LoadDown

THE STANDBY POWER NEWSLETTER

Load Down is supported by the International Energy Agency 4E Implementing Agreement.

If you would like to subscribe to *Load Down* simply email your details to: energyrating@ret.gov.au

This edition of *Load Down* includes

- **Industry Associations' Guiding principles**
- **Outcomes from Network Standby Workshop**
- **EU Network Standby Amendment**
- **Standby Power Policy Briefs**
- **Latest Research from the 4E Standby Annex**
- **International update**
- **Standby Power Webinar**
- **4E Standby Annex Website Upgrade**

Industry Associations' Agree on Guiding Principles

In January 2013 a group of 9 Industry Associations from around the world, endorsed an industry developed document *"Guiding principles for energy efficiency in networked consumer electronics*: They included:

- Australian Industry Group
- Electronic Industries Association in Singapore (AEIS)
- Consumer Electronics Association (CEA)
- China Electronic Chamber of Commerce (CECC)
- Consumer Electronics Marketers of Canada (CEMC)

- Consumer Electronics Technology Industry Association (CETIA)
- Communication, Multimedia and Information Association of India (CMA)

- Intellect representing the UK Technology Industry
- Korean Electronics Assiciation (KEA)

---

continued overleaf

The industry association document is heavily based on the IEA 2010 document *"Guiding principles for energy efficiency in networked products"*. The document acknowledges "Network connectivity can increase power consumption..." and that by supporting the guiding principles the consumer electronics industry can *"advance energy efficiency in networked products"*.

The 11 principles include:

- Urging governments and industry to work together and develop "harmonized policy approaches";

- An agreement to "actively support power management" including informing consumers of steps they can take to save energy;

- Embracing "open networking standards", efficient data and network interfaces in active mode and power scaling opportunities;

- Consideration of compatibility across appliances to enhance energy efficiency including any effects of legacy products;

- Encouraging innovation "... of automatic power control in support of product utility and energy efficiency".

This positive step, compliments the commitment Governments have made to the IEA principles and it is hoped that Industry will be able to harness these ideas and use them as a driver for research and development, enabling more efficient products to enter the market place. The complete document listing all 11 principles is available on the annex website @ http://standby.iea-4e.org/documents-results/network-standby.

Networking in Toronto - International Workshop Outcomes

A joint IEA, 4E and SEAD workshop on network standby was held in Stockholm 7-8 May 2013. During the two days, 40 experts from around the globe, representing industry, standardisation organisations, governments and research institutes met to discuss challenges and possible solutions surrounding network standby energy waste. The two key focus areas were methodologies and approaches needed to measure, collect and analyse network standby energy consumption including data requirements for policy development and implementation.

The workshop highlighted that ICT and network connectivity can contribute to energy efficiency improvements and greenhouse gas emission reductions, however the predicted increase in the uptake of networked appliances is likely to lead to an overall increase in energy consumption. Expert estimations indicate that by 2025 the number of networked products could reach 50 billion. Networked homes i.e. apartments where appliances are linked to and controlled via a network already exist. Globally, the standby energy consumption of networked products is projected to reach 850 TWh per year by 2020. The savings potentials are in excess of 550 TWh.

To stay connected to a network, that is receive network signals, most of todays products need to be in on mode. This means that they do not power down to lower power modes and use the same amount of energy irrespective of if they are being used or if they are just waiting. The challenge is - how to get these appliances to go to sleep i.e. power down to low energy modes while still providing necessary network capability. There are technical solutions that are available or could be developed, but there is a need to create incentives to ensure that energy efficiency considerations are integrated into product and network design. There is furthermore a clear need to accelerate work on developing technical standards that promote energy efficient solutions. Proprietary communication protocols were discussed as a barrier to developing and implementing energy efficient solutions and participants express that there is an urgent need for standardisation in this area. Efforts are being made to develop policies to limit standby power consumption of networked products, notably in the EU and Korea. However, much still remains to be done in terms of creating a firm basis for developing and implementing effective measures, including developing methodologies for data collection and product testing. It was emphasised that progress in this area requires holistic approaches and concerted international action.

