

**Testimony of Mr. Andrew deLaski,
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**Before the U.S. House of Representatives
Energy and Commerce Committee**

**Hearing on:
American Clean Energy and Security Act of 2009**

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Summary

Congress first enacted national appliance, equipment and lighting standards in 1988 and added new standards as parts of the Energy Policy Acts of 1992 and 2005 and the Energy Independence and Security Act of 2007. In general, Congress has established initial standards by statute and directed the U.S. Department of Energy (DOE) to review standards on a set schedule, increasing to higher efficiency levels if shown to be technically feasible and economically justified. The American Council for an Energy-Efficient Economy (ACEEE) estimates that, absent existing national standards, U.S. electricity use and peak electric demand would be about 10% higher in 2010 than currently projected. ACEEE estimates that consumers and businesses which buy affected products will net more than \$400 billion by 2030 (2008\$) due to already existing standards. The enormous energy, environmental and economic benefits delivered by national product efficiency standards have contributed to a history of strong bi-partisan support and cooperation for new standards and enhancements to DOE's program structure.

Subtitle B of **American Clean Energy and Security Act (ACES) of 2009** builds on this successful history. We thank Chairman Waxman and Chairman Markey for including this important appliance efficiency subtitle in ACES.

The subtitle consists of three parts:

- Sections 211 and 212 enact specific new standards for six categories of products;
- Section 213 provides critical enhancements to improve the overall effectiveness and responsiveness of the DOE program, and;
- Sections 214 and 215 relate to voluntary programs, including ENERGY STAR, which work in conjunction with standards to promote sustained improvements in energy efficiency.

We estimate that the specific standards included in ACES will save at least 17 billion kilowatt hours annually by 2020, or roughly enough to meet the needs of 1.5 million typical U.S. households. The standards would reduce power sector carbon dioxide emissions by nearly 12 million metric tons per year.

The program reforms in ACES are just as important as the specific standards. As we have gained experience with DOE rulemakings over the course of several administrations, we have learned of some of the shortcomings of the statutory structure which can stand in the way of cost-effective efficiency gains. Some shortcomings were addressed in EISA – for example, Congress granted the agency authority for regional standards for climate sensitive products and required periodic DOE review of all standards.

ACES contains eight additional reforms which significantly enhance the potential for energy, economic and environmental benefits. We support these reforms with some modifications and recommend a few more.

1. Multiple metrics (sec. 213(a))

While Congress has set more than one requirement for at least a dozen products in statute, DOE has recently held that the law prevents the agency from including more than one requirement per product. Often, a standard for a given product must include more than one element to either capture different aspects of its efficiency (e.g.; energy and water efficiency; electrical and gas efficiency; peak and average efficiency) or to capture cost-effective savings from controls or other technologies that are not reflected in a product's test method. For example, DOE held that it could not adopt a standard for home boilers recommended by industry and advocates because it consisted of a performance requirement plus a ban on standing pilot lights and a controls requirement. In the not-so-distant future, successful application of Smart Grid and demand response technology may depend on specific appliances including particular control features. Such features are typically not represented in a performance test method, but may be a critical feature of future energy-efficiency standards.

This provision passed the House in 2007 and we strongly urge you to act on it again.

2. State building codes and preemption (Sec. 213(j))

House and Senate energy bills have proposed federal targets of 30% savings in new building in the near term and 50% savings later through better building codes. However, the preemption associated with national appliance standards effectively puts savings from space and water heating and air conditioning equipment off limits, even when such savings may be very cost-effective for new construction and major renovations. ACES would create new flexibility for state codes, while still preserving a basic federal preemption framework. It would provide two options. First, states could adopt above federal code requirements included in certain model codes. This provision already exists for commercial heating and cooling equipment; ACES extends the same approach to residential equipment. Second, states could include code-compliance options which include above federal minimum products as long as other reasonably achievable options include only minimally-compliant products. We strongly support this provision – it will make a big difference for improving the overall efficiency of new homes.

3. DOE collection of key data for making standards decisions (Sec. 213(e))

It's very difficult to make good regulatory decisions without good data on efficiency performance and costs. The statistician's adage, "Garbage in; garbage out" applies well to decisions about new standards. However, DOE sometimes fails to obtain critical data needed for developing new standards. ACES would require DOE to conduct a rulemaking to determine what data manufacturers must submit, inclusive of efficiency performance data, to enhance DOE decision making. Improved data will also aid other programs such as ENERGY STAR. For example, in the past few weeks DOE posted data on ENERGY STAR product market share in 2007, but noted that the data appeared flawed.

4. *Remove the Catch-22 from the state waiver petition process (Sec. 213(g))*

Under current law, the Secretary can approve a state application for a waiver from federal preemption for a given standard needed to meet the “unusual and compelling” needs of that state. However, manufacturers can deny petitioning states access to information needed to meet the requirements of the waiver applications process. ACES would eliminate this Catch-22, while still preserving the basic decision criteria of the waiver process. Waivers would remain difficult, but no longer verge on the impossible.

5. *State authority to seek injunctive enforcement (Sec. 213(i))*

Compliance with federal standards is essential for achieving the expected energy savings. Under present law, only the federal government may bring enforcement actions, but since there is no federal budget for this, no significant enforcement is taking place. ACES would allow states to bring their expertise and resources to bear on compliance by enabling them to seek injunctive enforcement of federal standards in federal court on an equal basis to the Federal government. All provisions of federal law apply. Such a provision was included in EISA for general service incandescent lamps. It should be extended to other regulated products.

6. *Closing the reflector lamp loophole (Sec. 211(b)(3))*

Based on DOE’s data, reflector lamps comprising about 30% of sales have been left out of proposed standards for this category due to a legal interpretation arising from EISA. While EISA set specific standards for certain reflector lamps, we do not believe it was the intent to shelter other lamps from DOE standards in perpetuity, creating a big loophole. Recently, manufacturers and advocates agreed on a timetable for a DOE rulemaking to address this problem, and this timetable was adopted in the Senate committee markup of their appliances bill (S.598, Sec. 7). We urge the House to adopt this compromise as well.

