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■ U.S. FINANCE: QUALIFIED ENERGY CONSERVATION BONDS AND THE POTENTIAL TO FINANCE CLEAN ENERGY

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I. OVERVIEW

Qualified energy conservation bonds (QECBs) allow state and local governments to finance clean energy projects and programs. These federally subsidized bonds enable issuers to borrow low-interest capital to finance a wide range of eligible energy conservation projects. Nationally, the most common use of QECBs is to support capital expenditures reducing energy consumption in publicly-owned facilities. However, on-the-ground examples in California and Kansas demonstrate how these instruments are being used to increase installed capacity of renewable energy generation, a use which has gained traction especially in the Southwest.

Notwithstanding their flexibility and low cost, QECBs face significant challenges, limiting their uptake by state and local governments. As of June 2012, about one-fifth of QECBs had been issued, leaving over \$2.5 billion in face value unissued. According to research undertaken by the National Association of State Energy Offices (NASEO) and the Energy Programs Consortium (EPC), barriers to QECBs' success at the state and local level include high transaction costs, debt aversion, and inexperience in administering energy bonds of this type. Pooling QECB issuances and administrative authority at the state level serves as a possible solution to mitigate these challenges and to ensure that these bonds reach localities and projects with the largest need and opportunity.

II. WHAT ARE QECBS?

Qualified Energy Conservation Bonds (QECBs) are a low-cost public financing tool for state and local governments to support clean energy projects and programs. First established by the Energy Improvement and Extension Act of 2008 at \$800 million, QECBs grew fourfold in 2009 when the American Recovery and Reinvestment Act expanded the national bond cap to \$3.2 billion. Should all of the bonds be issued, the cost to the federal government would include the \$3.2 billion bond cap in addition to the Treasury's direct subsidy of the bonds. Ultimately, this total cost would depend on the Qualified Tax Credit Rate and maturity at the date of issue of each QECB, both of which fluctuate.¹

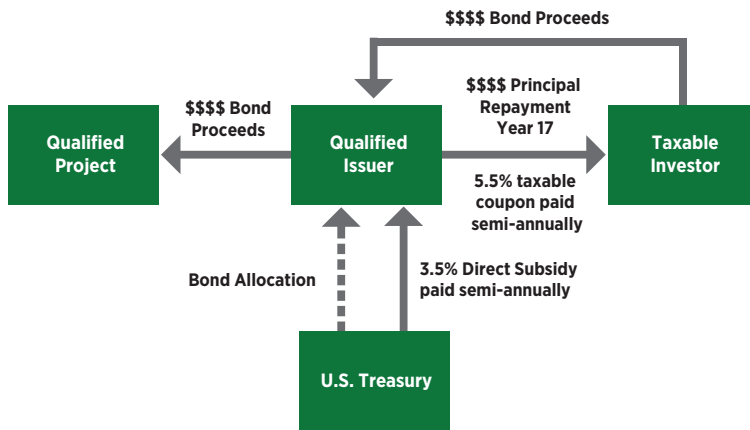
Under the authorizing legislation, each state receives a formula allocation, which it then sub-allocates to local governments with populations of at least 100,000. Local governments may exercise the option to waive their allocations back to the state or issue the bonds to tax investors and use the proceeds of the issuance to fund energy conservation projects. By issuing tax credits or utilizing a direct cash subsidy from the federal government, the bond issuer can effectively buy down the interest rate of the bond.² QECBs serve as a long-term financing option, with bonds currently maturing after a period of up to 22 years.³ Figure 1 illustrates the mechanics of a QECB transaction.

¹ Refer to <https://www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm> for the most up-to-date qualified tax credit rates.

² Elizabeth Bellis, "Energy Program Consortium Memorandum," NASEO, last modified February 6, 2012, accessed August 15, 2012, http://naseo.org/resources/financing/qecb/EPC_Memo.pdf.

³ "Qualified Tax Credit Bond Rates," U.S. Department of the Treasury, Bureau of Public Debt, accessed August 15, 2012, <https://www.treasurydirect.gov/GA-SL/SLGS/selectQTCDDate.htm>.

FIGURE 1: STRUCTURE OF A QECB TRANSACTION⁴



In many states, the responsibility of implementing allocations and coordinating reallocations (should a local government waive its allocation) falls to the State Energy Office (SEO). SEOs and local governments abide by a number of guiding principles when allocating and issuing the bonds: a maximum of 30% of QECB allocations may be used for private activity purposes; at least 70% of QECBs to states and municipalities must finance governmental projects; proceeds from the issuance of QECBs must be spent within three years of issuance; up to 2% of bond proceeds can cover administrative costs of issuance; and QECBs may be issued for any “qualified conservation purpose” as defined by statute, including:^{5,6}

- ▶ Capital expenditures for reducing energy consumption in publicly-owned buildings by at least 20%, implementing green community programs, rural development electricity production, or any qualified facility.
- ▶ Expenditures on research facilities and grants, supporting research in non-fossil fuels, technologies for the capture and sequestration of carbon dioxide,

increasing the efficiency of existing technologies, automobile battery technologies and other technologies to reduce fossil fuel consumption, or technologies to reduce building energy use.

