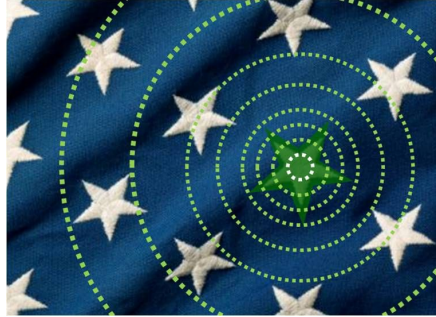


Residential

GREEN DE-CODER



For the 2009 'Rescue' Act

As part of the Home Efficiency Consulting services, our GREENandSAVE research team has actually read the whole **American Recovery and Reinvestment Act** document. You may have heard that it is long and many politicians did not even have enough time to read it before the vote. This 'GREEN De-Coder' is specifically designed to guide you as a homeowner so that you do not spend money on a tactic or product that does not meet the criteria for an expected tax credit.

As just one example out of hundreds of tactics and products, Americans are replacing water heaters every day. Not all ENERGY STAR gas storage and gas condensing water heaters will qualify for the tax credit. However, all ENERGY STAR gas tankless models will qualify.

The American Recovery and Reinvestment Act (ARRA) signed into law by President Obama in February of 2009 has created some tremendous opportunities for homeowners. This Green De-Coder will help you uncover information regarding whatever energy efficiency improvement tactics you want to pursue, including:

- Reducing utility costs...**
- Producing power...**
- Financing options...**
- Buying your first home...**
- Buying a new car...**
- Resources for state incentives...**
- Where to start...**

Basically, this is a 'read before you buy' e-book that will help save you money!

If you want to **REDUCE** utility costs...

There is \$4.3 billion in the ARRA for improving the energy efficiency of homes in 2009 and 2010. Homeowners can recoup up to 30% of the costs up to \$1,500 on the total of their projects, such as qualifying windows, doors, insulation, roofs, HVAC equipment, water heaters, and even wood and pellet stoves. This act tripled the total available tax credit from \$500 to \$1,500. Remember, if you spend \$5,000 on windows and another \$5,000 on a new furnace you will not get more than the cap of \$1,500. The ARRA does, however, remove the cap on more expensive improvements, such as geothermal heat pumps and solar water heaters through 2016.

Summary of Tactical Opportunities to **REDUCE** Utility Costs: (Compressed Table)

Improvements	Tax Credit	Valid Residences	Valid Years
Windows/Doors*	30% of the combined cost, up to \$1,500 total	only for existing homes, not new construction, that are your primary residence	2009 - 2010
Insulation*			
Roofs (metal/asphalt)*			
HVAC			
Water Heaters (non-solar)			
Biomass Stoves			
Geothermal Heat Pumps	30% of the cost, with no upper limit	existing homes or new construction (primary residence, vacation homes, and rentals are eligible)	2009 - 2016
Solar Panels			
Solar Water Heater			
Small Wind Energy Systems			
Fuel Cells	30% of the cost, up to \$500 per .5 kW of power capacity	Existing homes or new construction that will be your primary residence	

Notes:

- * Installation costs are not included when determining tax credits for windows, doors, insulation, and roofs. Installation is included for all other qualifying improvements.
- Not all products qualify for a tax credit. See the details later in this document for more info.
- Renters are not eligible for any of the tax credits.
- The \$1,500 tax credit is a total combined credit for all tax years (2009 & 2010). So, you can spend up to \$5,000 during this 2 year period on single or multiple improvements, and get 30% or \$1,500 back as a tax credit, whichever is lower. If you get the entire \$1,500 credit in 2009, then you can't claim any additional credit in 2010.

Summary of Tactical Opportunities to REDUCE Utility Costs: (expanded table)

