



Guide to Federal Tax Incentives for Solar Energy

Version 4.1

Released September 11, 2009

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VERSION GUIDE

The U.S. tax code is a perpetually moving target, and future rulings and code adjustments by the IRS, the courts or Congress may alter the interpretation of the law. We endeavor to ensure that this document is up to date at the time of printing; make sure that you have the latest copy.

1.0 – Released January 27, 2006

- Initial interpretation of the code is based on legislative language and intent, and existing precedent, especially for the commercial tax credit. Includes existing tax forms as a guide only.

1.1 – Released March 10, 2006

- Includes improved explanation of acquisition vs. construction for solar equipment.
- Incorporates new state taxation office interpretation of commercial solar installations under the Hawaii state tax credit.
- Includes new discussion of model homes.
- Typographical correction in Commercial Tax Credit Section 11, Example # 3

1.2 – Released May 26, 2006

- Reflects new legislative changes to the Hawaii state tax credit.
- Reflects new information on utility eligibility for credits.

2.0 - Released October 21, 2008

- Reflects first comprehensive update of the original guide.
- Broadens focus beyond tax credits also to cover depreciation.
- Adds new sections about how tax benefits are "monetized" by developers who cannot use them.
- Reflects changes to the tax code as a result of the "Emergency Economic Stabilization Act" in October 2008.

3.0 - Released May 21, 2009

- Reflects changes to the tax code made by the "American Recovery and Reinvestment Act" in February 2009.
- Adds new sections on depreciation, Treasury grants in lieu of tax credits, tax credit bonds, federal loan guarantees, a new investment tax credit for manufacturing facilities and answers to a list of frequently-asked questions.

4.0 - Released September 8, 2009

- Updates added to reflect the latest information about the Treasury cash grants, federal loan guarantees, financing strategies for developers who cannot use tax benefits, tax-exempt bonds and the manufacturing investment tax credit.

4.1 - Released September 11, 2009

- Corrects the date of the preliminary application deadline for the manufacturing tax credit to September 16th, 2009.
- Corrects figure in "State Tax Considerations" example for calculating the effective combined state and federal credits to 46.25 percent.

September 8, 2009

Dear SEIA Members:

This is an exciting time for the solar energy industry in the United States. In October 2008, Congress passed, and the President signed, legislation that extended the 30-percent federal solar investment tax credits for 8 more years. In February 2009, Congress took steps in an economic stimulus bill to increase the supply of capital flowing into the renewable energy sector. The U.S. is poised to become the global leader in solar energy. The U.S. solar energy industry is projected to create more than 440,000 jobs and unleash more than \$325 billion in investment by 2016.

Several improvements to the solar tax credits were made in the "*Emergency Economic Stabilization Act*" in October 2008: the \$2,000 cap for tax credits on residential solar electric installations was eliminated, creating a true 30 percent residential tax credit (effective for property placed in service after December 31, 2008), the prohibition against utilities benefiting from the tax credit was removed and alternative minimum tax (AMT) filers, both businesses and individuals, are now allowed to take the credit.

The "*American Recovery and Reinvestment Act*" in February 2009 made several enhancements to the existing incentives and embraced several new policies designed to support solar energy and other renewable energy technologies. These changes will help address the solar financing challenges caused by the weak credit and tax equity markets. The stimulus bill authorized the U.S. Department of Energy to guarantee repayment of loans to build new renewable energy projects, manufacturing facilities that make components for such projects and transmission lines. A project must start construction by September 2011 to qualify potentially for loan guarantees.

The stimulus also directed the U.S. Treasury to pay the cash equivalent of the investment tax credit to owners of renewable energy projects that are completed in 2009 or 2010 or that start construction in those years and are completed by a deadline. The deadline for solar projects is 2016. The stimulus bill provided a new 30 percent tax credit for building manufacturing facilities that make products like solar panels for the new green economy. It authorized a series of new tax credit bonds that can be issued to build renewable energy projects and manufacturing facilities. The lender must pay taxes on the interest it receives, but it receives tax credits from the federal government that offset most or all of the income taxes that would otherwise have to be paid on the interest. The bill also eliminated a rule that the investment tax credit was subject to reduction to the extent a project benefited from tax-exempt financing or subsidized energy financing.

To reflect these significant changes, SEIA and Chadbourne & Parke LLP revised the SEIA Solar Tax Manual in May 2009 and updated it in September 2009.

SEIA's Solar Tax Manual will serve as an important resource as you begin your research into how to take full advantage of federal solar incentives. This is only a starting point. This guide should not be your only resource as you conduct your research. It is vital that you contact a local tax attorney for legal counsel.

We are very excited about the future of the solar energy industry in the U.S. and we hope you find this a valuable resource.

Sincerely,



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EXECUTIVE SUMMARY

The U.S. government encourages investment in new solar equipment by offering tax credits, tax deductions and grants. Homeowners installing solar equipment potentially qualify for a tax credit. Businesses potentially qualify for both a tax credit or the cash equivalent and the ability to deduct most of the equipment cost on an accelerated basis over five years. For businesses, the subsidies are worth roughly 56 percent to 58 percent of the cost of the equipment. For homeowners, the subsidy is worth 30 percent.

The **SEIA Guide to Federal Tax Incentives for Solar Energy** provides detailed information about how the incentives for both commercial and residential applications may be claimed. Key considerations in calculating the value of federal incentives for a solar project include:

- What types of solar equipment are “eligible property” for each of the incentives;
- Amount of the incentives;
- Conditions for a system to meet the definition of “placed in service,” which is important because the tax subsidies are claimed in the year that equipment goes into service;
- Project timing issues arising because the tax credits, although long-term, are still not permanent;
- The ownership structure of the project; and
- The effect of rebates, state tax credits and other subsidies on the federal tax benefits.

There may be tradeoffs for developers who take advantage of tax-exempt financing or other forms of government help that fall under the heading "subsidized energy financing." Use of these may lead to a reduction in the federal tax subsidies for the project. There is no longer any reduction in tax credits or cash grants for spending on a project after 2008. However, use of tax-exempt financing will adversely affect the depreciation that can be claimed on a commercial project.

Most project developers are not in a position to use the tax subsidies and must enter into transactions to "monetize" the tax subsidies, or convert them into cash that can be used to help pay the project cost. There are many misconceptions in the market about who is an appropriate counterparty for such a monetization transaction. For example, passive loss and at-risk rules in the U.S. tax code make it hard for individuals or smaller corporations to use the tax subsidies. They are not an appropriate counterparty.

Care must be exercised when entering into transactions with schools, municipal utilities, some electric cooperatives, government agencies, charities and other tax-exempt organizations. Solar equipment cannot be leased to such entities and still claim the full tax subsidies. However, a developer can sign a power contract to supply electricity to such an entity. Care should be taken to make sure that what looks in form like a power contract is in fact one in substance. The IRS has rules for treating some arrangements as leases even though they are documented to look like power contracts.

Commercial projects that qualify for a tax credit will have the option during 2009 and 2010 -- and in some cases after 2010 -- to forego the tax credit and receive the cash value from the U.S. Treasury instead. This option to trade in tax credits for cash is a temporary measure meant to help keep renewable energy development on track during 2009 and 2010 when the economy is expected to remain weak.

This manual is organized in seven sections. The first section covers general project issues, as well as issues that are unique to the commercial credit. The second section covers issues specific to the residential credit. However, it is recommended that readers who intend only to take the residential credit still read through the first section on the commercial credit.

At the end of these first two sections, the guide provides workbook examples for calculating the value of the commercial and residential tax credits under different project conditions.

The remaining sections address tax credit bonds, new loan guarantees that may be available for commercial solar projects through the U.S. Department of Energy, a tax credit that encourages construction of new factories to make solar energy equipment and other components for renewable energy projects, state tax considerations and frequently-asked questions.

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Section 1. Commercial Solar Tax Benefits in Detail

The commercial solar tax credit is in section 48(a) (energy credit) of the U.S. tax code.

The commercial solar credit is 30 percent of the "basis" that a company has invested in "eligible property" that is "placed in service" during the period 2006 through 2016. The commercial credit will drop to 10 percent of the basis for property put into service after December 31, 2016, and the residential credit will drop to zero for property put into service after that date, unless the deadline is extended again by Congress. A tax credit is a dollar-for-dollar reduction of the income taxes that the person claiming the credit would otherwise have to pay the federal government.

Determining what constitutes "eligible property," when it is "placed in service," and what is the "basis" in the property are among the keys to calculating the value of the commercial solar tax credit. Each of these items, along with additional special considerations, is discussed in detail in the following paragraphs.

The same solar equipment that qualifies for the commercial tax credit can usually be depreciated over five years on an accelerated basis, meaning the cost of the equipment can be deducted and the deductions are front loaded. When a 30 percent tax credit is claimed, only 85 percent of the equipment cost is subject to depreciation. The depreciable basis must be reduced by one half of the solar tax credit. The special depreciation allowance for solar equipment is in section 168(e)(3)(B)(vi)(I) of the U.S. tax code.

Solar equipment placed in service in 2008 and 2009 qualifies for a "depreciation bonus." The owner can deduct half its depreciable "basis" in the equipment immediately. Since only 85 percent of the basis in equipment on which the 30 percent tax credit has been claimed can be recovered through depreciation, the depreciation bonus allows 42.5 percent of the equipment cost -- half of 85 percent -- to be deducted immediately. The other half is depreciated over five years. (See section 1.6.3.)

The owner of any commercial solar project placed in service in 2009 or 2010 -- or that starts construction during 2009 or 2010 and is completed by 2016 -- has the option to forego the tax credit and receive a check for the cash value from the U.S. Treasury. The owner would qualify for the same depreciation as if the owner claimed the tax credit. (See section 1.5.)

1.1. Eligible Property

1.1.1 Types of Eligible Property

The commercial solar credit may be claimed for spending on two types of equipment including spending on installation costs like labor.

1. "[E]quipment which uses solar energy to generate electricity, to heat or cool (or provide hot water for use in) a structure, or to provide solar process heat, excepting property used to generate energy for the purposes of heating a swimming pool," and
2. "[E]quipment which uses solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight."

1.1.1 (a) Photovoltaics and Concentrating Solar Power Plants - All equipment associated with a photovoltaic or concentrating solar power system is eligible property for the credit. The key word is "equipment." If the system includes a building, a credit could not be claimed on the cost of the building. Roofs are sometimes replaced when photovoltaic panels are installed on top of a building. The tax credit cannot normally be claimed on the cost of the roof. Structures that hold up photovoltaic panels -- for example, over a parking lot - - may or may not be eligible equipment. They are normally considered part of the solar system on which the tax credit can be claimed as long as the solar array is designed primarily with electricity generation in mind and

any other use, like providing shelter, is merely incidental. IRS regulations explain that eligible equipment includes storage devices, power conditioning equipment and transfer equipment. However, where batteries or other storage devices are used, the credit can only be claimed on such devices that store solar-generated electricity and not electricity drawn from the grid.

The commercial solar credit can only be claimed on the equipment in a solar power plant up to the transmission stage. Thus, no credit can be claimed on a radial line or substation to move the electricity from the power plant to the grid. The statute suggests that no credit can be claimed at all if electricity from the solar equipment is used to heat a swimming pool.

1.1.1 (b) Solar Heating and Cooling Systems - The commercial credit can be claimed on equipment that is part of a solar heating or cooling system, but only if at least 75 percent of the energy used to run the system comes from the sun. If the energy source is at least 75 percent sunlight and also relies upon an additional fuel source, then there must be an allocation based on the mix of energy in the year the system is first put into service. (The relevant year is the tax year of the company claiming the credit.) For example, if 10 percent other energy is used in the year the system is first put into service, then the solar tax credit can be calculated on 90 percent of the cost. However, a dip in the solar energy use below 90 percent in any of the next four years would lead to the IRS recapturing part of the tax credit claimed. (See section 1.10 for more on recapture.) The opposite is not true: an increase in the amount of solar energy used in a later year will not allow the company to claim an additional tax credit.

