Equipment Energy Efficiency

Survey of Compliance with Registration Requirements - Lamps

Report on Compliance with Energy Efficiency Registration Requirements of Lamps in 60 Australian Stores

December 2013

A joint initiative of Australian, State and Territory and New Zealand Governments.

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Executive summary

This report presents the results of a survey of stores displaying selected types of lamps for sale to assess compliance with mandatory registration requirements. The report was commissioned by the Greenhouse and Energy Minimum Standards Regulator (GEMS Regulator) on behalf of the Commonwealth, state and territory and New Zealand Government members of the Equipment Energy Efficiency (E3) Committee. The survey was project managed by staff within the Australian Government Department of Industry and conducted by employees of the Australian Refrigeration Council Ltd (ARC).

Energy efficiency programs have been in operation in Australia for more than 20 years, and lighting technologies were first regulated in 2003. Since 2012, appliance and equipment energy efficiency programs are mandatory in Australia under the Greenhouse and Energy Minimum Standards Act 2012 (GEMS Act). GEMS Determinations specify the individual product requirements, and all products subject to a GEMS Determination for energy labelling and/or minimum energy performance standards (MEPS) must be registered.

This report details the results of the survey covering the following seven lamp types, where the last five are all types of incandescent lamp:

1. Linear Fluorescent Lamps
2. Compact Fluorescent Lamps (CFL)
3. GLS Tungsten Filament
4. Extra Low Voltage (ELV) Halogen Reflectors
5. Extra Low Voltage (ELV) Halogen Non-Reflectors
6. Mains Voltage Halogen Non-Reflectors
7. Mains Voltage Candle, Fancy Round & Decorative, Tungsten Filament

This survey examined lamps displayed in 60 stores in Sydney, Adelaide and Melbourne and involved the individual inspection of 1,203 lamps offered for sale in those stores between 5 and 20 March 2013. It found that 77% of lamps met the requirement under GEMS legislation to be registered.

27% of incandescent lamps surveyed and 22% of CFLs were found to be unregistered. A smaller proportion of linear fluorescent lamps (16%) were unregistered, which is surprising since this type of lamp has been regulated since 2004. These results compare poorly to previous surveys of registration compliance for other types of products, which have demonstrated compliance rates of 99.4% for whitegoods, 98.9% for air conditioners and 98.2% for televisions.

34% of all unregistered lamps appeared in NSW in stores offering less than 25 lamps models, and particularly in independent supermarkets and hardware/DIY stores. Lamps displayed in larger chain stores tended to have a higher share of correctly registered products.

Brands with none of their lamps found to be registered accounted for nearly half (48%) of the 44 different brands supplying lamps models included in the survey. 27% of brands were found to have all their surveyed models registered.

The results of this survey will be assessed by the GEMS Regulator and responses to instances of possible non-compliance with the Act will be considered in accordance with the GEMS compliance policy.

The number of suppliers found to be selling a high proportion of models without registration suggests that some suppliers may not be aware of their obligations. This indicates that further education and awareness raising is warranted for this product sector. Survey results will be provided to individual retailers surveyed and product suppliers along with information on their obligations under the Act.

The results of the survey provide a benchmark for the Regulator to measure improvements in the compliance of this sector over time. A follow up survey to this survey is proposed for early 2014.

1. Introduction

Appliance & equipment energy efficiency programs are mandatory in Australia under the Greenhouse and Energy Minimum Standards (GEMS) Act 2012. GEMS Determinations specify the requirements for appliances and equipment supplied or offered for supply, or used for commercial purposes in the Australian market. The GEMS Act sets out the offences and penalties if a party does not comply with the requirements.

The hierarchy of the energy efficiency regulatory scheme is as follows:

- The Select Council on Climate Change (SCCC) is comprised of ministerial representatives from the Commonwealth, state and territory governments, the New Zealand Government and the President of the Local Government Association. Jurisdictions which have signed the GEMS intergovernmental agreement participate in decision making for the E3 Program. New Zealand is also part of the E3 Program under the Australia-New Zealand Policy Framework and Funding Arrangement for the Equipment Energy Efficiency Program.
- The Equipment Energy Efficiency (E3) Committee is tasked by the SCCC to investigate the rationale for, and to propose efficiency regulations. The Australian GEMS Regulator together with New Zealand officials participate in developing and enforcing energy efficiency laws.