7. *Enhanced decision criteria for new standards (Sec. 213(d)(1))*

New standards must be economically justified as determined by the Secretary according to seven factors. Although these factors give the Secretary significant discretion, DOE has sometimes ignored important benefits. ACES would rectify this problem by requiring the Secretary to consider the economic benefits of reduced emissions and the impact of energy savings on the overall energy price level. These are important national benefits which should be weighed in decision making. While we support these enhancements, we recommend dropping a final addition concerning commercial availability and market share (Clause (X) on page 242). DOE already must demonstrate “technological feasibility” and routinely searches out all technical options. We are concerned that this new clause could be construed as the basis for a market share test, which would be a new restriction on DOE standards.

8. *Strengthen the rebuttable presumption (Sec. 213(d)(2))*

The main decision criteria for new standards provide the Secretary significant discretion. An alternative decision tool is based on simple payback – if a standard pays back any additional up-

front cost in three years or less, it is presumed to be justified. However, DOE has ignored this provision, in part because the statute lacks guidance on what is required to rebut a standard meeting the payback criterion. ACES provides a clearer test: a standard may only be rebutted if there is clear, convincing and reliable evidence of hardship imposed on consumers or manufacturers outweighing the benefits. In addition, ACES extends the payback period to 5 years, making the clause more likely to have an impact. We support this clause with one modification. To accommodate products with short operating lives, the rebuttable presumption should be based on the shorter of 5 years or 75% of a product's life to avoid paybacks longer than a product's operating life

We also recommend several program reforms included in Senators Bingaman's and Murkowski's appliances bill (S. 598) as marked up in their committee last month. These include:

- A process and deadlines for DOE response to stakeholder request for test procedure rulemakings;
- Deadlines for DOE response to petitions for standards rulemakings;
- A study of current compliance with standards, and;
- Requirements for DOE and EPA to review ENERGY STAR levels and to establish more reliable methods for demonstrating compliance.

In addition to these critical program reforms ACES includes a number of specific new standards.

The biggest energy saver among the proposed new standards would cover **outdoor lighting** such as street lights, parking lot lights and other area lights. This proposal, originally introduced by Representative Harman (H.R. 1732), is based on a concept first brought forth by Philips Lighting. Discussions between efficiency organizations such as my own, Phillips and other lighting companies are ongoing. We strongly support the concept of national standards for these products and look forward to working with other stakeholders and the Committee. We are especially concerned that any final standard be adequately strong and that the standard and any exemptions, if necessary, are carefully constructed so as to avoid unintended loopholes and lost savings.

The second largest energy saver among the standards included concerns **portable light fixtures** such as table and floor lamps. This standard is based on a state requirement from California and is supported by both efficiency organizations such as my own and the American Lighting Association, which represents makers and sellers of portable light fixtures.

The bill also contains four additional standards covering **electric spas** or hot tubs; **drinking water dispensers**, **hot food holding cabinets** and **commercial furnaces**. We support these standards which were developed in consultation with trade organizations including the Pool and Spa trade association, the Air-conditioning Heating and Refrigeration Institute (AHRI) (for furnaces) and individual makers of the other products. All but the commercial furnace standard are based on state requirements in effect in multiple states; the commercial furnace standard is based on a voluntary national standard dating from 1999.

Finally, ACES includes two sections dealing with **voluntary programs**. Section 215 would set limits on the **ENERGY STAR** program, prohibiting ENERGY STAR levels which exceed a three to five year consumer payback. We think this approach is far too restrictive for ENERGY STAR. As a voluntary program covering several scores of products, EPA and DOE need more flexibility to develop appropriate criteria in consultation with stakeholders. For example, the test in ACES would immediately make illegal the current ENERGY STAR program for home furnaces, and no substitute level makes sense. This would leave a gaping hole in ENERGY STAR for the biggest energy consuming appliance in many homes. Other existing ENERGY STAR specifications would also be invalidated.

Section 214 would create a **“Best-in-Class Appliance Deployment Program”** aimed at incentivizing the development and market growth of the next generation of very efficient products. This program, based on concepts developed by Natural Resources Defense Council with input from major national retailers and manufacturers, could be a strong complement to the existing national standards program and the ENERGY STAR program: While standards establish a national floor and ENERGY STAR demarcates and promotes, in general, products which are among the most efficient 25% of current offerings, this new program would provide financial incentive to increase market share of the very most efficient available. Such an effort could pave the way for improved ENERGY STAR levels over time, and eventually, improved standards.

INTRODUCTION

My name is Andrew deLaski and I am the Executive Director of the Appliance Standards Awareness Project or ASAP. ASAP is a coalition project led by a Steering Committee consisting of representatives of efficiency advocacy organizations, state government, consumer and environmental organizations and utilities. Steering Committee members include the American Council for an Energy-Efficient Economy (ACEEE), the Alliance to Save Energy, Natural Resources Defense Council, Consumer Federation of America, National Consumer Law Center, Pacific Gas and Electric, the Northwest Power and Conservation Council, the Energy Foundation and Earthjustice. I have been the Executive Director of ASAP since its founding in 1999 and have worked extensively on both national and state standards over the past decade. I've been intensively involved in DOE rulemakings under three administrations, participated actively in the development of the standards provisions in EPACK 2005 and EISA 2007. I have been involved in helping to advance state standards which have formed the basis of more than a dozen state laws over the past several years. EPACK and EISA together included more than 20 new standards (mostly based on state standards) and critical program enhancements such as limited authority for regional standards for climate-dependent products and requirements for regular DOE reviews of all standards.

The standards in EPACK 2005 and EISA 2007 were added to the framework created by the National Appliance Energy Conservation Act of 1987, and amendments enacted in 1988 and 1992 (EPAc). Consensus standards negotiated between appliance manufacturers and energy efficiency advocates provided the foundation for each of these laws. Most federal standards build on previous state standards: after several states adopt standards on a product, manufacturers generally prefer uniform national standards to a patchwork of state standards. But where manufacturers and efficiency advocates disagree, Congress has commonly delegated decisions to DOE, allowing each side to make its best case and then having the Secretary of Energy decide.

