ENERGY STAR Electric Yard Equipment Discussion Guide
April 2022

Please send comments to electricyard@energystar.gov no later than May 13, 2022.

Introduction

The U.S. Environmental Protection Agency (EPA) is developing a new ENERGY STAR® specification for electric yard equipment, which may include, but is not limited to, lawn mowers, trimmers, edgers, blowers, and chain and pole saws. Interest in electric lawn equipment has reached a significant level in the last few years, with city and state policymakers, retailers, and other entities eager to see these products expand their market presence. With this in mind, EPA seeks with an ENERGY STAR specification, to recognize electric models that deliver energy savings without compromising performance. As a first step, EPA sees a valuable role for ENERGY STAR to play in establishing definitions and metrics that allow manufacturers to talk consistently about the efficiency and performance of their products, enabling consumers to select efficient product offerings that deliver on performance expectations. This category encompasses a large number of total products. In 2020, approximately 7.7 million residential lawn mowers were shipped along with another 29.3 million residential handheld products. In that same period, an additional 308,000 commercial yard products were shipped.

ENERGY STAR Program and Process Overview

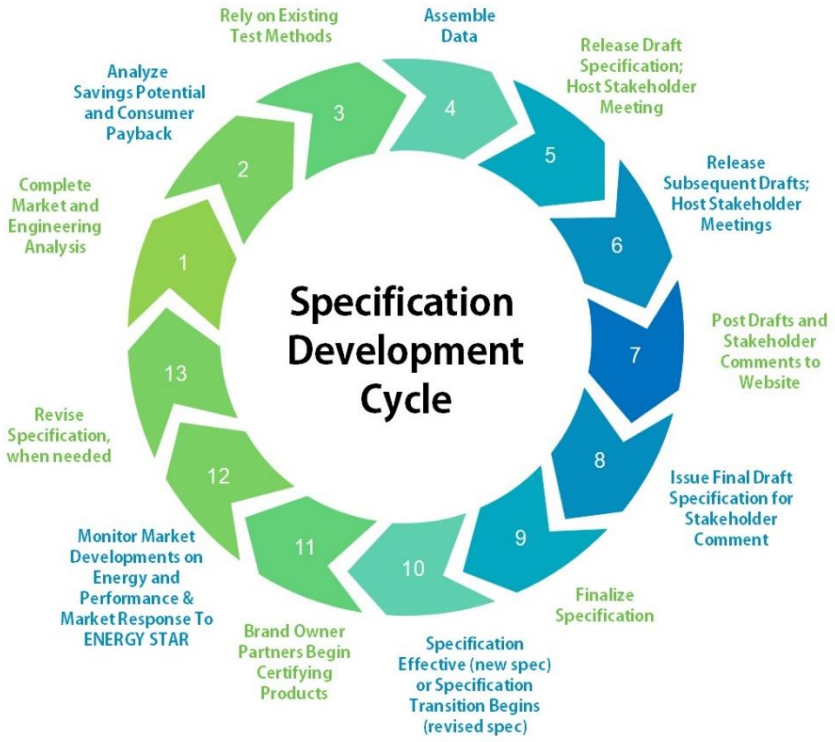
ENERGY STAR is the government-backed symbol for energy efficiency, providing simple, credible, and unbiased information that consumers and businesses rely on to make well-informed decisions. Thousands of industrial, commercial, utility, state, and local organizations—including more than 40 percent of the Fortune 500®—rely on their partnership with the U.S. Environmental Protection Agency (EPA) to deliver cost-saving energy efficiency solutions. Ninety-percent of American households recognize the ENERGY STAR, making it one of the most widely recognized consumer symbols in the nation. Together, since 1992, ENERGY STAR and its partners have helped save American families and businesses more than $450 billion and over 3.5 trillion kilowatt-hours of electricity while also achieving broad emissions reductions—all through voluntary action.

About three-fourths of U.S. households report the ENERGY STAR label as influential in their purchasing decisions and 71% of purchasers would recommend ENERGY STAR products to a friend. More than 700 utilities, state and local governments, and nonprofits leverage ENERGY STAR in their efficiency programs, reaching roughly 90% of households in all 50 states. Nationwide, utilities invested $8.4 billion in energy efficiency programs in 2019. In 2019 alone, Americans purchased more than 300 million ENERGY STAR certified products plus more than 300 million certified light bulbs for cumulative totals exceeding 7 billion products. The estimated annual market value of ENERGY STAR product sales is more than $100 billion.

