



Case Study: Australia's MVE Framework and Benchmarking of Lamps

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Australian Government



Australian Regulatory Context

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- Australian Government MEPS and labelling requirements are set out in the Greenhouse and Energy Minimum Standards Act 2012 (GEMS Act)
 - Specific product requirements are set out in Greenhouse and Energy Minimum Determinations which also refer to Australian/New Zealand Standards.
 - The GEMS Act applies to the supply and commercial use of GEMS products covered by a determination:
 - international/local manufacturers
 - importers
 - suppliers
 - retailers
 - commercial users
 - internet/on-line suppliers

Australian Regulatory Context

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- To supply a product in Australia it must be:
 - tested – test reports not always required
 - compliant – must meet MEPS and comply with labelling requirements
 - registered – with the GEMS Regulator
- Web presence - energyrating.gov.au – provides a wealth of information
- Further information on the Australian monitoring, verification and enforcement framework in the recent en.lighten webinar presentation which is included on the meeting USB sticks or at the en.lighten website: <http://learning.enlighten-initiative.org/Webinars.aspx>

Why Benchmarking?

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- Benchmarking is a valuable tool in:
 - Evaluating the market
 - Identifying opportunities for action to save energy
 - Measuring and understanding product performance and changes in performance over time or product category
 - Gauging the impact of policies and regulation
 - Evaluating options for revising policies and regulation
 - Targeting monitoring, verification and enforcement.
 - Benchmarking MVE methodology against best practice
 - Helping consumers select the most efficient products

Data for Benchmarking

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- In Australia we have a range of data sources to draw upon
- Some of these are already available:
 - Product Import data (limited by import data categories but reliably available)
 - Sales data (limited for lighting products but readily available for other larger appliances such as refrigerators, air conditioners)
 - Private sector market reports (must be purchased and less frequent)
 - Australian Bureau of Statistics (reliable and extensive sample but limited in depth of information)
 - Surveys by energy supply companies (can be detailed but restricted to a region)

Data for Benchmarking

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- Some data we have to organise and obtain:
 - Testing of samples of products from the market – e.g. CFL (2008, 2010, 2013), LED (2009-2014) also ‘swap’ some of this information with other testing countries to expand available data
 - Intrusive household survey 2010 – 150 houses in three cities - all light bulbs counted
 - Specific surveys conducted by state governments
 - Results of compliance activity – in-store surveys (product registration and packaging) and product testing
 - GEMS Product Registration database – most extensive but take into account that it is supplier declared
 - GEMS Act has the ability to require submission of sales data but this has not yet been activated

Data collection - approach

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- Data collection can be one-off to support specific policy development, or compliance activity
- But where possible a time series of data to evaluate changes in the market can be valuable
- Consider how and where the data is collected and who by:
 - If data collection is in a store or a house, you will need trained survey staff who understand the task and design the survey to collect the data in a consistent manner
 - If data collection is online, or by mail, you will need to ensure that the target audience can understand the survey, and data can be collected consistently.

Data Collection - Approach

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- Collect data across different parts of your country (different cities and regions).
- If collecting data from stores, select different types of stores (department stores, supermarkets, speciality stores, discount stores)
- Try to buy a product sample from several different stores or cities where possible.
- Where survey involves people / houses, try to make sure the sample is statistically valid in terms of sample size and coverage of demographic factors (ages, economic status etc)

Baseline Data for Compliance

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- The Australian GEMS registration database includes product performance details of registered products
- This assists us to target products for inclusion in the check testing program - for example it helps us to identify
 - new entrants into the market;
 - those making claims of efficiency that are borderline;
 - those supported by test laboratories with a poor compliance history.
- Compliance store surveys (or internet surveys) can use the registration data to immediately identify (via smart phone) non-registered products which are then a candidate for further investigation as to whether they are MEPS compliant

Baseline Data for Compliance

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- When we test a product that fails – the registration database enables us to look across all registered products and identify others that may be the same:
 - use the same registration test report,
 - use the same model number,
 - have identical performance characteristics,
 - same manufacturer etc.
- Our publically available database also enables compliant companies to monitor the market and report non-registered products if they wish.

Baseline Data for Compliance

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- Requiring provision of performance data with registration also helps ensure that registered suppliers consider and understand the specific MEPS / labelling obligations (minimum levels, testing measurement etc.) –
 - this is likely to both increase compliance and lessen opportunities for suppliers to claim they were unaware of their obligations
 - Gives confidence to compliant companies that all suppliers are obliged to engage in the MEPS requirements up-front rather than hope to free-ride.
 - A public registration data base also helps retailers who want to make sure that the products they are sourcing are registered and declared to be compliant.

