courthouse
Thurston County	Washington	10/26/2010	\$2,040,000	Retrofit - municipal
King County	Washington	11/15/2010	\$5,825,000	EE - HVAC project
Kitsap County	Washington	12/16/2010	\$1,110,000	Water - sewers - green community initiative
Bellingham City	Washington	4/13/2011	\$6,480,000	EE
King Co- Washington	Washington	12/10/2012	\$6,020,000	EE
Swauk Creek Ranch	Washington	12/27/2012	\$9,000,000	Renewable generation – wind
Longview	Washington	4/18/2013	\$3,560,000	Retrofit - municipal facilities and vehicles
Renton	Washington	7/1/2013	\$3,200,000	EE - lighting - LED Streetlights
Okanogan County	Washington	9/5/2013	\$1,115,000	EE / water efficiency improvements
Mason County	Washington	12/10/2013	\$1,620,000	EE / water - HVAC, roof and water heating / cooling improvements - correctional facility
Washington State Housing Finance Commission	Washington	3/6/2014	\$1,150,000	EE - green community initiative (Kitsap County) - Town & Country Market
Western Wisconsin Tech College Dt	Wisconsin	7/21/2010	\$1,500,000	EE / public education
Pleasant Prairie Village	Wisconsin	8/16/2010	\$1,890,000	Retrofit - municipal

Osh Kosh School District	Wisconsin	1/26/2011	\$1,817,883	EE - schools
Western Wisconsin Tech College Dt	Wisconsin	1/27/2011	\$1,500,000	EE - HVAC - university
Jefferson School District	Wisconsin	3/18/2011	\$2,345,000	EE
School Dist. Hartford No. 1 (Dodge and Washington Counties)	Wisconsin	4/11/2011	\$2,295,000	Renewable generation
Dane Co (Mount Horeb) ASD	Wisconsin	4/18/2011	\$2,500,000	Renewable generation
Menasha School Dist. (Winnebago County)	Wisconsin	6/28/2011	\$1,690,000	EE / water conservation - lighting, boiler system, HVAC, and vending machine upgrades - schools
Western Wisconsin Tech College Dt	Wisconsin	7/27/2011	\$1,200,000	EE - HVAC - university
Alma Center-Humbird-Merillan School District	Wisconsin	8/18/2011	\$4,600,000	EE - schools
Osseo Fairchild School District	Wisconsin	11/1/2011	\$750,000	EE - schools
Rock Co (Beloit) SD	Wisconsin	8/28/2012	\$2,215,000	EE - schools
Racine Unified School District	Wisconsin	6/10/2013	\$2,020,000	EE - district buildings
Total			\$1,006,061,935	

Note: Abbreviation "EE" is energy efficiency; and "HVAC" is Heating, Ventilation, and Air Conditioning.

**Table 1C: Total Number of Qualified Energy Conservation Bonds Known Issued by Issuer Type
(as of June 10, 2014)**

Issuer	Number of Issuances to Date
Municipal Government/County	98
School District	26
Higher Education	24
Private Activity	7
Utility Agency	6
State/State Agency	6
Financing Authority	5
Municipal Agency	3
Housing Finance Agency	3
Total	178¹¹⁴

¹¹⁴ Five issuances have issuers that fall into 2 categories or feature co-issuers. These issuers are counted twice for the purpose of categorizing issuer type and this is therefore reflected in this total which is higher than that indicated on page 2.

Table 1D: Qualified Energy Conservation Bonds Known Issued by Issuer Type (as of June 10, 2014)

Note: Abbreviation "EE" is energy efficiency; and "HVAC" is Heating, Ventilation, and Air Conditioning.

Issuer Type Abbreviations:

FA = Financing Authority

HE = Higher Education

HFA = Housing Finance Authority

MA = Municipal Authority

MG = Municipal Government/County

PA = Private Activity Issuance

SA = State/State Agency

SD = School District

UA = Utilities Authority

Issuer	State	Issue Date	Amount Issued	Use of Proceeds	Type of Issuer
Arkansas Development Finance Authority	Arkansas	5/23/2013	\$4,630,000	EE / Capital Improvements - DHS	FA
Kansas Development Finance Authority	Kansas	12/21/2010	\$17,815,000	Capital improvements - university KSU	FA
New Hope Economic Development Authority	Minnesota	11/18/2011	\$3,505,000	EE	FA
GreenFinanceSF (City and County of San Francisco)	California	10/12/12	\$1,400,000	EE / renewable energy upgrades - multi-tenant commercial buildings - C-PACE	FA/MG
Rancho Water District Financing Authority	California	11/7/2011	\$9,870,000	Water / wastewater capital improvement	FA/UA
Ohio University	Ohio	8/1/2012	\$8,500,000	EE - university - air system and tower condition improvements; direct digital control system expansion, upgrade and integration; variable-frequency drive installation on up to four dozen fan motors; kitchen hood improvements; pipe and blanket installation; water conservation measures and other improvements.	HE
University of Akron	Ohio	9/30/2013	\$15,000,000	EE / renewable generation - lighting, HVAC, & solar	HE
Kent State University (Main Campus)	Ohio	5/31/2011	\$7,000,000	EE and conservation improvements	HE
Kent State University (Regional Campus)	Ohio	3/30/2011	\$2,693,612	EE and conservation improvements	HE
Kent State University (Stark Campus)	Ohio	6/11/2010	\$672,130	EE and conservation improvements	HE
Owens State Community College	Ohio	3/18/2010	\$3,125,000	EE and conservation improvements	HE
Kent State University	Ohio	10/25/2012	\$7,500,000	EE retrofit	HE
Ohio State University	Ohio	12/20/2012	\$2,340,000	EE retrofit	HE
Wright State University	Ohio	2/28/2013	\$8,312,700	EE retrofit	HE
Central State University	Ohio	5/16/2013	\$7,000,000	EE retrofit	HE
Regents of the University of Colorado	Colorado	10/20/2010	\$4,375,000	Capital improvement - university	HE

University of Kentucky	Kentucky	11/19/2010	\$12,955,000	Capital improvements - schools	HE
University of Louisville	Kentucky	12/20/2010	\$20,942,000	Capital improvements - schools	HE
Western Wisconsin Tech College Dt	Wisconsin	7/27/2011	\$1,200,000	EE - HVAC - university	HE
Western State College	Colorado	8/19/2010	\$1,635,000	Capital improvements - university	HE
Southern Illinois Univ Bd of trustees	Illinois	12/6/2012	\$5,365,000	EE	HE
Yuba College Central Plant Efficiency Project	California	6/3/2011	\$6,324,000	EE - university	HE
University of Nebraska	Nebraska	4/1/2014	\$4,325,000	EE - University - energy monitoring system at medical center	HE
Western Wisconsin Tech College Dt	Wisconsin	7/21/2010	\$1,500,000	EE / public education	HE
Ivy Technical Community College	Indiana	10/1/2010	\$3,300,000	EE retrofits - hospital	HE
Colorado School of Mines	Colorado	4/12/2011	\$2,800,000	Energy performance contract - water fixture retrofits, irrigation controls, energy recovery coils, and lighting upgrades.	HE
Yuba Community College	California	6/21/2011	\$15,040,000	Renewable generation	HE
Illinois Central College / Tazewell County	Illinois	3/13/2014	\$1,300,000	Sustainability Center	HE
Washington State Housing Finance Commission	Washington	3/6/2014	\$1,150,000	EE - green community initiative (Kitsap County) - Town & Country Market	HFA
Portland Housing Authority, Portland	Maine	6/7/2013	\$4,097,100	EE improvements	HFA
Boulder Housing Partners	Colorado	8/25/2010	\$1,443,881	Multi-family capital improvements	HFA
Washington County Housing and Redevelopment Authority	Minnesota	2/22/2012	\$2,375,000	EE	MA
Philadelphia Municipal Authority	Pennsylvania	5/11/2012	\$6,250,000	Retrofit - city facilities	MA
Roaring Fork Transportation Authority	Colorado	8/21/2012	\$6,650,000	EE	MA
Boulder PACE	Colorado	11/5/2010	\$1,515,000	C-PACE	MG
Tempe	Arizona	7/1/2011	\$7,300,000	Capital improvements	MG
Boulder County	Colorado	2/2/2010	\$5,800,000	Capital improvements	MG

