

New Product Development: The Pipeline For Future ENERGY STAR® Growth

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Summary

The Product Development (PD) team in the U.S. Environmental Protection Agency's ENERGY STAR Labeling Branch serves as the pipeline to fuel the long-term market transformation process by delivering new products. PD's goal is to expand the reach and visibility of ENERGY STAR as well as the market for new energy-efficient products.

To evaluate the ENERGY STAR potential for a diverse group of products, PD prepared a framework and process for developing new and updating existing product specifications that rationalizes new product opportunities and draws upon the expertise and resources of other stakeholders, including manufacturers, utilities, environmental groups, and other government agencies. By systematically reviewing the potential of proposed product areas, PD makes informed decisions as to whether or not to proceed with a product. In support of this strategic vision, PD ensures that new product specifications are consistent with the ENERGY STAR philosophy and that this philosophy is effectively communicated to stakeholders, particularly in new target markets.

To date, EPA has applied this framework to four product categories targeted for product launch in 2000 (i.e., water coolers, set-top boxes, traffic lights, and ventilation fans). The framework has provided PD with the rationale for making sound decisions to move forward with justifiable specifications. Through the application of this framework, PD increasingly recognizes that each industry has unique market and product characteristics that can require reconciliation with the program philosophy. A summary of the ENERGY STAR Program and PD framework is presented below.

ENERGY STAR. ENERGY STAR is a voluntary partnership between the U.S. Department of Energy (DOE), the U.S. Environmental Protection Agency (EPA), and Industry. The primary objective of the ENERGY STAR Program is to prevent air pollution by expanding the market for energy-efficient products. EPA and DOE use the ENERGY STAR label to recognize and promote the most energy-efficient sub-set of the market. The label is a simple mechanism that allows consumers to easily identify environmental and money saving products in the marketplace. By removing information barriers that affect purchase decisions and by raising environmental awareness, the ENERGY STAR Program stimulates demand for high-efficiency products to transform the market over time.

ENERGY STAR philosophy. Each new ENERGY STAR-labeled product must be consistent with the overall ENERGY STAR philosophy while also recognizing any energy efficiency or marketing issues that are unique to that product or industry. As EPA designs and implements ENERGY STAR-labeled product, it adheres to the following five tenets.

- Expand markets for energy-efficient products through voluntary partnerships with industry
- Reduce air pollution through energy-efficient technologies
- Recognize the most energy-efficient models on the market by using the ENERGY STAR label
- Maintain customer satisfaction by increasing energy efficiency without sacrificing performance
- Encourage innovation and competition by developing energy-efficiency guidelines that are non-proprietary and technology neutral

PD Framework and Process. The purpose of the PD framework is to provide EPA with a means of systematically evaluating the technical potential for new ENERGY STAR products. The framework consists of four primary areas of product analysis:

1. *Developing initial list of potential products.* PD utilizes four information channels to identify future product areas: the Federal Energy Management Program, input from industry and other stakeholders, ENERGY STAR product evaluations, and industry/literature feedback.
2. *Prioritizing products.* Once the initial list is developed, PD prioritizes product categories. PD’s tool is a carbon savings model, developed by LBNL, which projects savings for each product category from 2000-2020. Products are ranked in order of carbon savings magnitude.
3. *Analyzing technical potential of new products.* Once priorities are established, PD begins its rigorous assessment of each product’s technical potential. The process consists of a product briefing to provide an overview of the product, a market assessment to understand the market and market barriers, an engineering analysis to assess efficiency and technology options, and product testing to estimate energy consumption. Once all data is collected, EPA updates LBNL’s energy model with the up-to-date information for each product to calculate energy savings from a potential product. Once these analyses are completed, a summary document is created and PD makes its “Go, No-Go” decision weighing factors such as cost-effectiveness, technology availability, implementation ease, industry support, and perceived success. **(Figure 1,2)**
4. *Working with industry.* Collaborating with industry on the development of product specifications has been and continues to be a hallmark of the ENERGY STAR program. PD team’s involvement comes in many forms including site visits by EPA staff and talks given at trade shows. Feedback during specification development is encouraged and essential to the process.

Figures and Graphs

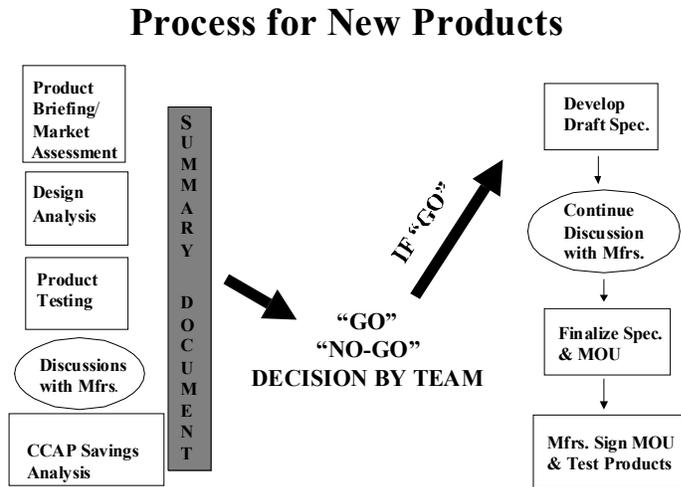


Figure 1. Process for New Product Development

Market Assessment Research and Analysis	Engineering and Design Report	Product Testing and Analysis
<ul style="list-style-type: none"> • Technology description and definitions • Available energy efficiency options • Relevant regulatory considerations • Market place and market actors • Market barriers • Unit shipments, usage patterns, power consumption • Industry trends • Industry contacts • Efficiency attitudes 	<ul style="list-style-type: none"> • Efficiency potential • Efficient design options • Low/no-cost design options • Incremental costs to industry • Performance impacts/issues • Time to introduce changes to market • Emerging technologies • Mode definitions • Test protocols • Efficient designs for reference points 	<ul style="list-style-type: none"> • Metered energy consumption • Duty cycle of product • Product energy consumption profile • Energy consumption of components in product • Energy intensive or inefficient components • Energy saved through product redesign • Range in efficiencies between product models and manufacturers

Figure 2. Summary of Technical Potential Analysis