

FEDERAL Incentives/Policies for Renewables & Efficiency

Financial Incentives

Energy-Efficient Commercial Buildings Tax Deduction

Last DSIRE Review: 10/07/2008

Incentive Type: Corporate Deduction

State: Federal

Eligible Efficiency Technologies: Equipment Insulation, Water Heaters, Lighting, Lighting Controls/Sensors, Chillers, Furnaces, Boilers, Heat pumps, Air conditioners, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation, Windows, Doors, Siding, Roofs, Comprehensive Measures/Whole Building

Applicable Sectors: Commercial, Builder/Developer, State Government, Fed. Government, (Deductions associated with government buildings are transferred to the designer)

Amount: \$0.30-\$1.80 per square foot, depending on technology and amount of energy reduction

Maximum Incentive: \$1.80 per square foot

Equipment Requirements: Must meet certification requirements

Web Site: <http://www.efficientbuildings.org>

Authority 1: 26 USC § 179D

Date Enacted: 8/8/2005 (subsequently amended)

Date Effective: 1/1/2006

Expiration Date: 12/31/2013

Authority 2: H.R. 1424: Div. B, Sec. 303 (The Energy Improvement and Extension Act of 2008)

Date Enacted: 10/3/2008

Expiration Date: 12/31/2013

Summary:

The federal Energy Policy Act of 2005 established a tax deduction for energy-efficient commercial buildings applicable to qualifying systems and buildings placed in service from January 1, 2006, through December 31, 2007. This deduction was subsequently extended through 2008, and then again through 2013 by Section 303 of the federal Energy Improvement and Extension Act of 2008 (H.R. 1424, Division B), enacted in October 2008.

A tax deduction of \$1.80 per square foot is available to owners of new or existing buildings who install (1) interior lighting; (2) building envelope, or (3) heating, cooling, ventilation, or hot water systems that reduce the building's total energy and power cost by 50% or more in comparison to a building meeting minimum requirements set by ASHRAE Standard 90.1-2001. Energy savings must be calculated using qualified computer software approved by the IRS. Click [here](#) for the list of approved software.

Deductions of \$0.60 per square foot are available to owners of buildings in which individual lighting, building envelope, or heating and cooling systems meet target levels that would reasonably contribute to an overall building savings of 50% if additional systems were installed.

The deductions are available primarily to building owners, although tenants may be eligible if they make construction expenditures. In the case of energy efficient systems installed on or in government property, tax deductions will be given to the person primarily responsible for the systems' design. Deductions are taken in the year when construction is completed.

The IRS released interim guidance ([IRS Notice 2006-52](#)) in June 2006 to establish a process to allow taxpayers to obtain a certification that the property satisfies the energy efficiency requirements contained in the statute. [IRS Notice 2008-40](#) was issued in March of 2008 to further clarify the rules. NREL published a report ([NREL/TP-550-40228](#)) in February 2007 which provides guidelines for the modeling and inspection of energy savings required by the statute.

Click [here](#) for answers to frequently asked questions provided by the *Commercial Building Tax Deduction Coalition*.

For more information, visit the [Energy Star web site](#).

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Modified Accelerated Cost-Recovery System (MACRS) + Bonus Depreciation (2008-2009)

Last DSIRE Review: 02/19/2009

Incentive Type: Corporate Depreciation

State: Federal

Eligible Renewable/Other Technologies: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Renewable Transportation Fuels, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, Municipal Solid Waste, CHP/Cogeneration, Solar Hybrid Lighting, Direct Use Geothermal, Anaerobic Digestion, Microturbines

Applicable Sectors: Commercial, Industrial

Authority 1: 26 USC § 168

Date Effective: 1986

Authority 2: 26 USC § 48

Summary:

Under the federal Modified Accelerated Cost-Recovery System (MACRS), businesses may recover investments in certain property through depreciation deductions. The MACRS establishes a set of class lives for various types of property, ranging from three to 50 years, over which the property may be depreciated. A number of renewable energy technologies are classified as five-year property (26 USC § 168(e)(3)(B)(vi)) under the MACRS, which refers to 26 USC § 48(a)(3)(A), often known as the energy investment tax credit or ITC to define eligible property. Such property currently includes:

- a variety of solar electric and solar thermal technologies
- fuel cells and microturbines
- geothermal electric
- direct-use geothermal and geothermal heat pumps
- small wind (100 kW or less)
- combined heat and power (CHP).
- The provision which defines ITC technologies as eligible also adds the general term "wind" as an eligible technology, extending the five-year schedule to large wind facilities as well.

In addition, for certain other biomass property, the MACRS property class life is seven years. Eligible biomass property generally includes assets used in the conversion of biomass to heat or to a solid, liquid or gaseous fuel, and to equipment and structures used to receive, handle, collect and process biomass in a waterwall, combustion system, or refuse-derived fuel system to create hot water, gas, steam and electricity.

The 5-year schedule for most types of solar, geothermal, and wind property has been in place since 1986. The federal *Energy Policy Act of 2005* (EPAct 2005) classified fuel cells, microturbines and solar hybrid lighting technologies as five-year property as well by adding them to § 48(a)(3)(A). This section was further expanded in October 2008 by the addition of geothermal heat pumps, combined heat and power, and small wind under *The Energy Improvement and Extension Act of 2008*.

The federal *Economic Stimulus Act of 2008*, enacted in February 2008, included a 50% bonus depreciation (26 USC § 168(k)) provision for eligible renewable-energy systems acquired and placed in service in 2008. This provision was extended (retroactively to the entire 2009 tax year) under the same terms by *The American Recovery and Reinvestment Act of 2009*, enacted in February 2009. To qualify for bonus depreciation, a project must satisfy these criteria:

- the property must have a recovery period of 20 years or less under normal federal tax depreciation rules;
- the original use of the property must commence with the taxpayer claiming the deduction;
- the property generally must have been acquired during 2008 or 2009; and
- the property must have been placed in service during 2008 or 2009

If property meets these requirements, the owner is entitled to deduct 50% of the adjusted basis of the property in 2008 and 2009. The remaining 50% of the adjusted basis of the property is depreciated over the ordinary depreciation schedule. The bonus depreciation rules do not override the depreciation limit applicable to projects qualifying for the federal business energy tax credit. Before calculating depreciation for such a project, including any bonus depreciation, the adjusted basis of

the project must be reduced by one-half of the amount of the energy credit for which the project qualifies.

For more information on the federal MACRS, see *IRS Publication 946, IRS Form 4562: Depreciation and Amortization*, and *Instructions for Form 4562*. The [IRS web site](#) provides a search mechanism for forms and publications. Enter the relevant form, publication name or number, and click "GO" to receive the requested form or publication.

** Note that the definitions of eligible technologies included in this entry are somewhat simplified versions of those contained in tax code, which often contain additional caveats, restrictions, and modifications. Those interested in this incentive should review the relevant sections of the code in detail prior to making business decisions.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Residential Energy Conservation Subsidy Exclusion (Corporate)

Last DSIRE Review: 07/27/2009

Incentive Type: Corporate Exemption

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Solar Water Heat, Solar Space Heat, Photovoltaics

Technologies:

Applicable Sectors: Residential, Multi-Family Residential

Amount: 100% of the subsidy

Terms: Applies to energy conservation measures on dwelling units only

Web Site: <http://www.irs.gov/publications/p525/index.html>

Authority 1: [26 USC § 136](#)

Date Enacted: 1992

Summary:

According to Section 136 of the U.S. Code, energy conservation subsidies provided by public utilities,* either directly or indirectly, are nontaxable: "Gross income shall not include the value of any subsidy provided (directly or indirectly) by a public utility to a customer for the purchase or installation of any energy conservation measure." (This exclusion does *not* apply to electricity-generating systems registered as "qualifying facilities" under the Public Utility Regulatory Policy Act of 1978.)

The term "energy conservation measure" includes installations or modifications primarily designed to reduce consumption of electricity or natural gas, or improve the management of energy demand. Eligible dwelling units include houses, apartments, condominiums, mobile homes, boats and similar properties. If a building or structure contains both dwelling and other units, any subsidy must be properly allocated.

Given the definition of "energy conservation measure," there is strong evidence that utility rebates for residential solar-thermal projects and solar-electric systems may be nontaxable. However, the IRS has not ruled definitively on this issue. For taxpayers considering using this provision for renewable energy systems, consultation with a tax professional is advised.

Other types of utility subsidies that may come in the form of credits or reduced rates may also be nontaxable, according to IRS Publication 525:

"Utility rebates. If you are a customer of an electric utility company and you participate in the utility's energy conservation program, you may receive on your monthly electric bill either: a reduction in the purchase price of electricity furnished to you (rate reduction), or a nonrefundable credit against the purchase price of the electricity. The amount of the rate reduction or nonrefundable credit is not included in your income."

* *The term "public utility" is defined as an entity "engaged in the sale of electricity or natural gas to residential, commercial, or industrial customers for use by such customers." The term includes federal, state and local government entities.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Business Energy Investment Tax Credit (ITC)

Incentive Type: Corporate Tax Credit

State: Federal

Eligible Renewable/Other: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat,

Technologies: Photovoltaics, Wind, Biomass, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, CHP/Cogeneration, Solar Hybrid Lighting, Direct-Use Geothermal, Microturbines

Applicable Sectors: Commercial, Industrial, Utility

Amount: 30% for solar, fuel cells and small wind;
10% for geothermal, microturbines and CHP

Maximum Incentive: Fuel cells: \$1,500 per 0.5 kW
Microturbines: \$200 per kW
Small wind turbines placed in service 10/4/08 - 12/31/08: \$4,000
Small wind turbines placed in service after 12/31/08: no limit
All other eligible technologies: no limit

Eligible System Size: Small wind turbines: 100 kW or less
Fuel cells: 0.5 kW or greater
Microturbines: 2 MW or less
CHP: 50 MW or less

Equipment/Installation Requirements: Fuel cells, microturbines and CHP systems must meet specific energy-efficiency criteria

Authority 1: 26 USC § 48

Summary:

Note: *The American Recovery and Reinvestment Act of 2009 (H.R. 1) allows taxpayers eligible for the federal renewable electricity production tax credit (PTC) to take the federal business energy investment tax credit (ITC) or to receive a grant from the U.S. Treasury Department instead of taking the PTC for new installations. The new law also allows taxpayers eligible for the business ITC to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The Treasury Department issued Notice 2009-52 in June 2009, giving limited guidance on how to take the federal business energy investment tax credit instead of the federal renewable electricity production tax credit. The Treasury Department will issue more extensive guidance at a later time.*

The federal business energy investment tax credit available under 26 USC § 48 was expanded significantly by the Energy Improvement and Extension Act of 2008 (H.R. 1424), enacted in October 2008. This law extended the duration -- by eight years -- of the existing credits for solar energy, fuel cells and microturbines; increased the credit amount for fuel cells; established new credits for small wind-energy systems, geothermal heat pumps, and combined heat and power (CHP) systems; extended eligibility for the credits to utilities; and allowed taxpayers to take the credit against the alternative minimum tax (AMT), subject to certain limitations. The credit was further expanded by The American Recovery and Reinvestment Act of 2009, enacted in February 2009.

In general, credits are available for eligible systems placed in service on or before December 31, 2016.*

- **Solar.** The credit is equal to 30% of expenditures, with no maximum credit. Eligible solar energy property includes equipment that 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. Hybrid solar lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible. Passive solar systems and solar pool-heating systems are *not* eligible. (Note that the Solar Energy Industries Association has published a three-page document that provides answers to frequently asked questions regarding the federal tax credits for solar energy.)
- **Fuel Cells.** The credit is equal to 30% of expenditures, with no maximum credit. However, the credit for fuel cells is capped at \$1,500 per 0.5 kilowatt (kW) of capacity. Eligible property includes fuel cells with a minimum capacity of 0.5 kW that have an electricity-only generation efficiency of 30% or higher. (Note that the credit for property placed in service before October 4, 2008, is capped at \$500 per 0.5 kW.)
- **Small Wind Turbines.** The credit is equal to 30% of expenditures, with no maximum credit for small wind turbines placed in service after December 31, 2008. Eligible small wind property includes wind turbines up to 100 kW in capacity. (In general, the maximum credit is \$4,000 for eligible property placed in service after October 3, 2008,

and before January 1, 2009. *The American Recovery and Reinvestment Act of 2009* removed the \$4,000 maximum credit limit for small wind turbines.)