City of Boulder	Colorado	9/27/2010	\$1,500,000	Capital improvements	MG
Cook County	Illinois	7/23/2013	\$24,945,000	Capital improvements - county facilities - otherwise not specified in OS	MG
City of Englewood	Colorado	9/15/2010	\$1,286,440	Capital improvements - municipal	MG
East Hartford	Connecticut	4/10/2010	\$6,000,000	Capital improvements - municipal	MG
Foothills Park & Rec Dt	Colorado	8/13/2010	\$1,000,000	Capital improvements - recreation	MG
Fulton County	Georgia	8/23/2011	\$5,372,000	Capital improvements - schools	MG
Tucson City	Arizona	6/9/2011	\$1,430,000	EE	MG
City of Trussville	Alabama	4/20/2014	\$2,485,000	EE - lighting - sports complex - projected 20% energy savings	MG
Waterbury City	Connecticut	8/11/2010	\$4,700,000	EE - municipal	MG
City of Chicago	Illinois	11/4/2010	\$29,665,000	EE - wastewater reclamation facility reconstruction	MG
Tucson City	Arizona	6/23/2010	\$5,590,000	EE / generation - cooler towers, boilers and chillers at central energy plant serving municipal facilities	MG
Genesee County	Michigan		\$4,515,976	EE & Conservation Block Grant	MG
Montgomery County Commission	Alabama	3/9/2012	\$4,416,936	EE govt buildings	MG
Louisville-Jefferson County Metro Govt.	Kentucky	9/14/2010	\$7,400,000	EE improvements - government	MG
Scottsboro- City	Alabama	11/29/2012	\$5,750,000	EE retrofit - schools	MG
City of Foley	Alabama	1/30/2013	\$2,900,000	EE retrofits - citywide	MG
Knox County	Indiana	4/12/2012	\$16,200,000	EE retrofits - hospital	MG
Navajo County/City of Show Lo	Arizona	1/3/2012	\$723,804	Energy savings contract	MG
City of Vestavia Hills	Alabama	5/15/2013	\$4,245,000	Lighting - sports fields	MG
Richmond	California	12/1/2010	\$1,070,000	Lighting - streetlights and municipal capital improvements	MG
San Diego	California	4/15/2011	\$13,141,596	Lighting conversion program	MG
Somerton	Arizona	11/22/2011	\$980,000	Renewable generation	MG
Santa Clara County Photovoltaic Project	California	2/10/2011	\$20,368,000	Renewable generation	MG
Sonoma County	California	8/6/2010	\$1,977,500	Renewable generation	MG

Kern County	California	4/12/2011	\$4,337,131	Renewable generation - solar project	MG
Yolo County	California	3/16/2011	\$2,019,214	Renewable generation - solar project - 1MW	MG
Santa Barbara County	California	5/25/2011	\$4,170,000	Renewable generation - solar project at Calle Real campus	MG
Los Angeles County	California	8/31/2011	\$14,000,000	Renewable generation - solar projects	MG
Los Angeles	California	10/25/2011	\$11,920,000	Retrofit - city facilities	MG
San Francisco County	California	10/1/2011	\$8,291,079	Retrofit - public facilities	MG
Fort Collins City	Colorado	6/28/2010	\$6,410,000	Smart Grid	MG
Deerfield	Illinois	9/26/2011	\$12,500,000	Water / wastewater capital improvement	MG
Grant County	Minnesota	2/1/2011	\$2,000,000	Capital improvements	MG
Manchester	New Hampshire	11/1/2010	\$1,129,348	EE - schools	MG
Rapid City	South Dakota	11/1/2011	\$4,000,000	Capital improvements - schools	MG
Kitsap County	Washington	12/16/2010	\$1,110,000	Water - sewers - green community initiative	MG
Osceola County	Michigan		\$650,000	EE - county annex building	MG
Belchertown	Massachusetts	9/20/2011	\$3,140,000	EE	MG
Georgetown	Massachusetts	10/18/2012	\$2,199,000	EE	MG
Lowell City	Massachusetts	12/2/2011	\$2,648,000	EE	MG
Gilbert City	Minnesota	6/24/2012	\$350,000	EE	MG
Goodhue County	Minnesota	8/16/2012	\$1,295,000	EE	MG
Itasca County	Minnesota	2/8/2011	\$3,690,000	EE	MG
Greene County	Missouri	3/3/2011	\$1,130,000	EE	MG
Albany Co - New York	New York	12/27/2012	\$1,600,000	EE	MG
City of South Euclid	Ohio	8/31/2011	\$386,145	EE	MG
City of Trotwood	Ohio	4/12/2012	\$883,361	EE	MG
Jefferson County	Ohio	5/12/2012	\$658,040	EE	MG
Lancaster County	Pennsylvania	8/7/2013	\$5,200,000	EE	MG
Utah County	Utah	10/22/2010	\$5,000,970	EE	MG
Bellingham City	Washington	4/13/2011	\$6,480,000	EE	MG
King Co- Washington	Washington	12/10/2012	\$6,020,000	EE	MG
Yakima County	Washington	9/8/2010	\$2,430,000	EE - courthouse	MG
King County	Washington	11/15/2010	\$5,825,000	EE - HVAC project	MG
Rochester City	New York	6/16/2010	\$2,166,400	EE - HVAC replacement	MG