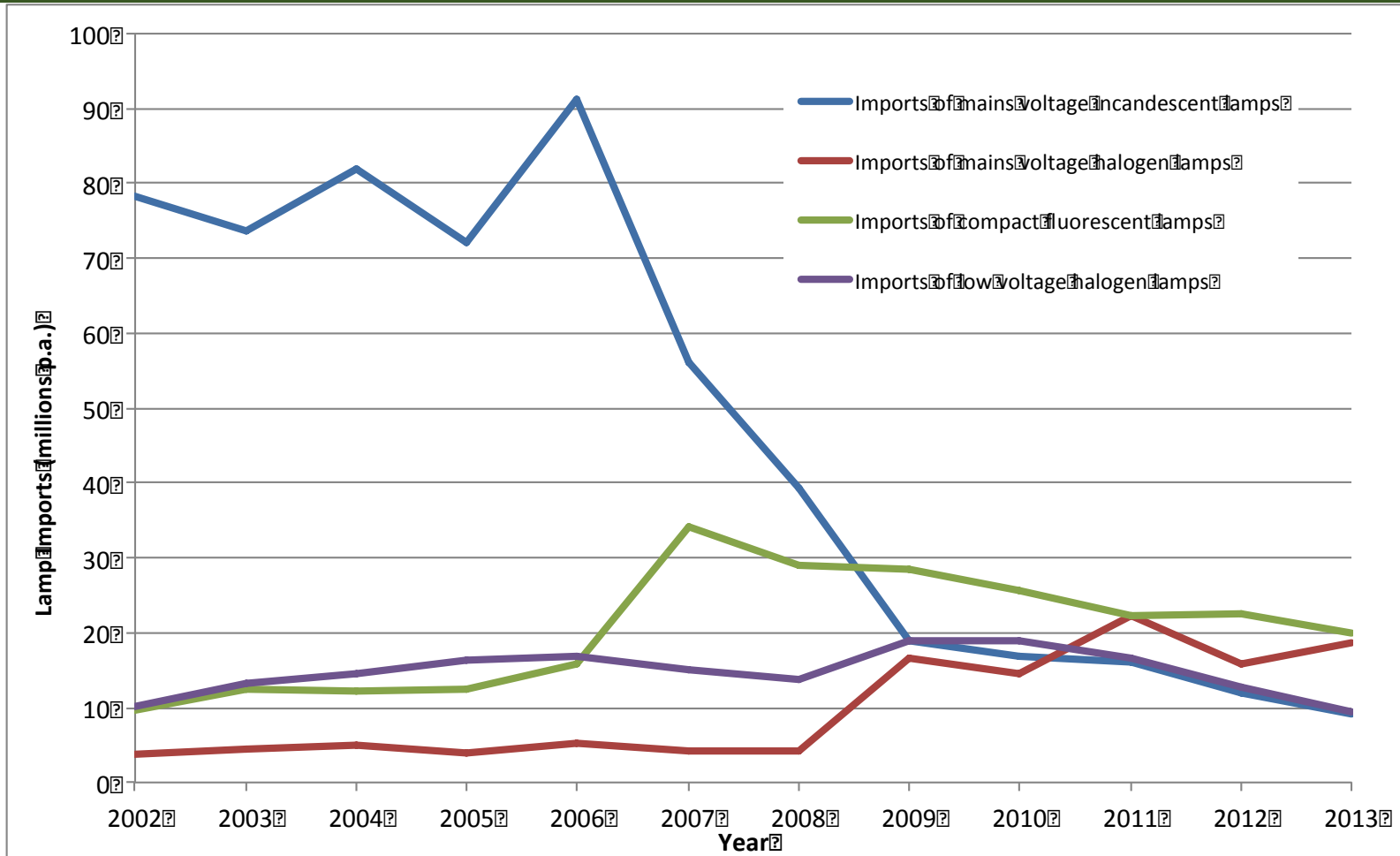
Benchmarking methodology

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- Program methodology may also be benchmarked in terms of performance requirements and monitoring, verification and enforcement practice
- Methodology may be evaluated against national and international best practice - information sources:
 - www.lites.asia
 - www.enlighten-initiative.org
 - www.clasponline.org
 - National best practice from your audit and enforcement agencies
- Is it possible to adopt improved methodology within your budgetary constraints?

