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February 26, 2019

Mr. Ryan Fogle  
ENERGY STAR Program – Product Labeling  
U.S. Environmental Protection Agency  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Subject: Discussion Guide - ENERGY STAR<sup>®</sup> Computer Specification Version 8.0

Dear Mr. Fogle:

This letter comprises the comments of the Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric (SDG&E), and Southern California Edison (SCE) in response to the United States (U.S.) Environmental Protection Agency (EPA) request for comments on the ENERGY STAR Computers Specification Version 8.0 Discussion Guide.

The signatories of this letter, collectively referred to herein as the California Investor-owned Utilities (CA IOUs), represent some of the largest utility companies in the Western U.S., serving over 30 million customers. As energy companies, we understand the potential of appliance efficiency standards to cut costs and reduce consumption while maintaining or increasing consumer utility of the products. We have a responsibility to our customers to advocate for standards that accurately reflect the climate and conditions of our respective service areas, so as to maximize these positive effects.

We appreciate this opportunity to provide comments to EPA prior to the first draft of the ENERGY STAR Computer Specification Version 8.0. Our key recommendations are summarized below, followed by more recommendations and analysis:

1. **The CA IOUs conditionally support a p-score based categorization approach, so long as p-score is not the sole criteria for categorization.** In past comments, we have suggested that EPA explore the use of additional criteria to supplement p-score category boundaries and establish equitable base typical energy consumption (TEC) levels, and we continue to strongly support this approach.
2. **The level of detail EPA has provided to stakeholders on the analysis conducted to derive duty cycle mode weightings is currently insufficient.** We encourage EPA to provide additional descriptive information that will aid in stakeholders' evaluation of these data and forthcoming mode weighting proposals. We recognize the sensitivities surrounding the source of these data but maintain that information can be made available in such a way as to maintain privacy and trade secrets.
3. **Residential desktop duty cycles and power management enabling should continue to be carefully considered as EPA develops its new duty cycle mode weightings.** According to the U.S. Energy Information Administration (EIA), residential computers still comprise a majority of

the installed base of client computers in the U.S.<sup>1</sup> As a result, residential usage should absolutely factor into duty cycle mode weightings.

4. **In reconsidering desktop duty cycles, EPA should maintain short and long idle as distinct modes.** Power-saving mechanisms may be available to manufacturers in long idle that are not possible in short idle. At worst, eliminating the distinction between these two operating modes disincentivizes the use of energy-saving features unique to long idle mode. At best, a return to a generic “idle mode” would mask important information about the energy performance of a system, information that is already captured as part of the existing ENERGY STAR testing and certification process.
5. **Low-load power supply efficiency remains a promising pathway for manufacturers to further reduce idle power, even amongst ENERGY STAR models that already contain 80 PLUS-labeled power supplies. A five percent power supply efficiency target remains the best way to guarantee those savings in a future specification.** Should EPA choose not to impose low-load efficiency targets, we encourage ENERGY STAR, at a minimum, to take low-load power supply savings opportunities into account when establishing desktop base TEC adders in the Computers Specification Version 8.0.

Below, we provide more in-depth comments on topics 2, 3, and 5.

2. **The level of detail provided to stakeholders by EPA on the analysis conducted to derive duty cycle mode weightings is currently insufficient.**

In the Computers Specification Version 8.0 Discussion Guide, EPA proposes new computer mode weightings that have been informed by an undisclosed dataset representing information on 1.8 million desktop and 3.5 million notebook systems from both the residential and commercial sectors. The data seem to suggest that computer usage patterns have changed dramatically since the Version 6 and 7 duty cycles were developed and that rates of power management enabling have significantly increased. If true, the CA IOUs welcome this finding as an indication of long-term market transformation toward computers that are more aggressively power managed.

The CA IOUs appreciate the sensitivities surrounding the exact provenance of the data; however, we urge EPA to increase transparency on the dataset(s) in a manner that maintains anonymity, while still allowing stakeholders to draw their own conclusions and observations about the appropriateness of proposed changes to mode weightings. At present, it is challenging, if not impossible, for stakeholders outside of EPA and those who provided the data to ascertain how well the proposed mode weightings reflect the data or to compare the data to other public-domain duty cycle studies.

The CA IOUs request that the following non-identifying characteristics about the dataset(s) be made available to stakeholders to facilitate mode weighting discussions:

- Descriptive statistics about each individual dataset provided, including number of samples, mean, median, and variance of measured quantities;
- Breakdowns of these key statistics based on sector, namely residential versus commercial or enterprise; and

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<sup>1</sup> U.S. EIA, 2017. “Analysis and Representation of Miscellaneous Electric Loads in NEMS.” Accessed at: <https://www.eia.gov/analysis/studies/demand/miscelectric/pdf/miscelectric.pdf>

- Basic methodological information, such as the general manner in which data was collected (i.e., power measurements, user surveys, analysis of system logs, etc.) and the duration of the study.

**3. Residential desktop duty cycles and power management enabling should continue to be carefully considered as EPA develops its new duty cycle mode weightings.**

According to the U.S. EIA, residential computers still comprise a majority of the installed base of client computers in the U.S.<sup>2</sup> As a result, residential usage should absolutely factor into duty cycle mode weightings. A 2017 study published by the Fraunhofer USA Center for Sustainable Energy Systems and funded by the Consumer Technology Association suggests that EPA’s proposed mode weightings are largely in agreement with residential computer usage today, especially for desktops.

