

# **Australian Mandatory Standards for Consumer Electronic Equipment**

*Keith Jones, Paul Ryan, Melissa Damnic*

*Energy Consult (Australia), Electronics Industry Consulting Service (Australia)*

## **Abstract**

In late 2002 the Ministerial Council on Energy in Australia launched a 10-year strategy to deal with excessive standby. As part of this strategy Australia plans to regulate the maximum in-use and standby power consumption of digital Set Top Boxes (STB) from October, 2007. In Australia, it is planned to phase out analog TV from 2010 and an estimated 14 million TVs will require a STB. Projections of the energy use for these STBs show energy consumption could increase to over 2,000 GWh pa by 2012. Minimum Energy Performance Standards (MEPS) could reduce the business as usual energy consumption by STBs to as little as 300GWh pa.

STBs were initially identified for voluntary targets for standby power consumption, however industry groups requested the government consider mandatory requirements. Further, the regulation of in-use power consumption was identified as a priority due to the large number of STBs that will be potentially left in this mode.

Australia is also moving to regulate the standby power of a group of consumer electronic equipment covering the home entertainment products. The proposed regulation may provide potential energy savings of 1.7 GWh pa and greenhouse emission reductions of 1.7 Mt CO<sub>2</sub>-e pa by 2020. Home theatre systems, DVD players/recorders, portable and integrated sound systems are some of the products included in the broad scope of the proposed requirements.

The paper explores the design of the MEPS, lessons learned from the Australian experience, energy impacts, test method issues and projected impacts of the proposed regulation

## **Introduction**

In late 2002 the Ministerial Council on Energy in Australia launched a 10-year strategy to deal with excessive standby. Consumer Electronic equipment was initially identified with voluntary targets for standby power consumption. STBs used for the conversion of Digital TV broadcasts were identified as a priority product. Other Audio Video equipment was also identified as needing action on MEPS at the earliest time possible.

These targets were initially intended to be voluntary, however industry groups requested the government consider mandatory requirements. The reason for this will be discussed later. Further, the regulation of in-use power consumption was identified as a priority due to the large number of STBs that will be potentially left in this mode.

This paper will exam the factors surrounding the decisions associated with the development of these MEPS. STBs will be considered separately from the wider category of consumer AV equipment due to some unique circumstances surrounding their penetration into the market and the significant impact that this has on the energy consumption associated with these products. Australia's intention for MEPS on consumer equipment will then be discussed along with the potential impact that these products will have on energy consumption in Australia. Finally the paper will consider lessons learned from the development of these MEPS and how this knowledge may be used to assist the development of future MEPS under consideration.

## **The Development of Mandatory MEPS for Digital TV Set Top Boxes(STBs)**

### **Background**

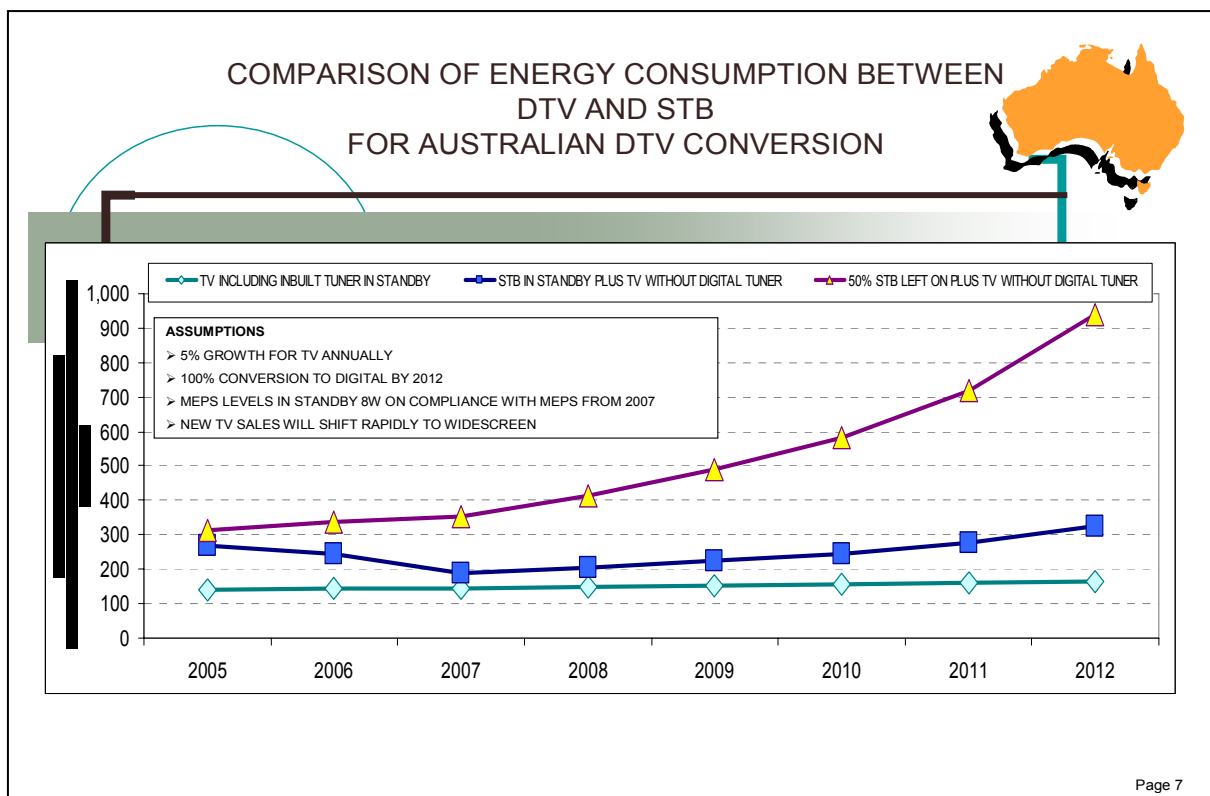
On the 1<sup>st</sup> January 2001 free to air digital television broadcasts were started in order to replace analog broadcasts by 2008. This target has recently been under review and the likely start date for the initial turn off of analog broadcasts is now 2010. Under the Australian broadcasting regime broadcasters were required to simulcast the same material on the digital channels as they were broadcasting on