- **Geothermal Systems.** The credit is equal to 10% of expenditures, with no maximum credit limit stated. Eligible geothermal energy property includes geothermal heat pumps and equipment used to produce, distribute or use energy derived from a geothermal deposit. For electricity produced by geothermal power, equipment qualifies only up to, but not including, the electric transmission stage. For geothermal heat pumps, this credit applies to eligible property placed in service after October 3, 2008.
- **Microturbines.** The credit is equal to 10% of expenditures, with no maximum credit limit stated (explicitly). The credit for microturbines is capped at \$200 per kW of capacity. Eligible property includes microturbines up to two megawatts (MW) in capacity that have an electricity-only generation efficiency of 26% or higher.
- **Combined Heat and Power (CHP).** The credit is equal to 10% of expenditures, with no maximum limit stated. Eligible CHP property generally includes systems up to 50 MW in capacity that exceed 60% energy efficiency, subject to certain limitations and reductions for large systems. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the credit may be reduced for less-efficient systems. This credit applies to eligible property placed in service after October 3, 2008.

In general, the original use of the equipment must begin with the taxpayer, or the system must be constructed by the taxpayer. The equipment must also meet any performance and quality standards in effect at the time the equipment is acquired. The energy property must be operational in the year in which the credit is first taken.

Significantly, *The American Recovery and Reinvestment Act of 2009* repealed a previous limitation on the use of the credit for eligible projects also supported by "subsidized energy financing." For projects placed in service after December 31, 2008, this limitation no longer applies. Businesses that receive other incentives are advised to consult with a tax professional regarding how to calculate this federal tax credit.

History

The federal *Energy Policy Act of 2005* (EPAct 2005) expanded the existing federal business energy tax credit for solar and geothermal energy property to include fuel cells, microturbines and hybrid solar lighting systems installed on or after January 1, 2006, and raised the credit for solar to 30%. Prior to the provisions of EPAct 2005, a 10% credit was available to businesses that invested in or purchased solar or geothermal energy property.

** Note that the credit for geothermal property, with the exception of geothermal heat pumps, has no stated expiration date. The credit for solar energy property reverts to 10% after December 31, 2016.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Energy-Efficient Appliance Tax Credit for Manufacturers

Incentive Type: Corporate Tax Credit

State: Federal

Eligible Efficiency

Technologies: Clothes Washers, Dishwasher, Refrigerators/Freezers

Applicable Sectors: Industrial, Appliance Manufacturers

Amount: Dishwashers: \$45 or \$75 per unit, varies by energy and water efficiency;
Clothes washers: \$75 - \$250 per unit, varies by type, and energy and water efficiency;
Refrigerators: \$50 - \$200, depending on energy-efficiency rating

Maximum Incentive: The aggregate amount of credit allowed is \$75 million per taxpayer. Certain refrigerators and clothes washers will not add to the aggregate credit amount. See summary below for more details.

Carryover Provisions: Not specified

Equipment/Installation Requirements: Appliances must meet Energy Star 2007 requirements; must be new and in compliance with all applicable performance and safety standards

Authority 1: 26 USC § 45M

Date Enacted: 8/8/2005

Date Effective: 1/1/2006

Expiration Date: 12/31/2007

Authority 2: H.R. 1424: Div. B, Sec. 305 (The Energy Improvement and Extension Act of 2008)

Date Enacted: 10/3/2008

Date Effective: 1/1/2007

Expiration Date: Varies by appliance and efficiency level

Summary:

The Energy Policy Act of 2005 established tax credits for manufacturers of high-efficiency residential clothes washers, refrigerators, and dishwashers produced in calendar years 2006 and 2007. The Energy Improvement and Extension Act of 2008 (H.R. 1424, Division B) extended the credits for additional years depending on the efficiency rating of the manufactured appliance. Manufacturers only receive these credits for the increase in production of qualifying appliances over a two-year rolling baseline, and only appliances produced in the United States are eligible.

Credits available to manufacturers are as follows:

Dishwashers

- \$45 for models manufactured in calendar year 2008 or 2009 which use no more than 324 kilowatt hours (kWh) per year and 5.8 gallons per cycle.
- \$75 for models manufactured in calendar year 2008, 2009, or 2010 which use no more than 307 kWh per year and 5.5 gallons per cycle .

Clothes washers

- \$75 for residential top-loading models manufactured in 2008 which meet or exceed a 1.72 modified energy factor (MEF) and do not exceed a 8.0 water consumption factor (WCF).
- \$125 for residential top-loading models manufactured in 2008 or 2009 which meet or exceed a 1.8 MEF and do not exceed a 7.5 WCF.
- \$150 for a residential or commercial models manufactured in 2008, 2009, or 2010 which meet or exceed a 2.0 MEF and does not exceed a 6.0 WCF.
- \$250 for residential or commercial models manufactured in 2008, 2009, or 2010 which meet or exceed a 2.2 MEF

and do not exceed a 4.5 WCF.

Refrigerators

- \$50 for models manufactured in 2008 which are between 20% and 22.9% more efficient than the 2001 energy conservation standards.
- \$75 for models manufactured in 2008 or 2009 which are between 23% and 24.9% more efficient than the 2001 energy conservation standards.
- \$100 for models manufactured in 2008, 2009, or 2010 which are between 25% and 29.9% more efficient than the 2001 energy conservation standards.
- \$200 for models manufactured in 2008, 2009, or 2010 which are at least 30% more efficient than the 2001 energy conservation standards.

Each manufacturer is limited to a total of \$75 million for all credits under this provision. However, refrigerators manufactured in 2008, 2009, or 2010 which consume at least 30% less energy than the 2001 energy conservation standards will not add to the aggregate credit amount and have no separate credit limit. Residential and commercial clothes washers manufactured in 2008, 2009 or 2010 which meet or exceed a 2.2 MEF and do not exceed a 4.5 WCF also will not add to the aggregate limit and have no separate credit limit.

The 2007 IRS Form 8909 is available [here](#). For more information on qualifying products, visit the [Energy Star web site](#).

Contact:

Public Information - IRS
U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web Site: <http://www.irs.gov>

Energy-Efficient New Homes Tax Credit for Home Builders

Last DSIRE Review: 10/09/2008

Incentive Type: Corporate Tax Credit

State: Federal

Eligible Efficiency

Technologies: Comprehensive Measures/Whole Building

Applicable Sectors: Builder/Developer

Amount: \$1,000 - \$2,000 (depends on energy savings and home type)

Maximum Incentive: \$2,000

Web Site: <http://www.irs.gov/businesses/small/industries/article/0..id=155445.00.html>

Authority 1: 26 USC § 45L

Date Enacted: 8/8/2005 (amended 2008)

Date Effective: 1/1/2006

Expiration Date: 12/31/2009

Authority 2: H.R. 1424: Div. B, Sec. 304 (The Energy Improvement and Extension Act of 2008)

Date Enacted: 10/3/2008

Expiration Date: 12/31/2009

Summary:

The federal Energy Policy Act of 2005 established tax credits of up to \$2,000 for builders of all new energy-efficient homes, including manufactured homes constructed in accordance with the Federal Manufactured Homes Construction and Safety Standards. Initially scheduled to expire at the end of 2007, the tax credit was extended through 2008 by Section 205 of the Tax Relief and Health Care Act of 2006 (H.R. 6111), and then extended again through December 31, 2009 by Section 304 of The Energy Improvement and Extension Act of 2008 (H.R. 1424).

The home qualifies for the credit if:

- It is located in the United States;
- Its construction is substantially completed after August 8, 2005;
- It meets the energy saving requirements outlined in the statute; and
- It is acquired from the eligible contractor after December 31, 2005, and before January 1, 2010, for use as a residence.

Energy Saving Requirements

Site-built homes qualify for a \$2,000 credit if they are certified to reduce heating and cooling energy consumption by 50% relative to the International Energy Conservation Code standard and meet minimum efficiency standards established by the Department of Energy. Building envelope component improvements must account for at least one-fifth of the reduction in energy consumption.

Manufactured homes qualify for a \$2,000 credit if they conform to Federal Manufactured Home Construction and Safety Standards and meet the energy savings requirements of site-built homes described above.

Manufactured homes qualify for a \$1,000 credit if they conform to Federal Manufactured Home Construction and Safety Standards and reduce energy consumption by 30% relative to the International Energy Conservation Code standard. In this case, building envelope component improvements must account for at least one-third of the reduction in energy consumption. Alternatively, manufactured homes qualify if they meet Energy Star Labeled Homes requirements.

Certification

The Internal Revenue Service (IRS) has issued guidance to provide information about the certification process that a builder must complete to qualify for the credit. The guidance also provides for a public list of software programs that may be used in calculating energy consumption for purposes of obtaining a certification.

IRS Notice 2006-27 provides guidance for the credit for building energy-efficient homes other than manufactured homes. IRS Notice 2006-28 provides guidance for the credit for building energy-efficient manufactured homes. Click here to access IRS Form 8908: Energy Efficient Home Credit.

For more information on this and other energy efficiency tax credits, visit the Energy Star web site.

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Renewable Electricity Production Tax Credit (PTC)

Incentive Type: Corporate Tax Credit

State: Federal

Eligible Renewable/Other Technologies: Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power (i.e., Flowing Water), Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Commercial, Industrial

Amount: 2.1¢/kWh for wind, geothermal, closed-loop biomass; 1.1¢/kWh for other eligible technologies. Generally applies to first 10 years of operation.

Eligible System Size: Marine and Hydrokinetic: Minimum capacity of 150 kW
Agricultural Livestock Waste: Minimum capacity of 150 kW

Web Site: <http://www.irs.gov/pub/irs-pdf/f8835.pdf>

Authority 1: 26 USC § 45

Date Enacted: 1992 (subsequently amended)

Summary:

Note: *The American Recovery and Reinvestment Act of 2009 (H.R. 1) allows taxpayers eligible for the federal renewable electricity production tax credit (PTC) to take the federal business energy investment tax credit (ITC) or to receive a grant from the U.S. Treasury Department instead of taking the PTC for new installations. The new law also allows taxpayers eligible for the business ITC to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The Treasury Department issued Notice 2009-52 in June 2009, giving limited guidance on how to take the federal business energy investment tax credit instead of the federal renewable electricity production tax credit. The Treasury Department will issue more extensive guidance at a later time.*

The federal renewable electricity production tax credit (PTC) is a per-kilowatt-hour tax credit for electricity generated by qualified energy resources and sold by the taxpayer to an unrelated person during the taxable year. Originally enacted in 1992, the PTC has been renewed and expanded numerous times, most recently by H.R. 1424 (Div. B, Sec. 101 & 102) in October 2008 and again by H.R. 1 (Div. B, Section 1101 & 1102) in February 2009.

The October 2008 legislation extended the in-service deadlines for all qualifying renewable technologies; expanded the list of qualifying resources to include marine and hydrokinetic resources, such as wave, tidal, current and ocean thermal; and made changes to the definitions of several qualifying resources and facilities. The effective dates of these changes vary. Marine and hydrokinetic energy production is eligible as of the date the legislation was enacted (October 3, 2008), as is the incremental energy production associated with expansions of biomass facilities. A change in the definition of "trash facility" no longer requires that such facilities burn trash, and is also effective immediately. One further provision redefining the term "non-hydroelectric dam," took effect December 31, 2008.

