

DOCKETED	
Docket Number:	19-AAER-03
Project Title:	Power Factor
TN #:	229067
Document Title:	NRDC Response on Low Power Mode and Power Factor Roadmaps
Description:	9/18/2017 - This document was previously docketed in 17-AAER-12
Filer:	Soheila Pasha
Organization:	California Energy Commission
Submitter Role:	Commission Staff
Submission Date:	7/23/2019 1:03:02 PM
Docketed Date:	7/23/2019

DOCKETED

Docket Number:	17-AAER-12
Project Title:	Low-Power Mode & Power Factor
TN #:	221210
Document Title:	NRDC Response on Low Power Mode and Power Factor Roadmaps
Description:	N/A
Filer:	System
Organization:	Natural Resources Defense Council (NRDC)
Submitter Role:	Public
Submission Date:	9/18/2017 2:59:58 PM
Docketed Date:	9/18/2017

Comment Received From: Pierre Delforge

Submitted On: 9/18/2017

Docket Number: 17-AAER-12

NRDC Response on Low Power Mode and Power Factor Roadmaps

Additional submitted attachment is included below.



NATURAL RESOURCES DEFENSE COUNCIL



APPLIANCE STANDARDS
AWARENESS PROJECT

**NRDC Response to CEC's Invitation to Submit Proposals on
Low Power Mode and Power Factor Roadmap**

**2017 Appliance Efficiency Pre-Rulemaking
Docket Number 17-AAER-12**

September 18, 2017

Submitted by:

**Pierre Delforge, Natural Resources Defense Council
Chris Granda, Appliance Standards Awareness Project**

On behalf of the Natural Resources Defense Council and our more than 380,000 members and online activists in California, and the Appliance Standards Awareness Project (ASAP), we respectfully submit these comments on the California Energy Commission's (CEC) Invitation to Participate to the Phase 2 Pre-Rulemaking on Low-Power Modes and Power Factor.

The Natural Resources Defense Council is an international nonprofit environmental organization with more than 1.3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC's top institutional priorities are curbing global warming and creating a clean energy future. Energy efficiency is one of the quickest, cleanest, cheapest solutions to global warming and other energy-related problems. Cost-effective energy efficiency standards help to ensure that consumer and commercial products provide the same level of comfort and service using less energy, with benefits for consumers, the environment and the electricity grid.

ASAP is a coalition that includes representatives of efficiency, consumer and environmental groups, utility companies, state government agencies, and others. Working together, the ASAP coalition seeks to advance cost-effective efficiency standards at the national and state levels through technical and policy advocacy and through outreach and education.

We strongly support the commission's initiative to develop energy efficiency roadmaps for low-power modes and power factor. As detailed in NRDC's June 16, 2017 comments on CEC's Invitation to Participate to Phase 2 Pre-Rulemaking – Low Power Mode and Power Factor Roadmap,¹ idle energy use (also known as “vampire” energy use) is one of the largest and fastest growing energy uses in buildings, and a large opportunity to save energy cost-effectively. Reducing vampire loads and avoiding energy

¹ http://doCKETpublic.energy.ca.gov/PublicDocuments/17-AAER-12/TN219215_20170616T153544_Pierre_Delforge_Comments_NRDC_comments_on_low_power_modes_and_p.pdf

losses due to poor power factor requires a cross-cutting (horizontal) approach across many products categories. As such, NRDC encourages CEC to keep the scope of the roadmaps as broad as possible at this stage of the proceeding and only narrow it down as needed once a detailed analysis is available.

CEC's August 1 "Invitation to Submit Proposals" asked detailed questions about scope, product groupings, test procedure, and other implementation questions. These are the right questions to consider to ensure a successful implementation of the roadmaps. However, there is insufficient data available at this time to answer these questions in a data- and analysis-driven manner. This is due in large part to the large number of products concerned, and the absence of reporting requirements for low-power modes and power factor in existing policy frameworks.

Given the horizontal nature of this savings opportunity, it is important to look at both low-power modes and power factor energy saving opportunities holistically, and independently. We recommend CEC keep the scope as broad as possible for the analysis phase of the roadmap development. The idle energy use of individual products is relatively small in most cases, and the few products with high idle loads, like some always-on recirculation pumps, are typically present in few homes which limits their average impact per home. What makes idle loads a large energy consumer and savings opportunity is that there are on average 50 or more of them per home, and hundreds or even thousands per commercial building. Capturing a significant share of this energy saving opportunity will require keeping most of products in scope that have significant vampire loads and that are not preempted by federal appliance efficiency standards.

The scope of the low-power modes and power factor roadmaps should be informed by data, and not be narrowed down prematurely. The low-power mode and power factor roadmaps should be considered as potentially separate, until data collection and analysis findings help evaluate if it is preferable to keep them separate or to combine them. Combining these two roadmaps before the analysis is available potentially could significantly reduce their savings potential.

Similarly, product clusters, modes, additional functionalities that warrant power allowances, power targets and milestones, and technical barriers, should be determined based on data collection and analysis.

Tracking of roadmap goals and milestones: A roadmap isn't a mandatory standard, and it can only be meaningful if the commission has the ability to track whether roadmap goals or milestones are being met. The only adequate approach to do this that we are aware of is to require that covered products sold in California be registered and that manufacturers be required to report all information necessary to track product energy performance relative to roadmap goals to California's online registration database. The details of the information to be reported should be determined as part of the development of the roadmaps and informed by the Commission's and stakeholders data collection and analysis efforts in an open and transparent process.

Interaction between displacement and distortion power factor: During the July 21, 2017 workshop ARRIS argued that a switch mode power supply can partially offset power factor impacts from inductive loads and improve the power factor. It then provided just one data point in its 9/11 comments showing that operating a set top box with a switch mode power supply simultaneously with a power drill slightly increased the power factor from 0.218 to 0.39. While this minor improvement suggests some

interaction between the inductive and the switch mode power supply in this case, it is only one data point, and only resulted in a minor improvement in power factor. NRDC considers this as insufficient evidence to draw conclusions. More research and analysis is needed to assess if improving power factor of some loads would have any significant side effects. This research should be carried out on a large enough sample of products, consider usage patterns and load coincidence, current, and assess the overall energy and economic impact of interactions between loads.

We appreciate the opportunity to provide this input, and thank CEC for its careful consideration of our comments.

Respectfully submitted,



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