Typically, when Congress has enacted a specific new standard, initial standards are provided by statute and a schedule is established for review and strengthening if improvements are technologically feasible and economically justified.

DOE completed eight major new standards during the Clinton administration and four during the Bush administration, but fell behind on many legal deadlines. Under the terms of a consent decree signed in November 2006, DOE must catch up on 22 overdue standard reviews and, if warranted, complete upgrades by mid-2011. Concurrently, the agency has several deadlines from the recent laws coming due. Thus, rulemaking processes currently underway or about to begin cover some 25 product categories. Under a provision enacted in 2005, DOE must report to Congress every six months on its compliance with deadlines.

Impacts to date are impressive: according to the National Commission on Energy Policy, appliance standards rank second only to auto fuel economy standards in terms of energy saved from national policies.¹ Altogether, ACEEE estimates that U.S. electricity use and peak electric demand would be about 10% higher and U.S. total energy use about 5% higher in 2010 if not for

¹ <http://www.bipartisanpolicy.org/files/news/finalReport/III.2.c%20-%20Supplemental%20Info%20on%20EE.pdf> .

already existing federal standards. Net savings to consumers from standards already adopted will exceed \$400 billion by 2030 (2008\$).²

However, much more savings are possible through a combination of further updates to existing standards completed through the DOE rulemaking process, plus adding new products to the federal standards program. We estimate that new standards due from DOE within the next few years have the potential to cost-effectively save about 165 billion kilowatt hours annually by 2020 – roughly the amount of electricity used by all the homes in Ohio, Michigan, Illinois and Indiana combined. Such standards could reduce peak demand by another 60,000 megawatts, roughly enough to eliminate the need for 200 power plants at 300 MW capacity each and cut annual global warming emissions by 150 million metric tons. Savings grow over time: ACEEE estimates that U.S. energy use in 2030 can be reduced by about 2.5 quadrillion Btu's (about a 2.2% reduction from projected levels) and carbon dioxide emissions can be reduced by at least 165 million metric tons, a 2.6% reduction from projected levels.³

Fortunately, the federal standards program has a long history of bipartisan support, at the Committee level and on the House and Senate floor. Standards laws have been signed by Presidents Reagan (two laws), George H.W. Bush, and George W. Bush (two laws).

The proposed appliance efficiency subtitle of the American Clean Energy and Security Act (ACES) of 2009 builds on these solid foundations. We thank Chairman Waxman and Chairman Markey for introducing this bill and moving the discussion forward on how best to improve the appliance standards program. In the sections below, I comment on the appliance efficiency provisions in ACES, and also on some additional provisions that we recommend be added to increase the energy savings achieved and improve the appliance standards program's processes and interactions with state initiatives.

The provisions of Subtitle B, "Lighting and Appliance Efficiency Programs," fall into three categories, each of which is discussed below:

- Section 213 provides critical **program enhancements** to improve the effectiveness and responsiveness of the DOE's efforts.
- Sections 211 and 212 enact specific **new standards** for five categories of products.
- Sections 214 and 215 relate to **voluntary programs**, including ENERGY STAR, which work in conjunction with standards to promote sustained improvements in energy efficiency.

PROGRAM ENHANCEMENTS IN "ACES"

ACES includes several very important program improvements which will strengthen DOE decision making, improve agency responsiveness to all stakeholders, and remove barriers to

² Calculations from a forthcoming ACEEE report to be published spring 2009.

³ Ibid. Preliminary estimate of savings can be found at: http://www.standardsasap.org/documents/DOE_schedule.pdf. Percentage reductions are relative to reference case in EIA's 2009 *Annual Energy Outlook*.

improved state energy efficiency policies. In addition, we recommend several enhancements included in pending Senate legislation.

1. Multiple metrics (Sec. 213(a))

The past two administrations have disagreed on whether DOE may set more than one standard for a product. For quite a few products Congress has imposed more than one standard for a product. Some examples are listed below.

Product	Metrics
Heat pumps	Cooling efficiency and heating efficiency
Clothes washers	Energy Factor and Water Factor
Dishwashers	Energy Factor and Water Factor
Residential boilers	AFUE, restrictions on pilot lights and a control requirement
General service incandescent lamps	Maximum Watts, minimum life
Fluorescent lamps	Efficacy and color rendering
External power supplies	Active mode efficiency and no-load mode watts
Compact fluorescent lamps	Initial efficacy, lumen maintenance, lamp life, rapid cycle test
Ceiling fans	Efficient light kits, several control requirements
Walk-in coolers and freezers	Insulation, glass, motor, control, lighting, and door requirements
Ice-makers	Energy use and water use

The list above includes two very different groups. Most combine two *performance* parameters, such as cooling efficiency and heating efficiency, where the product combines multiple energy-using functions. Some combine a performance standard with one or more *prescriptive* requirements, such as boiler controls and minimum life for lamps. This situation is critical for obtaining savings where energy-saving technology options have developed more quickly than rating methods have been revised, as in the case of boiler controls.

Uncertainty about DOE's authority has caused several problems in recent years. In the current rulemaking for general service fluorescent lamps, DOE decided it was prohibited from revising the now outdated requirements for color rendering, even though both advocates and industry recommended that this part of the standard be updated. In 2007 DOE turned down a consensus agreement on new residential boiler standards, requiring the parties to go to Congress to successfully ask that this provision be included in EISA. Similarly, just last month, DOE declined to adopt new multi-metric standards for commercial warm air furnaces developed by the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE).⁴

⁴ See pp 38 to 40 of the Proposed Rule made available on March 12, 2009 by DOE at http://www1.eere.energy.gov/buildings/appliance_standards/commercial/ashrae_products_docs_meeting.html but not yet published in the *Federal Register*. This proposed rule confirms an initial determination issued on July 16, 2008 (73 Fed. Reg. 40770). DOE asserts it lacks authority to adopt the ASHRAE requirements which, for commercial furnaces, would eliminate standing pilot lights, set a limit on jacket losses and require power venting or automatic flue dampers.

Another very important potential application of this authority is to require that some products have two-way communication interfaces, so they can communicate with the “Smart Grid”. For example, some electric industry representatives have suggested that DOE consider such a requirement for electric water heaters.

