

ENERGY STAR® Program Integrity Update: Verification Testing & Product Disqualifications

Background

In 1992, under the authority of the Clean Air Act Section 103(g), the U.S. Environmental Protection Agency (EPA) introduced ENERGY STAR as a voluntary labeling program designed to identify and promote energy-efficient products to reduce greenhouse gas emissions. Section 103(g) of the Clean Air Act directs the Administrator to “conduct a basic engineering research and technology program to develop, evaluate, and demonstrate non-regulatory strategies and technologies for reducing air pollution.” In 2005, Congress enacted the Energy Policy Act. Section 131 of the Act amends Section 324 (42 USC 6294) of the Energy Policy and Conservation Act, and “established at the Department of Energy and the Environmental Protection Agency a voluntary program to identify and promote energy-efficient products and buildings in order to reduce energy consumption, improve energy security, and reduce pollution through voluntary labeling of or other forms of communication about products and buildings that meet the highest energy efficiency standards.”

For 20 years, ENERGY STAR and its trademark have served as a voluntary national program to reduce greenhouse gas emissions and make it easy for consumers to identify and purchase energy-efficient products without sacrificing performance, features, and comfort. Products can earn the ENERGY STAR label by meeting the energy efficiency requirements established by EPA and set forth in ENERGY STAR product specifications. Such specifications establish energy performance standards that exceed average market performance. More than 40,000 product models are currently certified to meet those standards. The program has been greatly successful: over the past 20 years individuals and organizations across the country have tapped the value of ENERGY STAR to achieve dramatic energy savings, while preventing a total of more than 1.8 billion metric tons of greenhouse gas emissions and saving over \$230 billion on utility bills. More than 4.5 billion ENERGY STAR products were sold over the past 20 years, and currently, more than 1.4 million new homes and more than 20,000 facilities carry ENERGY STAR certification.

Partnerships have been key to the program’s success. Businesses and organizations - more than 18,000 of them, from small school districts to large Fortune 500 companies - have embraced the value of ENERGY STAR and made it their own. The interplay of government, business, and market forces brought together through ENERGY STAR has changed the energy efficiency landscape.

Third-Party Certification & Verification Requirements

To maintain consumer trust and improve program oversight, EPA has implemented third-party certification and verification requirements. For a product to earn the ENERGY STAR label, its performance must be third-party certified based on testing conducted in an EPA-recognized laboratory

that meets international standards for quality and competency and reviewed by an EPA-recognized certification body (CB) that also meets international standards for quality. In addition to up-front testing, a percentage of all ENERGY STAR products are subject to "off-the-shelf" verification testing each year. The goal of this testing is to ensure that changes or variations in the manufacturing process do not undermine a product's qualification with ENERGY STAR requirements. In addition, the U.S. Department of Energy (DOE) conducts ENERGY STAR verification testing on certain ENERGY STAR product categories also covered by federal energy standards. Testing for ENERGY STAR program purposes is performed similar to other efficiency testing programs, such as the appliance testing for DOE federal standards, and the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) heating, ventilation, and air conditioning and the Home Ventilating Institute (HVI) vent fan certification programs, among others.

ENERGY STAR Product Disqualifications

In 2011, EPA documented and began implementing standardized product disqualification procedures to address those products that are reported to EPA by CBs as having failed verification testing (EPA's Disqualification Procedures can be found at www.energystar.gov/3rdpartycert). Under the Disqualification Procedures, EPA first reviews the testing failure information to determine if the product should be removed from the ENERGY STAR program. If EPA does not identify any abnormalities with the testing referral, EPA proceeds with notifying the tested manufacturing partner and any other product labelers affected by the failure, that EPA intends to disqualify the product from the ENERGY STAR program. Affected parties are provided a 20-day period to dispute the pending disqualification, in which case EPA conducts a technical review of all information the manufacturing partner submits before making a final determination on the product's status.

EPA has found that testing failures for products that previously passed certification testing can occur for a number of reasons, including changes in the supply chain, production malfunction, inconsistent quality with raw materials and components, and product performance designed too close to performance requirements. Failures can also be a result of laboratory testing or operator error. EPA considers all of these things, among others, in determining whether the testing accurately reflects performance of some units of the product. If upon technical review, EPA determines that the testing failure warrants a product's removal from the program, EPA will proceed with a formal product "disqualification". All disqualified products are posted on the ENERGY STAR website at www.energystar.gov/integrity. In addition, EPA issues bi-weekly disqualification updates to energy utilities that opt to receive that information.