the analog channels. In addition they were also required to broadcast by the end of 2003 no less than 20 hours per week of high definition programs.

The consequence of these new broadcasts was the introduction of STBs into the Australian consumer electronic market. There are 7.6 Million households in Australia(1) and the estimated the number of TVs per household is around 2 (2) with an expectation that this figure could rise to around 3 by 2012. If switch over to digital were to be achieved by 2012 this could mean, at worse case for energy consumption, that some 20 million STBs would be purchased.

Televisions with inbuilt digital tuners have now been introduced into the Australian market and over time most televisions in the Australian Market will have a digital tuner. In Australia it is estimated that around 80% of televisions sold annually are replacement televisions. For this reason not all televisions will need a STB to receive a digital signal. We are still left, however, with the potential for some 14 Million STBs being needed to fully convert all televisions in Australia to Digital.

In fact the take up of digital television has been less than impressive. To date estimated take up of DTV is about 17% of households or 1.3M STBs(6). Many models have been developed to forecast the take up. All have underlying assumptions Fig 1 shows one that was developed by one of the Authors of this paper which was presented at the 1 Watt conference in Seoul and subsequently supplied as evidence to an Australian Parliamentary committee review into the take up of DTV(3). This model forecasts the energy use of STBs under the proposed MEPS as approximately 1,000 GWh pa by 2012 .



**Figure 1 Energy Consumption Model for STB use due to DTV take up in Australia**

An important development in the forecasting of DTV take up is the Parliamentary Committee review entitled "Digital Television: Who's buying it" which conducted hearing late in 2005 to establish the cause of slow take up and to produce recommendations to improve the take up of DTV. This committee has released 11 recommendations that address the poor consumer proposition for DTV which in their view will allow a turn off of Analog signals by 2010. One of the recommendations is the adoption of MEPS for STBs which is a clear indication that in their view the energy consumption of STBs is an important consideration in the take up of DTV in Australia.

#### **Set Top Box MEPS Voluntary of Mandatory**

The proposed MEPS regime for STBs was to be a voluntary scheme. However, when industry was consulted there was concern raised that a voluntary scheme may not produce the outcomes that the scheme was designed for. Many suppliers reported that as a matter of cooperate policy they would

comply with official standards whether it was voluntary or not. This had the potential to put them at a disadvantage compared to companies that did not have such policies. In general it was pointed out that the companies with such policies were the larger more established brand names such as Sony, Panasonic, LG and Samsung. In addition these suppliers pointed out that the structure of the market in Australia meant that there were a large number of suppliers in Australia with few having a large market share (See Fig 2).

