

ALLIANCE TO SAVE ENERGY

**ANALYSIS OF WAXMAN-MARKEY CLIMATE
AND ENERGY BILL**

May 21, 2009



**A L L I A N C E T O
S A V E E N E R G Y**

Creating an Energy-Efficient World

The Alliance to Save Energy is a coalition of prominent business, government, environmental and consumer leaders who promote the efficient and clean use of energy worldwide to benefit consumers, the environment, the economy and national security. The Alliance advances energy efficiency policies, conducts research on various energy-related topics, and increases awareness and knowledge about the many ways that energy consumption can be reduced in the United States and throughout the world. For more information about the Alliance and its activities, please visit www.ase.org.

Introduction

The American Clean Energy and Security Act of 2009 (ACES) emerging from the House Energy and Commerce Committee this week provides a critical and effective framework to make the United States a world leader in advancing energy efficiency and addressing climate change. ACES establishes an economy-wide cap on greenhouse gas emissions and puts the United States on a trajectory to reduce emissions by 83 percent below 2005 levels by 2050.¹

By creating a market-based incentive to reduce emissions through the lowest-cost means available, the ACES cap-and-trade program has the potential to be the most significant energy efficiency policy ever implemented in this country. The cap will encourage people to become more efficient and will drive innovation in energy efficiency technologies. According to a recent EPA analysis, under the ACES cap-and-trade mechanism energy consumption would not increase between now and 2050, thus avoiding the projected 17 percent increase in energy consumption through 2050 without the cap.²

ACES addresses one of the greatest energy market failures – the carbon externality cost – but recognizes that other barriers to energy efficiency must be addressed as well in order to unleash the full potential of this important national resource. To address these barriers, the bill creates a variety of complementary energy efficiency policies and provides funding for a variety of energy efficiency programs. Importantly, the bill also provides some safeguards to help ensure that allowances are allocated in a way that does not mute the price signal to electricity consumers and that cost-control mechanisms (namely offsets) do not undermine the carbon cap. Each of these is discussed below.

Complementary Policies

ACES includes several policies to overcome barriers to investment in energy efficiency, including new and improved efficiency codes and standards, better consumer information, and transportation planning. Here are a few highlights.

Section 201 of the bill includes an aggressive policy and timetable for improvement and nationwide implementation of building energy codes. It encourages independent code-setting organizations to develop the codes, and state and local governments to adopt and enforce them, but quickly provides a federal “backstop” if they do not. ACES directs DOE to establish codes that achieve 30% savings within one year of enactment, 50% savings by the end of 2014 for homes and 2015 for commercial buildings, and an additional 5% savings every three years until 2030. DOE is to give technical and financial assistance to the International Code Council and the American Society of Heating, Refrigerating and Air-Conditioning Engineers to develop the codes, but would step in if the independent organizations did not meet the targets.

ACES directs states to adopt these (or equivalent) codes within one year, and to demonstrate high rates of compliance with the codes within two additional years. It provides 0.5% of all allowance value to states and local governments for this purpose. States can use other allowance allocations from the bill as well, and if they do not meet the compliance targets, they lose an increasing percentage of their allocation. In any jurisdiction in which states and local governments do not meet the targets, DOE would enforce the federal energy code.

The Alliance has strongly advocated for a comprehensive provision on codes such as this one because codes are an essential tool for improving the efficiency of new and renovated buildings but are not effectively used in much

¹ This is roughly consistent with Intergovernmental Panel on Climate Change recommendations to reduce risk of exceeding a 2 degree Celsius increase by the end of the century.

² Environmental Protection Agency, *EPA Analysis of Waxman Markey Discussion Draft*, April 20, 2009, p.13.

of the country. The Alliance estimates that savings from this one provision could be greater than 3 quadrillion Btus (7% of building energy use) and 200 MMT CO₂ (the emissions of 37 million vehicles) in 2030.