EPA sets definitions of efficiency leadership for more than 75 residential and commercial product categories. Currently more than 75,000 product models have earned the ENERGY STAR based on these rigorous criteria. In establishing or revising an ENERGY STAR product performance specification, EPA employs a set of six key principles. It is important to note that these principles are not applied as a strict checklist per se. The ultimate viability and environmental impact of an ENERGY STAR specification in the marketplace depends upon many factors. The principles are used as guidance during an iterative process to achieve the desired balance among the principles, using the best available market information. The success of a specification can be more reasonably assured through the application of these principles. These Guiding Principles are:

1. Significant energy savings can be realized on a national basis.
2. Product performance can be maintained or enhanced with increased energy efficiency.
3. Purchasers will recover their investment in increased energy efficiency within a reasonable period of time.
4. Energy efficiency can be achieved through one or more technologies such that qualifying products are broadly available and offered by more than one manufacturer.
5. Product energy consumption and performance can be measured and verified with testing.
6. Labeling would effectively differentiate products and be visible for purchasers.

The EPA uses a systematic framework: (1) to assess the feasibility for applying the label to a product category; (2) to develop performance specifications that must be met in order to earn the label; and (3) to reassess performance specifications as market conditions change. This process relies on rigorous market, engineering, and pollution savings analyses as well as input from other programs in EPA, industry and other stakeholders. The process that EPA uses to develop a specification is outlined in the below figure. It is anticipated that this process, from an initial specification launch would take 6-12 months to complete at which point the specification would be immediately effective. The Standard Operating Procedure Revising or Establishing an ENERGY STAR Product Specification, can be found here.



Discussion Guide for Electric Yard Equipment

For new product categories or significant changes in approach to existing product specifications, EPA sometimes begins with a discussion guide. This document allows the Agency to get early stakeholder input prior to formulating a formal draft proposal. The discussion guide presents the EPA's preliminary thoughts about approach, scope, and definitions and seeks stakeholder feedback on specific questions associated with each of these topics and others key to the development of an effective specification. More specifically, this discussion guide identifies the product types that could be covered by a Version 1.0 ENERGY STAR Electric Yard Equipment specification, provides an overview of energy efficiency considerations, a summary of the proposed program structure, and presents questions for discussion. EPA is providing this document to spur discussion and thoughtful commentary on the scope and structure of the potential electric yard equipment specification[1]. Further information regarding the ENERGY STAR process may be found at the end of this document.

The ENERGY STAR process is designed to be a transparent process with significant input from stakeholders. In developing this document, EPA consulted with and carefully considered the feedback from multiple electric yard equipment manufacturers and retailers. Stakeholder feedback indicated that there was strong interest from a variety of stakeholders in developing an ENERGY STAR specification for electric yard equipment to highlight the most energy efficient product offerings that also deliver on performance.

[1] An ENERGY STAR specification includes all relevant definitions, scope, energy efficiency criteria, and appropriate test method(s).

Stakeholders are encouraged to provide feedback on the concepts presented in this document, as well as to share their knowledge of topics not addressed here that they believe important to the development of a specification. Communication between EPA and industry stakeholders is critical to the success of the ENERGY STAR program. To that end, EPA is sharing this discussion guide and hosting a meeting on April 25, 2022 to discuss the questions outlined in this document which readers can register for here. EPA will consider stakeholder input on all aspects of this document as the Agency considers drafting a Draft 1 specification. ENERGY STAR representatives are available for additional technical discussions with interested parties at any time during the specification development process.

Please contact me at Fogle.Ryan@epa.gov or 202-343-9153 or Abhishek Jathar at Abhishek.Jathar@icf.com or 202-862-1203 with questions or concerns. For any other electric yard equipment related questions, please contact electricyard@energystar.gov.

In each section below, EPA has developed questions for discussion and appreciates any additional information, studies, or data to supplement any answers provided.

Scope and Definitions

EPA acknowledges that the world of electric yard equipment is a large one. The current approach is to focus on all products where effective electric options are available. The bins that EPA has taken under consideration include the list below.

- Lawn Mowers
    - Walk Behind Mowers
    - Zero Turn Radius Mower
    - Rear Engine Riding Mower
    - Lawn and Garden Tractor
    - Robotic Lawn Mower
- Saws
    - Chain Saws
    - Pole Saws
- Trimmers and Edgers
    - Trimmers and Brush Cutters
    - Hedge Trimmers
    - Walk Behind Edgers and Trimmers
- Other
    - Blowers
    - Tillers and Cultivators
    - Snow Throwers
    - Split Boom Multi-Task Products

Residential vs. Commercial Marketed Products

EPA would like to capture both residential and commercial models within scope if possible but seeks feedback on the best way to differentiate those product types that go beyond just marketing language. Potential differentiating characteristics could include but are not necessarily limited to:

- Minimum designed run time per full charge
- Warranty length
- Max rated power threshold
- Intended workload size (e.g., multi-acre properties vs. typical lawn size for mowing)

Corded Electric Products

While much of this document focuses on battery operated products, EPA notes that there are many corded products on the market that would fit into the scope of this specification. The Agency would like to explore how to include corded electric products and as such requests information on the market of these products and if there are existing metrics that are currently used to evaluate efficiency and performance.