- ▶ Mass commuting facilities and facilities that reduce consumption of energy, including expenditures to reduce pollution from vehicles used for mass commuting.

- ▶ Demonstration projects promoting commercialization

of green building technologies, conversion of agricultural waste for use in the production of fuel, advanced battery manufacturing technologies, technologies to reduce peak use of electricity, or technologies for the capture and sequestration of carbon dioxide.

- ▶ Public education campaigns promoting energy efficiency.

III. ON THE GROUND RESULTS: TWO EXAMPLES OF QECBS FINANCED RENEWABLE ENERGY PROJECTS

The most common use of QECBs, as of June 2012, has been capital improvements to reduce energy consumption in publicly owned buildings by at least 20% (such projects constitute 58% of all issuances). However, there are regional variations. In the Southwest, 75% of QECBs issued have been used to finance renewable energy installations. It should also be noted that QECB issuances in the Southwest (by total dollar amount and percent of allocated amount) are more than double any other region in the country, although this is largely due to the fact that

4 This example is taken from the U.S. Department of Energy’s QECB Primer and uses a 6.00% taxable rate minus a 3.70% direct subsidy to yield a 2.3% net interest cost. It also uses a 17 year maturity. “Qualified Energy Conservation Bonds & New Clean Renewable Energy Bonds,” U.S. Department of Energy, September 21, 2012, http://www1.eere.energy.gov/wip/pdfs/qecb_creb_primer.pdf.

5 Elizabeth Bellis, “Qualified Energy Conservation Bonds,” Energy Programs Consortium, June 2012, http://www.energyprograms.org/wp-content/uploads/2012/03/QECB_Memo_6-8-2.pdf.

6 Pub.L. 110 343.122 Stat. 1365 (2008).

California received a very large QECB allocation and has issued nearly three-quarters of its allocation.⁷

Examples from California and Kansas illustrate how QECBs are being used to increase installed capacity of renewable energy generation. California's QECB volume cap was set at \$381 million. Approximately one-third of this was allocated to the Los Angeles Department of Water and Power (LADWP), a municipal utility providing drinking water and electric service to more than 3.8 million customers in Los Angeles. In August 2010, LADWP issued \$131 million in bonds, maturing in 2027, to finance three projects. The Pine Tree Wind Turbine Expansion and Pine Tree Solar projects, respectively, added ten new turbines (15 megawatts (MW) of wind generation) to an existing wind farm in the Tehachapi mountains and 10 MW of solar generation (at 34.5 kV output) at the Pine Tree Wind Power Plant. The solar array is expected to generate 20 gigawatt hours (GWh)

annually. Finally, the Adelanto solar project, the result of a partnership with SolarWorld, was announced in March 2011 and will result in an 11.6 MW direct current solar system (4.16 kV output). The project is expected to generate 22,400 MWh during its first year of operation and 515,700 MWh over a 25-year period. It will be built in Adelanto, California, on a 42-acre site approximately 65 miles north of Los Angeles.⁸

In Lawrence, Kansas, the Bowersock Mills & Power Company issued \$8.7 million of QECBs to support the expansion of the hydroelectric plant at the Bowersock Dam. Previously, the facility had a production capacity of 2.35 MW daily, enough generation to power nearly 1,800 homes.⁹ The QECBs, as part of a \$23.8 million issuance that included other types of tax-subsidized bond financing, will support the construction of an additional plant at the site, increasing generation capacity by 5 MW. Issued in March 2011, the bonds will mature in 2025.

TABLE 1: RENEWABLE ENERGY AND ENERGY EFFICIENCY PROJECTS FINANCED WITH QECBS¹⁰

Issuer	Location	Date Issued	Maturity	Amount (millions)	QECB Direct Subsidy (%) ¹¹	Project Description
Hartford School District	Wisconsin	4/2011	4/2026	\$2.23 (part of a \$3.7 issuance)	3.850	Small Geothermal
Town of Scituate	Massachusetts	8/2011	unknown	\$1.5	3.045	Small Wind
St. Louis County	Missouri	4/2011	12/2021	\$10.3	3.654	Residential Energy Efficiency
Licking County	Ohio	9/2011	unknown	\$2.1	3.220	Municipal Energy Efficiency
Boulder County	Colorado	11/2012	7/2020	\$1.4	3.654	Commercial PACE Loan 10 Year Term

7 Elizabeth Bellis, "Qualified Energy Conservation Bonds," Energy Programs Consortium, June 2012, http://www.energyprograms.org/wp-content/uploads/2012/03/QECB_Memo_6-8-2.pdf.