The E3 Committee works in partnership with stakeholder groups to introduce programs that encourage market transformation by promoting highly efficient equipment, banning from the market products that do not comply with minimum energy performance standards and identifying the energy efficiency of products through appliance labelling.

E3 has repeatedly demonstrated that energy efficient products and systems are both environmentally responsible and cost effective to purchase and install – not only because they consume less energy and thus decrease greenhouse gas emissions – but because in most cases they cost very little, if anything, more than equivalent inefficient appliances. As a result, consumers benefit from whole-of-life cost savings due to lower running costs.

In accordance with its mandate to monitor compliance with energy efficiency regulations, E3 has commissioned three appliance retail outlet surveys throughout Australia since 2009. These include:

- A survey of 24,851 whitegoods (refrigerators, freezers, clothes washers, clothes dryers, and dishwashers) in 265 stores, undertaken in May and June 2009 and published in September 2009. The survey found the national compliance rate for energy labelling was 98.1% and the national compliance rate for meeting the legislative requirement to register products prior to offering them for sale was 99.4% for all inspected whitegoods[1].
- A survey of 3,115 air conditioners in 321 stores, undertaken from May to September 2009 and published in January 2011. The survey found the national compliance rate for energy labelling was 89.1% and the national compliance rate for meeting the legislative requirement to register products prior to offering them for sale was 98.9% for all inspected air conditioners[2].
- A survey of 5,140 televisions displayed in 101 stores throughout Australia between 7 December 2010 and 4 February 2011. It found that 93.2% of televisions were labelled correctly. The compliance rate for televisions complying with legal requirements to register all models prior to being offered for sale was 98.2%[3].

These surveys were undertaken on behalf of E3 by the Australian Refrigeration Council Ltd (ARC).

GEMS legislation for energy labelling and MEPS typically include the following requirements:

- All products within the scope of energy labelling and/or MEPS must be registered. Applications for energy label registration and MEPS compliance are to include:

[1] See http://www.energyrating.gov.au/programs/e3-program/compliance/documents-and-publications/?viewPublicationID=1479
[2] See http://www.energyrating.gov.au/programs/e3-program/compliance/documents-and-publications/?viewPublicationID=2033
[3] See http://www.energyrating.gov.au/programs/e3-program/compliance/documents-and-publications/?viewPublicationID=2031

- Test reports or data to the relevant standard (the number of units to be tested varies – see particular requirements by product).
- A declaration that the relevant performance requirements have been met by the model in addition to the measurement of energy consumption.
- A sample label (where applicable).
- The product meets the MEPS requirements (where applicable).

Responsibility for monitoring compliance with and enforcement of the GEMS Act lies with the GEMS Regulator. The principles adopted by the GEMS Regulator to optimise compliance with the Greenhouse and Energy Minimum Standards Act 2012 (GEMS Act) and other GEMS legislation are included in the GEMS Compliance Policy[4].

As part of the monitoring activities of the GEMS Regulator, this survey was commissioned to assess the level of compliance of regulated lighting technologies with the requirement to be registered under the GEMS Act prior to being offered for sale in Australia. From 1 October 2012 there has been an obligation under Section 12 of the GEMS Act to register products against relevant GEMS determinations. The lighting technologies subject to GEMS Determinations are shown in Table 1 together with the date that energy efficiency regulations first came into force.

Table 1: Lamps Types Covered by GEMS Determinations

Lamp Type	Implementation Date
Linear Fluorescent Lamp Ballasts	March 2003
Linear Fluorescent Lamps	October 2004
Compact Fluorescent Lamps (CFLs)	November 2009
Mains Voltage GLS Tungsten Filament	November 2009
Extra Low Voltage Halogen Non-Reflectors	November 2009
Extra Low Voltage Halogen Reflectors	October 2010
Mains Voltage Candle, Fancy Round & Decorative, Tungsten Filament (>40W)	October 2010
Extra Low Voltage Halogen Transformers/convertors	October 2010
Mains Voltage Halogen Non-Reflectors	January 2011
Mains Voltage Candle, Fancy Round & Decorative, Tungsten Filament (>25W)	October 2012
Mains Voltage Incandescent Reflectors and Mains Voltage Halogen Reflectors	Proposed for October 2013 (revised date pending)

The following sections detail the findings of this survey into lamp registrations.