Qualifying Improvement	Federal Tax Credit		Installation Costs Included*	Valid Through	Valid Properties
	% of Cost	Cap			
<u>The Exterior Envelope</u>					
Exterior/Storm Windows	30%	\$1,500	No	2010	Prim. Res.
Skylights	30%	\$1,500	No	2010	Prim. Res.
Exterior/Storm Doors	30%	\$1,500	No	2010	Prim. Res.
Insulation	30%	\$1,500	No	2010	Prim. Res.
Roofs	30%	\$1,500	No	2010	Prim. Res.
<u>HVAC</u>					
Central Air Conditioning	30%	\$1,500	Yes	2010	Prim. Res.
Air Source Heat Pumps	30%	\$1,500	Yes	2010	Prim. Res.
Natural Gas or Propane Furnace	30%	\$1,500	Yes	2010	Prim. Res.
Oil Furnace	30%	\$1,500	Yes	2010	Prim. Res.
Gas, Propane, or Oil Hot Water Boiler	30%	\$1,500	Yes	2010	Prim. Res.
Advanced Main Air Circulating Fan	30%	\$1,500	Yes	2010	Prim. Res.
Biomass Stove – wood, pellets, etc.	30%	\$1,500	Yes	2010	Prim. Res.
<i>Geothermal Heat Pumps</i>	30%	No Cap	Yes	2016	Any
<u>Water Heating</u>					
Gas, Oil, Propane, or Tankless Water Heater	30%	\$1,500	Yes	2010	Prim. Res.
Electric Heat Pump Water Heater	30%	\$1,500	Yes	2010	Prim. Res.
Biomass Water Heater	30%	\$1,500	Yes	2010	Prim. Res.
<i>Solar Hot Water Heating</i>	30%	No Cap	Yes	2016	Any
<u>Power Generation</u>					
<i>Solar Photovoltaic Panels</i>	30%	No Cap	Yes	2016	Any
<i>Small Wind Energy Systems</i>	30%	No Cap	Yes	2016	Any
<i>Fuel Cells</i>	30%	No Cap	Yes	2016	Prim. Res.

Notes:

- * Installation costs are not included when determining tax credits for windows, doors, insulation, and roofs. Installation is included for all other qualifying improvements.
- Not all products qualify for a tax credit. See the details later in this document for more info.
- Renters are not eligible for any of the tax credits.
- The \$1,500 tax credit is a total combined credit for all tax years (2009 & 2010). So, you can spend up to \$5,000 during this 2 year period on single or multiple improvements, and get 30% or \$1,500 back as a tax credit, whichever is lower. If you get the entire \$1,500 credit in 2009, then you can't claim any additional credit in 2010.

Details on REDUCING Utility Costs:

The criteria for receiving the tax credit requires that the equipment you buy must meet very specific standards. There are two different sets of standards: one for items placed in service (installed) between 1/1/2009 and 2/17/2009, and one for those placed in service between 2/18/2009 and 12/31/2010. The following information outlines the criteria for the later, those items placed in service between 2/18/2009 and 12/31/2010. For products purchased between 1/1/2009 and 2/17/2009, the terms of the tax credits are less clear. The IRS will likely clarify these terms in guidance documents, which are expected to be released later this year.

Many local utilities provide financial incentives for purchasing ENERGY STAR qualified windows, doors, and skylights. To find out if rebates or other incentives are available in your area, visit the [ENERGY STAR Rebate Finder](#).

The International Energy Conservation Code largely dictates how American cities write their building codes. To learn more about the IECC, here is an overview of the IECC document from 2000: <http://www.reca-codes.org/pages/iecc.html>. And here is an updated supplement to the 2006 IECC document: http://www.energycodes.gov/implement/doe_2004_proposals.stm. The older IECC based their findings on 19 climate zones, but those have been replaced by a simpler set of 8 geographic regions.

The EXTERIOR ‘ENVELOPE’:

Exterior Windows, Doors, and Skylights –

1. They must have a U-factor and Solar Heat Gain Coefficient (SHGC) less than or equal to 0.30. You can find the U-factor and SHGC on the National Fenestration Rating Council (NFRC) label.
2. Only some Energy Star equipment will qualify.

Storm Windows and Doors–

1. Must meet IECC in combination with the exterior window or door over which it is installed, for the applicable climate zone.
 - a. For windows, a Manufacturer’s Certification Statement will list the classes of exterior window (single pane, clear glass, double pane, low-E coating, etc.) that a product may be combined with to be eligible.
 - i. A Manufacturer’s Certification is a signed statement from the manufacturer certifying that the product or component qualifies for the tax credit. The IRS encourages manufacturers to provide these Certifications on their website to facilitate identification of qualified products. Taxpayers must keep a copy of the certification statement for their records, but do not have to submit a copy with their tax return.

Roofing – Metal and Asphalt Roofs

1. All Energy Star labeled metal and asphalt roofs qualify for the tax credit.
 - a. Must be expected to last 5 years OR have a 2-year warranty.

