



First Known Use of QECBs will Save Yolo County at Least \$8.7 Million Over the Next 25 Years

Yolo County, California, made history in July when officials installed a 1 MW solar photovoltaic (PV) project to supply power to both a jail and juvenile center. The project is noteworthy because it represents the first known use of qualified energy conservation bonds (QECBs) and the first known combined use of QECBs and clean renewable energy bonds (CREBs) in the country.

This article outlines the process the county underwent to finance the installation as well as the strategies for optimizing the use of these new bond tools.

Introduction to QECBs and CREBs

QECBs and CREBs, collectively known as qualified tax credit bonds, are an inexpensive way for state and local governments to finance energy efficiency and renewable energy installations. With either QECBs or “new” CREBs,¹ the Department of the Treasury provides an up-front subsidy that amounts to 70% of the “qualified tax credit” (as determined by the Treasury at the time of issuance).²

Initially, qualified tax credit bonds provided a tax credit directly to the bond buyer, which reduced the interest coupon (or payment) required of the government entity. Now, there is a direct payment option—allowed through the recent Hiring Incentives to Restore Employment (HIRE) Act.³ With this option, the Treasury reimburses the issuer/borrower at 70% of the interest rate via a refundable tax credit.⁴

The direct pay option might make CREBs and QECBs more liquid because they do not require buyers to have significant tax liability. Therefore, these mechanisms are expected to have greater appeal to a wider variety of investors.

With either the tax credit or refundable tax credit, experience shows an additional supplemental payment from the borrower to the bondholder is needed for the bond to be competitive with other investments. As a result of the Treasury subsidy and supplemental coupon payment, the issuer receives reduced financing costs and the bond buyer still gets a competitive total return.

The American Reinvestment and Recovery Act (ARRA) of 2009 extended QECB funding by \$3.2 billion and provided \$2.4 billion in funding for new CREBs. Note that CREBs have been fully allocated and are not currently available. While some states have passed on QECB allocations to local governments, many states still have unallocated bonding authority.

Choosing a Project Site, Size, and Module Vendor

Yolo County began the process by examining the feasibility of installing a solar system, according to information provided by Ray Groom, County of Yolo’s Director of General Services, and Terry Vernon, Deputy Director. A county engineer worked with outside consultants to determine the best location for the PV system as well as the system size required to meet the energy needs for the jail and juvenile facility. The county chose a site near both buildings in Woodland, California, for the 1 MW ground-mounted solar PV system.



Photo Credit: Yolo County

Figure 1 . Installing the 1 MW ground-mounted solar PV system in Yolo County.

¹ New CREBs were authorized by the Energy Improvement and Extension Act of 2008 and differ from the original (“old”) CREBs program authorized under the Energy Policy Act of 2005. With new CREBs, the tax credit that the bond buyer receives each year the bond is outstanding has been reduced to 70% of the tax credit that would be available using tax credit rates posted on the Treasury Direct Web page. New CREB rules allow issuers to repay their bond as a balloon payment upon maturity as opposed to in annual installments over the life of the bond, which was the case with old CREBs. Consequently, investors in new CREBs may require issuers to set aside money annually in a sinking fund to repay the bond or, alternatively, to pledge assets as additional collateral. For more information, see <http://financere.nrel.gov/finance/content/CREB-primer>.

² Source: [http://www.hunton.com/files/tbl_s47Details%5CFileUpload265%5C2457%5CSummary New CREBs and QECBs.pdf](http://www.hunton.com/files/tbl_s47Details%5CFileUpload265%5C2457%5CSummary%20New%20CREBs%20and%20QECBs.pdf). The following Web site contains more information on how the Treasury sets bond rates for qualified tax credit bonds: <http://www.irs.gov/pub/irs-tege/n-09-15.pdf>.

³ Source: <http://www.opencongress.org/bill/111-h2847/show>.

⁴ The issuer then likely passes the benefit of the refundable tax credit to the buyer via cash interest payments as determined in the bond contract.