The question is whether DOE, in revising standards, can also use more than one metric if such a standard is technically feasible and economically justified. The Clinton administration ruled that DOE has this authority; the Bush administration took the contrary view. If the law is this unclear, it should be clarified, as this amendment would do. This amendment *does not* require DOE to set any standards with multiple metrics; it just gives DOE the option. Even with this amendment, DOE cannot set a multiple metric standard if such a standard is not technically feasible or economically justified. Some manufacturers argue that multiple standards on particular products are costly or onerous. This argument should be made as part of the open rulemaking process at DOE. Concerns some manufacturers have about some products should not affect DOE’s ability to set appropriate standards for all products.

This provision passed both the House and Senate in 2007 but was left out of EISA at the last minute. It should be adopted this year.

2. State building codes and federal preemption

Under present law, states are generally preempted from setting requirements in their building codes which exceed federal minimums.⁵ States with performance-based building codes must use minimum-efficiency equipment when developing code requirements. Performance-based codes provide an overall level of performance and permit many paths for reaching these goals (e.g. more insulation, better windows, reduced air infiltration, or improved equipment). But if equipment is limited to only federal minimums, some states are finding they cannot set strong enough codes to meet their energy and climate goals. Also, this part of federal law creates a loophole in performance based codes, as builders exceeding federal minimums can install less insulation, even though insulation lasts for the life of the building while equipment lasts for only one to two decades.

ACES allows greater flexibility in state codes to encourage improved efficiency for products covered under federal appliance standards. This provision is based on concepts developed by the Alliance to Save Energy in consultation with states and other stakeholders. It would allow states limited authority to use covered products with above-federal-minimum efficiency levels in formulating their building codes, while keeping the basic framework of preemptive federal standards. The proposed amendment includes two changes:

1. The first change allows the use of above-federal-minimum products in codes at an efficiency level set in the International Energy Conservation Code (IECC) or in the American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) model code. Federal law already allows states to adopt many *commercial* product standards in their codes at levels above federal minimums if contained in an ASHRAE model code. Creating a similar structure for *residential* products would enable states to

⁵ There is an existing path requiring trade offs, but it is so complicated as to be virtually unusable.

require the use of more efficient products in construction covered by their prescriptive building codes at levels set in a national standard-setting process. This reform is most needed to enable improved in new construction even if such improvements do not make sense in existing buildings. For example, efficient furnaces make good economic sense in all new construction in all climates, but in warmer climates may not make sense for replacement installations.⁶

2. The second change allows states to offer options for meeting their codes using above-federal-minimum covered products as long as at least one option assumes covered products at the level of federal standards, and that this option is “reasonably achievable using commercially available technologies”. In other words, if a state set performance requirements that were based in part on high efficiency furnaces, they would have to provide an explicit pathway for installing a minimum efficiency furnace, making up the lost savings with other measures such as more insulation or improved windows. This would enable states to establish a performance standard that meets the needs of the state as long as they provide a clear path for code compliance using covered products that do not exceed federal-minimum efficiency standards.

3. DOE collection of key data for making standards decisions

The distribution of efficiency levels among products sold is a key piece of information for establishing new standards; however, DOE has sometimes failed to obtain such data in developing new rules. DOE usually asks for such information, but manufacturers sometimes decline to provide it. ACES would require DOE to conduct a rulemaking to determine what data manufacturers must submit, inclusive of efficiency performance data, to enhance DOE decision making. Existing law includes provisions to protect confidential data. Improved data will help DOE’s decision-making process for standards, and will also aid other programs such as ENERGY STAR. For example, in the past few weeks DOE posted data on ENERGY STAR product market share in 2007, but noted: “The validity of the clothes washer data for quarter one and quarter three is questionable. It is expected that the incorrect coding of previously qualified units for these two quarters resulted in a higher than actual market share projection. The drop in refrigerator market share in the fourth quarter is also due to data from one retailer.”⁷ This data provision would help DOE to get accurate data, enabling far better assessments of program effectiveness.

4. Removing the Catch-22 from the state waiver petition process

Under current law, federal standards preempt state standards, unless a state submits and DOE approves an application for exemption from preemption. Such application must demonstrate that “such state regulation is needed to meet unusual and compelling State or local energy or water interests” and that such regulation “will not significantly burden the manufacturing, marketing,

⁶ Indeed, some builders find installing higher efficiency (condensing) furnaces (and power-vent water heaters) to be *less* expensive than using lower efficiency products, since it avoids the need for a conventional chimney.

⁷ “2007 Sales Data – National, State and Regional” available at: http://www.energystar.gov/index.cfm?c=manuf_res.pt_appliances.

distribution, sale or servicing of the covered product on a national basis.” The detailed requirements for states to get waivers from federal preemption include submittal of information that may be obtainable only from manufacturers, who may oppose the waiver. ACES would prevent DOE from denying a state a waiver from preemption for failing to provide information which manufacturers refuse to make available to the state. The amendment would also limit DOE from denying waivers to states for failing to explore every conceivable energy saving alternative to standards or for not having a formal state energy plan. States would still have to demonstrate that they meet the primary determination factors, as summarized above, but the provision would remove some secondary requirements that impose needless roadblocks on state action. Even with these amendments, states would still have a difficult case to make, but these amendments at least make it possible to make the case.

5. State authority to seek injunctive enforcement

Compliance with federal standards is essential for achieving the expected energy savings. Under present law, only the federal government may bring enforcement actions, but since there is no federal budget for this, no significant enforcement is taking place. This amendment would allow states to bring their expertise and resources to bear on compliance by enabling them to seek injunctive enforcement of federal standards in federal court on an equal basis to the Federal government. All provisions of federal law apply. Such a provision was included in EISA for general service incandescent lamps. It should be extended to other regulated products.

6. Reflector lamp loophole

EISA extended existing reflector lamp standards to some previously exempted lamps. DOE under the previous administration interpreted the EISA language to permanently bar DOE from addressing any other exempted reflector lamps, which was not the intent we agreed to when we helped negotiate the EISA language. The new administration is now reviewing this interpretation, but if there are legal doubts, Congress should correct the law.