Section 101 of ACES creates an efficiency and renewable electricity standard (RES), which requires that 20 percent of electricity sales be met with a combination of renewable energy and energy efficiency by 2020. Energy efficiency program savings can be used to meet up to one-fourth (five percent) of the RES requirement. If a state governor deems it necessary to meet the requirements, then efficiency program savings can be used to meet up to two-fifths (eight percent) of the requirement. Customer electricity savings, combined heat and power and fuel cells, and reduced distribution system losses qualify as efficiency. Trading of efficiency credits is limited. It is expected that many, if not most, utilities will meet as much of the RES requirement with efficiency as they are allowed, since energy efficiency is generally less costly than renewable energy.

The cap on the energy efficiency component of the RES severely limits the energy and monetary savings from this provision: the five percent efficiency gains will not exceed business-as-usual program savings expected under existing state-level energy efficiency resource standards (EERS) and other policies in many states, though eight percent savings could provide a significant boost to utility energy efficiency efforts, especially since building codes and standards cannot be used to meet the energy efficiency component of the RES. In sum, while this provision represents an important step forward, the Alliance will continue to encourage an increase in the energy efficiency component of the RES or the establishment of a stand-alone EERS.

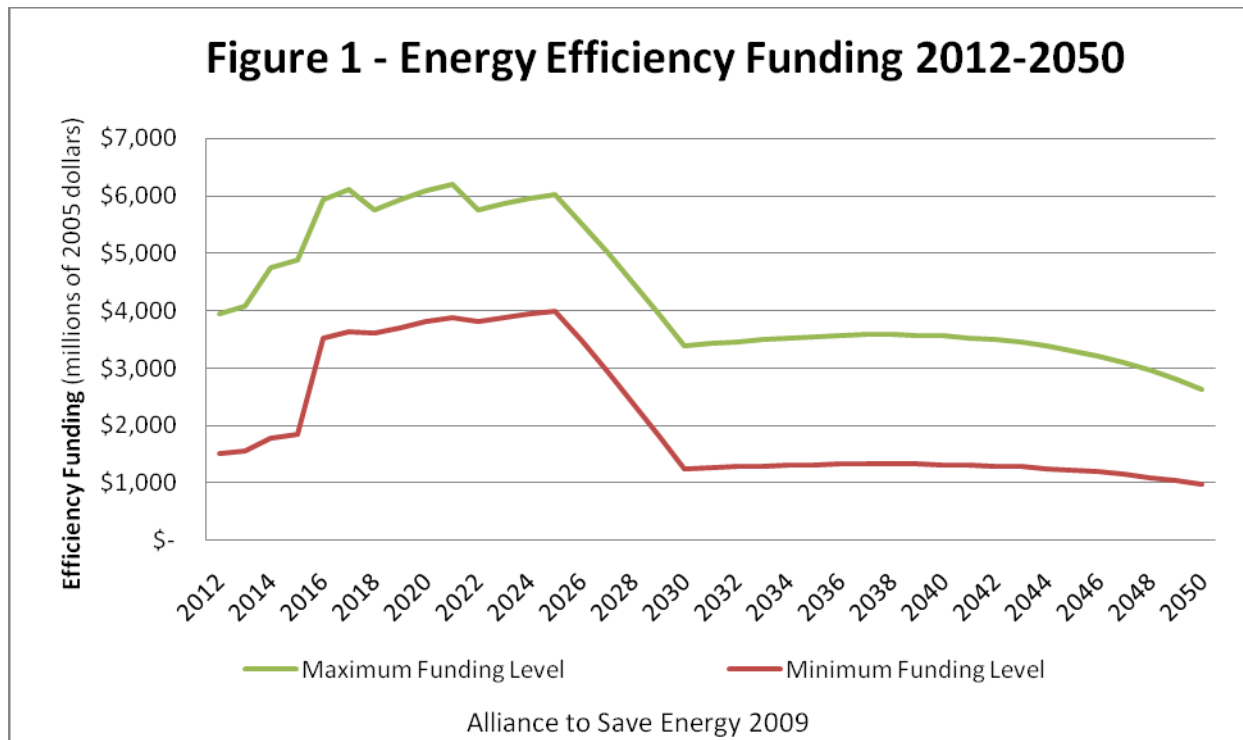
Section 204 of ACES establishes a model building performance labeling program that would improve databases of building energy performance, and direct EPA to establish measures of designed energy performance and achieved performance for different building types, develop one or more building energy labels, run pilot programs, and work with states and local governments to implement labeling and disclosure programs. These tools could be essential to help homeowners, buyers, renters, and others choose efficient buildings and improve the efficiency of their buildings.