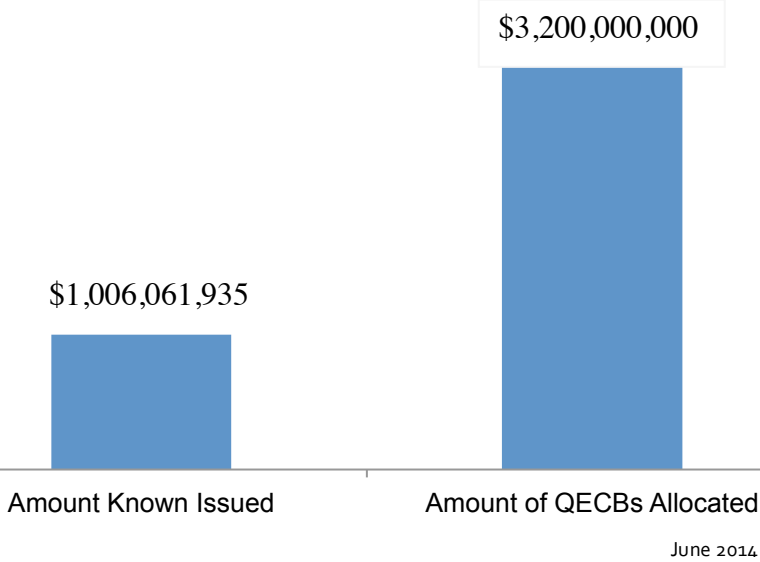
Renton	Washington	7/1/2013	\$3,200,000	EE - lighting - LED Streetlights	MG
Norfolk	Virginia	11/7/2013	\$2,470,000	EE - municipal	MG
City of Akron	Ohio	8/15/2013	\$2,355,914	EE - municipal facilities	MG
Mason County	Washington	12/10/2013	\$1,620,000	EE / water - HVAC, roof and water heating / cooling improvements - correctional facility	MG
Okanogan County	Washington	9/5/2013	\$1,115,000	EE / water efficiency improvements	MG
South Hadley	Massachusetts	12/18/2013	\$1,901,000	EE capital improvements	MG
City of Northampton	Massachusetts	12/22/2010	\$1,698,790	EE improvements - public buildings	MG
Saginaw	Michigan	12/20/2010	\$2,088,779	EE improvements to county facilities	MG
Clarksville	Tennessee	8/30/2013	\$1,241,344	EE lighting - LED Streetlights	MG
Franklin County	Ohio	5/23/2013	\$3,806,167	EE retrofit	MG
Licking County	Ohio	11/20/2012	\$796,252	EE retrofit	MG
Findlay	Ohio	6/30/2011	\$518,010	EE retrofit - county	MG
Hamilton County	Ohio	10/22/2011	\$2,063,750	EE retrofit - county	MG
Licking County	Ohio	9/29/2011	\$2,121,000	EE retrofit - county	MG
Pickaway County	Ohio	12/15/2010	\$1,479,807	EE retrofit - county	MG
City of Reno	Nevada	6/1/2010	\$2,261,650	EE retrofit - municipal - Reno City Hall	MG
Las Vegas	Nevada	3/16/2011	\$5,874,300	EE retrofits - streetlights and municipal buildings	MG
Nashville and Davidson County	Tennessee	8/15/2012	\$6,440,000	Energy efficiency	MG
Town of Gill	Massachusetts	8/25/2011	\$127,500	Energy performance contract - schools - capital improvements	MG
Town of Marshfield	Massachusetts	7/2/2012	\$5,000,000	Energy performance contract - schools and public buildings	MG
St. Louis County	Missouri	4/29/2011	\$10,305,000	Green community loan program	MG
Lancaster Town	Massachusetts	9/18/2012	\$1,484,000	Renewable Generation	MG
Chautauqua County	New York	1/19/2011	\$1,403,470	Renewable generation	MG
Lake County	South Dakota	6/1/2011	\$850,000	Renewable generation	MG
Salt Lake County	Utah	7/12/2011	\$1,917,804	Renewable generation	MG
Gresham County	Oregon	7/30/2013	\$7,600,000	Renewable generation - wind	MG
Davison County (Mitchell) #17-2	South Dakota	11/10/2010	\$1,725,000	Renewable generation - wind 1.5 MW turbine	MG
Thurston County	Washington	10/26/2010	\$2,040,000	Retrofit - municipal	MG
Pleasant Prairie Village	Wisconsin	8/16/2010	\$1,890,000	Retrofit - municipal	MG
Allegheny County	Pennsylvania	11/22/2010	\$9,385,000	Retrofit - municipal facilities	MG