The workshop outcomes have been integrated into the IEA/4E publication due to be released in November 2013 and will form the basis of the Conference being held in Paris in September 2013.

A full workshop report is available on the IEA website @ http://www.iea.org/newsroomandevents/workshops/workshop/vidaroziteieaorg-2.html.

EU Network Standby Amendment

The European Union published the Networked Standby Amendment to Regulations EC/2008/1275 (standby) and EC/642/2009 (televisions) on the 21 August 2013.   As described in the accompanying table the regulation will be introduced in three phases from January 2015. Existing standby and off mode regulation still applies, however networked equipment must now also meet either HiNA or other networked equipment requirements.

HiNA equipment includes routers, network switches, wireless network access points, hubs, modems, VoIP telephones and video phones. Additionally, equipment may be included in the HiNA category if it has the same functionality as HiNA equipment; that is it includes the functionality of a router, network switch or wireless network access point within a device which is not considered a HiNA product.

Other networked equipment is classified as any product that can connect to a network and has one or more network ports through which the equipment can be remotely activated.

All types of network ports present in the product will need to comply with the requirements. Each port should be measured in isolation i.e. only 1 network port is activated. The other ports should be disconnected or switched off. Other conditions for measurment should reflect the product as it will be shipped to the consumer.

While the amendment sets out levels through to 2019, a revision is planned in 2016 to assess the validity of the levels in relation to any future advances in technology and design.

	7 January 2013	1 January 2015	1 January 2017	1 January 2019
Standby Mode	0.5W	0.5W	0.5W	0.5W
Standby Mode with Display	1.0W	1.0W	1.0W	1.0W
Off Mode	0.5W	0.5W	0.5W	0.5W
Power Management	Yes	Yes	Yes	Yes
Networked Standby*				
HiNA	-	12W	8W	8W
Other Networked	-	6W	3W	2W

Applies to networked equipment only

Standby Power Webinar

The 4E Mapping and Benchmarking Annex has published a webinar on the *"Benchmarking of the standby power performance of domestic appliances"*. The presentation summarises the results of the Annex's benchmarking report into standby power, which compares and contrasts the results of participating countries using data supplied from the Standby Power Annex. The session runs for about 45 minutes and is available on the Mapping and Benchmarking site.

IEA 4E Mapping and Benchmarking Annex

Benchmarking of the standby power performance of domestic appliances

4E Mapping and Benchmarking
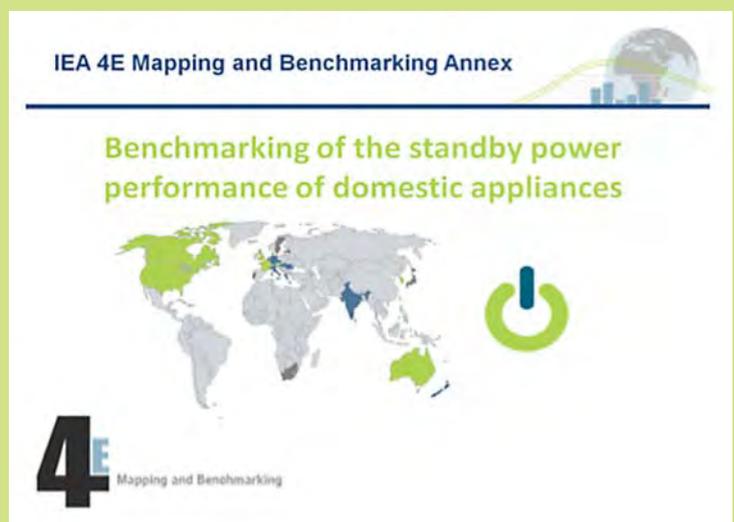
4E Standby Annex Policy Briefs

