



September 12, 2018
Via Electronic Mail

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Subject: ENERGY STAR 2019 Most Efficient Criteria

This letter is submitted on behalf of the Northwest Energy Efficiency Alliance (NEEA) and the Pacific Gas & Electric Company (PG&E) in response to the request for input to the ENERGY STAR Most Efficient (ESME) recognition criteria. NEEA is a non-profit organization representing an alliance of more than 140 Northwest utilities and energy efficiency organizations working on behalf of more than 13 million energy consumers, and PG&E is an investor-owned utility, focused on providing safe, reliable, clean and affordable energy to 16 million Californians. Both are working to encourage the development and adoption of energy-efficient products and services.

NEEA and PG&E strongly support EPA's ENERGY STAR program and the ESME designation. ENERGY STAR is a critically important federal program created with bi-partisan support that annually delivers billions of dollars of energy savings to consumers and business. As such, ENERGY STAR's leadership in setting appropriate ESME voluntary specifications plays a critical role in advancing the efficiency of consumer products by recognizing those products that are the 'best of the best' at meeting consumer's experiential expectations as well as save them energy and money.

As key ENERGY STAR Retail Products Platform (ESRPP) program sponsors, NEEA and PG&E believe that the ESME product categories play a vital role in signaling to the market where product category technologies are headed and the features and criteria most important to the market and consumers. Therefore, NEEA and PG&E applaud EPA for the proposed updates to product categories in the ESRPP. After review of the proposal, NEEA and PG&E submit the following comments on the proposed criteria.

Televisions

NEEA and PG&E support the reintroduction of an ESME specification for televisions in alignment with the Television v8 specification. In follow up to NEEA's and PG&E's comments on



the Television v8 drafts and EPA’s final specification, we respectfully reiterate the recommendation to reduce the Ultra High Definition (UHD) allowance:

We recommend EPA lower the UHD adder to 20%, down from the current level of a 50% allowance. Using 2016 sales data, our analysis shows approximately 41% coverage with a revised 20% UHD Adder (see

Table 1). Based on the analysis done by the Collaborative Labeling and Appliance Standard Program (CLASP) in Europe and a comparative analysis between US models of HD and UHD TVs in the California Energy Commission (CEC) appliance database, the power consumption gap between HD and UHD TVs is only 13% on average. This gap has decreased significantly over the past five years (see Figure 1), so it is important to use recent data and ensure dated data is not allowed to negatively skew results when considering this fast-evolving technology.

Table 1. A 20% UHD allowance would still provide 41% coverage, per 2016 NEEA ESRPP sales data.

Estimated Sales Volume Covered by Percent Allowance			
Required Allowance	Cumulative 2017 Model Count	Cumulative Volume (2016 Proxy)	Coverage
10%	11	18,734	24%
15%	16	30,933	40%
20%	20	31,105	41%
25%	27	63,065	82%
30%	28	64,615	84%
35%	33	68,428	89%
40%	35	70,382	92%
45%	38	75,182	98%