The February 2009 legislation revised the credit by: (1) extending the in-service deadline for most eligible technologies by three years (two years for marine and hydrokinetic resources); and (2) allowing facilities that qualify for the PTC to opt instead to take the federal business energy investment credit (ITC) or an equivalent cash grant from the U.S. Department of Treasury. The ITC or grant for PTC-eligible technologies is generally equal to 30% of eligible costs.*

The tax credit amount is 1.5¢/kWh in 1993 dollars (indexed for inflation) for some technologies, and half of that amount for others. The rules governing the PTC vary by resource and facility type. The table below outlines two of the most important characteristics of the tax credit -- in-service deadline and credit amount -- as they apply to different facilities. The table includes changes made by H.R. 1, in February 2009, and the inflation-adjusted credit amounts are current for the 2009 calendar year. (See the history section below for information on prior rules.)

| Resource Type | In-Service Deadline | Credit Amount |
|-----------------------|---------------------|---------------|
| Wind | December 31, 2012 | 2.1¢/kWh |
| Closed-Loop Biomass | December 31, 2013 | 2.1¢/kWh |
| Open-Loop Biomass | December 31, 2013 | 1.1¢/kWh |
| Geothermal Energy | December 31, 2013 | 2.1¢/kWh |
| Landfill Gas | December 31, 2013 | 1.1¢/kWh |
| Municipal Solid Waste | December 31, 2013 | 1.1¢/kWh |

| | | |
|--|-------------------|----------|
| Qualified Hydroelectric | December 31, 2013 | 1.1¢/kWh |
| Marine and Hydrokinetic (150 kW or larger)** | December 31, 2013 | 1.1¢/kWh |

The duration of the credit is generally 10 years after the date the facility is placed in service, but there are two exceptions:

- Open-loop biomass, geothermal, small irrigation hydro, landfill gas and municipal solid waste combustion facilities placed into service after October 22, 2004, and before enactment of the *Energy Policy Act of 2005*, on August 8, 2005, are only eligible for the credit for a five-year period.
- Open-loop biomass facilities placed in service before October 22, 2004, are eligible for a five-year period beginning January 1, 2005.

In addition, the tax credit is reduced for projects that receive other federal tax credits, grants, tax-exempt financing, or subsidized energy financing. The credit is claimed by completing [Form 8835](#), "Renewable Electricity Production Credit," and [Form 3800](#), "General Business Credit." For more information, contact IRS Telephone Assistance for Businesses at 1-800-829-4933.

History

As originally enacted by the *Energy Policy Act of 1992*, the PTC expired at the end of 2001, and was subsequently extended in March 2002 as part of the *Job Creation and Worker Assistance Act of 2002* (H.R. 3090). The PTC then expired at the end of 2003 and was not renewed until October 2004, as part of H.R. 1308, the *Working Families Tax Relief Act of 2004*, which extended the credit through December 31, 2005. The *Energy Policy Act of 2005* (H.R. 6) modified the credit and extended it through December 31, 2007. In December 2006, the PTC was extended for yet another year -- through December 31, 2008 -- by the *Tax Relief and Health Care Act of 2006* (H.R. 6111).

The American Jobs Creation Act of 2004 (H.R. 4520), expanded the PTC to include additional eligible resources -- geothermal energy, open-loop biomass, solar energy, small irrigation power, landfill gas and municipal solid waste combustion -- in addition to the formerly eligible wind energy, closed-loop biomass, and poultry-waste energy resources. The *Energy Policy Act of 2005* (EPAct 2005) further expanded the credit to certain hydropower facilities. As a result of EPAct 2005, solar facilities placed into service after December 31, 2005, are no longer eligible for this incentive. Solar facilities placed in-service during the roughly one-year window in which solar was eligible are permitted to take the full credit (i.e., 2.1¢/kWh) for five years.

** Prior to H.R. 1, geothermal facilities were already eligible for a 10% tax credit under the energy ITC (26 USC § 48). However, the new legislation permits all PTC-eligible technologies, including geothermal electric facilities, to take a 30% tax credit (or grant) in lieu of the PTC. Recent guidance from the IRS regarding the Treasury grants in lieu of tax credits indicates that geothermal facilities that qualify for the PTC are eligible for either the 30% investment tax credit or the 10% tax credit, but not both. The window for the 30% tax credit runs through 2013, the in-service deadline for the PTC, while the 10% tax credit under the section 48 ITC runs through 2016.*

*** H.R. 1424 added marine and hydrokinetic energy as eligible resources and removed "small irrigation power" as an eligible resource effective October 3, 2008. However, the definition of marine and hydrokinetic energy encompasses the resources that would have formerly been defined as small irrigation power facilities. Thus H.R. 1424 effectively extended the in-service deadline for small irrigation power facilities by 3 years, from the end of 2008 until the end of 2011 (since extended again through 2013).*

Contact:

Public Information - IRS
U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224
Phone: (800) 829-1040
Web Site: <http://www.irs.gov>

Tribal Energy Program Grant

Last DSIRE Review: 08/19/2009

Incentive Type: Federal Grant Program

State: Federal

Eligible Efficiency Technologies: Clothes Washers, Refrigerators/Freezers, Water Heaters, Lighting, Lighting Controls/Sensors,

Chillers, Furnaces, Boilers, Air conditioners, Programmable Thermostats, Energy Mgmt.

Systems/Building Controls, Caulking/Weather-stripping, Duct/Air sealing, Building Insulation,

Windows, Doors, Siding, Roofs, Comprehensive Measures/Whole Building, other energy

efficiency improvements may be eligible

Eligible Renewable/Other Technologies: Passive Solar Space Heat, Solar Water Heat, Solar Space Heat, Photovoltaics, Wind, Biomass,

Hydroelectric, Geothermal Electric, Geothermal Heat Pumps

Applicable Sectors: Tribal Government

Amount: Varies by solicitation

Max. Limit: Varies by solicitation

Web Site: <http://www.eere.energy.gov/tribalenergy>

Summary:

The U.S. Department of Energy's (DOE) Tribal Energy Program promotes tribal energy sufficiency, economic growth and employment on tribal lands through the development of renewable energy and energy efficiency technologies. The program provides financial assistance, technical assistance, education and training to tribes for the evaluation and development of renewable energy resources and energy efficiency measures.

DOE's Tribal Energy Program consists of program management through DOE headquarters, program implementation and project management through DOE's field offices, and technical support through DOE laboratories. Program management for the Tribal Energy Program is carried out by DOE's Weatherization and Intergovernmental Program, which provides programmatic direction and funding to DOE field offices for program implementation. DOE's field offices, specifically the Golden Field Office, issue solicitations and manage resulting projects.

Program funding is awarded through a competitive process. Click [here](#) to view current program funding opportunities.

Contact:

Lizana Pierce

U.S. Department of Energy

Golden Field Office

1617 Cole Boulevard, MS 1501

Golden, CO 80401

Phone: (303) 275-4727

Fax: (303) 275-4753

E-Mail: lizana.pierce@go.doe.gov

Web Site: <http://www.eere.energy.gov/tribalenergy>

U.S. Department of Treasury - Renewable Energy Grants

Incentive Type: Federal Grant Program

State: Federal

Eligible Renewable/Other Technologies: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Fuel Cells, Geothermal Heat Pumps, Municipal Solid Waste, CHP/Cogeneration, Solar Hybrid Lighting, Hydrokinetic, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal, Microturbines

Applicable Sectors: Commercial, Industrial, Agricultural

Amount: 30% of property that is part of a qualified facility, qualified fuel cell property, solar property, or qualified small wind property
10% of all other property

Max. Limit: \$1,500 per 0.5 kW for qualified fuel cell property
\$200 per kW for qualified microturbine property
50 MW for CHP property, with limitations for large systems

Terms: Grant applications must be submitted by 10/1/2011. Payment of grant will be made within 60 days of the grant application date or the date property is placed in service, whichever is later.

Web Site: <http://www.treas.gov/recovery/1603.shtml>

Authority 1: H.R. 1: Div. B, Sec. 1104 & 1603 (The American Recovery and Reinvestment Act of 2009)

Date Enacted: 2/17/2009

Date Effective: 1/1/2009

Authority 2: U.S. Department of Treasury: Grant Program Guidance

Date Enacted: 07/09/2009

Summary:

Note: The American Recovery and Reinvestment Act of 2009 (H.R. 1) allows taxpayers eligible for the federal business energy investment tax credit (ITC) to take this credit or to receive a grant from the U.S. Treasury Department instead of taking the business ITC for new installations. The new law also allows taxpayers eligible for the renewable electricity production tax credit (PTC) to receive a grant from the U.S. Treasury Department instead of taking the PTC for new installations. (It does not allow taxpayers eligible for the residential renewable energy tax credit to receive a grant instead of taking this credit.) Taxpayers may not use more than one of these incentives. Tax credits allowed under the ITC with respect to progress expenditures on eligible energy property will be recaptured if the project receives a grant. The grant is not included in the gross income of the taxpayer.

The American Recovery and Reinvestment Act of 2009 (H.R. 1), enacted in February 2009, created a renewable energy grant program that will be administered by the U.S. Department of Treasury. This cash grant may be taken in lieu of the federal business energy investment tax credit (ITC). In July 2009 the Department of Treasury issued documents detailing guidelines for the grants, terms and conditions and a sample application. There is an online application process, and applications are currently being accepted. See the program [web site](#) for more information.

Grants are available to eligible property* placed in service in 2009 or 2010, or placed in service by the specified credit termination date,** if construction began in 2009 or 2010. The guidelines include a "safe harbor" provision that sets the beginning of construction at the point where the applicant has incurred or paid at least 5% of the total cost of the property, excluding land and certain preliminary planning activities. Below is a list of important program details as they apply to each different eligible technology.

- **Solar.** The grant is equal to 30% of the basis of the property for solar energy. Eligible solar-energy property includes equipment that 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. Passive solar systems and solar pool-heating systems are *not* eligible. Hybrid solar-lighting systems, which use solar energy to illuminate the inside of a structure using fiber-optic distributed sunlight, are eligible.
- **Fuel Cells.** The grant is equal to 30% of the basis of the property for fuel cells. The grant for fuel cells is capped at

\$1,500 per 0.5 kilowatt (kW) in capacity. Eligible property includes fuel cells with a minimum capacity of 0.5 kW that have an electricity-only generation efficiency of 30% or higher.

- **Small Wind Turbines.** The grant is equal to 30% of the basis of the property for small wind turbines. Eligible small wind property includes wind turbines up to 100 kW in capacity.
- **Qualified Facilities.** The grant is equal to 30% of the basis of the property for qualified facilities that produce electricity. Qualified facilities include wind energy facilities, closed-loop biomass facilities, open-loop biomass facilities, geothermal energy facilities, landfill gas facilities, trash facilities, qualified hydropower facilities, and marine and hydrokinetic renewable energy facilities.
- **Geothermal Heat Pumps.** The grant is equal to 10% of the basis of the property for geothermal heat pumps.
- **Microturbines.** The grant is equal to 10% of the basis of the property for microturbines. The grant for microturbines is capped at \$200 per kW of capacity. Eligible property includes microturbines up to two megawatts (MW) in capacity that have an electricity-only generation efficiency of 26% or higher.
- **Combined Heat and Power (CHP).** The grant is equal to 10% of the basis of the property for CHP. Eligible CHP property generally includes systems up to 50 MW in capacity that exceed 60% energy efficiency, subject to certain limitations and reductions for large systems. The efficiency requirement does not apply to CHP systems that use biomass for at least 90% of the system's energy source, but the grant may be reduced for less-efficient systems.

It is important to note that only tax-paying entities are eligible for this grant. Federal, state and local government bodies, non-profits, qualified energy tax credit bond lenders, and cooperative electric companies are not eligible to receive this grant. Partnerships or pass-thru entities for the organizations described above are also not eligible to receive this grant, except in cases where the ineligible party only owns an indirect interest in the applicant through a taxable C corporation. Grant applications must be submitted by October 1, 2011. The U.S. Treasury Department will make payment of the grant within 60 days of the grant application date or the date the property is placed in service, whichever is later.