Fayette County	Pennsylvania	9/28/2011	\$1,490,000	Retrofit - municipal facilities	MG
York County	Pennsylvania	12/28/2011	\$2,200,000	Retrofit - municipal facilities	MG
Longview	Washington	4/18/2013	\$3,560,000	Retrofit - municipal facilities and vehicles	MG
Spotsylvania County	Virginia	7/19/2012	\$1,240,000	Transportation	MG
Montgomery County Equipment Lease	Maryland	10/3/2013	\$4,165,000		MG
City of Greenville	Michigan		\$800,000		MG
Ottawa County	Michigan		\$2,825,981		MG
Wyandotte County/Kansas Unified Govt.	Kansas	11/18/2010	\$2,530,000	EE improvements - municipal	MG/SA
Lawrence City	Kansas	3/10/2011	\$8,720,000	Renewable generation	PA
Cathartes Private Investments/ Westford Solar	Massachusetts	8/22/2011	\$5,800,000	Renewable generation	PA
Fairhaven Wind	Massachusetts	11/7/2011	\$3,035,957	Renewable generation	PA
Scituate Wind/Town of Scituate	Massachusetts	8/10/2011	\$1,531,480	Renewable generation	PA
Colorado Housing Finance Authority (private issuance)	Colorado	4/20/2012	\$6,775,000	Renewable generation - solar - 2.5 MW PV project for Denver Housing Authority (DHA). The developer will be installing and operating installations on over 700 DHA housing units over the next 10 months, providing DHA with cost savings, hedges against spiking residential power prices and a major advancement of its sustainability goals.	PA
Colorado Housing Finance Authority	Colorado	8/30/2013	\$4,900,000	Renewable generation - solar - Denver Airport, City of Greeley, CO Dept of Corrections	PA
Swauk Creek Ranch	Washington	12/27/2012	\$9,000,000	Renewable generation - wind	PA
Department of Corrections	Louisiana	12/15/2011	\$30,318,244	EE	SA
Commonwealth of PA Department of Corrections	Pennsylvania	9/30/2010	\$15,810,000	Capital improvements - prison facilities	SA
NYSERDA	New York	8/13/2013	\$24,300,000	EE - retrofits and audits for eligible residential application - finance and refinance loans made by NYSERDA's Green Jobs - Green NY program	SA
South Carolina SAVES/Randolph Trucking	South Carolina	5/24/14	\$2,000,000	GCP – Gas compressed vehicles for trucking company	SA

