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# LoadDown

THE STANDBY POWER NEWSLETTER

Efficient Electrical End-Use Equipment
International Energy Agency

ASIA-PACIFIC PARTNERSHIP
BUILDING AND APPLIANCE TASKFORCE

**This newsletter is supported by the International Energy Agency (IEA) Efficient Electrical End-Use Equipment (4E) Implementing Agreement and the Asia Pacific Partnership for Clean Development and Climate.**

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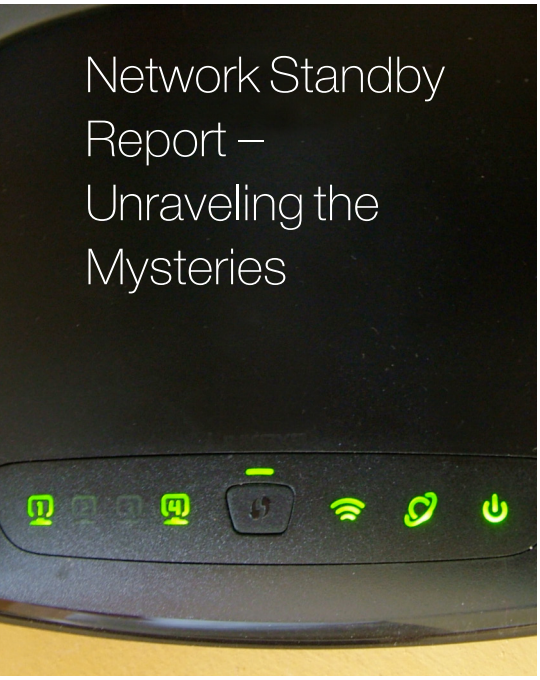
**This edition of *Load Down* includes**






## Network Standby Report – Unraveling the Mysteries

Released in September 2010, the report *Standby Power and Low Energy Networks: Issues and Directions* by Lloyd Harrington (Energy Efficient Strategies Australia) and Bruce Nordman (LBNL USA) explains what a network is, where low energy consumption occurs within networks and describes the issues and challenges ahead if this consumption is to be contained. Three major issues identified by the report were the general absence of information about energy consumption in networked products, the inability of existing low power mode policies to cover networked products and a lack of engagement between network developers and energy policy makers.

In order to address the issues of waste network connected power, the report recommended that further research was required to not only understand the scale of the low power mode energy consumption in networked products but also to fully understand the technological possibilities to reduce this. Additionally there is a need to link energy efficiency experts with network developers in order to raise the profile of efficiency in designer's minds. For example network protocols (and the equipment that operates on networks) rarely have energy minimisation as a key design

*continued overleaf*

## In this Issue

## Network Standby Report – Unraveling the Mysteries

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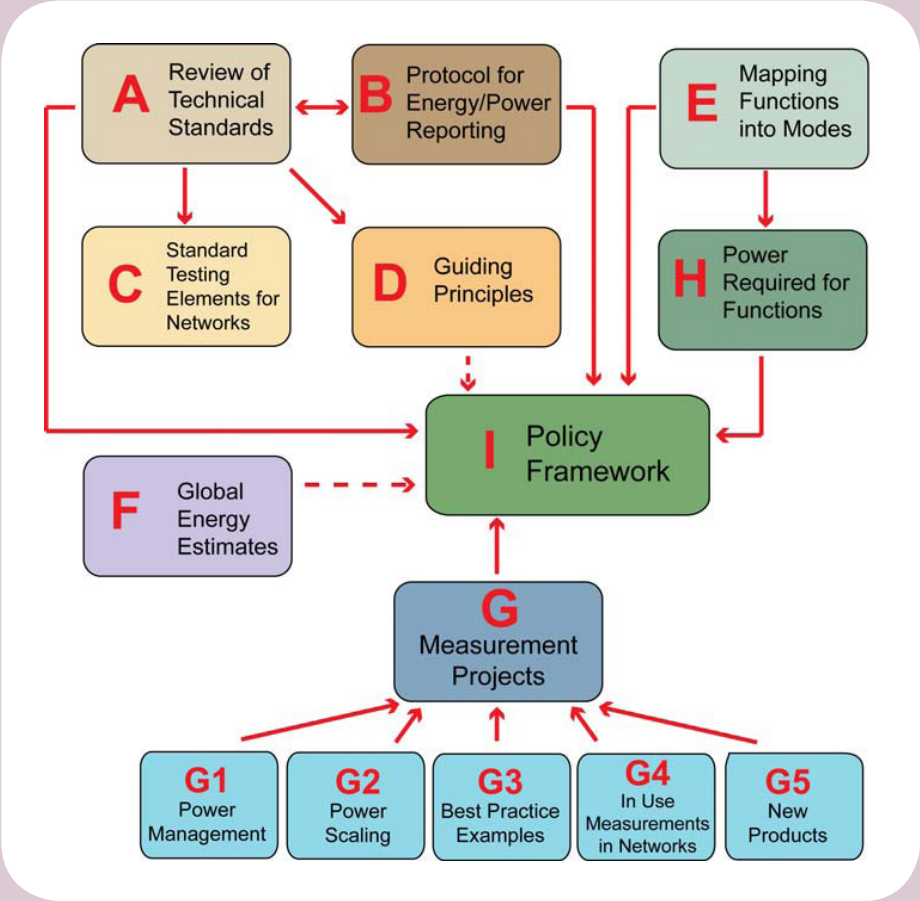
parameter but rather things like speed and quality of data transfer etc. are the designers top priorities. The report acknowledged that energy efficiency is paramount in mobile products such as telephones and that there is good opportunity to transfer this knowledge to improve efficiency in tethered products.

