A Plan to Enhance Energy Efficiency by Harmonizing Federal Energy Efficiency Programs

A Report from Clean Air Task Force, sponsored by a grant from the Bipartisan Policy Center.

Various reports and papers have examined the Department of Energy (DOE) Appliance Standards Program, the ENERGY STAR program managed by the Environmental Protection Agency (EPA) and DOE, and the Energy Guide program managed by the Federal Trade Commission (FTC). Rather than looking at any one of these programs in isolation, this paper makes a series of recommendations to promote their *harmonization*, along with the procurement practices of the nation's largest energy user—the federal government—in a manner that will increase consumer demand for the most efficient products while improving the federal government's own energy/environmental performance.

Background

The environmental, economic and national security benefits of energy efficiency and productivity are recognized across the political spectrum. The DOE appliance standards program, the ENERGY STAR program managed by the EPA and DOE, and the Energy Guide program managed by the FTC have each played important roles in improving the energy efficiency and performance of the appliances and electronics in millions of American households and businesses.

Although the value of these programs is almost universally recognized, the Clean Air Task Force prepared these recommendations after consulting with a number of experts, including past and current program managers, stakeholders, Congressional staff and others, to explore how the effectiveness of these programs might be further enhanced. We have kept this paper concise in order that Congress might consider its recommendations as it considers new energy legislation in the months ahead.

The DOE Appliance Standard Program

The Department of Energy's appliance standards program, authorized by the Energy Policy and Conservation Act,[1] is a *mandatory* program designed to establish and enforce energy efficiency standards for covered residential and commercial products through formal rulemaking. The specific statutory factors governing the standards setting process are explicitly outlined in the statute[2] and are designed to generally achieve the maximum energy efficiency improvement in a covered product that can be shown to be "technologically feasible and economically justified."

[1] 42 U.S.C. 6291 et. seq.
[2] See 42 U.S.C. 6295(o)(2)(B) and 6313(a)(6)(B).

According to the Appliance Standards Awareness Project[3] the existing DOE appliance standards alone will avert the need to build 186 large (400MW) coal-fired power plants nationally by 2030, and the potential savings from new standards introduced between 2009 and 2013 could avert the need for an additional 63 power plants. This success has occurred despite the fact that, historically, the DOE Appliance Program has been plagued by delays and missed deadlines.

As a result of a 2005 lawsuit and resulting consent decree, DOE has accelerated its appliance standards rulemaking activities by devoting greater resources to the task and working to address bottlenecks in the process. Congress, meanwhile, has codified consensus standards in 2005 and 2007 energy legislation, and granted DOE new authority to promulgate regional standards for furnaces, heat pumps and air conditioners, thus allowing DOE to tailor more efficient, cost-effective standards to different climatic regions. In 2007 Congress also provided DOE with a welcome new tool that it had been seeking since 2004—the opportunity to expedite rulemaking through the use of a Direct Final Rule whenever consensus developed among stakeholders around a potential new appliance standard.

Both Congress and the Department of Energy deserve credit for taking action that has resulted in the program's recent progress. Nevertheless, there are additional recommendations that we will offer to allow the program to accommodate "smart grid" technologies, to address some remaining systemic issues at DOE, and to address what we regard as DOE's overly conservative approach to rulemaking.

The EPA-DOE Energy Star Program

The Energy Star program is a *voluntary* "branding" or "labeling" program of the Environmental Protection Agency (EPA) and DOE to identify the most energy efficient products in the marketplace. While this is a voluntary program, there are some market sectors where the Energy Star label is becoming so important that a manufacturer can face substantial losses in market share if a key product fails to achieve the standard. Also, Energy Star criteria are often used by the Congress to establish eligibility for certain tax incentives.

The Energy Star program in 2009 helped Americans save enough energy to avoid greenhouse gas emissions equivalent to those from 30 million cars—while also saving nearly $17 billion in utility bills.[4] This success is claimed despite the fact that the Energy Star program recently came under fire for lax procedures when the General Accountability Office (GAO) obtained Energy Star certifications for 15 bogus products. This paper is not focused on those issues, as we have confidence that DOE and EPA is working to correct these deficiencies. We are, however, making recommendations with respect to a widely recognized issue with the program: the pass/fail or "binary" nature of its designation that misses an opportunity to provide additional product performance differentiation and information to the consumer.