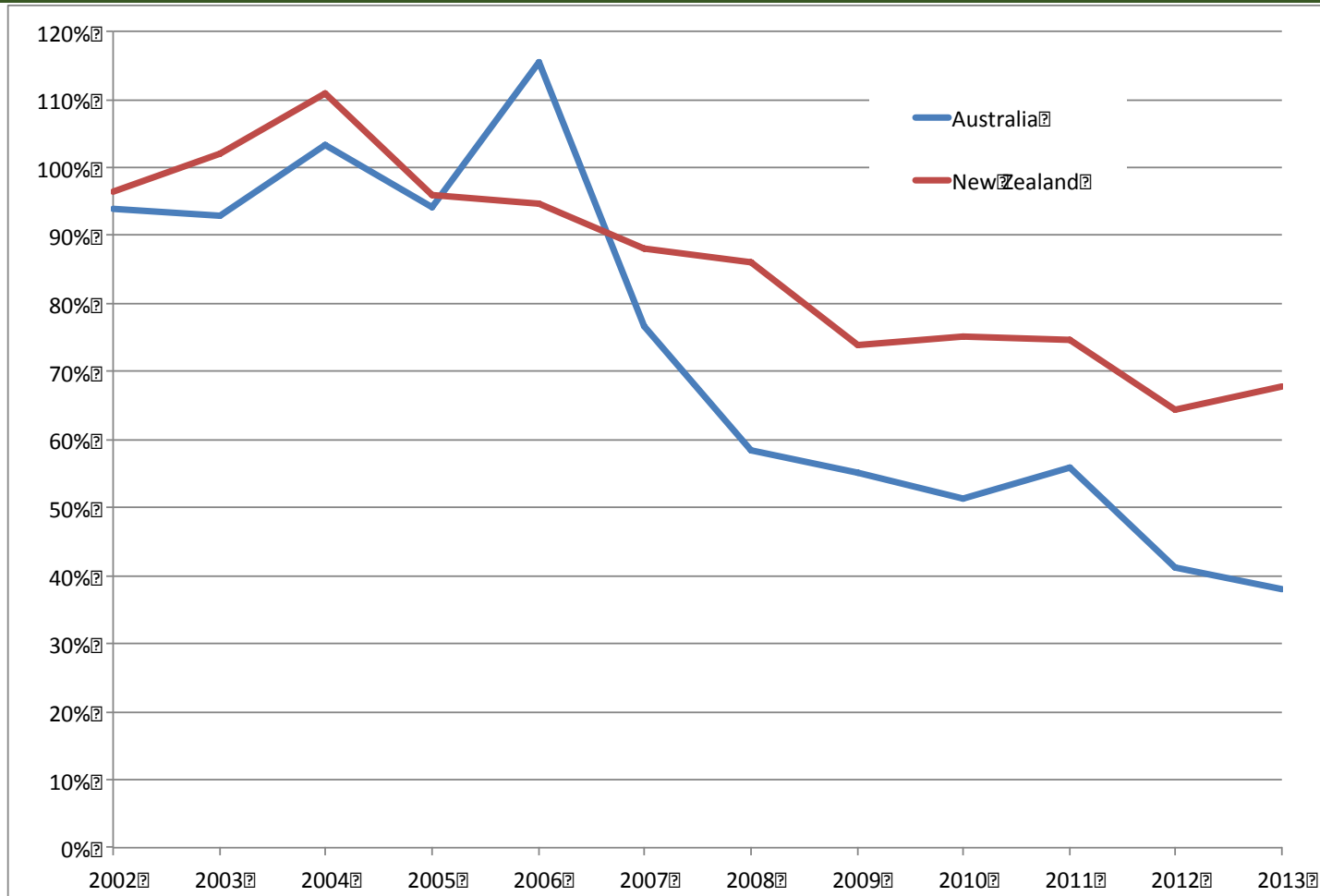
Imports per annum of relevant lamp types into Australia (source: ABS import data)

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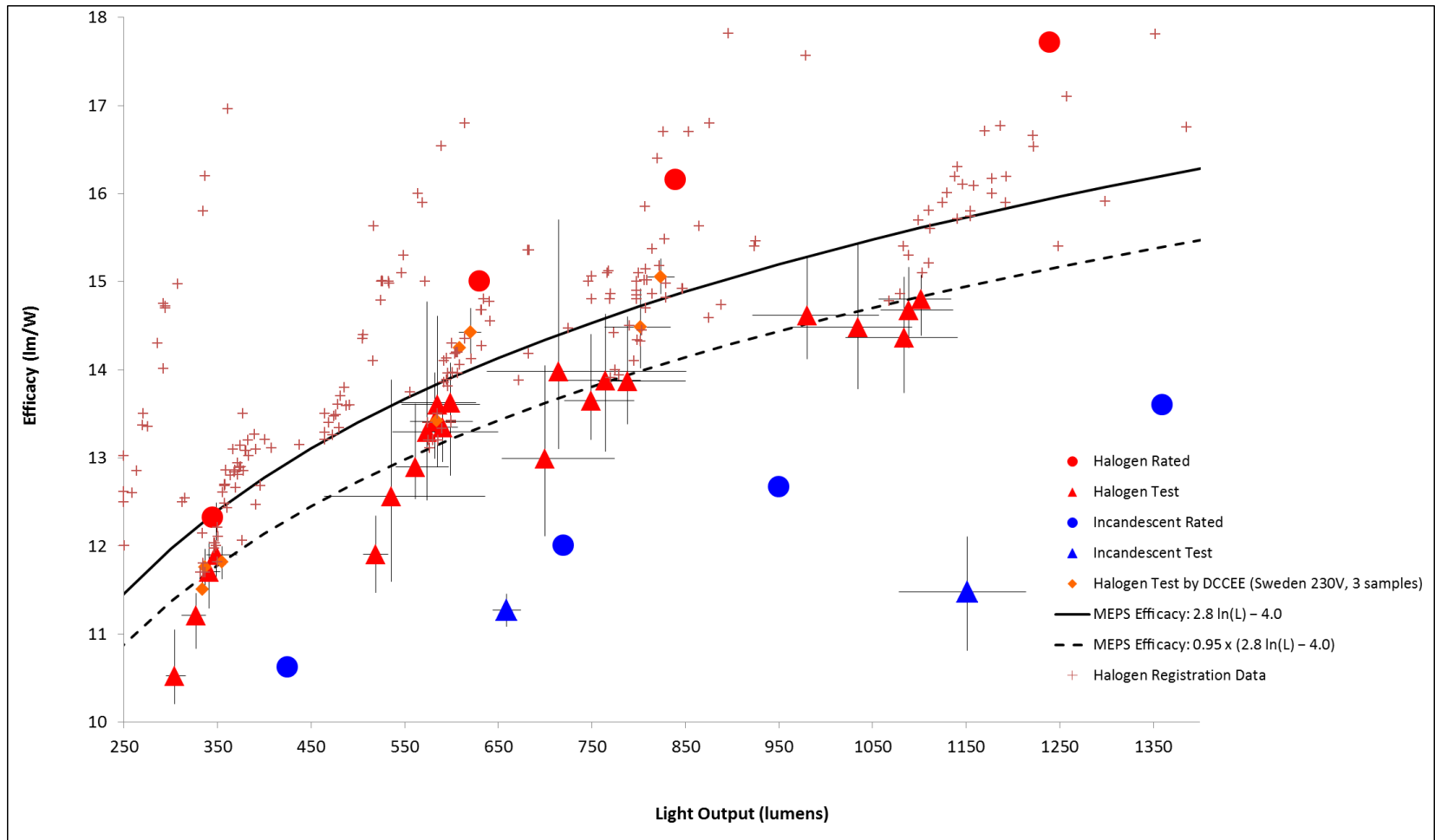
Imports of all types of filament lamps into Australia and New Zealand (normalised)