In addition, EPA is interested in the following questions:

1. Are there any products where there are currently concerns about performance or quality in the electric market that should not be considered as part of the specification?
2. For those products that are considered, are there industry standard or otherwise recommended definitions for each product type that EPA can leverage for the development of a specification.
3. Are there products not listed above that EPA should consider as part of a potential specification?
4. How should EPA differentiate residential vs. commercial products in the product subcategories above or is this distinction unnecessary between the two categories for the purposes of this program?

Maximum Rated Power

EPA has observed that manufacturers communicate the maximum performance of electric powered yard products in a variety of ways, often with the goal of creating equivalence to gas powered products to help customers compare the two technologies. EPA is interested in defining and making uniform across ENERGY STAR certified electric products an expression of max power such that consumers can make fair comparisons between products. EPA believes that the work done in defining maximum power along with other potential requirements will lay the groundwork for this initial and a future version of this specification.

With that in mind, EPA is interested in the following:

5. How are manufacturers currently comparing defining and expressing maximum performance of electric yard equipment across the different product categories proposed in the scope section?
6. Is there broad consensus within the listed product categories about how to best communicate equivalent electric power (e.g., cubic capacity (cc) or horsepower (HP) equivalent)?
7. Can these metrics or characteristics proposed equate to both gas and electric products sufficiently to allow the program to sufficiently draw a minimum performance threshold under which a product's performance would be deemed inadequate for certification due to concerns of not being able to complete the intended job to a customer's satisfaction?

Requirements Under Consideration for Version 1.0

EPA is considering the following potential areas for requirements in a Version 1.0 specification:

- Minimum battery life per full charge
- Battery charging efficiency level greater than what is federally required
- Minimum performance threshold for each product category which may incorporate characteristics including but not limited to the following examples for different categories:
    - Cutting power
    - Absolute rated power
    - Cubic Feet per Minutes (CFM) or airspeed

    - Maximum revolutions per minute (RPM)
- Maximum noise generation for each product category
- Minimum warranty length requirements

EPA welcomes feedback on the following:

1. Are there efficiency or other requirements EPA have not listed that we should be considering in a Version 1.0, which help meet the goal of capturing as many quality electric battery powered products as possible while ensuring they perform to a level that meets or exceeds performance expectations?
2. Are there other major performance factors that EPA should consider when potentially setting a performance floor for different product areas in Version 1.0, with the goal of ensuring products meet or exceed performance expectations for a job?
3. Given that many localities are setting noise requirements for yard equipment, is a maximum noise level needed in this specification to ensure electric products meet these local noise requirements?
4. How long do the batteries that support these products typically last before requiring replacement due to degradation in performance?
5. How long are typical warranties for these products?
6. Are manufacturers able to provide EPA with any existing supplemental test data for their products that include any of the variables listed above to help EPA gain a better general understanding of the range of performance across the existing market?

Testing Considerations

In order to collect data on products that are to be certified as ENERGY STAR, testing is typically conducted in an EPA recognized lab and certified by an EPA recognized certifier (CBs) beforehand to validate product performance against the requirements. EPA seeks feedback on whether there are existing test methods, broadly developed by industry or internal, that can be shared and leveraged to aid in the collection of the following product data, understanding that the methodology will likely be different for different product areas:

- Rated power
- Airflow (CFM)
- Airspeed
- Cutting power
- Battery life
- Emitted sound

Potential Program Structure / Process

Once EPA determines the correct combination of requirements to effectively differentiate high performing electric powered products, EPA will codify these in a specification document and

distribute to stakeholder for review. These requirements, along with proposed definitions, and scope, will form the core of the eligibility criteria to gain the ENERGY STAR label once finalized.

It is likely that a test method will also be generated to specify how to measure certain variables that EPA will be collecting as part of the certification process to ensure that products meet the energy and performance characteristics that they claim. This document will also go out in draft form for stakeholder review and will be finalized either prior to or with the specification document discussed above.

Once both documents are finalized and CBs become recognized by EPA for this new category, manufacturers would be able to begin work with these CBs to certify products as ENERGY STAR and the products would begin to populate the Product Finder on the ENERGY STAR website soon after.

EPA welcomes feedback on the following:

7. Are there any stakeholder groups that EPA is not currently engaging with in this category, beyond manufacturers and retailers that we should include?
8. Based on stakeholder experience, which characteristics of electric yard products do customers most care about? EPA would like to ensure that a product finder tool emphasizes the most important customer information first and foremost to help customers easily identify the products that serve their needs.