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NATURAL RESOURCES DEFENSE COUNCIL

**NRDC Additional Comments on CEC's Scoping Order for
2012-2014 Appliance Efficiency Standards under Title 20 for
Video game Consoles**

**2011 Rulemaking on Appliance Efficiency Regulations
Docket No. 11-AAER-1**

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Submitted by:

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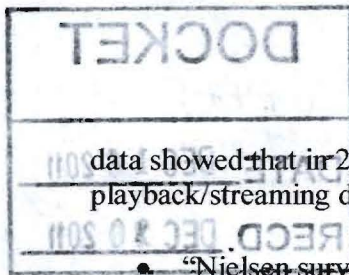
Natural Resources Defense Council

On behalf of the Natural Resources Defense Council and our more than 250,000 members and online activists in California, we respectfully submit these additional comments in response to ESA's letter to CEC on video game consoles dated November 23, 2011.

On September 30, 2011, NRDC submitted proposals for the development of new appliance efficiency standards under the proposed scoping order covering 2012–2014. NRDC's proposals identified video game consoles as a major appliance energy savings opportunity in California. We estimated the energy reduction potential from our proposed standard to approximately 100 MW of peak demand reduction and 700 GWh of annual electricity after stock turnover. This corresponds to the annual electricity use of 100,000 Californian households.

Video game consoles are rapidly evolving from a predominant purpose of game play to a general purpose entertainment system at the center of the home's TV ecosystem, making video streaming power limits essential to an effective energy efficiency standard for consoles.

The following sample of recent articles on video consoles market trends all point to a major shift from consoles' main purpose being predominantly game play to consoles becoming a general purpose home entertainment system. Of particular note, the Nielsen



data showed that in 2010 14-33% of video game console use was for video playback/streaming depending on the console:

- “Nielsen survey shows video streaming on game consoles up 7% since 2010”¹
- “New Xbox update aims to put Microsoft at the heart of TV viewing”²
- “Xbox 360 Teams Up With Entertainment Leaders to Transform TV”³

In addition to video streaming and set-top box functionality, video game consoles provide other general purpose capabilities such as browsing the internet, displaying photos, playing music, social networking etc.

This shift towards a general purpose entertainment system makes the establishment of power limits on the most significant non-game play modes essential to reduce the energy use and associated environmental impact of video game consoles in California.

The differences between video game consoles and personal computers (PCs) do not justify poor power scaling in future console designs

NRDC agrees with ESA that game consoles have many different characteristic from PCs including lifecycle, software and usage pattern. We also agree that game consoles require a specific approach for energy efficiency, and they cannot be covered by the same specifications and standards as PCs. However, these two types of devices are built using common components and similar architectures, such as central processing units (CPU), graphics processing units (GPU), memory, non-volatile data storage, and operating systems. The techniques pioneered with personal computers, particularly mobile devices such as notebooks and media tablets, to scale power up and down depending on the functionality provided to the user can be incorporated in the designs of future game consoles. If applied to video game consoles, these design best-practices for energy efficiency would result in dramatic power level reductions in non-gaming modes, without impacting the performance of the consoles in game play or other active modes.

¹ <http://thenextweb.com/gadgets/2011/12/14/nielsen-survey-shows-video-streaming-on-game-consoles-up-7-since-2010/>

² http://news.cnet.com/8301-10805_3-57335878-75/new-xbox-update-aims-to-put-microsoft-at-the-heart-of-tv-viewing/

³ <http://www.marketwatch.com/story/xbox-360-teams-up-with-entertainment-leaders-to-transform-tv-2011-10-05>

The tier 2 levels proposed by NRDC for media playback are 250% higher than current best-practices. We are confident that the industry can design its future products to meet these levels well within 4 years.

As manufacturers design and market their consoles to position them at the heart of the video ecosystem, video playback mode is being used by more people for longer hours, and is becoming responsible for an increasingly large energy use in California. This business strategy comes with the responsibility to optimize consoles for the modes that are becoming more important such as video playback.

The levels proposed by NRDC for tier 2 are 250% higher than 2011 best-in-class technology. We believe these levels are very reasonable and are confident that the industry can design its future products to meet them well within 4 years, given the rapid pace of information technology evolution.

We believe that it is perfectly reasonable, and critical in a low-carbon society, to expect that all devices, whether single or multi-purpose, scale power consumption based on the task being performed. Technologies like graphics switching (similar concept to hybrid power trains in cars) are already broadly used in mobile computing platforms and are just one solution to this issue. We believe that our proposed standard will lead industry to innovate and find the most cost-effective solutions to achieve reasonable power use levels relative to best-in-class devices.

NRDC recognizes that different media playback performance levels may require different standard levels and is open to working with industry to refine media playback power levels based on the functionality provided, such as high definition and 3D.

Game consoles should consume much less power when users are inactive or performing low-processing tasks than when they are actively playing graphics-intensive games

NRDC used the term “Pause/idle” to represent the situation where the user is not actively playing the game, but the game remains loaded. We are not particularly attached to the term “idle” and are open to using another term to describe that situation. The key point is that game consoles should use considerably less power when the user is not actively playing the game than when he or she is. There is no need for the same level of graphics processing as in active gaming when the user is inactive, particularly in Pause mode. Even in Navigation mode, where we agree that some background tasks are needed to support an engaging user experience, these tasks are much less processing-intensive than active gaming and should enable much lower power consumption.

Auto-Power Down Proposal

NRDC worked collaboratively with industry during 2010 and 2011 to jointly develop an auto-power down approach specifically targeted at game consoles. We believe that approach strikes a good balance between providing a seamless video game console user experience and limiting unnecessary energy use.

We included in our submission to CEC the latest version of the proposal we had in our possession. If a newer version is available we are happy to review it, and provided that changes do not adversely impact energy savings, we are confident that we can agree with industry on a proposal in the spirit of our collaboration on this issue.

We appreciate the opportunity to provide input into the California Appliance Standard scoping order for 2012-2014, and stand ready to provide any additional information. We look forward to working with the Commission on these critical energy efficiency opportunities.

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Delforge'.

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