** Definitions of eligible property types and renewable technologies can be found in the U.S. Code, Title 26, § 45 and § 48.*

*** Credit termination date of January 1, 2013, for wind; January 1, 2014, for closed-loop biomass, open-loop biomass, landfill gas, trash, qualified hydropower, marine and hydrokinetic; January 1, 2017, for fuel cells, small wind, solar, geothermal, microturbines, CHP and geothermal heat pumps.*

Contact:

Grant Information

U.S. Department of Treasury
1500 Pennsylvania Avenue, NW
Washington, DC 20220

Phone: (202) 622-2000

Fax: (202) 622-6415

E-Mail: 1603Questions@do.treas.gov

Web Site: <http://www.treasury.gov>

USDA - Rural Energy for America Program (REAP) Grants

Last DSIRE Review: 05/27/2009

Incentive Type: Federal Grant Program

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Technologies: Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Photovoltaics, Wind, Biomass, Hydroelectric, Renewable Transportation Fuels, Geothermal Electric, Geothermal Heat Pumps, CHP/Cogeneration, Hydrogen, Direct-Use Geothermal, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Renewable Fuels, Fuel Cells using Renewable Fuels, Microturbines

Applicable Sectors: Commercial, Schools, Local Government, State Government, Tribal Government, Rural Electric Cooperative, Agricultural, Public Power Entities

Amount: Varies

Max. Limit: 25% of project cost

Web Site: <http://www.rurdev.usda.gov/rbs/busp/bprogs.htm>

Authority 1: [7 USC § 8106](#)

Date Enacted: 5/13/2002

Date Effective: FY 2003

Summary:

NOTE: The U.S. Department of Agriculture's Rural Development issues periodic Notices of Solicitation of Applications for the Rural Energy for America Program (REAP). The deadline to apply for grants and loan guarantees under the most recent solicitation was July 31, 2009. Grants and loan guarantees will be awarded for investments in renewable energy systems, energy efficiency improvements and renewable energy feasibility studies.

The Food, Conservation, and Energy Act of 2008 (H.R. 2419), enacted by Congress in May 2008, converted the federal Renewable Energy Systems and Energy Efficiency Improvements Program,* into the Rural Energy for America Program (REAP). Similar to its predecessor, the REAP promotes energy efficiency and renewable energy for agricultural producers and rural small businesses through the use of (1) grants and loan guarantees for energy efficiency improvements and renewable energy systems, and (2) grants for energy audits and renewable energy development assistance. Congress has allocated funding for the new program in the following amounts: \$55 million for FY 2009, \$60 million for FY 2010, \$70 million for FY 2011, and \$70 million for FY 2012. REAP is administered by the U.S. Department of Agriculture (USDA).

Of the total REAP funding available, 96% is dedicated to grants and loan guarantees for energy efficiency improvements and renewable energy systems. These incentives are available to agricultural producers and rural small businesses to purchase renewable energy systems (including systems that may be used to produce and sell electricity), to make energy efficiency improvements, and to conduct relevant feasibility studies. Eligible renewable energy projects include wind, solar, biomass and geothermal; and hydrogen derived from biomass or water using wind, solar or geothermal energy sources. These grants are limited to 25% of a proposed project's cost, and a loan guarantee may not exceed \$25 million. The combined amount of a grant and loan guarantee may not exceed 75% of the project's cost. In general, a minimum of 20% of the funds available for these incentives will be dedicated to grants of \$20,000 or less. The USDA likely will announce the availability of funding for this component of REAP through a Notice of Funds Availability (NOFA).

The USDA will also make competitive grants to eligible entities to provide assistance to agricultural producers and rural small businesses "to become more energy efficient" and "to use renewable energy technologies and resources." These grants are generally available to state government entities, local governments, tribal governments, land-grant colleges and universities, rural electric cooperatives and public power entities, and other entities, as determined by the USDA. These grants may be used for conducting and promoting energy audits; and for providing recommendations and information related to energy efficiency and renewable energy. Of the total REAP funding available, 4% is dedicated to competitive grants to provide assistance to agricultural producers and rural small businesses.

* *The Renewable Energy Systems and Energy Efficiency Improvements Program was created by the USDA pursuant to Section 9006 of the 2002 federal Farm Security and Rural Investment Act of 2002. Funding in the amount of \$23 million per year was appropriated for each fiscal year from FY 2003-2007. In March 2008, the USDA announced that it would accept*

\$220.9 million in applications for grants, loan guarantees, and loan/grant combination packages under the Renewable Energy Systems and Energy Efficiency Improvements Program. The application deadline was June 16, 2008. Clean Renewable Energy Bonds (CREBs)

Last DSIRE Review: 10/28/2009

Incentive Type: Federal Loan Program

State: Federal

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative

Amount: Varies

Terms: Certain terms for "new" CREBs differ from those for prior allocations. See IRS Notice 2009-33 for details.

Web Site: http://www.irs.gov/irb/2007-14_IRB/ar17.html

Authority 1: 26 USC § 54 (Old CREBs)

Date Effective: 08/08/2005

Expiration Date: 12/31/2009

Authority 2: 26 USC § 54A (New CREBs)

Date Enacted: 10/03/2008

Date Effective: 10/03/2008

Authority 3: 26 USC § 54C (New CREBs)

Date Enacted: 10/03/2008 (subsequently amended)

Date Effective: 10/03/2008

Authority 4: IRS Notice 2009-33

Date Effective: 04/07/2009

Expiration Date: 08/04/2009

Summary:

Note: *The IRS is not currently accepting applications for CREB allocations. Readers should also note that the terms "new" and "old" CREBs are used in the following summary to distinguish between prior CREB allocations and the new CREB authorizations made by the U.S. Congress in 2008 and 2009. The use of the term "new CREBs" has legal significance in that new CREBs authorized under 26 USC § 54A and 54C have substantially different rules than prior CREB allocations authorized under 26 USC § 54.*

Clean renewable energy bonds (CREBs) may be used by certain entities -- primarily in the public sector -- to finance renewable energy projects. The list of qualifying technologies is generally the same as that used for the federal renewable energy production tax credit (PTC). CREBs may be issued by electric cooperatives, government entities (states, cities, counties, territories, Indian tribal governments or any political subdivision thereof), and by certain lenders. CREBs are issued -- theoretically -- with a 0% interest rate.* The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest.

The Energy Improvement and Extension Act of 2008 (Div. A, Sec. 107) allocated \$800 million for new Clean Renewable Energy Bonds (CREBs). In February 2009, the American Recovery and Reinvestment Act of 2009 (Div. B, Sec. 1111) allocated an additional \$1.6 billion for new CREBs, for a total new CREB allocation of \$2.4 billion. The Energy Improvement and Extension Act of 2008 also extended the deadline for previously reserved allocations ("old CREBs") until December 31, 2009, and addressed several provisions in the existing law that previously limited the usefulness of the program for some projects. A separate section of the law extended CREBs eligibility to marine energy and hydrokinetic power projects.

Participation in the program is limited by the volume of bonds allocated by Congress for the program. Participants must first apply to the Internal Revenue Service (IRS) for a CREBs allocation, and then issue the bonds within a specified time period. The new CREBs allocation totaling \$2.4 billion does not have a defined expiration date under the law; however, the recent IRS solicitation for new applications requires the bonds to be issued within 3 years after the applicant receives notification of an approved allocation (see History section below for information on previous allocations). Public power providers,

governmental bodies, and electric cooperatives are each reserved an equal share (33.3%) of the new CREBs allocation. The tax credit rate is set daily by the U.S. Treasury Department. Under past allocations, the credit could be taken quarterly on a dollar-for-dollar basis to offset the tax liability of the bondholder. However, under the new CREBs allocation, the credit has been reduced to 70% of what it would have been otherwise. Other important changes are described in IRS Notice 2009-33.

CREBs differ from traditional tax-exempt bonds in that the tax credits issued through CREBs are treated as taxable income for the bondholder. The tax credit may be taken each year the bondholder has a tax liability as long as the credit amount does not exceed the limits established by the federal *Energy Policy Act of 2005*. Treasury rates for prior CREB allocations, or "old" CREBs are available [here](#), while rates for new CREBs and other qualified tax credit bonds are available [here](#).

In April 2009, the IRS issued Notice 2009-33, which solicited applications for the new CREB allocation and provided interim guidance on certain program rules and changes from prior CREB allocations. The expiration date for new CREB applications under this solicitation was August 4, 2009. Further guidance on CREBs is available in IRS Notices 2006-7 and 2007-26 to the extent that the program rules were not modified by 2008 and 2009 legislation. In October 2009, the Department of Treasury [announced](#) the allocation of \$2.2 billion in new CREBs for 805 projects across the country. It remains to be seen if the IRS will issue new funding announcements for the remaining \$200 million in new CREBs, or for old CREB allocations which are not issued by the December 31, 2009 deadline.

History

The federal *Energy Policy Act of 2005* (EPAAct 2005) established Clean Energy Renewable Bonds (CREBs) as a financing mechanism for public sector renewable energy projects. This legislation originally allocated \$800 million of tax credit bonds to be issued between January 1, 2006, and December 31, 2007. Following the enactment of the federal *Tax Relief and Health Care Act of 2006*, the IRS made an additional \$400 million in CREBs financing available for 2008 through Notice 2007-26.

In November 2006, the IRS announced that the original \$800 million allocation had been reserved for a total of 610 projects. The additional \$400 million (plus surrendered volume from the previous allocation) was allocated to 312 projects in February 2008. Of the \$1.2 billion total of tax-credit bond volume cap allocated to fund renewable-energy projects, state and local government borrowers were limited to \$750 million of the volume cap, with the rest reserved for qualified municipal or cooperative electric companies.

For further information on CREBs, contact Zoran Stojanovic or Timothy Jones of the IRS Office of Associate Chief Counsel at (202) 622-3980. Questions on recent IRS Notice 2009-33 can be directed to Janae Lemley at (636) 255-1202.

** In practice, for a variety of reasons, bond issuers have sometimes had to issue the bonds at a discount or make supplemental interest payments in order to find a buyer.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Energy-Efficient Mortgages

Last DSIRE Review: 08/03/2009

Incentive Type: Federal Loan Program

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Technologies: Passive Solar Space Heat, Solar Water Heat, Solar Space Heat, Photovoltaics, Daylighting

Applicable Sectors: Residential

Web Site: <http://www.resnet.us/ratings/mortgages>

Summary:

Homeowners can take advantage of energy efficient mortgages (EEM) to finance a variety of energy efficiency measures, including renewable energy technologies, in a new or existing home. The U.S. federal government supports these loans by insuring them through Federal Housing Authority (FHA) or Veterans Affairs (VA) programs. This allows borrowers who might otherwise be denied loans to pursue energy efficiency improvements, and it secures lenders against loan default.

The federal Energy Star program has a partnership program for lenders whereby lenders who provide EEMs to borrowers may become Energy Star lender partners. These EEMs may or may not be used to purchase an Energy Star qualified home. Becoming a partner allows lenders to utilize the Energy Star brand to promote themselves as Energy Star partners offering EEMs. To become a lender partner lenders must first provide proof that they know how to write EEMs. To maintain their partnership benefits, lenders must write a certain number of EEMs per year. Energy Star does not have a lender certification program or process. Click [here](#) for more information about Energy Star's lender partnership program. As of August 2008, the federal Energy Star program lists 61 private lenders who offer homebuyer assistance, HERS assistance, special financing, and other assistance to applicants buying homes with the Energy Star rating. Energy Star requires that its lender partners provide EEMs to qualified borrowers regardless of whether it is an FHA EEM, Fannie Mae EEM, or VA EEM.

FHA Energy Efficient Mortgages

The FHA allows lenders to add up to 100% of energy efficiency improvements to an existing mortgage loan with certain restrictions. FHA mortgage limits vary by county, state and the number of units in a dwelling. See www.fha.com/lending_limits.cfm for more details. These mortgages were previously limited to \$8,000. In June 2009, HUD issued [Mortgagee Letter 2009-18](#) which announced the removal of the dollar cap. The maximum amount of the portion of an energy efficient mortgage allowed for energy improvements is now the lesser of 5% of:

- The value of the property,
- 115% of the median area price of a single-family dwelling, or
- 150% of the Freddie Mac conforming loan limit

Loan amounts may not exceed the projected savings of the energy efficiency improvements. These loans may be combined with FHA 203 (h) mortgages available to victims of presidentially-declared disasters and with financing offered through the FHA 203 (k) rehabilitation program. FHA loan limits do not apply to the EEM. Homebuyers must submit a Home Energy Rating (HER), contractor bids, and a FHA B Worksheet. This process may become streamlined in 2009 as a result of the Housing and Economic Recovery Act of 2008, which requires HUD to report to congress with ways to remove the administrative barriers and increase consumer participation and awareness of these financing options.

