

Tax Incentive Opportunities for Solar and Energy Efficiency

The Energy Policy Act of 2005 (EPAAct 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 law provides new tax incentives for a number of solar and energy efficiency measures, including:

- Tax credits¹ for residential and commercial solar photovoltaic and water heating systems to homeowner / business owner
- Tax deductions¹ to the builder of highly efficient commercial buildings
- Tax credits to the builder of highly efficient new homes
- Tax credits to the homeowner for energy improvements to existing homes
- Tax credits to the homeowner for residential fuel cell systems
- Tax credits to business owners for fuel cell and microturbines used by a business

Combined Incentives

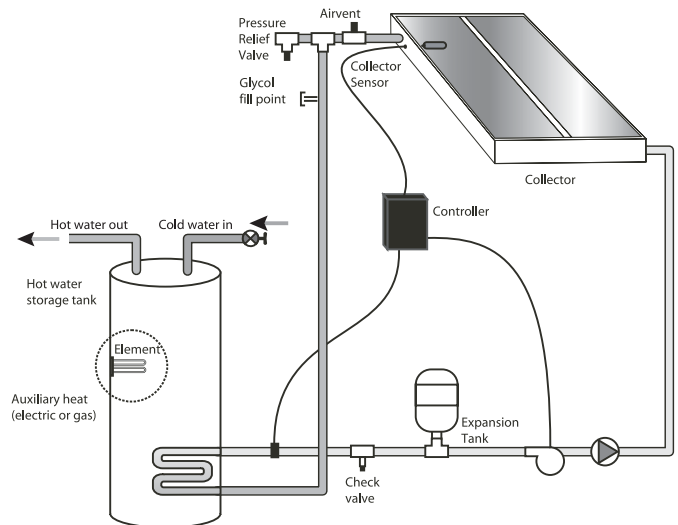
In many cases, multiple tax incentives may be claimed. In the case of a new home for example, the builder may claim credit for the high efficiency home and the homeowner may claim tax credits for solar hot water, photovoltaic, and fuel cell systems. Other financial incentives, such as local utility rebates, further reduce the cost of building or owning a solar and energy efficient home. For example, in Georgia, Georgia Power is now offering financial incentives to builders of ENERGY STAR® certified new homes.

To learn more about state incentives for renewable energy, visit: www.dsireusa.org.

The complete conference bill for the Energy Policy Act may be downloaded at: www.mms.gov/2005EnergyPolicyAct.htm.

The solar and energy efficiency provisions are found in Title XIII, Subtitle C, beginning on page 1,332 through page 1,390 of the act.

Closed loop, freeze-protection system



A closed looped solar water heater is an indirect system which is desired in climates with extended periods of below-freezing temperatures.

Solar Photovoltaic and Hot Water Systems

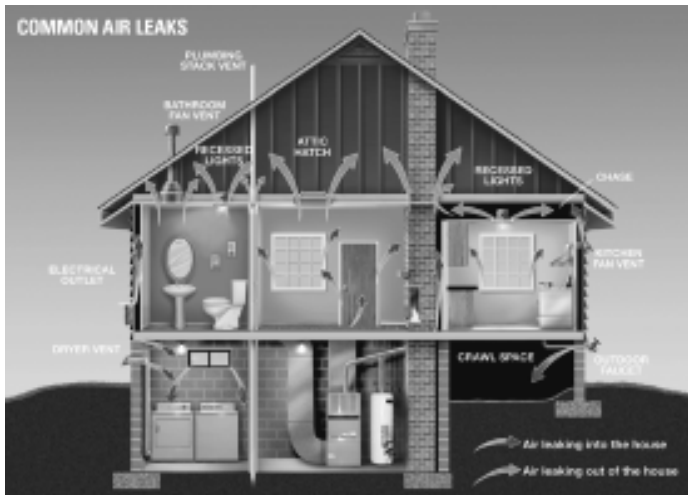
Residential solar energy systems

- 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. Half of the energy used by the system must be derived from the sun. Pool heating systems are ineligible for the incentive.
- 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.

The incentives apply to equipment placed in service between January 1, 2006 and December 31, 2007.

Solar for Businesses

The provisions of the bill substantially increase the business investment tax credit from 10% to 30% of qualified expenditures. This tax credit is available to businesses that purchase solar water-heating and PV systems during calendar years 2006 and 2007. Again, the incentive is not available for pool-heating systems. This business investment tax credit for solar equipment does not have a maximum credit limit.