[3] Information contained on Appliance Standards Awareness Project (ASAP) website, as of April 12, 2010.
[4] "EPA, DOE Announce New Steps to Strengthen Energy Star," press release from Environmental Protection Agency, March 19, 2010.

The FTC Energy Guide Program

The Federal Trade Commission (FTC) manages the Energy Guide labeling program pursuant to 42 U.S.C. 6294. The Energy Guide is the familiar yellow label on many major appliances which, depending on the appliance, will display estimated yearly electricity use and cost, and/or similar information, most notably a "speedometer" type scale that attempts to illustrate the energy performance of the appliance compared with other appliances in the product class. The Energy Guide label will also generally display the Energy Star logo if the product meets Energy Star criteria. There has been past discussion, inside and outside of the context of formal FTC rulemaking, about the form and content of the Energy Guide label and the ability of the consumer to comprehend the information contain therein. This paper will make recommendations with respect to a broader, more extensive labeling program that we believe will make the FTC Energy Guide label duplicative and unnecessary, allowing cost savings at the FTC while providing an even more useful label for the consumer.

Why this paper is different

The DOE appliance standards program mandated by the Energy Policy and Conservation Act (EPCA), the DOE/EPA Energy Star program, and the FTC labeling programs are different programs applied to different yet overlapping sets of products. The DOE appliance standards program applies both to certain covered consumer and commercial products. The FTC program applies to a subset of the consumer products for which there are minimum standards. Meanwhile, Energy Star products may or may not be covered by minimum standards, and may or may not be subject to FTC labeling. ***This situation results in confusion in the marketplace… a consumer will be confronted with various logos and labels and containing different information using different formats.***

We contend that ***these programs should be harmonized to present the consumer with a common, consistent performance label wherever possible,*** and we provide recommendations to that end. Beyond the harmonization of the programs, ***we also suggest how federal procurement practices should be used not only to further improve the Federal Government's own energy and environmental performance, but to expand the availability and lower the cost of the most energy efficient appliances and electronics,*** and ultimately allow minimum DOE appliance standards to be raised in a cost effective manner.

Recommendations and Discussion

1. **The Energy Star program should move from a "binary" or "pass-fail" system to a "two tiered" system (i.e., Energy Star and Energy Superstar) that is fully integrated with the labeling program outlined later.**

   Today's Energy Star program is "pass-fail;" a product either receives an Energy Star label or it doesn't. While this is a simple and straightforward approach, there is no way for a consumer to immediately know by looking solely at the Energy Star label if the product barely met the criteria, or whether the product was among the very best in class.

   The establishment of an "Energy Superstar" category[5] will correct this shortcoming, differentiate the "best in class" products for the consumer, and encourage manufacturers to offer products that are "best in class." This recommendation is consistent with the calls of many in Congress, and Energy Secretary Steven Chu, that an Energy Star "top tier" program be created to afford consumers with this kind of differentiation.

   The existing Energy Star label and related attributes could be easily retained in a manner that leveraged prior investments in promoting consumer awareness of the Energy Star "brand." The Energy Star and Energy Superstar or Top Tier logos might appear something like the notional examples presented below, although these are merely offered as examples that could be revised or refined through consumer testing:

ENERGY STAR

ENERGY SUPERSTAR OR TOP TIER

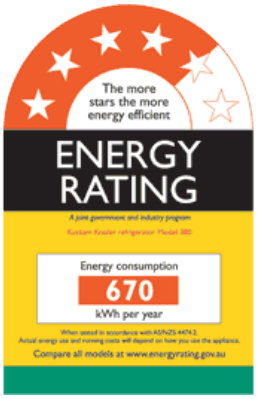
   But introducing an additional tier into the Energy Star program is just the first step—the multi tiered Energy Star label should be incorporated into a broader labeling program covering the broadest practicable universe of residential and commercial products, be they covered by EPCA standards,

[5] The "SuperStar" moniker is provided here just as an example. Another name denoting a "top tier" performer can be easily substituted.

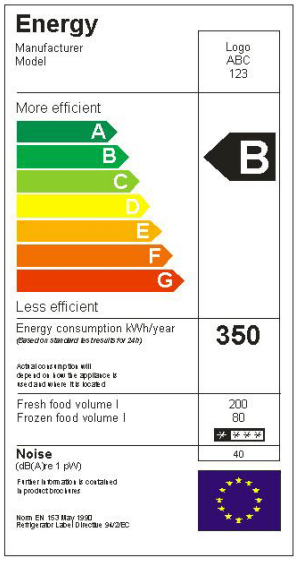
subject to Energy Star criteria, both, or neither—all in a manner that a consumer can easily understand. This leads to our next recommendation.