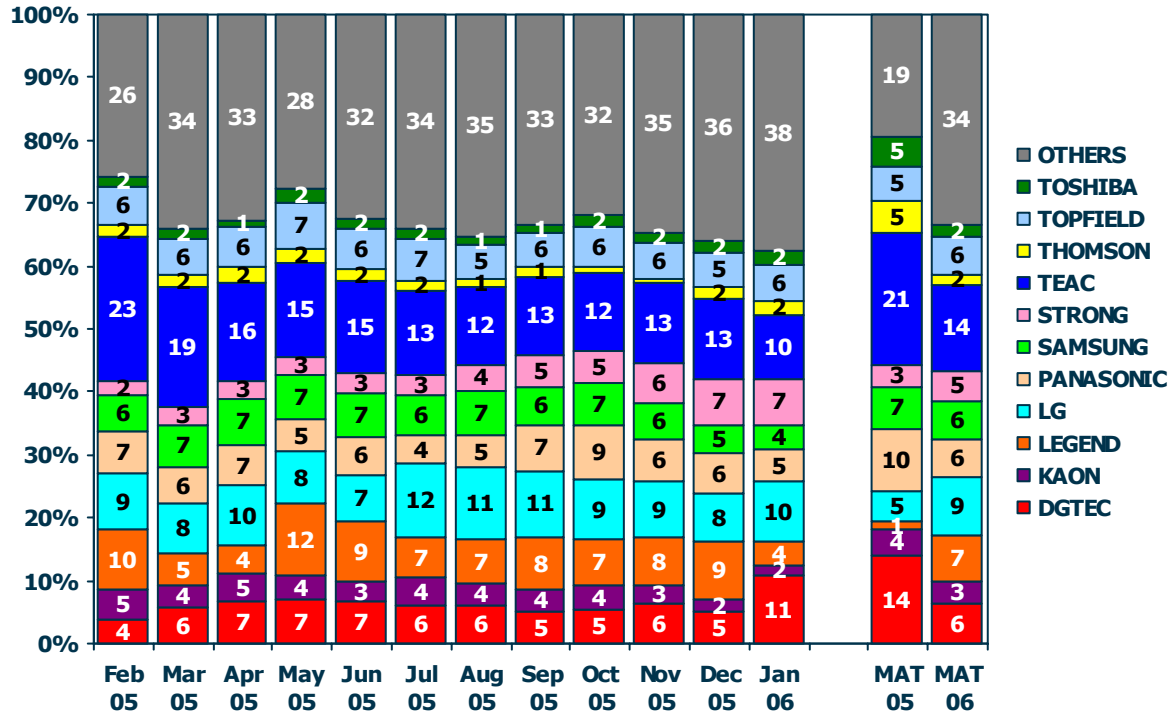


Figure 2: STB Brand shares in Australia (4)

From figure 2 it is evident that 66% of the market is supplied by 11 suppliers. The other 34% is actually supplied by at least 21 identifiable other suppliers. Many of these other suppliers, and indeed a number of the 11 larger suppliers, are in fact traders who source existing product from various OEM manufacturers. They have little input or influence into the design of the product and would have a strong propensity not to follow a policy of voluntary compliance with MEPS.

After much discussion the two main electronic industry associations (AEEMA and CESA) agreed to a mandatory regime for MEPS in order to maintain a level playing field and ensure that the desired outcomes of reducing STB energy consumption. This is not to say that industry would probably have preferred MEPS not be implemented at all. It was a position that if it were to be implemented then a fair system would have to be mandatory compliance. A similar position was also held for the yet to be developed MEPS for TV.

### Set Top Box MEPS and Energy Saving

As has already been discussed a realistic figure for energy consumption for STBs even if MEPS is implemented could be as high as 1000GWh by 2012. If MEPS were not implemented, however, the situation would be considerably worse.

It is now commonly accepted that many STBs are never switched into passive standby mode. If we make the following assumptions:

- 50% of STBs are never turned off.
- 50% of STBs are used 4 hours per day
- On Power is an average of 23W (7)(Panasonic AVC Networks (Aust) 2005 Survey of STBs)
- Passive Standby is an average of 7W (Panasonic AVC Networks (Aust) 2005 Survey of STBs)
- 14 Million STBs sold to convert to Digital.

Then the annual energy consumption would be 2000GWh pa. If we introduce MEPS based around the specifications in tables 1 & 2. We can reduce this energy consumption by half (see Fig 1). If we

add to the MEPS a High Energy Saving a mechanism to ensure the STBs are switched into standby when not in use the power consumption is reduced by another 70% to 300GWh pa. It is crucial, therefore, that an effective MEPS regime is established for Australia.

## **Set Top Box MEPS the process for Implementation**

### *Announcement and Consultation.*

The intention to develop a MEPS regime for STBs was announced October 2004. This was followed by a period of consultation with all stakeholders.. There were several meetings held at which the scope of the STB MEPS was discussed and feedback was given by various stakeholders. When there was general agreement on the nature and scope of the STB MEPS it proceeded to the standards development phase.

### *Standards Development*

The organization for Standards Development and Publishing in Australia is Standards Australia. Within standards Australia a Committee known as TE1 is responsible for following and where appropriate implementing the work of IEC committee TC108. Essentially TE1 is concerned with the safety of household appliances but its work has now been extended to include energy efficiency for products.

For the development of STB MEPS a working group was formed under TE1 and throughout 2005 met several times to develop and write the STB MEPS standard. This standard was then released in draft form for public comment. At the conclusion of the public comment phase a few minor editorial changes were recommended and the document was then processed for ballot.

It should be noted that some changes were made to the actual committee processes early in 2006. There was concern expressed by a number of members of TE1 that being safety regulators they may not have the appropriate expertise to examine and vote on the standard. To correct this a constituted committee was formed under TE1 known as TE1-008. The work of the working group was transferred to this committee early in 2006. Being a constituted committee its members are able to vote on the document unlike the working group structure which relied on TE1 members for voting.

### *Regulatory Impact Statement (RIS)*

Before any regulation can be applied to ensure the specification within the MEPS standard is met it is necessary to conduct a Regulatory Impact Study. The aim of this study is to determine the extent of the problem, what policy approaches were considered and the costs and benefits of the preferred option (typically Mandatory MEPS regulation). If the RIS is favorable then regulations will be enacted in each state of Australia to ensure product complies with the MEPS Standard.

### **The Technical Specification and Scope of the STB MEPS standard.**

The proposed regulation covers STBs suitable for free-to-air(FTA) broadcast TV and subscription (pay) TV (STV). Maximum power levels for MEPS are based on the existing requirements used by the voluntary agreement provided under the European Code of Conduct (CoC) and the mandatory requirements for digital television adapters in California. The Australian MEPS is tailored to mirror international requirements, while being moderated to address local industry technical issues. Detailed consultation was conducted with the local industry and specific requirements were developed to provide for Australian subscription TV services and high definition broadcasts.