Due to this interpretation, final standards for incandescent reflector lamps due in June 2009 may include a huge loophole (about 30% of total sales) which will only grow bigger because these exempted lamps are lower cost than regulated products. The proposed amendment closes the loophole by requiring DOE to do a quick rulemaking to consider standards for the exempted products. The rulemaking is quick because it can build on the three-year rulemaking for related products that is now nearing completion. If manufacturers believe that standards for these products are not technically feasible and economically justified, they can make these arguments during the rulemaking. If DOE fails to complete the rulemaking on time, the standard DOE establishes this June for other reflector lamps would apply. Further, the amendment requires that DOE conduct a future rulemaking (completed by 2015) for reflectors which considers all technology on an equal basis rather than just incandescent technology.

Traditionally, among incandescent lamps, reflector lamps have led in efficiency innovations. With EISA, general service incandescent lamps (the pear-shaped light bulb) are moving towards advanced incandescent technology. The reflector lamp loophole is protecting some common reflector lamps from having to make this transition, even though the advanced technology can be

applied -- in fact, advanced incandescent products are presently available in retail stores for the main exempted category.

Recently, manufacturers and advocates agreed on a timetable for a DOE rulemaking to address this problem, and this timetable was adopted in the Senate committee markup of their appliances bill (S.598, Sec. 7). We urge the House to adopt this compromise as well.

7. Enhanced decision criteria for new standards

New standards must be economically justified as determined by the Secretary according to seven factors (EPCA section 325(o)). Although these factors give the Secretary significant discretion, DOE has sometimes ignored important societal benefits. ACES would rectify this problem by requiring the Secretary to consider the economic benefits of reduced emissions and the impact of energy savings on the overall energy price level. For example, DOE found in its recent rulemaking for home furnaces that the decline in gas demand resulting from a strong standard would lower the commodity price of natural gas. These important national benefits should be weighed in decision making.

While we support these enhancements, we recommend dropping a final addition concerning commercial availability and market share (Clause (X) on page 242). The existing law specifies that revised standards must be set at the “maximum level which is technologically feasible and economically justified.” DOE already must demonstrate “technological feasibility” and routinely searches out all technical options. We are concerned that this new clause could be construed as the basis for a market share test to determine economic justification. However, standards are in part designed to overcome market barriers to efficiency that can result in low market share. A market share test would set the rationale for standards on its head. Therefore, we recommend that clause X be dropped.

8. Strengthen the rebuttable presumption

The main decision criteria for new standards provide the Secretary significant discretion. An alternative decision tool is based on simple payback – if a standard pays back any additional up front cost in three years or less, it is presumed to be justified. This provision should provide a floor which protects against standards which are too weak. However, DOE has ignored this provision, in part because the statute lacks guidance on what is required to rebut a standard meeting the payback criterion. ACES provides a clearer test: a standard may only be rebutted if there is clear, convincing and reliable evidence of hardship imposed on consumers or manufacturers outweighing the benefits. In addition, ACES extends the payback period to 5 years, providing a higher floor for future standards. We support this clause with one modification. To accommodate products with short operating lives, the rebuttable presumption should be based on the shorter of 5 years or 75% of a product’s life to avoid paybacks longer than a product’s operating life.

Additional program reforms

We recommend to the House several enhancements included in the Senate appliances bill introduced by Senators Bingaman and Murkowski (S. 598), as marked up by the Senate Energy and Natural Resources Committee last month. These provisions are as follows:

Appliance test procedures

In 2007, EISA directed DOE to review and revise appliance test procedure changes over a seven-year period. But seven years is a long time and some revisions cannot wait. A provision in S.598 (Section 02) would allow parties to petition DOE to adopt changes to specific DOE test procedures. DOE reviews the proposal in line with established procedures and criteria and is given a deadline for making decisions. It also requires timely responses from DOE to petitions, something that is a problem. As an egregious example, a petition submitted by the California Energy Commission in May 2008 to repeal a useless television test procedure from 1977 has not even been acknowledged, let alone acted upon. Direct final rules are permitted in both S.598 and ACES (Section 213(b)) which encourages consensus agreements that can accelerate updates and ease DOE's workload. These sections would need to be reconciled.

Schedule for DOE to rule on petitions

Current law has a provision permitting interested parties to petition DOE to revise a specific standard. However, no deadlines are provided. This section (*S. 598, Section 4*) gives DOE 180 days to respond to a petition, and if the petition is granted, three more years to publish a final rule on the standard.

Studying compliance with Federal standards

About 45 products are now regulated and, to our knowledge, no one has ever conducted a systematic assessment of compliance. Enforcement is important in order to ensure that energy savings are real, and to protect the vast majority of law-abiding companies from unscrupulous competitors. We have heard informal reports that some standards are not being fully followed. Some Congressional offices have expressed interest in improving standards enforcement. A first step in such efforts is to conduct a study to see what the problems are and where they lie. Section 7 of S. 598 would have DOE conduct such a study. We envision that DOE would hire one or more contractors to survey products on the market for each regulated product category, ascertaining as best as possible from available data which products are in compliance with standards and which are not. Such surveys would be made using the Web (manufacturer, wholesaler, and retailer sites), and by visiting a sample of retail stores. Some products on the market would be purchased and independently tested to see if they were in compliance or not.

NEW STANDARDS IN ACES 2009

The House discussion draft includes new standards for five categories of products. We estimate that the specific standards included in ACES will save at least 17 billion kilowatt hours annually

by 2020, or roughly enough to meet the needs of 1.5 million typical U.S. households. The standards would reduce power sector carbon dioxide emissions by nearly 12 million metric tons per year.

The table below summarizes estimates of energy savings from the proposed new standards:

Product	2020 kWh Saved (millions)	2020 Peak Demand Reduction (MW)	2020 CO ₂ Emissions Reductions (MMT)	Net Discounted Consumer Benefits (million \$)
Portable lighting fixtures	3,856	573	2.62	3,700
Outdoor lighting fixtures	12,570	Small, on off-peak	8.54	Not yet estimated
Water dispensers	250	35	0.17	230
Hot food holding cabinets	314	103	0.21	290
Portable electric spas	185	43	0.13	100
Total	17,175	754	11.67	4,300

Notes to table: Net Discounted Consumer Benefits are for purchases through 2030. 2020 kWh savings for outdoor lighting fixtures adapted by ACEEE from Philips estimates cited above, based on a 20 year average fixture life. CO₂ savings are prorated based on ratio of kWh to CO₂ savings for other products.

