

Federal Energy Efficiency Tax Incentives:

Driving innovation and investment in our buildings and appliances to save money and energy

Four important federal tax incentives driving critical energy-saving gains unfortunately expired at the end of 2013. It is essential that Congress extend the energy efficiency incentives created under the Energy Policy Act of 2005 in order to ensure continued growth of America's cheapest fuel source, energy efficiency, creating tens of thousands of new jobs throughout the country. Failure to act would increase dangerous pollution, sacrifice employment growth, and stifle U.S. innovation and competitiveness.

With appropriate extensions and updates, however, the four tax incentives created to improve the energy efficiency of U.S. homes, commercial buildings, and appliances could add \$8.3 billion to the nation's gross domestic product over the next 16 years and create hundreds of thousands of jobs, while averting an astonishing 16.4 quadrillion Btu of fuel use, 3.2 million gigawatt-hours of electricity, and the dangerous emissions associated with power generation.¹

Tax incentives are a cost-effective way to encourage U.S. consumers and industry to overcome the market barriers to investing in approaches designed to cut energy waste. To create stability and inspire further innovation, Congress should extend these expiring incentives for multiple years while making improvements to ensure they are performance-based, technology-neutral incentives with maximum impact but minimum cost:

- Tax deduction for the construction of efficient commercial buildings (Section 179D):
- Tax credit for the construction of efficient homes (45L)
- Tax credit for investment in residential efficiency improvements (25C)
- Credit for manufacturers of efficient appliances (45M)

WHY ENERGY EFFICIENCY TAX INCENTIVES MATTER

Energy efficiency—using less energy to achieve equal or higher results—reduces utility bills, decreases energy consumption to allow us to be more energy independent, and avoids pollution from dirty power generation.

Although there are built-in economic reasons to invest in efficiency, several **structural barriers** prevent deployment.

These include lack of awareness, uninformed decision makers, panic purchases, high initial investment, and split incentives where one party often makes investment decisions while another pays the energy bills (such as renters and landlords). Additionally, a hodgepodge of state standards and incentives affects manufacturing decisions related to product development.

Federal tax incentives are **designed to create a uniform standard** and assist all Americans in overcoming the structural barriers to efficiency investment. Manufacturers prefer consistency in incentives across the country because that makes it easier to design and sell new products that qualify for them. Tax credits and deductions also drive innovation, bringing down the costs of more efficient products over time and expanding market adoption of technologies and practices.

Even though increased investment in energy-saving improvements, such as installing additional insulation or high-performing air conditioners, is quickly repaid through lower utility bills, the initial financial outlay often is an obstacle. Tax incentives encourage investment in these energy-saving opportunities so that energy costs eat up less of a homeowner's budget and a business's profits.

Increasing our energy efficiency could produce enormous benefits in the United States. A McKinsey & Company analysis estimates that by 2020, investments in efficiency could reduce projected U.S. energy consumption by 23 percent, save consumers \$1.2 trillion, and create up to 900,000 jobs directly in the efficiency industry, and more when energy savings are reinvested in other parts of the economy.² Another study found that by 2050, energy efficiency measures and practices could reduce U.S. energy use by 42 to 59 percent relative to current projections, save consumers and businesses billions of dollars, raise our gross

domestic product in 2050 by \$100 billion to \$200 billion, and support 1.3 million to 1.9 million jobs.³

Energy efficiency also can have a significant health impact because reduced energy generation lowers carbon, mercury, and other emissions linked to asthma, lung disease, heart attacks, neurological damage, birth defects, and premature death.⁴ Electricity generation also accounts for 39 percent of U.S. carbon dioxide emissions that contribute to climate change. Reducing consumption through energy efficiency could make a significant dent in all of these emissions.

Meanwhile, polls show overwhelming public support for efficiency and other clean energy measures. Nine in 10 Americans—including 85 percent of Republicans and 89 percent of independents—say developing renewable energy should be a priority for the president and Congress.⁵

CURRENT ENERGY EFFICIENCY TAX INCENTIVES

Deduction for Commercial Buildings (179D)

There are more than 4.8 million commercial and other nonresidential buildings in the United States, from the corner deli to schools to the Empire State Building. Under 179D, private building owners or public building designers who cut energy use by 50 percent, compared with what would be consumed if the building were constructed under the 2001 building code, may take a tax deduction of up to \$1.80 per square foot when the reduction is accomplished through changes in the lighting, heating, cooling, and ventilation systems or in the building envelope (insulation, external windows and doors, and/or roofing material).

