



EPAct 2005

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TAX CREDIT OPPORTUNITIES FOR SOLAR AND ENERGY EFFICIENCY

The Energy Policy Act of 2005 (EPAct 2005) is the first effort of the United States government to address U.S. energy policy since the Energy Policy Act of 1992. Among many other things, the 1724 page law provides new tax incentives for a number of solar and energy efficiency measures. Among them are:

- Tax credits for residential [solar photovoltaic and hot water heating systems](#)
- Tax deductions for highly efficient [commercial buildings](#)
- Tax credits for highly-efficient [new homes](#)
- Tax credits for improvements to [existing homes](#) including high-efficiency [air conditioners and equipment](#)
- Tax credits for [residential fuel cell systems](#)
- Tax credits for [fuel cell and microturbines used in a business](#).

The complete conference bill for the Energy Policy Act may be [downloaded here](#) (2.5 MB PDF file). The solar and energy efficiency provisions are found in Title XIII, Subtitle C, beginning on page 1332 through page 1390 of the act.

An Important Distinction

There is an important difference between a tax deduction and a tax credit. A **tax deduction** is subtracted from income before total tax liability is computed. On the other hand, a **tax credit** is subtracted directly from the total tax liability. This means that a deduction and a credit have very different values, with a credit being 3 or more times more advantageous to the taxpayer than a deduction. For example, a tax credit of \$1,000 for someone in the 28% tax bracket is equivalent to a tax deduction of \$3,571.

Combined Incentives

In many cases, multiple tax incentives may be claimed. In the case of a new home for example, the builder may claim credit for the high efficiency home and the homeowner may claim tax credits for solar hot water and photovoltaic and fuel cell systems. Other financial incentives, such as utility or [SunBuilt](#) rebates, further reduce the cost of building or owning a solar and energy efficient home.

Solar Photovoltaic and Hot Water Systems

This provision offers tax credits to individuals for residential solar energy systems.

- For solar hot water systems, the allowable tax credit is 30% of the qualified solar system expenditures up to a maximum tax credit limitation of \$2,000.
- For solar photovoltaic (PV) systems, the allowable tax credit is 30% of the qualified PV system expenditures up to a maximum tax credit limitation of \$2,000.

To be eligible for the solar hot water system tax credit, the system must be certified by the [Solar Rating and Certification Corporation \(SRCC\)](#) or the [Florida Solar Energy Center](#) (in the case of systems manufactured or sold in Florida) and produce 50% or more of the hot water needed by the residence. There is no qualification provided for PV systems (except in Florida, where systems must be rated and certified by the [Florida Solar Energy Center](#)). Individuals may claim tax credits for either or both types of solar systems.

The incentives apply to equipment placed in service during 2006-2007.

In addition, the provisions of the bill substantially increases the business investment tax credit from 10% to 30%. This tax credit is available to businesses that purchase solar thermal and PV systems during calendar years 2006 and 2007. In Florida, such systems would be subject to the requirement that solar systems manufactured or sold in the state be certified by the [Florida Solar Energy Center](#). This business investment tax credit for solar equipment does not have a maximum credit limit.

Additional information on solar systems that may qualify for these tax credits may be found at the following Web sites:

Solar hot water systems: www.fsec.ucf.edu/solar/

Photovoltaic (PV) systems: www.fsec.ucf.edu/pvt/

Commercial Buildings

This provision offers business taxpayers a deduction of \$1.80 per square foot for commercial buildings that achieve a 50% reduction in annual energy cost to the user, compared to a base building defined by the industry standard ASHRAE/IESNA 90.1-2001. Energy costs refer only to heating, cooling, lighting and water heating, since only these uses are within the scope of the ASHRAE standard and within the control of the building designer.

Each of the three energy-using systems of the building — the envelope, the heating, cooling and water heating system, and lighting system — is eligible for one third of the incentive if it meets its share of the whole-building savings goal. Explicit interim compliance procedures are provided for lighting.

Eligible buildings include commercial buildings such as: offices, retail buildings, warehouses, etc., rental housing of four stories or more, and publicly-owned buildings. For publicly-owned buildings, there is an interesting provision allowing the credit to pass

through to the "person primarily responsible for designing the building."

New construction in an existing building is also eligible for the tax deduction, with one third of the deduction amount for new construction that affects the new energy-using system (such as lighting or heating, cooling and water heating).

Compliance is determined by third party inspectors who review the plans and the actual in-place construction. Energy savings are determined by software that must be certified by the Department of Energy as meeting criteria of consistency and accuracy, following the successful experience of California's performance-based energy code enforcement.

The incentives apply to buildings or systems placed in service during 2006-2007, although extenders increasing the eligibility through 2009 or 2010 are a distinct possibility. (see [colloquia](#))

New Homes

This provision offers homebuilders a tax credit of \$2,000 for homes that reduce energy use for heating and cooling only (not hot water) by 50% compared to the national model code — the 2004 IECC Supplement (assuming an SEER-13 air conditioner). Producers of manufactured homes can also choose to qualify for a tax credit of \$1,000 for homes that save 30%. This \$1,000 credit for reaching 30% savings is not available for site built homes, which must reach the 50% savings tier to qualify for the \$2,000 credit.

