



# ENERGY STAR®

## Version 7.0 Computer Revision Launch Discussion Document Webinar

February 13, 2017





# Agenda

<p>Discussion Document Overview</p> <ul style="list-style-type: none"><li>- Categorization Approach</li><li>- Mode Weightings</li><li>- Power Management</li><li>- Scope Revisions</li></ul>	<p>Ryan Fogle, EPA John Clinger, ICF</p>
<p>Timeline and Next Steps</p>	<p>Ryan Fogle, EPA</p>



# Agenda

<p><b>Discussion Document Overview</b></p> <ul style="list-style-type: none"><li>- <b>Categorization Approach</b></li><li>- <b>Mode Weightings</b></li><li>- <b>Power Management</b></li><li>- <b>Scope Revisions</b></li></ul>	<p><b>Ryan Fogle, EPA</b> <b>John Clinger, ICF</b></p>
<p>Timeline and Next Steps</p>	<p>Ryan Fogle, EPA</p>



## Key Focus Areas For Version 7.0

1. Updating the categorization system used to set computer leadership levels
2. Revisit mode weightings / duty cycle for full network connectivity
3. Revise power management and/or alternative low power mode requirements
4. Adjust scope

**Comment Submission Deadline**

**February 27, 2017**



# Categorization Approach

- Updating existing p-score approach vs. expandability score approach
  - P-score: Used in Version 6.0/6.1. Uses a combination of processor and graphics capability to determine appropriate performance category of product.
  - Expandability Score: Determines category based on PSU capability as well as presence of particular internal and external ports and interfaces.



## Advantages of Updated P-score

- Adjusts to current generation hardware through the tuning of the performance boundaries in a given product type.
- Reliably scales within a product family when the family includes a range of performance configurations. (A higher p-score correlates with a higher performing product and typically greater energy consumption).
- Design-neutral approach is independent of form factor and product type.
- Maintains global harmonization.



## Disadvantages of Updated P-score

- Scalability in performance vs. energy may continue to decrease across p-values in some product categories due to improvement in newer CPU and GPU technologies, lending support to a reduction of p-score categories.
- Chipset architecture differs across product types (e.g. desktops vs. notebooks vs. tablets/slates) that requires vigilance as new product subcategories and form factors emerge.
- Processor technology improvements necessitate periodic specification revision.



## Advantages of Expandability Score

- Introduces opportunity to simplify to a single desktop category, creating clear expectations for TEC.
- Consensus that expandability generally scales well with size of power supply used in desktop products.
- Provides longevity for efficiency requirements.



## Disadvantages of Expandability Score

- Introduces additional adders, and potential for increased energy use of products.
- Scope is limited to desktops and integrated desktops.
- Inability to differentiate across a range of configurations covered within an ENERGY STAR product family.
- Sensitive to number and type of IO ports and/or memory configuration in a product that may or may not be used. Such adders (i.e., ports with high expandability adders such as USB-C and Thunderbolt 3.0) may place products in energy categories not reflective of actual use.
- May introduce incentive to upsize power supplies in higher end products to reach exclusion category and meet easier workstation requirements instead.



## Planned Approach For Categorization

- Preliminary thinking is that the best path forward for Version 7.0 is to update the current P-score category boundaries.
- Possible improvements to the P-score approach include:
  - Collapsing performance categories.
  - Fine tuning the boundaries of the performance scores in different categories.
  - Significantly revising base allowance and functional adders.
  - Investigating the continued validity of discrete graphics performance categories for notebooks.



## Categorization Discussion Questions

- A. Are there any additional advantages or disadvantages that EPA should take into account when assessing each metric for Version 7.0?
- B. If EPA adopted an alternate categorization system such as expandability score, what modifications would be necessary for brand owners to certify the range of configurations within a product family?



## Categorization Discussion Questions

- C. If EPA were to move to an expandability score for desktops, individual product data is needed to set leadership levels that is reflective of current and top performing models. Will brand owners be able to provide this data in Q1 2017?



## Categorization Discussion Questions

- Any remaining questions or comments from stakeholders on categorization for desktops and notebooks?



## Mode Weightings - Full Network Connectivity

- EPA interested in updating the duty cycle, if data is available now.
  - Data should reflect current products on the market and include (at a minimum):
    - *Product type (e.g., desktop, laptop)*
    - *Application (e.g., residential, commercial)*
    - *Operating System*
- EPA intends to retain incentives for full network proxy capability.