1.1.1 (c) Solar Lighting - All equipment associated with fiber-optic solar lighting systems qualifies, but only if put into service during the period 2006 through 2016. Solar tube-type systems do not qualify.

1.1.1 (d) Passive Solar Systems - Passive solar systems do not qualify. IRS regulations define passive solar systems as ones that use "conductive, convective, or radiant energy transfer." The IRS gives as examples of such systems: greenhouses, solariums, roof ponds, glazing, and mass or water Trombe walls. In systems that include both eligible property and passive solar equipment, the credit can only be claimed on the portion of total spending associated with the eligible property.

1.1.2 Age of Eligible Property

The equipment must be new to qualify for a commercial solar tax credit. The tax credit can only be claimed by the first person to use the equipment. A company that buys a refurbished solar installation may be able to treat it as new if the vendor has put enough money into upgrading it. The Internal Revenue Service applies an "80-20 test" to determine whether equipment has been so extensively modified that it is essentially a different piece of equipment. The test is $A + B$, where A is the value of the used parts retained from the original equipment and B is the cost of the improvements. If B is more than 80 percent of the total $A + B$, then the equipment will be considered brand new. The improvements include labor to install the equipment.

1.1.3 Use of Eligible Property

Equipment must be used in the United States to qualify for a commercial solar tax credit. In addition, commercial solar tax credits cannot be claimed on equipment that is "used" by someone who is not subject to U.S. income taxes.

Thus, "use" of the equipment by a school, municipal utility, government agency, charity or other tax-exempt organization (unless the equipment is used in a taxable side business) or in some cases by an electric cooperative will rule out a credit on the equipment. This means that solar equipment cannot be leased to such an entity. A lessee "uses" the equipment it is leasing. However, a lease with a term of less than six months does not count as a "use." The credit is calculated in the year equipment is first put into service.

Ineligible use of the equipment at any time during the first five years would cause part of the tax credit claimed to be recaptured. (See section 1.10.)

The key when dealing with such an entity is to sign a contract merely to sell it electricity. Someone who merely buys electricity from solar equipment owned by someone else is not considered to "use" the equipment. Care should be taken to make sure the contract is not characterized by the IRS as a lease of the solar equipment in substance even though it looks in form like a power contract. (See sections 1.8.4 and 1.8.5 for more details and consult a tax attorney for project specific applications.)

Electric utilities were not able to claim the tax credit on solar equipment that they own or lease and that was put into service before February 14, 2008. The credit could not be claimed before then on any solar equipment used to generate electricity that is sold at rates that are regulated on a rate-of-return basis. Congress removed the restriction in October 2008 and made the credit retroactive to the previous February. However, utilities must use a "normalization" method of accounting to claim the credit. This refers to the speed with which state public utility commissions that regulate the utilities can require the benefit from the credit be shared with ratepayers.

1.1.4 OEM and Integrated Equipment

A billboard or highway warning sign does not qualify for the credit, even if powered by sunlight, but the cost of a distinct device that generates electricity from sunlight to illuminate the sign would qualify. Similarly, a livestock pump would not qualify, but a PV attachment designed to drive the pump would; a careful and conservative allocation of cost between solar and non-solar equipment must be made.

The credit belongs to the customer who places the equipment in service, not to the manufacturer or integrator of the final device. The credit is claimed by the owner of the equipment after the equipment is placed in service. Except in rare cases, a manufacturer or vendor holding equipment out for sale does not place it in service.

1.2. Placed in Service

1.2.1 General Requirements

Equipment is considered "placed in service" once it has been fully installed and delivered to the owner and is capable of being used by the owner for its intended purpose. Ordinarily, four things must have happened for this to be true:

- The equipment must have been delivered and physical construction or installation on site must have been completed, although contractor personnel can remain at the site to handle minor tasks like fixing punch list items.
- The taxpayer must have taken legal title and control over the equipment.
- The taxpayer must have the licenses and permits needed to operate it. Thus, for example, in states where a building owner is not allowed legally to turn on a solar system until the local utility has inspected the system and declared it safe for use, the system is not normally in service until a letter has been received from the local utility authorizing "parallel operation" with the grid.
- Pre-operational tests must have demonstrated that the equipment can serve its intended function. ("Pre-operational" means before the equipment is put to use.) Other testing to determine whether the equipment can operate at the design capacity and to identify and eliminate defects can occur after the equipment is already operating.

Equipment bought off the shelf is usually assumed to be in workable condition. Solar equipment sold in a ready-to-use state (e.g., solar-powered warning devices, pumps, etc.) as opposed to that which is constructed on site (as with a typical solar rooftop system) is ordinarily considered to be placed in service immediately upon purchase and installation.

1.2.2 New Businesses

The “placed in service” requirement is different for a taxpayer entering a new business than for a taxpayer already in that business. In the case of someone going into a new business, the courts have held that he or she must actually have put the equipment to use - it is not enough merely to show it was capable of operating.¹

1.2.3 Power Plants

Utility-scale power projects that will sell electricity via the grid must have been synchronized with the grid before they are considered in service. They must be able to deliver their electricity to market.

1.2.4 “Daily Operation” as a Condition for Meeting the Requirement

The IRS takes the position that equipment must be in "daily operation" to be considered in service.² This is a more conservative view of the law than held by many tax lawyers. In a technical advice memorandum in 1993, the IRS said a power plant "is considered in daily operation when it is routinely operating to supply power to the transmission grid for sale to customers."³ (A "technical advice memorandum" is a ruling by the IRS national office to settle a dispute between a taxpayer and an IRS agent on audit.)

If a solar system is considered part of an "integrated facility," then the rest of the facility must also be working before any part of it is in service. An example is a factory where the solar equipment is the power source, but the factory is not in a position to turn out product until all three sections of the assembly line are fully functioning.

1.3. Tax Basis

A company's "basis" is the portion of its investment in eligible property upon which the commercial solar tax credit can be claimed. It is normally what the taxpayer paid for the equipment, including the cost of installation. Thus, for example, if equipment cost \$100,000, the solar credit during the period 2006 through 2016 is 30 percent of the tax basis of \$100,000, or \$30,000.

Interest paid during construction of larger solar projects that take more than a year to build and cost more than \$1 million is added to the basis of the equipment.

Interest paid on loans to acquire other solar equipment are normally deducted when paid and do not add to the basis. However, an election can be made under section 266 of the tax code to fold them into the basis. Sales and use taxes are normally considered a cost of the equipment purchased and are added to basis. Items that are added to basis have to be deducted over time through depreciation, but they also enter into calculation of the commercial solar tax credit.

¹ See, e.g., *Piggly Wiggly Southern, Inc. v. Commissioner*, 84 TC 739 (1985) (refrigerators installed in new stores not in service until the stores opened to customers); General Counsel Memorandum 37449 (March 6, 1978) (taxpayer already in the trade or business does not have to use equipment before it is deemed in service, unlike taxpayers entering a new business).

² See, e.g., Private Letter Ruling 9529019 (April 24, 1995) (landfill gas facility not in service for purposes of section 29 credits until it is in "daily operation"); PLR 9627022 (April 9, 1996) (same statement); PLR 9831006 (April 23, 1998) (same statement).

³ See Technical Advice Memorandum 9405006 (October 15, 1993)

1.4. Effect of Rebates, Buydowns, Grants and Other Incentives

State rebates, buydowns, grants or other incentives do not decrease the amount eligible for the commercial solar credit if the company is required to pay federal income tax on the incentive. The majority of incentives represent income on which federal income taxes are paid and, therefore, do not decrease the basis for the solar tax credit. However, there is a limited class of incentives that are not taxable; for these incentives, the tax basis must be reduced prior to calculating the credit.

The following table describes different types of incentives and their impact on the tax basis. If you are uncertain which category your particular rebate program falls under, we urge you to get in touch with the state or utility energy program contacts listed at www.dsireusa.org, or contact a tax attorney for project-specific clarification.

1.4.1 Incentives that Reduce the Tax Basis

Type of Incentive	Comment
<p>Nontaxable Rebates from a State or Utility</p> <p>(Note: most rebates are taxable - see below.)</p>	<p>In rare cases, cash received from a state government does not have to be reported as taxable income. An example -- outside the solar industry -- is where a state reimburses a railroad for the cost of putting tracks on an overpass so as not to block traffic on a public highway. The railroad is no better off with the overpass than without. It has no income in the sense of an accession to wealth. It is rare to find such cases.</p> <p>Utilities in some states pay rebates to customers as an inducement to install solar equipment. A rebate from a utility should ordinarily be considered taxable, except if a rebate is paid by a utility to a customer as an inducement to take energy efficiency measures in connection with a dwelling unit (e.g., an apartment building). Such a rebate is exempted from tax under section 136 of the U.S. tax code, and the basis must be reduced by the amount of the rebate.</p> <p>As a general rule, all money or value received in a business setting must be reported as income unless one can point to a specific section of the U.S. tax code that excludes the amount from income.</p> <p>The IRS ruled privately in late 2008 that a grant a corporation received from a state to help pay the cost of a new building to house company offices did not have to be reported as income.⁴ The IRS had no position as of August 2009 on whether federal grants paid under the economic stimulus bill -- known more formally as the "American Recovery and Reinvestment Act" -- must be reported as income.</p>

⁴ Private Letter Ruling 200901018.

1.4.2 Incentives that Do Not Reduce the Tax Basis

Type of Incentive	Comment
Taxable State or Nonprofit Grants, Rebates, or Buydowns	<p>You need not reduce the tax basis of your system as long as the grant must be reported as income. Most grants must be reported as taxable income. A company will enjoy a greater tax advantage by claiming a rebate or grant as taxable income. However, it does not have discretion to do so. The grant is either taxable or it is not.</p>
Credits Against State and Local Income Tax	<p>State and local income tax credits do not affect the tax basis.</p>
Taxable Rebates or Credits Funded by a Utility	<p>Rebates funded by a utility are generally treated as taxable income, and do not affect the tax basis in solar equipment.</p> <p>Two things used to reduce the tax basis for the credit before 2009. They were if the system cost is paid with help from tax-exempt financing or "subsidized energy financing."</p> <p>Tax-exempt financing involves bonds issued by a state or local government to borrow money for a public project or quasi-public use. The lenders who buy the bonds do not have to pay taxes on the interest they receive. "Subsidized energy financing" is a government program that provides subsidized financing for energy measures. An example is where a state makes direct loans to businesses at below-market rates to help them finance solar panels.</p> <p>The IRS ruled that it is not "subsidized energy financing" (see section 1.4.3) for an investor-owned utility to make rebates on electricity bills to homeowners who buy hot water heaters that use renewable energy in a case where the money the utility uses for the program comes solely from its own revenues. It does not matter that the utility was ordered by the state public service commission to conduct the program. A program is not "subsidized energy financing" unless it is a government program involving government funds.</p> <p>Similarly, it is not subsidized energy financing for a federal utility like the Bonneville Power Administration or Tennessee Valley Authority to make loans at below-market interest rates to customers of utilities to whom BPA or the TVA supplies power. By law, the federal utility must cover its full costs through its own revenues.</p> <p>The "American Recovery and Reinvestment Act" in February 2009 eliminated the rule that use of tax-exempt or subsidized energy financing reduces the tax basis on which the tax credit is</p>