Insulation –

1. Must meet 2009 IECC & Amendments
 - a. For insulation to qualify, its primary purpose must be to insulate (Example: vapor retarders are covered, insulated siding does not qualify).
 - b. Must be expected to last 5 years OR have a 2-year warranty.
 - c. Required insulation levels will vary by region and will include insulation that is already installed in your home.
 - d. Please note that qualified insulated attic hatch and stair covers will count for the tax credit and they often have a very high return on investment.

HEATING, VENTILATING and AIR CONDITIONING (HVAC)**Central Air Conditioning (CAC) –**

1. Split Systems –
 - a. Energy Efficiency Ratio (EER) must be greater than or equal to 13.
 - b. Seasonal Energy Efficiency Ratio (SEER) must be greater than or equal to 16.
2. Package Systems –
 - a. Energy Efficiency Ratio (EER) must be greater than or equal to 12.
 - b. Seasonal Energy Efficiency Ratio (SEER) must be greater than or equal to 14.

Air Source Heat Pumps (ASHP) –

1. Split Systems –
 - a. Heating Season Performance Factor (HSPF) must be greater than or equal to 8.5.
 - b. Energy Efficiency Ratio (EER) must be greater than or equal to 12.5.
 - c. Seasonal Energy Efficiency Ratio (SEER) must be greater than or equal to 15.
2. Package Systems –
 - a. Heating Season Performance Factor (HSPF) must be greater than or equal to 8.
 - b. Energy Efficiency Ratio (EER) must be greater than or equal to 12.
 - c. Seasonal Energy Efficiency Ratio (SEER) must be greater than or equal to 14.

Note: For CAC and ASHP systems, not all Energy Star models qualify for the tax credit. For a partial list of qualifying products go to the [Air Conditioning, Heating, and Refrigeration Institute \(AHRI\)](#).

Natural Gas or Propane Furnace –

1. Must have an Annual Fuel Utilization Efficiency (AFUE) greater than or equal to 95.

Oil Furnace –

1. Must have an Annual Fuel Utilization Efficiency (AFUE) of more than 90.

Gas, Propane, or Oil Hot Water Boiler –

1. Must have an Annual Fuel Utilization Efficiency (AFUE) of more than 90.

Note: For furnaces and boilers, not all Energy Star appliances qualify for the tax credit. For a partial list of qualifying products go to the [Air Conditioning, Heating, and Refrigeration Institute \(AHRI\)](#).

Advanced Main Air Circulating Fan -

1. Must not constitute more than 2% of furnace's total energy use.

WATER HEATING

Gas, Oil, Propane Water Heater –

1. Must have an Energy Factor at or above .82 or a thermal efficiency rate of at least 90%.

Note: Not all ENERGY STAR gas storage and gas condensing water heaters will qualify for the tax credit. All ENERGY STAR gas tankless models will qualify. For a partial list of qualifying products go to the [Air Conditioning, Heating, and Refrigeration Institute \(AHRI\)](#).

Electric Heat Pump Water Heater –

1. All Energy Star models meet the criteria. Energy Factor greater than or equal to 2.0.

Solar Water Heating –

1. At least half of the energy generated by the “qualifying property” must come from the sun. Homeowners may only claim spending on the solar water heating system property, not the entire water heating system of the household.
2. The credit is not available for expenses for swimming pools or hot tubs.
3. The water must be used in the dwelling.
4. The system must be certified by the Solar Rating and Certification Corporation (SRCC).

OTHER IMPROVEMENTS

Biomass Stove -

1. Stove which burns biomass fuel to heat a home or heat water.
2. Thermal efficiency rating of at least 75% as measured using a lower heating value.

Note: Biomass Fuel means any 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.

Geothermal Heat Pump – All Energy Star models qualify.

1. Closed Loop –
 - a. Energy Efficiency Ratio (EER) must be at or above 14.1.
 - b. Coefficient of Performance must be at or above 3.3.

2. Open Loop –
 - a. Energy Efficiency Ratio (EER) must be at or above 16.2.
 - b. Coefficient of Performance must be at or above 3.6.

3. Direct Expansion –
 - a. Energy Efficiency Ratio (EER) must be at or above 15.
 - b. Coefficient of Performance must be at or above 3.5.

If you want to PRODUCE power...