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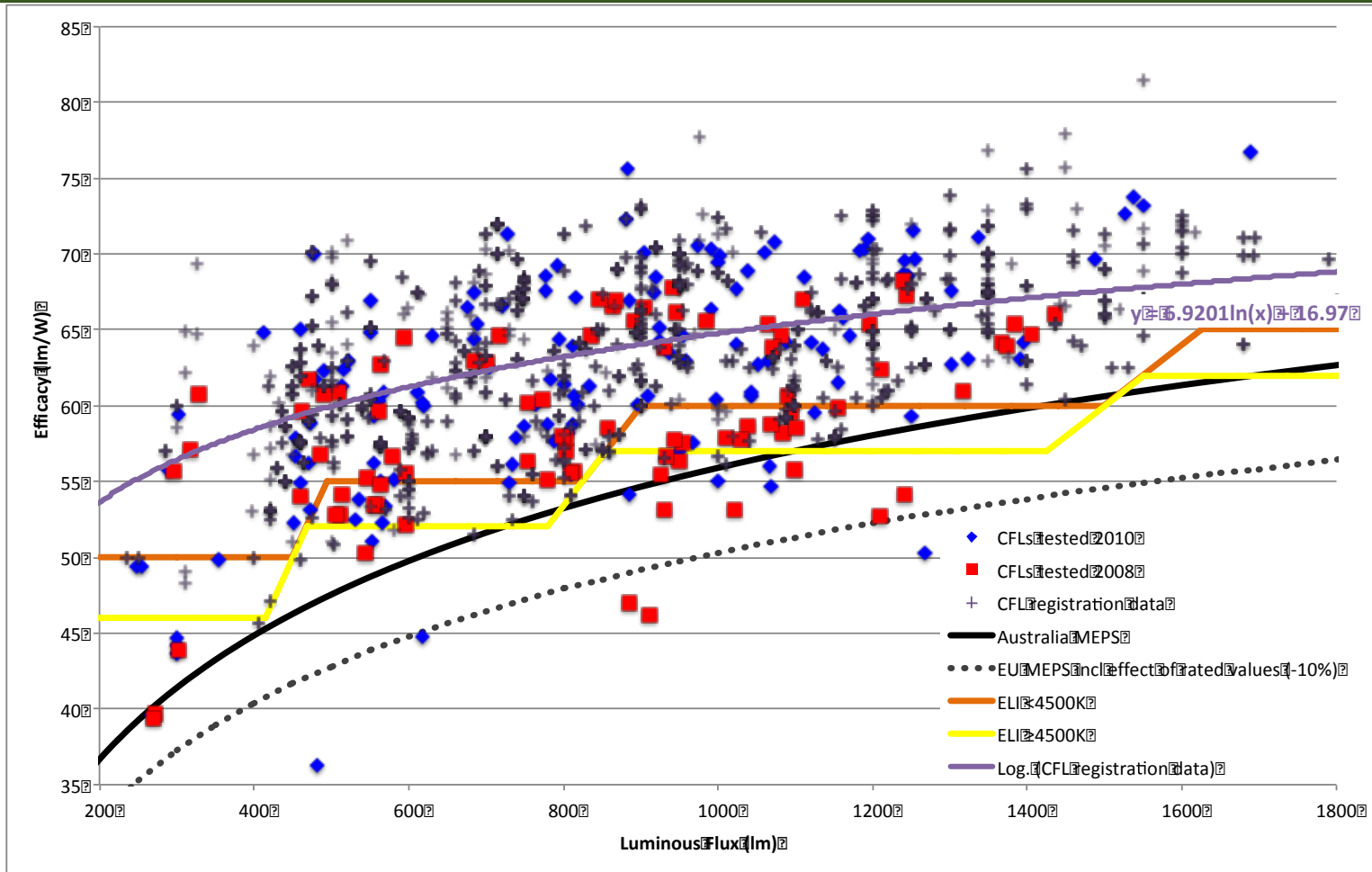
Comparison of rated and tested efficacy of MV incandescent and MV halogen non-reflector lamps (source: lamps tested by the Australian Government in 2010, MEPS registration system)

