



January 26, 2018

Ms. Ann Bailey
Branch Chief, ENERGY STAR Products
United States Environmental Protection Agency
Office of Air and Radiation
1200 Pennsylvania Ave NW
Washington, DC 20460

Subject: ENERGY STAR® Guidelines and Process Improvements Letter

Dear Ms. Bailey,

This letter is submitted on behalf of Pacific Gas and Electric Company (PG&E) in response to the ENERGY STAR® Guidelines and Process Improvement Letter issued on November 20, 2017.

As one of the largest utility company in the United States of America, serving over 5 million customers in the state of California, PG&E implements a broad array of programs that seek to increase market penetration of energy efficient products. We value our strong partnership with the U.S. Environmental Protection Agency's (EPA) ENERGY STAR program, which continues to play an integral role in promoting energy efficient products. Many utility programs, like PG&E's Retail Product Platform (RPP) program,¹ promote energy efficient products by leveraging ENERGY STAR specifications that have undergone rigorous technical analysis and stakeholder vetting.

We appreciate the opportunity to provide input on guidelines and process improvements, particularly relating to the ENERGY STAR Standard Operating Procedure (SOP). In general, we strongly support ENERGY STAR's overall guiding principle: a focus on products that meet the highest energy conservation levels without sacrificing performance or functionality. Moreover, we commend EPA for its continued emphasis on process transparency. The program has achieved numerous, well-known successes in large part due to EPA's proficiency at working collaboratively with all stakeholders. We look forward to continuing to work closely with the ENERGY STAR program in implementing programs that will help our customers save on energy costs for years to come.

In continuing with ENERGY STAR's tradition of excellence in promoting energy efficiency, we respectfully submit to EPA the following process recommendations.

¹ As of the submission date of this letter, PG&E RPP is providing retailer incentives for sound bars, air cleaners, refrigerators, freezers, clothes washers, clothes dryers, and room air conditioners. In addition to this letter, PG&E has also signed on to a separate RPP letter, comprised of several program sponsors.

- 1) **When aligning with U.S. Department of Energy (DOE) on test procedures, standards, or definitions, we recommend EPA continue to maintain flexibility in requiring voluntary provisions that may not be explicitly defined by DOE, including additional test methods, product classes, or energy metrics.**

We commend EPA for continuing to coordinate with DOE, particularly in the sharing of any data that helps to inform both federal standards and ENERGY STAR specifications. We also acknowledge that ENERGY STAR test procedures for non-federally regulated products are developed in coordination with DOE (e.g. medical imaging equipment). For federally covered products, the ENERGY STAR SOP advises EPA to use the federal test procedure. Given the different goals and timelines of the DOE’s Federal Appliance Standards Program and the ENERGY STAR Program, we recommend EPA continue to maintain its flexibility to meet the needs of this voluntary program and the diverse types of products covered by ENERGY STAR.

EPA should consider the Televisions Specifications as an example of the flexibility required. In the Final Draft of Version 8.0 Specification for Televisions, products are required to meet a minimum standby power, on-mode power, and peak luminance ratio. In addition, the specification does not allow for “motion-detection dimming (MDD)” unless manufacturers can prove with “real-world” testing that the feature performs adequately. EPA should continue use of multiple metrics for differentiating the most efficient products. EPA should continue to monitor unique features, such as MDD or connected functionality, and base certification criteria on such features. We commend EPA for this level of detail, which we believe will lead to more informed consumers, more data transparency, and eventually more energy savings.