Outdoor lighting fixtures (Section 211(a))

We thank Representative Jane Harman for introducing HR 1732 which would set standards for outdoor lighting and Representatives Waxman and Markey for including outdoor lighting standards in ACES. We support the concept of federal standards and look forward to working with members of industry and the committee to work out acceptable language.

Outdoor lighting fixtures are generally fairly high wattage products and are on for many hours each night. Outdoor lighting accounts for about 8% of U.S. lighting energy use and 2% of total U.S. electricity use. The largest outdoor lighting uses are roadways (streets and highways) and parking lots.⁸ Current systems use a variety of lamp types, including incandescent, mercury vapor, low and high pressure sodium (yellowish light), and metal halide lamps. In the past few years, rapid technical strides have been made and a new generation of more efficient types is emerging including LED lighting and advanced metal halide and high pressure sodium lamps. In addition, efficiency can be improved with electronic ballasts, use of lighting controls and improved fixture designs. Substantial energy can be saved by standards that steadily eliminate the least efficient fixtures from the market in favor of more efficient products.



LED Lighting, I-35 Bridge, Minneapolis. (DOE)

⁸ Navigant Consulting. 2002. *U.S. Lighting Market Characterization*. Washington, D.C.: Buildings Technologies Program, U.S. Department of Energy.

Early this year Philips Lighting approached efficiency advocates⁹ to explore the possibility of new standards for outdoor lighting. This coalition is actively discussing this proposed standard with other lighting companies and we are optimistic that strong standards will emerge. This process of negotiation concurrent to legislative consideration is similar to that which led to the successful enactment of standards for general service incandescent lamps in EISA.

As proposed in ACES, the standard would regulate the whole system efficiency of *new* outdoor lighting fixtures with an initial requirement of 50 lumens per watt, effective 2011, rising to 70 lumens per watt in 2013 and 80 lumens per watt in 2015 (existing fixtures would not be affected). Additional provisions would require 2-level or dimming controls and good lumen maintenance (maintenance of light levels over time). Advanced LED, metal halide, and high pressure sodium systems would all comply, but old technologies would not. The proposed standards would also outlaw the ongoing sale of the least efficient high light output outdoor lamps. New, more efficient replacements are readily available.

Philips Lighting has analyzed the likely savings from this standard and estimates that this standard would eventually save about 30 billion kWh per year from fixture efficiency improvements alone, once existing fixtures are fully replaced. The bi-level controls would add additional savings. They estimate annual carbon dioxide emissions reductions of more than 16 million metric tons and annual energy bill reductions of about \$3.6 billion once all fixtures are replaced.¹⁰

Portable lighting fixtures and GU-24 lamps (Sections 211(b))

Standards for portable lighting fixtures and GU-24 lamps were established in California in 2008 and this provision makes this standard a national one (section 5). This standard transitions new fixtures away from use of inefficient screw-in incandescent lamps, and towards an array of more efficient choices including compact fluorescent lamps, LED lighting, or low/medium wattage halogen lamps. A variety of options are provided to manufacturers and consumers, so an appropriate choice can be found for all applications. For example, under the provision, there are two main compact fluorescent options – a dedicated ENERGY STAR compact fluorescent fixture or including ENERGY STAR screw-in compact fluorescent lamps in the box with the fixture. The provision also builds upon current DOE and EPA ENERGY STAR standards for LED fixtures, providing guidance for an important emerging type of light.

In addition, the GU-24 provision follows California rules to prevent a new type of universal compact fluorescent base (GU-24) from being used with incandescent lamps. Unlike present bases, the GU-24 base can be used with many types of compact fluorescent lamps. Industry, utilities, and ENERGY STAR staff are planning to widely promote its use as a way to guarantee lighting energy savings. However, these efforts would be undermined if GU-24 incandescent

⁹ Alliance to Save Energy, Appliance Standards Awareness Project, and Natural Resources Defense Council

¹⁰ Cook, Keith. 2008. "Proposed Outdoor Lighting Efficiency Standards". Washington, DC: Philips Lighting.

lamps are introduced because no energy is saved if incandescent lamps are used in GU-24 fixtures. Section 6 would prevent this from happening.

In the process of negotiating these federal provisions, a few refinements to the California regulations were negotiated between efficiency advocates led by ACEEE and the American Lighting Association (the industry trade association for these products) to strengthen some of the requirements, gradually phase in the requirement for testing for whole system efficacy, and exclude purely decorative fixtures from the whole system efficacy requirements. For example, for LED fixtures over the 2012-2016 period, the bill permits these fixtures to either meet the current DOE ENERGY STAR LED fixture specification, or provides an option for a higher “light engine” efficacy (“efficacy” is a lighting industry term for efficiency), without requiring testing of whole system efficacy. As of 2016, new standards will apply, to be developed by DOE by 2014. Given California’s pioneering role, this provision also allows California to revise its current standard, but this authority expires in 2014. Similar provisions were included in EISA and EPCA 2005, when California standards were adopted as federal standards. These changes represent thoughtful compromises on these issues, compromises that have the support of both efficiency advocates and ALA.

ACEEE estimates that this provision will reduce U.S. electricity use in 2020 by about 3.9 billion kWh, enough to serve about 350,000 average U.S. residential customers for a year.¹¹ These standards will reduce peak electric demand in 2020 by about 570 MW, equivalent to a typical new coal-fired power plant or two typical natural gas-fired power plants. Net present value financial savings to consumers will exceed \$3.7 billion from purchases through 2030, accounting for both the value of the energy saved and the modestly higher purchase cost for complying fixtures. By 2020, this standard will reduce carbon dioxide emissions by about 2.62 million metric tons, helping to make a significant dent in greenhouse gas emissions. This is equivalent to taking 485,000 cars off the road for a year.¹²

While we support this provision, we think it can be improved in one important respect. The bill permits halogen fixtures rated up to 100 Watts, but provides no efficiency standards for these products. We recommend that halogen lamps be required to meet efficiency levels similar to those Congress adopted for general service incandescent lamps as part of EISA. We are now trying to develop a specific proposal in discussions with ALA.