The proposed MEPS includes requirements for passive standby, active standby and in-use modes, separate requirements for standard definition and high definition STBs as well as free-to-air and subscription TV services. The maximum power levels for MEPS are based on the power consumption of a basic platform configuration. The MEPS for a particular configuration of STB is made up of this maximum power level and an allowance for additional features. Finally, the total allowable power consumption for a STB is not to exceed a specified amount, regardless of the number and type of features that are included in the STB. The proposed regulation also includes recognition for those devices that automatically switch to passive standby after 4 hours of non-use and no user activity or that utilise a HDMI connection.

The basic requirement for energy consumption is shown in Table 1 and Table 2

**Table 1: Maximum Power Levels for Standard Definition STBs (From AC supply)**

| Product Type                          | Passive Standby – Max Power (W) | Active Standby – Max Power (W) | On mode – Max Power (W) |
|---------------------------------------|---------------------------------|--------------------------------|-------------------------|
|                                       |                                 | MPA/MPL                        | MPL/MPL                 |
| Proposed Compliance Date              | 1 October 2007                  |                                |                         |
| STB – FTA Either Option 1 or Option 2 | 1.0W                            | 8W /15W                        | 8W /15W                 |
|                                       | 2.0W                            | 7W /15W                        | 7W /15W                 |
| STB – STV                             | Not applicable                  | 9W /15W                        | Not applicable          |

**Table 2: Maximum Power Levels for High Definition STBs (From AC supply)**

| Product Type                          | Passive Standby – Max Power (W) | Active Standby – Max Power (W) | On mode – Max Power (W) |
|---------------------------------------|---------------------------------|--------------------------------|-------------------------|
|                                       |                                 | MPA/MPL                        | MPL/MPL                 |
| Proposed Compliance Date              | 1 October 2007                  |                                |                         |
| STB – FTA Either Option 1 or Option 2 | 1.0W                            | 12W /19W                       | 15W /22W                |
|                                       | 2.0W                            | 11W /19W                       | 14W /22W                |
| STB – STV                             | Not applicable                  | 13W /19W                       | Not applicable          |

In addition to the basic allowance MPA the standard allows for additional power consumption depending on functionality. The extra allowance however must not exceed the Maximum Power Levels shown in Tables 1 & 2.

The Additional Power Allowances are shown in Table 3

**Table 3: Additional Power Consumption Allowance**

| Feature                     | Additional power consumption (Active Standby Mode) | Additional power consumption (On Mode: STB – FTA Only) |
|-----------------------------|--|--|
| SCART Port                  | 1.0W   | 1.0W   |
| IEEE1394 interface          | 0.8W   | 0.8W   |
| Ethernet interface 100 Mbit | 0.4W   | 0.4W   |
| Wireless interface          | 0.7W   | 0.7W   |
| SPDIF port                  | 0.1W   | 0.1W   |
| Serial USB interface        | 0.3W   | 0.3W   |
| Home automation interface   | 0.4W   | 0.4W   |
| Broadband modem             | 2.0W   | 2.0W   |
| Extra cable modem           | 0.7W   | Not applicable   |
| Extra LNB                   | Not applicable                                     | Not applicable   |
| Additional tuner            | 2.0W   | 2.0W   |
| Powered remote IR receiver  | 0.25W  | Not applicable   |

## The development of Mandatory MEPS for Home Entertainment Equipment

### Background

The government is considering a report that proposes a mandatory maximum standby power(5). The proposed regulation may provide potential energy savings of 1.7 GWh pa and greenhouse emission reductions of 1.7 Mt CO<sub>2</sub>-e pa by 2020 in standby power alone. Over 4 million of these products are sold annually in Australia and the sales of home entertainment equipment are increasing rapidly. Home theatre systems, DVD players/recorders, portable and integrated sound systems are some of the products included in the broad scope of the proposed requirements. It is intended to develop a horizontal requirement for standby power that will apply to the entire group of products. In this way, emerging new product categories will be included in the coverage of the proposed regulation without the need to continually update the definitions.

Depending on the product group, maximum passive standby levels of between 4 and 6 watts are proposed by 2008 with 1 watt being required for all home entertainment products by 2012. These levels are based on international standby programs and aim eventually to meet the IEA long term target. In addition given that recording product such as DVD recorders and PDRs are emerging with Digital Tuners consideration is being given to treating these in the same way as STBs and Specifying "On Power" standards as well.

Australia's standby strategy is part of the IEA plan for standby, which encourages all member nations to address standby in a coordinated manner, and achieve a common long-term target for 2012 – "1 Watt" maximum for all low power modes. The IEA standby target however relies upon the user to switch the product off or into standby mode. Evidence from Australian surveys suggests that many products are not switched into this mode and remain in active standby for extended period of time. The proposal includes the requirement that the device automatically switches to passive standby after 30 minutes of non-use and no user activity.

Some products already include the auto power down feature as suppliers respond to the challenge set by various international and national standby programs. The impact of this requirement represents approximately 75% of the projected impacts and the benefit of auto power down will be more significant as the proliferation of such devices increases.