Over the last 12 months the 4E Standby Annex has released seven policy brief documents summarising the research and analysis undertaken within the Annex. The briefs provide an overview of major findings and recommendations for policy makers in a simple two page format. The key policy messages are highlighted with references to more detailed information provided. All policy briefs are freely available and may be distributed to any interested parties. The policy briefs are all availble in English and the first three briefs in the series can also be downloaded in French, Japanese and Korean. All tiltes in the series are listed below:

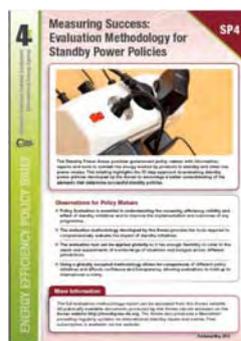### Standby Power Annex Overview (SP0)

English - French - Korean - Japanese

This brief provides a summary of the Annex, including goals, aims, achievements to date.

Standby Power in Televisions (SP2)

English - French - Korean - Japanese

This briefing tracks the success of 4E Annex member governments and others in reducing the standby power consumed by televisions.

Measuring Success: Evaluation Methodology for Standby Power Policies (SP4)

English

This brief encourages implementation of the ten step approach to evaluating standby power policies, developed by the Annex to encourage a better understanding of the elements that determine successful standby policies and encourages alignment and transparency of evaluation practices.

Tackling Standby Power Wastage with a Horizontal Policy Approach (SP5)

English

This brief explains the benefits and features of an internationally aligned horizontal policy approach to address energy wasted in standby and other low power modes.

Standby Power Global Cooperation in Action (SP1)
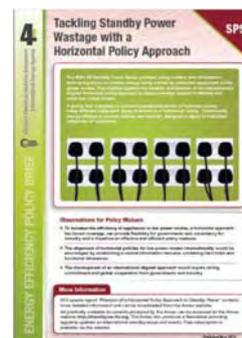
English - French - Korean - Japanese

This brief highlights the positive effect that visible concerted action by governments can have on reducing global energy waste.

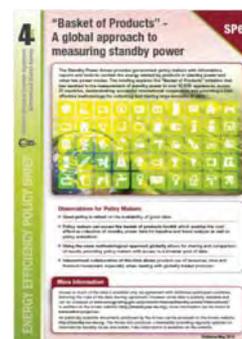### Network Standby: Finding Solutions to Energy Waste (SP3)

English

This brief summarises what Network standby is, the size of the problem and the policy implications.

The Standby Power Annex is planning to release two new policy briefs before the end of 2013, looking at progress made in the area of network standby and one show casing new research into power requirements for secondary product functions.

"Basket of Products" - A global approach to measuring standby power (SP6)

English

This brief communicates the usefulness of data in developing and evaluating policy and the benefits of a common methodology

The 4E Mapping and Benchmarking Annex has also recently published a policy brief on "Mapping & Benchmarking of standby power (MB10)", which is availble from the main 4E website (www.iea-4e.org/)

Latest Research from the 4E Standby Annex

Mapping Secondary Product Functions to Products and Operational Modes

This report prepared by Ecova, comprehensively examined secondary product functions for the first time, by identifying, defining, and classifying the relevant functions across three broad categories of consumer products: major appliances, home entertainment, and office products. The project conducted market research to identify the prevalence of each secondary function across products and to determine how frequently those functions are used in various modes of device operation.

Tables or "maps" were generated for each function to identify clusters of functions with the greatest horizontal applicability across different products and modes of operation. For example this table charts the most promising secondary function opportunities with respect to the application of horizontal measures.

The report also identified several key opportunities for potential policy action whcih would benefit from further research:

Displays and user interfaces:

Information displays continue to proliferate as secondary functions in a wide variety of products, including devices that traditionally had no display technology.

High-speed networking:

Wired and wireless network functionality exists in a broad array of consumer products beyond traditional information technology equipment.

Low-speed wireless networking for smart appliances:

A growing number of "smart" appliances are currently entering the market that have the capability to

interpret and act upon signals from smart grids

Power management:

Power management is central to the energy efficiency of many other secondary functions and should be a cornerstone of any further secondary function technical research.