[4] http://www.energyrating.gov.au/programs/compliance/complaince-policy/

1. Survey Details

This survey of 1,203 lamps was undertaken by ARC staff between 5 and 20 March 2013, in 60 stores located in Melbourne, Sydney & Adelaide.

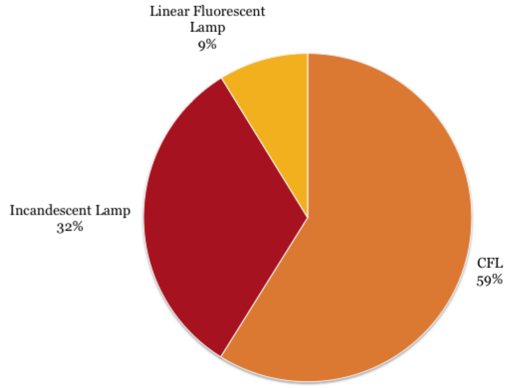
The following seven types of lamps and lighting technology were included in the survey:

1. Linear Fluorescent Lamps
2. Compact Fluorescent Lamps (CFL)
3. GLS Tungsten Filament
4. Extra Low Voltage (ELV) Halogen Reflectors
5. Extra Low Voltage (ELV) Halogen Non-Reflectors
6. Mains Voltage Halogen Non-Reflectors
7. Mains Voltage Candle, Fancy Round & Decorative, Tungsten Filament

As shown in Table 1, all of these lamp types were regulated at the time of the survey and therefore were required to hold an approved GEMS registration.

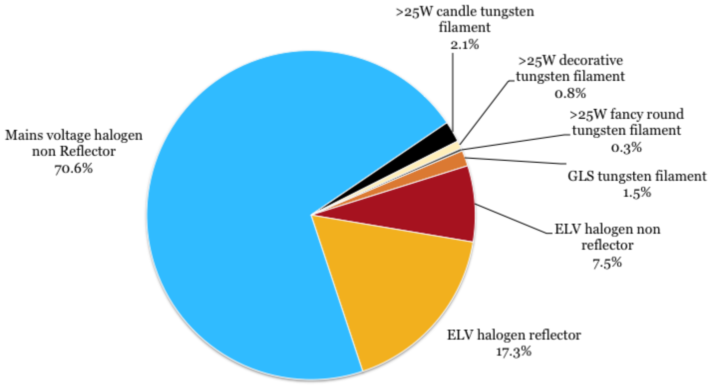
In this report, the lamp types 3-7 are reported as incandescent lamps, and these comprised 32% of the survey sample. 9% of the lamps included in the survey were linear fluorescent lamps, while over half were CFLs, as shown in Figure 1.

Figure 1: Coverage of Survey by Lamp Type



Of the 388 incandescent lamps included in the survey, the large majority (274) were mains voltage halogen non-reflector lamps, as shown in Figure 2.

Figure 2: Coverage of Survey by Incandescent Lamp Type



The stores surveyed were divided into one of three categories based on the total number of lamps on public display:

Large stores had 50 or more displayed lamp models;

Medium stores had between 25 and 49 displayed lamp models; and

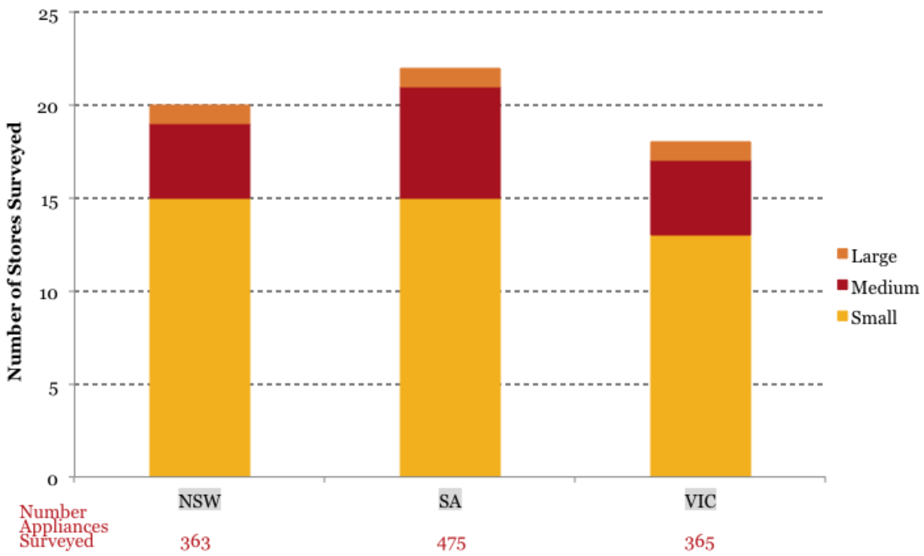
Small stores less than 25 displayed lamp models.