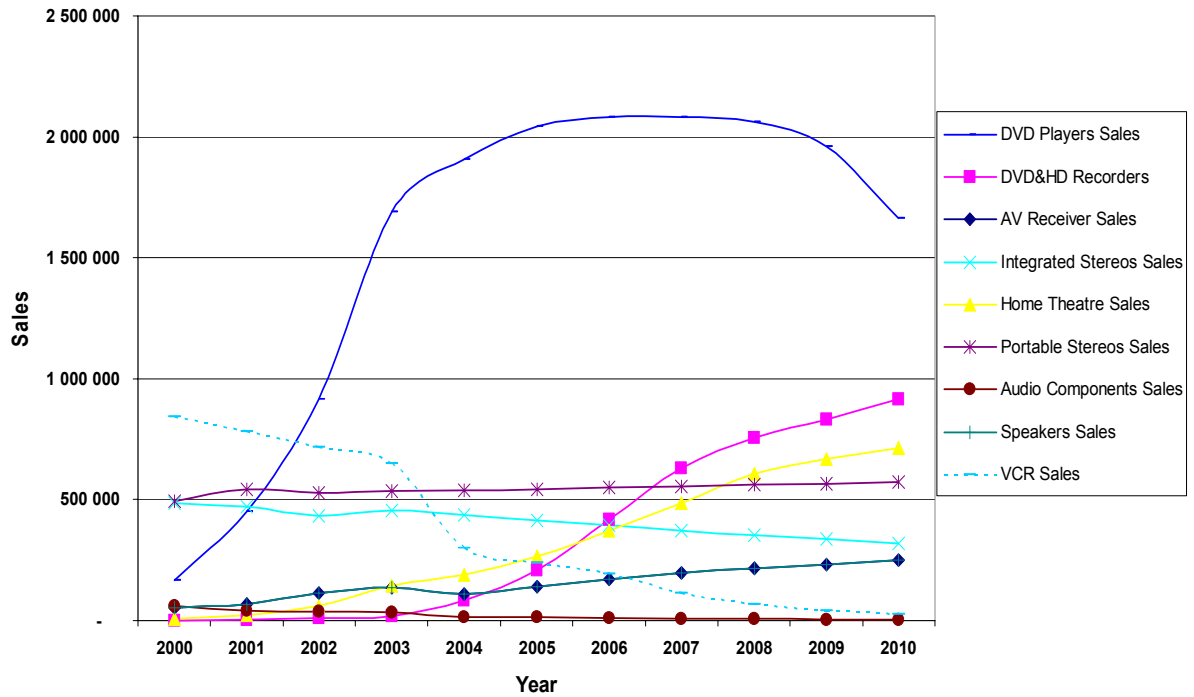
### **Why Develop Mandatory MEPS for Home Entertainment Equipment**

#### *Increasing Sales Volume*

Home Theatre Equipment is a rapidly expanding product group. As the potential impact of a MEPS policy is highly dependent on the sales of the products, actual and forecast sales by product group were developed. Based on actual data from 2000 to 2004, projections were made for the various categories of equipment, as shown in Fig 3

The sales of home entertainment equipment are related, as some products replace or substitute the functions of other products, such as the decrease in VCRs which are being replaced by DVD&HD Recorders. Also, it is likely that sales of DVD Players will be plateau and decrease as both Home Theatre Systems and DVD&HD Recorders increase. In 2005, it is estimated that approximately 4 million home entertainment products will be sold in Australia.

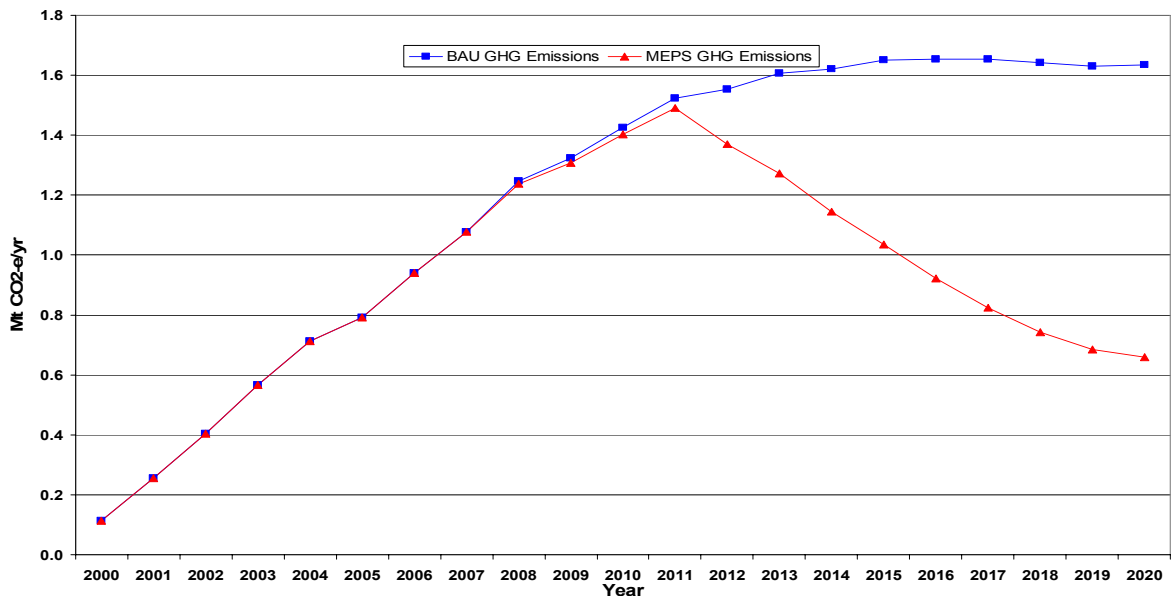
The sales projection model does not yet consider the impact of product convergence, such as including DTV tuners in recording product. As more product emerges in this form, it is likely to impact on the sale of simple STBs. The inclusion of DTV tuners in these products will also further increase the sales of DVD recorders and Personal Video Recorders (PVR). The savings that have been predicted as a result of the STB MEPS could be diluted as more sales of STBs are substituted by PVR/DVD products were at present only standby power is considered. For this reason consideration is being given to treating recording product with a DTV tuner as a special class of product with the in-use power also subject to limits. In fact from an energy consumption view this class of product should be encouraged because it will reduce the actual number of pieces of equipment within the household that are consuming standby power.