Presently, up to \$200 of the cost of the HER may be included in the mortgage, and borrowers may include closing costs and the up-front mortgage insurance premium in the total cost of the loan. The loan is available to anyone who meets the income requirements for FHA's Section 203 (b), provided the applicant can meet the monthly mortgage payments. New and existing owner-occupied homes of up to two units qualify for this loan. Cooperative units are not eligible. Homebuyers should submit applications to their local HUD Field Office through an FHA-approved lending institution, or they can apply directly online at www.fha.com/energy_efficient.cfm. See also www.hud.gov/offices/hsg/sfh/eem/energy-r.cfm.

Department of Veterans Affairs (VA) Energy Efficient Mortgages

The VA insures EEMs to be used in conjunction with VA loans either for the purchase of existing homes or for refinancing loans secured by the dwelling. Homebuyers may borrow up to \$3,000 if only documentation of improvement costs or contractor bids is submitted, or up to \$6,000 if the projected energy savings are greater than the increase in mortgage payments. Loans may exceed this amount at the discretion of the VA. Applicants may not include the cost of their own labor

in the total amount. No additional home appraisal is needed, but applicants must submit a HER, contractor bids and certain other documentation. The VA insures 50% of the loan if taken by itself, but it may insure less if the total value of the mortgage exceeds a certain amount.

This mortgage is available to qualified military personnel, reservists and veterans. (See www.homeloans.va.gov/elig2.htm for more details). Applicants should secure a certificate of eligibility from their local lending office and submit it to a VA-approved private lender. If the loan is approved, the VA guarantees the loan when it is closed.

Conventional EEMs

Conventional mortgages are not backed by a federal agency. Private lenders sell loans to Fannie Mae and Freddie Mac, which in turn allow homebuyers to borrow up to 15% of an existing home's appraised value for improvements documented by a HER.

Fannie Mae also lends up to 5% for Energy Star new homes. Fannie Mae EEMs are available to single-family, owner-occupied units, and Fannie Mae provides EEMs to those whose income might otherwise disqualify them from receiving the loans by allowing approved lenders to adjust borrowers' debt-to-income ratio by 2%. The value of the improvements is immediately added to the total appraised value of the home.

Freddie Mac offers EEMs for one- to four-unit dwellings and also helps raise the effective income of the borrower to qualifying levels by allowing lenders to increase the borrower's income by a dollar amount equal to the estimated energy savings. Any energy efficiency improvements can qualify, and these mortgages can be combined with both fixed-rate and adjustable-rate mortgages. Borrowers should apply directly to the lender. See www.natresnet.org/resources/lender/default.htm for more details.

Qualified Energy Conservation Bonds (QECCBs)

Last DSIRE Review: 04/14/2009

Incentive Type: Federal Loan Program

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal

Technologies: Electric, Municipal Solid Waste, Hydrokinetic Power, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Local Government, State Government, Tribal Government

Amount: Varies

Authority 1: 26 USC § 54A

Date Enacted: 10/03/2008

Date Effective: 10/03/2008

Authority 2: 26 USC § 54D

Date Enacted: 10/03/2008 (subsequently amended)

Date Effective: 10/03/2008

Authority 3: IRS Notice 2009-29

Date Effective: 04/07/2009

Summary:

The *Energy Improvement and Extension Act of 2008*, enacted in October 2008, authorized the issuance of Qualified Energy Conservation Bonds (QECBs) that may be used by state, local and tribal governments to finance certain types of energy projects. QECBs are qualified tax credit bonds, and in this respect are similar to new Clean Renewable Energy Bonds or CREBs.

The October 2008 enabling legislation set a limit of \$800 million on the volume of energy conservation tax credit bonds that may be issued by state and local governments. However, *The American Recovery and Reinvestment Act of 2009*, enacted in February 2009, expanded the allowable bond volume to \$3.2 billion. In April 2009, the IRS issued Notice 2009-29 providing interim guidance on how the program will operate and how the bond volume will be allocated.

The advantage of these bonds is that they are issued -- theoretically -- with a 0% interest rate. The borrower pays back only the principal of the bond, and the bondholder receives federal tax credits in lieu of the traditional bond interest. The tax credit may be taken quarterly to offset the tax liability of the bondholder. The tax credit rate is set daily by the U.S. Treasury Department; however, energy conservation bondholders will receive only 70% of the full rate set by the Treasury Department under 26 USC § 54A. Credits exceeding a bondholder's tax liability may be carried forward to the succeeding tax year, but cannot be refunded. Energy conservation bonds differ from traditional tax-exempt bonds in that the tax credits issued through the program are treated as taxable income for the bondholder. QECB rates are available here.

In contrast to CREBs, QECBs are not subject to a U.S. Department of Treasury application and approval process. Bond volume is instead allocated to each state based on the state's percentage of the U.S. population as of July 1, 2008. Each state is then required to allocate a portion of its allocation to "large local governments" within the state based on the local government's percentage of the state's population. Large local governments are defined as municipalities and counties with populations of 100,000 or more. Large local governments may reallocate their designated portion back to the state if they choose to do so. IRS Notice 2009-29 contains a list of the QECB allocations for each state and U.S. territory.

The definition of "qualified energy conservation projects" is fairly broad and contains elements relating to energy efficiency capital expenditures in public buildings; renewable energy production; various research and development applications; mass commuting facilities that reduce energy consumption; several types of energy related demonstration projects; and public energy efficiency education campaigns (see H.R. 1424 for additional details). Renewable energy facilities that are eligible for CREBs are also eligible for QECBs.

For more information on QECBs, contact Timothy Jones or David White of the IRS Office of Associate Chief Counsel at (202) 622-3980.

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

U.S. Department of Energy - Loan Guarantee Program

Incentive Type: Federal Loan Program

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Technologies: Solar Thermal Electric, Solar Thermal Process Heat, Photovoltaics, Wind, Hydroelectric, Renewable Transportation Fuels, Geothermal Electric, Fuel Cells, Manufacturing Facilities, Daylighting, Tidal Energy, Wave Energy, Ocean Thermal, Biodiesel

Applicable Sectors: Commercial, Industrial, Nonprofit, Schools, Local Government, State Government, Agricultural, Institutional, Any non-federal entity

Amount: Varies. Program focuses on projects with total project costs over \$25 million.

Max. Limit: None stated

Terms: Full repayment is required over a period not to exceed the lesser of 30 years or 90% of the projected useful life of the physical asset to be financed

Web Site: <http://www.lgprogram.energy.gov>

Authority 1: [42 USC § 16511 et seq.](#)

Authority 2: [10 CFR 609](#)

Summary:

Innovative Technology Loan Guarantee Program:

Title XVII of the federal *Energy Policy Act of 2005* (EPAc 2005) authorized the U.S. Department of Energy (DOE) to issue loan guarantees for projects that "avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." The loan guarantee program has been authorized to offer more than \$10 billion in loan guarantees for energy efficiency, renewable energy and advanced transmission and distribution projects.

DOE actively promotes projects in three categories: (1) manufacturing projects, (2) stand-alone projects, and (3) large-scale integration projects that may combine multiple eligible renewable energy, energy efficiency and transmission technologies in accordance with a staged development scheme. Under the original authorization, loan guarantees were intended to encourage early commercial use of new or significantly improved technologies in energy projects. The loan guarantee program generally does not support research and development projects.

In July 2009, the U.S. DOE issued a new solicitation for projects that employ innovative energy efficiency, renewable energy, and advanced transmission and distribution technologies. Proposed projects must fit within the criteria for "New or Significantly Improved Technologies" as defined in 10 CFR 609. The solicitation provides for a total of \$8.5 billion in funding and is to remain open until that amount is fully obligated. The initial due date for applicants was September 16, 2009.

Temporary Loan Guarantee Program:

The American Recovery and Reinvestment Act of 2009 (ARRA) (H.R. 1), enacted in February 2009, extended the authority of the DOE to issue loan guarantees and appropriated \$6 billion for this program. Under this act, the DOE may enter into guarantees until September 30, 2011. The act amended EPAc 2005 by adding a new section defining eligible technologies for new loan guarantees. Eligible projects include renewable energy projects that generate electricity or thermal energy and facilities that manufacture related components, electric power transmission systems, and innovative biofuels projects. Funding for biofuels projects is limited to \$500 million. Davis-Bacon wage requirements apply to any project receiving a loan guarantee.

In October 2009, the U.S. DOE issued a new solicitation for traditional renewable energy generation projects. The solicitation is funded with \$750 million in ARRA funding and is expected to support as much as \$4 to 8 billion in lending to eligible projects. The initial deadline for submissions under this solicitation is November 23, 2009.

Contact:

Public Information - DOE

U.S. Department of Energy
1000 Independence Avenue, SW
Washington , DC 20585-0121

Phone: (202) 586-8336

E-Mail: LGProgram@hq.doe.gov

Web Site: <http://www.lgprogram.energy.gov>

USDA - Rural Energy for America Program (REAP) Loan Guarantees

Last DSIRE Review: 05/27/2009

Incentive Type: Federal Loan Program

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Solar Water Heat, Solar Space Heat, Solar Thermal Electric, Photovoltaics, Wind, Biomass,

Technologies: Hydroelectric, Renewable Transportation Fuels, Geothermal Electric, Geothermal Heat Pumps, CHP/Cogeneration, Hydrogen, Direct-Use Geothermal, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Renewable Fuels, Fuel Cells using Renewable Fuels, Microturbines

Applicable Sectors: Commercial, Agricultural

Amount: Varies

Max. Limit: \$25 million per loan guarantee

Web Site: <http://www.rurdev.usda.gov/rbs/busp/bprogs.htm>

Authority 1: [7 USC § 8106](#)

Date Enacted: 5/13/2002

Date Effective: FY 2003

Summary:

NOTE: The U.S. Department of Agriculture's Rural Development has issued a Notice of Solicitation of Applications for the Rural Energy for America Program (REAP). The deadline to apply for grants and loan guarantees under this solicitation is July 31, 2009. Grants and loan guarantees will be awarded for investments in renewable energy systems, energy efficiency improvements and renewable energy feasibility studies.

The Food, Conservation, and Energy Act of 2008 (H.R. 2419), enacted by Congress in May 2008, converted the federal Renewable Energy Systems and Energy Efficiency Improvements Program,* into the Rural Energy for America Program (REAP). Similar to its predecessor, the REAP promotes energy efficiency and renewable energy for agricultural producers and rural small businesses through the use of (1) grants and loan guarantees for energy efficiency improvements and renewable energy systems, and (2) grants for energy audits and renewable energy development assistance. Congress has allocated funding for the new program in the following amounts: \$55 million for FY 2009, \$60 million for FY 2010, \$70 million for FY 2011, and \$70 million for FY 2012. REAP is administered by the U.S. Department of Agriculture (USDA).

Of the total REAP funding available, 96% is dedicated to grants and loan guarantees for energy efficiency improvements and renewable energy systems. These incentives are available to agricultural producers and rural small businesses to purchase renewable energy systems (including systems that may be used to produce and sell electricity), to make energy efficiency improvements, and to conduct relevant feasibility studies. Eligible renewable energy projects include wind, solar, biomass and geothermal; and hydrogen derived from biomass or water using wind, solar or geothermal energy sources. These grants are limited to 25% of a proposed project's cost, and a loan guarantee may not exceed \$25 million. The combined amount of a grant and loan guarantee may not exceed 75% of the project's cost. In general, a minimum of 20% of the funds available for these incentives will be dedicated to grants of \$20,000 or less. The USDA likely will announce the availability of funding for this component of REAP through a Notice of Funds Availability (NOFA).