Despite the potential for major energy and financial savings, 179D generally has been underutilized due to several obstacles, including the inability of many building owners to claim the incentive, due to their ownership structure and lack of tax liability. While the deduction can be assigned to the architect in the case of public buildings, the same is not true for private ones. Making the deduction assignable to a broader range of stakeholders involved in a building's design could increase its use. Additionally, the outdated 2001 code baseline results in expensive and unnecessary building energy modeling that sometimes exceeds the value of the deduction. Updating the baseline to a more recent code for new construction and allowing existing buildings to compare energy reductions to past performance rather than to a reference building would make the deduction more effective and simpler to claim.

These changes, supported by NRDC and many other stakeholders—and initially proposed in the Cut Energy Bills at Home Act of 2011 (S. 1914 by Sens. Snowe and Bingaman)—could save U.S. business owners \$1.4 billion in energy costs and create at least 77,000 jobs.⁶

Credit for the Construction of Energy Efficient Homes (45L)

This incentive, a \$2,000 tax credit to builders who achieve a 50 percent reduction in heating and cooling energy use compared with a home built to the 2006 code, has helped transform the market for new homes. In just four years, the percentage of new homes qualifying for—and receiving—this *credit grew from practically zero to 10.5 percent*, as shown in Figure 1.⁷ While studies since the 1980s have shown that efficiency can increase a home's value by around 9 percent (an average 2012 home of \$280,000 could be valued as high as \$305,000), lenders do not take into account increased efficiency when determining mortgage affordability, and prospective buyers do not always recognize the full value of additional energy-saving improvements.⁸ The \$2,000 tax incentive encourages builders to invest in highly efficient homes and reduces the uncertainty that they will recoup their investment. Builders can meet the target in any manner they choose, since the tax credit is performance-based (that is, awarded for energy reduction) and does not specify how to achieve the energy savings. Guidance from the Internal Revenue Service and a straightforward system of evaluation shared with the ENERGY STAR® program also facilitate compliance.⁹

Figure 1 shows the program's success, with the large 2010 dip due to Congress's failure to renew the credit in 2009. It has since been extended, both times retroactively, through the Tax Relief Acts of 2010 and 2012.

In 2012 the basis of comparison was raised from the 2004 International Energy Conservation Code to the 2006 version. Although more than 35,000 homes would have qualified under the old standard, 7,000 still met the 2006 criteria. NRDC supports adding a higher tier for new homes that reduce total energy use by at least 50 percent (as opposed to heating and cooling only), but the credit should be extended for at least four years to provide a realistic time frame for planning and construction, assuring builders that the credit will exist when work and verification are complete. As the number of eligible houses increases, the qualifying criteria should be tightened to further encourage even higher-performance homes.

Credit for Residential Energy Efficiency Improvements (25C)

Under 25C, a homeowner can receive a tax credit for 10 percent of the cost of energy efficient building envelope improvements and replacement equipment that meet certain criteria, with a \$500 maximum over the life of the credit, and with specific limits for windows (\$200), main air-circulating fans (\$50), furnaces or boilers (\$150), and other HVAC equipment (\$300).

The American Recovery and Reinvestment Act (ARRA) temporarily increased the tax credit to 30 percent of all costs, up to \$1,500, for 2009–2010. However, the legislation's