8 "LADWP and SolarWorld Partner to Develop 11.6 Megawatt Solar Power System for Los Angeles," LADWP, last modified March 3, 2011, <http://www.ladwpnews.com/go/doc/1475/986259/LADWP-and-SolarWorld-Partner-to-Develop-11-6-Megawatt-Solar-Power-System-for-Los-Angeles>.

9 "About Bowersock," The Bowersock Mills & Power Co., accessed August 14, 2012, <http://www.bowersockpower.com/about>.

10 Rebekah Deeds King, "QECBs and renewable energy," message to the author, August 6, 2012, Email.

11 This number is the effective interest rate buy-down. Each subsidy is 70% of the Qualified Tax Credit Bond rate on the sale date of the bonds. Angela Wu, "Info Request - NASEO QECB article," message to the author, August 14, 2012, Email.

QECBs have been employed around the country to finance both renewable energy installations and energy efficiency improvements. Table 1 provides a snapshot of some of these projects.

IV. QECB CHALLENGES AND POTENTIAL SOLUTIONS

Despite the examples provided above, issuances of QECBs remain modest. Research and analysis conducted by NASEO and EPC found that as of June 2012 at least 111 projects financed with QECBs were completed in at least 23 states for a total of \$671 million (21% of the total volume cap). This leaves, at face value, \$2.5 billion of unspent bonds.¹²

As of June 2012, 33 states had not used any of their allocations, 12 had used less than one-third, six states had used more than half, and only two states—Kansas and Kentucky—have, or have nearly, spent their entire allocation.¹³

While there is no sunset provision in the authorizing federal legislation, some have raised concern that the underutilization of QECBs places this financing mechanism at risk of de-authorization as federal spending on energy efficiency and renewable energy is under scrutiny. Additional concerns that became apparent through NASEO and EPC's research include:¹⁴

- ▶ Inexperience of bond authority to determine the eligibility of projects, measure savings, administer bonds, and undertake other QECB processes;
- ▶ Debt aversion;

- ▶ High transaction costs, particularly in states with small allocation sizes or many jurisdictions with populations exceeding 100,000;
- ▶ Lack of information shared from IRS on QECB issuances at the national level; and
- ▶ Smaller demand for clean energy projects, due to the economic downturn.

NASEO and EPC identified (1) aggregating bond volume and (2) centralizing administration at the state level as solutions to help alleviate certain challenges. As of June 2012, approximately 72% of issuances to date resulted from state aggregation and administration. In states where local governments waive their allocation, the state allocation pool expands, enabling the state to either develop a larger state issuance or reallocate QECBs in greater, more cost-effective amounts for larger projects. With this approach, state governments may also shift resources from local governments that either cannot (because of bond volume caps) or choose not (due to debt aversion or other priorities) to issue QECBs to other local governments that can benefit. Finally, streamlining QECB administration at the state level facilitates information-sharing and access to expertise to help local governments move more quickly over the learning curve.

Other significant barriers originally facing bond issuers were uncertainty surrounding the 20% energy savings requirement and the definition of “green community programs” in the authorizing legislation. Petitions and requests by EPC, NASEO, and partner organizations succeeded in eliciting clarification from the IRS. The IRS's recent release of guidance on QECBs in July 2012 (Notice 2012-44) addresses this uncertainty by clarifying

¹² Elizabeth Bellis, “Qualified Energy Conservation Bonds,” Energy Programs Consortium, June 2012, http://www.energyprograms.org/wp-content/uploads/2012/03/QECB_Memo_6-8-2.pdf.

¹³ *Ibid.*

¹⁴ For more detail, consult: Diana Lin and Elizabeth Bellis, “NASEO Summary of Barriers for Increasing QECB Activity at the State and Local Levels,” NASEO, February 2012, http://www.naseo.org/resources/financing/qecb/QECB_Barriers.pdf.

the eligibility criteria for green community programs and describing how a bond issuer should calculate energy consumption and savings.¹⁵ Such guidance may result in higher levels of issuance over time.

V. MORE INFORMATION

NASEO and EPC continue to work with state and local governments to address the remaining issues and increase the use of QECCBs for clean energy. Numerous QECCB resources have been compiled at <http://naseo.org/resources/financing/qecb/index.html>. For additional information or examples of QECCB-financed clean energy projects, please contact Sandy Fazeli, Program Manager

at NASEO (sfazeli@naseo.org), or Elizabeth Bellis, Counsel at EPC (ebellis@energyprograms.org).

ABOUT THE AUTHORS

National Association of State Energy Officials (NASEO) is a membership nonprofit founded 1986 and is the only national non-profit organization whose membership includes the governor-designated energy officials from each of the 56 states and territories. Members are senior officials from the State and Territory Energy Offices, as well as affiliates from the private and public sectors. States manage and invest more than \$3 billion of their own funds derived from appropriations and system benefit charges each year.

¹⁵ "Notice 2012-44: Qualified Energy Conservation Bonds," Internal Revenue Service, July 9, 2012, http://www.irs.gov/irb/2012-28_IRB/ar11.html.