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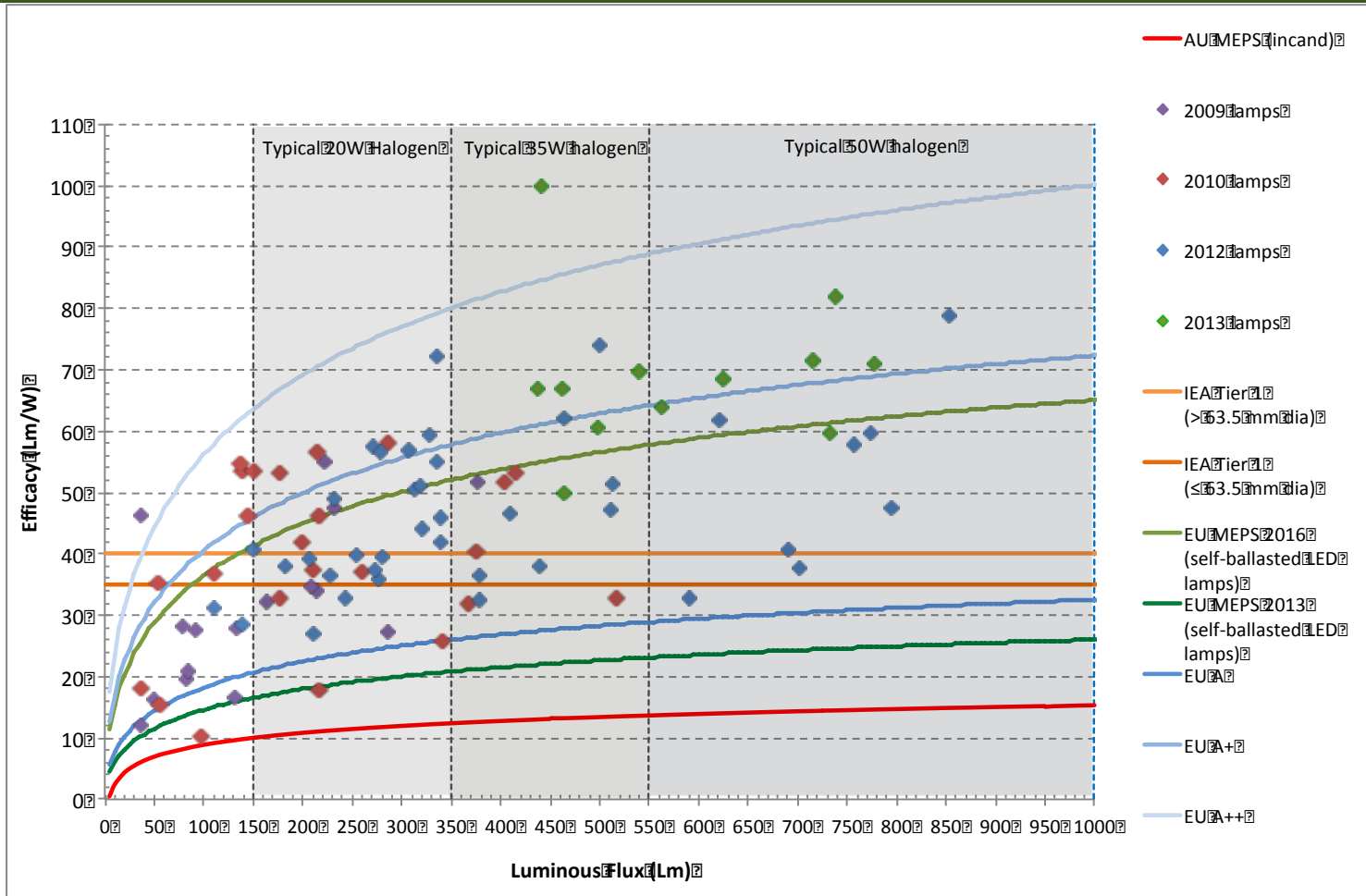
Average tested efficacy of bare CFLs (source: lamps tested by the Australian Government 2008 and 2010)