Figure 1: Homes Verified to Meet the Tax Credit Criteria, 2006–2011

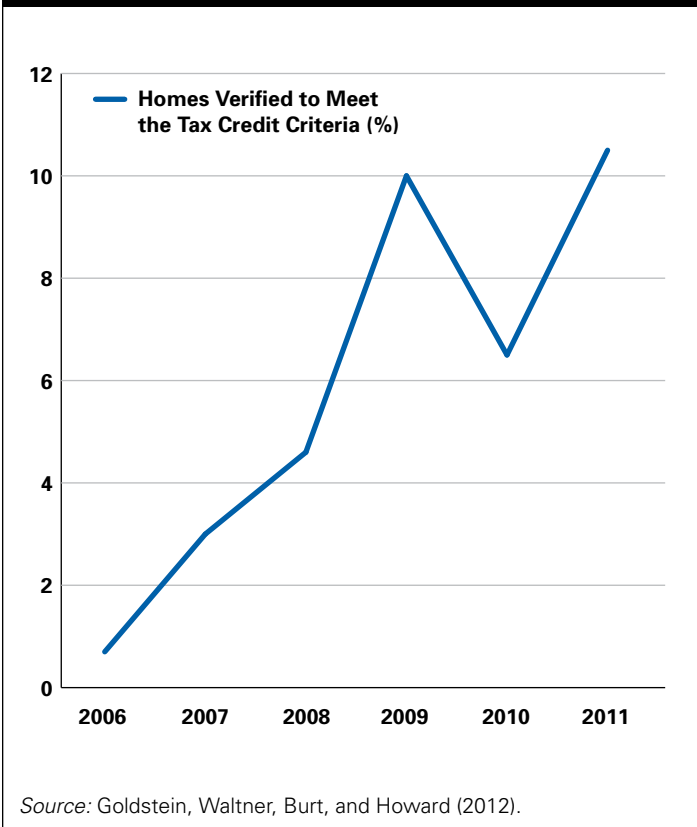
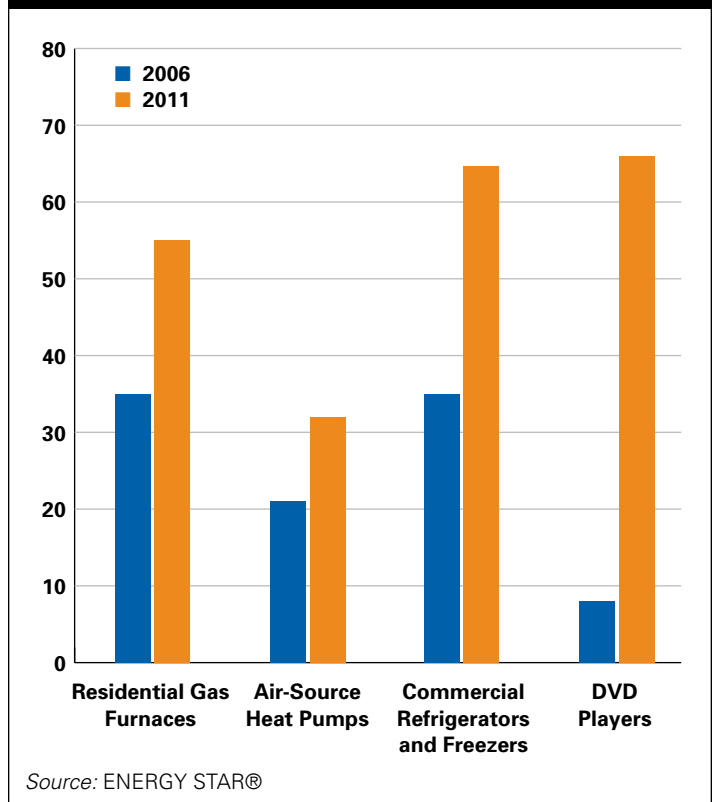


Figure 2: Market Share (%) of Energy Efficient Residential Gas Furnaces, Air-Source Heat Pumps, Commercial Refrigerators and Freezers, and DVD Players in 2006 and 2011



initial low qualification level for eligible windows resulted in many homeowners claiming a credit for replacements they probably would have undertaken anyway (by 2009, 90 percent of all replacement windows purchased were eligible, and window installations accounted for 34 percent of the qualifying 25C renovations), which significantly drove up the cost of the credit.¹⁰ As a result of NRDC’s efforts, the energy-savings criteria for windows were strengthened in 2009, but then weakened back to the original criteria through the Tax Relief, Unemployment Insurance Reauthorization, and Job Creation Act of 2010.

An improved version of this tax incentive would drive significant new investment in efficiency measures for existing homes. As efficient units and materials become more common (see Figure 2), like the qualifying windows, tax credits are no longer needed to incentivize installation. Thus, the criteria should be tightened to reward adoption of yet more efficient equipment. 25C should also pay for performance—actual energy savings—rather than a percentage of the cost of the efficiency upgrades. This will encourage homeowners to make cost-effective improvements and encourage vendors to supply efficient equipment at the lowest cost. In addition, NRDC strongly supports a new pathway (25E) to add a whole-house, performance-

based incentive as originally proposed in S. 1914 (2011). Homeowners would be rewarded on the basis of percentage of energy savings, compared with baseline energy use, with the incentive increasing as energy savings grow.

Credit for the Manufacture of Energy Efficient Appliances (45M)

Section 45M, enacted with strong industry support, promotes the manufacture of high-efficiency appliances, including refrigerators, dishwashers, and clothes washers. Extending the incentive would not only save homeowners money on their energy bills, but also encourage domestic manufacturing of high-efficiency appliances. According to the Association of Home Appliance Manufacturers (AHAM), 40,000 jobs are affected by the Section 45M tax credit, including at least 17,000 direct manufacturing jobs and 23,000 jobs that support this manufacturing activity.¹¹

Under 45M, the manufacturer receives a given amount per unit, tiered according to energy savings. For instance, a refrigerator that is 15 percent more efficient than the federal minimum energy efficiency standard qualifies for a \$75 tax credit; a 25 percent more efficient refrigerator qualifies for \$175. 45M encourages manufacturers to produce highly efficient units and to offer more promotional discounts and rebates.