The report identified the following key components for an effective integrated policy to address waste network connected power. These include:

- Guiding principles for good network design
- Incorporating power management as the default product design
- Capping power for all functions to existing reasonable levels within the technology bounds
- Setting power limits for all secondary functions through a horizontal standby requirement

The absence of policies that sufficiently deal with network issues led the report to recommend the development of an integrated policy framework. With this in mind, the key recommendation of the study is to undertake a series of projects that aim to enhance the knowledge and understanding in many critical areas and to identify and develop key protocols that will help develop low energy networks into the future. As demonstrated in Figure 1, each of these projects will become a building block that will enable a practical and workable policy framework to be developed. The ultimate goal of all the projects is to enable the development of comprehensive and manageable policy which can deliver energy savings and reduce needless energy waste in networked products and network equipment.

**Figure 1: Implementation Strategy for Proposed Projects**




The report is available for download at http://standby.iea-4e.org/files/otherfiles/0000/0023/Network-Standby-2010-09-final.pdf

# What is Waste Network Connected Power?

Waste network connected power is becoming the talk of the town as experts and policy makers alike try and grapple with the rapid technology development and advancement of networks. Waste network connected power refers to the energy consumed when a product stays connected to a network, even though no primary function is being performed. Currently these products include, set top boxes, game consoles, televisions, home office products etc but more and more products are gaining network capability and are continuing to proliferate in the residential and commercial sectors. It is an evolution of past standby power issues, typically above the lowest power mode but well below the power consumed while in active mode. This energy consumption may be made up by the direct energy use of network equipment, the direct energy use of network interface hardware layers and/or energy use induced when devices are in a higher mode due to network connectivity (mostly this will be on mode rather than sleep, but possibly sleep rather than off).

Waste network connected power relates to the energy squandered by sub-optimal design or inefficient components and in the future, more and more products are likely to be connected to some type of network. It is essential to devise new technologies and policies that can inhibit the associated growth in waste network connected energy. Many of the existing policy approaches to reducing standby power rely on setting a flat limit on power consumption for particular modes. Often the presence of a network connection causes products to remain in higher energy modes than those currently regulated, reducing the impact and effect of these policies. This flow on impact of network connection increases the urgency with which the issue of waste network connected power needs to be addressed.

A new study being commissioned by the APP Standby Project will provide global estimates of energy consumption associated with waste network connected power. This study will be available in mid-2011 and will help focus attention on this issue.


# News from Tokyo APEC Conference

The APEC/APP/IEA 4E Standby Power Conference - *Moving Towards 1 Watt and Beyond*, was held in Tokyo, Japan in October 2010. The conference was attended by over 50 standby power experts, representing 12 APEC countries, and numerous manufacturers and suppliers. The purpose of the conference was to bring together industry and government policy makers to gain an understanding of the possibilities for reducing standby power. The conference covered a wide range of standby related topics from technologies and components to high level policy and implementation issues.

Conference speakers presented new technologies, which included advanced and innovative designs for power management to reduce standby power and improved user interaction that has already reached the market. Many countries outlined their efforts to reduce standby power and there was acknowledgement of the extensive international cooperation in the area of measurements and test procedures, forming a solid foundation for good policy alignment. It was highlighted throughout the conference that networks are an area of growing interest and importance and will rapidly emerge as an issue requiring urgent attention.