County officials then issued a request for proposals (RFP) to establish a power purchase agreement (PPA). When reviewing the submissions, the county determined that based on its location and needs, the financial benefits of the PPA were insubstantial. Thus, the county did not select a PPA provider. Instead, the county decided to own the solar PV system. Even though the county did not select a PPA provider, officials were able to choose SunPower as its module and tracking system vendor based on information provided by SunPower's response to the RFP.

Financing

As shown in Figure 2, Yolo County used a variety of funding sources to help finance their solar installation, including new CREBs, QECBs, a California Energy Commission (CEC) loan, a Tax Exempt Lease Program (TELP) loan, and a California Solar Initiative (CSI) production-based incentive. The new CREBs and QECBs issuances each provided approximately \$2 million for a total of about \$4 million in tax credit bonds with 15-year terms. In the case of Yolo County, the supplemental coupon was 390 basis points (or 3.9% interest) for both the CREBs and QECBs. The supplemental coupon was relatively expensive because the tax credit is not as valuable as a traditional coupon payment to investors; there is risk that they will not have the tax appetite to make use of the credit.

The CEC loan of \$2.5 million has a 3% interest rate. While there was a less expensive 2% interest rate loan available, the transaction costs to qualify for that particular loan were considered to be too high. TELP provided a short-term bridge loan of \$765,000 with a higher interest rate of 4.7%. Yolo finalized the new CREBs, QECBs, and TELP with Bank of America in February 2010.

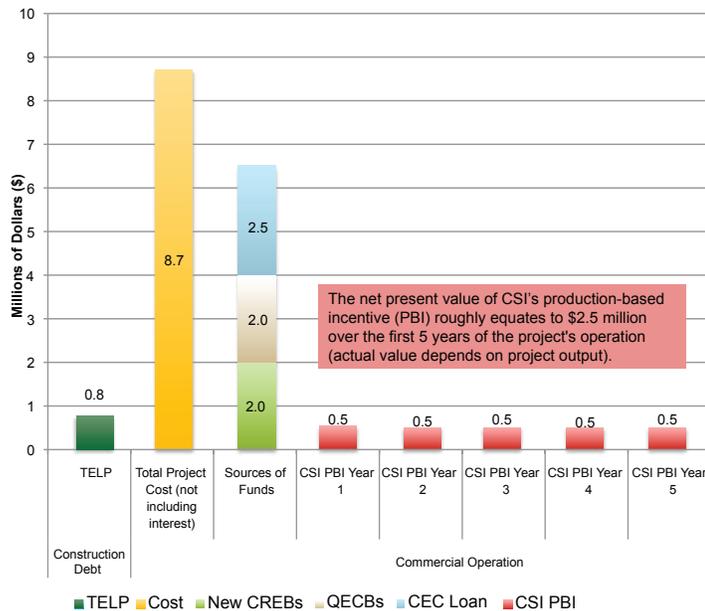


Figure 2. Financing and incentives used to fund the solar PV installation in Yolo County.

Yolo was also eligible for a CSI production-based incentive of \$0.24/kWh for 5 years to help fund the solar installation. The CSI incentive is estimated at \$2.5 million to be used towards the cost of the installation. The lower amount of \$1.9 million shown on the symbolic check in Figure 3 is due to a more conservative production estimate by PG&E.



Figure 3. Helen Thomson, Chairperson of the Yolo County Board of Supervisors, accepts a symbolic check from Pacific Gas and Electric Company representing an anticipated production-based incentive payment.

The county's utility cost savings will more than cover the total project cost of the 1 MW ground-mounted solar PV project. The total cost for the purchase and construction was \$8.7 million; with interest payments, the total cost is closer to \$9.4 million. The total utility bill savings are expected to amount to at least \$18.1 million over the assumed 25-year life of the project. Yolo is anticipating that it will have a net positive cash flow of \$100,000 per year starting in year 1 and \$600,000 per year starting in year 16 in utility expenditures.⁵ These large cost savings are due partly to the high electricity rates that the jail pays for uninterruptable power, which are typically around \$0.23/kWh.