The USDA will also make competitive grants to eligible entities to provide assistance to agricultural producers and rural small businesses "to become more energy efficient" and "to use renewable energy technologies and resources." These grants are generally available to state government entities, local governments, tribal governments, land-grant colleges and universities, rural electric cooperatives and public power entities, and other entities, as determined by the USDA. These grants may be used for conducting and promoting energy audits; and for providing recommendations and information related to energy efficiency and renewable energy. Of the total REAP funding available, 4% is dedicated to competitive grants to provide assistance to agricultural producers and rural small businesses.

* *The Renewable Energy Systems and Energy Efficiency Improvements Program was created by the USDA pursuant to Section 9006 of the 2002 federal Farm Security and Rural Investment Act of 2002. Funding in the amount of \$23 million per year was appropriated for each fiscal year from FY 2003-2007. In March 2008, the USDA announced that it would accept \$220.9 million in applications for grants, loan guarantees, and loan/grant combination packages under the Renewable Energy Systems and Energy Efficiency Improvements Program. The application deadline was June 16, 2008.*

Contact:

Public Information - RBS

U.S. Department of Agriculture
Rural Business - Cooperative Service
USDA/RBS, Room 5045-S, Mail Stop 3201
1400 Independence Avenue SW
Washington, DC 20250-3201

Phone: (202) 690-4730

Fax: (202) 690-4737

E-Mail: webmaster@rurdev.usda.gov

Web Site: <http://www.rurdev.usda.gov/rbs>

Qualifying Advanced Energy Manufacturing Investment Tax Credit

Incentive Type: Industry Recruitment/Support

State: Federal

Eligible Efficiency

Technologies: Lighting, Lighting Controls/Sensors, Energy Conservation Technologies; Smart Grid

Eligible Renewable/Other Solar Water Heat, Solar Thermal Electric, Photovoltaics, Wind, Geothermal Electric, Fuel Cells,

Technologies: Geothermal Heat Pumps, Batteries and Energy Storage; Advanced Transmission Technologies that Support Renewable Energy Generation; , Renewable Fuels, Fuel Cells using Renewable Fuels, Microturbines

Applicable Sectors: Commercial, Industrial, Manufacturing

Amount: 30% of qualified investment

Max. Limit: Total amount of credits to be allocated shall not exceed \$2.3 billion

Terms: Apply first to the Department of Energy (DOE); must receive recommendation and ranking from DOE in order to apply to the Internal Revenue Service for certification of credits

Web Site: <http://www.energy.gov/recovery/48C.htm>

Authority 1: 26 USCS § 48C

Date Enacted: 02/17/2009

Date Effective: 02/17/2009

Summary:

The U.S. Treasury Department, in consultation with the U.S. Department of Energy (DOE), is no longer accepting applications for this tax credit. The applications were due to DOE by September 16, 2009 with final applications due to DOE October 16, 2009. Only applicants accepted and ranked by the DOE will be allowed to submit final applications to the Internal Revenue Service (IRS) by December 16, 2009. IRS will certify or reject applications by January 10, 2010 and notify the certified projects of the approved amount of their tax credit.

The American Recovery and Reinvestment Act of 2009 (H.R. 1), enacted in February 2009, established a new investment tax credit to encourage the development of a U.S.-based renewable energy manufacturing sector. In any taxable year, the investment tax credit is equal to 30% of the qualified investment required for an advanced energy project that establishes, re-equips or expands a manufacturing facility that produces any of the following:

- Equipment and/or technologies used to produced energy from the sun, wind, geothermal or "other" renewable resources
- Fuel cells, microturbines or energy-storage systems for use with electric or hybrid-electric motor vehicles
- Equipment used to refine or blend renewable fuels
- Equipment and/or technologies to produce energy-conservation technologies (including energy-conserving lighting technologies and smart grid technologies)*

Qualified investments generally include personal tangible property that is depreciable and required for the production process. Other tangible property may be considered a qualified investment only if it is an essential part of the facility, excluding buildings and structural components.

The U.S. Treasury Department will issue certifications for qualified investments eligible for credits to qualifying advanced energy project sponsors. In total, \$2.3 billion worth of credits may be allocated under the program. After certification is granted, the taxpayer has one year to provide additional evidence that the requirements of the certification have been met and three years to put the project in service. There are provisions for credit recapture for non-compliance.

In determining which projects to certify, the U.S. Treasury Department must consider those which most likely will be commercially viable, provide the greatest domestic job creation, provide the greatest net reduction of air pollution and/or greenhouse gases, have great potential for technological innovation and commercial deployment, have the lowest levelized cost of generated (or stored) energy *or* the lowest levelized cost of reduction in energy consumption or greenhouse gas emissions, *and* have the shortest project time.

Any taxpayer receiving this credit may not also receive business energy investment tax credit.

See U.S. DOE Advanced Energy Manufacturing Tax Credit (48C) Website for the DOE application and guidance, the IRS application, as well as the email for submitting the application.

**Note: This credit may be expanded in the future to include other energy technologies that reduce greenhouse gas emissions, as determined by the U.S. Treasury Department.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Residential Energy Conservation Subsidy Exclusion (Personal)

Last DSIRE Review: 07/27/2009

Incentive Type: Personal Exemption

State: Federal

Eligible Efficiency

Technologies: Yes; specific technologies not identified

Eligible Renewable/Other Solar Water Heat, Solar Space Heat, Photovoltaics

Technologies:

Applicable Sectors: Residential, Multi-Family Residential

Amount: 100% of subsidy

Terms: Applies to energy conservation measures on dwelling units only

Web Site: <http://www.irs.gov/publications/p525/index.html>

Authority 1: [26 USC § 136](#)

Date Enacted: 1992

Summary:

According to Section 136 of the U.S. Code, energy conservation subsidies provided by public utilities,* either directly or indirectly, are nontaxable: "Gross income shall not include the value of any subsidy provided (directly or indirectly) by a public utility to a customer for the purchase or installation of any energy conservation measure." (This exclusion does *not* apply to electricity-generating systems registered as "qualifying facilities" under the Public Utility Regulatory Policy Act of 1978.)

The term "energy conservation measure" includes installations or modifications primarily designed to reduce consumption of electricity or natural gas, or improve the management of energy demand. Eligible dwelling units include houses, apartments, condominiums, mobile homes, boats and similar properties. If a building or structure contains both dwelling and other units, any subsidy must be properly allocated.

Given the definition of "energy conservation measure," there is strong evidence that utility rebates for residential solar-thermal projects and solar-electric systems may be nontaxable. However, the IRS has not ruled definitively on this issue. For taxpayers considering using this provision for renewable energy systems, consultation with a tax professional is advised.

Other types of utility subsidies that may come in the form of credits or reduced rates may also be nontaxable, according to IRS Publication 525:

"Utility rebates. If you are a customer of an electric utility company and you participate in the utility's energy conservation program, you may receive on your monthly electric bill either: a reduction in the purchase price of electricity furnished to you (rate reduction), or a nonrefundable credit against the purchase price of the electricity. The amount of the rate reduction or nonrefundable credit is not included in your income."

** The term "public utility" is defined as an entity "engaged in the sale of electricity or natural gas to residential, commercial, or industrial customers for use by such customers." The term includes federal, state and local government entities.*

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Residential Energy Efficiency Tax Credit

Incentive Type: Personal Tax Credit

State: Federal

Eligible Efficiency Technologies: Water Heaters, Furnaces, Boilers, Heat pumps, Air conditioners, Building Insulation, Windows, Doors, Roofs, Circulating fans used in a qualifying furnace

Eligible Renewable/Other Technologies: Biomass, Stoves that use qualified biomass fuel

Applicable Sectors: Residential

Amount: 30%

Maximum Incentive: Aggregate amount of credit for all technologies placed in service in 2009 and 2010 combined is limited to \$1,500

Equipment/Installation Requirements: Equipment must be new and in compliance with all applicable performance and safety standards as described in tax code

Web Site: <http://www.energystar.gov/taxcredits>

Authority 1: [26 USC § 25C](#)

Date Enacted: 8/8/2005 (subsequently amended)

Date Effective: 1/1/2006

Expiration Date: 12/31/2010

Summary:

The federal tax credit for energy-efficient home improvements was established by the *Energy Policy Act of 2005*. After expiring December 31, 2007, the credit was extended and expanded by [The Energy Improvement and Extension Act of 2008](#) (H.R. 1424: Div. B, Sec. 302) and [The American Recovery and Reinvestment Act of 2009](#) (H.R. 1: Div. B, Sec. 1121). The credit now applies to eligible equipment purchased between January 1, 2009, and December 31, 2010. In addition to extending the credit, H.R. 1424 and H.R. 1 strengthened the efficiency requirements for most equipment, extended the credit to stoves that use biomass fuel and asphalt roofs with appropriate cooling granules; raised the cap for the credit; and redesigned the way the credit is calculated.

The credit applies to energy efficiency improvements in the building envelope of existing homes and for the purchase of high-efficiency heating, cooling and water-heating equipment. Efficiency improvements or equipment must serve a dwelling in the United States that is owned and used by the taxpayer as a primary residence. The maximum amount of homeowner credit for all improvements combined is \$1,500 for equipment purchased during the two-year period of 2009 and 2010.

Building Envelope Improvements

Owners of existing homes receive a tax credit worth 30% of the cost of upgrading the efficiency of the building's envelope. Installation (labor) costs are not included. The following improvements are eligible for the tax credit:

- Insulation materials and systems designed to reduce a home's heat loss or gain
- Exterior doors and windows (including skylights) and
- Pigmented metal roofs designed to reduce heat gain, and asphalt roofs with appropriate cooling granules.

Heating, Cooling and Water-Heating Equipment

Taxpayers who purchase qualified residential energy-efficient property are eligible for a tax credit worth 30% of the system cost, *including* labor costs. The credit may also be applied to labor costs for assembly and original installation of eligible property. The following types of equipment are eligible:

- Electric heat pump water heaters
- Electric heat pumps
- Central air conditioners
- Natural gas, propane or oil water heaters
- Natural gas, propane or oil furnace or hot water boilers
- Advanced main air circulating fans
- Biomass stoves that use "plant-derived fuel available on a renewable or recurring basis, including agricultural

crops and trees, wood and wood waste and residues (including wood pellets), plants (including aquatic plants), grasses, residues, and fibers"

Performance and quality standards for tax credit eligibility vary by technology. (See 26 USC § 25C, H.R. 1424 of 2008 and H.R. 1 of 2009) for details. Additionally, the [Energy Star web site](#) offers detailed information on qualifying products, and [IRS Notice 2009-53](#) provides more details.

Significantly, *The American Recovery and Reinvestment Act of 2009* repealed a previous limitation on the use of the credit for eligible projects also supported by "subsidized energy financing." For projects placed in service after December 31, 2008, this limitation no longer applies. Businesses that receive other incentives are advised to consult with a tax professional regarding how to calculate this federal tax credit.

Background

The [Energy Policy Act of 2005](#) established the tax credit for energy improvements to existing homes. The credit was originally limited to purchases made in 2006 and 2007, with an aggregate cap of \$500 for all qualifying purchases made in these two years combined. There were also separate individual caps for the different equipment types. H.R. 1424 of 2008 reinstated the credit for 2009 purchases and made other minor adjustments. H.R. 1 further extended the credit to include purchases made in 2010 and replaced the \$500 aggregate cap with a \$1,500 aggregate cap for installations made in 2009 and 2010. Tax credits for installations made in 2006 and 2007 are still limited to \$500. Any purchase made in 2008 is not eligible for this tax credit.

Geothermal heat pumps were originally eligible for this credit, with a \$300 cap. However, geothermal heat pumps are now eligible for the [residential renewable energy tax credit](#), with no cap.

