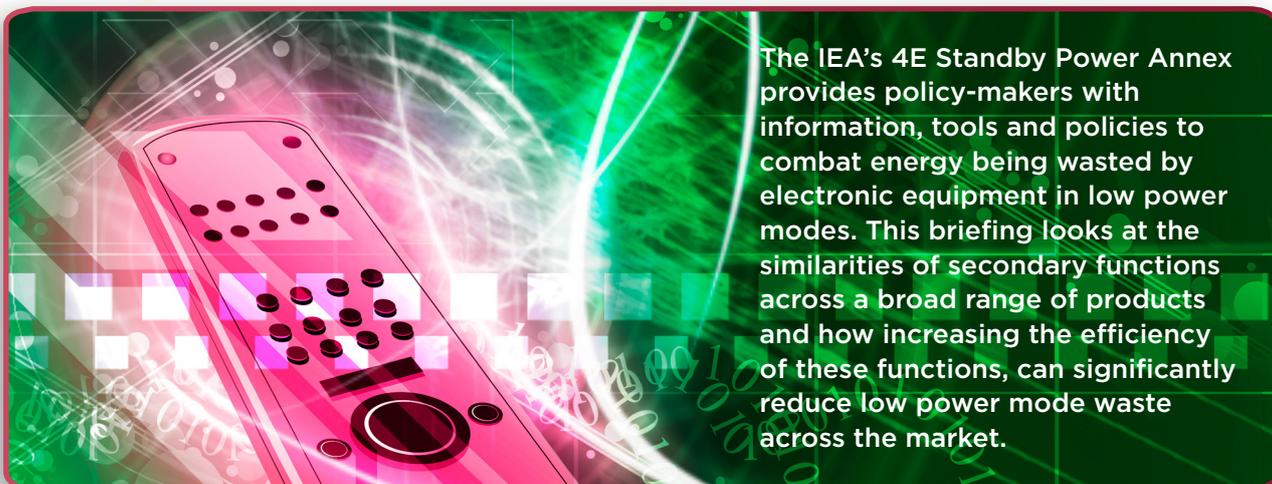


Lowering the Energy Waste of Extra Functionality



The IEA's 4E Standby Power Annex provides policy-makers with information, tools and policies to combat energy being wasted by electronic equipment in low power modes. This briefing looks at the similarities of secondary functions across a broad range of products and how increasing the efficiency of these functions, can significantly reduce low power mode waste across the market.

Observations for Policy Makers

- **Secondary product functions such as visual displays or networking are increasingly prevalent** across a wide variety of product types, including home entertainment, IT equipment and white goods.
- **The prevalence of inefficient secondary functions may increase energy waste** in low power modes for services not required by the user.
- **Power consumption by secondary functions will continue to grow** without intervention.
- **Horizontal energy efficiency policies that encourage secondary functions** to employ best available technology and aggressive power management would significantly reduce energy waste.



What is a Secondary Function?

Secondary functions are those functions not required to perform a product's primary purpose but do provide additional services to the device or user. More and more products are including secondary functions into their design as consumers come to expect complex products that will perform multiple tasks and integrate with other devices. Secondary functions can also improve the ease of use for consumers assisting them to operate their products. Unlike primary functions which are generally product specific, secondary functions tend to be common across product categories as most products provide users with similar additional functionality. Therefore most secondary functions are product-neutral and called 'horizontal'.

More Information

4E's reports '*Power Requirements For Functions*' and '*Mapping Secondary Product Functions to Products and Operational Modes*', contain more detailed information and can be downloaded from the Annex website. All publically available documents produced by the Annex can be accessed on the Annex website <http://standby.iea-4e.org>.

Common Secondary Functions

The 4E Standby Power Annex commissioned the report *'Mapping Secondary Product Functions to Products and Operational Modes'*, to comprehensively examine secondary product functions by identifying, defining, and classifying the relevant functions across three broad categories of consumer products: **Major appliances, Home entertainment;** and **Office products**. The research identified the prevalence of each secondary function and the frequency of use in various modes of operation. This analysis identified secondary functions that offer the most promising opportunities for potential policy action, and has led the Annex to further investigate the following functions:

- Informational Displays;
- Networking (High-speed wired, and High and low speed wireless);
- Power Supplies;
- Infrared (IR) Sensing.



Energy is regularly wasted in delivering Secondary Functions

'Power Requirements for Functions' offers a summary of the technology, market trends, power estimates and energy savings opportunities for each of the secondary functions. Energy efficient technologies and design approaches exist for all the secondary functions and if employed could reduce energy waste across a broad range of consumer products. Saving opportunities generally fall into two categories: power scaling (only using power required for the task being undertaken) and power management (reducing power when the function is not in use). Key examples of saving opportunities include:

- **Information Displays:** Standby power can be eliminated by cutting power to the display when not needed - this power management strategy is currently used successfully in mobile devices and printers.
- **Networking Wired:** Energy Efficient Ethernet (EEE) adjusts power use to the amount of data being transferred. Since manufacturers often do not enable EEE, policies requiring EEE to be both installed and enabled would improve efficiency.
- **Networking Wi-Fi:** Components exist that allow a low-power state to be entered when there is no network traffic, scaling down Wi-Fi power by 90%.
- **Power Supply:** A dedicated standby power supply can reduce losses during ac-dc conversion by about 80% and cut overall standby power by more than half.
- **IR Sensing:** Energy savings can be achieved by allow microprocessors in the receiver to power down when no signal is being received.

Decreasing Energy Wasted in Secondary Functions

Governments need consistent policies that overcome these types of energy waste. Horizontal policies that ensure secondary functions employ best-available technologies and are aggressively power-managed could be organised through multilateral engagements. Even globally aligned vertical policy measures for targeted problem products could vastly simplify the process and deliver case-study examples as a basis for international policy co-operation and alignment.