2. **The broadest practicable array of consumer and commercial energy-consuming products should be labeled using a consistently applied "grade" or "bin" system. We suggest a system characterized by one to four stars, with one star generally denoting a product that meets minimum standards, and four stars denoting a product that is "best in class." This is similar to the differentiated energy rating systems employed by Japan, New Zealand, the European Union, and India, as can be seen from the sample labels illustrated here:**

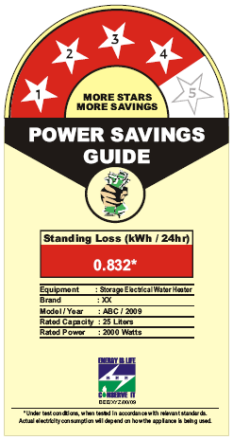
Japan



New Zealand



European Union



India

The United States currently labels a *limited* number of consumer products through the Energy Guide program, characterized by the familiar yellow label on clothes washers, dishwashers, refrigerators, freezers, water heaters, window air conditioners, central air conditioners, furnaces, boilers, heat pumps, and pool heaters. But the labels are not required for other residential and commercial products.

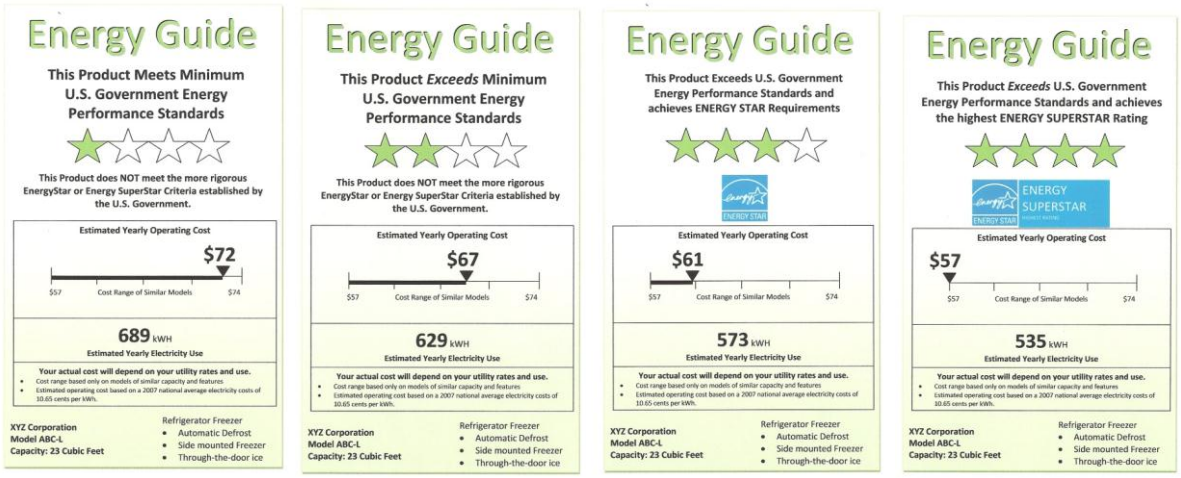
Wherever practicable, comparative, graded labeling should be offered to provide consumers with information about operating costs and the comparative performance of the product in relation to competing products in the product category. In addition, the new U.S. labeling program should incorporate aspects of the EPA/DOE ENERGY STAR program, as well as the operating cost and energy use information of the current FTC labeling program, whenever applicable.

Because of the wide variety of residential and commercial products, standards, performance criteria, and other variations, there would have to be some creativity and flexibility employed in an effort to cover the widest variety of products under a consistent labeling system. For instance, in the case of products where minimum standards have been established by DOE, a product meeting

the minimum standard would receive one star, while products performing beyond minimum standards would receive additional stars pursuant to established criteria. If Energy Star criteria have been established for the product, then "Energy Star" and "Energy Superstar" rated products could occupy the top two bins in the labeling approach.