	<p>claimed. The change applies to spending on a project in 2009 or later. Therefore, if construction of a project started in 2008 but was completed later, the tax credit may not be claimed on the portion of the construction cost that accrued in 2008 and was paid with help from tax- exempt or subsidized energy financing. It may be claimed on the portion of the cost incurred in 2009.</p> <p>Use of tax-exempt financing will still cause the project to have to be depreciated more slowly. A solar project financed with tax-exempt debt must be depreciated on a straight-line basis largely over 12 years rather than on an accelerated basis largely over five years. Use of subsidized energy financing does not affect how a commercial project is depreciated.</p>
State Performance–Based Incentives	<p>Direct payments by a state to solar producers as an operating subsidy never caused a reduction in tax credit basis. Operating subsidies paid directly to a generator may be a grant, but they are not subsidized energy financing. (This assumes that the incentives do not have to be repaid.) The IRS has ruled on a number of occasions that the only financial assistance that caused a reduction in the tax credit was help paying the capital cost of the project. It was not subsidized energy financing to subsidize operating costs.⁵ Subsidized energy financing was a problem before 2009. It is not a problem for project costs that are incurred on or after January 1, 2009.</p>
Renewable Energy Credit Sales or Requirements	<p>Renewable energy credits or “RECs,” “green tags,” carbon allowances and other saleable environmental attributes awarded for using sunlight to generate electricity have no effect on the commercial solar credit.</p>
Loan Guarantees	<p>The IRS said in a private letter ruling that a loan guarantee from a federal or state agency or a utility was not “subsidized” energy financing, even if the guarantee looks in form like a direct loan by the government to the private party. The interest rate on the loan was the same rate that a bank would charge to lend with a federal guarantee.</p>
Grants administered by non–governmental organizations and funded from non–governmental	<p>The IRS ruled privately that production incentive payments delivered by a private charity out of funds contributed by a private utility company was not “subsidized energy financing.”⁶ However, it suggested that the program might have been viewed</p>

⁵ See for example <http://text.nyscrda.org/programs/pdfs/taxcreditpaper.pdf>

⁶ Private Letter Ruling 200202048

funding sources	as subsidized energy financing if a government agency administered the program, even if it was privately funded. ⁷
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1.4.3 Subsidized Loans and Financing

Generally, borrowing money does not adversely affect the basis that a taxpayer has in his or her solar equipment. It does not matter whether the money to pay for the equipment comes out of the pocket of the taxpayer or is borrowed; the basis on which the tax credit is calculated is what the taxpayer paid for the equipment. Two exceptions to this general rule are:

- For spending prior to January 1, 2009, basis had to be reduced to the extent subsidized borrowing in the form of “tax-exempt financing” or “subsidized energy financing” was used to pay the equipment cost; and
- at-risk limitations could come into play to limit the credit that can be claimed in situations where the taxpayer borrows to pay the equipment cost on a nonrecourse basis, meaning on terms where the lender has no claim against the borrower if he fails to repay the loan. The only recourse of the lender is to foreclose on the equipment. See section 1.4.4 for more detail.

The details follow.

1.4.3(a) Calculation Method - When either tax-exempt financing or subsidized energy financing is used to pay equipment costs that were incurred before 2009, the tax basis in the equipment must be reduced. The basis reduction is calculated by putting the cost of the equipment in the denominator of a fraction. The numerator is the amount of subsidized or tax-exempt financing used to pay such costs. The fraction is the percentage reduction in the tax basis. (For example, a system put in service before 2009 and financed entirely with tax-exempt bonds would be ineligible for the commercial solar credit.)

1.4.3(b) Tax-Exempt Financing - The IRS defines “tax-exempt financing” as borrowing through bonds issued by a state or local government to finance a public or quasi-public project. The holders of such bonds do not have to pay taxes on the interest they receive. This means a borrower benefiting from such bonds does not have to pay as high an interest rate as he would otherwise. Tax-exempt financing can usually be used only for schools, roads, hospitals and other public facilities. However, the U.S. tax code makes 15 exceptions where such financing can be used for private projects that Congress felt create some public benefits (e.g. privately-owned sewage treatment plants or sports stadiums). Smaller projects may also qualify for financing using “small-issue” bonds.

1.4.3(c) Subsidized Energy Financing - The IRS defines this as “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.” An example of such financing is where a state offers low-interest loans directly to help pay for renewable energy projects or where the state makes payments to a bank to buy down the interest rate on loans that the bank makes to finance such projects.

It is important to note that the “subsidized energy financing” is the full financing extended under a government program, not just the cost to the government of the subsidy. The IRS took this position in regulations under the residential energy credit that used to be on the statute books from 1977 to 1990.⁸ For example, if a commercial customer built a \$100,000 project prior to 2009, borrowed \$80,000 and benefited

⁷ Private Letter Ruling 8530004

⁸ In the example given by the IRS, a bank lent \$3,000 to a homeowner to install a solar hot water heater and the bank used \$500 it received under a federal energy conservation program to reduce the principal amount of the loan the homeowner had to repay to \$2,500. The amount of “subsidized energy financing” in this case was the full \$3,000.

from an interest rate subsidy on the loan funded out of a state energy program, then the basis eligible for the tax credit would be reduced by \$80,000 and the credit would only apply to the remaining \$20,000. No basis reduction is required for spending on a project after 2008.

1.4.3 (d) Tax-Exempt or Subsidized Energy Financing and Depreciation - Use of tax-exempt or subsidized energy financing will not reduce the depreciable basis of a project. However, if tax-exempt financing is used, the project will have to be depreciated more slowly -- largely over 12 years on a straight-line basis.

1.4.4 At-Risk Limitations on Financing

Certain taxpayers may not be able to claim the full cost of eligible property as tax basis immediately if they borrow on a nonrecourse basis to pay the cost. "Nonrecourse" means the taxpayer has no personal liability to repay the loan, and the lender looks mainly to the project being financed for repayment. The taxpayers subject to this rule are individuals (including individuals who own a project through a partnership or limited liability company treated as a partnership), S corporations and "closely-held" C corporations. A C corporation is "closely held" if five or fewer individuals own more than half the stock. (The rule does not apply to publicly-held companies. It also does not apply to a small developer that brings in an institutional investor as a partner.) Such taxpayers cannot include in the tax basis any portion of the eligible property cost paid with nonrecourse financing when calculating their commercial solar tax credit for the year a solar project is placed in service. For example, if a solar project cost \$100,000, but \$80,000 of the cost was paid with the help of a nonrecourse loan, then the tax credit initial basis is \$20,000 of the cost.

There are two key exceptions to this rule requiring a basis reduction when nonrecourse financing is used. These exceptions should apply to most solar projects:

1. If the equipment financed through a nonrecourse loan would have qualified as "solar energy property" under section 46(c)(8)(F) of the tax code before that section was repealed in 1990, then the basis reduction is not required. (Solar equipment that qualifies today for the commercial solar tax credit would have qualified under that section, with the exception of solar hybrid lighting.⁹) However, this exception applies only if no more than 75 percent of the cost of the equipment is paid with nonrecourse debt and the nonrecourse debt is a level-payment loan, meaning that there is a straight-line amortization schedule for repayment of the loan. Level debt service payments are more interest than principal in early years and more principal than interest in later years.
2. A basis reduction is also not required if the nonrecourse financing is "qualified commercial financing." The requirements of "qualified commercial financing" are:
 - The taxpayer must not acquire the solar equipment from a "related party."
 - The nonrecourse financing cannot be used to pay more than 80 percent of the cost.
 - The money must either be borrowed from a commercial lender or through a federal, state or local government program. A loan whose repayment is merely guaranteed by a federal, state or local government agency will still be considered to have been made under such a program. A commercial lender must be regularly engaged in the business of lending. The commercial lender cannot be related to the taxpayer or be the vendor who sold the equipment or be someone who receives a fee tied to the taxpayer's investment in the equipment.

The at-risk rules merely affect the timing of tax credits rather than the final amount. If part of the cost of the eligible property cannot be included in the first year's tax credit basis due to use of nonrecourse financing, then as the loan principal is later repaid, the taxpayer can claim a new credit calculated on the reduction in

⁹ Omnibus Budget Reconciliation Act of 1990 - H.R.5835 ENR

loan principal as the tax credit basis. Additional credits can be claimed in each year as the loan principal is repaid. No additional credits can be claimed on interest payments.

1.5. Cash Grants in Lieu of Tax Credits

Developers of new commercial solar projects placed in service in 2009 or 2010 have the option to take a cash payment from the U.S. Treasury for the same amount they would have been able to claim as a commercial tax credit. This option is also available for solar projects that start construction in 2009 or 2010 and are completed by 2016. The grants will be paid within 60 days after the project is placed in service or, if later, 60 days after the owner submits a complete application to the Treasury. The Treasury has no discretion whether to pay. Applications must be submitted by September 2011.

The option is only available on commercial projects -- not residential. Solar panels that are owned by a solar company and used by it to supply electricity to a homeowner under a power purchase agreement or that are leased by it to a homeowner are considered put to commercial use, assuming the contract with the homeowner is respected for tax purposes as a power contract or lease and is not recharacterized as an installment sale of the panels to the homeowner.

There are two ways to show that a project is under construction by the end of 2010.

One is to satisfy a 5 percent "safe harbor." At least 5 percent of the total project cost must have been incurred by the end of 2010. However, it is not enough merely to prepay for equipment. The project must also be at least 5 percent completed, taking into account work not only at the site but also at the factory on specially-ordered equipment. The costs of land and preliminary activities that normally precede construction, like engineering and design work, exploring for sites, researching the market and legal fees to negotiate financing do not count and must be subtracted from both the numerator and the denominator of the fraction. The project developer should make sure to sign a "binding" contract with the equipment supplier before the equipment starts being fabricated at the factory. "Binding" is a term of art. The contract to buy the equipment should not merely be an option to buy equipment. It should specify exactly what is being purchased and the price. It should not give the developer the right to cancel the contract for a liquidated damages payment that is less than 5 percent of the total contract price.

The other way is to qualify for a cash grant on projects completed after 2010 is to demonstrate that "physical work of a significant nature" got underway at the site by the end of 2010. Examples of significant physical work at the site for a utility-scale solar project are excavating the foundation, setting anchor bolts into the ground or pouring concrete pads for the foundation. Preliminary work, such as clearing a site, drilling to determine soil conditions and grading to make the land more level, does not count.

Any grant paid will be subject to recapture if there is a change in use of the solar equipment or it is permanently shut down or if ownership is transferred to a disqualified person within the first five years. Only the "unvested" portion of the grant is recaptured. The grant vests at the rate of 20 percent a year. Thus, if the solar equipment is sold after it has been in use for three years, then 40 percent of any cash grant paid will be recaptured. In this sense, the recapture rules are similar to what happens to the commercial tax credit. (See section 1.10 for more on recapture.)

Solar companies that are treated as partnerships for tax purposes and have raised money from private equity funds may be barred from receiving any cash grants. This is only a problem if the private equity fund invests directly and not through a U.S. "blocker" corporation. Section 1603(g) of the "American Recovery and Reinvestment Act" prohibits the Treasury from paying any grant on a project owned by a "partnership or other pass-thru entity any partner (or other holder of an equity or profits interest) of which" is a federal, state or local government agency or instrumentality, a tax-exempt entity or an electric cooperative. Most private equity funds have state pension plans, university endowments and similar entities as investors. Congress may

rewrite the prohibition to narrow it, but it would not do so before Fall 2009. Also, be aware that if a blocker corporation is owned 50 percent or more by a government or tax-exempt entity, there may be additional complications.

1.6. Depreciation

1.6.1 Asset Breakdown

The owner of solar equipment can depreciate, or deduct, 85 percent of his or her tax basis in the same equipment on which the commercial tax credit or Treasury cash grant is claimed over five years. The deductions are claimed on a 200 percent declining-balance basis, meaning the deductions are front-loaded rather than taken in equal amounts each year over the period.

Any part of a solar project that is considered a building is depreciated over 39 years on a straight-line basis. Not all structures are buildings for tax purposes. A structure is usually only considered a building if it includes office or storage space or a control room.

Landscaping and other site improvements, like a parking lot, are depreciated over 15 years on a 150 percent declining-balance basis.