EPA should consider similar flexibility when aligning with federal standards across product classes. We encourage EPA to continue with approaches like the Washers Specification Version 8.0, where qualifying levels (e.g. integrated modified energy factor) for each product class were considered separately. This level of detail offers an advantage over broad alignment with federal standards by allowing EPA the flexibility to increase qualification stringency for product classes that are already seeing high market penetration of ENERGY STAR. For example, the Refrigerators Specification Version 5.0 qualifies most models that are 10% better than the federal minimum requirement. As can be seen in Figure 1, which

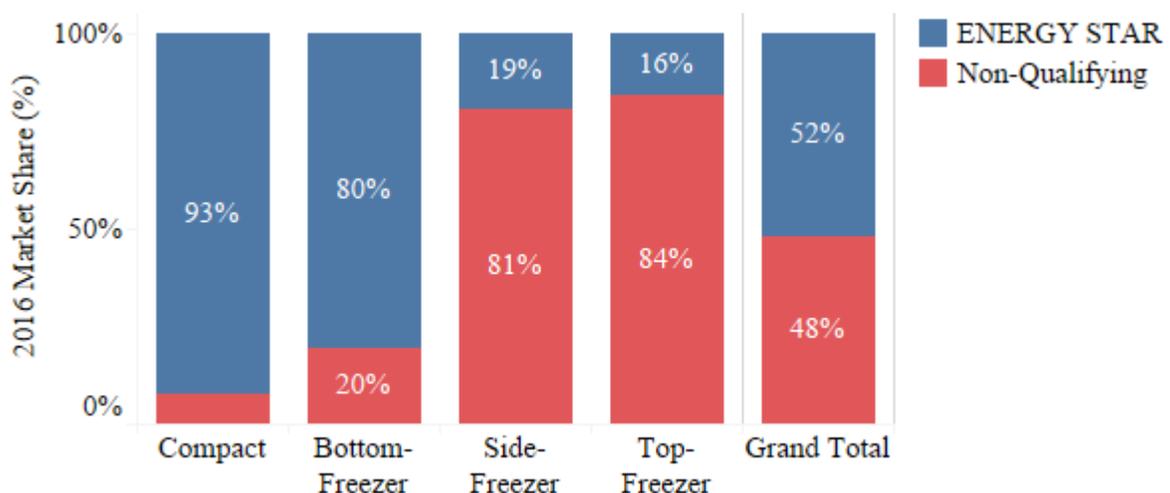


Figure 1 – 2016 Market Penetration of ENERGY STAR Refrigerator-Freezers by Configuration

depicts the 2016 market penetration of ENERGY STAR products by product configuration sold through PG&E's RPP Program, this broad requirement is ineffective for compact and bottom-freezers refrigerator-freezers – most refrigerator-freezers in these product classes already qualify for ENERGY STAR. In situations like this, EPA should consider deviating from the framework as set forth in the federal standards.

- 2) When updating specifications for non-federally regulated products covered by the California Energy Commission (CEC), we recommend EPA require that products meet CEC regulations, or consider additional regulations such that ENERGY STAR products can be sold in California.**

While we acknowledge that ENERGY STAR is a national program, and that California is a state regulation, it is our experience that California Title 20 Appliance Standards impact manufacturer decisions at the national level. CEC has an obligation to develop cost-effective appliance standards for California regulated products, and are thus aligned with ENERGY STAR's mission of driving energy efficiency. Typically, ENERGY STAR criteria and CEC requirements fully overlap, but when they do it, it could cause manufacturers additional burden, confusion, or loss of interest in ENERGY STAR.

Most recently, CEC voluntary LED lamp specifications,² which became mandatory requirements as of January 1, 2018, contained provisions that did not fully overlap with ENERGY STAR Lamps Specification 2.0. This led to a situation where certain ENERGY STAR certified lamps may not be legally sold in California. Through our outreach programs, manufacturers have voiced confusion over this discrepancy and have suggested better coordination between EPA and CEC regarding lamp requirements. EPA has an interest in assuring that certified products may be sold nationally, including in California, and as general guidance should consider state standards like these when developing or updating specifications.

Because both bodies have mutual goals and are driving forces for energy efficiency, we recommend EPA work closely with CEC as a stakeholder during rulemakings and consider implications to ENERGY STAR specifications once California standards have been adopted.³

- 3) We recommend EPA only consider industry test methods as a “starting point” and use discretion in aligning so that test methods are representative and useful.**

In general, we support the reference of industry standards in ENERGY STAR specifications as it lessens the testing costs to and burden on manufacturers. However, we also acknowledge that industry test procedures are not always developed with energy efficiency or conservation in mind, and so EPA should consider deviations where applicable. We encourage EPA to use industry standards as a “starting point”, deviating when information is brought forth that could inform a test procedure that is more reflective of real-world use, or when industry standards are not relevant.