Admittedly, this approach would alter a fundamental aspect of the Energy Star program by making participation in the Energy Star program mandatory for any manufacturer who wishes to receive a three or four star rating for a product for which Energy Star criteria had been developed. But we would note that many manufacturers have found that, to be successful in certain product categories and markets, (e.g., residential replacement windows), the Energy Star label is already a marketplace requirement. But to be fair, if a product did not have established Energy Star criteria, the three and four star ratings should be available for higher performing products in the product category to avoid penalizing manufacturers offering a "best in class" products just because EPA or DOE had not developed Energy Star criteria for that product. And if the product was not subject to EPCA standards or Energy Star criteria, the grading "bins" could differentiate performance quartiles of simple energy use or other criteria. In some cases, such as products which cannot be differentiated from one another in terms of energy performance (electric clothes dryers may be an example), then the "star" grades can be omitted from the label, while retaining other useful consumer information such as estimated yearly electricity use and cost. Again, some creative flexibility and sound judgment would be required to apply a unified system as broadly as practicable. But because the four star system is simple and flexible, it would be easy for consumers to understand. Also, it could accommodate future developments such as "smart grid" compatibility as technologies develop, since criteria beyond simple energy use could be introduced into the evaluation criteria as technologies evolve.

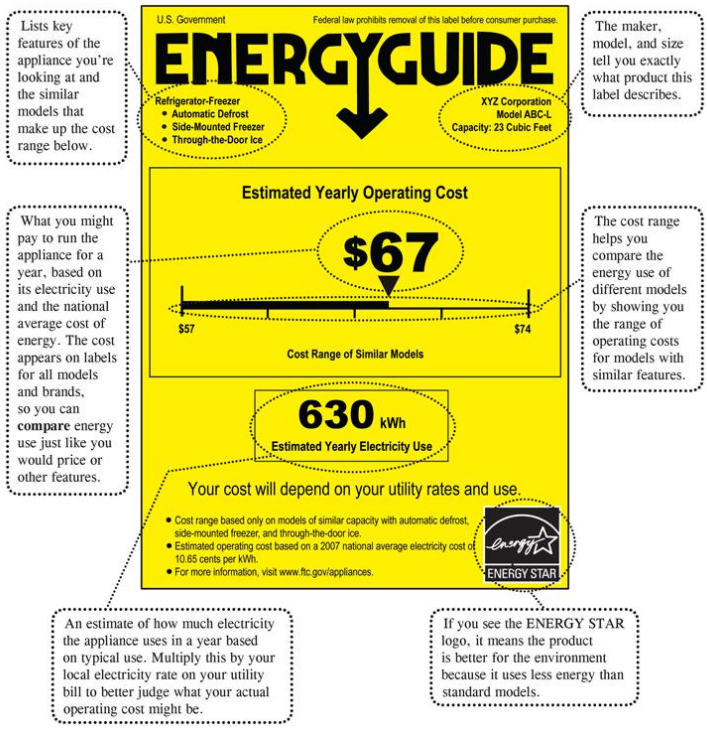
The new U.S. labels might appear something like the notional examples presented here (in this case, for a product with both EPCA standards and Energy Star criteria), although we would stress that these are merely examples that could be refined through consumer testing:



We believe that the Department of Energy or EPA could manage this labeling program jointly, in consultation with the Federal Trade Commission.

3. **The Federal Trade Commission's "Energy Guide" program essentially becomes redundant under these recommendations, providing an opportunity to eliminate the program.**

   For the past 20 years, the Federal Trade Commission has operated an energy labeling program pursuant to 42 U.S.C. 6294, using DOE appliance test procedure data. This program employs the yellow "Energy Guide" labels that are familiar to many consumers, and will display the Energy Star label when the appliance has earned the designation.



(From FTC Website)

We believe there are shortcomings in the Energy Guide program, namely: 1) the label is only available on a subset of EPCA covered products, and 2) there is nothing about the Energy Guide label that clearly notes the absence of Energy Star designation—a consumer currently has to know that the label would display the Energy Star logo had the appliance met applicable Energy Star criteria.

Yet, one of the most useful aspects of the Energy Guide label is its "speedometer type" label which compares the energy use of the labeled product with others in its product category. This

"comparison" feature is one that we recommend retaining in the broader labeling program we recommend.

In other words, the more broadly applied, widespread labeling system recommended in this paper adopts the best features of the Energy Guide program while avoiding its shortcomings, while at the same time incorporating the differentiated Energy Star program. Thus, the FTC program can be ended, achieving taxpayer savings and avoiding confusion in the marketplace.