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Tested efficacy of LED directional lamp technologies purchased in Australia between 2009 and 2013 (source: lamps tested by the Australian Government)

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Using Household data

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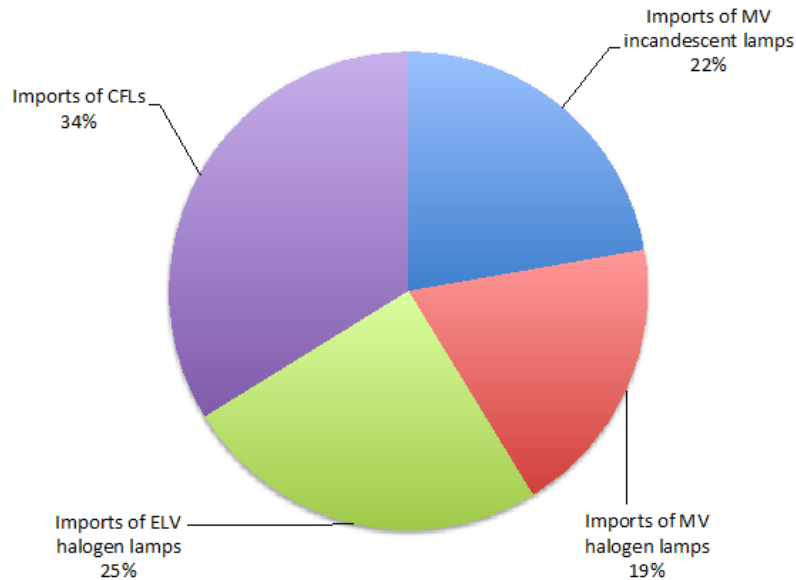
- Household survey data of number of lamps and lamp types (150 houses), three cities
- Allows us to better understand which technology types are the key energy users
- Identify opportunities for saving energy

Lamp mix per house		Av Lamp Power (W)	Energy kWh p.a. Australia 2010
Lamp Type	Australia 2010		
MV incandescent	11.0	73	438
MV halogen	4.4	51	123
ELV halogen	12.3	49	330
CFL	15.0	14	112
Linear fluorescent	4.4	41	100
LED	0.7	10	4
Total	48		1100

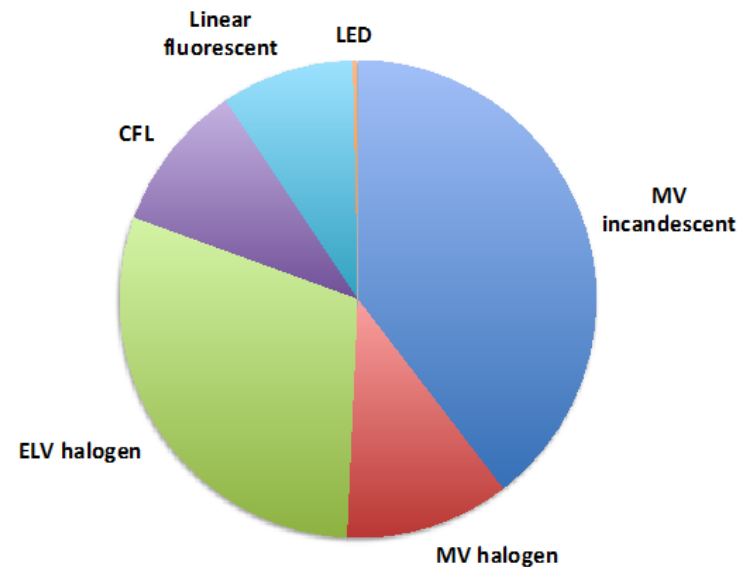
Estimated share of household energy consumption, by lamp type, Australia 2010

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- Household lighting survey results – relative share of lamp stock in 2010



- Estimated share of household energy consumption, by lamp type, Australia 2010



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Using data to identify potential for lighting energy savings

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Lamp mix per house		Av Lamp Power (previous) (W)	Av Lamp Power (new) (W)	Energy kWh p.a. Australia
Lamp Type	Australia			
MV incandescent -> CFL/LED	11.0	73	15	88
MV halogen -> CFL/LED	4.4	51	15	35
ELV halogen -> LED	12.3	49	8	54
CFL	15.0	14	14	112
Linear fluorescent	4.4	41	41	100
LED	0.7	10	10	4
Total	48			392
Energy saving %				65%