Transmission equipment used to transmit at 69 kV or higher voltage is depreciated over 15 years using 150 percent declining-balance depreciation. Other transmission and distribution equipment is depreciated over 20 years using 150 percent declining-balance depreciation. Utilities usually make owners of utility-scale solar projects reimburse them for the cost of any substation upgrades, grid improvements and other equipment required for interconnection that the utility will own. Some of the costs may be classified as "network upgrades" for regulatory purposes and the utility will collect the cost from the generator but then repay it later with interest or transmission credits. Any payments a generator makes for network upgrades are treated for tax purposes as a loan by the generator to the utility and the generator is not allowed to deduct them. The generator may also have to reimburse the utility for "direct intertie" costs that will not be repaid by the utility. The generator recovers any such payments on a straight-line basis over 20 years.

Property on an Indian reservation can be depreciated more rapidly. The part that would be depreciated over five years can be depreciated over three years instead. This only applies to equipment placed in service by December 2009 unless the deadline is extended by Congress.

Depreciation must be taken more slowly to the extent tax-exempt financing is used to pay part of the equipment cost. It is also slower for assets used predominantly outside the United States and for any assets that are considered "tax-exempt use property." Examples of tax-exempt use property are solar panels leased to a tax-exempt entity or a project owned in a partnership between a private developer and a municipal utility. In the case of such a partnership, a fraction of the project is "tax-exempt use property." The fraction is the highest share of partnership income that the municipal utility will be allocated during the life of the partnership. Thus, if the municipal utility starts with a 10 percent share of income but this increases later to 50 percent, then 50 percent of the project will be "tax-exempt use property" from the start.

1.6.2 Basis Reduction

The owner of solar equipment on which an investment credit is claimed or on which a cash grant is paid by the Treasury can depreciate only 85 percent of the cost. The "basis" for depreciation must be reduced by half the amount of the investment credit or cash grant.

1.6.3 Depreciation Bonus

Solar equipment placed in service in 2008 or 2009 qualifies for a 50 percent "depreciation bonus," meaning that half the basis in the equipment can be deducted immediately. The remaining basis is deducted normally as depreciation. Thus, the bonus the first year on the part of a solar project that qualifies for an investment credit or cash grant is 42.5 percent of the equipment cost. The bonus can only be claimed on equipment that the owner was not committed to purchase before January 1, 2008. In larger solar projects, just because a contract was signed with someone before 2008 to build the project does not mean the owner was committed to the project when the contract was signed. In some cases, the owner is not considered committed until physical work started on the project at the site. Commitment to purchase depends on the facts of the individual case.

1.7. Project Timing Issues

1.7.1 Transition Issues for Some Projects

Projects that straddle a date when Congress changed the tax subsidies for solar equipment raise transition issues. There are potentially such issues with both tax credits and the Treasury cash grants.

The tax credit for commercial solar projects was increased from 10 percent to 30 percent in 2006 and it will drop back to 10 percent in 2017, unless Congress votes again to extend it. What happens when a solar energy system is installed partly in 2016, but not placed in service until 2017?

The answer is the taxpayer will probably qualify only for a 10 percent credit. However, it depends on whether the project is considered to be "self constructed" or "acquired" by the taxpayer.

1.7.1(a) Self-Constructed Projects - For the purposes of evaluating transition issues, a project is considered "self constructed" when:

- it is assembled and installed by the taxpayer, or
- "stick built" for a taxpayer by a construction contractor - at least in most cases where the taxpayer retains control over the design.

In cases where a project is considered self constructed, a 30 percent tax credit can only be claimed on the percentage of construction work done during the period 2006 through 2016. However, that assumes that the project will be completed in 2016. If work starts during 2016, but is not completed until 2017, then the taxpayer will get only a 10 percent credit unless he elects to claim credits on a "progress payments basis" or unless Congress extends the deadline to qualify for the 30 percent credit. (See section 7.2 under the commercial credit discussion for a discussion about progress expenditures.) It does not matter when the construction contractor is actually paid. Thus, there is no advantage to paying the contractor in 2016 for work that will be done in 2017. Where work started in 2005 and finished in 2006, part of the cost of the project qualified for a 30 percent credit -- the part of the work completed during 2006. The portion of the project completed in 2005 qualified for a 10 percent credit.

1.7.1(b) Acquired Projects - A project is considered "acquired" when property ready for use is purchased ready for use without any associated construction or assembly delay.

If the taxpayer "acquires" the solar equipment rather than self constructs it, then a 30 percent credit can only be claimed if the property is both acquired and placed in service during the period 2006 through 2016. Thus, for example, if a taxpayer signs a contract to buy photovoltaic property in 2016, but it is not delivered or ready for use until 2017, then only a 10 percent energy credit can be claimed.

Treasury cash grants are paid on solar equipment that is placed in service in 2009 or 2010 or on which construction starts in 2009 or 2010 and is completed by 2016. It does not matter that the equipment was ordered or largely installed before 2009. The key is when it was placed in service.

1.7.2 Progress Expenditures

The commercial solar tax credit is ordinarily claimed in full in the year that eligible property is put into service. However, a taxpayer can elect to claim a commercial solar tax credit on his or her construction progress payments in situations where the eligible property is expected to take at least two years to build.

This could become relevant in cases where works starts on a project in 2016 when there is still a 30 percent commercial solar tax credit, but it will not be completed until after the credit has reverted to 10 percent. The 30 percent credit could be claimed on construction progress payments during 2016.

Some developers of utility-scale solar projects that will take at least two years to construct and that are expected to get underway by 2010 also plan to take tax credits on construction progress payments and then pay back the amount of tax credits claimed and take a cash payment from the Treasury within 60 days after the project is placed in service. This would provide a time-value benefit. The commercial credit is subject to recapture in more situations than the cash grant. Thus, paying back the value of the tax credits and taking a cash grant after construction is completed will also reduce the risk that the subsidy will have to be paid back to the government in the future.

The amount the taxpayer is considered to have paid toward construction in any year depends on a number of complicated rules.

The taxpayer must first determine whether a project is "self constructed" or "non-self constructed." The progress expenditure rules use a much tighter definition of self construction than the transition rules do. That is, while most stick-built projects are considered self constructed for purposes of the transition rules, few projects are considered self constructed for progress payments purposes. To be self constructed for progress payments purposes, the taxpayer must expect to spend more than half the construction expenditures on wages for the taxpayer's own employees and on materials that they will install. This test is applied to each unit of property. A single project may consist of more than one unit. For example, each turbine, boiler and other large component at a power plant is probably considered a separate unit of property.

Spending on non-self-constructed property counts only when amounts are actually paid to a third party and, even then, one can only count the spending in a year "to the extent [it is] attributable to progress made in construction . . ." The IRS regulations say, "Progress will generally be measured in terms of the manufacturer's incurred cost, as a fraction of the anticipated cost . . ."

More spending counts earlier in time as progress payments for self-constructed property. The rule for self-constructed property is that spending counts when the amount "accrues," meaning when the taxpayer is legally obligated to make the payment and the amount is known. However, spending on components comes under a special rule. It cannot be counted before the components are built at the factory (in the case of components that are specially designed for a project), or when they are delivered to the site (in the case of other components that would be "economically impractical to remove" after delivery), or when they are physically attached to the project (in the case of any remaining components).

1.8. Project Ownership Considerations

Subtleties associated with specific ownership structures that affect the commercial solar tax credit are discussed in the following paragraphs.

Commercial solar tax credits and depreciation are claimed by the owner of eligible property. Any owner that cannot use these tax incentives because he does not pay enough in taxes should explore one of several options:

- Take the cash value of the tax credit from the U.S. Treasury and finance the rest of the project with debt, perhaps with the help of a federal loan guarantee, to the extent the project will generate enough cash to cover the debt service. However, this will leave the project owner with "stranded" depreciation that he may not be able to use efficiently. The depreciation can be carried forward for up to 20 years and used when the project starts generating income. The depreciation will not have as great a time value as if the depreciation deductions could be used immediately.
- Do a "tax equity deal" to try to get value for the depreciation (and the tax credit if the developer chooses to claim it rather than take the cash value from the Treasury). Any tax equity deal might take one of four forms.
 - Sell the project to another company that can use the tax benefits and lease it back, thereby sharing indirectly in the tax subsidies in the form of reduced rent for use of the equipment.
 - Bring in an institutional equity investor that can use the tax benefits as a partner to own the project in a so-called "flip" partnership and allocate 99 percent of the tax subsidies to the institutional investor in exchange for the capital to build the project.
 - Do an "inverted pass-through lease" where the developer leases the project to a tax equity investor and elects to pass through the commercial tax credit or cash payment from the Treasury to the tax equity investor.
 - Let someone else own the project and just buy the electricity under a long-term contract.

1.8.1 Sale-Leasebacks

In a sale-leaseback, the developer sells the project to an institutional equity investor who can use the tax credits and depreciation on the project and then leases it back. The lessor claims the tax credits and depreciation. If the parties choose to receive cash from the Treasury in lieu of the tax credit, then the cash payment will go the lessor if the sale-leaseback occurs within three months after the project is originally placed in service. It will go to the developer if the sale-leaseback occurs more than three months after the project is originally placed in service. The terms of the lease financing will be less generous if the payment goes to the developer.

The lease should not run longer than 80 percent of the expected life and value of the project. The developer can have one or more options to renew the lease, but the options should be at market rent determined at renewal. Any options to renew at a fixed rent count as part of the original lease term for purposes of testing whether the lease term is too long. The lease back must be to the same legal entity that placed the project in service.

In larger projects that take some time to construct and that are financed by borrowing the construction funds from a bank, the lessor commits at the start of construction to buy the project after construction is completed. The closing on the sale-leaseback must occur within three months after the project is put into service, or the lessor cannot claim any commercial solar tax credits. (It would still be able to claim depreciation.) If cash will be paid by the Treasury in place of tax credits, the cash payment may already have been made to the developer and there would not be any recapture of the payment by the U.S. government. (See section 1.10.) The lessee will have a taxable gain on the sale if it charges the lessor more for the project than the lessor just paid to construct the project. The lessor must pay the fair market value of the project at time of sale. Commercial solar tax credits can only be claimed on new equipment. A special rule preserves the status of the equipment as new as long as it is sold and leased back within three months.

The lessor in a sale-leaseback can elect to leave the tax credit or Treasury cash payment with the lessee and claim only the tax depreciation on the project. The lessor must otherwise qualify for the tax credit. Thus, for example, the election cannot be made by a foreign lessor unless at least 50 percent of the gross rents are subject to U.S. income taxes.

A taxpayer must usually reduce his tax basis for depreciation by one half the solar tax credit. Thus, where a 30 percent credit is claimed, only 85 percent of the equipment cost can be depreciated. However, in a case where the project is sold and leased back and the lessor elects to leave the tax credit or Treasury cash grant with the lessee, then the lessor can claim depreciation on the full cost of the project without any basis reduction. However, the lessee would have to report half the credit it claims or cash grant it receives as taxable income over a five-year period.¹⁰

1.8.2 Partnership Flips

Another way for a developer to get value for tax subsidies it cannot use is to bring an institutional equity investor in as a partner to own the project and pay part of the capital cost. The project is owned by a partnership of the developer and the institutional investor. The partnership allocates 99 percent of the economic returns to the investor until the investor reaches a target internal rate of return, after which the investor's interest in the project drops as low as 4.95 percent and the developer's interest increases automatically to 95.05 percent. The developer has an option at that point to buy out the investor for the fair market value of its remaining 4.95 percent interest. In some transactions, cash is distributed 100 percent to the developer until the developer gets back any capital it has invested in the project. After that, cash follows other partnership items and is distributed 99 percent to the investor until the flip.

In a partnership, the investor must come into the deal before the solar project is placed in service (unlike a sale-leaseback where the investor has up to three months after the in-service date to invest).¹¹

Even though the parties intend to allocate 99 percent of the tax benefits to the investor, the investor may not be able to absorb that much of the tax subsidy in fact due to partnership accounting rules. Anyone using a partnership flip structure should be careful to model the transaction, paying particular attention to the "capital account" and "outside basis" of the investor, as these determine its capacity to absorb tax benefits. They are a function partly of how much the investor invests in relation to the tax benefits.

Commercial solar tax credits must be shared among partners in the same ratio that they share in income for the year the project is placed in service.