Power sources and power factor correction:

Power electronics allow efficiency to be adressed horizontally across

a large number of products. Opportunities also exist to improve the efficiency of advanced secondary or standby power supplies used in lowpower modes. Power factor correction technology could present another important horizontal policy opportunity.

Click here to access the full report or visit the Annex website @ http://standby.iea-4e.org/documents-results. The outcomes from this Ecova report led to the Annex commissioning Xergy to investigate the power required for secondary functions. The results for the new study will be available on the Annex website by October 2013.
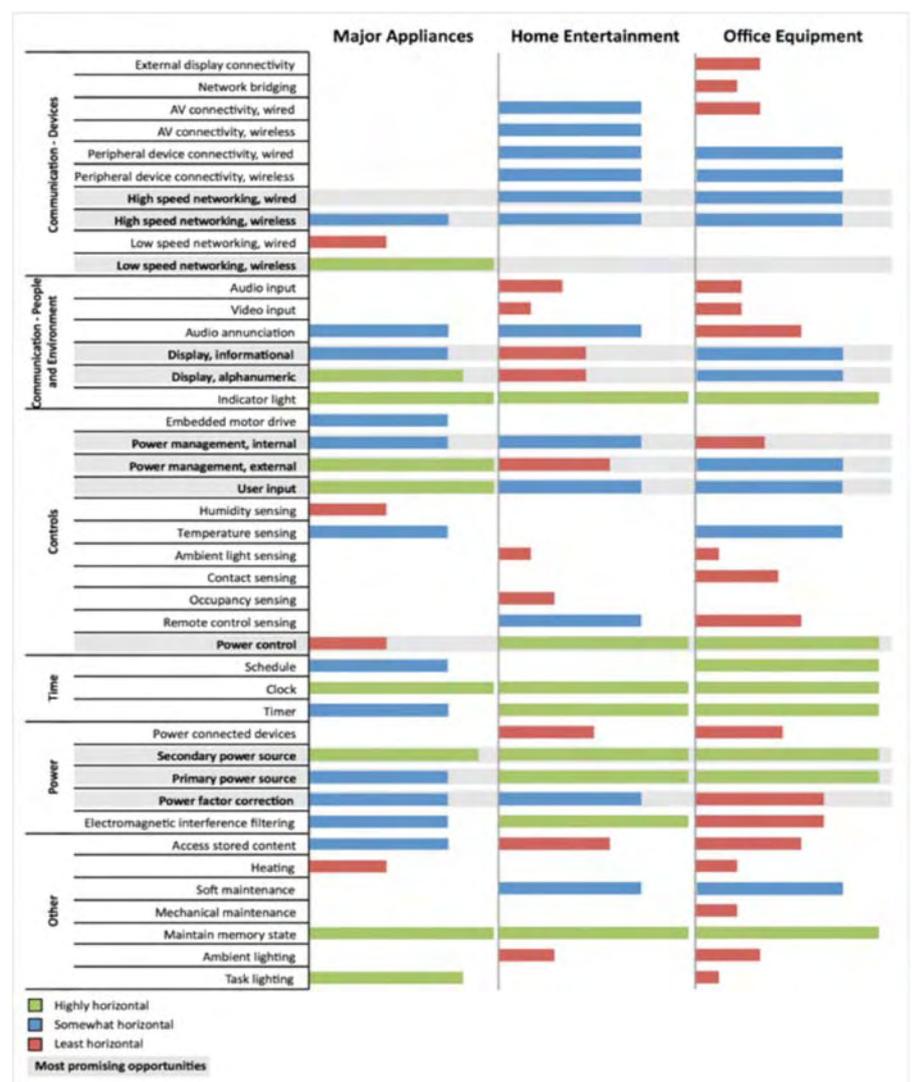
Staying Connected: Unravelling Energy Waste Issues in Network Standby

Staying Connected: Unravelling Energy Waste Issues in Network Standby was prepared by Maia Consulting to assist policy makers in understanding the issue of network standby and what policy possibilities are available to reduce energy waste in this area. The report details where further research needs to be directed to move forward on the issue. The report is designed for the non-technical reader, providing simple definitions, call out boxes and graphical depictions of this complex issue.

