

# ENERGY STAR V7.0 Computers

## Discussion Document – Comments from the European Commission

This document provides comments from the European Commission on the discussion document (supplemented with the additional information provided during the associated webinar), on the ENERGY STAR v7.0 specification development process for computers.

### **Alignment with the EU Ecodesign Regulation for Computers**

We propose to align the ENERGY STAR v7.0 specification – where relevant – with the EU Ecodesign Regulation for Computers (617/2013), which is currently under review.

### **Categorization Approach**

We recognise that the US EPA is investigating several methods for the categorization of computers. The US EPA described the relative merits of the “P-Score” approach (currently used within the ENERGY STAR v6.1 specification) and “Expandability Score” approach (which we understand was developed to support the Californian Regulation on computers).

We agree with the US EPA summary of the relative advantages and disadvantages of the different approaches but would also like to note the following issues:

- **P-Score approach**

We agree that the “P-Score” approach towards differentiation of computers is becoming less suitable as the correlation between computing performance and power demand continues to decrease. This decoupling of performance and power demand is especially evident in idle modes.

- **Expandability Score approach**

We recognise that a more comprehensive approach to categorization, such as the expandability approach used within the Californian Regulation on computer energy efficiency, may provide for better differentiation of products based on performance. However, we also recognize that the US ENERGY STAR database does not contain enough data fields to identify the “expandability scores” for each product (if using the principles on the Californian scoring system). This lack of data would lead to the US EPA needing to rely on a dataset possible to compose within the limited time

when developing the ENERGY STAR v7.0 specification requirements. This smaller dataset is therefore likely to be much less representative of overall products on the market and could therefore result in the development of ENERGY STAR specifications that were either unambitious or over ambitious.

We are also concerned about some of the ambiguity in the Californian Expandability Score approach in terms of which scores may be applied to products. This ambiguity could lead to some inconsistencies in how expandability scores are assigned to individual products. Furthermore, we believe that the expandability scores in the Californian Regulation do not accurately reflect PSU rated output size which could result in some products being assigned inappropriate allowances.

In addition, we are also concerned that an expandability score approach, based on the Californian system, would make verification of ENERGY STAR labelling difficult in the EU. Verification of expandability scores needs careful consideration as the type and number of many different internal connections and components may need to be known. We are currently not aware of any way in which expandability scores under the Californian Regulation can be verified without needing to open a computer case and manually check connections and components and this may be complex for smaller computer products not easy to disassemble. The need to open cases would cause significantly higher costs for any MSA (Market Surveillance Authority) or stakeholder wishing to verify the allowed expandability score of a computer.

- **Global harmonization**

There are several major computer energy efficiency initiatives that do not use the “P-score” approach. As such, whilst we support harmonization of test procedures and methodologies where ever possible, we do not agree with the US EPA premise that there is wide scale global harmonization of the “P-score” approach.

We agree that further consideration of the type of categorization approach used within the ENERGY STAR v7.0 specification is required. We suggest consideration of the following factors during categorization development:

1. Data for a suitable number of products, which closely reflect the spread of products and levels of energy efficiency currently on the market, needs to be secured to support the ENERGY STAR v7.0 specification development process.
2. If a complex expandability approach is to be used the impact on verification activities needs to be considered.

3. Investigations should be undertaken to identify if complex product technical data needed for expandability score approaches could be secured via a software solution. We are aware of many pieces of software that provide users with some of the technical hardware features of computers but these are often not exhaustive lists. We would be interested in identifying whether more complex hardware technical data can be secured through software.
4. Other technical features of computers
5. If there is consensus to maintain usage of a “P-score” type approach, then the ENERGY STAR v7.0 specification should require the reporting of more technical hardware data so that enhanced categorization approaches can be used in ENERGY STAR v8.0 and beyond.

### **Mode Weightings for full network connectivity**

We agree that careful consideration of the mode weightings, other than used under the conventional approach, is required. We have previously noted that computers can use significant amounts of energy in sleep mode, under the ENERGY STAR v6.1 specification approach, without a large increase in overall TEC results. Given that only a limited amount of functionality is provided in sleep mode, we suggest that potentially high sleep mode power demand levels are avoided.

We would also like to note that the EU Ecodesign Regulation (617/2013) places power demand limits on the sleep mode power demand of some types of computer. The regulation is currently under a review, where the energy efficiency requirements are expected to be strengthened. The final regulation will set a benchmark level for ecodesign of computers and we recommend that ENERGY STAR v7.0 specification being a voluntary initiative for labelling the top 25 % of the market will be more stringent than the EU regulation including regarding requirements on the sleep mode.

We would also like to recommend that consideration is given to how products are used in practice when considering mode weightings for network connected states. That is, whilst a product may show an energy saving when tested in a network configured state there is no guarantee that users will use the product in the same manner. As such, we suggest that products must be within a pre-defined percentage of the ENERGY STAR v7.0 specification limits when using the conventional use profiles.