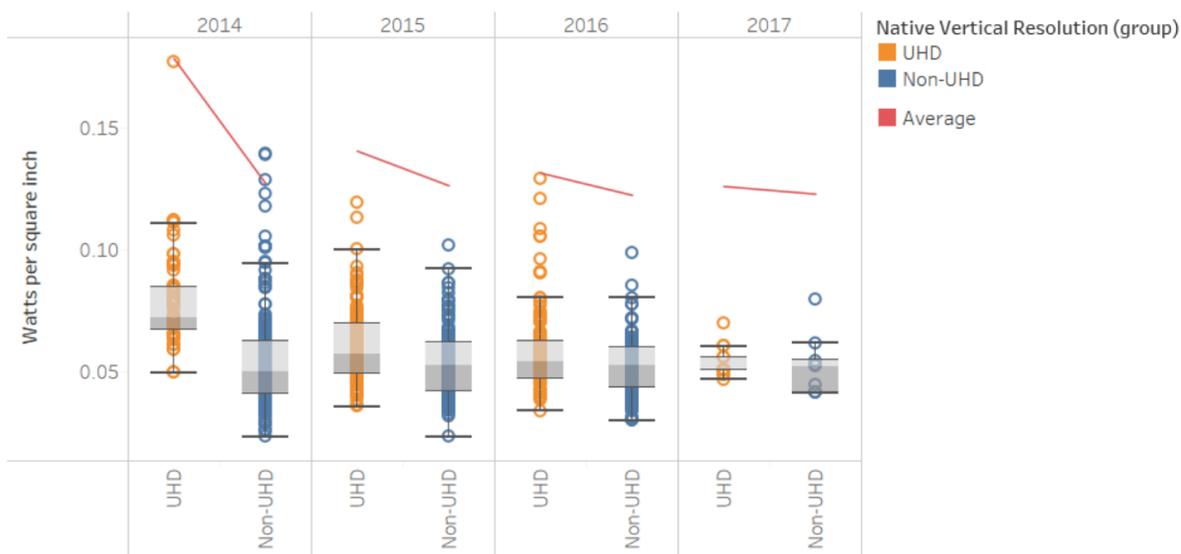


Figure 1. Watts per square inch of UHD and HD TVs, based on data from models in the CEC appliance database.

It is also important to decouple the energy consumption impact of UHD from other high-end features that frequently accompany UHD, such as HDR. Almost all other features can be and are implemented in HD TVs, so bundling their energy consumption impact with UHD does not accurately reflect the market.

We ask that EPA revisit NEEA’s and PG&E’s Television draft 1 v8 comments as they provide excellent data to support establishing a lower UHD Adder for the ESME criteria. We look forward to revisiting the prior submitted analysis and comments in support of EPA refining this ESME criteria.

Clothes Washers

NEEA and PG&E support EPA’s proposal to continue providing ESME recognition for clothes washers. In addition, we suggest adding a recognition tier with reduced requirements for top-loading clothes washers:

Currently, differences in the top-load and front-load markets yields the result that over 80% of front-load ESRPP clothes washer sales qualify for ESME recognition, while no top-load clothes washers meet the criteria (see Figure 2). This makes ESME recognition less meaningful for front-load washers and unattainable for top-load washers. There is significant market segmentation between the configurations, with top-load washers constituting more than 60% of 2017 and 2018 sales from retailers in NEEA and PG&E regions. Consumers have consistently preferred top-loaders over the past 20 years, and the front-loader market share seems to have reached a

plateau (see Figure 3). To ensure all consumers have access to the most efficient products within their market segments, we support criteria specific to top-loading washers.

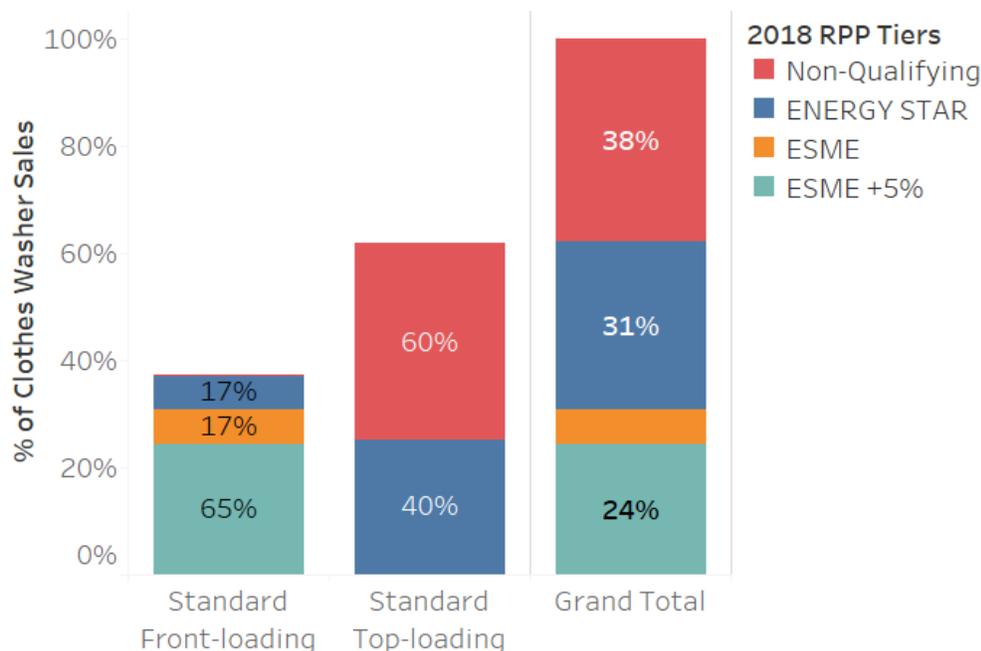


Figure 2. ESRPP clothes washer sales by configuration and efficiency tier (2017-2018 ESRPP Sales in NEEA and PG&E Regions).