NRDC in 2010 negotiated a joint agreement with AHAM and other energy efficiency and appliance industry advocates that recommended additional, higher energy targets for appliance tax credit eligibility for refrigerators, freezers, room air conditioners, dishwashers, and clothes washers and dryers. NRDC supports continual tightening of the qualifying criteria as the market share of household appliances that qualify for the credit increases.

OPTIMIZING EFFICIENCY TAX POLICY

For optimum success, energy efficiency tax incentives should be crafted according to several basic principles:

- They should reward energy performance or savings whenever possible, rather than a specific technology, and should be based on this performance rather than on cost. Performance-based incentives lead to increased competition and more energy savings per federal dollar spent.
- Energy performance targets should be ambitious: If set too low, many taxpayers will claim the incentive for improvements they would have made anyway. A higher target also helps control program costs.
- Energy savings should be verified when possible through energy audits or testing.

- Incentives should be flexible, adapting to changes in the marketplace: Once an efficient technology gains a significant market share, the incentive should be tightened to reward less common yet more efficient technologies.
- Incentives should be part of a suite of policies to promote innovation and the development of energy efficient products and practices, such as labels (e.g., ENERGY STAR), utility efficiency programs, and minimum codes and standards to gradually shift all buildings and equipment toward increased energy savings.

With cogent, performance-based tax policy, clear instructions for homeowners and builders, and a flexible approach to meeting high energy-saving targets, efficiency tax incentives can continue to spur innovation, minimize costs for both the U.S. Treasury and electricity consumers, and encourage more Americans to reduce energy use. To maximize these benefits, existing efficiency tax incentives must be extended for multiple years in order to provide market and investment certainty. In addition, because the IRS often does not track the number of tax credits claimed or the corresponding amount of tax dollars saved, requiring better reporting would result in more informed decision making related to efficiency tax incentives.

We urge Congress to improve and extend these credits to ensure that the country realizes the full savings from energy efficiency as well as its other significant benefits, including the creation of new jobs and substantial progress toward our environmental and air pollution reduction goals.

Endnotes

- 1 Steven Nadel and Kate Farley, *Tax Reforms to Advance Energy Efficiency*, American Council for an Energy-Efficient Economy (ACEEE) Research Report E132, February 2013. Energy Information Administration, *Annual Energy Outlook 2012*, DOE/EIA-0383(2012), June 2012. The entire U.S. economy uses about 100 quadrillion Btu of energy every year.
- 2 McKinsey & Company, *Unlocking Energy Efficiency in the U.S. Economy*, July 2009, mckinsey.com/client_service/electric_power_and_natural_gas/latest_thinking/unlocking_energy_efficiency_in_the_us_economy.
- 3 John A. Laitner et al., *The Long-Term Energy Efficiency Potential: What the Evidence Suggests*, ACEEE Research Report E121, January 2012.
- 4 American Lung Association, "Toxic Air: The Case for Cleaning Up Coal-Fired Power Plants," *ALA*, March 2011.
- 5 Yale Project on Climate Change Communication and George Mason University Center for Climate Change Communication "Public Support for Climate & Energy Policies in May 2011," May 2011, <http://environment.yale.edu/climate-communication/article/PolicySupportMay2011/#sthash.F2vyAxiN.dpuf>.
- 6 Political Economy Research Institute, "A New Retrofit Industry," June 13, 2011.
- 7 David B. Goldstein and Meg Waltner, "A Retrospective Look at Federal Energy Efficiency Tax Incentives: How Do Cost and Performance-Based Incentives Compare in Their Ability to Transform Markets?" *ACEEE Summer Study on Energy Efficiency in Buildings 2012*, p. 127.
- 8 Nils Kok and Mathew E. Kahn, "The Value of Green Labels in the California Housing Market," San Francisco Department of the Environment, July 2012. United States Census Bureau, "Highlights of Annual 2012 Characteristics of New Housing," www.census.gov/construction/chars/highlights.html (accessed July 26, 2013). Rick Nevin and Gregory Watson, "Evidence of Rational Market Valuations for Home Energy Efficiency," *The Appraisal Journal* 4, no. 66 (October 1998).
- 9 Internal Revenue Service, "Certification of Energy Efficient Home Credit," IRS Notice 2006-27.
- 10 Goldstein and Waltner (2012), p. 129. National Association of Home Builders, "How Did Homeowners Use the Remodeling Tax Credit?" *Eye on Housing blog*, undated, eyeonhousing.wordpress.com/2011/09/27/how-did-homeowners-use-the-remodeling-tax-credit/ (accessed July 29, 2013).
- 11 *Energy Efficient and Smart Appliance Agreement of 2010*, Association of Home Appliance Manufacturers (AHAM) and ACEEE, August 2010, aceee.org/files/pdf/presentation/appliance-efficiency-standards-agreement080310.pdf (accessed December 5, 2013).

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