Bottle-type water dispensers

Bottled water dispensers are commonly used in both homes and offices to store and dispense drinking water. Designs include those that provide both hot and cold water and those that provide cold water only. In 2000, the EPA issued a voluntary ENERGY STAR performance specification for standby energy of 1.2 kWh per day and 0.16 kWh per day for “hot and cold” dispensers and “cold only” dispensers, respectively. “Hot and cold” water dispensers tend to be

¹¹ At 11,000 kWh/year per household, per EIA data.

¹² Based on 12,000 miles/vehicle each year, a fuel economy of 20 MPG, and 20 pounds of CO₂ emitted per gallon. There are 2,204.6 pounds per metric ton. With these assumptions each car emits about 5.44 metric tons of carbon dioxide equivalent annually.



much less efficient than “cold only” because they must maintain water tanks at two temperatures in a small space. The greatest factor determining energy efficiency is insulation of the water reservoirs. Older models of “hot and cold” dispensers often do not have insulated hot water tanks, which increases heat dissipation and standby energy waste. Adding insulation between the tanks and increasing existing insulation levels can reduce standby energy waste. A Pacific Gas & Electric Co. report found that a reduction from the baseline “hot and cold” dispenser daily energy consumption of 1.93 kWh to the proposed 1.2 kWh would save nearly 38% of annual energy consumption. The slight cost (about \$12) to improve a basic unit to meet the proposed standard would be earned back in lower energy costs within about 6 months at national average energy prices. EPA data indicate that just over 40% of water dispensers sold meet the ENERGY STAR specification.¹³

In December 2004, the California Energy Commission adopted the ENERGY STAR standard for “hot and cold” dispensers as a mandatory standard, affecting units sold after January 1, 2006. Subsequently the same standard has been adopted in Connecticut, Maryland, New Hampshire, Oregon, Rhode Island, and the District of Columbia. We recommend that this same standard be adopted as a federal standard and that DOE be directed to develop a revised standard by 2013, effective three years later.

I provide estimates of energy and economic savings for this proposal later in this testimony.

Commercial hot food holding cabinets

Hot food holding cabinets are used in hospitals, schools and other applications for storing and transporting food at a safe serving temperature. They are freestanding metal cabinets with internal pan supports for trays. Most are made of stainless steel and are insulated; however, there are some models that are non-insulated and are often made of aluminum. The main energy-using components include the heating element and the fan motor.



Source: Carter-Hoffmann

The ENERGY STAR specification sets a maximum idle energy rate issued for hot food holding cabinets of 40 Watts per cubic foot of measured interior volume. Appropriate insulation in hot food holding cabinets is the key mechanism to meet this specification. Insulated cabinets also have the advantage of quick preheat times, less susceptibility to ambient air temperatures, and a more uniform cabinet temperature. The recommended maximum idle energy rate translates to a 78% annual energy savings of 1,856 kWh relative to a basic, inefficient model. These energy savings cover the estimated additional cost of more efficient units within 3 years. Data is uncertain, but it appears that about 40% of hot food holding cabinet sales meet this

¹³ Nadel, S., A. deLaski, M. Eldridge, and J. Kliesch. 2006. *Leading the Way: Continued Opportunities for New State Appliance and Equipment Efficiency Standards*. Washington, DC: American Council for an Energy-Efficient Economy.

specification.¹⁴

In December 2004, the California Energy Commission adopted this level as a statewide minimum standard, effective January 2006. Subsequently the same standard has been adopted in Connecticut, Maryland, New Hampshire, Oregon, Rhode Island, and the District of Columbia. We recommend that this same standard be adopted as a federal standard and that DOE be directed to develop a revised standard by 2013, effective three years later.

I provide estimates of energy and economic savings for this proposal later in this testimony.

Portable electric spas (hot tubs)

Portable electric spas are self-contained hot tubs. They are electrically heated and are popularly used in homes for relaxation and therapeutic effects. The most popular portable spas hold between 210 and 380 gallons of water; however, some models can hold as much as 500 gallons. “In-ground” spas are not included in this category.



Source: Sundance

Over half the energy consumed by a typical electric spa is used for its heating system. Heat is lost directly during use and through the cover and shell during standby mode. Improved covers and increased insulation levels are key measures to improving efficiency and can decrease standby energy use by up to 30% for a spa of average-to-low efficiency. Another measure is the addition of a low-wattage circulation pump or improvements to pump efficiency that would generally save 15% of standby energy consumption of an average-efficiency spa. Automated programmable controls, which would allow users to customize settings based on predicted usage patterns, are a third measure to improve efficiency and could save roughly 5% of a spa’s standby energy consumption.¹⁵

In December 2004, the California Energy Commission (CEC) adopted a maximum standby energy consumption standard of $5 (V^{2/3})$ Watts for portable electric spas where V = the total spa volume in gallons and $2/3$ means to the two-thirds power. Standby energy consumption represents the majority (75%) of the energy used by electric spas and refers to consumption after the unit has been initially brought up to a stable temperature at the start of the season and when it is not being operated by the user. The energy consumption calculation ($V^{2/3}$) used by CEC approximates total spa surface area, which is directly related to standby energy use. A maximum standby energy requirement indexed to total spa surface area thus requires spas of all sizes to be equally efficient.

The California standard is a modest initial effort and is probably met by the majority of spas now being sold. CEC estimates that the products meeting the standard cost \$100 more than basic models. At national average energy prices, this additional cost is covered within 4.3 years.¹⁶

¹⁴ *Ibid.*

¹⁵ *Ibid.*

¹⁶ *Ibid.*

Connecticut and Oregon have subsequently adopted the California standard. We recommend that the same standard be adopted as a federal standard and that DOE be directed to develop a revised standard by 2013, effective three years later.