Although the top-loading configuration is inherently less efficient than the front-loading configuration, there is significant opportunity to enhance the efficiency of the top-loader market. Providing recognition to the most efficient top-loading washers could help to shift the top-loading market segment towards greater efficiency. This shift potential is not necessarily possible for all products, and product-specific analyses should be performed before applying this analysis to products other than washers. However, this segmentation is consistent with the EPA’s previous decision to develop distinct ENERGY STAR criteria for top-load and front-load washers. If the ESME designation is meant to showcase the intended future for the ENERGY STAR specification, separate ESME criteria for top-loaders and front-loaders will more accurately telegraph intentions for Clothes Washers v9.

Although ESME recognition is often reserved for only the most efficient products, agnostic of product class, adding separate requirements for top-load washers would also be consistent with the EPA’s choice to have reduced ESME criteria for small-volume washers.

Figure 3 below shows that front-load market penetration has never reached projected levels over 50% and instead back-slid over the past 5 – 6 years to the current levels of less than 40%. The long timeframe of entrenched market share between top- and front-load washers indicates significant market and consumer barriers to further market share gains by front load clothes washers. These market barriers persist despite significant efficiency (water and energy)

enhancements over the same period for front load clothes washers. To further understand consumer preference, in addition to the Figure 3 summary market overview assembled for NEEA, we have a secondary literature (including web analysis) underway with results expected at the end of September. We'd be happy to share the results of that project when available.

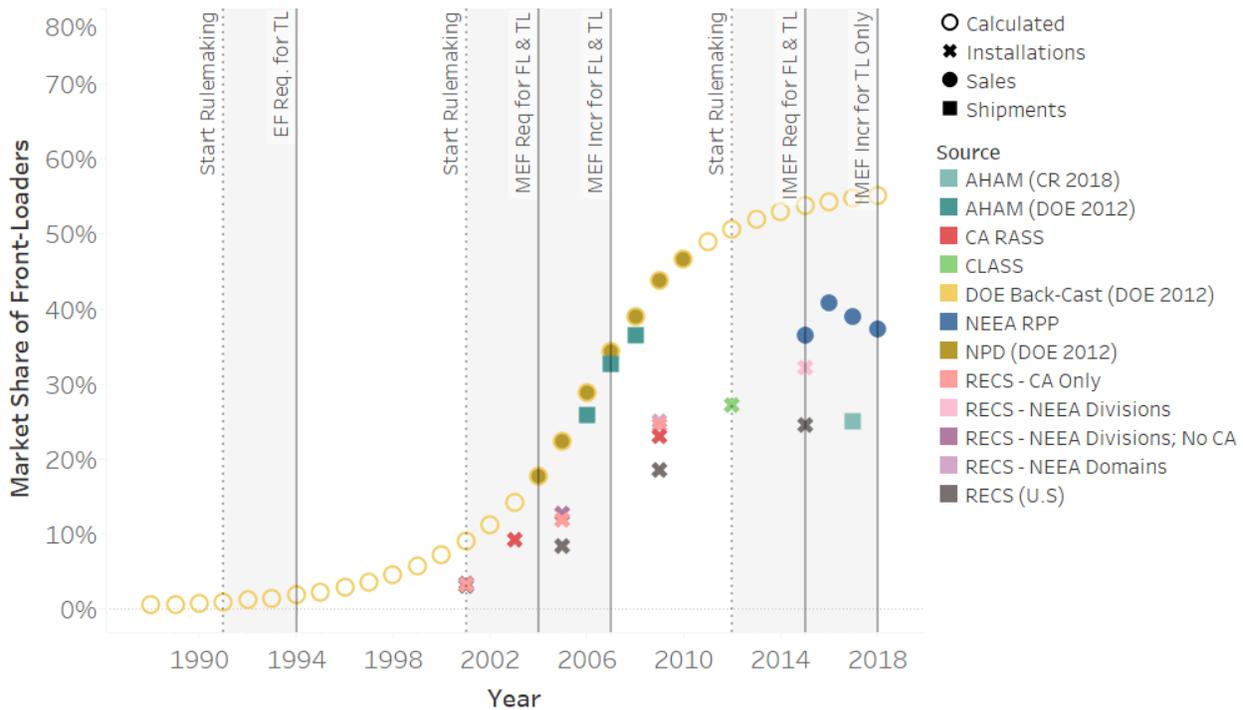


Figure 3. Although the DOE forecasted that front-loaders would occupy over 50% of the washer market share by 2018, the data show that entrenched consumers continue to prefer top-loaders. This is a compilation of front-loader market share data from:

- RASS: California Energy Commission, Residential Appliance Saturation Study, 2009, <http://www.energy.ca.gov/appliances/rass/>
- CLASS: California Public Utilities Commission, California Lighting and Appliance Saturation Study, 2012, http://www.calmac.org/publications/2014.11_24_WO21_CLASS_Final_Report_CleanES.pdf
- CR 2018: Consumer Reports, "5 Things to Know About Front-Load Washers," 5 April 2018, <https://www.consumerreports.org/front-load-washers/5-things-to-know-about-front-load-washers/>
- DOE 2012: Department of Energy, *Technical Support Document: Residential Clothes Washers*, April 2012, <https://www.regulations.gov/document?D=EERE-2008-BT-STD-0019-0047>
- NEEA, ESRPP Sales Data, 2015 - 2018
- RECS: U.S. Energy Information Administration, Residential Energy Consumption Survey, 2015, <https://www.eia.gov/consumption/residential/>

Specifically, NEEA and PG&E recommend updating the criteria for standard top-loading washers to ≥ 2.38 integrated modified energy factor (IMEF) and ≤ 3.7 integrated water factor (IWF). This would enable 11% of top-loading 2017 and 2018 sales from retailers in NEEA



and PG&E regions to qualify for ESME. No top-loading washers are able to qualify under the current proposed criteria. Figure 4 shows the ESRPP sales that would meet each set of requirements.

