

ENERGY STAR® ICT Product Road-Mapping Informing Document

TRACK 1: ENERGY STAR PRODUCT SPECIFICATIONS

MARCH 2013

BACKGROUND/INFORMING DOCUMENT PURPOSE.

An EPA/ITI jointly sponsored ENERGY STAR ICT Product Road-mapping Workshop was held on July 10, 2012 in Washington DC. The Workshop consisted of three tracks focused on ICT products and ICT enabled solutions. Each track engaged in brainstorming dialog in separate breakout sessions and came up with key focus areas, to address in group discussions over the remainder of the year. The focus of Track 1 is on ENERGY STAR product specifications and development process improvements for the coming 3-5 years. Track 1 outlined 6 key areas of collaboration in its report-out.

1. Acquiring updated and more accurate user data (usage and behavior).
2. Ways to keep EPA up-to-date on technology shifts during and between specification updates.
3. How will the ENERGY STAR program evolve and be forward looking/relevant in the context of systems-based approaches?
4. Test procedure harmonization – international and other environmental efforts.
5. The future of the new qualification and verification system.
6. Additional items/benefits – (Other aspects of the specifications, such as RoHS compliance, etc.)

The first action for EPA was to recommend ENERGY STAR product specification priorities and get the group consensus on it. This was achieved by a September 24 follow-up Track 1 meeting. The next step was to develop a work plan for the above 6 report-out areas based on product priorities. This informing document will outline the work plan. Track 1 work will continue in 2013 and beyond as needed, and Track 1 participants will meet as needed to work on above focus areas.

TRACK 1 WORK PLAN.

1. Consumer data (usage and behavior): The focus is to understand the new experiences and changes in how people will be using and interfacing with products in the future, and the impact of these trends on product duty cycles and product energy efficiency. Existing studies and data may not be adequate to plan for future specifications. Track 1 will investigate collaboration at different levels including but not limited to, industry, NGOs, government agencies, utility operators, trade associations, etc. Any studies/surveys will be aligned to product specification priorities.
2. Updates on Technology Shifts: Track 1 has proposed holding meetings in the "off-peak" time when a specification is not being revised. These meetings would focus on current trends in the industry, possible new technologies on the horizon, and also serve as workshops for discussing and brainstorming particular issues. As envisioned, meetings could be held 6 – 9 months before a revision is launched. These meetings are not intended to determine the approach taken in the future revision specifically but rather would be a means to keep up lines of communication, convey important general information, discuss specific stakeholder concerns that had arisen since the last specification was published, and prepare for the upcoming revision. All of these discussions can take place outside the usual revision process, alleviating some of the pressures inherent in revisions, and allowing more time and attention to be paid to the topics raised. For instance, there is rapid development in display size, technology, and ways in which users will interact with the displays of the future. This in turn could have an impact on energy and usage profile. There are changes happening in the OS, with Windows 8 and connected standby mode, with potential impact on PC usage and duty cycles. Discussing these changes and their

implications would be useful to help EPA assess its current approach to and categories for ENERGY STAR ICT products.

3. *Systems based Energy Efficiency Approach:* Track 1 will coordinate with Track 2 to address system-level energy efficiency. The distinction between products and systems is not always clear, since ICT products are often themselves systems comprising of sub-systems and smaller components. The approach taken here is to recognize that there are different levels of system integration, and articulate strategies to realize net energy efficiency improvements at the higher levels. ENERGY STAR labeling is most suited for addressing lower system level efficiency improvements, at the "product" level of servers, network cards, displays, etc. System- level approach may include, but not limited to, following ideas:
 - a. Incentives or requirements can be used to encourage product-level attributes that result in net efficiency gains as higher system levels when multiple products are integrated together. For example, power and temperature reporting in servers are required through the ENERGY STAR specification. It's possible that some of these requirements could increase product energy consumption but save more energy in the higher level system.
 - b. Review of ENERGY STAR approaches to various product types to ensure proposed requirements do not unintentionally negatively impact system level efficiency. Education and outreach to purchasers and users can highlight ways to use product-level attributes to realize energy efficiency gains. Additionally, ENERGY STAR can continue to speak directly to higher level efficiency strategies through programs like Top 12 for Data Centers and its building labeling activities.

The key to (a) above is to understand and design-in intelligent efficiency or systems efficiency whereby use of energy is reduced based on how components are connected and work together, rather than based solely on the efficiency of the components themselves. The key is to better understand, beyond the traditional products approach, whether the components could be designed in a way to achieve further gains in intelligent system efficiency without other unintended consequences.

4. *Harmonization – international and other environmental effort:* ITI has been a strong advocate of global harmonization through the Global Energy Efficiency Convergence (GEEC) initiative, working through the Government regulators, trade associations, and through Asia Pacific Economic Cooperation (APEC). Both EPA and DOE have actively promoted international harmonization of energy efficiency methodologies and test methods based on international standards where applicable and also through APEC as well as IEA and SEAD. Where international standards do not exist, EPA/DOE often develop their own test methods and work to further global harmonization regarding these methods. These new test methods may eventually be picked up and integrated into international standards. As part of the work plan, Track 1 will continue to monitor new international standard development and opportunities for greater future harmonization. In addition, Track 1 will monitor environmental standards and their applicability to ENERGY STAR specifications (RoHS, Recyclability, Disassembly, etc.)
5. *Testing and verification:* There are several dimensions to this focus area. First, there are test methodology developments and criteria improvements already underway, such as SERT™ for active mode testing of servers. Next, there are future needs to address in the next couple years, including:

- a. Investigate the use of power/performance modeling tools to reduce testing burden for storage;
- b. Develop an automated tool for PC system data extraction, to minimize the risk of errors in this complex product category;
- c. Develop a benchmark or alternative testing approach for computer workstations; and
- d. Investigate further expansions of SERT capabilities as necessary.

Additionally, Track 1 will monitor and continue to discuss the ENERGY STAR program for certification and verification testing.

6. *Additional items/benefits:* Other items including those outside of Track 1 may be considered if they will significantly improve the ENERGY STAR process or product system level efficiency.