4. To address the tendency of DOE to be overly conservative in its rulemaking, we recommend modifying the rebuttable presumption provisions in the law.

The Energy Policy and Conservation Act (EPCA) requires DOE to establish appliance standards that are "economically justified." In its analytical work underpinning an appliance standard rulemaking, DOE will, among other things, estimate future energy costs and the additional cost of the more efficient appliance to calculate whether or not a more expensive, yet more efficient future appliance will be economically advantageous to a future consumer. However, if DOE underestimates future energy costs or overestimates the cost of the more efficient appliance, or both, it will set the standard below the optimal level. Arguably, DOE's conservatism has yielded this result more often than not. Embodied in EPCA is the following requirement:

> "If the Secretary finds that the additional cost to the consumer of purchasing a product complying with an energy conservation standard level will be less than three times the value of the energy, and as applicable, water, savings during the first year that the consumer will receive as a result of the standard, as calculated under the applicable test procedure, there shall be a rebuttable presumption that such standard level is economically justified…"[6]

In other words, if the additional costs of the more efficient appliance can be recouped in three years or less through energy savings, there is a rebuttable presumption that the proposed standard is economically justified. Various appliances, of course, have different anticipated service lives. For example, DOE has estimated the average lifetime of a residential clothes washer to be more than 14 years, the average lifetime of a residential furnace to be 17-18 years, and the average lifetime of a residential gas-fired storage type water heater to be 9 years. A single three year rebuttable presumption for all appliances with variable lifetimes contributes to DOE's tendency to be overly conservative in its standard setting. We recommend, therefore, that the rebuttable presumption be tailored to 50% of the appliance's anticipated service life, or 75% of the appliance's service life if the appliance is expected to be short-lived (five years or less.) Such a rebuttable presumption should ensure that greater energy savings be achieved, while ensuring that the consumer is still protected with a reasonable payback period.

Legislation has been proposed (S. 3059) that would, if adopted, modify the rebuttable presumption to four years, or 75% of the appliance's service life if the appliance's service life is expected to be

[6] 42 USC 6295 (o)(2)(B)(iii)

four years or less. While this is an improvement over current law, it would still tend to result in overly conservative standards for long-lived products.

5. **The Appliance Standards, Energy Star, and Energy Guide programs should incorporate into their rulemaking/criteria setting/labeling procedures the possibilities afforded by "Smart Grid" technologies.**

   The potential for communications and control between appliances and "smart grid" operators was not widely anticipated at the time of the Energy Policy and Conservation Act's original passage in 1975. New appliances can be equipped with embedded logic to more seamlessly integrate with "smart grid" applications such as advanced demand response. Currently, there is no clear legislative authority for the Department of Energy to capture the potential of the smart grid in the appliance standards program. Meanwhile, there is also an opportunity for Congress to express its sense that smart grid capabilities should be incorporated into Energy Star criteria and a broader consumer labeling program as "smart-grid" applications evolve.

   We recommend, therefore, that the statutory language governing these programs make clear the authority of DOE to require "smart grid" enhancing capabilities in new appliances. Fortunately, legislation mentioned earlier (S. 3059) would, if adopted, accomplish this objective. But the legislation should be expanded to express the sense of the Congress that EPA and DOE also incorporate appropriate "smart grid" capabilities into Energy Star criteria and broader labeling.

6. **DOE should be provided with the authority to promulgate a Direct Final Rule for new consensus test procedures**

   The Energy Independence and Security Act of 2007 provided the Department of Energy with a welcome new tool that DOE had been seeking since 2004—the opportunity to expedite rulemaking through the use of a Direct Final Rule whenever consensus developed among stakeholders around a potential new appliance standard. Such an approach will now enable DOE to avoid the time and administrative burden required to develop a new rule when a consensus already exists among manufacturers, energy efficiency advocates, and other stakeholders.

   While DOE enjoys this authority in the promulgation of a new standard, it does not yet enjoy this authority with respect to its promulgation of a new test procedure. We recommend that such authority be adopted. Fortunately, this provision is also included in the aforementioned legislation, S. 3059.

7. **Strengthen the Federal Procurement requirements to ensure that the government "leads by example" in procuring only the highest performance products.**

   It has been a long accepted, bipartisan view that the federal government, the largest single consumer of energy in the country, should "lead by example" in seeking to save energy through the

procurement of energy efficient products. Moreover, government has an important role to play in creating and expanding markets for the most energy efficient products.