For products that are disqualified, EPA requires that the manufacturing partner submit a corporate certification detailing product control measures undertaken to manage the sale, distribution, and marketing of the disqualified model, such that ENERGY STAR is no longer associated with the product. In approving control measures for failed products, EPA may consider the scope of the failure as it relates to consumer expectation and investment. EPA generally requires that product control measures include

notice or posting of failure, and may require, where market feasible, that manufacturing partners remain available to compensate consumers in a commensurate and appropriate manner. EPA approves product control measures in a manner that is responsive to market- and product-specific issues, provides national consistency for partners and consumers, and upholds integrity of the trademark.

Product disqualification does not necessarily indicate that all of the units in the marketplace are deemed to fail ENERGY STAR performance requirements; rather, because the product was initially certified as performing, a subsequent testing failure may indicate that some subset of units are not performing fully. Through examination of the root cause of the failure, EPA and the manufacturing partner are in some instances able to identify how many and/or which batch of units were compromised. EPA acts to protect the trademark's integrity and as a result disqualifies products that may perform fully and consistently in many or even most settings. In 2012, 1169 ENERGY STAR products were subject to verification testing. Of those tested, 87 base models warranted disqualification from the program, reflecting a 7.4 percent disqualification rate. Disqualification rates vary slightly among product types, with, e.g., appliances at 2 percent in 2012. See table listing disqualification rates by product type below.

| <i>Product Category</i> | <i>Number of Unique Disqualifications</i> |
|---------------------------------|---|
| Boilers | 1 |
| CAC ASHP | 6 |
| CFLs | 54 |
| Clothes Washers | 1 |
| Dehumidifiers | 1 |
| Geothermal Heat Pumps | 1 |
| Refrigerators and Freezers | 3 |
| Residential Light Fixtures | 3 |
| Roof Products | 3 |
| Room Air Cleaners | 2 |
| Room Air Conditioners | 1 |
| Solid-state Lighting Luminaires | 4 |
| Televisions | 1 |
| Ventilating Fans | 5 |
| Water Heaters | 1 |
| Total | 87 |

Conclusion

The goal of verification testing of ENERGY STAR products followed by disqualification, as appropriate, is to enhance program integrity and protect the consumer experience with labeled products. To that end, EPA's disqualification procedures provide needed predictability and flexibility for the Agency to address

product- and manufacturer-specific issues. Flexibility allows EPA to consider the product's overall impact in the market, the potential scope of a product's deficiency, including the number of units that may have been affected, and to recognize that testing errors do occur.

Having a standardized approach to disqualification, in particular to product control measures, has ensured national consistency among manufacturers and relevant markets. ENERGY STAR product control measures are designed to minimize inequities among manufacturers, support a national approach to managing the federal trademark, and provide consistency among the many geographical markets that products enter. This approach allows EPA to adapt program responses to reflect market or product changes in the future, where fair and warranted. In addition, it allows EPA to protect the integrity of the program while keeping compliance costs low enough to encourage participation by consumers and manufacturers alike.

After two years of implementation, EPA believes that this approach to verification testing and disqualification has bolstered manufacturer and consumer confidence in the integrity of the program, and directly affected the success of energy-efficient products in the market. Confidence in the program sets up a market incentive towards innovation, which advances technology and increases the market penetration of energy-efficient products, thereby raising the floor for product design and performance. It facilitates consumer demand for and further manufacturer investment in technical research and advancement in those product areas. Consistent with the design of the ENERGY STAR program, it sets up a market dynamic that enables more stringent requirements and greater energy and environmental benefit as time goes on.

Similarly, protecting the integrity of the ENERGY STAR mark bolsters public trust in the brand, thereby increasing energy savings for consumers. Today, 85 percent of the American public recognizes the ENERGY STAR label, and global support for the program remains strong, as exemplified by international agreements. In 2012, 1.3 million Americans visited the ENERGY STAR website to find product information about home efficiency improvements and use the program's home energy tips, tools and recommendations to help reduce utility bills and improve comfort. Over 18,000 organizations partnered with EPA improved efficiency and realized significant environmental and financial benefits by associating with the ENERGY STAR brand and program. Utility programs rely upon the ENERGY STAR brand in offering efficiency-related promotions. By partnering with ENERGY STAR, consumers and businesses reduced their utility bills by \$24 billion, due to investments in energy-efficient technologies and practices that will continue to provide bill savings for years to come. Public confidence is integral those successes.