Sections 211-213 of ACES establish new appliance efficiency standards, notably one on outdoor lighting, and make a number of improvements to the process by which DOE sets standards. One provision, which is essential for the success of the codes provision described above, would allow state building codes more flexibility to address the efficiency of heating and cooling equipment and lighting within the limitations of preemption of states by federal appliance standards.

Complementary Funding

We estimate that funding for energy efficiency in ACES would total more than \$100 billion over the 2012-2050 period, an average of about \$3 billion per year. In some provisions, energy efficiency shares funding with renewable energy and smart grid initiatives, so it is difficult to anticipate how much would actually go to energy efficiency. Funding for energy efficiency over the 2012 to 2050 period could be as low as \$81 billion or as high as \$167 billion, with an annual average from \$2.1 billion to \$4.3 billion.³ Figure 1 shows the range of energy efficiency spending over time.

³ Alliance to Save Energy calculations are based on allowance allocation levels from the Waxman-Markey Substitute Amendment (released 5-18-05) and allowance price projections from the Environmental Protection Agency (EPA) Office of Atmospheric Program's *Preliminary Analysis of the Waxman-Markey Discussion Draft* (released 4-20-09; IGEM Model). Allowance prices were discounted by 10 percent in accordance with memo sent to Congress from EPA on May 19, 2009 titled "Ways in Which Revisions to the American Clean Energy and Security Act Change the Projected Economic Impacts of the Bill," (See <http://www.epa.gov/climatechange/economics/pdfs/EPAMemoonHR2454.pdf>). Alliance analysis includes allocations for: SEED accounts; building codes; natural gas utilities; heating oil and propane consumers; and one-eighth of funding for clean energy innovation centers. We do not include noncompulsory utility funding for energy efficiency, revenues from the renewable electricity standard or separate authorizations.



Funding for energy efficiency could potentially come from approximately two dozen sections of the bill. As discussed below, six sections of the bill specify allowance value that could or must be used for energy efficiency. The other sections authorize programs, but do not actually dedicate funding for energy efficiency from allowance value, and therefore their funding is dependent on future appropriations. While a couple of the funding provisions offer detail on the types of programs that should be funded, generally the program details and how energy efficiency is defined are left to the funding recipients to determine.

State & local governments (Section 131 and added Section 782(g) of the Clean Air Act) – ACES directs DOE to establish State Energy and Environmental Development (SEED) accounts to be used by state and local governments for energy efficiency and renewable energy programs—this is the largest dedicated source of energy efficiency funds. Allowances are provided to the SEED accounts according to the following schedule:

- 2012 thru 2015 -- 9.5 percent of total allowance value
- 2016 thru 2017 -- 6.5 percent of total allowance value
- 2018 thru 2021 -- 5.5 percent of total allowance value
- 2022 thru 2025 -- 4.6 percent of total allowance value
- 2026 thru 2050 -- 4.5 percent of total allowance value

Of these allowances, as little as 20 percent and as much as 80 percent could be used for energy efficiency. This provision could provide anywhere from \$28 billion to \$114 billion over the 2012-2050 period. Average annual funding for energy efficiency from this provision could be as low as \$730 million or as high as \$2.9 billion.

Natural gas utilities (Section 782 (b) and 784 of CAA) – Natural gas utilities receive allowances according to the following schedule:

- 2016 thru 2025 -- 9 percent of total allowance value
- 2026 -- 7.2 percent of total allowance value

- 2027 -- 5.4 percent of total allowance value
- 2028 -- 3.6 percent of total allowance value
- 2029 -- 1.8 percent of total allowance value

Natural gas utilities must use at least one-third of their free allowances specifically for energy efficiency. Total funding for energy efficiency from this provision totals \$25 billion over the 39-year period of the bill, but would provide an average of \$1.8 billion per year in the years 2016 through 2029.