Under current law, federal procurement officials must select Energy Star or Federal Energy Management Program (FEMP) designated products unless the head of the procuring agency finds in writing that an Energy Star product or FEMP designated product is not cost-effective over the life of the product taking energy cost savings into account; or that no Energy Star product or FEMP designated product is reasonably available that meets the functional requirements of the agency.[7]

Adoption of the recommendations presented earlier to move the Energy Star and labeling programs to a "bin" system characterized by one to four stars affords an opportunity to push federal procurement officials toward purchase of higher performing (i.e., three stars or higher) products. We recommend, therefore, that federal agencies be directed to procure only top tier products that have earned three stars or higher in the suggested labeling system we have outlined. While we recommend the continuation of the practice that agency heads would be able to avoid the procurement of the higher performance product if they found that the product was not reasonably available, such a finding should be reviewable by White House officials and listed on agency energy efficiency public performance "scorecards" rather than simply allowing a "finding" of the agency head to be the last word. In other words, the agency head would not make such a finding lightly, knowing that it would be reviewed and made public.

We believe Congress should also recognize and codify the concept that the federal government has an obligation to look beyond first cost and even life cycle cost to be a technology leader, helping to create the market and lower the cost of the highest efficiency products for society as a whole. We would therefore recommend that an agency head no longer be able to make a finding that a top performing product is not life cycle cost-effective as a means to avoid procurement of that higher performance product. The market power of the Federal Government can actually create an opportunity for unit cost reduction through economies of scale that can make a product "life cycle cost effective" when it hadn't been before. Also, because the Federal procurement official, under our recommended approach, would be free to choose either the three or four star product for procurement, there would be less of an opportunity for manufacturers to force the procurement of far more expensive products offering marginally small energy performance benefits.

8. Congress should use the differentiated "bin" approach of an improved Energy Star/Energy Guide program as a means to provide more meaningful manufacturer and consumer incentives at lower cost.

The Congress has periodically used manufacturer and consumer tax credits to incentivize the manufacture and purchase of energy efficient products, often through the use of the Energy Star designation. A one to four star or "bin" approach used for an improved Energy Star/Energy Guide program would afford Congress with the flexibility to either offer graduated incentives based on

[7] 42 U.S.C. 8259b

performance, or more meaningful incentives for the "best in class" products, all while reducing the "revenue impact" or cost of the incentive compared to the current reliance on the existing "binary" Energy Star program.

Assuming that the one to four stars or "bin" approach of an improved Energy Star/Energy Guide program is adopted, we recommend that Congress use the system in combination with a Best in Class Appliance Deployment (BICAD) program such as that contained in section 214 of the Waxman-Markey legislation passed last year by the House of Representatives.

9. Recognize, encourage and strengthen the EPA-DOE partnership by codifying the roles and responsibilities of each agency, and ensure that all of the programs draw from a common and consistent database of information and analysis.

The Energy Star program, run jointly by EPA and DOE, is something of a "shotgun marriage." After EPA had originally established the program in the early 1990s, DOE considered instituting a different program for home appliances that DOE would manage. Fearful of the consumer confusion that would arise from having two different agencies running two different energy labeling programs, EPA prevailed upon White House staff to adjudicate the looming turf battle. The White House essentially directed the two agencies to share the program and "play nice," but there have nevertheless been instances of turf battles and disputes in the years that have followed, including disputes that had to be adjudicated by the White House. Over time, the DOE-EPA relationship has matured, and it is reasonably clear that EPA and DOE each bring different strengths to the program—EPA arguably possesses the best marketing/branding and outreach capabilities, while DOE has the best analytical and technical capabilities.

The DOE/EPA division of responsibility, recently enshrined in a new memorandum of understanding between the two agencies, clearly shifts the "balance of power" between the two agencies in EPA's favor—under the terms of the memorandum, EPA will generally have the last word when there is a program dispute. While we do not weigh in on the issue of whether EPA or DOE should have the last word in any ENERGY STAR program disputes that eventually arise between the two agencies, we would agree that somebody should be granted the power to quickly resolve issues of contention to avoid needless delays without elevating the dispute to the White House, as has happened in the past.

The leadership at DOE and EPA should recognize the need for enduring and consistent management attention in both agencies to ensure that the best analytical capabilities of DOE are employed along with the best marketing/outreach/branding capabilities of EPA.