VOLUNTARY PROGRAMS

Finally, ACES includes two sections dealing with voluntary programs. We are concerned that the proposed language related to Energy Star would place overly restrictive limits on the program, limiting its applicability and effectiveness. We suggest an alternative approach to enhance the program based on a proposal worked out in the Senate committee. A second proposal in ACES proposes a new program to foster the most efficient products.

Limits on ENERGY STAR

We are concerned that Section 215 which would set far too restrictive limits on the ENERGY STAR program, prohibiting ENERGY STAR levels which exceed a three to five year consumer payback. As a voluntary program covering dozens of products, EPA and DOE need more flexibility to develop appropriate criteria in consultation with stakeholders. For example, the payback test in ACES would immediately make illegal the current ENERGY STAR program for home furnaces and water heaters, and no substitute level makes sense. This would leave gaping holes in ENERGY STAR for the biggest energy consuming appliances in many homes. Sometimes, for rapidly evolving product categories like home electronics, ENERGY STAR has attempted to guide market development of more efficient products as when it established standards for Digital Television Adapters (DTAs) well in advance of market availability of *any products*. It would have been impossible for EPA to demonstrate cost-effectiveness for the DTA ENERGY STAR level. Yet, this level, ultimately, formed the foundation for the efficiency qualification criteria for products receiving federal rebates, thus saving significant amounts of energy. We urge the Committee to drop this section.

As an alternative, we recommend the House adopt section 3 of S. 598 which requires agency review and compliance documentation which should help ENERGY STAR address some recent problems. ENERGY STAR has been a valuable and very successful program to promote the sale of high efficiency products. The program was started by EPA, but for many years DOE has taken the lead on some products, under the terms of an interagency MOU. In October 2008, *Consumer Reports* published a report on ENERGY STAR, finding a few problems. Specifically, they found that a few manufacturers were distorting refrigerator test results, and since the program relied only on manufacturer testing, there was no mechanism to catch this problem. The article also noted that some appliance specifications needed updating, as indicated by the fact that a majority of products on the market earned the ENERGY STAR rating, although DOE and EPA generally target the top 25% of products for the label.

Our understanding is that the agencies have been working to address these problems, but Section 3 of S. 598 requires them to take action. Specifically, it requires some type of independent certification or review of product testing for each product, while giving the agencies and each industry flexibility as to what type of certification/review most makes sense for a product. This

provision also requires DOE and EPA to review the ENERGY STAR specification when the market share for a product category reaches 35%. If a review begins when market share reaches 35%, market share can grow considerably in the year or more it takes to complete the review, set a new specification, and put the new specification into effect. While 35% is a good review threshold for most products, there are exceptions (e.g., compact fluorescent lamps where ENERGY STAR is a quality mark and not just for the best products). Therefore, the provision permits the agencies to revise this percentage on a product-specific basis as part of their first review. We believe these provisions will improve the ENERGY STAR program, while giving the agencies needed flexibility.

Best-in-Class Appliance Deployment Program

Section 214 would create a “Best-in-Class Appliance Deployment Program” (BICAD) aimed at incentivizing the development and market growth of the next generation of very efficient products. This program, based on concepts developed by Natural Resources Defense Council (NRDC) with input from major national retailers and manufacturers, could be a strong complement to the existing national standards program and the ENERGY STAR program: While standards establish a national floor and ENERGY STAR demarcates and promotes, in general, products which are among the best 25% of current offerings, this new program would provide financial incentive to increase market share of the very most efficient available. Such an effort could pave the way for improved ENERGY STAR levels over time, and eventually, improved standards.

According to NRDC, BICAD would establish three types of monetary incentives for retailers and manufacturers based on the sale and development of best-in-class high-efficiency building equipment, consumer electronics and household appliances.

1. The first incentive is directed at retailers for sales of Best-in-Class Product models. The Secretary of Energy selects a class of product for the program and determines the most efficient product models within that class. Retailers could then obtain a bonus for each sale of a Best-in-Class model. The size of the bonus would be based on the energy consumption savings of the Best-in-Class Product model compared to the average product in the class. In order to make sure the program remains up-to-date, the Secretary would review the standards and qualifying Best-in-Class Product models on an annual basis.

By targeting the incentive at retailers, this program can significantly increase the sales of the most efficient products – benefiting both consumers and the environment – at far less cost than traditional programs that only offer incentives to customers.

2. The second incentive provides a bounty to retailers when a sale of a Best-in-Class Product model is accompanied by the retirement and recycling of an existing inefficient functioning product. Bounties would be based on the difference of energy use between the retired product and the energy use of an average new product in the product class, discounted for the retired product’s estimated remaining life. The

legislation also includes a provision to establish standards for environmentally responsible methods of recycling.

This program ensures that old and inefficient products do not remain in use either in the consumer's home or through resale.

3. BICAD's third incentive would reward manufacturers for the development and production of Superefficient Best-in-Class Products. The Secretary will determine the highest efficiency product that can be mass-produced and then provide a bonus to manufacturers for products meeting that standard. This will spur the creation of more efficient products and make those products more affordable.

Among the key concerns which should be taken into account as this provision is further developed include making sure that levels are adequately aggressive and ensuring that free-ridership (incentives paid for sales that would have happened absent the program) is kept to a minimum.

TECHNICAL CORRECTIONS

When the EISA conference negotiations were completed, a number of errors were made in compiling the final bill. We have worked with industry and Committee staff to identify these problems and develop suggested edits. We generally support the technical amendments contained on pages 113 to 143 of the discussion draft and will provide any detailed comments to committee staff. We are also working on additional technical corrections intended to ensure that all products fall within the scope of the EISA provision for regular reviews and that enforcement and other general provisions apply to all products added by EPACT 2005 and EISA. We will provide recommendations as soon as possible.

CONCLUSION

We support Subtitle B of ACES with some modifications as described in this testimony. The specific proposed standards will save enough electricity to power about 1.5 million typical American homes annually. ACES also contains many important reforms to the national appliance standards which will enhance the responsiveness of DOE to stakeholders, improve DOE decision making and remove needless roadblocks to state efficiency initiatives.