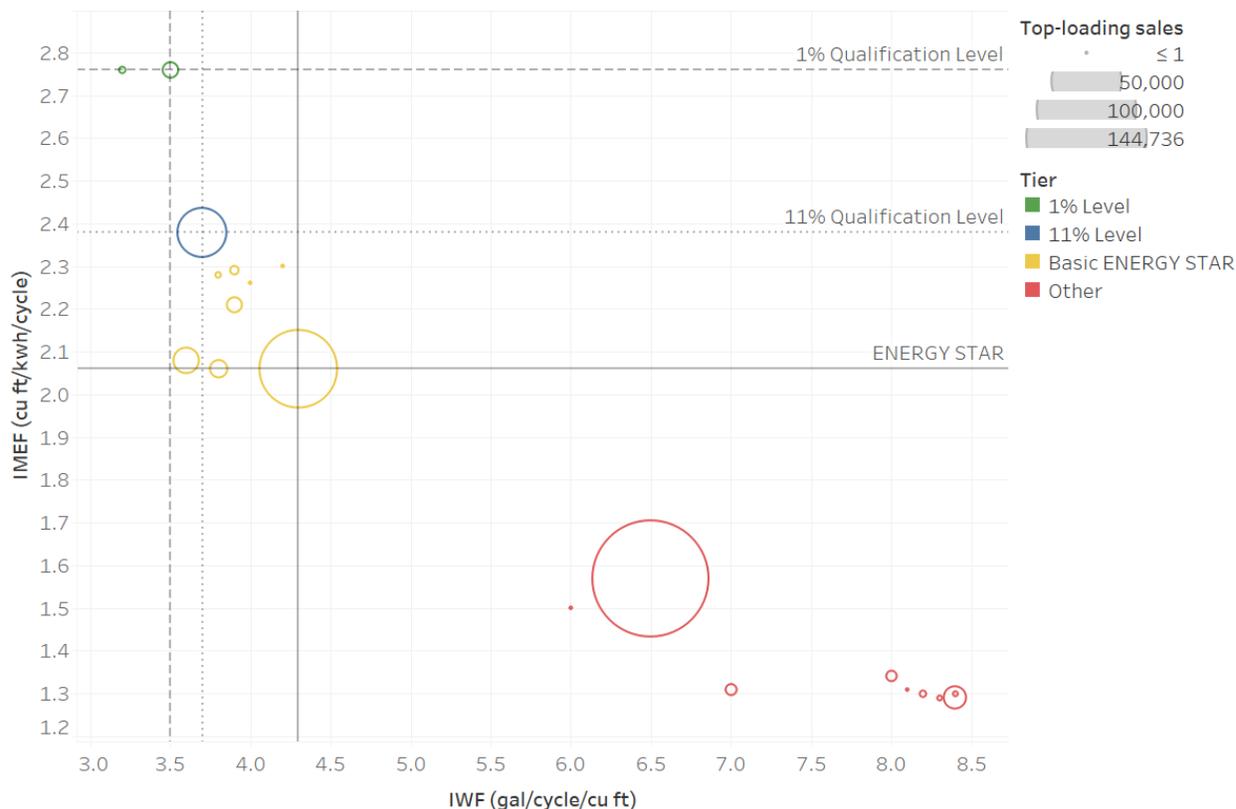


Figure 4. Sales of standard-size (> 2.5 ft³) top-loading clothes washers that would meet various IWF and IMEF requirements (2017-2018 ESRPP Sales in NEEA and PG&E Regions). The position of each circle's center denotes the water and energy efficiency, and the size of each circle indicates the number of sales at that efficiency level. There is a significant gap in efficiency between the top 1% of top-loading washers and the rest of the ENERGY STAR-qualifying models, so potential top-loader ESME criteria would need to recognize either 1% or 11% of top-loader sales; it is not feasible to choose an efficiency level that would be met by 5 – 10% of top-loader sales.

Refrigerators

NEEA and PG&E support EPA's proposal to update the ENERGY STAR Most Efficient recognition for refrigerators with more stringent requirements for the bottom-mount freezer and side-mount freezer configurations. We provide analyses of sales data and the ENERGY STAR Qualified Product List (QPL) to show that the update will help protect against efficiency backsliding while still allowing consumers to select bottom-mount freezer and side-mount freezer ESME refrigerators:



This update should not impact the market share of side-mount freezer ESME refrigerators, as all side-mount freezer models recognized as ESME on the current QPL already meet or exceed the 20% requirement. There will likely be an immediate decrease in the market share of bottom-mount freezer ESME refrigerators, but products that meet the new criteria should still be available to consumers. The bottom-mount freezer configuration is inherently less efficient than the top-mount freezer configuration and has been gaining ESME market share in the past few years (see

Table), so it is reasonable to update the ESME requirements for this product configuration.

Table 2. Market share of ESME refrigerators by configuration (2016-2018 ESRPP Sales in NEEA and PG&E Regions)

	2015	2016	2017	2018
ESME Bottom Freezer	1.0%	1.0%	1.2%	1.6%
ESME Top Freezer	2.6%	4.4%	5.3%	4.2%

With the updated ESME requirements, 18% of the bottom-mount freezer ESME models on the QPL will still qualify for ESME recognition. This set includes models from the brands that currently sell most ESME refrigerators.