Also, there are lessons that EPA and DOE can arguably learn from one another. At the risk of some degree of oversimplification, *the DOE Appliance Standards Program is rigorous and transparent, and follows a well established process—but it is often painfully slow*. Meanwhile, the Energy Star program *is agile, and can quickly establish a new standard or requirement, but it's less rigorous, analytical, and transparent than the DOE Appliance Standards Program. This is a cause for concern*

among manufacturers who wish to manufacture Energy Star products but who must meet real-world product research, development, testing and production timelines.

The shared management challenge, therefore, is to improve the Energy Star program by bringing to it some of the analytical and procedural rigor of the DOE appliance standards program *while avoiding the process delays that have plagued the DOE program*. We recommend, as a step in that regard, that a common analytical and informational database maintained by DOE be used to avoid duplication, promote transparency, and ensure that consistent information and analysis is employed in the appliance efficiency programs at DOE and EPA.

10. **Address systemic DOE issues related to Analysis and the DOE Concurrence Process**

As a consequence of the 2005 lawsuit and increased management attention from the highest levels of DOE, there is every indication that the appliance standards program can get back on track. But systemic issues at DOE remain which could threaten future progress in this regard, including the challenge of consistently producing quality analysis in a timely manner, and the ability of any one of several DOE offices to delay a proposed test procedure or appliance standard during the DOE "concurrence process."

Currently, the DOE undertakes a significant amount of analysis for each rulemaking. This analysis will generally include:

- A Market and Technology Assessment;
- A Screening Analysis;
- An Engineering Analysis;
- An Energy and End-Use Load Characterization Analysis;
- An Analysis of Markups for Product Price Determination;
- A Life Cycle Cost and Payback Period Analysis;
- A Shipments Analysis;
- A National Impacts Analysis;
- A Life Cycle Cost Sub-Group Analysis;
- A manufacturer Impact Analysis;
- A Utility Impact Analysis;
- A Net National Employment Impacts Analysis;
- An Environmental Assessment Report; and
- A Regulatory Impact Analysis Report.

The specific purpose and scope of these analyses are further detailed in "The Procedures for Consideration of New or Revised Energy Conservation Standards for Consumer Products,"[8] also referred to as the Process Rule. Each of these analyses are undertaken or updated, and compiled in

[8] 61 F.R. 36974 (July 15, 1996)

a Technical Support Document (TSD) *at each step* of an appliance standards rulemaking—the Advanced Notice of Proposed Rulemaking, the Notice of Proposed Rulemaking, and the Final Rule.

When one combines all of this analysis with the requirements of the Administrative Procedures Act and the tortuous process within DOE designed to achieve concurrence between the various DOE offices[9] involved in the development of a new standard, it is more understandable how the promulgation of new test procedures and appliance standards can take six years or more.

We recommend that the Secretary of Energy address these systemic risks by:

a) Maintaining alternative analytical capacity beyond the predominant national laboratory that has historically performed this work, to include other laboratories or consultants as a means of promoting competition and flexibility; and
b) Address the potential for delays in the concurrence process by requiring concurring offices to raise and resolve any issues or objections to a package within a strict 30 day window of opportunity.

Again, we are encouraged by the progress that the DOE has made, and we offer these recommendations in the hope that this progress can be continued.

Conclusion

We envision an integrated, consistent system designed to forge stronger linkages between the DOE Appliance Standards Program, the EPA/DOE Energy Star program, and federal procurement activities. In addition, consumers facing an appliance purchase would be guided by a more widely applied, easy to understand label that would illustrate the product's energy performance and potentially other environmental attributes (such as embedded "smart grid" capability) using a grading system of one to four stars.

Manufacturers would compete and innovate to improve energy performance in the quest for more highly rated products, and Federal procurement officials would be required to purchase only high performing appliances and electronics, reducing energy costs and expanding the market opportunities for innovative, high performance products. Over time, as the demand for the higher performing products, market forces and economies of scale brought down the first cost of the most energy efficient products, the DOE appliance standards program could ratchet up minimum standards while remaining compliant with the requirements in EPCA that standards be "economically justified."

Finally, consumers would benefit from lower energy costs, emissions would fall, and energy productivity would rise, accelerating the progress that these programs have historically delivered.

[9] The Office of Energy Efficiency and Renewable Energy; the Office of Policy and International Affairs; and the Office of the General Counsel are all involved in the development of a standard, and must all concur in the proposal.