However, the surveys paint a more complicated picture when it comes to desktop power management enabling. About one third of desktops and one fifth of notebooks were assumed to have no power management enabled. This may represent progress compared to historical power management enabling rates but is still a large enough fraction that we strongly encourage EPA to maintain and strengthen power management provisions as a central requirement of the Computers Specification Version 8.0.

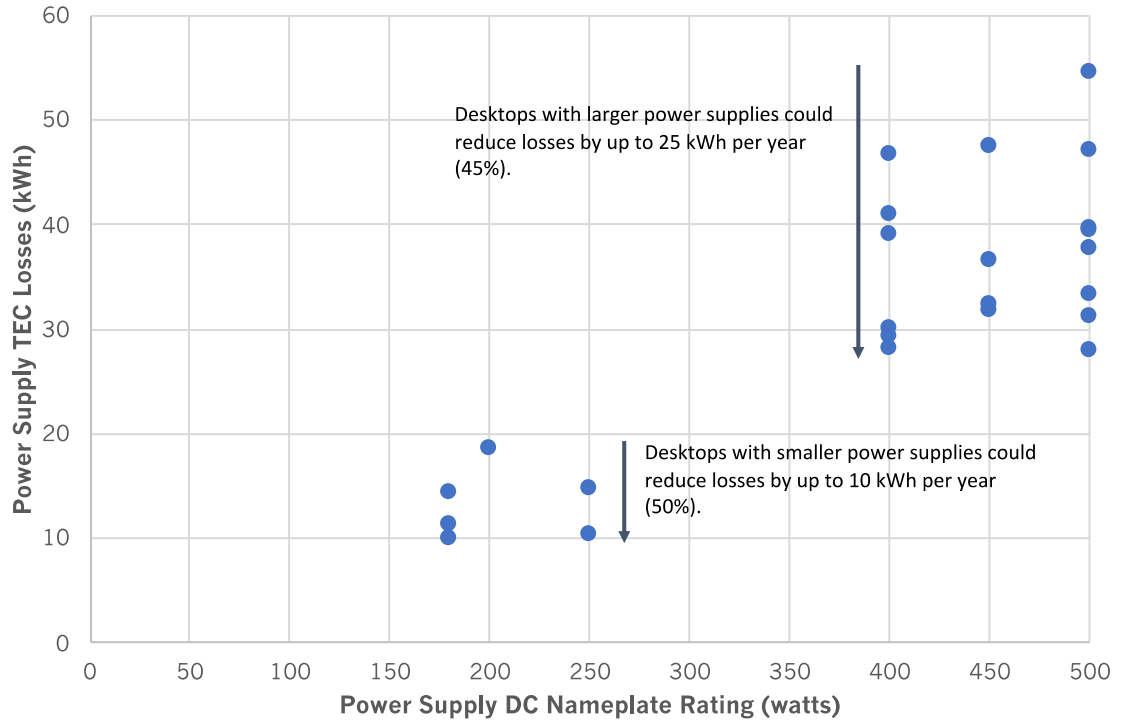
**5. Low-load power supply efficiency remains a promising pathway for manufacturers to further reduce idle power, even amongst ENERGY STAR models that already contain 80 PLUS-labeled power supplies. A five percent power supply efficiency target remains the best way to guarantee those savings in a future specification.**

The CA IOUs appreciate the market challenges with creating additional power supply efficiency criteria and load points at this time. Should EPA choose not to add low-load efficiency targets, we encourage ENERGY STAR, at a minimum, to take low-load power supply savings opportunities into account when establishing desktop base TEC adders in the Version 8.0 specification.

A careful examination of the 80 PLUS-EPRI low-load power supply dataset indicates that there is still ample room for efficiency improvements at these low loads and in the types of power supplies used in mainstream desktops. Assuming that five percent load conditions represent a reasonable load point for idle states, we estimate that mainstream ENERGY STAR-certified desktops could still consume anywhere from 10 to 50 kilowatt-hours (kWh) per year of electricity just in their power supply. However, given the range of efficiencies reflected in the 80 PLUS-EPRI data, power supplies of the same size could save 10 to 25 kWh per year (reducing losses by approximately 50 percent) by upgrading to best available low-load efficiencies (see Figure 1).

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<sup>2</sup> *Ibid.*



**Figure 1:** TEC consumed by power supply versus power supply nameplate rating. Source: IOU analysis of CLEAResult/EPRI power supply measurements, available in CLEAResult, EPRI, 2018. “Updated and expanded results from laboratory testing for the performance of desktop-computer power supplies operating at minimal loading (5%).” Memorandum, September 27, 2018.

We continue to view low-load power supply efficiency as a significant energy savings opportunity that should be factored into the Computers Specification Version 8.0. This is best captured with explicit five percent efficiency targets. Even if explicit low-load requirements are not written into the specification, power supply losses at low load levels should still be factored into the Version 8.0 specification. The savings potential illustrated above should be carefully considered as EPA begins to evaluate potential base TEC adder levels. The CA IOUs will provide deeper analysis on this topic as appropriate as base TEC adders start to be established.

In conclusion, we thank EPA for the opportunity to be involved in this process and encourage EPA to carefully consider the recommendations outlined in this letter.


Sincerely,



Patrick Eilert  
Manager, Codes & Standards  
Pacific Gas and Electric Company



Michelle Thomas  
Manager, Energy Codes & Standards and ZNE  
Engineering Services  
Southern California Edison



Kate Zeng  
ETP/C&S/ZNE Manager  
Customer Programs  
San Diego Gas & Electric Company