Eligible homes must demonstrate savings using software that has been approved by DOE and builders must demonstrate compliance by the use of third-party inspectors certified according to DOE rules. While no interim rules have yet been promulgated to meet these requirements, similar standards exist in Florida and elsewhere under the auspices of [Florida's Building Energy Rating System](#) and under the national standards of the national [Residential Energy Services Network \(RESNET\)](#). Additionally, the Florida Solar Energy Center has released a free 60-day trial version of software that makes the calculations that are expected to be used for tax credit qualification. To download this free 60-day trial software [click here](#).

The incentives apply to homes placed in service during 2006-2007, although extenders increasing the eligibility through 2009 are a possibility.

Existing Homes

These provisions offer cost-based incentives of 10% of the amount expended by the taxpayer for "Qualified Energy Efficiency Improvements" and up to \$300 for "Qualified Energy Property" up to a maximum credit limit of \$500.

"Qualified Energy Efficiency Improvements" are specifically defined as:

- Any insulation material or system specifically designed to reduce heat loss or gain
- Exterior windows (including skylights)

- Exterior doors
- Any metal roof having pigmented coatings specifically designed to reduce heat gain which meet Energy Star program requirements.

"Qualified Energy Property" is defined as:

- Electric heat pump water heater with EF of 2.0 or greater
- Electric air source heat pumps with HSPF of 9.0 or greater
- Geothermal heat pumps:
 - Closed loop products with EER of 16.2 and COP of 3.3 or greater
 - Open loop products with EER of 14.1 and COP of 3.3 or greater
 - Direct expansion (DX) products with EER of 15 and COP of 3.5 or greater
- Central air conditioner that receives the highest efficiency tier established by the Consortium of Energy Efficiency as of January 1, 2006
- Natural gas, propane or oil water heater with EF or 0.80 or greater
- Natural gas, propane or oil furnace or hot water boiler with AFUE of 95% or greater
- Advanced main air circulating fan used in natural gas, propane or oil furnace that uses no more than 2% of the total annual energy use of the furnace.

Credit limitations on qualified energy property are as follows:

- \$50 for any advanced main air circulating fan
- \$150 for any qualified natural gas, propane, or oil furnace or hot water boiler
- \$300 for any item of qualified energy property.

The incentives apply to improvements and equipment placed in service during 2006-2007.

Residential Fuel Cells

This provision offers cost-based 30% tax credits to individuals for qualified residential fuel cell property expenditures up to a maximum credit limitation of \$500 for each 500 watts installed capacity.

The incentives apply to equipment placed in service during 2006-2007.

Fuel Cells and Microturbines Used in a Business

This provision offers tax credits for fuel cells and microturbines used in a business. To qualify for the credit, fuel cells are required to be 500 watt capacity or greater with a generation efficiency of 30% or greater. Microturbines are required to be of 2,000 kilowatt capacity or less with an efficiency of 26% at International Standards Organization conditions. Tax credits and limitations are as follows:

- For fuel cells, a tax credit of 30% of the expenditure up to a maximum of \$500 per 500 watts of capacity.
- For microturbines, a tax credit of 10% of the expenditure with a credit limitation of \$200/kW.

The incentives apply to equipment placed in service during 2006-2007.

Colloquia

The efficiency provisions were taken from a bill by Senators Snowe and Feinstein (S. 680) that offered performance-based incentives for new and existing homes and commercial buildings and for building-based solar energy. These incentives lasted until 2009 and 2010 in most cases. In recognition of the fact that incentives longer than two years are needed to transform markets, the legislative history of the Energy Bill will contain the following colloquy between Senator Snowe and Finance Committee Chair Grassley:

*Colloquy with Senator Snowe and Senator Grassley
RE: Tax Incentives for Commercial Buildings*

Ms Snowe:

Mr. Chairman, I want to thank you for your dedicated work in defending the Senate-passed Energy bill language in conference, particularly concerning the energy efficiency tax incentives. For the first time, there will be energy efficiency tax incentives for commercial buildings for each of the three energy-using systems of the building—the envelope, the heating, cooling and water heating system, and lighting. Each is eligible for one third of the \$1.80 per square foot tax incentive if it meets its share of the whole-building savings goal. This will apply to buildings that cut energy use by 50 percent, an ambitious but very important target as buildings account for 35 percent of our nation’s energy usage, and commercial buildings are a large part of that percentage.

My concern is that, because the eligibility period was cut back from the end of 2010 to just two years, this shorter window of effectiveness could undercut the program, since the time it takes to design and construct these large buildings and skyscrapers could take longer than the two years of eligibility. This is especially a concern as the incentives for commercial buildings are one of the fastest ways in the entire energy bill that we can cut down the nation’s energy usage in the short term.

Mr. Grassley:

We are committed to this as the correct policy for large scale commercial projects. In addition we are committed to seeing energy efficient skyscrapers in the sky and recognize that these types of projects take years to design and build. We will continue to work with you to make this a long term policy of the tax code.

Ms. Snowe:

Again, your assistance is greatly appreciated and I look forward to working with you on this matter in the Finance Committee in the coming months.

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