**Figure 3: Annual Sales Forecast for Home Entertainment Equipment**

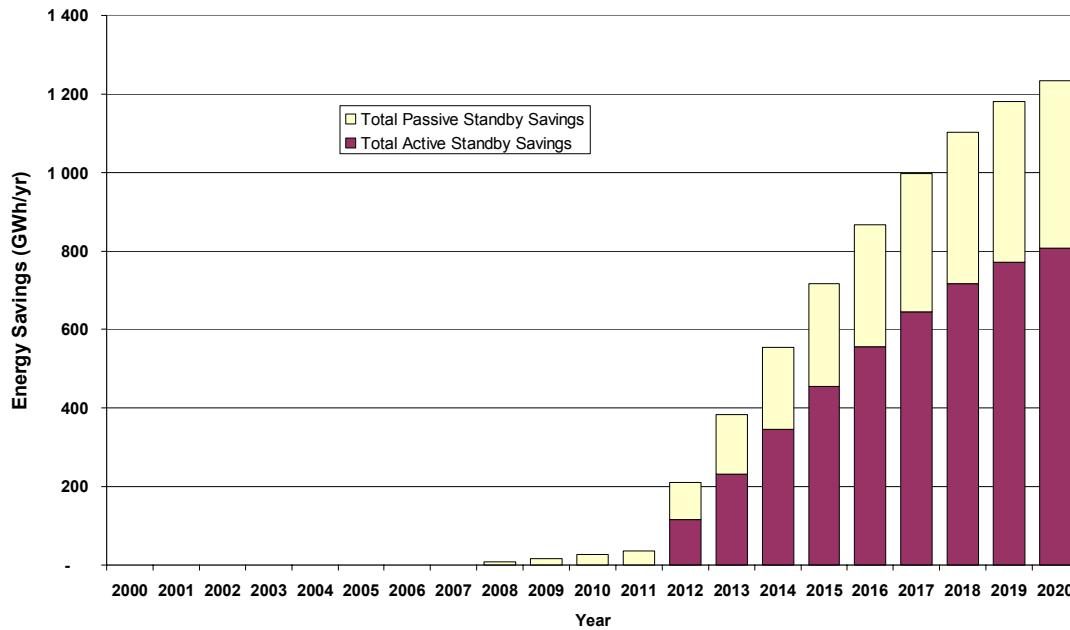
*Potential for Greenhouse Gas Reductions*

By implementing MEPS on standby power for home entertainment products it has been estimated(Ref) that CO<sub>2</sub> emissions will be reduced by 970KT pa and 1,200 GWh of electricity will also be saved by 2020 See Fig 4 and 5. The greatest contribution to this saving is the saving associated with passive standby power. It is estimated that the contribution to the saving by standby power will be 800MWh pa by 2020.



**Figure 1: BAU vs. MEPS Policy – GHG Emissions for Home Entertainment Equipment**

### Total MEPS Standby Energy Savings



**Figure 2: MEPS Potential Energy Savings by Standby Mode**

The average standby power consumption by mode for these products is shown in Table 4, with significant power consumption in active standby mode.

**Table4: Summary of NAEEEC Store Survey Average Measurements 2004/05**

| Home Product                                     | Entertainment | Mean Standby | Active | Mean Standby | Passive | Mean Mode  | Off |
|--|---------------|--------------|--------|--------------|---------|------------|-----|
| AV Receivers                                     |               | 41.2         |        | 1.3          |         | 0.2        |     |
| Home Theatre Systems                             |               | 31.5         |        | 2.2          |         | 0.1        |     |
| Integrated Stereos                               |               | 18.0         |        | 4.6          |         | 2.4        |     |
| Portable Stereos                                 |               | 6.7          |        | 2.1          |         | 1.9        |     |
| Audio Components                                 |               | 9.0          |        | 3.0          |         | 0.0        |     |
| Sub Woofers & Speakers                           |               | 9.7          |        | 4.7          |         | 0.6        |     |
| DVD Players                                      |               | 9.2          |        | 2.4          |         | 0.0        |     |
| DVD Recorders                                    |               | 23.0         |        | 7.5          |         | NA         |     |
| Hard Disk Recorders                              |               | 29.4         |        | 7.2          |         | 0.0        |     |
| VCR's  |               | 7.7          |        | 2.9          |         | NA         |     |
| <b>Total for all Home Entertainment Products</b> |               | <b>19.2</b>  |        | <b>3.5</b>   |         | <b>0.5</b> |     |