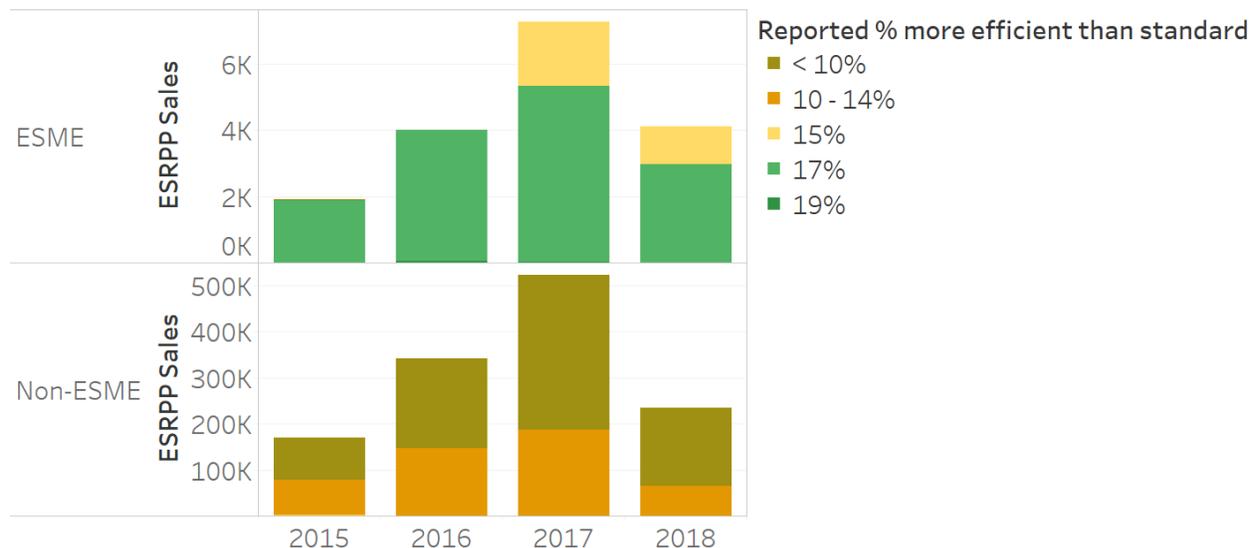


Figure 5. Sales of bottom-mount freezer refrigerators by efficiency level relative to DOE requirements (2016-2018 ESRPP Sales in NEEA and PG&E Regions). Overall, the fraction of bottom-mount freezer sales qualifying for ESME has remained consistent, but since 2017 more of the ESME sales have only



minimally met the ESME criteria.

Figure shows the composition of ESRPP bottom-mount freezer refrigerator sales that qualified to the 2018 ESME levels between 2015 and 2018. There has been an increasing trend in the ESME market share of bottom-mount freezer refrigerators that minimally meet the ESME levels, and raising the ESME levels could help combat this trend. As a result, we support EPA's proposal to enhance the criteria for this category.

Other ESRPP Product Categories

For ESRPP sponsors such as PG&E and NEEA, it is critically important to have an ESME tier to support development of high-efficiency products across the portfolio. The 2019 ESME criteria do not offer designations for some products in the portfolio that could benefit from this higher tier, including: room air cleaners, room air conditioners, and sound bars. All of these products have ENERGY STAR market penetration of at least 20% in recent ESRPP sales, so recognizing a higher efficiency level could enable the ESRPP program to more precisely target a tier to the most efficient technologies in alignment with EPA and guide future revisions to the ENERGY STAR specifications.

For room air cleaners, the observed ENERGY STAR market penetration in ESRPP sales is particularly high, with more than 90% of sales meeting the basic ENERGY STAR level. 40% of sales also reach the level of 30% more efficient than the minimum ENERGY STAR requirements (see Figure), so we would recommend setting ESME criteria at least 50% more stringent than the current ENERGY STAR level for this product. Given that the current ENERGY STAR specification is under revision, these criteria would not be aggressive.

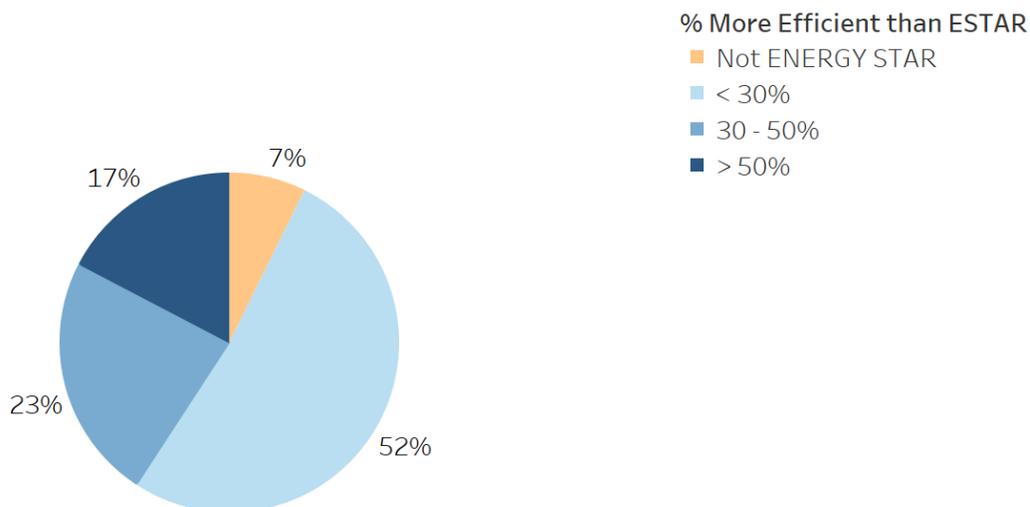


Figure 6. Market share of room air cleaners by efficiency level (2015-2018 ESRPP Sales in NEEA and PG&E Regions)

We thank EPA for the opportunity to comment on these important changes to its proposed specification, and we very much appreciate the Agency's responsiveness to stakeholder input. NEEA and PG&E look forward to continuing our work with the ENERGY STAR program.

Respectfully,

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