² CEC Voluntary LED Standards Final Staff Report. <http://www.energy.ca.gov/2012publications/CEC-400-2012-016/CEC-400-2012-016-SF.pdf>. December 2012

³ California Title 20 requires that televisions meet a minimum power factor requirement. We do not believe there are any televisions certified to ENERGY STAR that do not meet this requirement, but it is a possibility.

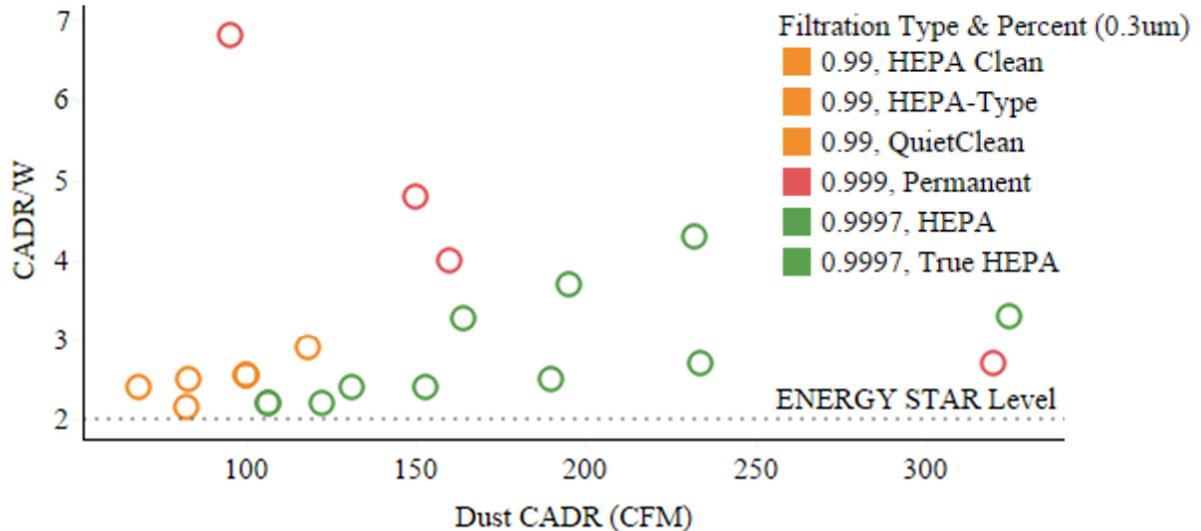


Figure 2 – Distribution of Air Cleaner Efficiencies Sold Through PG&E RPP (2015-2017) by Clean Air Delivery Rate (CADR) and Filter Type

A key example for when EPA should consider deviating from industry standards is in the federal test procedure for televisions, which requires the use of an International Electrotechnical Commission (IEC) “Test Clip”, developed by the industry to benchmark the on-mode power of televisions. As EPA is aware, a report by the National Resources Defense Council (NRDC) in 2015 suggested that the IEC test clip is not representative of real-world use for a variety of reasons.⁴ Undoubtedly, DOE and IEC will eventually update the test method and clip, respectively, but the process for these changes is notably slow when compared to the market cycles of this product – by the time this issue is resolved, the next trend may render it once again obsolete (e.g., the test clip has yet to consider high-dynamic range). Due to the uncertainties of the test procedure and the slow pace at which it can be changed, PG&E and other RPP sponsors have opted not to incentivize televisions in 2018, a decision that slows the market adoption of energy efficient products.

EPA has demonstrated in Version 8.0 of the Televisions Specification that it can move more quickly to adapt to such industry trends. In this specification, EPA proposed that manufacturers test MDD to prove that it performs adequately in real-world conditions. We encourage EPA to continue down this path of using the IEC test clip as a starting point, but supplementing it with additional methods developed by parties more conscientious of energy efficiency and conservation.