It does not matter whether the partnership actually has any income that year. (Most solar projects show tax losses for the first three to four years.) However, care must be exercised when switching the ratio for sharing income before the partnership turns tax positive. For example, suppose there are two partners -- A and B -- who agree to allocate 99 percent of income to B for the first three years in order to get B 99 percent of the solar tax credits and then share everything 50-50 from year four onward. If the partnership has tax losses in each of the first three years, the IRS may argue on audit that the 99-1 sharing ratio for income that was used in year one to give the investor 99 percent of the solar tax credit is illusory. For that reason, it is important to hold the sharing ratio used in year one in place at least until a full year when the partnership has income.

¹⁰ Most lessors are corporations. It is hard for an individual or other "non-corporate" lessor to claim commercial solar tax credits. Such a lessor can claim tax credits only in two situations. One is where he or she manufactured the equipment. The other is where the amount of business expense deductions the lessor can claim in the first 12 months in connection with the equipment is more than 15 percent of the rent he or she earns during the same period. An example of a business expense deduction is wages paid to employees. The lease would also have to have a term less than half the "class life" of the equipment. Thus, the lease in a solar project with a non-corporate lessor would have to be shorter than six years.

¹¹ If the parties take a cash payment from the Treasury in place of the tax credit, then the sale-leaseback can be done more than three months after the project goes into service, but the cash payment would remain with the developer.

The flip should not occur until at least five years after the project is put in service. Otherwise, part of the solar tax credit may be recaptured. The credit takes five years to vest fully. (See section 1.10 on credit recapture for a more detailed discussion.)

A shift in partner sharing ratios will not lead to recapture of any cash payment made to the partnership by the Treasury. The grant is treated like any other cash. The partners remain free to distribute it as they wish. However, receipt of the grant also generates tax-exempt income. That income should be allocated to the partners in the same ratio they are allocated other income. It will bump up their capital accounts and outside bases.

1.8.3 Inverted Pass-Through Leases

In an inverted lease, the developer owns the solar project, but leases it to an investor. The investor as lessee holds a power contract to sell the electricity to an off-taker. It takes in revenue from electricity sales and uses it to pay rent to the developer as lessor. The developer makes an election to allow the lessee to claim the commercial solar credit. The developer keeps the tax depreciation and uses it to shelter the rents from income taxes. The investor as lessee claims the commercial tax credit and deductions for rent that may mirror the depreciation that it would have received as owner. It pays an additional amount as prepaid rent for the tax benefits.

The main attraction to the developer is it gets back the project at the end of the lease without having to pay anything for it. The lease might run as short as six or seven years. The structure appears to be retaining its appeal after the economic stimulus bill in February 2009 even though the government is now monetizing tax credits. Investors pay between \$1.21 and \$1.40 per dollar of tax credit or Treasury cash grant. The tax equity pays more than 100¢ on the dollar because it can deduct the amount it pays for the tax credit or cash grant as rent.

The structure can get very complicated. In some versions, the developer retains an interest as the managing member of the lessee and, instead of having the investor pay for the tax credits as prepaid rent, the developer makes a capital contribution to the lessee that the lessee contributes, in turn, to a lessor entity that is owned 51 percent by the developer and 49 percent by the lessee. The tax equity investor shares in the depreciation through its interest in the lessor entity.

A lessor who elects to allow the investor as lessee to claim the commercial tax credit does not have to reduce its depreciable basis by half the credit. However, the investor must report half the credit as income spread ratably over five years.

1.8.4 Power Contracts

Another alternative for a company that cannot use the tax subsidies is simply to buy the electricity from the project under a long-term contract from someone else who owns the project and can use the tax subsidies. Some states have retail sale restrictions that bar anyone other than a regulated utility from supplying electricity at retail. It is a good idea in many cases to limit the term of the power contract so that it does not run longer than 80 percent of the expected life and value of the project. The power purchaser can have options to renew the contract, but the electricity price should be reset to the current market level at time of renewal. The power purchaser can have an option to purchase the project at the end of term, but it would be best if the option were at market value determined at time of exercise rather than a fixed price.

1.8.5 Prepaid Service Contracts

In some larger solar projects, particularly where electricity is sold to a municipal utility or electric cooperative, a developer may suggest that the purchaser of the electricity prepay for a large share of the electricity to be

delivered over the contract term. The prepayment can be used to help pay the project cost. It does not have to be reported immediately as taxable income by the developer, provided the power contract is properly structured. The prepayment is reported as income over the period the electricity is delivered. The developer cannot report the income any more rapidly for book purposes.

The parties must be careful to ensure the prepayment is only for electricity and not for anything else like capacity or renewable energy credits. They should state in the contract that they intend it to be treated as a "service contract" within the meaning of section 7701(e)(3) of the U.S. tax code. The contract should be drafted to avoid four "foot faults." Transactions involving prepaid service contracts are complicated. Anyone planning to use the structure should get help from competent tax counsel.

The structure has two main attractions. One is that the developer raises part of the capital for the project. The prepayment is economically equivalent to soft debt that the developer repays over time by delivering electricity in kind. The attraction to a municipal utility or electric cooperative is that it is a way to come as close to ownership of a project as possible while still allowing the project to benefit from federal tax subsidies. The municipal utility or coop is usually offered a discount on the electricity price by the developer in exchange for making the prepayment. It may raise the prepayment by issuing tax-exempt debt or borrowing on special terms through the Rural Utilities Service or other coop lenders.

1.8.6 Regulated Utilities

Solar equipment owned or leased by a regulated utility did not qualify for commercial solar tax credits before February 14, 2008. Commercial credits could not be claimed on "public utility property" before that date. A solar project is "public utility property" if the rates for the sale of electricity from the project are regulated on a rate-of-return basis. Congress dropped the restriction in October 2008 retroactively to the preceding February. Utilities can also qualify for the Treasury cash grant in lieu of tax credits. However, they must use a normalization method of accounting to claim either the tax credit or the cash grant. That means they cannot be required by state regulators to pass through the benefits of the tax credit or cash grant to ratepayers more rapidly than permitted under the normalization rules in the U.S. tax code.

1.8.7 Model Homes

The commercial tax credit or Treasury cash payment can be claimed on solar equipment installed as part of a model home retained for a period by a homebuilder if the homebuilder can make the case that the home had been "placed in service" for tax purposes – the same test used to determine whether a homebuilder can depreciate the house. However, this is unlikely to be the optimal tax treatment. Practically, if the home was retained for fewer than five years, some portion of the credit or cash payment would not have vested with the homebuilder and would therefore be recaptured. (See section 1.10.)

1.8.8 Passive Loss and At-Risk Restrictions

It is hard for individuals, S corporations and closely-held C corporations to make full use of the solar credits and depreciation on commercial solar projects. For this reason, they are not usually appropriate investors for a developer to bring into a deal in the hope of bartering tax benefits the developer cannot use to an investor in exchange for capital to build the project. A corporation is "closely held" if five or fewer individuals own more than half the stock.

Unless such an investor is involved personally in operating the project, he or she will be considered to have made a passive investment. The investor will end up only able to use the tax benefits as shelter against taxes on income from other passive solar investments, and possibly even just from the particular project.

The passive loss rules limit the ability of such an investor to use both tax credits and depreciation. "At-risk" rules are a second hurdle. The at-risk limits on the use of tax credits are different from the at-risk limits on the use of depreciation. The at-risk limits for tax credits were discussed earlier in section 1.4.4. The at-risk rules for depreciation limit such an investor to claiming an amount of depreciation equal to the amount the investor has at risk in the project -- basically the amount of equity he or she has invested plus any debt at the project level whose repayment has been guaranteed by the investor. Developers would do better to look for more widely-held corporations as investors, since they are not subject to either set of passive loss or at-risk restrictions.

1.9. Applying the Credit to Taxes

1.9.1 Alternative Minimum Tax and Floor

A corporation must calculate both its regular income taxes at a 35 percent rate and its "alternative minimum taxes" at a 20 percent rate but on a broader definition of taxable income and pay essentially whichever amount is greater. The commercial solar credit could not be used before 2009 to reduce a taxpayer's regular income taxes by more than 75 percent, or below the level the alternative minimum tax (AMT) kicked in.¹² Therefore, companies that paid the minimum tax were unable to use solar tax credits -- at least in the year they paid the AMT. The credits could be carried to another tax year. These limits were limits not only on use of commercial solar tax credits, but also on most other "business credits." Thus, the commercial solar tax credits in combination with other business credits could not reduce a taxpayer's tax liability in a given year below the AMT floor.

The law changed in October 2008. The solar credit can now be used to offset minimum taxes in tax years starting after October 3, 2008. Thus, for example, if a corporation has a tax year that ends on November 30, it would be able to use credits against minimum taxes for solar equipment placed in service on or after December 1, 2008. Most U.S. companies use a calendar tax year. They will benefit starting with solar equipment put into service in 2009. A tax credit earned in 2009 can be carried back to an earlier year and used against AMT liability in that year. However, the reverse is not also true: tax credits that went unused in 2008 because a company was on AMT cannot be used to reduce AMT in 2009.

1.9.2 Carryback and Carryforward of Tax Benefits

A commercial solar tax credit that a taxpayer cannot use can be carried back one year and forward 20 years. In general, a 30 percent credit cannot be carried back to a period when the credit was only 10 percent. However, the full 30 percent credit can be carried forward. If a taxpayer ends up carrying unused solar credits forward for 20 years and is still unable to use them, then the unused credit can be deducted in the year after the carryforward period ends. However, only half the credit can be deducted. The rest is lost.

Unused depreciation can be carried back two years and forward for 20 years. However, the economic stimulus bill allows small businesses to carry back any unused net operating loss in 2008 as far back as five years and get a refund of any taxes paid during that period. Unused depreciation deductions would be part of the company's net operating loss. (If the company uses a different tax year than the calendar year, then it can choose as its 2008 net operating loss to carry back either its loss in its tax year that ended in 2008 or the loss in its tax year that started in calendar year 2008.) A company would have to have gross receipts of \$15 million or less in the loss year to take advantage of this provision.

¹² A corporation must pay, essentially, whichever amount is greater - its regular income taxes at a 35 percent rate, or its "alternative minimum taxes" at a 20 percent rate, but on a broader definition of taxable income.

1.10. Recapture of Credit Taken in Prior Years

1.10.1 General Recapture Rules

Although the credit is usually claimed in full in the year the solar project is put in service, commercial tax credits "vest" over five years at the rate of 20 percent a year. This means that if something happens to solar equipment in the five years after the equipment is put into service that would have prevented the taxpayer from claiming the credit had it happened at the start, then the "unvested" part of the credit will be recaptured (paid back to the IRS). For example, the unvested credit will be recaptured if the taxpayer sells the solar equipment or leases it for use by a government agency.

A taxpayer should take the potential for recapture into account when considering whether to sell solar equipment on which tax credits have been claimed before the recapture period has expired.

The unvested portion of the credit will have to be reported as income in the year the recapture event occurs. The taxpayer can add back to his depreciable basis half the recapture income reported in the recapture year. The amount added back to the depreciable basis can be deducted over time as additional depreciation if the taxpayer continues to own the project. If the recapture event is a sale of the project, then the taxpayer will have less gain to report from the sale because of the upward tax basis adjustment. The taxpayer will also have a potential mismatch in tax rates. Recapture income is ordinary income. Gain from a sale in many cases will be capital gain. The combination of credit recapture and the upward basis adjustment has the effect of converting income from capital gain into ordinary income.

1.10.2 Recapture Rules for Nonrecourse Financed Projects

(Please note that these considerations apply only to projects not covered under the exemptions under section 1.4.4.)

Taxpayers covered by the at-risk rules should be careful not to increase the amount of nonrecourse debt secured by the project in a later year as that could lead to recapture of a commercial solar credit claimed earlier. Also, a credit will be recaptured to the extent that principal repayments fall short, at the end of any tax year, of the nonrecourse principal that would have had to be repaid by then under a level-payment loan. "Level payment" for this purpose means straight-line amortization of debt service over the term of the loan or, if shorter, the "class life" of the equipment. Most solar equipment has a class life of 12 years.

