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October 5, 2011

Harinder Singh  
California Energy Commission  
Dockets Office, MS-4  
1516 Ninth Street  
Sacramento, CA 95814-5512

RE: ***Comments of the Technology Network – 2009 Rulemaking Proceeding on  
Appliance Efficiency Regulations Phase II (Docket # 11-AAER-1)***

Dear Mr. Singh

In connection with the Commission's proposed development of a 2011 scoping order governing appliance energy efficiency standards, the Technology Network ("TechNet"), which represents California's leading technology companies in sectors including hardware, software, networking, clean energy and venture capital, appreciates the opportunity to submit comments responding to the Commission's request for input. The interests of our members concern computers, servers, game consoles and set top boxes specifically, but more generally, the need for an economic climate conducive to rapid innovation.

TechNet shares the Commission's interest in promoting energy efficiency, and the state's larger objectives of reducing the adverse environmental and security-related impacts associated with energy use. TechNet has been engaged in the implementation of AB 32, for example, having served on the Economic and Technology Advancement Advisory Committee tasked with advising the Air Resources Board on how California can use its technology expertise to meet that law's targets and timetables.

In this regard, TechNet urges the Commission to view information technology – and the rapid innovation in this sector generally – as a powerful tool for addressing the state's energy challenges. Through innovations such as sensors, virtualization and the Smart Grid, information and computer technologies are helping our state and country simultaneously realize enormous productivity gains and efficiencies in the use of energy. According to the American Council for an Energy Efficient Economy (ACEEE), for every extra kilowatt-hour demanded by the information and

communications technology sectors, the U.S. economy increased its overall energy savings goal by a factor of ten. "<sup>1</sup>

One ACEEE study found that at the same time that IT investments accounted for almost 40% of the nation's productivity gains, the nation's energy intensity declined significantly, not as a result of significant changes in energy prices or supply constraints, but in substantial part as a response to technological innovation and the rapidly declining pricing of computing power that in turn unleashed a high rate of information technology investment. Notwithstanding strong growth in the use of new technology devices during the late 1990s and early portion of the last decade, energy intensity in the economy overall *fell* by an average of 2.9% per year.<sup>2</sup>

Driven by market demand and voluntary initiatives such as the U.S. Environmental Protection Agency's Energy Star program, the technology sector has made enormous strides in improving energy efficiency in its products. The energy intensity of computing has been falling by a factor of 4 every year and a half.<sup>3</sup> A computer's energy efficiency improvement, as measured in computational power per watt improved by more than 2.8 million percent between 1978 and 2008. This is in marked contrast to many other product sectors where energy efficiency gains have come much more slowly.<sup>4</sup> So while the use of many categories of electronic devices has increased, the technology industry has – and continues – to innovate relentlessly and successfully to improve overall efficiency.<sup>5</sup>

Increasingly, strategies to save energy go beyond the device itself and instead involve their management. The implementation of smart technology-intensive networks saves huge amounts of energy by enabling strategies like tele-work, tele-health or distance learning. For example, providing consumers with better information about their energy use through the activation of smart meters has been shown in pilot studies to enable consumers to reduce their total electricity use by

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<sup>1</sup> John Laitner and K. Erhardt-Martinez, American Council for an Energy-Efficient Economy, "Information and Communications Technologies: The Power of Productivity" (Report E081), February 2008, p. v.

<sup>2</sup> John Laitner, Chris Poland Knight, et. al., American Council for an Energy-Efficient Economy, "Semiconductor Technologies: The Potential to Revolutionize U.S. Energy Productivity." (Report Number E904), May 2009, pp. 4, 6-7

<sup>3</sup> Id., p. 13.

<sup>4</sup> Id..

<sup>5</sup> TechNet is concerned that the projected energy savings estimates achievable through regulation may be overstated. For example, while personal computers represent the largest savings opportunity on the Potential Savings chart, it is important to note that notebook PCs, being regulated as part of the battery charger rules, are also being counted for the purposes of the projected PC savings. With notebooks removed, the savings will be much smaller. TechNet is not certain what devices were included under the definition of server or what potential savings could be realized because there are many distinct kinds of servers.