An example of a product specification that may require further refining is the air cleaner criteria, which uses an industry test method to determine the clean air delivery rate per watt of power (CADR/W).⁵ The test method uses dust particles, which are required by the industry test method to have a particle size range of 0.5 – 3 microns. From our analysis of air cleaners offered through PG&E’s RPP Program, we have found that most air cleaners sold through major retail channels advertise a reduction of noise and/or

⁴ “The Big Picture”. National Resources Defense Council (NRDC), November 2015.

⁵ ANSI/AHAM AC-1-2006: Method of Measuring the Performance of Portable Household Electric Room Air Cleaners

a HEPA-type filter with effectiveness measured at 0.3 microns. Figure 2, which shows the CADR/W distribution of models sold through PG&E’s RPP Program suggests that filtration efficacy is strongly correlated with the clean air delivery rate, but loosely correlated with CADR/W. The industry test method is likely inadequate for determining whether air cleaners are efficient while meeting consumer needs.

We look forward to working with EPA on identifying the pros and cons of industry test procedures for each product during the specification development process.

4) We recommend EPA emphasize the use of market data in triggering specification updates and setting qualify levels.

We greatly appreciate the ENERGY STAR Unit Shipment Data Reports that are released annually for consumer knowledge, and for program design and planning. In general, we encourage EPA to continue striving to incorporate more market data into its specification development processes such that revisions can be triggered optimally. In doing so, we note that the current annual frequency of this report may not be well-suited for fast-changing markets. For these markets, we suggest EPA consider more frequent updates to the unit shipment data, since some markets may move quicker than an annual update cycle. If more frequent updates are cost-prohibitive, EPA should consider separate product reports, varying the reporting frequency on a product-by-product basis. For example, EPA could provide updates to the unit shipment data for televisions more frequently than for a slower-moving market, such as the freezer market.

EPA should also consider stakeholder data, such as PG&E’s RPP Program for triggering a specification revision. By looking at the sales of sound bars sold through PG&E’s RPP Program in Figure 3, the market penetration of ENERGY STAR sound bars in 2015 when averaged throughout the year would appear to have been only about 30%. In the 2015 Unit Shipment Data Report, EPA indeed reported 33% market penetration.⁶ However, it is clear from this more granular dataset that market penetration in PG&E territory has surpassed 40% by the end of 2015. EPA opened the Audio/Video Specification for revision