**Table5: Summary of NAEEEC Store Survey Measurement Ranges 2004/05**

| Home Entertainment Product                       | Active Standby Max | Active Standby Min | Passive Standby Max | Passive Standby Min | Off Mode Max | Off Mode Min |
|--|--------------------|--------------------|---------------------|---------------------|--------------|--------------|
| Av Receivers                                     | 112.3              | 11.1               | 6.4                 | 0.2                 | 0.7          | 0.0          |
| Home Theatre Systems                             | 55.7               | 12.1               | 18.1                | 0.2                 | 0.9          | 0.0          |
| Integrated Stereos                               | 52.2               | 5.1                | 34.9                | 0.2                 | 4.8          | 0.0          |
| Portable Stereos                                 | 20.5               | 2.8                | 5.1                 | 0.7                 | 3.5          | 0.0          |
| Audio Components                                 | 15.8               | 4.2                | 5.6                 | 0.4                 | 0.0          | 0.0          |
| Sub Woofers & Speakers                           | 20.4               | 0.5                | 17.8                | 0.1                 | 10.2         | 0.0          |
| DVD Players                                      | 21.5               | 4.4                | 9.8                 | 0.1                 | 0.0          | 0.0          |
| DVD Recorders                                    | 36.5               | 15.9               | 24.4                | 2.8                 | NA           | NA           |
| Hard Disk Recorders                              | 36.0               | 20.8               | 20.1                | 2.9                 | 0.0          | 0.0          |
| VCR's  | 11.3               | 6.1                | 6.3                 | 1.2                 | NA           | NA           |
| <b>Total for all Home Entertainment Products</b> | <b>112.7</b>       | <b>0.5</b>         | <b>34.9</b>         | <b>0.1</b>          | <b>10.2</b>  | <b>0.0</b>   |

These tables demonstrate a large variation in passive standby energy consumption across a range of products and within product categories. The largest differential was found to be AV receivers in active standby which varied by over 100W. When analyzed against price no relationship was found for price vs energy performance indicating that poor performers could be improved without a significant effect on cost.

It is clear from this discussion the proposed MEPS on standby power for home entertainment product is necessary given the clear proliferation of sales of these type of products. This category of product will significantly add to both the future energy requirements and Greenhouse Gas emissions.

It is also obvious from the field surveys that energy efficiency improvements can be made to product at little or no cost; and that much product already meets or exceeds the requirements imposed by the MEPS

#### Consistency with international trends

It is necessary when considering a MEPS regime for Australia that the requirements and levels are consistent with international thinking. It is clear that, although implementations of schemes may differ, many other countries have considered these products as having the potential to provide energy savings. The Australian MEPS regime is entirely consistent with other schemes, as shown in Table 6.

**Table 6: Brief Overview of Energy Efficiency Programs**

| Program              | Voluntary Programs |       |           |           |             |            |        | Mandatory Programs |            |
|----------------------|--------------------|-------|-----------|-----------|-------------|------------|--------|--------------------|------------|
|                      | Energy Star        | GEEA  | EICTA     | HomeSpeed | Nordic Swan | Energy Boy | IEA 1W | CEC                | Top Runner |
| Type                 | Label              | Label | Agreement | Database  | Label       | Label      | Target | MEPS               | Target     |
| AV Receivers         | ✓                  | ✓     | ✓         | ✓         |             | ✓          | ✓      |                    |            |
| Home Theatre Systems | ✓                  |       |           |           |             | ✓          | ✓      |                    |            |
| Integrated Stereo    | ✓                  | ✓     | ✓         | ✓         | ✓           | ✓          | ✓      | ✓                  |            |
| Portable Stereo      | ✓                  | ✓     | ✓         | ✓         |             | ✓          | ✓      |                    |            |
| Stereo Components    | ✓                  | ✓     | ✓         | ✓         |             | ✓          | ✓      | ✓                  |            |
| Sub Woofers          | ✓                  |       |           |           |             |            | ✓      |                    |            |
| Speakers             | ✓                  |       |           |           |             |            | ✓      |                    |            |
| DVD Players          | ✓                  | ✓     | ✓         | ✓         | ✓           | ✓          | ✓      | ✓                  |            |
| DVD Recorders        | ✓                  | ✓     | ✓         | ✓         | ✓           |            | ✓      | ✓                  |            |
| Hard Disk Recorders  |                    |       | ✓         |           |             |            | ✓      | ✓                  |            |
| VCRs                 | ✓                  | ✓     | ✓         | ✓         | ✓           | ✓          | ✓      |                    | ✓          |

These international programs establish a consistency in the approach Australia is taking and what other countries have done. This would indicate that the Australian requirements are achievable without any cost impact or limiting available product.

#### Proposed mandatory MEPS for Home Entertainment Equipment

A broad "horizontal" definition of products is proposed to be targeted by the MEPS and aim to simplify the issues associated with determining MEPS coverage. The definition proposed is based on the earlier definition, as follows:

Commercial available consumer equipment that produces, records or assists in producing an audio or video signal/output.

Products that are specifically covered by other MEPS requirements (such as TVs and set top boxes and possibly video recording equipment with DTV tuners ), would be excluded from this MEPS.

#### Stage 1 MEPS - 2008

The MEPS for implementation in 2008 is suggested at 4 watts for all home entertainment products without video recording capabilities and at 6 watts for those with video recording capabilities. Additionally all products with an off mode would be required to have consumption less than 0.3W.

Approximately 30% of all models surveyed in 2005 would not meet this MEPS level as demonstrated in Table 7.