## Questions on Mode Weightings

- D. Can stakeholders provide empirical data as part of their written comments that allows ENERGY STAR to evaluate the integrity of the current mode weightings?



## Questions on Mode Weightings

- E. Do product brand owners have data to show the adoption rate of remote wake capability in their product lines, either as a percentage of total shipments, or an estimate of models with or without the remote wake capability enabled as-shipped?



## Questions On Mode Weightings

- Any remaining questions or comments from stakeholders on mode weightings or full network proxy?



## Power Management / Low Power Modes

- EPA remains concerned that power management settings are not being retained.
- Continuing to seek ways to ensure power management settings remain enabled in their as-shipped state and are delivering value to the enterprise environment.
- EPA has been made aware of industry efforts to employ smartphone like power management behavior in notebooks and, ultimately, desktops.



## Power Management Questions

**G.** How are stakeholders involved in hardware and operating system development moving towards the shift in design paradigm towards smartphone power management behavior and what are the expected timelines for adoption in the most popular chipsets and/or operating systems for both notebooks and desktops?



## Power Management Questions

- F. Given EPA's concern about power management being disabled in enterprise environments, EPA seeks solutions that may be written into Computers Version 7.0 that would negate this behavior.



## Potential Scope Revisions

- Removal of Small Scale Servers
  - Broadly defined as storage servers typically built with desktop computer parts and of a tower or pedestal form factor.
- Introduced in Version 5.0, when 62 models were certified.
- No small scale servers currently showing on the certified product list.



## Scope Questions

H. Do stakeholders have additional data or insight into product performance or market trends in small scale servers that would influence a decision whether or not to keep this product in scope?



## Potential Scope Revisions

- Addition of Ultra-thin Clients
  - A computer with lesser local resources than a standard Thin Client that sends raw mouse and keyboard input to a remote computing resource and receives back raw video from the remote computing resource. Ultra-thin clients cannot interface with multiple devices simultaneously nor run windowed remote applications due to the lack of a user-discernible client operating system on the device (i.e., beneath firmware, user inaccessible).
- Efficient and secure solution with over 3 million PCoIP zero client shipments to the federal government.



## Scope Questions

- I. How might the ultrathin definition be improved to properly segment products in this space?

Are zero clients increasing in functionality that traditional boundaries should be reconsidered?

What are the key requirements for a testing energy use of ultra thin clients?

Is industry able to share energy data on zero clients to allow EPA to more clearly compare the energy usage of zero clients to other thin client types they share similar functionality with?



# Interactive Displays With Expanded Processing

- EPA has received inquiries regarding the inclusion of interactive displays with processing capabilities within scope of the computers specification. Historically, interactive touch displays certify under the displays specification, but there is no adder for processing power.
- A new class of products is emerging (e.g., Microsoft Surface Hub) that may not fall into one of these product types, instead somewhere in between.



## Interactive Display Questions

- J. Can stakeholders identify any products on the market that are currently tested under the computers specification but are a better fit under the displays specification, or vice versa?

Should ENERGY STAR be concerned with technological convergence between computers and displays during the lifetime of Computers Version 7.0, anticipated to be 2017-2019/2020?

If so, what type of market presence are these converged products expected to grow to during the life of Version 7.0?



## Scope Questions

- Any remaining questions or comments from stakeholders on scope?



# Agenda

<p>Discussion Document Overview</p> <ul style="list-style-type: none"><li>- Categorization Approach</li><li>- Mode Weightings</li><li>- Power Management</li><li>- Scope Revisions</li></ul>	<p>Ryan Fogle, EPA John Clinger, ICF</p>
<p><b>Timeline and Next Steps</b></p>	<p><b>Ryan Fogle, EPA</b></p>



## Timeline for Version 7.0 Development

- Q1 2017: Launch and webinar, Draft 1 specification and webinar
- Q2 2017: Draft 2 specification and webinar, Draft 3 specification and webinar (if needed)
- Q3 2017: Final draft specification, Final specification
- Q2 2018: Version 7.0 effective



## Written Comment Submission

- Please send any written feedback on the discussion document, as well as any additional non-certified product data, to [computers@energystar.gov](mailto:computers@energystar.gov) no later than **February 27, 2017**



# Final Questions or Comments





# Thank You!

Ryan Fogle  
EPA, ENERGY STAR  
(202) 343-9153  
[Fogle.Ryan@epa.gov](mailto:Fogle.Ryan@epa.gov)

John Clinger  
ICF  
(215) 967-9407  
[John.Clinger@icfi.com](mailto:John.Clinger@icfi.com)