Of the 60 stores surveyed, 3 were large stores, 14 were medium stores and the balance of 43 were small stores. The distribution of the surveyed outlets in each state, together with number of appliances surveyed, is shown in Table 2 and Figure 3.

Table 2: Number of Stores and Lamp Models Surveyed by State

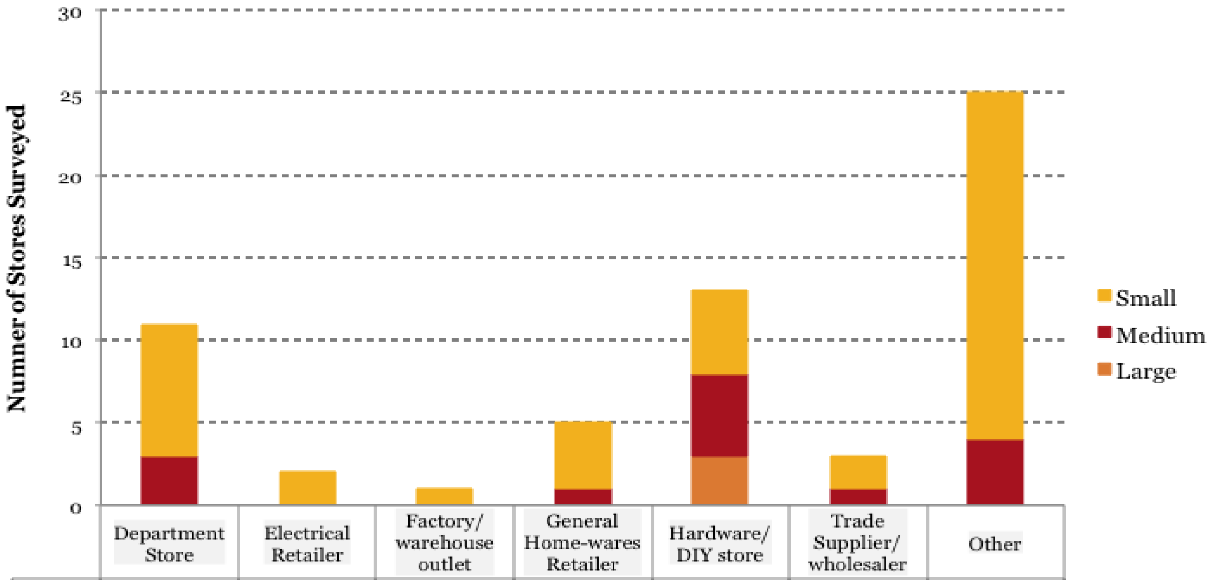
	NSW	SA	VIC	Total Stores	Total Appliances
Small	15	15	13	43	525
Medium	4	6	4	14	469
Large	1	1	1	3	209
Total Stores	20	22	18	60	
Total Appliances	363	475	365		1,203