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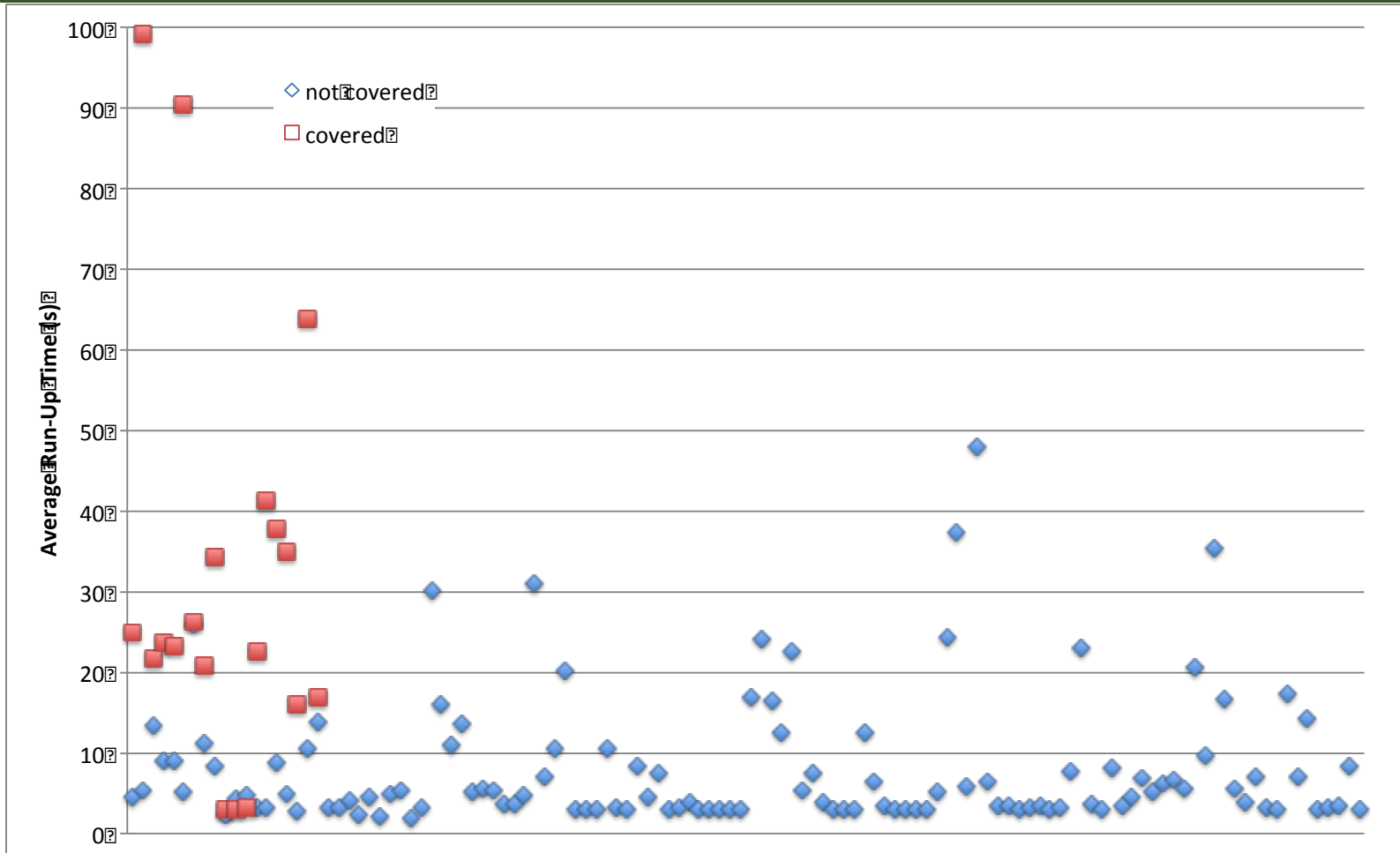
Evaluate Industry Claims

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- Run-up times requirements for CFLs – currently 60 seconds.
- Industry has suggested that run-up time for covered lamps is unavoidably longer than for bare lamps.
- This is not supported by test results which show average measured run-up times for the majority of tested covered and bare CFLs do meet the requirement of 60 seconds - these data seem to suggest that MEPS could be tightened.

CFL run-up time (source: testing undertaken by the Australian Government in 2010)