The conference concluded with an intensive half day workshop that reviewed all of the issues covered throughout the presentations. The workshop identified areas where progress can be made immediately and where more research and development is required to achieve a low standby power future. These included acknowledgement of existing technological solutions for both new products and existing stock, aspirational targets based on European levels and further development of understanding and policy tools in the area of networked products. The outcomes of the workshops will be written up in-depth and be published as two reports: Policy Approaches and Technology Options.

The conference program and presentations are now available from the conference website. The conference proceedings and project reports will be available by the end of January 2011. http://www.energyrating.gov.au/standbydata/apecstandby2010.html

# Indian Store Survey

India's 2010 store survey has now been completed, resulting in a large collection of standby power data. Over 500 products were measured with visits to more than 50 retail stores spread throughout Delhi, NCR, Sonepat, Kolkata and Bhopal. The survey captured results for Air Conditioners; Computers; Monitors; Computer Speakers; Cordless Phones; DVD Players; Home theatre systems; Microwave ovens; Printers; Routers/Modems; Televisions and Washing Machines. The study *Standby Basket of Product Survey in India* is the most extensive study undertaken in India to date, and was commissioned by the Government's, Bureau of Energy Efficiency (BEE) as part of the Asia Pacific Partnership on Clean Development and Climate Change (APP).

The results of the survey are presented in the charts below. These graphs indicate that almost half of the product categories measured attained average passive standby readings below 1 watt. Seventy-five percent of product categories had average passive standby below 2 watts. Modems and DVD Players recorded the highest readings for average passive standby. However, it is also important to note that nearly all of the product categories had some models that consumed well above the average results when in standby mode.

Figure 1 - Average Passive Standby Mode Consumption – Indian store survey 2010

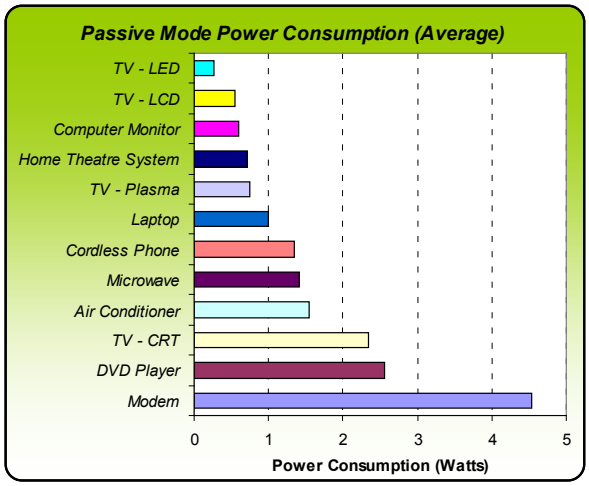
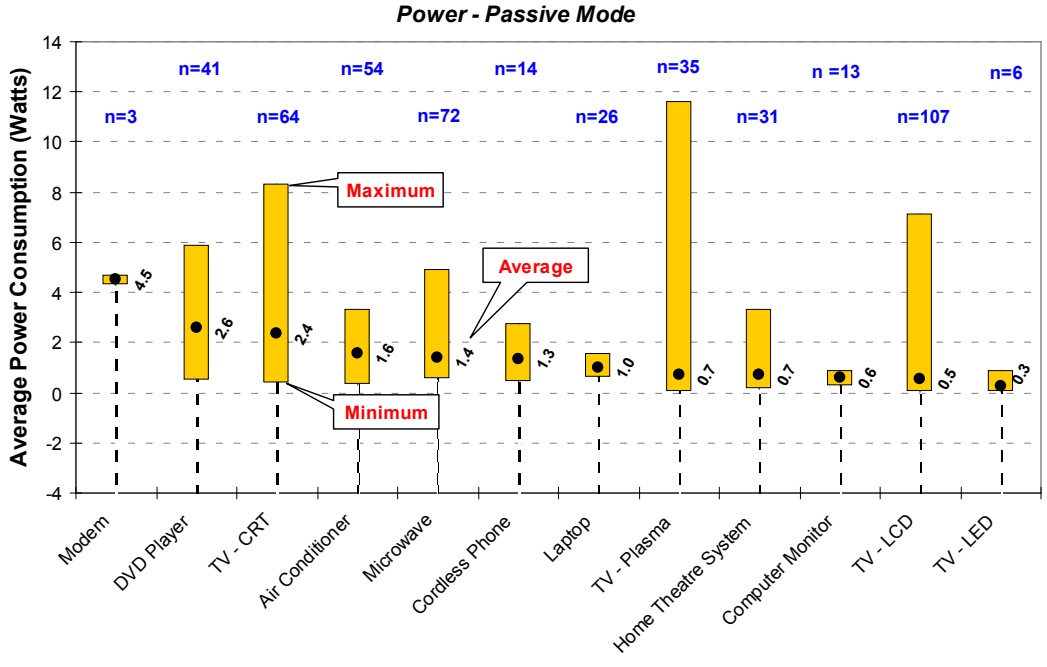