Figure 3: Number of Stores and Lamp Models Surveyed by State



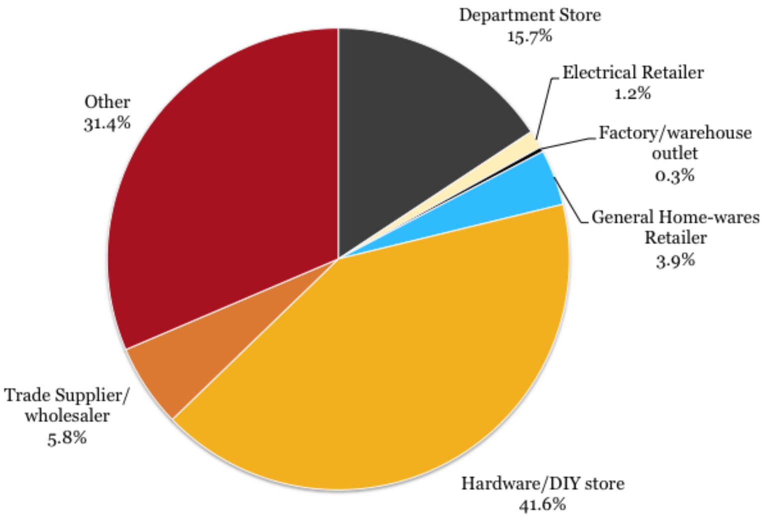
Over 80% of the 60 stores surveyed were classified as 'Other', 'Hardware and DIY' or 'Department' stores, as shown in Figure 4. These three store types also accounted for 89% of all lamps included in the survey, as shown in Figure 5. The majority of stores included in the 'Other' category comprised of national supermarket chains including independents.

Figure 4: Distribution of Stores Surveyed by Type of Retail Outlet and Size



	Department Store	Electrical Retailer	Factory/ warehouse outlet	General Home-wares Retailer	Hardware/ DIY store	Trade Supplier/ wholesaler	Other
Small	8	2	1	4	5	2	21
Medium	3	0	0	1	5	1	4
Large	0	0	0	0	3	0	0

Figure 5: Distribution of Lamp Models by Type of Retail Outlet Surveyed



2. Registration Results

This section describes the detailed results of the 1203 models included in the survey.

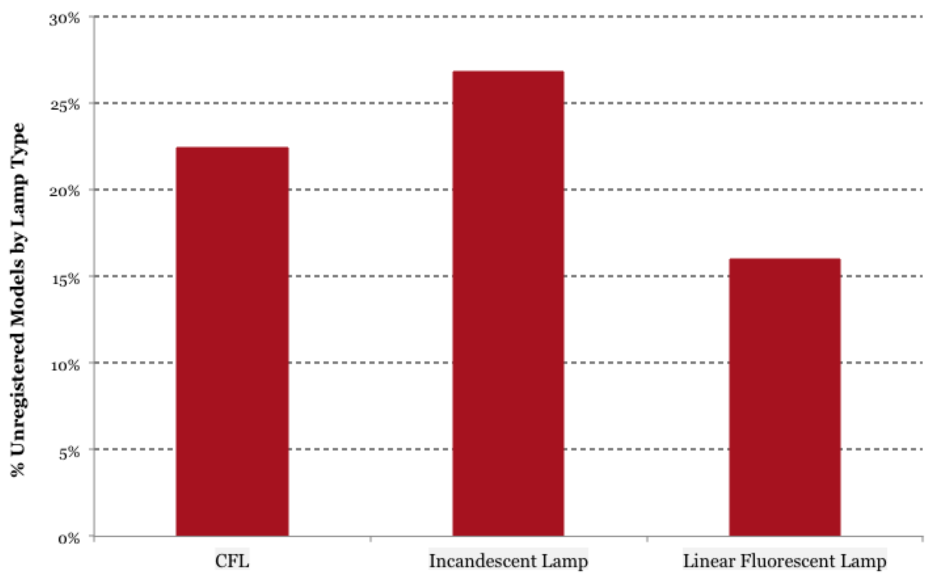
Results by Lamp Type

A total of 280 (23%) lamps included in the survey were found to be unregistered. The largest proportion of lamps found to be unregistered were incandescent lamps (27%) and 22% of CFLs were also unregistered. Linear fluorescent lamps, which have been regulated since 2004, represented a smaller sample size in this survey and had only 16% of unregistered models, as shown in Table 3 and Figure 6.

Table 3: Rate of Compliance with Registration Requirements by Lamp Type

Lamp Type	Number Models Surveyed	Number Unregistered Models	% Unregistered Models by Lamp Type	Unregistered as % of All Lamp Models Surveyed
CFL Lamp	709	159	22%	13%
Incandescent Lamp	388	104	27%	9%
Linear Fluorescent Lamp	106	17	16%	1%

Figure 6: Rate of Compliance with Registration Requirements by Lamp Type



Amongst the incandescent lamps included in the survey, the highest proportion of unregistered lamps was found in those categories first regulated in October 2012 (candle, decorative and fancy round tungsten filament lamps). Since these lamp types were only regulated six months prior to this survey and the sample sizes are small, these results should be treated with caution. [5]

6 GLS tungsten filament lamps were found being offered for sale in stores, although these would not comply with the minimum energy performance standard introduced in 2009 unless they were imported prior to November 2009.