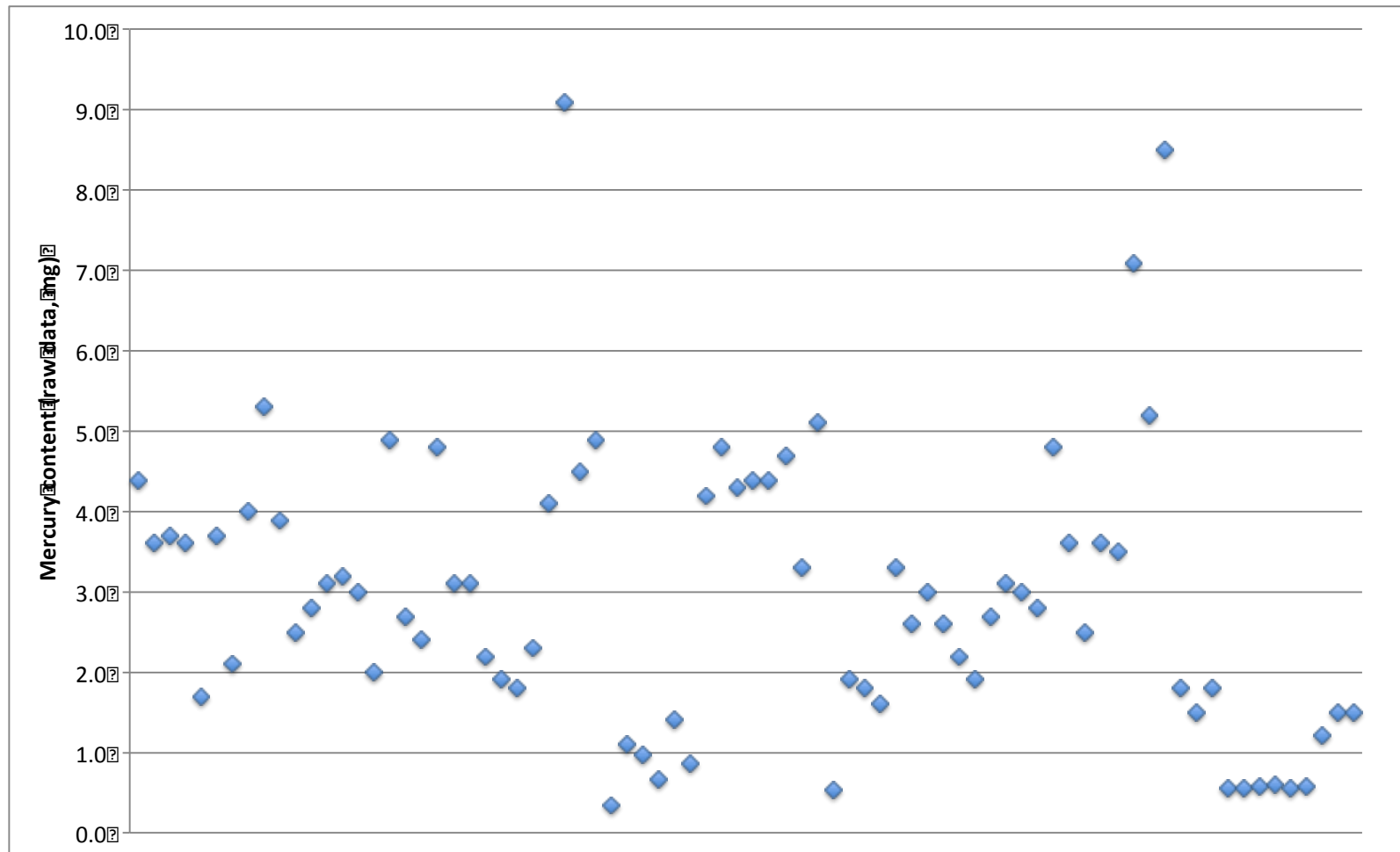
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Mercury – is there room for improvement?

(source: testing undertaken by the Australian Government in 2010)

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Benchmarking for Consumers

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- Providing performance data to consumers allows them to benchmark products when making purchasing decisions
- Translating product performance information into energy rating or endorsement labelling enables consumers to evaluate products
- Smart phones now offer a new way of providing comparison data to consumers in the store as they shop by connecting to online data

Benchmarking for Consumers

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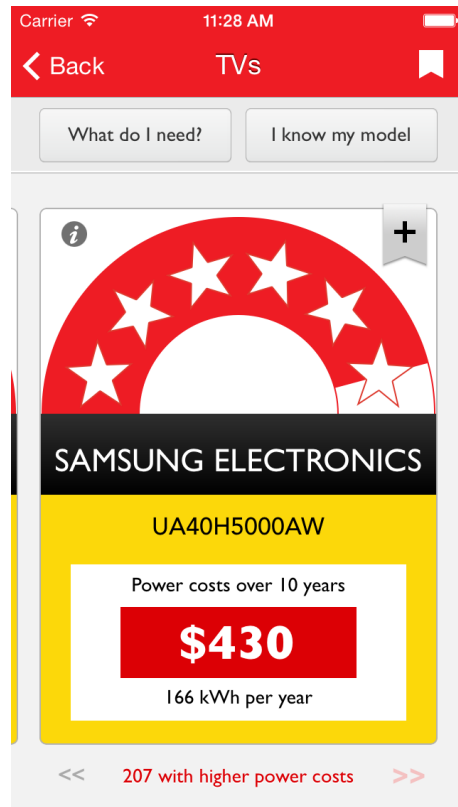
- Australian Government has released an Energy Rating app designed to help households choose energy efficient appliances.
- Based on the energy rating label data, the app is the first of its kind to show power use over the life of a product in dollars, rather than kilowatt hours.



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Benchmarking for Consumers

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- With the app available on mobile phones, consumers will be able to access energy efficiency data at the point of purchase, whether in-store or online, and factor running costs into their purchasing decisions.
- For more information and to download the app: www.energyrating.gov.au