1.10.3 Recapture Rules for Partnerships

Partners face an added risk of recapture of the commercial credit. Many solar projects are owned by limited liability companies that are treated as partnerships for tax purposes.

For example, suppose there are two partners -- A and B -- who agree to allocate 99 percent of taxable income to B initially in order to allocate 99 percent of the solar tax credit to B. The project is placed in service in year one. B claims 99 percent of the credit in year one. Starting in year four, the allocations change to 50-50. B would suffer recapture of part of the solar tax credit when the sharing ratio shifts.

There will be recapture of a portion of B's unvested credits if B's share of taxable income during the next four years after the project is put in service drops to less than two thirds of his ratio in the first year. Thus, B's ratio could drop to 70 percent without any recapture, but a drop to 50 percent would trigger recapture of roughly half of B's unvested credits in year four when the shift occurs. Once B has suffered any recapture, then another shift will not cause any further recapture, unless the drop is to less than one third of the share B had in taxable income in the year the project went into service.

1.10.4 Recapture of Treasury Cash Payments

Any cash payment made by the Treasury is less likely than the commercial tax credit to be recaptured. It will be subject to recapture in only three situations.

Recapture will occur if there is a change in use of the equipment during the first five years after it is placed in service. An example is where the owner of the equipment leases it to a public school system three years after it is first put into service or reinstalls it on a roof outside the United States.

Recapture will occur if the project is permanently shut down during the first five years. Solar panels are not considered permanently shut down if they are moved from one location to another or while they are being held for resale after they are removed from a roof.

Recapture will occur if the project or a partnership interest is transferred to a federal, state or local government agency or instrumentality, an entity exempted from taxes under section 501(c) of the U.S. tax code, an electric cooperative or an Indian tribe. Such a transfer would bring into a play a provision in the stimulus bill that bars cash grants to projects with such persons as investors. The ban only applies if such an investor owns an interest in the project through pass-through entities like partnerships. It does not matter how small an interest such an entity owns or how far up the ownership chain.

Other sales of projects will not trigger recapture, but the buyer must agree to be jointly liable for the recapture liability if it resells the project to a government or tax-exempt entity, Indian tribe or electric coop.

Any recapture liability will reside at the level of the legal entity that owns the project. The government has no claim against the owners or anyone else who received the proceeds from the cash grant, unless the project is owned by a true partnership, as opposed to a limited liability company, in which case the government would also have a claim against the general partner.

The cash grant vests ratably over five years. Any recapture would be only of the "unvested" grant. Thus, for example, a sale of the project to a tax-exempt entity in year 4 would subject 40 percent of the cash grant to recapture.

Any recapture liability will not be a tax claim. That means that the government will be an unsecured creditor.

1.11. Impact of Credits and Cash Grants on Depreciation Calculations

For the purpose of calculating depreciation on a commercial solar system, the tax basis for depreciation is a distinct value – separate from the tax credit basis. The depreciable basis that the taxpayer claims for the solar equipment must be reduced by 50 percent of the tax credit or Treasury cash grant. For example, if a 30 percent credit is claimed on a commercial solar energy system that cost \$100,000, then the owner will have a depreciable basis in the equipment of $\$100,000 - (50\% \times \$30,000) = \$85,000$. The depreciable basis is also used to calculate taxable gain or loss when the solar equipment is later resold.

However, a corporation ignores the downward basis adjustment for purposes of calculating its "earnings and profits." Distributions by a corporation to its shareholders are dividends to the extent of the "earnings and profits" of the corporation. Earnings and profits are a form of net income. Thus, gross earnings are reduced by depreciation -- among other things -- to arrive at earnings and profits, but the depreciation subtracted in arriving at earnings and profits would be depreciation on the full basis of \$100,000 in the example, notwithstanding the fact that a solar tax credit was claimed.

There is no basis adjustment where the owner of solar equipment leases it to someone else and elects to let to the lessee claim the solar tax credit. (See section 1.8.1 on sale-leasebacks.) However, the lessee must report taxable income equivalent to the basis adjustment. The income is spread over five years.

1.12. Claiming the Credit or Cash Grant and IRS Forms

Business energy credits are claimed by attaching a Form 3468 to one's tax return. This form is available from the IRS website at www.irs.gov. The Treasury cash grant is claimed by applying electronically at <https://treas1603.nrel.gov>. The Treasury will not accept an application for equipment placed in service in 2009 or 2010 until the equipment has been placed in service. However, applications for all equipment that is expected to be placed in service after 2010 must be received by the Treasury by September 2011. For additional information on applying for the cash grant, view the [guidance](#) issued by the Treasury Department.

1.13. Commercial Solar Tax Credit Examples

Example 1 – The Basic Commercial Credit

Company A pays \$100,000, including on labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009.

2009 Tax Basis	= \$100,000
(The purchase and installation are both fully qualified under the credit.)	
2009 Tax Credit	$\$100,000 \times 30\% = \$30,000$
(The full tax credit basis is multiplied by the 2008 tax credit.)	
Depreciable Basis	$\$100,000 - (\$30,000 \times \frac{1}{2}) = \$85,000$
(The depreciable basis must be reduced by half to reflect the tax credit.)	

Example 2 – Commercial Credit Where Work Straddles Window Period

Company A acquires and pays for a pre-integrated, fully-designed and ready-to-run piece of solar equipment in 2016, but does not receive delivery until 2017. Assume the solar credit is not extended at a 30 percent rate by Congress.

2017 Tax Basis	= \$100,000
(The purchase and installation are both fully qualified.)	
2017 Tax Credit	$\$100,000 \times 10\% = \$10,000$
(The credit is claimed in the year equipment is placed in service.)	
Depreciable Basis	$\$100,000 - (\$10,000 \times \frac{1}{2}) = \$95,000$
(The depreciable basis must be reduced by half to reflect the tax credit.)	

Example 3 – Commercial Credit with Progress Payments

Company C hires a construction contractor to build a \$10,000,000 multi-megawatt concentrating solar power facility. Forty percent of the construction work is completed in 2016, and the remaining 60 percent in 2017, at which time the project is put into use. Company C qualifies for a 30 percent credit on \$4,000,000 and a 10 percent credit on \$6,000,000. C has a tax basis of \$9,100,000 in the project for depreciation purposes. This assumes that Congress does not extend the credit at a 30 percent rate and that the project has a long enough construction period to be able to claim credits on a progress payments basis.

2016 Tax Basis	$\$10,000,000 \times 40\% = \$4,000,000$
2017 Tax Basis	$\$10,000,000 \times 60\% = \$6,000,000$
(The project cost must be allocated between the two years it was under construction.)	
2016 Tax Credit	$\$4,000,000 \times 30\% = \$1,200,000$
2017 Tax Credit	$\$6,000,000 \times 10\% = \$600,000$
Total Credit	$= \$1,800,000$
(The tax credits are claimed on a progress payments basis, and Company C must have a sufficient tax burden to realize the credits.)	
Depreciable Basis	$\$10,000,000 - (\$1,800,000 \times \frac{1}{2}) = \$9,100,000$
(The depreciable basis must be reduced by half the tax credits claimed.)	

Example 4 – Commercial Credit with Sale and Recapture

Company A pays \$100,000, including labor and equipment, to install a photovoltaic system on its corporate headquarters. The panels are purchased in 2008 and installed in 2009. The system is sold in 2012 to Company B. Company A must recapture the unvested portion of the energy credit that it claimed in 2009. The unvested portion is 40 percent.

2009 Tax Basis	$= \$100,000$
(The purchase and installation are both fully qualified under the credit.)	
2009 Tax Credit	$\$100,000 \times 30\% = \$30,000$
(The full tax credit basis is multiplied by the credit.)	
Recapture Amount	$\$30,000 \times 40\% = \$12,000$
(As in section 8.1, the credits “vest” over 5 years. The credits here have only vested in 2009, 2010, and 2011. Since two of the five years are missing, 40% of the credit is subject to recapture. Company A will have to report this “recapture income” as part of its ordinary income stemming from the sale to B.)	

Section 2. Residential Credit in Detail

The residential solar tax credit is in section 25D (residential energy efficient property) of the U.S. tax code.

Determining what constitutes “eligible property” and understanding project timing issues are among the keys to calculating the value of the residential solar credit. Each of these items, along with additional special considerations, is discussed in detail in the following paragraphs.

This section refers to several topics that have already been discussed in the commercial solar tax credit section. A read through of the commercial credit section is strongly recommended, even for those who intend to take the residential credit only.

2.1. Eligible Property

2.1.1 Types of Eligible Property

The residential solar tax credit may be claimed for spending on two types of equipment: "qualified photovoltaic property" and "qualified solar water heating property."

"Qualified photovoltaic property" is defined by statute as "property, which uses solar energy to generate electricity for use in a dwelling unit located in the United States and used as a residence by the taxpayer." This definition is broad enough to include other types of solar equipment besides photovoltaic cells. The IRS has been left to interpret the statute and it is not yet clear whether the IRS will limit the credit to photovoltaic equipment. In the case of small devices like solar attic fans, the photovoltaic cells that supply power to the fan qualify, but not the rest of the fan. The residential credit covers "property which uses solar energy to generate electricity for use in a dwelling unit . . ." (Emphasis added.)

"Qualified solar water heating property" is defined in the statute as "property used to heat water for use in a dwelling unit located in the United States and used as a residence by the taxpayer if at least half of the energy used by such property for such purpose is derived from the sun."

Credits cannot be claimed on spending on solar heating systems for a swimming pool or hot tub.

2.1.2 Certification Requirement for Solar Water Heaters

Credits can only be claimed on solar water heaters that have been certified for performance by the nonprofit Solar Rating Certification Corporation or by a "comparable entity" endorsed by the state government in the state where the water heater will be used. There is no certification requirement for photovoltaic property.¹³

2.1.3 Used Equipment

Credits can only be claimed on new equipment. The statute says the residential credit can only be claimed on equipment when it is "originally" installed.

2.1.4 Use of Eligible Property

To qualify for the residential solar credit, the property must be used in a dwelling unit that is located in the United States and used as a residence by the taxpayer. The residence does not have to be the primary residence of the taxpayer.¹⁴

¹³ It is currently unclear whether the IRS will require SRCC OG – 300 certification for full systems, or only OG – 100 collector certification for property. SEIA is working towards a resolution of this issue.

¹⁴ The residential solar credit is in section 25D of the tax code. Section 25C, which was enacted at the same time and provides tax credits for other energy efficiency improvements, requires that those improvements be in the "taxpayer's principal residence (within the meaning of section 121)." Thus, it appears that Congress knew what it was doing when it required in section 25D that solar equipment merely be used in "a residence" of the taxpayer.

2.1.5 Eligibility of Property that is a Structural Component of a Roof

The commercial credit can only be claimed on equipment (as opposed to a building). This often leads to questions about whether structural components of a building qualify for the commercial credit. However, when it comes to the residential credit, Congress said solar property installed "as a roof" will not fail to qualify for the credit "solely because it constitutes a structural component of the structure on which it is installed," meaning that building-integrated solar property will not be disqualified simply because it serves a dual use.

2.2. Amount and Cap

An individual was limited through 2008 to \$2,000 in credits per year for spending on photovoltaic equipment installed before 2009 and another \$2,000 in tax credits per year for spending on solar water heating property installed before 2009. Thus, the government essentially paid 30 percent of the first \$6,667 in cost for solar panels and another 30 percent of the first \$6,667 in cost for a solar hot water heater. There is no limit on the amount of tax credits that can be claimed on such equipment installed in 2009 or later.

At first glance, one would think the way to maximize credits on photovoltaic equipment or a solar hot water heater before 2009 was to spread such spending over more than one year. However, this did not work. An individual was considered to have spent the full amount in the year that installation of the equipment was completed. If the solar energy system was included as part of construction of a new house, then the spending occurred when the taxpayer moved in.