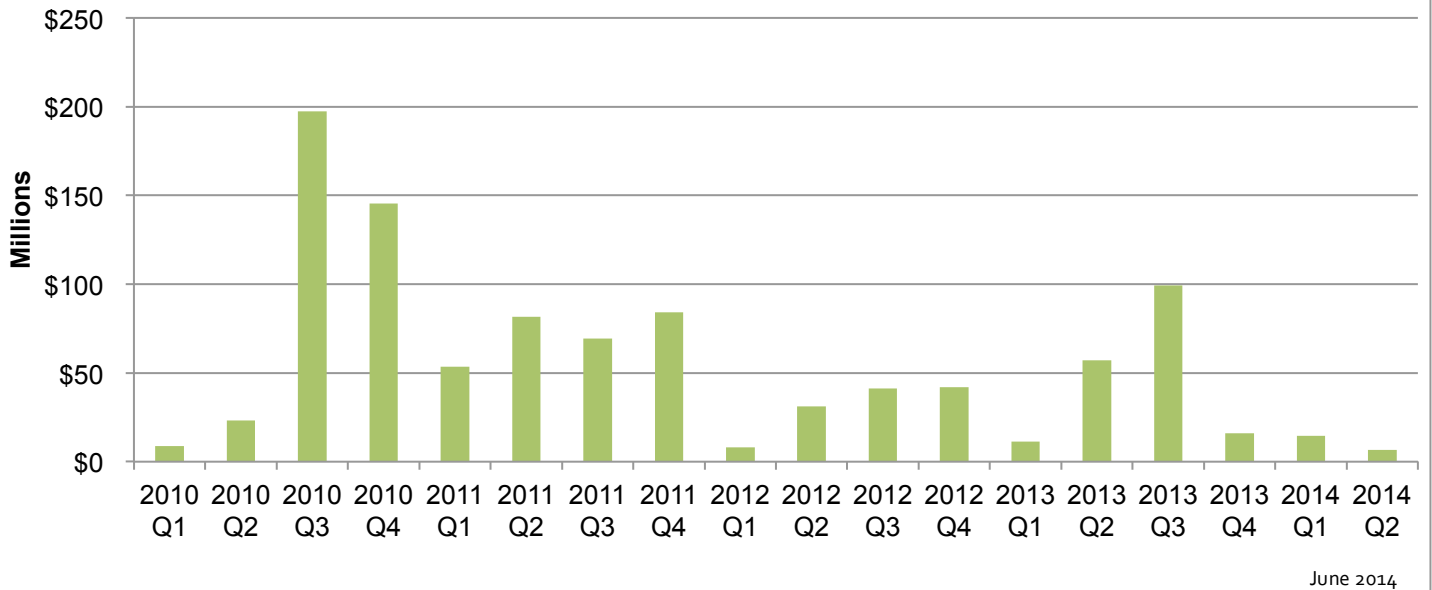
State of Maryland - St. Mary's County Public schools - Leonardtown Middle School	Maryland	7/27/2011	\$6,500,000	Capital improvements - schools - specific use not specified in OS	SA/SD
Champaign Cty (Rantoul) Township High School District 193	Illinois	12/20/2010	\$120,000	Capital improvements - schools	SD
Mesa County School District #51	Colorado	10/29/2010	\$2,000,000	EE - lighting / HVAC - schools	SD
Osceola County School District	Arkansas	11/1/2013	\$4,495,000	EE – schools	SD
Irvine Unified School District	California	7/29/2010	\$4,840,000	EE – schools	SD
McHenry CCSD	Illinois	8/31/2011	\$1,500,000	EE – schools	SD
Champaign Cty School District 116 (Urbana)	Illinois	12/14/2010	\$585,000	EE - water system	SD
Lodi Unified School District Project	California	11/18/2010	\$9,915,000	Renewable generation - solar improvements in schools	SD
Oxnard Union High School District Project	California	9/29/2010	\$19,067,730	Renewable generation - solar improvements in schools	SD
Madison County Board of Education	Alabama	7/3/2013	\$9,530,250		SD
Pentucket Regional School District	Massachusetts	10/21/2011	\$4,567,510	EE - schools - insulation, windows, roofing, boiler repairs / replacement	SD
Jefferson School District	Wisconsin	3/18/2011	\$2,345,000	EE	SD
Racine Unified School District	Wisconsin	6/10/2013	\$2,020,000	EE - district buildings	SD
Billings High SD #2	Montana	7/12/2012	\$3,780,000	EE - HVAC , windows, and roof upgrades – schools	SD
Billings SD #2	Montana	7/12/2012	\$4,554,000	EE - HVAC , windows, and roof upgrades – schools	SD
ELY ISD #696	Minnesota	5/19/2011	\$2,810,000	EE – schools	SD
Tri-Valley School District	Pennsylvania	12/30/2013	\$1,500,000	EE – schools	SD
Alma Center-Humbird-Merillan School District	Wisconsin	8/18/2011	\$4,600,000	EE - schools	SD
Osh Kosh School District	Wisconsin	1/26/2011	\$1,817,883	EE - schools	SD
Osseo Fairchild School District	Wisconsin	11/1/2011	\$750,000	EE - schools	SD
Rock Co (Beloit) SD	Wisconsin	8/28/2012	\$2,215,000	EE - schools	SD
Menasha School Dist (Winnebago County)	Wisconsin	6/28/2011	\$1,690,000	EE / water conservation - lighting, boiler system, HVAC, and vending machine upgrades - schools	SD
Dane Co (Mount Horeb) ASD	Wisconsin	4/18/2011	\$2,500,000	Renewable generation	SD
School Dist Hartford No. 1 (Dodge and Washington Counties)	Wisconsin	4/11/2011	\$2,295,000	Renewable generation	SD