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Residential Renewable Energy Tax Credit

Last DSIRE Review: 02/19/2009

Incentive Type: Personal Tax Credit

State: Federal

Eligible Renewable/Other Technologies: Solar Water Heat, Photovoltaics, Wind, Fuel Cells, Geothermal Heat Pumps, Other Solar

Technologies: Electric Technologies

Applicable Sectors: Residential

Amount: 30%

Maximum Incentive: Solar-electric systems placed in service before 1/1/2009: \$2,000
Solar-electric systems placed in service after 12/31/2008: no maximum
Solar water heaters placed in service before 1/1/2009: \$2,000
Solar water heaters placed in service after 12/31/2008: no maximum
Wind turbines placed in service in 2008: \$4,000
Wind turbines placed in service after 12/31/2008: no maximum
Geothermal heat pumps placed in service in 2008: \$2,000
Geothermal heat pumps placed in service after 12/31/2008: no maximum
Fuel cells: \$500 per 0.5 kW

Carryover Provisions: Excess credit may be carried forward to succeeding tax year

Eligible System Size: Fuel cells: 0.5 kW minimum

Equipment/Installation Requirements: Solar water heating property must be certified by SRCC or by comparable entity endorsed by the state in which the system is installed. At least half the energy used to heat the dwelling's water must be from solar. Geothermal heat pumps must meet federal Energy Star requirements. Fuel cells must have electricity-only generation efficiency greater than 30%.

Authority 1: 26 USC § 25D

Date Enacted: 8/8/2005 (subsequently amended)

Date Effective: 1/1/2006

Expiration Date: 12/31/2016

Authority 2: IRS Form 5695 & Instructions: Residential Energy Credits

Summary:

Note: *The American Recovery and Reinvestment Act of 2009 does not allow taxpayers eligible for the residential renewable energy tax credit to receive a U.S. Treasury Department grant instead of taking this credit.*

Established by the federal *Energy Policy Act of 2005*, the federal tax credit for residential energy property initially applied to solar-electric systems, solar water heating systems and fuel cells. *The Energy Improvement and Extension Act of 2008* (H.R. 1424) extended the tax credit to small wind-energy systems and geothermal heat pumps, effective January 1, 2008. Other key revisions included an eight-year extension of the credit to December 31, 2016, the ability to take the credit against the alternative minimum tax, and the removal of the \$2,000 credit limit for solar-electric systems beginning in 2009. The credit was further enhanced in February 2009 by *The American Recovery and Reinvestment Act of 2009* (H.R. 1: Div. B, Sec. 1122, p. 46), which removed the maximum credit amount for all eligible technologies (except fuel cells) placed in service after 2008.

A taxpayer may claim a credit of 30% of qualified expenditures for a system that serves a dwelling unit located in the United States and used as a residence by the taxpayer. Expenditures with respect to the equipment are treated as made when the installation is completed. If the installation is on a new home, the "placed in service" date is the date of occupancy by the homeowner. Expenditures include labor costs for onsite preparation, assembly or original system installation, and for piping or wiring to interconnect a system to the home. If the federal tax credit exceeds tax liability, the excess amount may be carried forward to the succeeding taxable year. The excess credit can be carried forward until 2016, but it is unclear whether the unused tax credit can be carried forward after then. The maximum allowable credit, equipment requirements and other details vary by technology, as outlined below.

Solar-electric property

- There is no maximum credit for systems placed in service after 2008. The maximum credit is \$2,000 for systems placed in service before January 1, 2009.
- Systems must be placed in service on or after January 1, 2006, and on or before December 31, 2016.
- The home served by the system does *not* have to be the taxpayer's principal residence.
- Note that the Solar Energy Industries Association (SEIA) has published a [three-page document](#) that provides answers to frequently asked questions regarding the federal tax credits for solar energy.

Solar water-heating property

- There is no maximum credit for systems placed in service after 2008. The maximum credit is \$2,000 for systems placed in service before January 1, 2009.
- Systems must be placed in service on or after January 1, 2006, and on or before December 31, 2016.
- Equipment must be certified for performance by the Solar Rating Certification Corporation (SRCC) or a comparable entity endorsed by the government of the state in which the property is installed.
- At least half the energy used to heat the dwelling's water must be from solar in order for the solar water-heating property expenditures to be eligible.
- The tax credit does not apply to solar water-heating property for swimming pools or hot tubs.
- The home served by the system does *not* have to be the taxpayer's principal residence.
- Note that the Solar Energy Industries Association (SEIA) has published a [three-page document](#) that provides answers to frequently asked questions regarding the federal tax credits for solar energy.

Fuel cell property

- The maximum credit is \$500 per half kilowatt (kW).
- Systems must be placed in service on or after January 1, 2006, and on or before December 31, 2016.
- The fuel cell must have a nameplate capacity of at least 0.5 kW of electricity using an electrochemical process and an electricity-only generation efficiency greater than 30%.
- In case of joint occupancy, the maximum qualifying costs that can be taken into account by all occupants for figuring the credit is \$1,667 per half kilowatt. This does not apply to married individuals filing a joint return. The credit that may be claimed by each individual is proportional to the costs he or she paid.
- The home served by the system *must* be the taxpayer's principal residence.

Small wind-energy property

- There is no maximum credit for systems placed in service after 2008. The maximum credit is \$500 per half kilowatt, not to exceed \$4,000, for systems placed in service in 2008.
- Systems must be placed in service on or after January 1, 2008, and on or before December 31, 2016.
- The home served by the system does *not* have to be the taxpayer's principal residence.

Geothermal heat pumps

- There is no maximum credit for systems placed in service after 2008. The maximum credit is \$2,000 for systems placed in service in 2008.
- Systems must be placed in service on or after January 1, 2008, and on or before December 31, 2016.
- The geothermal heat pump must meet federal Energy Star program requirements in effect at the time the installation is completed.
- The home served by the system does *not* have to be the taxpayer's principal residence.

Significantly, *The American Recovery and Reinvestment Act of 2009* repealed a previous limitation on the use of the credit for eligible projects also supported by "subsidized energy financing." For projects placed in service after December 31, 2008,

this limitation no longer applies.

History

The federal *Energy Policy Act of 2005* established a 30% tax credit (up to \$2,000) for the purchase and installation of residential solar electric and solar water heating property and a 30% tax credit (up to \$500 per 0.5 kilowatt) for fuel cells. Initially scheduled to expire at the end of 2007, the tax credits were extended through December 31, 2008, by the *Tax Relief and Health Care Act of 2006*.

In October 2008, the *Energy Improvement and Extension Act of 2008* extended the tax credits once again (until December 31, 2016), and a new tax credit for small wind-energy systems and geothermal heat pump systems was created. In February 2009, *The American Recovery and Reinvestment Act of 2009* removed the maximum credit amount for all eligible technologies (except fuel cells) placed in service after 2008.

Contact:

Public Information - IRS

U.S. Internal Revenue Service
1111 Constitution Avenue, N.W.
Washington, DC 20224

Phone: (800) 829-1040

Web Site: <http://www.irs.gov>

Renewable Energy Production Incentive (REPI)

Last DSIRE Review: 03/18/2009

Incentive Type: Production Incentive

State: Federal

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Geothermal Electric, Anaerobic Digestion, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Local Government, State Government, Tribal Government, Municipal Utility, Rural Electric Cooperative, Native Corporations

Amount: 2.1¢/kWh (subject to availability of annual appropriations in each federal fiscal year of operation)

Terms: 10 years

Web Site: <http://apps1.eere.energy.gov/repi>

Authority 1: [42 USC § 13317](#)

Date Enacted: 10/24/1992 (subsequently amended)

Authority 2: [10 CFR 451](#)

Summary:

Note: *Contact the program administrator to find out the current funding status of this program.*

Established by the federal *Energy Policy Act of 1992*, the federal Renewable Energy Production Incentive (REPI) provides incentive payments for electricity generated and sold by new qualifying renewable energy facilities. Qualifying systems are eligible for annual incentive payments of 1.5¢ per kilowatt-hour in 1993 dollars (indexed for inflation) for the first 10-year period of their operation, *subject to the availability of annual appropriations in each federal fiscal year of operation*. REPI was designed to complement the federal [renewable energy production tax credit](#) (PTC), which is available only to businesses that pay federal corporate taxes.

Qualifying systems must generate electricity using solar, wind, geothermal (with certain restrictions), biomass (excluding municipal solid waste), landfill gas, livestock methane, or ocean resources (including tidal, wave, current and thermal). The production payment applies only to the electricity sold to another entity. Eligible electric production facilities include not-for-profit electrical cooperatives, public utilities, state governments and political subdivisions thereof, commonwealths, territories and possessions of the United States, the District of Columbia, Indian tribal governments or political subdivisions thereof, and Native Corporations.

Payments may be made only for electricity generated from an eligible facility first used before October 1, 2016. Appropriations have been *authorized* for fiscal years 2006 through fiscal year 2026. If there are insufficient appropriations to make full payments for electricity production from all qualified systems for a federal fiscal year, 60% of the appropriated funds for the fiscal year will be assigned to facilities that use solar, wind, ocean, geothermal or closed-loop biomass technologies; and 40% of the appropriated funds for the fiscal year will be assigned to other eligible projects. Funds will be awarded on a pro rata basis, if necessary.

Contact:

Christine Carter

U.S. Department of Energy
1617 Cole Blvd.

Golden, CO 80401-3393

E-Mail: christine.carter@go.doe.gov

Web Site: <http://www.energy.gov>

Information Specialist - REPI

U.S. Department of Energy
Washington, DC

E-Mail: repi@ee.doe.gov

Web Site: <http://www.energy.gov>

Rules, Regulations & Policies Federal Appliance Standards

Last DSIRE Review: 05/13/2009

Incentive Type: Appliance/Equipment Efficiency Standards

State: Federal

Eligible Efficiency Technologies: Clothes Washers, Dishwasher, Refrigerators/Freezers, Dehumidifiers, Ceiling Fan, Water Heaters, Lighting, Furnaces, Boilers, Heat pumps, Air conditioners, Motors, Exit and traffic signs, unit heaters, transformers, others

Applicable Sectors: Industrial, (Product Manufacturers)

Equipment Requirements Specified in Code of Federal Regulations

Test Methods Varies

Implementing Agency U.S. Department of Energy

Web Site: http://www.eere.energy.gov/buildings/appliance_standards

Authority 1: [EPACT 2005 § 135](#)

Date Enacted: 8/8/2005

Authority 2: [10 CFR 430](#)

Authority 3: [10 CFR 431](#)

Summary:

Minimum standards of energy efficiency for many major appliances were established by the U.S. Congress in the federal Energy Policy and Conservation Act (EPCA) of 1975, and have been subsequently amended by succeeding energy legislation, including the federal Energy Policy Act of 2005. The U.S. Department of Energy (DOE) is required to set appliance efficiency standards at levels that achieve the maximum improvement in energy efficiency that is technologically feasible and economically justified. The DOE web site lists updates and final rulings for 19 residential product categories and 14 commercial product categories.

The Energy Independence and Security Act of 2007 (EISA), established new standards for a few equipment types not already subjected to a standard, and updated some existing standards. Perhaps the most significant new standard that EISA 2007 established is for general service lighting which will be deployed in two phases. First, by 2012-2014 (phasing in over several years), common light bulbs will be required to use about 20-30% less energy than present incandescent bulbs. Second, by 2020, light bulbs must consume 60% less energy than today's bulbs; this requirement will effectively phase out the incandescent light bulb.

The president issued a [Memorandum for the Secretary of Energy](#) in February of 2009 requesting the DOE to take all necessary steps to finalize outstanding efficiency standards as expeditiously as possible. Such standards include those with deadlines prior to and including August 8, 2009. The memorandum also calls on the DOE to prioritize the development of efficiency standards for the remaining product categories based on energy savings. Standards that will result in the greatest energy savings should be developed first, however, the DOE must ensure that it meets applicable deadlines for all standards.

Note: Several states have adopted their own appliance standards. Under the general rules of federal preemption, states which had set standards prior to federal enactment may enforce their state standards up until the federal standards become effective. States that have not set standards for a product category that is now enforced by the federal government are subject to the federal standard immediately.