The IRS will have to sort out what happens when some solar panels were fully installed in 2007 and the rest in 2008 at an existing residence in years when there was still a \$2,000 cap on tax credits for photovoltaic equipment. It appears that Congress intended only \$2,000 in total credits can be claimed in such a case, but the statute is unclear.

2.2.1 Cooperatives

A corporation usually owns cooperative apartment buildings, and the residents are shareholders in the corporation. If the corporation spends money on installing qualified solar property, each shareholder is allowed to claim residential solar tax credits on his or her share of the spending.

2.2.2 Condominiums

Owners of condominiums contribute to the upkeep of the condominiums by paying money to a condominium management association. Where such a management association spends money on installing qualified solar property, each member of the association can claim the residential solar tax credits on his or her share of that spending. However, the association must qualify as a "homeowners' association" under section 528(c)(1) of the tax code, and "substantially all" of the units in the condominium project must be used as residences.

2.3. Placed in Service Requirement

Credits can only be claimed on spending for property that is "placed in service" during the period 2006 through 2016. If the installed property is included as part of construction of a new house, then the "placed in service" date is when the taxpayer moves into the house. Section 1.3.3 discusses when equipment is considered "placed in service" in all other situations.

2.4. Tax Basis

The "tax basis" is the cost of the property that you use when calculating the amount of the credit. Item 3 in the discussion of the commercial tax credit explains how companies determine the "basis" in solar equipment

put to commercial use. For residential systems, the majority of direct contractor labor costs to install the equipment are included in the tax credit basis. (This includes site preparation, assembly and original installation, and piping or wiring work to connect the equipment to the individual's home.) When there is spending on work tied both to solar equipment and to other construction -- for example, where the solar equipment is being installed during construction of a new building -- the construction costs must be allocated according to each activity.

2.4.1 Effect on Calculating Tax Basis in a House

Amounts that an individual spends on improving his or her house are added to the tax basis that the individual has in the house. A higher tax basis means a smaller gain on sale when the house is later sold. Spending on which residential solar tax credits were claimed adds to the tax basis, but the basis must be reduced by the amount of the residential tax credit allowed.

2.5. Effect of Loans, Grants, and Rebates on the Credit Amount

Section 1.4 contains a detailed analysis of the effect of state and utility incentives on the amount of the credit. Most rebates from state governments or non-profit organizations do not reduce the basis for the federal credit. However, if the rebate is provided by a utility to a homeowner as an inducement to install solar equipment, then the basis of the equipment is reduced by the amount of the rebate. Homeowners and installers that receive utility rebates should check with their utility and a tax attorney to understand the classification of their rebate.

2.6. Project Timing Issues, Transition Issues, Progress Expenditures

Unlike the commercial solar tax credit, the residential credit was a new credit beginning in 2006. The residential credit rewards spending on solar equipment for the home installed during the period 2006 through 2016. The full tax credit basis for the residential credit is determined in the year the installation of the equipment is completed; there is no provision for credits against progress payments, as described in section 1.7.2. Thus, it is important for the installation of all residential systems to be completed by December 31, 2016. Since individuals tend to use cash accounting for payment of taxes, it would be a good idea for an individual also to have paid for the equipment by December 31, 2016.

2.7. Taxpayers Subject to AMT

An individual can use the residential credit not only against regular income taxes, but also against alternative minimum taxes.

2.8. Special Rules

2.8.1 Occupancy Restriction

The \$2,000 caps for solar photovoltaics and solar hot water heaters were applied by treating everyone living in a single dwelling unit as one taxpayer. Thus, each cap was in reality \$2,000 per dwelling unit. (Structures such as apartment buildings consist of multiple dwelling units.) The caps on photovoltaic equipment and solar hot water heaters only apply to such equipment installed before 2009.

2.8.2 Business Use

The residential credit is intended to encourage the purchase of equipment that will be put to personal use. Business spending on solar equipment is rewarded through the commercial credit. However, some dwelling units serve a dual purpose -- for example, where there is a home office in the dwelling. In that case, the costs

would have to be allocated between residential and business use. If the portion considered residential spending is at least 80 percent, then all the spending falls under the residential credit. Otherwise, only a fraction falls under the residential credit. The IRS will have to explain how to do the allocation. Probably the easiest way to do it is on the basis of square footage.

2.9. Residential Credit Examples

Example 1 – Basic Residential Credit with Deposit

Taxpayer A spent \$20,000 to install a solar water heater for use in her home. She paid a deposit of \$10,000 in 2005 and the rest in 2006 when the water heater was installed.

2006 Tax Basis	= \$20,000
(The deposit had no effect on the residential credit, which is entirely determined on the basis of placed in service date.)	
2006 Tax Credit	$\$20,000 \times 30\% = \$2,000$
(The taxpayer exceeded \$2,000 per-technology cap.)	

Example 2 – Basic Residential with Delayed Installation

Taxpayer A spent \$20,000 to install a solar water heater for use in her home. She paid a deposit of \$1,000 in 2008 and will pay the rest in 2009 when the water heater is installed.

2009 Tax Basis	= \$20,000
(The system is placed in service in 2009 and is not eligible for any credit before then.)	
2009 Tax Credit	$\$20,000 \times 30\% = \$6,000$

Example 3 – Basic Residential with Delayed Payment

Taxpayer A spends \$20,000 to install a solar water heater for use in her home. The system is installed in February 2017, but A pays for it in December 2016. Assume Congress does not extend the credit beyond 2016.

2017 Tax Credit Basis	= \$0
(For the residential credit, expenditures are treated as made when the equipment is placed in service. This system was placed in service after the residential credit expired.)	
2017 Tax Credit	= \$0

Example 4 – Home-Based Business

Taxpayer A pays \$20,000 to install a photovoltaic system on his home in 2008 (at a time when photovoltaic equipment was still subject to a \$2,000 cap). Taxpayer A has a dental practice that has a separate entrance in the same structure, occupies 40 percent of the area inside the house and consumes a reasonably equivalent amount of its electrical load.

2008 Residential Basis	$\$ 20,000 \times 60\%$	= \$ 12,000
2008 Commercial Basis	$\$ 20,000 \times 40\%$	= \$ 8,000
(The expense of the equipment can be allocated between the dental practice and the residential use.)		
2008 Residential Tax Credit	$\$12,000 \times 30\% = \$3,600$	→ \$2,000 Cap
2008 Commercial Tax Credit	$\$8,000 \times 30\%$	= \$2,400
Total Credit		= \$4,400
(Each would need to be reported separately – one on the individual's tax return and the other on the tax return for the dental practice.)		
Note: Home-based business and home office deductions are a frequent source of fraud and miscalculation on income taxes, and receive an accordingly high degree of attention from the IRS. Be very careful and conservative in your calculations for this type of situation.)		

Section 3. Tax Credit Bonds

Some solar projects can be financed using bonds that require payment of little or no interest.

3.1 CREBs

"Clean renewable energy bonds," or "CREBs" are bonds that can be used to finance solar and other renewable energy equipment that will be owned by a municipal utility, other state or local government agency, an electric cooperative or an Indian tribe. Little or no interest is paid on the bonds. The lender receives tax credits from the federal government instead.

The total amount of CREBs that can be issued nationwide is limited. Anyone proposing to use them must apply to the IRS for an allocation. A total of \$800 million in bonds were authorized originally, and the amount was increased later to \$1.2 billion. All of the bond authority was allocated by the IRS in two rounds in 2006 and 2008. The "Emergency Economic Stabilization Act" in October 2008 and the "American Recovery and Reinvestment Act" in February 2009 authorized another \$1.6 billion in new CREBs. The deadline to apply for an allocation of the new bond authority was August 4, 2009.

The Treasury Department publishes the credit rates for CREBs and updates them on a daily basis. The credit rate is the amount of tax credit the lender must receive each year to be willing to forego interest. The rate that applies to a particular bond issue is the rate on the date a binding commitment is signed to buy the bonds.

The maximum term for the bonds is calculated by discounting the principal payments at the average annual interest rate for 10-year Treasury bonds issued the same month as the CREBs are issued. The term is the term that causes the present value of the principal payments to equal 50 percent of the face amount of the bonds.

Old CREBs have to provide for level principal repayments over the term. This is not a requirement for the new CREBs.

Each bondholder must report the tax credits it receives in place of interest as income.

The new CREBs will require some interest payments, since the lenders will receive tax credits equal only to 70 percent of what they would have received on the original CREBs.

Municipal utilities and coops considering using CREBs would probably do better in most cases to put the equipment in private hands and buy the electricity rather than own the project. A private owner would qualify for an investment tax credit or Treasury cash grant plus depreciation. The municipal utility or coop should be able to share indirectly on these benefits in the price it pays for electricity. Its savings should ordinarily exceed whatever savings it would achieve by borrowing with CREBs and paying a reduced interest rate.

3.2 Build America Bonds

Municipal utilities and other state or local government agencies can issue tax-exempt bonds to finance schools, roads, hospitals and other public facilities. The bonds bear interest, but at reduced rates because the lenders do not have to pay income taxes on the interest payments. Tax-exempt bonds can be used to finance solar installations that are put to public use. The state or municipality would have to be careful not to allow more than 10 percent "private business use" of the facilities. Examples of private business use are where equipment is leased to a private party or used to supply electricity to a private party under a special deal on terms that are not available to members of the general public. Hiring a private party to operate the equipment could also be considered private business use unless the terms of the operating contract stay within guidelines the IRS has established for such contracts. The guidelines limit how long a term such a contract can have and limit how the private operator can be compensated.

The economic stimulus bill gave states and municipalities the option during 2009 and 2010 to issue bonds that pay taxable interest and to receive refundable tax credits for 35 percent of the interest payable on the bonds. The state or municipality can turn in the tax credits to the U.S. Treasury for the cash value. Alternatively, it could let the lender or bondholder claim the tax credits, but they would not be refundable in that case.

These are called "Build America Bonds."

The lender must pay taxes on the interest payments it receives. It must also report any tax credits it receives as additional interest income. However, the bonds should bear a reduced rate of interest because the tax credits the lender receives spare it from having to pay taxes on roughly two thirds of the interest.

3.3 Recovery Zone Bonds

The "American Recovery and Reinvestment Act" authorized two other types of bonds to help finance projects in parts of the country that are suffering from significant poverty or unemployment, high rates of home foreclosures or general distress. Each state decides for itself which parts of the state fall in this category.

Congress authorized \$10 billion in "recovery zone economic development bonds." These are bonds for equipment that will be owned by a state or municipality. The lender must pay taxes on the interest. However, the state or municipality that is the borrower will receive refundable tax credits for 45 percent of the interest payable on the bonds. In other words, they are a type of Build America Bond, but they can only be used for projects in distressed areas. The refundable tax credits that the borrower can convert to cash are 45 percent of the interest payable rather than 35 percent. There is a dollar limit on the total face amount of such bonds that can be issued. All recovery zone economic development bonds must be issued by December 2010.

Congress also authorized \$15 billion in "recovery zone facility bonds." These are bonds that can be used to finance projects in the same distressed areas, but that will be privately owned. The bonds can only be used to finance new equipment. Substantially the entire use of the equipment must be in the recovery zone. The lender does not have to pay any taxes on the interest.

The IRS allocated the \$25 billion in recovery zone bond authority to the states in June 2009 in proportion to their job losses in 2008. However, each state was allocated at least 0.9 percent of the nationwide cap for each type of recovery zone bond. Anyone who wants to use recovery zone bonds must apply for an allocation to the state where the project will be located.

3.4 Qualified Energy Conservation Bonds

"Qualified energy conservation bonds" or "QECBs" are bonds that can be issued to finance many different kinds of green energy projects. The bonds are issued by state and local governments. Only \$3.2 billion in such bonds have been authorized nationwide. The IRS allocated the bond authority in April 2009 among states in proportion to their populations. Thus, for example, \$381 million in bonds can be issued for projects in California, \$90 million for projects in New Jersey, \$252 million in Texas, \$51 million in Colorado and \$67 million in Arizona.