> **Network Standby is the energy used by a product when it remains connected to the network even though no primary function is being performed.**

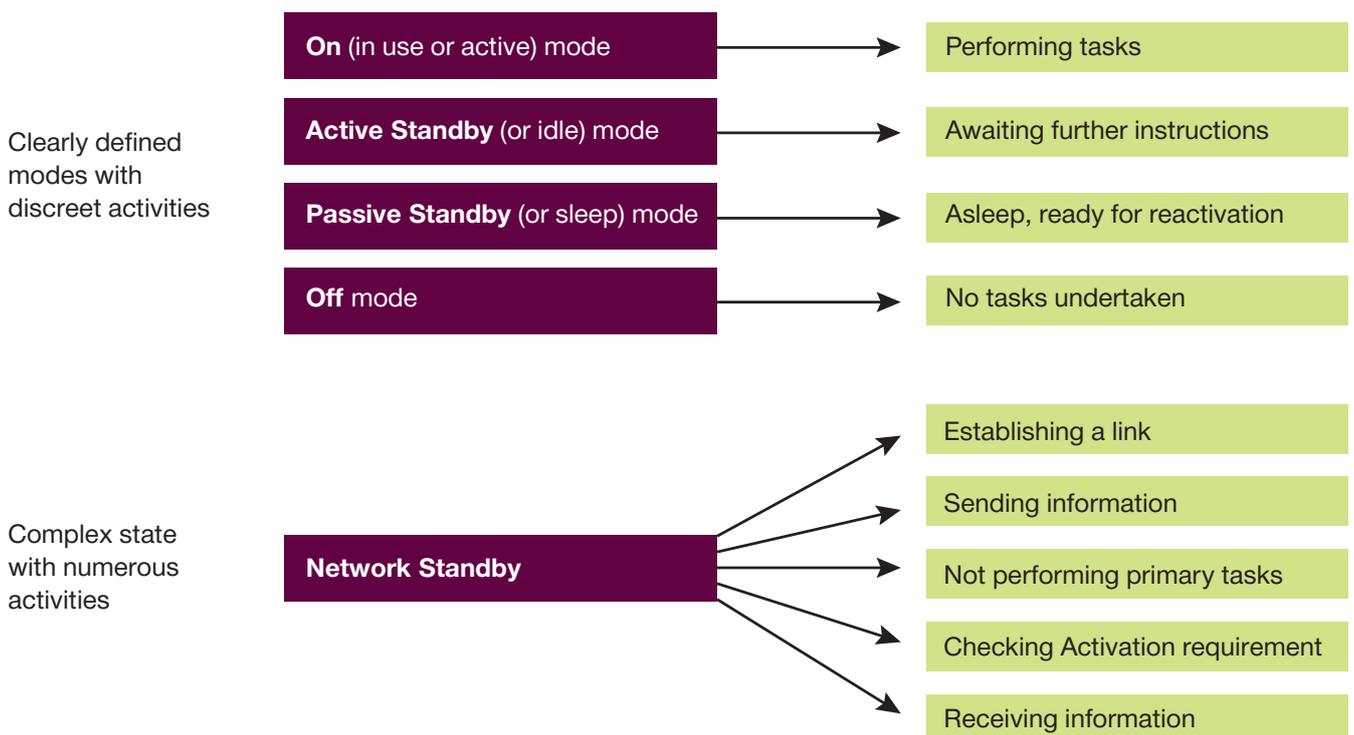|	Policy Option
Simpler/relatively quick to implement	Amendments to Existing policies
	Network Standby Labels
Complex/slower to implement	Horizontal/Functional Adder Approach
	Clustered Horizontal Approach Certification Scheme
	Intelligent Energy Management

Research interviews were conducted with experts from Europe, North America, Asia and Australia to gain an understanding of different policy approaches that could be applied and to understand the next steps required to allow implementation of these ideas.