12% or more.<sup>6</sup> And virtualization software in data centers – which can result in ten-fold or more reduction in the number of servers -- can yield reductions in energy costs of 40%.<sup>7</sup> A strategy focused simply on device efficiency in rapidly evolving markets risks missing some of the most important energy savings.

Another trend has been the increase in the functionality of existing devices. In this context, device regulations based on product categories becomes more daunting as different functionalities and products become integrated. One such example is the set top box, which is evolving to take on new functions, such as the recording of programming, and which may emerge as platforms for others such as home energy management (through communication with smart appliances), premises security, and health monitoring. In these cases, the electricity consumed by one device may increase as networking capabilities are added but the gains obtained by eliminating other devices or platforms or achieving substantial management efficiencies could substantially outweigh any increased consumption by the new device by a substantial margin. TechNet is concerned that establishing a rigid standard for set top boxes, or any other category, could prevent manufacturers from moving beyond current categories or consolidating functions, or penalize the adding of new capabilities, leading to the existence of more devices and impeding innovations that would result in energy savings.

TechNet also believes that the Commission must consider the competitive aspects of any regulations. If some but not all of the competing devices are subject to regulation, it is conceivable that the competitive position of different parties in areas such as home energy management could be adversely affected, relative to others. Because Californians will benefit if a vigorously competitive market develops in sectors such as home energy management, TechNet believes that the Commission should carefully consider this issue as it moves forward.

Given that the rapid diffusion of technology in the economy has been a principal driver of efficiency, a primary objective of regulatory policy should be to foster continued innovation. Compared to some other sectors, the technology sector's improvements have evolved quickly. TechNet is concerned that a regulatory approach focused on individual products may force the diversion of research and investment into products or services that ultimately produce fewer efficiency gains for the efforts invested or that are less compelling to consumers.

TechNet further urges the Commission to carefully consider the substantial progress that has been made as a result of voluntary efforts under programs like

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<sup>6</sup> Karen Ehrhardt-Martinez, American Council for an Energy-Efficient Economy, "Advanced Metering Initiatives and Residential Feedback Programs: A Meta-Review for Household Electricity-Saving Opportunities" (Report E105), June 26, 2010, p. iii.

<sup>7</sup> U.S. Environmental Protection Agency, U.S. Department of Energy at [http://www.energystar.gov/index.cfm?c=power\\_mgt.datacenter\\_efficiency\\_virtualization](http://www.energystar.gov/index.cfm?c=power_mgt.datacenter_efficiency_virtualization)

Energy Star. Energy Star is considered by many consumers when making their choices and has emerged as a strong market driver. The voluntary nature of the Energy Star program has encouraged an atmosphere where parties can fashion innovative strategies, collaborate, learn from mistakes and develop solutions tailored to different technologies.

TechNet also urges the Commission to carefully consider and align with the work of the U.S. Department of Energy, which is currently considering the implementation of new appliance efficiency standards applicable to some of the devices discussed in the August 31 workshop, e.g. set top boxes. At a time of scarce resources, avoiding duplicative or redundant regulatory initiatives should be a priority, as such an approach is likely to produce only marginal – if any – efficiency gains while potentially slowing innovation and consuming resources that could be better invested elsewhere. At a time when the Legislature has identified regulatory relief as a high priority, the presumption should be against any proposal to undertake duplicative requirements, absent a compelling rationale. Certainly those producing top performing devices compliant with standards such as Energy Star should not be burdened with additional requirements.

In summary, TechNet urges the Commission, in developing its approach for the coming years, to consider not just the electric loads imposed by legacy products but also the actual rates of innovation being achieved in the products being considered. Regulatory attention should be focused on those products where innovation rates are low and where the gains that can be achieved through regulatory approach clearly outweigh the risks to continued innovation or the duplicative burdens to such sector.

TechNet appreciates your attention to these perspectives and concerns.

Respectfully submitted,



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Eve Bukowski  
Executive Director