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Berkeley Program Offers New Option for Financing Residential PV Systems

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Readily accessible credit has often been cited as a necessary ingredient to open up the market for residential photovoltaic (PV) systems. Though financing does not reduce the high up-front cost of PV, by spreading that cost over some portion of the system's life, financing can certainly make PV systems more affordable.

As a result, a number of states have, in the past, set up special residential loan programs targeting the installation of renewable energy systems and/or energy-efficiency improvements and often featuring low interest rates, longer terms and no-hassle application requirements.

Historically, these loan programs have had mixed success (particularly for PV), for a variety of reasons, including a historical lack of homeowner interest in PV, a lack of program awareness, a reduced appeal in a low-interest-rate environment, and a tendency for early PV adopters to be wealthy and not in need of financing.

Some of these barriers have begun to fade. Most notably, homeowner interest in PV has grown in some states, particularly those that offer solar rebates. The passage of the Energy Policy Act of 2005 (EPAAct 2005), however, introduced one additional roadblock to the success of low-interest PV loan programs: a residential solar investment tax credit (ITC), subject to the Federal government's "anti-double-dipping" rules. Specifically, the residential solar ITC – equal to 30% of the system's tax basis, capped at \$2000 – will be reduced or offset if the system also benefits from what is known as "subsidized energy financing," which is likely to include most government-sponsored low-interest loan programs.

Within this context, it has been interesting to note the recent flurry of announcements from a number of U.S. cities concerning a new type of PV financing program. Led by the city of Berkeley, Calif., these cities propose to offer their residents the ability to finance the installation of a PV system using increased property tax assessments, rather than a more-traditional credit vehicle, to recover both system and administrative costs.

This approach has a number of features that should appeal to PV owners, including long-term, fixed-cost, attractive financing; loans that are tied to the tax capacity of the property rather than to the owner's credit standing; a repayment obligation that transfers along with the sale of the property; and a potential ability to deduct the repayment obligation from federal taxable income as part of the local property tax deduction.

For these reasons, Berkeley's program, which was first announced on October 23, 2007, has received considerable nationwide attention in both the trade and general press. Since the announcement, cities from throughout California and the broader U.S. have expressed keen interest in the possibility of replicating this type of program.

In California alone, the cities of Santa Cruz, Santa Monica and Palm Desert are all reportedly considering similar programs, while the city of San Francisco has recently announced its own program, portions of which closely parallel Berkeley's approach. In addition, a bill (AB 811) that would authorize all cities in California, not just charter cities like Berkeley, to create this type of program was approved by the California General Assembly on January 29 and is currently under consideration in the State Senate. A similar bill in Colorado (HB 1350) was signed into law on May 28. Elsewhere, the city of Tucson, Arizona has also considered this financing approach.

Favorable terms

As announced, the city of Berkeley would create a Sustainable Energy Financing District to enable its PV program. This financing vehicle is modeled loosely on existing underground

utility districts that enable the city to finance the burying of utility wires through increased property tax assessments.

Under the authority of this district, the City of Berkeley would facilitate the financing of 100% of the cost (after utilizing and accounting for up-front rebates available through the California Solar Initiative, or CSI) of installing a PV system on the home of any participating resident. Energy-efficiency improvements, particularly those that are permanently tied to the property – e.g., furnaces, HVAC and insulation – will likely be added to the program in the future.

As currently planned (the design of the program is still evolving), funding for the program would originate from local banks, which would either write checks directly to program participants or alternatively channel the funds through the city to those participants. Either way, the loan terms would likely be more favorable – in both interest rate and maturity – than a homeowner would be able to obtain on his own outside of the program. This is a result of the aggregation function performed by the city (effectively allowing participants to borrow in bulk) as well as the relative security of the repayment obligation (discussed below). In return, participating residents would agree to repay the loan principal, plus interest and administrative expenses, through an increased property tax assessment lasting for a 20-year period.