System Qualifications for Residential & Business

To be eligible for the residential or commercial solar hot water system tax credit, the system must be certified by the Solar Rating and Certification Corporation (SRCC). There is no qualification provided for PV systems. However, individual states may require certification of solar equipment and/or professionals. Individuals may claim tax credits for either or both types of solar systems.

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

www.solar-rating.org

www.southface.org/solar

www.fsec.ucf.edu/solar

www.eere.energy.gov/RE/solar_hotwater.html

www.fsec.ucf.edu/pvt

www.eere.energy.gov/RE/solar_photovoltaics.html

Commercial Buildings

A tax deduction of up to \$1.80 per square foot is available to owners or tenants (or designers, in the case of publicly or non-profit owned buildings) of new or existing commercial buildings. The buildings must be constructed or reconstructed to save at least 50% of the heating, cooling, water heating, and interior lighting energy cost of a building that meets ASHRAE Standard 90.1-2001. Eligible commercial buildings include offices, retail buildings, warehouses, rental housing of four stories or more, and publicly-owned buildings.

Each of the three energy-using systems of the building — the envelope², interior lighting system, and heating and cooling system — is eligible for one third of the incentive (\$0.60/ft²) if it meets its share of the whole-building savings goal. An explicit partial compliance credit is available for lighting.

Commercial building 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.

The incentives apply to buildings or systems placed in service or remodeled during calendar years 2006-2007. Extenders increasing the eligibility through calendar year 2009 or 2010 are possible.

For more information, visit the Commercial Building Tax Deduction Coalition website: www.efficientbuildings.org

New Homes

This provision offers homebuilders a tax credit of \$2,000 for homes that reduce energy use for heating and cooling by 50% compared to the 2004 IECC Supplement Edition (and assuming a SEER-13 air conditioner). Additionally, 10% of the 50% reduction must come from building envelope improvements. Unlike site built homes, producers of manufactured homes can qualify for a tax credit of \$1,000 for homes that save 30% on heating and cooling compared to the 2004 IECC.

Eligible homes must demonstrate savings by using software approved by the IRS and the Residential Energy Services Network (RESNET). A third-party RESNET accredited inspector must certify the home.

The incentives apply to homes “substantially completed” after August 8th, 2005 and “acquired from the eligible contractor after December 31, 2005 and before January 1, 2008, for use as a residence.” Proposed extenders may carry the tax credits through calendar year 2009.



An efficient AC upgrade can make a significant increase in energy savings, such as a SEER 14, or greater, condenser unit.

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." There is a combined maximum credit limit of \$500 for the improvements and property.

"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 and that meets 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 14.1 and COP of 3.3 or greater
 - » Open loop products with EER of 16.2 and COP of 3.6 or greater
 - » Direct expansion (DX) products with EER of 15 and COP of 3.5 or greater
- Central air conditioners:
 - » Split systems with a SEER 15 and EER 12.5
 - » Single-package systems with a SEER 14 and EER 12
- Natural gas, propane or oil water heater with EF of 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 other item of qualified energy property

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

Residential Fuel Cells

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

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

Resources

Florida Solar Energy Center
www.fsec.ucf.edu

Residential Energy Services Network (RESNET)
www.natresnet.org

Southeast Energy Efficiency Alliance
www.seea.us

Tax Incentives Assistance Project (TIAP)
www.energytaxincentives.org

Footnotes

- 1 Tax deductions are subtracted from income before total tax liability is computed. Tax credits are subtracted directly from the total tax liability. A credit is three 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.
- 2 The building envelope separates conditioned space from unconditioned (or outside) and consists of an air barrier and insulation that must be continuous and touching. Another way is to think of the building envelope as the balloon that keeps the living space separate from outside.