There was considerable variation between the proportion of unregistered lamps in the categories of mains voltage and extra low voltage reflector and non-reflector lamps currently regulated, as shown in Figure 7 and Table 4.

[5] Models imported into, or manufactured in Australia before the commencement of legislation covering that product type are not subject to registration requirements unless their manufacture or import continues beyond the commencement of legislation.

Figure 7: Rate of Compliance with Registration Requirements by Incandescent Lamp Type

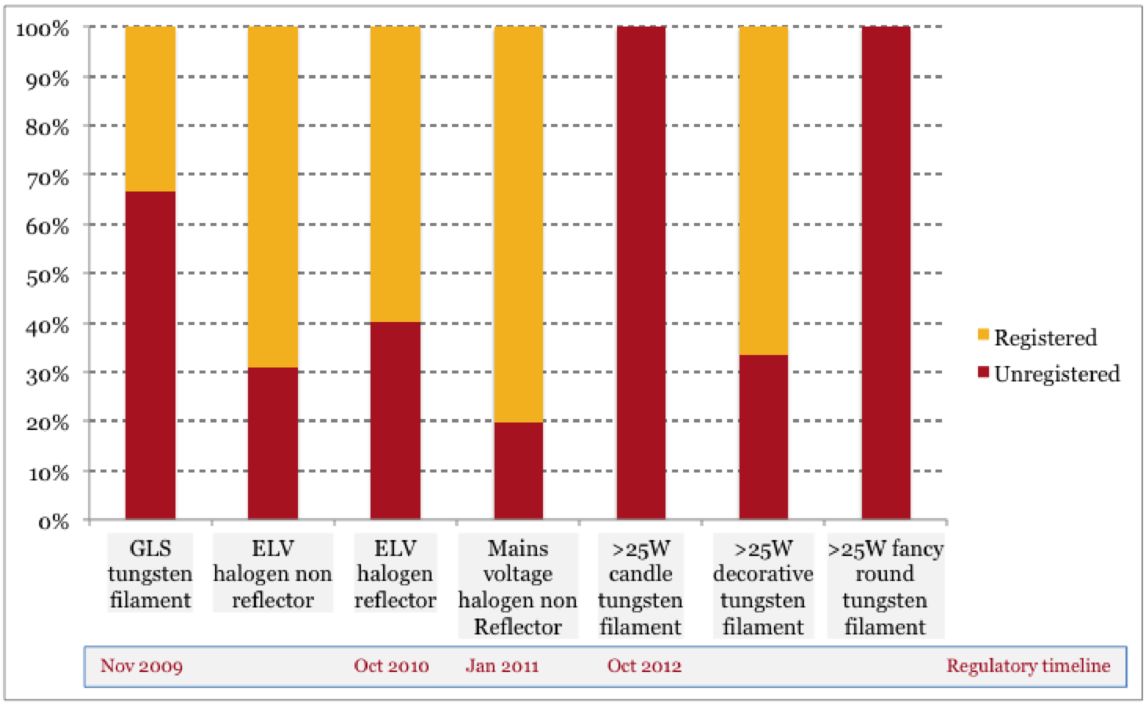


Table 4: Survey Results by Incandescent Lamp Type

Lamp Type	Sample	Unregistered
GLS tungsten filament	6	4
ELV halogen non reflector	29	9
ELV halogen reflector	67	27
Mains voltage halogen non Reflector	274	54
>25W candle tungsten filament	8	8
>25W decorative tungsten filament	3	1
>25W fancy round tungsten filament	1	1
Total	388	104