**Table 7: 2005 Home Entertainment Products excluded by proposed MEPS Stage 1**

| <b>Product</b>                           |              | <b>Passive Standby <math>\geq 4W</math></b> | <b>Passive Standby <math>\geq 6W</math></b> | <b>Off Mode <math>\geq 0.3W</math></b> |
|--|--------------|---|---|--|
| <b>Av Receiver</b>                       | No of Models | 2   | -   | 3                                      |
|  | % of Models  | 4%  | -   | 6%                                     |
| <b>DVD Player</b>                        | No of Models | 18  | -   | 0                                      |
|  | % of Models  | 27%   | -   | 0%                                     |
| <b>Home Theatre System</b>               | No of Models | 8   | -   | 1                                      |
|  | % of Models  | 15%   | -   | 2%                                     |
| <b>Stereo Component</b>                  | No of Models | 2   | -   | 0                                      |
|  | % of Models  | 25%   | -   | 0%                                     |
| <b>Integrated Stereo</b>                 | No of Models | 21  | -   | 1                                      |
|  | % of Models  | 32%   | -   | 1%                                     |
| <b>Portable Stereo</b>                   | No of Models | 2   | -   | 6                                      |
|  | % of Models  | 10%   | -   | 14%                                    |
| <b>Sub Woofer and Powered Speakers</b>   | No of Models | 4   | -   | 7                                      |
|  | % of Models  | 15%   | -   | 13%                                    |
| <b>DVD Recorders</b>                     | No of Models | -   | 17  | Na1                                    |
|  | % of Models  | -   | 40%   | Na1                                    |
| <b>Hard Disk Recorders</b>               | No of Models | -   | 10  | 0                                      |
|  | % of Models  | -   | 53%   | 0%                                     |
| <b>VCRs</b>                              | No of Models | -   | 1   | Na1                                    |
|  | % of Models  | -   | 4%  | Na1                                    |
| <b>Total of all Home Entertainment</b>   |              | <b>106</b>                                  | <b>-</b>                                    | <b>33</b>                              |
| <b>Total % of all Home Entertainment</b> |              | <b>29%</b>                                  | <b>-</b>                                    | <b>7%</b>                              |

<sup>1</sup> No products were found with off mode

A MEPS level that removes the 30% of the least efficient models surveyed is consistent with the method used to determine the MEPS levels for other products, such as three-phase air conditioners and motors, while still somewhat consistent a significant trading partners

#### Stage 2 MEPS – 2012

It is anticipated that by 2012 the market would be ready to achieve a MEPS level of 1 watt or less in passive standby for home entertainment equipment. This would be consistent with the levels expected by international programs. To reduce the impact of active standby all home entertainment products would be required to power down to passive standby within 30 minutes of inactivity. Video recording equipment would be exempt from this due to the requirement for equipment to be preset for future recording. This level would currently exclude 70% of the market. However, given that the EU agreement requires manufactures to meet the 1 Watt level by 2007, it is not unrealistic to assume the Australian market will be able to adjust by 2012.

## Conclusions

Australia after consultation with industry has adopted a mandatory approach to MEPS for Set Top Boxes and Home Entertainment Equipment. In the case of STBs the MEPS includes limits on both the standby and on mode operation. In the case of home entertainment the MEPS are based on standby power except for the consideration of a specification for on mode in the case of recording devices with DTV tuners.

The mandatory regime that will be imposed is with agreement with industry and will ensure a consistent and fair application of the specification.

The MEPS are considered necessary as they will result in significant reductions in CO<sub>2</sub> emissions any energy consumption associated with the use of this equipment.

Care has been taken to ensure that the proposed MEPS are achievable with current and emerging technology without dramatic cost or supply implications to suppliers. Indeed it has been found in the studies leading to these MEPS that equipment already exists that meets and even exceeds the limits specified.

The MEPS covers product categories that are consistent with international programs and the levels adopted are also consistent with international energy reduction programs.

The road ahead will require ongoing consultation with stakeholders to ensure these standards are implemented appropriately to provide the energy and greenhouse gas savings.

## References

- [1] House of Representatives Standing Committee on Communications, Information, Technology and the Arts. *Digital Television – Who’s Buying It? Enquiry into the uptake of Digital Television in Australia* , Commonwealth of Australia, February 2006 Page 29.
- [2] ABS 2005, *Environmental Issues: People’s Views and Practices*, Australian Bureau of Statistics , catalogue number ABS 4602.0 29 November 2005. Available from [www.abs.gov](http://www.abs.gov).
- [3] House of Representatives Standing Committee on Communications, Information, Technology and the Arts. *Digital Television – Who’s Buying It? Enquiry into the uptake of Digital Television in Australia* , Commonwealth of Australia, February 2006 Page 174.
- [4] GFK. *Digital Set Top Box Report* , January 2006 .
- [5] EnergyConsult Pty Ltd. *Analysis of the Standby Energy Efficiency Improvements to: Home Entertainment Equipment* , December 2005 .
- [6] Digital Broadcasting Australia. [www.dba.org.au](http://www.dba.org.au) *Members News Letter*, January 2006 .
- [7] Panasonic AVC Networks (Aust) *Survey of STBs 2005*
- [7] Standards Australia, *Draft AS62087 Parts 1 & 2*, Public Comment March 2006

