Ms. Brenda Edwards
U.S. Department of Energy
Building Technologies Program
Mailstop EE-2J
1000 Independence Avenue, SW
Washington, DC 20585–0121

Re: Determination of Coverage for Set-Top Boxes and Network Equipment

Docket Number: **EERE-2008-BT-DET-0040**
RIN: **1904-AC52**

Dear Ms. Edwards,

Thank you for the opportunity to comment on the recently released Determination of Coverage for Set-Top Boxes and Network Equipment. Northeast Energy Efficiency Partnerships (NEEP) and the undersigned organizations strongly support the Department's tentative determination that these products qualify as covered products under the Appliances and Commercial Equipment Standards Program as part of the Energy Policy and Conservation Act (EPCA).

While the efficiencies of most traditional household appliances (refrigerators, clothes washers, etc.) have dramatically improved over the last 30 years, much of these gains in reducing household electricity usage are now being negated by the increases in energy use associated with consumer electronics, which include, among others products, computers, televisions, and set-top box/networking equipment[1]. For reasons explained below, programmatic efforts in the Northeast, and around the country, to stimulate efficiency improvements in Set-Top Boxes through voluntary promotions (leveraging ENERGY STAR labeling) have been largely unsuccessful in driving efficiency gains in this market. Minimum standards represent a necessary vehicle in the near term to achieve the available energy savings in set-top boxes and network equipment and should lead to more effective approaches going forward to complement energy efficiency program activities.

Through the efforts of NEEP's Northeast Appliance Standards Project, as well as those of others in the region, the Northeast has a long history of supporting both state and federal minimum efficiency standards. Based on a number of energy usage criteria, it is clear that the time has come to bring set-top boxes and network equipment into the federal Appliance Standards Program.

Decreasing energy used in set-top boxes and networking equipment is of paramount importance for Northeast states, as they seek to reach aggressive energy use reduction goals that are designed to address energy costs that surpass most of the nation and that unnecessarily burden the economy. Strong energy efficiency standards for these products have the potential to reduce consumption of electricity, lower peak electricity demand, reduce pollution and create new economic opportunities.

Below, we respond to the issues for which the Department seeks specific comment.

[1] http://www.eia.gov/consumption/residential/reports/electronics.cfm

- **The Department has correctly consolidated the product categories of set-top boxes and network equipment within a single definition.**
  - As recently as just a few years ago, set-top boxes and networking equipment represented two separate technologies providing two different sets of functions. In recent years however, these distinct products have made rapid evolutions towards one another. We agree with the Department's interpretation that these products now perform overlapping functions and should be analyzed as a single product class with a single definition[2]. The similarity of digital information that these devices are now handling make it logical to define them under a single category.
  - This evolution can be witnessed in the expansion of televisions handling Internet Protocol traffic (IP traffic) and personal computers (through network equipment) now being used to view cable television programming online. Over 20 percent of the current (as of August 15) ENERGY STAR Qualified Set-Top Boxes receive their digital information through IP-encapsulated data as their base functionality.
  - While we support this product category consolidation, we are also sensitive to the potential drawbacks that a one-size-fits-all efficiency requirement might create, such as restricting product functionality and development. We would support a testing regime and qualification framework that in some fashion differentiates products based on variables such as information throughput (speed) and functionalities (i.e. handling high definition cable signals).

- **Classifying set-top boxes/networking equipment as a covered product is necessary and appropriate to carry out the purposes of EPCA.**
  - Based on the findings of *Residential Miscellaneous Electric Loads: Energy Consumption Characterization and Savings Potential*. (Roth, K.W. *et al.* 2007) Prepared by TIAX LLC for DOE, the combined energy usage of set-top boxes and network equipment far surpass the three criteria that must be met in order to satisfy EPCA's provisions[3] that enable the Secretary of Energy to classify these additional types of consumer products as covered products.
  - Product labeling is only useful when consumers have the opportunity to compare the characteristics/features of multiple models against one another. When it comes to the distribution chain for Set-Top Boxes and Network Equipment, product choices are rarely made by the consumer or end-user. The Set-Top Box or, in many cases, Networking Equipment, are products that service providers supply as part of a cable television or internet access service. In fact, only 8 percent of current ENERGY STAR qualified set-top boxes are available through retail avenues. Within the current distribution structure, consumers have little say in the products that they will be operating as part of their cable/internet service.
  - Without consumer demand, manufacturers are under little pressure to produce products that differentiate themselves based on energy efficiency. Thus, application of a labeling rule under 42 U.S.C. 6294 is unlikely to be sufficient to induce manufacturers to produce, and consumers and other persons to purchase, covered products of such type (or class) that achieve the maximum energy efficiency that is technologically feasible and economically justified. (42 U.S.C. 6295(l)(1)).