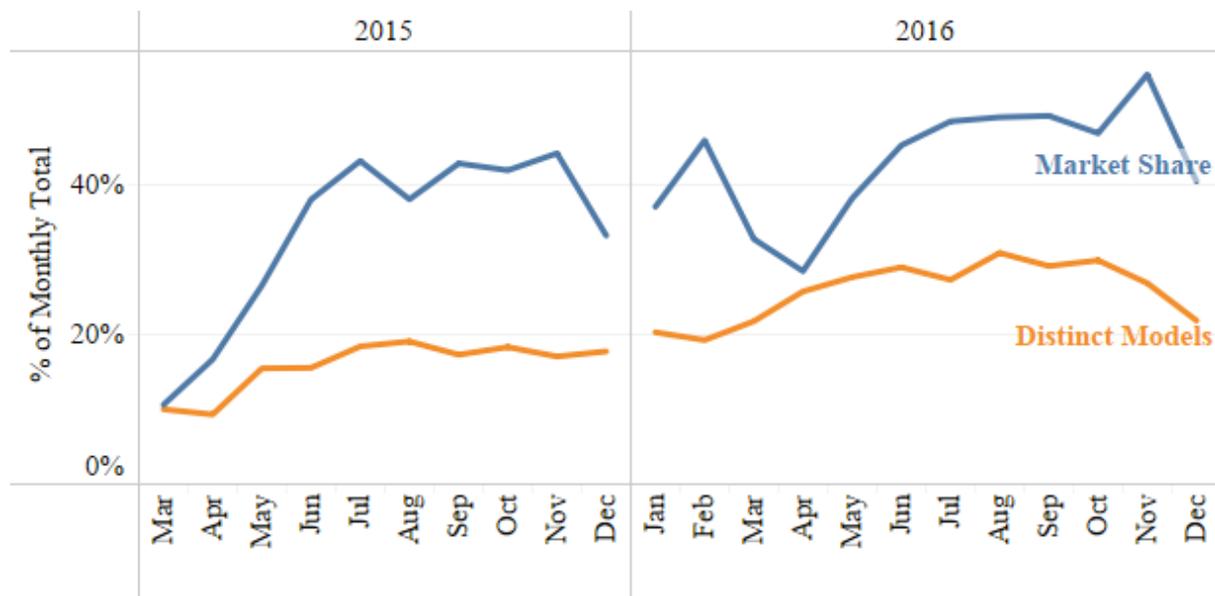


Figure 3 – Share of Sound Bar Sales and Distinct Model Count Sold Through PG&E RPP

in 2017, but could perhaps have initiated this process sooner with the market data from PG&E's RPP Program.

Such data can also be helpful for setting qualifying levels. In the absence of market data, energy efficiency programs have often used model-availability as a proxy for market penetration. While we agree that there is value in considering the number of models available when setting qualifying levels, and that brand diversity is also important, we believe market share to be a more accurate than model availability for determining levels that will promote energy efficient products while maintaining the ENERGY STAR brand. In Figure 3, we observed through PG&E's RPP Program an increase of about 30% in the market penetration of sound bars qualified for ENERGY STAR in 2015. During this time, the number of models that qualified for ENERGY STAR increased by only 10%. This decoupling of model availability and market share suggests that qualifying levels could perhaps be more stringent, potentially leading to additional savings, and a truer differentiation of the most efficient products.

5) When applicable, we recommend that EPA account for market efficiency improvements leading up to a product specification's effective date by continuing to focus on forecasting and anticipate market changes

We commend EPA for its transparency in publishing revision timelines workplans, and we have found this information to be of tremendous use to our program planning. In planning for future specification revisions, EPA should continue to focus on data that allows EPA to forecast and anticipate market changes. EPA typically uses the "top 25%" distinction when establishing qualifying levels in their specification development activities. However, in many cases this distinction does not account for the product development cycles from the time the specification has been finalized to the time it goes into effect (approximately 9 months). We urge EPA to account for product development cycles more thoroughly to ensure that once the specification only captures 25% of the most efficient products, or preferably the top 25% of sales, at the time of effect.

Forecasting and market anticipation could include the use of the data sources mentioned in our previous comment. For example, in Figure 3, we note that the market penetration of ENERGY STAR sound bars continues to increase in 2016. With data from PG&E's RPP Program, EPA can track market changes monthly, thereby ensuring that Audio/Video Specification Version 4.0 is stringent enough to remain relevant once it goes into effect.

We look forward to working with EPA on forecasting sales and model availability where data is available, and we encourage EPA to seek additional sources of data to validate the claims of PG&E or any other organization privy to market data.

6) We recommend EPA publish relevant market data used to establish or revise an ENERGY STAR product specification

While we have found the Unit Shipment Data Reports to be of great use, we suggest further improvements through increased data transparency. We encourage EPA to publish the data and methodology used to calculate these values. Specifically, we ask that EPA list the sources where EPA obtained the information regarding the total market for product categories

**Table 1 – 2016 Market Penetration of ENERGY STAR
(As Reported by EPA Unit Shipment Data vs. PG&E RPP Sales Data)**

Product	2016 EPA Unit Shipment Data	2016 PG&E RPP Sales
Air Cleaners	33%	86%
Sound Bars	40%	44%
Clothes Dryers	32%	30%
Refrigerators	48%	58%
Freezers	35%	16%

As can be seen in Table 1, which shows the estimated 2016 market penetration of ENERGY STAR products compared to values reported in the 2016 EPA Unit Shipment Data Report, there is sometimes a large discrepancy among data sources. To better understand this discrepancy, we have assessed products available through major online retailers, but have not yet reached a conclusion. As we continue to search for explanations, we encourage EPA to work with utility programs, like PG&E’s RPP Program, to distill the causes of such discrepancies that may impede on the successful planning of energy efficiency programs, thereby slowing market adoption of efficient products. Increased data transparency would lead to better coordination between programs like RPP that utilize ENERGY STAR specifications for determining incentives levels.