### **Power Management / Low Power Modes**

It has also been brought to our attention that power management settings are often disabled. We further understand that in many cases power management is disabled because it

does not function as intended. We therefore suggest that the ENERGY STAR v7.0 specification contains requirements on ensuring continued operational effectiveness of power management functionality during use. This could include a requirement that manufacturers report to the US EPA lists of any software packages that have known impacts on the power management functionality of their products during usage. These lists could then be published on the ENERGY STAR database providing an incentive for the software manufacturer to ensure their product is compatible with the named operating system and ENERGY STAR labelled product. .

We also understand that new types of power management, such as “modern standby”, are likely to be included in significantly more computers within the near future. Whilst it appears that this technology holds promise of saving significant amounts of energy there are some concerns that the reliability in current implementations of the technology is not uniform. We therefore suggest that further consideration is given to both wake times and reliability of modern standby type technologies during specification development.

### **Potential Scope Revisions**

We agree with the US EPA premise that small-scale servers should be removed from scope due to low sales volumes.

We also encourage the US EPA to review product definitions, especially with a view to harmonizing definitions with other major computer energy efficiency initiatives.

### **Other comments**

A recently published review study on the EU Ecodesign Regulation (617/2013) on computers noted several important considerations for computer energy efficiency that are not currently being addressed adequately by the ENERGY STAR v6.1 specification. We would like to see the ENERGY STAR v7.0 specification address the following issues:

- **Active State Power Demand**

The Ecodesign Regulation review study showed that computers may use more energy in active states than idle states under normal operating conditions. This has been confirmed by at least one major manufacturer after a review of their customers usage patterns. We recognize that due to the lack of a suitable active state test procedure it would not be possible to develop ENERGY STAR v7.0 requirements that considered active state power demand. However, we are aware that there are several initiatives underway to develop such a test procedure, one of which is due for completion around the same time the ENERGY STAR v7.0 specification is implemented. We therefore suggest that the ENERGY STAR v7.0 specification includes a requirement to report active state power

demand. Without this active state reporting requirement in ENERGY STAR v7.0 it would be difficult to include active state power demand considerations in a future ENERGY STAR v8.0, which is already likely to be several years away.

- **Power supply efficiency**

The Ecodesign Regulation review study also showed that the ENERGY STAR v6.1 specification is missing important IPS efficiency considerations. The Ecodesign review report identified low-load levels in IPS (such as 10% load) of particular concern, showing that IPS efficiency at the ENERGY STAR idle state levels can be very low. We would therefore expect due consideration to be given to low load IPS efficiency requirements in the ENERGY STAR v7.0 specification.

We would also be supportive of increased IPS efficiency requirements across the existing loading levels. The IPS efficiency requirements in ENERGY STAR v6.1 are now only reflective of mandatory IPS efficiency requirements in the EU. As a voluntary initiative, we would expect ENERGY STAR to lay down more ambitious targets for IPS efficiency. This is important given the influence that ENERGY STAR has on the market place and therefore its ability to encourage a substantial shift in IPS efficiencies.

- **Integrated Display Considerations**

The Ecodesign Regulation review study also showed that the display allowances given under ENERGY STAR v6.1 are unambitious. This is of concern as any excess allowance can be used to compensate for less efficient components in a computer. We therefore suggest that any additional allowances for integrated displays are ring fenced in order to ensure that excess allowance cannot be used to offset inefficiencies elsewhere in a computer.

We also understand that there can be considerable divergence between integrated display luminance as tested under the ENERGY STAR v6.1 test procedure and the luminance of integrated displays on shipping and in use. We therefore suggest that the ENERGY STAR v7.0 specification requires that integrated displays are tested with luminance matching the manufacturer recommended setting for use during first use of the product. We also encourage that where computers are placed on the market with a menu on initial activation proposing alternative luminance levels (e.g. “shop mode”) the as tested setting shall be the default choice in the forced menu. We also want to see ENERGY STAR v7.0 require that a warning message about the likely increase in energy use should be displayed when users increase integrated display luminance. To help ensure that as tested luminance levels are reflective of actual usage conditions, we would also like to see an ENERGY STAR v7.0 requirement that as tested luminance shall not be less than

65% of the peak luminance of the brightest on mode condition provided by the integrated display.

We also encourage the US EPA to give due consideration to both existing and new regulatory measures that address the energy efficiency of computers during the ENERGY STAR v7.0 specification development process. We think that it is inappropriate for new ENERGY STAR specifications to be either less ambitious or only slightly more ambitious than regulatory measures on energy efficiency for larger markets due to the global nature for computers. As such, we need to ensure that the ENERGY STAR v7.0 specification is reflective of high levels of energy efficiency in computers.