[2] A device whose principle function(s) are to receive television signals (including, but not limited to, over-the air, cable distribution system, and satellite signals) and deliver them to another consumer device, or to pass Internet Protocol traffic among various network interfaces.

3 Part A of Title III of EPCA (42 U.S.C. 6291–6309) established the ''Energy Conservation Program for Consumer Products Other Than Automobiles,'' which covers consumer products and certain commercial products. In addition to specifying a list of covered residential and commercial products, EPCA contains provisions that enable the Secretary of Energy to classify additional types of consumer products as covered products.

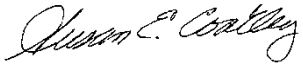
- **A broad range of technologies are available for improving the energy efficiency of set-top boxes and network equipment**
  - For years, the majority of set-top boxes drew a very similar amount of power during active operation versus during periods of inactivity. According to a recent report from the National Resources Defense Council (NRDC), *Better viewing, Lower energy bills, and Less pollution: Improving the efficiency of Television Set-Top Boxes*, many of today's set-top boxes still operate at near full power even when the consumer is neither watching nor recording a show. As a nation, the report estimates, we spend roughly $2 billion each year to power these boxes when they are not being actively used.
  - Fortunately, the market has provided new products that manage energy more effectively. Based on the most complete data sets available (ENERGY STAR Qualified Products List and the NRDC report), it is apparent that the Set-Top Box market now carries a wide spectrum of products drawing ranges of power in on mode, sleep mode, and off mode. Annual energy use projections captured by the Total Energy Consumption (TEC) metric reflect a similar variety. Clearly there is an availability of technologies that enable some products to manage their energy use more effectively than others.
    - Total Energy Consumption ratings range from 10 to 260 kWh/year.
    - Several products reduce their energy consumption by at least 30 percent when active mode is compared to sleep mode.
  - With respect to networking equipment, several energy savings technologies are described in another recent paper, Data Network Equipment Energy Use and Savings Potential in Buildings, prepared by Lawrence Berkeley National Laboratory.

- **Other relevant issues that we believe reinforce DOE's necessity and ability to establish test procedures and energy conservation standards for Set-Top Boxes and Network Equipment.**
  - Because of the current distribution model for set-top boxes and networking equipment, which seriously lacks consumer involvement or choice, minimum appliance standards are a more appropriate approach to improving efficiency in this product category. In a sense, this model illustrates the classic split incentive dilemma where a landlord or service provider, in this case, owns the equipment that the renter or cable/internet customer/subscriber must pay the utility bills on to operate. In neither case is there sufficient incentive for the landlord/service provider to invest in higher efficiency products or appliances. Clearly, in the case of set-top boxes, this dynamic has led to stagnation in energy efficiency improvements for years.
  - Although efficiency programs have for many years recognized the energy savings opportunities in set-top boxes, developing models to drive provider interest and participation has been very difficult. A survey of the Northeast efficiency programs, and those of the nation for that matter, shows very little traction. Although ENERGY STAR has differentiated products since 2001 (suspended between 2005 and 2009 due to lack of differentiation in the market), no programs in the Northeast have had success largely due to the challenging distribution mechanics.
  - The availability of existing and developing test procedures (ENERGY STAR Test Method for Set-Top Boxes and ENERGY STAR Test Method for Small Network Equipment) provides testing methodologies from which to build off, reducing the needed time and resources for test procedure development.
  - The inclusion of set-top boxes and network equipment into the standards program comes at a convenient time as the related product categories of televisions and

computers are either being added to the program or going through a similar determination process, respectively.

Because many Northeast states have to meet aggressive energy savings goals in the near future, federal minimum standards on set-top boxes and network equipment could provide a smart, zero-cost (minimal-cost to Federal government) strategy to help them achieve those goals[4]. For these and many other reasons described above, we urge the Department to uphold its determination that these products be covered under the Appliance Standards Program. Assuming the determination stands, our region stands ready to participate in any public rulemaking process to establish minimum efficiency specifications. Thank you for your consideration.

Sincerely,



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[4] For example, included in Massachusetts' Global Warming Solutions Act of 2008, are emissions reduction goals (25% reduction from 1990 levels by 2020) that are driving a need to dramatically cut energy usage. Their Clean Energy and Climate Plan for 2020 describes strategies to achieve these energy use reductions.

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