Contact:

Public Information - DOE

U.S. Department of Energy
Office of Building Technology Assistance
1000 Independence Avenue, EE-42
Washington, DC 20585

Phone: (877) 337-3463

Web Site: <http://www.eere.energy.gov/buildings>

Energy Goals and Standards for Federal Government

Last DSIRE Review: 10/07/2009

Incentive Type: Energy Standards for Public Buildings

State: Federal

Eligible Efficiency

Technologies: Comprehensive Measures/Whole Building, Yes; specific technologies not identified

Eligible Renewable/Other Solar Water Heat, Other Distributed Generation Technologies

Technologies:

Applicable Sectors: Fed. Government

Goal: Total energy reduction goal of 30% by FY 2015, using FY 2003 as baseline

Requirement: Energy efficiency specs required in procurement bids and evaluations. Requires premium efficient products for a variety of equipment types. New federal buildings must be designed 30% below ASHRAE standards or IECC, and obtain 30% of their hot water demand from solar water heating, if life-cycle cost-effective.

Web Site: http://www1.eere.energy.gov/femp/regulations/requirements_by_subject.html

Authority 1: Energy Policy Act 2005 (sec. 102, 104, 109)

Date Enacted: 8/8/2005

Authority 2: Executive Order 13423

Date Enacted: 1/24/2007

Date Effective: 1/24/2007

Authority 3: Energy Independence and Security Act 2007 (sec. 431, 523)

Date Enacted: 12/19/2007

Date Effective: 12/19/2007

Authority 4: Executive Order 13514

Date Enacted: 10/5/2009

Date Effective: 10/5/2009

Summary:

The federal Energy Policy Act of 2005 (EPAAct 2005) established several goals and standards to reduce energy use in existing and new federal buildings. Executive Order 13423, signed in January 2007, expanded on those goals and standards and was later reaffirmed by congress with the Energy Independence and Security Act of 2007 (EISA 2007). EISA 2007 extended an existing federal energy reduction goal to 30% by fiscal year 2015; directed federal agencies to purchase Energy Star and Federal Energy Management Program (FEMP)-designated products; and required new federal buildings to be built 30% below ASHRAE* standards or the International Energy Conservation Code (IECC).

Most recently, Executive Order 13514, signed in October 2009, created a series of new requirements aimed at increasing the sustainability of all federal agencies. To help achieve these goals, the Executive Order requires all federal agencies to appoint a Senior Sustainability Officer who will prepare and implement a Strategic Sustainability Performance Plan for the agency.

Section 431 of EISA 2007 increased the federal energy reduction goal from 2% per year (as established by EPAAct 2005) to 3% per year, resulting in 30% greater efficiency by 2015. The reporting baseline for energy savings is 2003, so that energy consumption per gross square foot of federal buildings is reduced, compared to energy consumption in 2003. The specified percentage reductions for each fiscal year are:

- FY 20062%
- FY 20074%
- FY 20089%
- FY 200912%
- FY 201015%

- FY 201118%
- FY 201221%
- FY 201324%
- FY 201427%
- FY 201530%

Under EAct 2005, federal agencies are permitted to retain savings achieved through energy and water reductions. To help achieve these energy reductions, new construction and major renovation of agency buildings must comply with the "Guiding Principles for Federal Leadership in High Performance and Sustainable Buildings" set forth in the *Federal Leadership in High Performance and Sustainable Buildings Memorandum of Understanding (2006)*. The U.S. Department of Energy (DOE) is charged with recommending new requirements for federal energy performance for FY 2016 - FY 2025 by December 31, 2014.

Section 104 of EAct 2005 directed federal agencies to purchase Energy Star and FEMP-designated products when procuring energy-consuming items covered by the Energy Star program, except when purchasing such items is not cost-effective or does not meet functional requirements of the agency. Agencies must also incorporate energy-efficient specifications in procurement bids and evaluations, and must only purchase premium efficient electric motors, air conditioning and refrigeration equipment. EAct 2005 also instructed the General Services Administration (GSA) and the U.S. Department of Defense to clearly identify and display Energy Star and FEMP-designated products in any inventory, catalog or product listing. The Executive Orders additionally made requirements specifically for electronic equipment purchased by federal agencies. According to the Executive Orders, electronic equipment must be registered by the Electronic Product Environmental Assessment Tool (EPEAT), Energy Star, or FEMP unless there is no standard for such product.

Section 109 of EAct 2005 required new federal buildings to be designed 30% below ASHRAE standards or IECC, to the extent that technologies employed are life-cycle cost-effective. In addition, sustainable design principles must be applied to new and replacement buildings. All agencies must identify new building projects in their budget requests and identify those that meet or exceed the standard.

Section 523 of the EISA 2007 requires that at least 30% of the hot water demand for each new federal building or existing federal buildings undergoing a major renovation be met through the use of solar hot water heating, if it is determined to be life-cycle cost-effective.

The executive orders also call for agencies to reduce water consumption intensity when cost-effective. Additionally, agencies that operate fleets of at least 20 vehicles are also required to reduce their fleet's total consumption of petroleum products by 2% annually through 2015, while *increasing* their consumption of non-petroleum-based fuel by 10% per year. Agencies are also required to purchase plug-in hybrid vehicles when life-cycle cost analysis demonstrates their cost to be reasonably similar to other vehicles.

The Energy Policy Act of 2005 established green power purchasing goals for the federal government, whereby the 7.5% of electricity used by federal agencies must be obtained from renewable sources by 2013. Executive Order 13423 now requires at least half of the required renewable energy consumed by an agency in a fiscal year to come from sources placed in service in 1999 or later.

* ASHRAE is the acronym for the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

Contact:

Public Information - FEMP
 U.S. Department of Energy
 Federal Energy Management Program
 EE-2L
 1000 Independence Ave., SW
 Washington, DC 20585-0121
Phone: (202) 586-5772
Fax: (202) 586-3000
Web Site: <http://www1.eere.energy.gov/femp>

U.S. Federal Government - Green Power Purchasing Goal

Incentive Type: Green Power Purchasing/Aggregation

State: Federal

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, Municipal Solid Waste, Tidal Energy, Wave Energy, Ocean Thermal

Applicable Sectors: Fed. Government

% Renewables: 3% in fiscal years 2007-2009;
5% in fiscal years 2010-2012;
7.5% in fiscal year 2013 and thereafter

Source: At least half of the required renewable energy must come from new renewable sources

Appropriation: Commercialization Program - \$50 million for each FY 2006-2010
Evaluation Program - \$10 million for each FY 2006-2010

Web Site: http://www1.eere.energy.gov/femp/renewable_energy/renewable_fedrequire.html

Authority 1: [42 USC § 15852](#)

Date Enacted: 8/8/2005

Authority 2: [Executive Order 13423](#)

Date Enacted: 1/24/2007

Date Effective: 1/24/2007

Summary:

The federal Energy Policy Act of 2005 (EPAAct 2005) extended and expanded several previous goals and standards to reduce energy use in existing and new federal buildings. Section 203 of EPAAct 2005 requires that, to the extent it is economically feasible and technically practicable, the total amount of renewable electric energy consumed by the federal government during any fiscal year shall not be less than the following:

- 3% in fiscal years 2007-2009
- 5% in fiscal years 2010-2012
- 7.5% in fiscal year 2013 thereafter

The amount of renewable-energy credit is doubled for electricity produced and used on-site at a federal facility, produced on federal lands and used at a federal facility, or if it is produced on Indian land as defined in title XXVI of the Energy Policy Act of 1992 and used at a federal facility.

Renewable electrical energy technologies defined in this section include solar, wind, biomass, landfill gas, ocean (including tidal, wave, current and thermal), geothermal, municipal solid waste, and new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project. Executive Order 13423, issued in January 2007, requires at least half of the mandated renewable energy consumed by an agency in a fiscal year to be generated by systems sources placed into service after January 1, 1999.

Section 204 of EPAAct 2005 establishes a photovoltaic (PV) energy commercialization program for the procurement and installation of PV systems in public and federal buildings. It requires the installation of 20,000 solar-energy systems on federal buildings by 2010, as contained in the federal Million Solar Roof Initiative (MSRI) of 1997. The commercialization program has been appropriated \$50 million annually for fiscal years 2006–2010, until funds are expended. An evaluation program has been appropriated \$10 million annually for fiscal years 2006-2010, until funds are expended.

The Federal Energy Management Program (FEMP) has issued guidelines to help federal agencies meet energy management and renewable energy requirements for complying with EPAAct 2005 and Executive Order 13423. For an overview of these requirements and for updates on progress in meeting the federal renewable-energy goals, see the [FEMP web site](#).

Contact:

Public Information - FEMP

U.S. Department of Energy
Federal Energy Management Program
EE-2L

1000 Independence Ave., SW
Washington, DC 20585-0121

Phone: (202) 586-5772

Fax: (202) 586-3000

Web Site: <http://www1.eere.energy.gov/femp>

Interconnection Standards for Small Generators

Incentive Type: Interconnection

State: Federal

Eligible Renewable/Other Technologies: Solar Thermal Electric, Photovoltaics, Landfill Gas, Wind, Biomass, Hydroelectric, Geothermal Electric, CHP/Cogeneration, Anaerobic Digestion, Small Hydroelectric, Tidal Energy, Wave Energy, Ocean Thermal, Microturbines, Other Distributed Generation Technologies

Applicable Sectors: Commercial, Industrial, Residential, Nonprofit, Schools, Local Government, State Government, Tribal Government, Fed. Government, Agricultural, Institutional

Applicable Utilities: FERC standards generally apply to all transmission-level interconnection; state standards generally apply to distribution-level interconnection

System Capacity Limit: 20 MW

Standard Agreement: Yes

Insurance Requirements: "Additional liability insurance" required only "if necessary as a function of owning and operating a generating facility"

External Disconnect

Switch: Not addressed

Net Metering Required: No

Authority 1: FERC Order No. 2006

Date Enacted: 5/12/2005

Authority 2: FERC Order No. 2006-A

Date Enacted: 11/22/2005

Authority 3: FERC Order No. 2006-B

Date Enacted: 7/20/2006

Summary:

The Federal Energy Regulatory Commission (FERC) adopted "small generator" interconnection standards for distributed energy resources up to 20 megawatts (MW) in capacity in May 2005.* The FERC's standards apply only to facilities subject to the jurisdiction of the commission; mostly, these are systems that interconnect at the transmission level. The standards generally do not apply to distribution-level interconnection, which is regulated by state public utilities commissions. However, the FERC has noted that its interconnection standards for small generators should serve as a useful model for state-level standards.

The FERC's standards include a Small Generator Interconnection Procedures (SGIP) document and a Small Generator Interconnection Agreement (SGIA). The SGIP contains the technical procedures that the small generator and utility must follow in the course of connecting the generator with the utility's lines. The SGIA contains the contractual provisions for the interconnection and spells out who pays for improvements to the utility's electric system, if needed to complete the interconnection. The standards include provisions for three levels of interconnection:

- The "10-kilowatt (kW) Inverter Process," for certified, inverter-based systems no larger than 10 kW;
- The "Fast Track Process," for certified systems no larger than 2 MW; and
- The default "Study Process," for all other systems no larger than 20 MW.

The standards include technical screens for each level of interconnection. Notably, the FERC standards do not require systems to have an external disconnect switch. Utilities and customers must follow specific timelines, and guidelines for interconnection and study fees are established. Customers must obtain liability insurance "sufficient to insure against all reasonably foreseeable direct liabilities given the size and nature of the generating equipment being interconnected, the interconnection itself, and the characteristics of the system to which the interconnection is made." Additional liability insurance must be obtained "only if necessary as a function of owning and operating a generating facility."

* The FERC adopted interconnection standards for facilities larger than 20 MW in July 2003. (See FERC Order Nos. 2003, 2003-A, 2003-B and 2003-C.) FERC's standards for larger generators include a standard Large Generator Interconnection Procedures (LGIP) document and a standard Large Generator Interconnection Agreement (LGIA).

Contact:

Public Information - FERC
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426
Web Site: <http://www.ferc.gov>