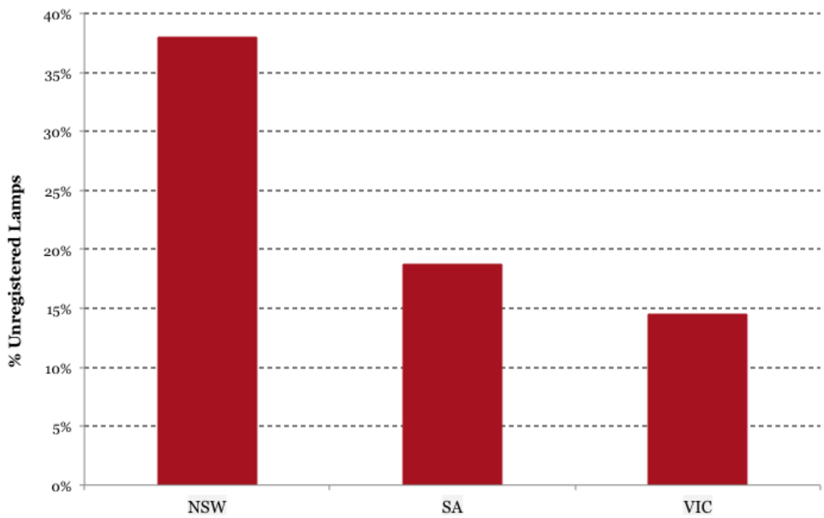
Results by State

38% of the lamps surveyed in NSW were found to be unregistered, compared to 19% in South Australia and 15% in Victoria. Since a different number of lamps were surveyed in each State, the proportion of all surveyed lamps found to be unregistered in NSW, South Australia and Victoria were 11%, 7% and 4% respectively (see Table 5 Figure 8).

Table 5: Unregistered Lamps by State

Item	NSW	SA	VIC	Total
Number of Lamps surveyed	363	475	365	1203
Number Unregistered Lamps	138	89	53	280
% Unregistered by State	38%	19%	15%	23%
Unregistered as % of Total Lamps Surveyed	11%	7%	4%	23%

Figure 8: Unregistered Models by State



Results by Store Size

Small stores were found to have the largest proportion of unregistered lamps (33%). One fifth of lamps surveyed in large stores were also unregistered, as were 14% of lamps in medium sized stores (see Table 6 and Figure 9).

Table 6: Unregistered Lamps by Store Size

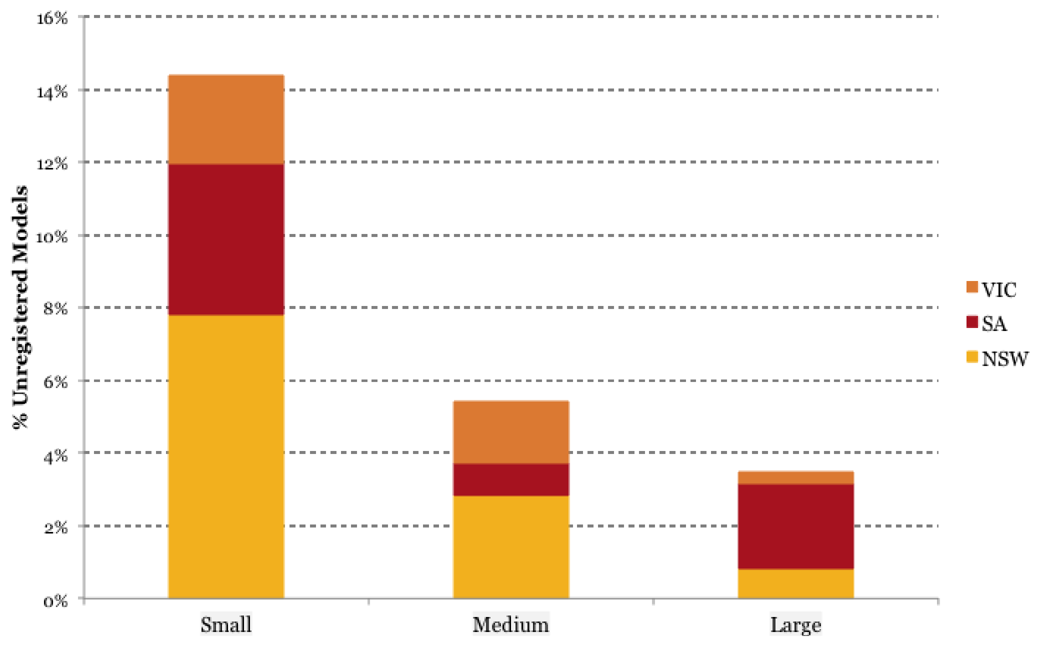
Store Size	Total Stores	Total Appliances	% Unregistered by State
Small	43	525	173 (33%)
Medium	14	469	65 (14%)
Large	3	209	42 (20%)
Totals	60	1203	280 (23%)

Accounting for the distribution of the survey, small stores in NSW showed the highest rate of unregistered lamps (8% of all lamps surveyed), followed by small stores in SA (4%) and medium sized stores in NSW (3%). The fewest unregistered lamps were found in large stores, with large stores in Victoria having the best results (see Table 7).