Findings included a description of six policy options, including the advantages and disadvantageous of each. The options were also classified by complexity and time required for implementation.

The report suggested that 5 steps were critical to reducing energy waste from network standby. They were:

- Enhance international cooperation

- Establish commitment to the guiding principles

- Develop test procedures and methodologies

- Engage with network technology developers

- Further develop the understanding of power requirements for networked products

The final report is available on the Annex website @ http://standby.iea-4e.org/files/otherfiles/0000/0090/Network-Standby-Policy-Report-Final-2013-2-2.pdf.

Clearly defined modes with discreet activities

On (in use or active) mode	→	Performing tasks
Active Standby (or idle) mode	→	Awaiting further instructions
Passive Standby (or sleep) mode	→	Asleep, ready for reactivation
Off mode	→	No tasks undertaken

Complex state with numerous activities

Network Standby	→	Establishing a link
	→	Sending information
	→	Not performing primary tasks
	→	Checking Activation requirement
	→	Receiving information

International Update

SEAD Network Standby Collaboration Group

The SEAD Network Collaboration Group has been working on two projects:

The Standardised Definitions for Network Standby & Application to Televisions project team is finalizing the Report which sets out proposed approaches for Network Standby. The final report should be available by September 2013 and will put forward definitions for network standby that are sufficiently high level to be product independent, but simultaneously applicable to a wide range of products that already contain network standby functionality, or are likely to in the future.

The Real World Usage project: launched at the end of January 2013. This project aims to collect information on actual network traffic on networked equipment from a representative sample of UK households. The methodology, if successful will be shared with other countries to allow similar data to be collected by Governments around the world. The project team has recruited households to participate in a field data collection process and has secured the processes to gather the necessary data from the partner Internet Service Providers. Preliminary results should be available towards the end of 2013.

Information about the SEAD projects can be directed to Nicole Kearny (nkearny@*clasponline.org)*

IEA Update

The IEA together with 4E standby power project will release a publication on Network Standby in November 2013. The booklet looks at the current state of network standby and covers future directions and implications within the ever changing field of network connected products. The message will be packaged for a non-technical audience.

The Network Standby Measurement Software concept project is on hold, while the team tries to access a protocol from a manufacturer. In order to prove the concept the project needs to access protocols from manufacturers and while there are a lot of different protocols only one is needed to allow the proof of concept. Most protocols used are based on one generic type, which is then tweaked by the manufacturer to make it unique to that company, however the differences are important and the generic protocol cannot be used to access the products. If any industry representatives would like to discuss assisting with this project please contact Vida Rozite at the IEA. (Vida.ROZITE@iea.org).

The final event for the IEA Network Standby project is the Network Standby International Conference to be held in Paris 16 – 17 September. The Agenda will cover network standby, the state of play, next steps and future needs. A full report on the outcomes of this conference will be in the next edition of Load down and also available on the IEA website.

Standby Annex Website Gets a Make Over

The 4E Standby Power Annex website: http://standby.iea-4e.org/ has had a makeover. Following feedback from users, we have upgraded the site improving accessibility to standby power information and reports. Links to reports, newsletters and policy briefs are now accompanied by graphics and short descriptions to help the users find exactly what they are looking for. Documents have also been categorized by topic area to assist those unfamiliar with the Annex's work and a search bar has been added for user convenience. The website is a valuable source of information for policy makers and technical experts interested in standby power issues.

Next Edition.....
February 2014

> **Network Standby Conference Paris Outcomes**

> **IEA Project Publication**

> **Network Standby Policy Framework Toolkit**

> **Power required for Functions Report**

> **Future Directions for Network Connected**

Send us an email at

energyrating@ret.gov.au
if you have suggestions for topics
for the next newsletter (Feb 2014).

Subscribe to Newsletter

If you would like to receive the newsletter directly or be removed from the distribution list please email your details to energyrating@ret.gov.au