Williams Co (Edgerton) LSD	Ohio	2/23/2012	\$595,000	School improvements	SD
Morton County (Mandan S.D.)	North Dakota	2/9/2011; 5/4/2011	\$3,780,000	Water / EE (plumbing and lighting) – schools	SD/MG
Nebraska Utilities Corp	Nebraska	2/6/2014	\$5,500,000	EE - peak demand reduction demonstration projects - Energy Service Agreement	UA
Los Angeles Dep't of Water & Power	California	6/4/2013	\$27,855,000	EE – university	UA
Los Angeles Dep't of Water & Power	California	8/17/2010	\$131,020,000	Renewable generation - solar & wind	UA
Fallbrook Public Utility District Project	California	11/18/2010	\$7,227,000	Renewable generation - solar improvements	UA
Nebraska Utilities Corp	Nebraska	2/1/2014	\$6,500,000	Renewable generation	UA
Total			\$1,006,061,935		

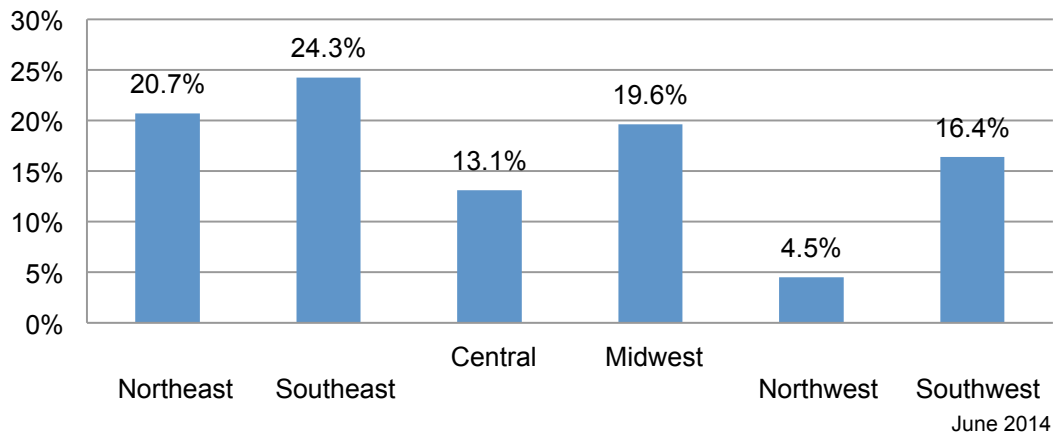
Graph 1: QECBs Known to be Issued v. Allocated



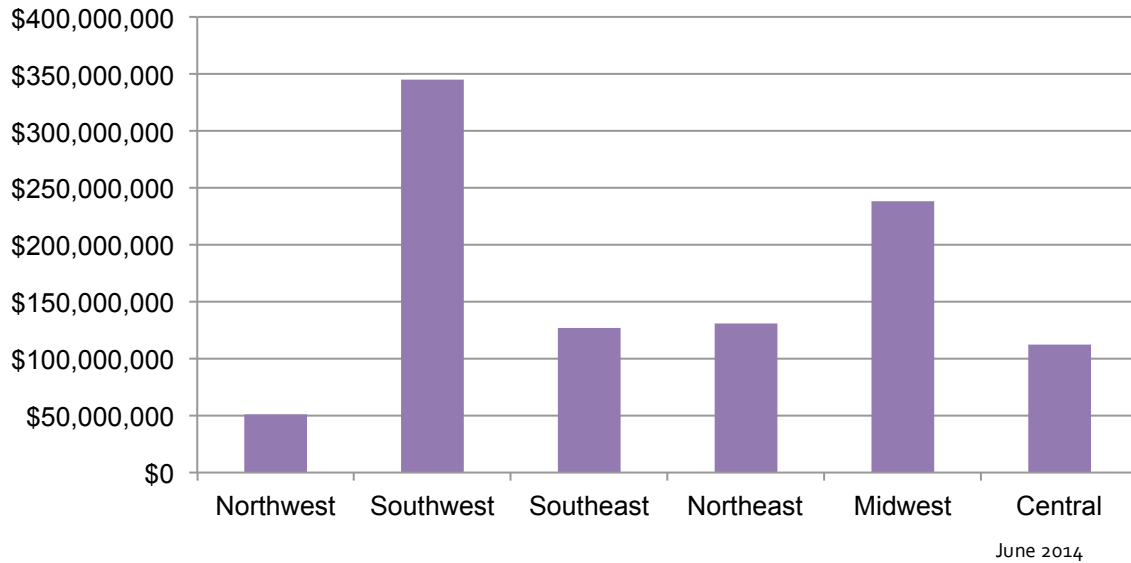
Graph 2: Amount of QECBs Known to be Issued by Quarter