First, the 30% Renewable-Energy Federal Tax Credit no longer has a \$2,000 cap for Solar and Wind Power Systems, and it has been extended for 8 years. In the past, this cap was for residential properties, while commercial had no limit, which frustrated homeowners because 30% of a \$40,000 residential system is well over the \$2,000 cap, so most homeowners chose not to install a system. Second, the ARRA has set in motion state rebate legislation with additional benefits. The combination can deliver upwards of \$25,000 directly to you from the Federal and State governments, not to mention the energy savings and renewable energy credits outlined at the end of this document.

Solar Photovoltaic –

1. Photovoltaic systems must provide electricity for the residence, and must meet applicable fire and electrical code requirement.
2. Tax credit for 30% of entire cost.

Note: Penalty repealed for subsidized renewable energy financing. This allows businesses and individuals to qualify for the full amount of the solar tax credit, even if projects receive subsidized energy financing (e.g. below market loans, tax preferred bonds, state grants etc.). This amendment shall apply to periods after Dec. 31, 2008.

Small Wind Energy Systems –

1. Tax credit for 30% of entire cost.

Fuel Cells –

1. Efficiency of at least 30% and must have a capacity of at least 0.5 kW.
2. Tax credit for 30% of the cost, up to \$500 per .5 kW of power capacity.

If you want to see Financing Options...

Beyond the tax credits, you will find that there is even more money available through rebates to help you make a decision about the right tactics and products for your home. Additionally, you may be able to afford more than you think to get on the path of saving money and the environment through many attractive loans for energy efficient home improvements.

Loans -

1. Energy Star Loan
 - a. Purpose: For installation of qualifying improvements that are Energy Star rated or meet program standards.
 - b. Loan Amount: \$1,000-\$15,000
 - i. Rate and Term: 6.99% Fixed Rate; 3, 5, or 10 year term.
 - ii. Unsecured, no lien.
 - iii. No Fees or closing costs.
 - iv. No pre-payment penalty.
2. Advanced Performance Energy Star Loan
 - a. Purpose: For installation of qualifying improvements that EXCEED Energy Star standards.
 - b. Loan Amount: \$1,000-\$15,000
 - i. Rate and Term: 5.99% Fixed Rate; 3, 5, or 10 year term.
 - ii. Unsecured, no lien.
 - iii. No Fees or closing costs.
 - iv. No pre-payment penalty.
3. Renovate and Repair Energy Star Loan (Combined Household Income OVER \$150,000)
 - a. Purpose: For installation of qualifying improvements that are Energy Star rated or meet program standards.
 - b. Loan Amount: \$5,000-\$35,000
 - i. Rate Term: 6.375% to 8.875%; up to 20 year term.
 - ii. Rate based on loan term and home's value to loan.
 - iii. Up to 120% of Home's Value can be loaned.
 - iv. 1st, 2nd, or 3rd lien
 - v. Less than \$400 closing costs (may be included in loan)
 - vi. No pre-payment penalty
4. Whole House Improvement Loan (Unsecured)
 - a. Purpose: For improvements that make your "whole house" more energy efficient as recommended by a Certified Energy Audit.
 - b. Loan Amount: \$1,000-\$15,000
 - i. Rate and Term: 4.99% Fixed Rate; 3, 5, or 10 year term
 - ii. Unsecured, no lien.
 - iii. No Fees or closing costs.
 - iv. No pre-payment penalty.
 - v. \$325 Energy Audit Credit
5. Whole House Improvement Loan (Secured)
 - a. Purpose: For improvements that make your "whole house" more energy efficient as recommended by a Certified Energy Audit.

- b. Loan Amount: \$5,000-\$35,000
 - i. Rate Term: 3.875% to 6.375%; up to 20 year term.
 - ii. Rate based on loan term and home's value to loan.
 - iii. Up to 120% of Home's Value can be loaned.
 - iv. 1st, 2nd, or 3rd lien
 - v. Less than \$400 closing costs (may be included in loan)
 - vi. No pre-payment penalty
 - vii. \$325 Energy Audit Credit

Note: For Whole House Improvement Loans, you need to have a certified Energy Audit. An initial energy audit is conducted which recommends energy conservation measures and includes an overall home energy rating system (HERS) index. Qualifying improvements are those that predict a minimum decrease of 25% from an original HERS index of more than 100 or a minimum decrease of 15% from an original HERS index of less than 100.