As described, Berkeley's proposed program, and in particular the use of property tax assessments as a financing vehicle, has a number of attractive features. First, it offers the possibility of 100% financing at a fixed, favorable interest rate over a lengthy (i.e., 20-year) term.

Second, the increased property tax assessment is tied to the property, rather than to the current owner. If the current owner sells the property during the 20-year repayment period, then the new owner will pay the increased assessment over the remainder of that period. Given that the payback period for a residential PV system likely exceeds the average duration of home ownership in the U.S., this approach ensures that a PV owner will not forfeit remaining PV value if he or she moves within the 20-year repayment period.

Finally, because the loan is repaid through property taxes, the program is neither dependent on, nor does it impact, the homeowner's credit. From the bank's perspective, property tax payments are relatively secure: In a default/foreclosure situation, the property tax tied to the PV system would be paid off prior to even the first mortgage on the property. Specifically, the cascade of payments to creditors would proceed as follows: ad valorem property taxes would be paid first, followed by special taxes and fees for services collected through property taxes (the PV tax would fall into this category), then first mortgages, and finally second mortgages and home equity loans.

Subsidized?

One important concern related to this type of program is that the favorable interest rate may have unintended and undesirable consequences if it jeopardizes the homeowner's eligibility to receive the Federal solar ITC by triggering the anti-double-dipping provisions.

As mentioned earlier, EPAct 2005 established an investment tax credit (ITC) for residential solar installations. The ITC, implemented as Section 25D of the U.S. tax code, is equal to 30% of eligible costs, with a per-system cap of \$2000. The credit was originally set to expire on December 31, 2007, but it was subsequently extended through 2008. Efforts are currently underway to both modify and extend the credit.

Section 25D(e)(9) of the U.S. tax code states, with respect to the tax basis of the project, that "For purposes of determining the amount of expenditures made by any individual with respect to any dwelling unit, there shall not be taken into account expenditures which are made from subsidized energy financing (as defined in section 48 (a)(4)(C))." In other words, the tax basis of the project to which the credit applies shall be reduced by the amount of any subsidized energy financing used to finance the system.

Section 48(a)(4)(C), meanwhile, defines the term “subsidized energy financing” to mean “...financing provided under a Federal, State, or local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy.” The instructions to IRS Form 6497 (“Information Return of Nontaxable Energy Grants or Subsidized Energy Financing”) expand upon the Section 48 definition, noting that “Financing is subsidized if the terms of the financing provided to the recipient in connection with the program or used to raise funds for the program are more favorable than terms generally available commercially.” Moreover, “The source of the funds for a program is not a factor in determining whether the financing is subsidized.”

Taken together, this language seems to suggest that regardless of the source of the funds, if Berkeley’s PV program enables a participant to access financing on terms that are “more favorable than terms generally available commercially,” then Berkeley’s program, which could be considered a “local program a principal purpose of which is to provide subsidized financing for projects designed to conserve or produce energy,” will be considered subsidized energy financing. This conclusion, however, is far from certain: subsidized energy financing is a complex topic, tax law is highly factual in nature, and IRS guidance is therefore warranted.

Value loss

Taking the City of Berkeley’s proposed PV program as a case study, Berkeley Lab used a simple pro forma financial model to examine the potential financial value of the program relative to commercially available financing products, as well as the economic impact of the potential negative tax consequences described in the previous section.

The analysis is fairly straightforward and begins by calculating the net present value of after-tax cash flows for a program participant under two scenarios: one in which Berkeley’s program *is not* considered to be subsidized energy financing and participants are therefore able to access the full federal ITC, and a second in which Berkeley’s program *is* considered to be subsidized energy financing and participants therefore lose the ITC.

The analysis then considers the relative economics of a PV system owner that does not participate in the program, and that instead uses one of four commercially available financing alternatives (each of which allows full use of the ITC): a 20-year mortgage, a 15-year home equity loan, a 10-year secured consumer loan, or a five-year unsecured consumer loan. Interest payments on the first two types of loans are federal- and state tax-deductible, while interest payments on the two consumer loans are not. For further details of the analysis, including specific modeling assumptions, see <http://eetd.lbl.gov/ea/ems/cases/property-tax-finance.pdf>.