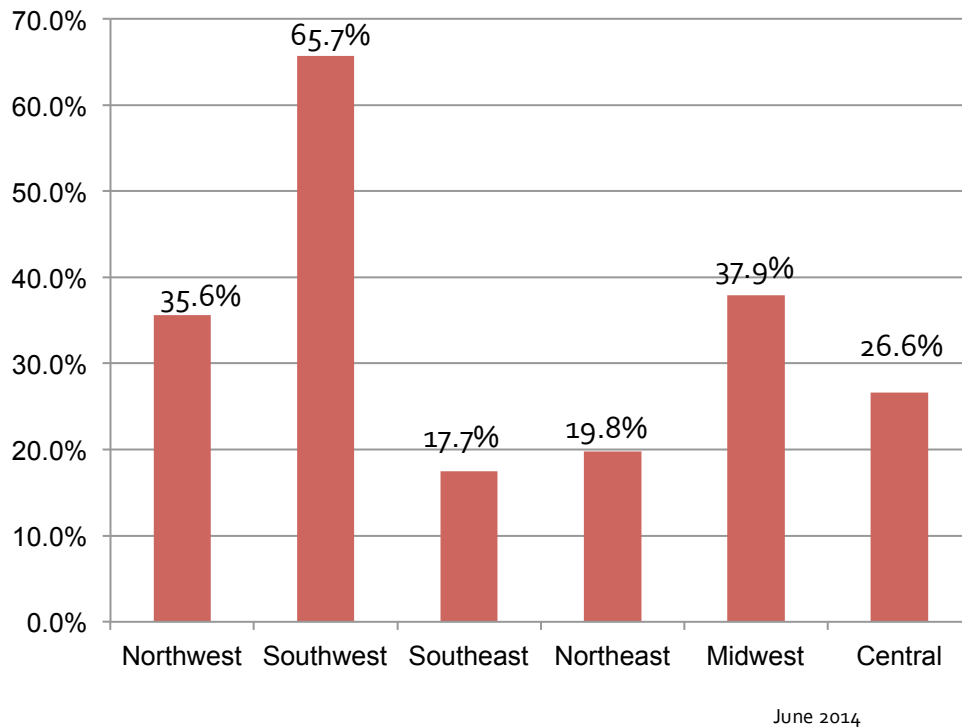
Graph 3: Percent of Total Allocation, By Region



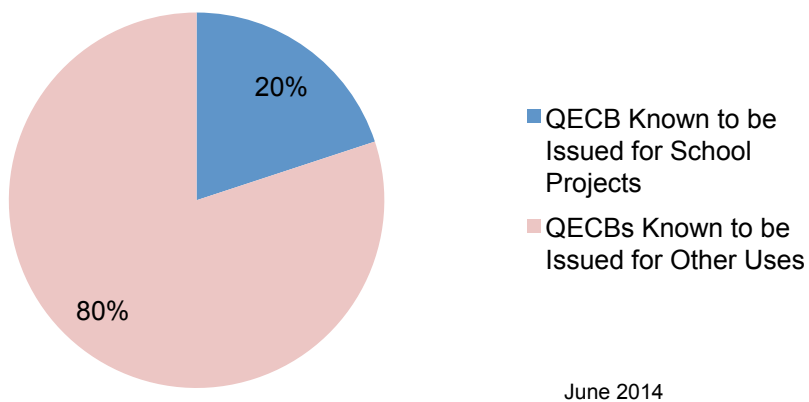
Graph 4: Known QEBC Issuances by Region



Graph 5: Proportion of Allocations Utilized, by Region



Graph 6: QECB Uses



¹¹⁵ Changes to percentages in this graph since the December 2013 paper reflect a change in methodology used for calculation and not a significant difference in the number of issuances used for school projects.