7) We recommend EPA consider for certification the testing and listing of all metrics relevant to energy efficiency and conservation.

As part of an effort increase data transparency, EPA should consider requiring the testing and listing of metrics beyond what is required for certification. This will promote ENERGY STAR goals by allowing conscientious consumers to scrutinize all energy aspects of an ENERGY STAR product that may be relevant to their decision-making.

In some cases, EPA requires manufacturers to test a setting, feature, or function, but does not publish the results of these tests. It would be of great benefit for consumers and energy efficiency program implementers to have access to this data. For example, to certify a clothes washer, manufacturers are required to report to EPA the remaining moisture content (RMC) of the washer unit – this data is not published in the ENERGY STAR qualified products dataset. For conscientious consumers looking to determine how much energy can be saved with a specific dryer, the RMC of the washer is relevant. In a report published by PG&E and other California utilities, we proposed to CEC a mechanism for home builders to gain “credit” for meeting California Title 24 Building Standards by selecting clothes washers with lower RMC. We note that this approach is feasible because California Title 20 already requires manufacturers to report RMC. We suggest that EPA align with CEC in reporting on metrics that would be helpful for consumers and incentive programs.

In other cases, EPA does not require manufacturers to test or report on energy metrics. For example, audio/video products like sound bars with amplifier input power at 1/8 maximum undistorted power with reference signal of less than 20 watts are not required to measure or report amplifier efficiency. Through PG&E’s RPP Program, we have found that over 80% of sound bar sales are not required to report the amplifier efficiency. This prevents energy efficiency programs from incentivizing sound bars with

efficient amplifiers. Moreover, it prevents stakeholders from any awareness of whether amplifier efficiency is increasing or decreasing over the course of time. We recommend that EPA require that products test all efficiency metrics even if they are not required to do so for certification. This level of data transparency from manufacturers should be prerequisite to certification.

8) We recommend EPA make public all data that is submitted by stakeholders in an appeal; all stakeholders should have the ability to respond to new data.

In general, we believe the ENERGY STAR process to be fair, transparent, and inclusive. As the ENERGY STAR Program continues to cover additional products, we recommend that any future appeals be made public so that stakeholders can respond with data to address the appeals. While we agree with the value of appeals, as the specification comes closer to being finalized, the opportunity for new data to come out at the last step to “derail” the process should be limited. We believe this guidance will lead to optimal inclusion among all stakeholders.

9) We continue to recommend EPA consider better coordination between “Most Efficient” and the standard ENERGY STAR certification requirements.

We support EPA’s efforts to recognize the top tier of models by establishing the “Most Efficient” designation. For products covered under the “Most Efficient” specification, we encourage EPA to establish a stronger connection between the standard ENERGY STAR level and the corresponding “Most Efficient” level. For some product categories, we suggest a tiered approach, such as having “Most Efficient” become the standard ENERGY STAR level when a threshold is surpassed. This creates a stronger, more coordinated, multi-year strategy to accelerate market penetration of highly efficient models, and reduces potential confusion between the two specifications by clearly defining their relationships to one another. It may also help in establishing backstop mechanisms in case specification revisions are resource-prohibitive. As a start, we suggest EPA consider updating the “Most Efficient” specification for relevant products during the standard ENERGY STAR specification revision process in addition to the annual update.

Thank you for the opportunity to provide these comments. We continue to believe that ENERGY STAR is a tremendous resource for energy efficiency programs, and that increased collaboration between EPA and the organizations that implement these programs will further result in energy savings opportunities beyond what has already been achieved. We believe our suggestions support EPA’s goal of ensuring ENERGY STAR qualified products deliver promised savings to consumers while maintaining trust in the label. We look forward to working closely with EPA throughout this process.

Sincerely,



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