Home heating oil and propane (Section 782(c) and 785 of CAA) – States receive allowances based on their residential and commercial consumption of home heating oil according to the following schedule:

- 2012 thru 2013 -- 1.875 percent of total allowance value
- 2014 thru 2015 -- 1.67 percent of total allowance value
- 2016 thru 2025 -- 1.5 percent of total allowance value
- 2026 -- 1.2 percent of total allowance value
- 2027 -- .09 percent of total allowance value
- 2028 -- .06 percent of total allowance value
- 2029 -- .03 percent of total allowance value

States must use at least one-half of these allowances specifically for energy efficiency. This provision would provide roughly \$8 billion over the 2012-2029 period, an average of \$446 million annually.

Building code incentives (Section 201) – As part of the building codes provision and in recognition of the importance of these provisions in driving energy efficiency and CO₂ savings, 0.5 percent of the *total* allowance value is allocated to states to support building code development and enforcement efforts. This equates to roughly \$360 million annually and \$14.2 billion over the 39-year period of the bill.

Renewable electricity standard (Section 101) – The renewable electricity standard allows electricity providers to pay \$25/MWh in lieu of meeting their requirements. These funds are to be used by states to promote renewable energy and energy efficiency. While we have not yet estimated the likely revenues from this provision, it could be tens of millions, if not hundreds of millions of dollars, annually.

Clean Energy Innovation Centers (Section 171) – The Department of Energy (DOE) must establish eight Clean Energy Innovation Centers (“Centers”), each to support the deployment of clean energy technology through research and development in a specific technology focus area. In accordance with the DOE FY 2010 budget request, one center will likely focus on energy-efficient building systems and designs. Under section 782(h), the Centers shall receive 1.5 percent of emission allowances, to be distributed on a competitive basis among the eight Centers. Assuming that one-eighth of the funding supports an energy efficient building center, \$5.3 billion will be distributed to the energy efficiency center over the 2012 to 2050 period - about \$140 million annually.

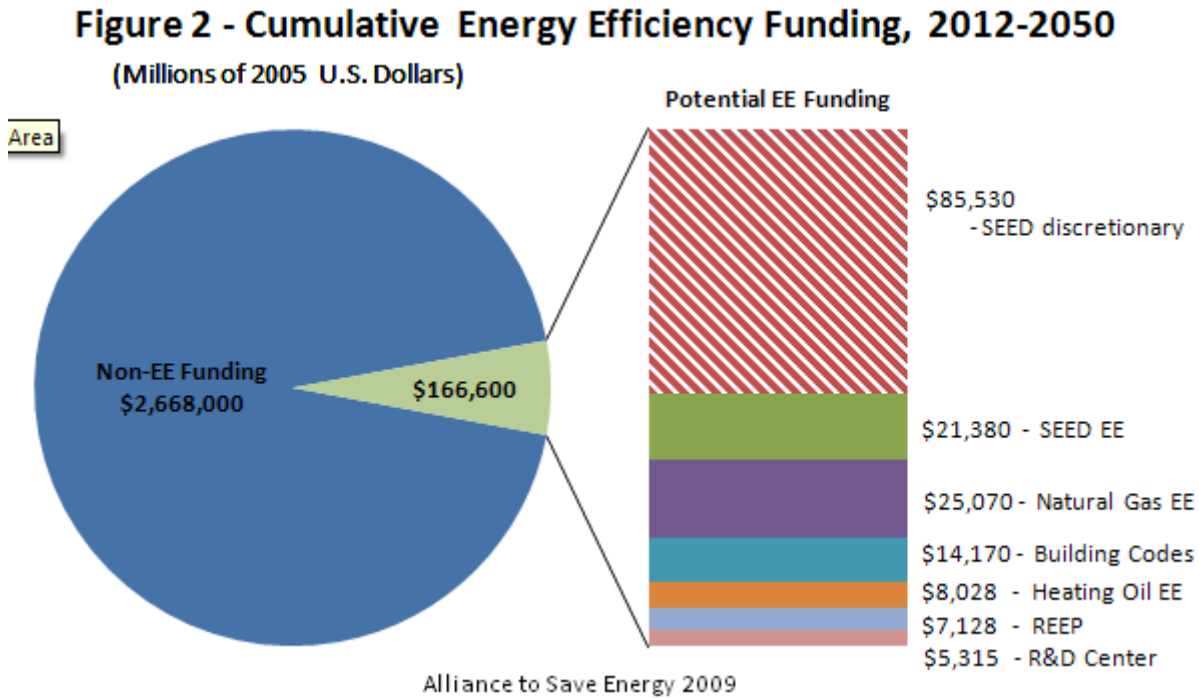
Additional authorizations – ACES contains additional program authorizations for energy efficiency funding, such as:

- Electric and plug-in hybrid vehicles (Sections 121 through 124)
- Smart Grid (Sections 142 through 146)
- Transportation planning (Section 222 and 223)
- Industrial energy efficiency and waste heat recovery (Sections 241 and 242)
- Low-income energy efficiency (Section 264)

Most of these authorizations do not actually include a funding level, but simply say that “there are authorized to be appropriated such sums as may be necessary to carry out this section.” Congressional history with respect to

the federal appropriations process suggests that many if not all of these authorizations may never actually be funded, so we have not included them in our estimates.

Figure 2 shows how the energy efficiency funding in the bill is broken down according to the various bill provisions (excluding authorizations).



While acknowledging that these spending levels would be a significant increase over historical levels of federal funding for energy efficiency, the Alliance urges a more robust energy efficiency allocation. The Alliance to Save Energy, along with a coalition of more than 140 organizations, has called on Congress to set aside funds over time, rising to roughly 26 percent of the cap-and-trade proceeds (roughly \$20 billion annually) for energy efficiency.

Use of Utility Allowances

The bill gives electric and gas utilities 35 percent and nine percent of total allowances, respectively, and gives states 1.9 percent of allowances for to the benefit of heating oil and propane consumers. Depending on what these entities do with the allowances, the carbon price signal to consumers could be muted.

Gas utilities must use one third of their free allowances for promoting end-use energy efficiency. Electric distribution utilities have no such requirement. The Alliance recommends that electric utilities be required to use at least one third of their allowance value to promote end-use energy efficiency for their customers or use allowances to spur all cost-effective end-use energy efficiency before using them for other purposes. Electric utilities have a long track record of administering energy efficiency programs, and these programs can help reduce the overall cost of carbon abatement and reduce consumer energy bills.

The worst thing the bill could do would be to allow utilities to use allowances to reduce customer bills proportionate to their energy consumption. While this would not affect the overall level of emissions, the lack of a carbon price signal to consumers would mean underinvestment in cost-effective energy efficiency, and thus raise the overall cost of carbon abatement. Fortunately, the bill specifically says that if rebates are provided to

