



# Site-Based Energy Efficiency Standards Provide Effective Method To Achieve Real Energy Savings

Energy efficiency codes and standards for appliances are based on the amount of energy used at the “site” of consumption in a home or business. These site-based energy efficiency standards—which have been used for more than 30 years—have resulted in substantial energy efficiency gains for all major appliances.

Recently, some groups have asked Congress to change federal energy efficiency standards from site-based to source-based standards. Under a source-based or full fuel-cycle energy efficiency standard, appliance efficiency would be based on the total energy consumption associated with the appliance, from the energy “source” (e.g., power plant, natural gas wellhead, transmission system, interstate pipeline, or distribution system) to the end use.

Shifting to source-based efficiency standards—that rely on widely varying estimates of energy usage—would hinder federal and industry efforts to promote energy efficiency and also would confuse energy consumers. Site-based energy efficiency measurements provide precisely measured and verifiable results, and should remain the federal standard.

## Full Fuel-Cycle Energy Efficiency Is Difficult To Measure And Verify

Site-based energy consumption can be precisely measured and verified because it determines the efficiency of the appliance. Conversely, calculating an appliance’s full fuel-cycle efficiency introduces a number of unknown or variable factors, making it impossible to accurately estimate the appliance’s true efficiency.

For example, using a full fuel-cycle efficiency approach would produce different standards for the same model of refrigerator depending on where and when it is plugged in. The standard would vary based on the local utility’s fuel mix, which is dependent on the time of day, the season, the available fuel supply, and other factors. For this reason, an appliance’s fuel-cycle energy consumption can only be estimated and cannot be accurately measured. And, because there is no universal standard for estimating fuel-cycle values, it is practically impossible to verify results.

In August 2007, the Federal Trade Commission (FTC) rejected the use of full fuel-cycle metrics for the yellow “EnergyGuide” labels found on appliances. The FTC cited a lack of standards needed to consistently calculate and verify full fuel-cycle energy consumption.

## Source-Based Efficiency Standards Are Not Consumer-Friendly

Given the complexity of estimating full fuel-cycle efficiency, it would be extremely difficult—and costly—for manufacturers to create a standardized labeling system for appliances based on fuel-cycle metrics. Instead of creating one EnergyGuide label for all appliances that can be used across the country, manufacturers would have to create different labels to reflect the energy profiles of each area of the country. Since those labels would reflect estimates that could not be accurately verified, the information provided to consumers would be much less relevant and useful.

Even more concerning, this volume of new information could be confusing—and even misleading—to consumers if an appliance’s fuel-cycle “efficiency score” is based on an estimated national average or “worst-case” assumption. As a result, the appliance’s actual “efficiency” could be significantly greater than or less than what the label suggests, depending on the region and its energy profile. In fact, there is disagreement as to what constitutes the full fuel cycle.

Other factors could complicate a full fuel-cycle labeling process, including the energy content and emissions associated with manufacturing; product/raw material production; product transportation and distribution; and country of origin of a given appliance.

### **Source-Based Efficiency Standards Would Undermine Federal Energy Efficiency Efforts**

Under current policy, energy efficiency standards for appliances are based on test procedures that are used or modified by the U.S. Department of Energy (DOE). These test procedures are based on end-use site conditions. Under a full fuel-cycle efficiency standard, virtually every test procedure would have to be changed. Even with no change to existing site-based energy metrics, DOE already has dozens of energy efficiency standards and test procedures that it expects to finalize over the next two years. Imposing a full fuel-cycle efficiency standard would significantly disrupt these proceedings, forcing DOE to delay or even halt its work while trying to determine new full fuel-cycle efficiency estimates.

All appliances and consumer products that qualify for an Energy Star® label are evaluated against site-based energy measurements. Under a full fuel-cycle energy analysis, products that currently qualify for an Energy Star® label may no longer qualify, even if they are proven to save energy. In addition, the U.S. Environmental Protection Agency or DOE would have to change all of the qualifications for current and future Energy Star® products.

### **Source-Based Efficiency Standards For Buildings Also Are Problematic**

Similarly, imposing source-based energy efficiency standards for buildings raises the same concerns of measurement and verification. ASHRAE and the International Code Council base their building energy efficiency standards and test procedures on site energy metrics. According to the *ASHRAE Vision 2020* report:

“Ultimately, the only way to measure if a building is a [net zero energy building] is to look at the energy crossing the boundary. Other definitions, including source, emissions, and cost, are based on this measured information and include weighing factors and algorithms to get to the metric of interest. Because of the complications involved in making these computations, site energy measurements have been chosen through an agreement of understanding between ASHRAE, the American Institute of Architects, the U.S. Green Building Council, and the Illuminating Engineering Society of North America.”

Replacing site-based energy efficiency standards—which have worked successfully for more than 30 years—with source-based energy efficiency standards would disrupt the establishment of efficiency standards and would provide confusing or even misleading information to consumers. Congress should reject calls to alter current policy.

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