Although the 1 MW solar PV system went online in July, the county deferred making payments to the bondholder until December 30, 2010. This financing arrangement was negotiated with Bank of America and allowed the county 6 months—including summer months that are typically high use due to air conditioning—to accumulate utility bill savings. This is an important advantage because it can be difficult for state, local, and tribal governments to make payments on a system that is not yet operational (or one that has not been operational for long). This is particularly important in Yolo's case because they do not have access to general funds for this project.

Figure 4 shows the project development timeline for Yolo County's solar PV installation.

⁵ This estimate assumes an annual degradation rate of 0.5%, annual inflation of 2.0%, and annual retail electricity rate escalation of 2.0%.

Yolo County Project Timeline



Figure 4. Timeline for the Yolo County PV project (2009 to 2010).

Lessons Learned from Yolo's Experience

- 1. Consider the financing options**

Each state, local, or tribal government has a different range of options from which to choose. For example, instead of signing a PPA as many other state, local, and tribal governments have done, Yolo County decided to own the system. Many states have their own set of incentives and programs that could lower the overall cost of the system to agencies and governments within their boundaries. Yolo took advantage of a low interest CEC loan and the CSI production-based incentive.
- 2. Make conservative estimates**

Conservative estimates for energy savings will help ensure that there are plenty of utility bill savings to cover the costs of the system. In Yolo's case, county officials made a conservative estimate that the system would provide around \$18 million in total savings compared to costs of about \$9 million. Even with conservative estimates, the County anticipates that its savings will equate to roughly 100% of the cost of the system. These savings could be used to cover any unforeseen costs during system operation.
- 3. Seek bond counsel**

According to Yolo County officials, their bond counsel (i.e., legal team) helped reduce transaction costs by shortening the amount of time required to determine how, when, and at what price to issue the bonds as well as by shortening the time to find buyers.
- 4. Use in-house capabilities**

In-house resources, where available, can be less expensive than contracting out the services to consultants. Yolo County used an in-house engineer to assist with some of the initial on-site project assessment and, thus, avoided a markup in costs.
- 5. Conduct site evaluation before seeking financing**

Yolo conducted a site evaluation before it sought financing, which enabled the county to know roughly the amount of funds it would need to obtain to make the project viable.
- 6. Use RFPs to get the best deals**

An RFP can be a useful way to provide a competitive solicitation for just the renewable energy system, and the RFP benefitted Yolo in this case even though no bids for the PPA were accepted.
- 7. Ensure delayed first payment**

By negotiating for a lag between when the system comes online and when initial payments are due, utility savings can be accumulated. A fund generated from utility savings can make the first bill payment easier and also possibly allow for a backup pool of funds to accrue.



Photo Credit: Yolo County

Figure 5. The installed ground-mounted PV arrays in Yolo County.

Conclusion

QECBs and CREBs provide a relatively inexpensive way for state, local, and tribal governments to finance renewable energy installations. Yolo County used these bonding mechanisms to cover a significant portion of the cost of their solar installation. Without these low-cost finance options, Yolo County might not have been able to finance their solar PV system. The County will greatly benefit from the system, as it will save an estimated \$8.7 million over the next 25 years (\$18.1 million in utility bill savings minus the system cost of \$9.4 million—including interest payments).

Additional Resources

- For more information on CREBs, QECBs, and other financing options for state and local governments, see “Solar Powering Your Community: A Guide for Local Governments” by the U.S. Department of Energy at http://www.solaramericacities.energy.gov/resources/guide_for_local_governments/7/3/.
- For more information on CREBs, see “Financing Public Sector Projects with Clean Renewable Energy Bonds”; Fact Sheet Series on Financing Renewable Energy Projects, National Renewable Energy Laboratory (NREL) at <http://www.nrel.gov/docs/fy10osti/46605.pdf> (NREL Report No. FS-6A2-46605).
- For more information on Tax Exempt Lease Purchase financing, see Energy Star’s “Easy Access to Energy Improvement Funds in the Public Sector” at <http://www.energystar.gov/ia/business/easyaccess.pdf>.

- For more information on QECBs and CREBs, see the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy’s “Qualified Energy Conservation Bonds (‘QECBs’) & New Clean Renewable Energy Bonds (‘New CREBs’)” at http://www1.eere.energy.gov/wip/pdfs/qecb_creb_primer.pdf.

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