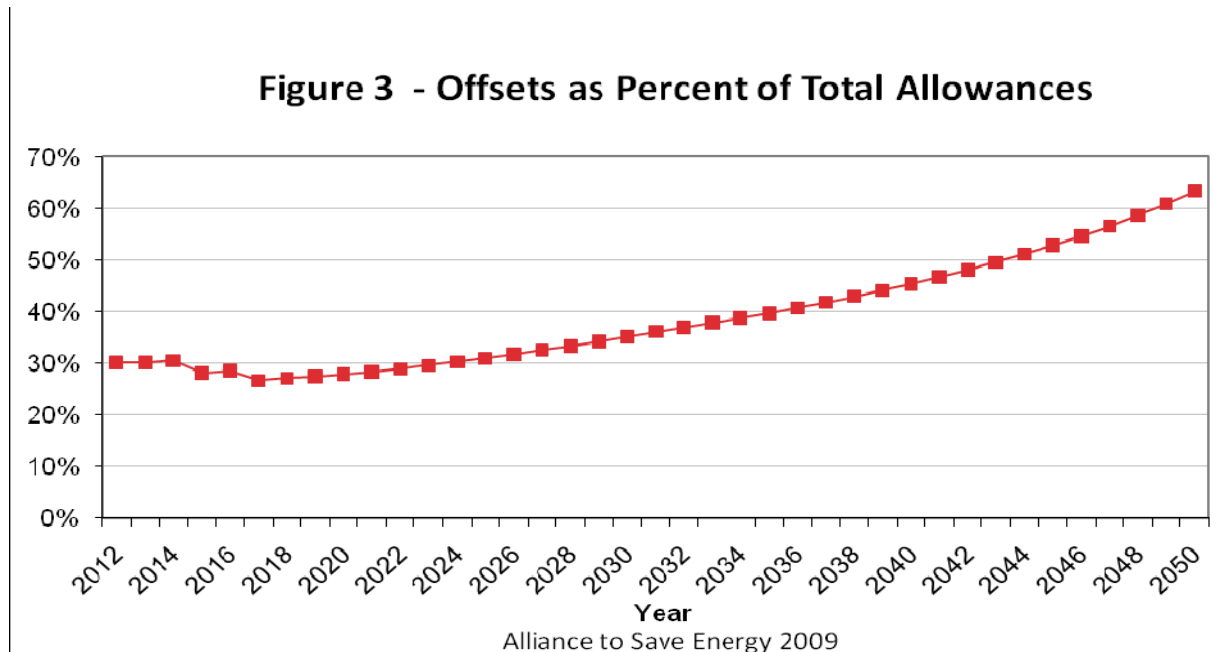
electricity, natural gas, or heating oil consumers, they cannot be based solely on the quantity of energy used by each ratepayer. Rather, customer rebates are to be based on a fixed rate to the maximum extent practicable. This provision would make customers more likely to see a carbon price, though the language could be strengthened.

In sum, the Alliance advocates that one third of the allowance value to electric utilities be dedicated to end-use energy efficiency, but acknowledges that the bill language attempts to address our concerns about a muted price signal.

Cost Control and Offsets

ACES would allow a maximum of 2 billion tons of carbon dioxide equivalent to be offset by credits for reductions in greenhouse gas emissions outside the cap. Up to one-half of these credits could come from projects outside the United States (at a discount), and one-half from domestic projects. Carbon offsets can be an effective cost-containment tool, but only if the claimed carbon reductions are real. If the reductions are not real, the cap itself will be undermined, and the cost per ton of carbon abated will be higher, not lower.

Measuring and verifying emissions reductions, and especially ensuring that the reductions occur as a result of the emitters' investment, is no trivial task. The world's largest offset program – the Clean Development Mechanism – is expected to issue offset credits for more than 2.7 billion tons of carbon dioxide equivalent between 2008 and 2012.⁴ The process of verifying offset credits has proven to be extremely challenging, fraught with controversy and no small amount of “hot air” (i.e., emissions reductions that would have occurred without the project investment). And end-use energy efficiency projects do not fare particularly well -- less than one-fifth of the credits issued under the CDM have been for energy efficiency projects, and 90 percent of the efficiency credits have been for efficiency improvements in electric generation.⁵



⁴ United Nations Framework Convention on Climate Change, Clean Development Mechanism, <http://cdm.unfccc.int/about/index.html>

⁵ Nicholas Mueller, “Sectoral Approaches and the CDM,” *EE Global*, Paris, April 2009.

Two billion tons of carbon dioxide is roughly one-third of current U.S. emissions, and *twice* the total allowed covered emissions in 2050. As shown in Figure 3, offsets comprise an increasing proportion of total allowance over time, up to 60 percent in 2050. Thus the bill needs to be very clear about how the many issues associated with evaluating, measuring and verifying savings will be addressed, and should ensure that the entities tasked with making key decisions are independent of political pressure.

The current bill tasks EPA with ensuring that carbon offsets are rigorously measured and verified and establishes an Offsets Integrity Advisory Board to oversee the offset mechanism. While the hard part is ahead, the bill currently takes reasonable measures to ensure the validity of offsets. Any attempts to dilute these safeguards should be vigorously opposed.

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