Figure 2 - Average Power Consumption by Appliance Type – Indian store survey 2010



# New Year Brings Nine New Projects

As mentioned earlier in this newsletter, the report *Standby Power and Low Energy Networks: Issues and Directions* suggested a number of projects that would pave the way to achieve good policy design and assist in achieving a reduction in waste network connected power. These projects will ensure relevant information is available to assist policy makers address the problem by identifying: the size of the problem; the technological possibilities to curb the energy waste; and the most suitable policy tools to reduce energy consumption without limiting functionality and product innovation. The recommended projects will inform policymakers and aid the development of efficiency regulations within a policy framework that can be applied globally, in line with the goal of aligning international approaches.

As result of these recommendations the APP Standby Project has set an ambitious work programme for 2011 that involves commissioning 7 projects associated with waste network connected energy. In addition to this the 4E standby Annex will commission work on two standby power projects. All nine projects are expected to be completed by mid-2011. This exciting development will provide policy makers with a new breadth of knowledge and assist in moving towards a policy approach that can tackle the waste network connected power issue.

## 2011 APP Projects

1 Estimate of the Energy Wasted By Network Connected Equipment

2 List of Technical Standards Relevant to Measuring and Establishing Performance Requirements for Equipment Connected to Energy-Using Networks

3 Cutting Edge Technology Feasibility Study

4 Best Practice Examples of Low Energy Product Designs

5 Power Scaling in Proportion to Data Processing

6 Exploration of Network Power Consumption by Mode in Three Targeted Product Types

7 Proof of Concept through Analysing Examples of Low Energy Product Designs

## 2011 4E Projects

8 Evaluation of policies to reduce standby power – development of a standard methodology

9 Horizontal policy approach to standby power – development of an international policy platform

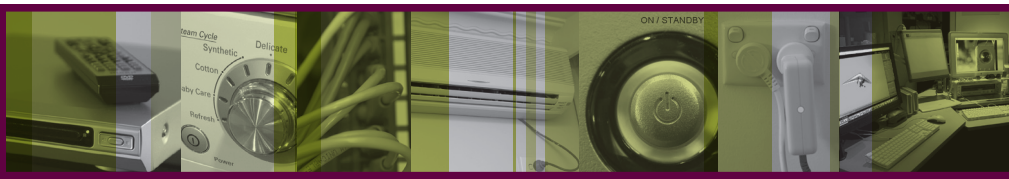
## Next Edition.....

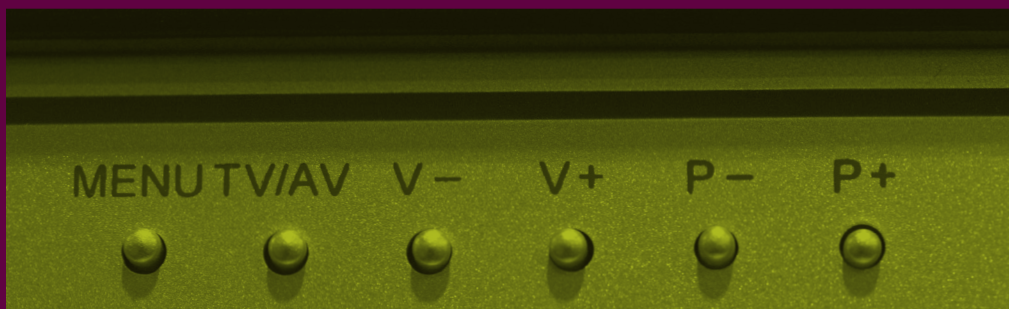
> **Canadian Regulation Update**

> **Latest News from Lot 26 Study**

> **Australian in Home Survey – No.3**

Send us an email at energyrating@climatechange.gov.au if you have suggestions for topics for the next newsletter.



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