Rebates -

- 1. Energy Star Rebates
 - a. Purpose: For installation of qualifying improvements that are Energy Star rated or meet program standards.
 - b. Rebate Amount: Up to \$250; 10% of the cost of purchase and installation of eligible improvements.
- 2. Advanced Performance Energy Star Rebate
 - a. Purpose: For installation of qualifying improvements that exceed Energy Star standards.
 - b. Rebate Amount: Up to \$500; 10% of the cost of purchase and installation of eligible improvements.

For facts about which products are eligible to receive rebates or loans, look here:

http://www.energystar.gov/index.cfm?c=products_pr_tax_credits

Specialty Financing Options – Non-Energy Star

- 1. Sunpower Loans
 - a. There is a new financing program from the Sunpower Corporation that is one of the leading manufacturers of Solar PV panels. They are offering a 25-year home equity loan. The value of the Sunpower solar system is added to the value of the home and the loan may be paid off at any time with no penalties. Most rates are slightly less than prime and there is a choice of fixed or variable rates.
- 2. GEOSmart
 - a. This program is sponsored by The Electric & Gas Industries Association which is a non-profit group dedicated to advancing energy efficiency and renewable energy solutions. You can learn more about EGIA at www.egia.org.

If you want to buy your First Home...

A portion of the ARRA allots \$6.6 billion toward subsidizing new homes for first time buyers. It allows an \$8,000 tax credit for all homes bought between 1/1/2009 and 12/1/2009. Repayment of this tax credit used to be mandatory, but it has been waived for those first-time home buyers who are able to stay in their home for at least three years.

If you want to buy a new Car...

You may find that saving on gas mileage with a new car is more cost-effective than you thought.

Hybrid gasoline-electric, diesel, battery-electric, alternative fuel, and fuel cell vehicles –

1. Tax credit based on a formula determined by vehicle weight, technology, and fuel economy compared to base year models.
2. There is a 60,000 vehicle limit per manufacturer before a phase-out period begins. Toyota and Honda have already been phased out. Credit is still available for Ford, GM and Nissan.
 - a. For more information visit: Fueleconomy.gov

Plug-in hybrid electric vehicles –

1. Tax credit is \$2,500–\$7,500.
2. The first 250,000 vehicles sold get the full tax credit (then it phases out like the hybrid credits).

If you want to find State Incentives...

The ARRA allots \$3.1 billion for the State Energy Program to help citizens and businesses save energy and \$300 million for state matching grants for consumer rebates on higher-tier energy-efficient appliances. The grants will not be included in federal gross income of the recipients, but is not clear how the states will handle this. A benefit provided by the stimulus package is the ability for system owners to receive the full federal grant even if they receive a state rebate or other preferred treatment like below market loans or tax preferred bonds.

The incentive programs offered by each state vary, but you might be eligible for grants, loans, or rebates offered through your state and local governments, as well as your utility company. There may also be additional tax exemptions, credits, or refunds available in your area. An excellent resource regarding the incentives offered near you is the [Database of State Incentives for Renewable & Efficiency](#).

Specialty Incentives: What is a SREC? (Solar Renewable Energy Certificate)

Most states require, or will soon require, electricity suppliers to provide a percentage of their electricity sales from solar generation through Renewable Portfolio Standards. This means they have to construct large solar arrays to provide sustainable electricity or (more likely) they will

purchase this power from other suppliers. If you are a solar photovoltaic owner, you are producing one SREC per each 1000 kWh your system is producing per year. These SRECs are sold on the open market so the price can vary with supply and demand. The amount of income realized by the sales of SRECs is likely capped by the \$711 per kWh fine that the electric providers will pay for non-compliance.

FREE - If you want to know where to start...

- A) **Get some Perspective.** Now you can see for free all of the Return on Investment (ROI) rankings for the top tactics to save money on your utility bills. Visit the 'Home' section of GREENandSAVE.com and also check out articles, product reviews, and green news.
- B) **Score your Home.** Check out how you stand up to other homes across the country and in your own state. The GREENandSAVE Home Utility Trend (HUT) Calculator generates a HUT score that is like the mileage sticker on your car. Plus, you can learn about the best areas to focus your efficiency efforts through the other scores like the Home Heating Index, Base Load Electric, and Base Water Usage. Measurement is the Key to better Management!
- C) **Take Action.** Engage the right service providers. Check out the 'Services' section at GREENandSAVE.com to see the range of opportunities from Energy Audits and Home Efficiency Checkups to Performance Coordination. The 'coordination' services help you complete the loop to maximize loan potential for positive cash flow, take advantage of the right tax credits, and level set contractor bids to get the best value.