This analysis reveals that if a home equity loan or consumer loan are the only viable financing alternatives – which is perhaps the most likely situation in a PV retrofit application (which may not warrant a full mortgage refinance) – then the Berkeley program potentially provides substantial financial value to participants, particularly if the program does not offset the ITC (or if the ITC expires and is not renewed).

If, however, the Berkeley program is considered to be subsidized energy financing, and therefore offsets the full ITC, then the analysis suggests that it will not offer financial value beyond that provided by a home mortgage, but may still be competitive with a home equity loan under certain situations (depending on the dollar size or existence of the ITC cap, which currently stands at \$2000 but may be increased or eliminated in the future).

Notwithstanding this financial analysis, some residents might benefit from the program’s other attractive features (e.g., loans not based on consumer credit, or loan repayment tied to property taxes rather than following the homeowner), which were not quantified. Furthermore, the program’s primary beneficiaries may be those residents who cannot access traditional home-backed forms of credit, and that otherwise might be inclined to use consumer loans to finance their PV system (or those residents who cannot use the ITC anyway, due to insufficient income

tax liability). As such, a loss of the ITC would certainly detract from, but may not entirely eliminate, the value of such a program.

Maximizing value

Of course, as noted earlier, it is not certain that this type of program actually constitutes subsidized energy financing. Even if it does qualify as such, it is possible that Congress could alter or even eliminate the anti-double-dipping provisions in the future, making this issue moot. Additionally, the possibility that the residential ITC will simply expire at the end of 2008 without being renewed cannot, at present, be dismissed. Under any of these three scenarios, the type of program described in this case study would be very attractive, as it would offer easily accessible and favorable long-term financing that transfers with the property and does not suffer any associated negative tax consequences.

Notwithstanding the above, however, there is certainly more than a passing chance that this type of program will be considered subsidized energy financing, and will therefore offset the ITC. It is thus prudent to examine ways to resolve or otherwise work around the issues discussed above, with the goal of improving the economics of the program for all participants, under all situations. To this end, the following suggestions may help to clarify how best to proceed in order to maximize participant value:

N Consider seeking formal IRS guidance. Although it is possible that Berkeley's proposed PV program (and others that follow in its footsteps) would, as proposed, be considered a form of subsidized energy financing, tax law is complicated and highly factual in nature, and alternative arguments may persuade the IRS otherwise.

N Consider allowing participants to provide a cash down-payment. Cash down-payments would not be considered subsidized energy financing, and therefore would not impact the ITC. With a \$2,000 ITC cap, a cash down-payment of \$6,666.67 (i.e., \$2,000/30%) would be sufficient to allow a participant to take the full \$2,000 ITC.

N Consider more-advantageous sources of funding. If working with local banks is going to be considered subsidized energy financing anyway, perhaps cities should explore other financing options in an attempt to maximize the "subsidy." For example, dipping into general or reserve funds might enable cities to offer program participants a lower cost of capital than that offered by local banks, with no additional negative tax consequences.

N Consider guaranteeing the loan. Past IRS guidance with respect to Section 48 and subsidized energy financing has found that government-sponsored loan guarantee programs are not considered to be subsidized energy financing. Therefore, adding a city guarantee of the loan might result in the same (and perhaps superior, through lower interest rates) benefits to participants as the currently proposed program, but without the negative ITC consequences. Such a guarantee could potentially be layered right on top of the as-proposed program, continuing to utilize the property tax system as the repayment vehicle.

Mark Bolinger is a Staff Research Associate at Lawrence Berkeley National Laboratory. He can be reached at MABolinger@lbl.gov. This article is excerpted from a recent report by Berkeley Lab and the Clean Energy States Alliance, titled "Property Tax Assessments as a Finance Vehicle for Residential PV Installations: Opportunities and Potential Limitations" and available at: <http://eetd.lbl.gov/ea/ems/cases/property-tax-finance.pdf>

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