The bonds are mainly for projects that will be put to public use. However, up to 30 percent can be used to finance private projects.

Eligible projects include solar generating equipment.

The lender pays tax on the interest. It receives tax credits from the federal government at 70 percent of the tax credits it would need to forego interest entirely. The tax credits must be reported as income.

Section 4. Federal Loan Guarantees

The "American Recovery and Reinvestment Act" authorized the U.S. Department of Energy to guarantee loans made to renewable energy and transmission projects in an effort to jump start the stalled debt market. The guarantees will also be available to support loans to pay for construction or expansion of U.S. factories that produce equipment for renewable energy projects. Any projects helped by the new loan guarantees must start construction by September 2011.

DOE hopes to start accepting applications in August or September 2009 for conventional renewable energy projects using proven technologies. It invited developers to apply for guarantees on transmission projects in late July. Transmission applications are due in two parts, with part I due on September 14, 2009 and part II due on October 26, with subsequent optional submission dates (risking later spots in the processing queue) of December 10, 2009 and January 25, 2010.

The agency already had authority under the Energy Policy Act in August 2005 to guarantee loans to companies trying to develop innovative technologies, or technologies that have not been put to more than three commercial applications in the United States. It was 15 months before the department opened the door to applications. It shortlisted 16 applicants in 2006. However, no guarantees had been issued by August 2009, four years after the program was first authorized, although the department was in fairly advanced term sheet negotiations with several companies.

One criticism of the innovative program is that it was supposed to be self financing. Anyone awarded a loan guarantee would be required to pay a "credit subsidy charge" like the premium that must be paid when buying insurance. The problem was that applicants had to submit voluminous applications at great expense, but they would not learn the credit subsidy charge for their projects until close to the end of the process and the charges could make the guarantees uneconomic. They vary from borrower to borrower depending on the perceived riskiness of his project.

Congress appropriated \$6 billion for a loss reserve for the new program. The new program is not limited to innovative technologies, and is available to all renewable energy and transmission projects. Secretary Chu announced that he intends to use the loss reserve to waive any credit subsidy charges, including for applicants who are eventually issued guarantees under the existing innovative program.

The \$6 billion should have been enough to support guarantees of \$80 to \$110 billion, but DOE and Congress reduced the loss reserve available to support guarantees for conventional renewable energy projects to less than \$1 billion. Some of the money is expected to be restored. SEIA will provide updates as they become available.

DOE could guarantee debt of up to 80 percent of the project cost for conventional renewables, but it is expected to require an unguaranteed tranche of private debt as a way of piggybacking on the credit review by a private lender. Guarantees for innovative and transmission projects can cover the full debt on those projects.

Innovative and transmission projects can borrow through an arm of the U.S. Treasury called the Federal Financing Bank (FFB). Any borrowing through FFB is expected to price at 22 to 25 basis points above the comparable Treasury yield. Conventional renewables projects are not expected to have access to the FFB. Guaranteed debt on them is expected to price at between 80 to 200 basis points above comparable Treasuries.

The guarantees are for new financings and not for refinancing existing projects. The government will want developers to have significant "skin in the game," or a significant equity investment. It does not have a position yet on whether the 30 percent Treasury cash grant counts as part of the developer's equity investment.

Any project that benefits from a guarantee will become subject to the "National Environmental Policy Act," which means that it will require an environmental assessment or possibly even a more time-consuming environmental impact statement before it can start construction. The project will have to pay "prevailing wages" to construction workers. These are the same union wages that the U.S. government is required by the Davis-Bacon Act to pay on federal construction jobs. The project will also be required to use American steel, iron and manufactured products. However, this last requirement only applies to "public works" and "public building" projects and is unlikely to affect many private projects.

Section 5. Manufacturing Tax Credit

The "American Recovery and Reinvestment Act" created a new 30 percent investment tax credit that can be claimed on the cost of re-equipping, expanding or building a factory to make products for the green economy. Examples are factories to make solar panels or inverters, blades for wind turbines, pumps for geothermal projects, fuel cells and large batteries. However, only \$2.3 billion in such credits can be claimed nationwide.

Companies interested in them face a deadline of September 16, 2009 to apply. An application must be filed first with the US Department of Energy for a ranking and then with the Internal Revenue Service. (There may be another chance to apply in the autumn 2010, but not if all the credits are claimed by applicants in the 2009 round.)

The Department of Energy will rank proposals based on how many jobs they are expected to create, the potential innovation in product lines and cost reductions, and the degree to which the products the factories produce help reduce air pollution and greenhouse gas emissions. A proposal will not receive a ranking unless DOE concludes it has a "reasonable expectation of commercial viability." DOE will look at how much benefit the government will receive per dollar of tax credits.

The Internal Revenue Service will then work down the DOE rankings, awarding the full amount of tax credits to the project ranked number one, then number two, and so on until all of the tax credits have been used up.

A preliminary application must be submitted to the Department of Energy by September 16, 2009. The final application is due by October 16. The data in the preliminary application should ideally be within 10 percent of the figures in the final application. The Department of Energy will let the IRS know by December 16 how it ranked all the proposals it considers commercially viable. Companies will find out whether they were awarded any credits by January 15, 2010.

Any company awarded tax credits will face two deadlines. It must have all the permits needed to start construction within one year of the award. It must have completed construction within three years of the award. The IRS has no authority to extend the three-year deadline.

A significant change in plans later could lead to loss of tax credits. A change is significant if it might have caused DOE to assign the project a different ranking.

The IRS may still challenge whether a project was entitled to the tax credits a company claimed in a later audit. For example, credits can be claimed only on new equipment and then only on the equipment at the factory that is "necessary" to manufacture the product.

The tax credits may be recaptured if the factory or an interest in the factory is sold within the first five years after construction is completed. Only the "unvested" credits will be recaptured. The credits vest ratably over five years. Thus, if a factory is sold in year four, 40 percent of the tax credits claimed would have to be repaid to the government.

There are two federal tax subsidies potentially on the factory or factory upgrade. The owner can also depreciate or deduct the cost. However, if this tax credit is claimed, then it appears that only 70 percent of the cost can be deducted. It would be 85 percent if the IRS were to rule in the future that the credit is an "energy credit."

Section 6. State Tax Considerations

(Adapted from work performed by Christy Herig for the National Renewable Energy Laboratory and Susan Gouchoe and Matthew Briggs with the DSIRE project.)

Currently, no state tax credits are reduced by the federal credit.¹⁵ (The case for state and utility grant programs is more complex – see section 1.4 and the database at www.dsireusa.org for individual programs.)

However, it is important to remember for the purpose of calculating turnkey costs that state and federal income tax credits, along with grants, do not add up directly even if they are taxable. This is highly relevant for calculating system costs, but it is important to remember that again, except for residential systems in Hawaii, a \$10,000 solar system is still claimed as a \$10,000 system at every stage in the process. Instead, the effect is best thought of as the state credit or other grant putting money in your pocket that the federal government then taxes.

The effective sum of any state and federal tax credits is, therefore, the federal tax credit (FTC) plus one minus the federal tax rate times the state tax credit (STC), or:

$$\text{FTC} + ((1 - \text{federal tax rate}) * \text{STC})$$

For instance, assume your state offers a nontaxable credit of 25 percent (up to \$3,750.) Assuming you did not reach this cap, the sum of the state and federal tax credits would be;

$$0.30 + ((1 - 0.35) * 0.25)$$

which equals 0.4625 (46.25 percent) (instead of a direct sum of (.30 + .25 = .55, or 55 percent.) In sequence:

1. You purchase a \$5,000 solar system.
2. The state gives you a state tax credit of ($\$5,000 * .25$) = \$1,250.
3. Your income has therefore increased by \$1,250.
4. The federal government gives you a credit of ($\$5,000 * .30$) = \$1,500.
5. The federal government then taxes the \$1,250 you received from the state, reducing your savings by \$437.50, leaving you with \$2,312.50 net savings.

¹⁵ The one exception to this case – the Hawaii state tax credit – was altered in 2006 to non-interaction with the SB 2957, which amends the Hawaii Revised Statutes, Section 235.12.5

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Practice Description

Keith Martin's principal areas of practice are tax and project finance. He is a transactional lawyer who advised 168 companies in 2008 and worked on transactions in the United States and eight foreign countries. He also lobbies Congress and the Treasury Department on policy issues. Chadbourne & Parke LLP is a large law firm headquartered in New York, with other offices in Washington, Los Angeles, Mexico City, Beijing, Almaty, Moscow, St. Petersburg, Kiev, Warsaw, Dubai and London. The firm has worked on power projects in more than 60 countries and is a franchise name in the business.

Activities and Affiliations

Speaker:

Mr. Martin is in frequent demand as a speaker. Recent talks include at the CSP Today conference in San Francisco and a Solar Electric Power Association conference in San Jose in July 2009, the Renewable Energy Finance Forum in New York, the Lazard Capital Markets alternative energy conference in New York and the PV America convention in Philadelphia in June 2009, the Global Windpower 2009 convention in Chicago, the annual investor meeting of Riverstone Holdings in Houston and the Goldman Sachs power and utility conference in New York in May 2009, the annual meeting of the Gulf Coast Power Association in Houston, a renewable energy mergers & acquisitions conference in Washington and an ocean energy conference in Washington in April 2009, a solar finance summit in San Diego and a Credit Suisse energy conference in New York in March 2009, the wind finance and investment summit in San Diego and the Tax Executives Institute meeting in Houston in February 2009, a biomass finance conference in Miami in January 2009, a solar finance and investment summit in San Diego and a geothermal workshop in Palm Springs in November 2008, a green business summit in New York, the Solar Power 2008 convention in San Diego, the fall finance conference of the American Wind Energy Association in New York and a tutorial on developing and financing renewable energy projects in San Diego in October 2008, and the annual tax meeting of the American Petroleum Institute and the annual meeting of the Independent Energy Producers in California in September 2008.

Editor:

Project Finance NewsWire, and a contributing editor of International Tax Report, Practical US/International Tax Strategies and Natural Gas & Electricity magazine.

Author:

He is the author of more than 130 articles and book chapters on project finance subjects, including:

"Treasury Rolls Out Cash Grant Program," Special Update, July 2009
"Financing Renewable Energy After the Stimulus," Special Update, February 2009
"Calculating How Much Tax Equity Can Be Raised," in Project Finance NewsWire, June 2008
"Master Limited Partnerships," in Project Finance NewsWire, March 2006
"Financing Pollution Control," in Project Finance NewsWire, October 2005
"Canadian Income Funds," in Project Finance NewsWire, December 2003
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"Tax Issues and Incentives for Windpower Projects," Project Finance NewsWire, December 2002
"Potential Effects of Invading Iraq," Project Finance NewsWire, October 2002
"Corporate Inversions," International Tax Review, May 2002
"Storm Over Argentina," Project Finance NewsWire, February 2002
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"Municipal Power Deals," Project Finance Monthly, February 2001
"Latest Tax Angles for Latin American Projects," Practical Latin American Tax Strategies, September 1999
"Cross Border Leasing," Proceedings, EEI Tax School, July 1997
"Tax Issues and Opportunities in Restructuring Contracts," Project Finance International, April 1997

Honors:

He is listed as one of the world's leading project finance lawyers in the latest Chambers global directory and International Who's Who of Project Finance Lawyers published in London and as a premier tax lawyer in The Legal 500 and Best Lawyers in America. (All four publications base their recommendations on peer reviews and polling of corporate law departments.)

Education and Professional Background:

- Wesleyan University, B.A., 1974
- George Washington University, J.D., 1977
- The London School of Economics, M.Sc., 1978
- Legislative Assistant, Senator Henry M. Jackson (D. -Washington), 1974-1977
- Counsel, Senator Daniel Patrick Moynihan (D. -New York), 1979-1982
- Joined Chadbourne & Parke LLP in 1983 as a partner



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