



National Cable & Telecommunications Association
25 Massachusetts Avenue, NW – Suite 100
Washington, DC 20001
(202) 222-2300

www.ncta.com

Neal M. Goldberg
Vice President and General Counsel

(202) 222-2445
(202) 222-2446 Fax

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Celia Sher
Office of the General Counsel
Department of Energy
Celia.Sher@hq.doe.gov

Jeremy Dommu
Office of Energy Efficiency and Renewable Energy
Department of Energy
Jeremy.Dommu@ee.doe.gov

Re: NCTA Questions Regarding Request for Information
Docket No. EERE-2011-BT-NOA-0067

Dear Ms. Cher and Mr. Dommu:

We are looking forward to the Department's planned public meeting on the RFI concerning set-top boxes and network equipment. In order to make that meeting and subsequent comments as informative and productive as possible, we wanted to provide you in advance with some of the initial questions we have on the RFI. We hope that you will be able to provide some answers during the course of your presentation.

1. **Network Costs.** The standard analytical approach for DOE standards-setting looks to the increased costs in appliances and the payback period considering savings in residential energy consumption.¹ Regulation of set-top boxes could create other substantial costs because set-top boxes operate as integrated parts of complex networks. They are receiving a wide variety of programming schedules, diagnostics data, navigation information (such as changes in channel location) and software updates while the TV is off in order to operate efficiently on the cable network and meet consumer demand for instant-on TV. As the Department recognizes in its RFI, when powered down, these boxes lose these critical capabilities.² Moreover, changes in the operation of set-top

¹ Rulemaking Overview and Preliminary Market and Technology Assessment: Energy Efficiency Program for Consumer Products: Set-top Boxes and Network Equipment (December 2011) ("Overview") at 2-9.

² Request for information (RFI) and request for comments, Energy Conservation Program: Test Procedure and Energy Conservation Standard for Set-Top Boxes and Network Equipment, 76 Fed. Reg. 78174, 78176 (December 16, 2011) ("DOE realizes that service providers regularly communicate with deployed devices to maintain network and content security, and to ensure that program guides or on demand offerings are updated. DOE also understands that some consumers may be opposed to long wake-up times when powering on their devices.").

boxes require changes in other parts of the network and in network operations, and consequently there are network costs associated with changes in set-tops.³ Where in the standard analytical approach for DOE standards-setting are such network costs considered? How would the Department propose to consider such costs with respect to potential standards for set-top boxes?

2. **Consumer Products.** For the Department to consider applying potential test procedures and energy conservation standards to set-top boxes, these devices must be consumer products added as covered products pursuant to 42 U.S.C. § 6292(b)(1). Set-top boxes differ in many ways from commodity consumer appliances the Department has previously considered. Set-top boxes operate as integrated parts of delivery networks, and vary considerably depending on the services provided and functionalities enabled. Each set-top box is specific to the cable, satellite, or IPTV delivery technology of the service provider.⁴ Almost all set-top boxes are owned by service providers, rather than purchased and owned by consumers. Set-top boxes change functionality and energy usage over time, through new software downloads and new services provided by the service provider. In these circumstances, what is the legal rationale for considering set-top boxes that are not standalone products purchased or owned by consumers to be “consumer products” under EPCA?
3. **Total Annual Savings.** In determining whether consumers might benefit from the adoption of energy conservation standards, the Department’s standard analytical approach looks to total annual savings in operating costs as a factor in calculating savings over the life of the product. As the Department has recognized, the energy efficiency of set-top boxes in active mode has increased, although some of those energy savings are offset by increases in advanced features and functionalities that require more energy.⁵ NCTA has shared with the Department encouraging trend lines showing increasing energy efficiencies with previous successive models of set-top boxes and the prospects for those trends to continue.⁶ We would expect that whatever difference in energy efficiency the Department might assign to, say, the baseline efficiency of a model deployed in 2010 versus an energy conservation standard set today, that difference would diminish with each successive year, with a substantial impact on total annual savings that might be attributed to an energy conservation standard. In accounting for the net present value of total annual savings that could be attributed to an energy conservation standard, how will the Department account for the diminishing difference between energy consumption that would result from standards set by rule and energy consumption

³ A similar point is noted in the Overview at 4-10 (“The cost to change the network infrastructure is potentially very large, and requires a long planning horizon.”)

⁴ Overview at 4-1.

⁵ Overview at 4-7.

⁶ See NCTA Memorandum for the Record, Attachment C, Slides 5-6, December 5, 2011.

reductions that will arise through normal, ongoing market-based technological innovation, year over year?

4. **Development Timeline.** In its standard approach to energy conservation standards, the Department also looks to the impact on the manufacturer of the product, including changes in manufacturing practices.⁷ In its preliminary assessment, the Department makes note of the development timeline for certain elements of the set-top box hardware (motherboard, system design, silicon),⁸ but it does not appear to account for the time needed for software development, quality assurance, field readiness testing, or other processes that are essential in the development and deployment of set-top boxes that operate as part of larger networks. How does the Department plan to consider such critical aspects of set-top box product development and deployment?
5. **Devices to be Tested.** How will the Department and parties consider potential test procedures and energy conservation standards when the scope of devices to be tested has not yet been defined? For example, all of the following products receive digital video signals delivered by a network and deliver them to a residential consumer display and/or recording device:
 - Satellite set-top boxes including low noise block-downconverter on the dish.
 - FiOS Optical Network Unit (ONU).
 - TiVo with CableCARD.
 - Personal computer with CableCARD-enabled Open Cable Uni-directional Receiver.
 - Gaming stations that access cable services.
 - Boxee, Roku and similar video receivers.

Is the Department inquiring about potential test procedures and standards for all of them?

6. **Different Products.** The Department has noted that it does not have statutory authority to add energy allowances for the various functions of different devices, but must create specific product classes for each.⁹ If devices with different functionalities are different products, does each product's energy consumption need to be reviewed to determine if it meets the statutory thresholds for potential classification as a covered product and for potential standards? If not, on what basis would different products be aggregated or not?
7. **Changes in Functionality over Time.** Many set-top boxes change functionality and energy usage over time, such as with new software downloads, new services, or the use

⁷ Overview at 2-12.

⁸ Overview at 3-4.

⁹ Overview at 3-2 ("In the U.S., however, DOE cannot utilize allowances to increase the energy efficiency standard of a product when additional functionalities are present. As such, each combination of base type and feature class will be considered a separate 'product class.'").

of third party applications. How would the Department account for such changes that could turn one “product” into another product?

8. **Compliance Timetable.** Our understanding is that manufacturers are typically provided 3-5 years from adoption of a DOE energy conservation standard to bring products into compliance. Does the Department expect to follow that practice for set-top boxes if it were to adopt a standard?

Respectfully submitted,

/s/ Neal M. Goldberg

Neal M. Goldberg

cc: Daniel Cohen (daniel.cohen@hq.doe.gov)
Betsy Kohl (elizabeth.kohl@hq.doe.gov)
John Cymbalsky (john.cymbalsky@ee.doe.gov)
Paul Glist (paulglist@dwt.com)