Summary of Energy Efficiency Tax Incentives in Energy Policy Act of 2005

Product	Eligibility Level	Units	Amount of Incentive	Years Covered	Notes
Existing homes and other non-business applications					
Central air conditioners (split systems)	15 SEER		\$300 if meets SEER & EER	2006 & 2007	\$500 per taxpayer cap for existing home credits
	12.5 EER				For list of qualified products, go to the Consortium for Energy Efficiency Product Directory- www.csee.org/directory
Central air conditioners (package systems)	14 SEER		\$300 if meets SEER & EER	2006 & 2007	www.csee.org/directory
	12 EER				Look for "Residential Tier 2" Air Conditioners
Heat Pumps (air cooled)	15 SEER		\$300 if meets SEER, EER & HSPF	2006 & 2007	See CEE list (link noted above) but look for the higher SEER & EER required for heat pumps (e.g., the federal incentive includes only a portion of "Tier 2" equipment).
	13 EER				All Energy Star labeled Geothermal Heat Pumps qualify for credit
	9.0 HSPF				System must also provide water heating.
Group-source heat pumps					System must also provide water heating.
Closed loop	14.1/3.3		EER/COP \$300	2006 & 2007	System must also provide water heating.
Open loop	16.2/3.6		EER/COP \$300	2006 & 2007	System must also provide water heating.
Direct expansion (DX)	15/3.5		EER/COP \$300	2006 & 2007	System must also provide water heating.
Water heaters (non-business applications)					See GAMA Web site for list of qualifying products: www.gamaweb.org/directory
Electric	2.0 EF		\$300	2006 & 2007	www.gamaweb.org/directory
Gas and oil	0.8 EF		\$300	2006 & 2007	www.gamaweb.org/directory
Gas and oil furnaces and boilers					See GAMA Web site (link above) for list of qualifying products.
High combustion efficiency equipment	95% AFUE		\$150	2006 & 2007	Can earn either one or both incentive with the same unit.
High electric efficiency equipment	Meets CEE spec		\$50	2006 & 2007	CEE spec requires electric use to be <=2% of site use.
Envelope improvements to existing homes					Includes duct sealing and infiltration reduction.
Insulation, exterior doors, duct sealing and infiltration reduction	Meet 2000/2003 IECC + supplements		10% up to \$500	2006 & 2007	All Energy Star windows and doors qualify for credits.
Windows and skylights	Same as above		10% up to \$200	2006 & 2007	Credits cover cost of components only, and do not include costs of onsite prep, assembly or installation.
Pigmented metal roofs	Meet Energy Star spec		10% up to \$500	2006 & 2007	
Appliances					
Refrigerators					All appliance incentives go to manufacturer, not consumer; manufacturers are expedited to reduce prices accordingly.
Save 15-19.9% relative to federal standard	Look to left		\$75	2006	
Save 20-24.9% relative to federal standard	Look to left		\$125	2006 & 2007	
Save 25% or more relative to federal standard	Look to left		\$175	2006 & 2007	
Clothes washers	1.72 MEF, 8.0 WF		\$100	2006 & 2007	This is the 2007 Energy Star specification.
Dishwashers	2007 Energy Star		TBD -- based on final Energy Star	2006 & 2007	Incentive likely to be around \$30.
New homes					
Site-built or manufactured homes					Incentives go to the builder, not the homebuyer.
Manufactured homes	50% savings		\$2,000	2006 & 2007	Savings relative to 2004 IECC.
	30% savings		\$1,000	2006 & 2007	Savings relative to 2004 IECC.
	or meets Energy Star			2006 & 2007	
Commercial buildings					
Whole building	50% savings		Deduction of \$1.80/sq.ft.	2006 & 2007	Max. is \$0.60/sq.ft. per system or \$1.80/sq.ft. for whole bldg.
Lighting, HVAC or envelope	50% savings		Deduction of \$0.60/sq.ft. per system	2006 & 2007	Savings relative to ASHRAE 90.1-2001.
Lighting savings of at least 25%	25-50% savings		Sliding scale: \$.30/sq.ft. for 25% svgs	Unclear	Term of this provision depends on Treasury rulemaking.
Fuel cells and microturbines					
Fuel cells (business or individual credit)	30% efficiency		30% up to \$1000/KW	2006 & 2007	Systems >=0.5 kW for business credit. No size floor or efficiency requirements for individual credit.
Microturbines (only business credit)	26% efficiency		10% up to \$200/KW	2006 & 2007	Systems < 2000 KW.
Passenger vehicles					
Complicated formula -- see http://aceee.org/press/0508hybridtaxcr.htm					
Heavy-duty vehicles					
Complicated formula -- a description of the credit will be put on www.aceee.org shortly.					

Key: AC= air conditioner; AFUE= annual fuel utilization efficiency; ASHRAE = American Society of Heating, Refrigerating & Air-Conditioning Engineers; CEE = Consortium for Energy Efficiency COP= coefficient of performance; EER= energy efficiency ratio; EF= energy factor; HP= heat pump; HSPF= heating season performance factor; IECC= International Energy Conservation Code kW= kilowatt; MEF= modified energy factor; SEER= seasonal energy efficiency ratio; WF= water factor.