Table 7: % Unregistered Lamps by Store Size and State

Store Size	NSW	SA	VIC	Total
Small	8%	4%	2%	14%
Medium	3%	1%	2%	5%
Large	1%	2%	0.3%	4%
Total	11%	7%	4%	23%

Figure 9: Unregistered Lamps by State and Store Size as % of all Surveyed Models



Lamp Registrations by Store Type

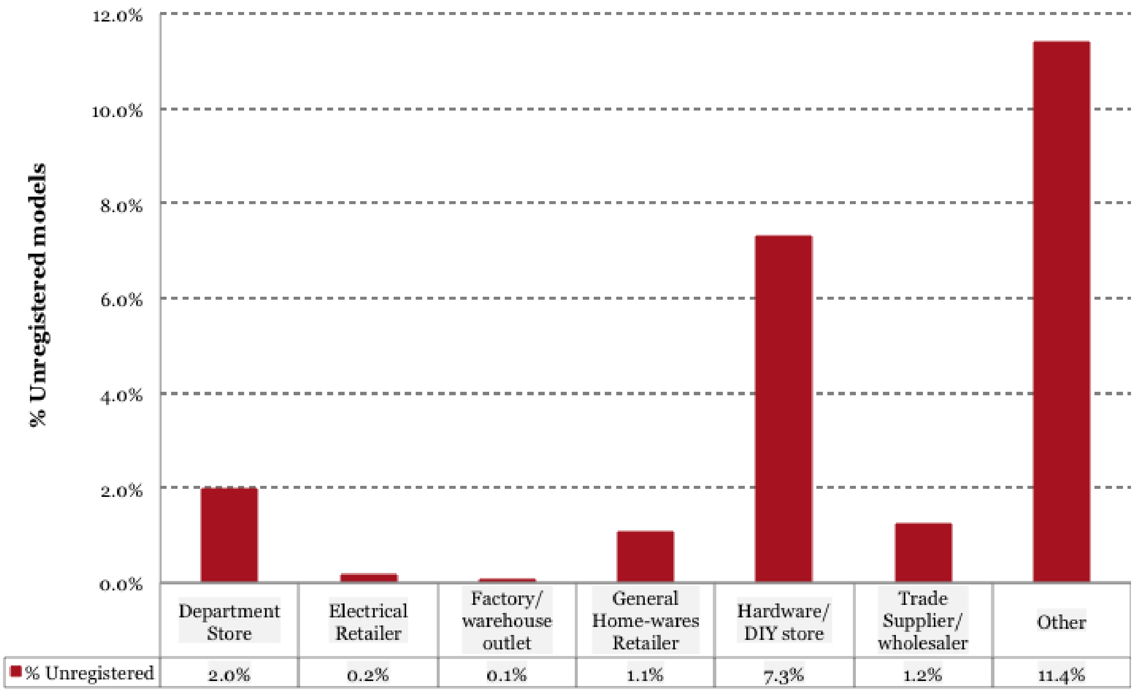
The largest proportion of unregistered lamps were found in stores classified as 'Other' (36%), followed by 'General Home-wares Retailer' (28%) and 'Factory/warehouse outlet" (25%) (see Table 8). Although 'Department Store' and 'Electrical Retailers' showed the lowest proportion of unregistered lamps amongst all types of stores (13%), the latter result, as well as that for 'Factory/warehouse outlet', should be treated with caution due to the small sample sizes.

Table 8: Number of Lamps Surveyed and Unregistered Lamps by Store Type

	Appliance Sample Size	Unregistered	% Unregistered per Store Type	Unregistered as % of All Lamp Types Surveyed
Department Store	189	24	13%	2%
Electrical Retailer	15	2	13%	0.2%
Factory/warehouse outlet	4	1	25%	0.1%
General Home-wares Retailer	47	13	28%	1%
Hardware/DIY store	500	88	18%	7%
Trade Supplier/wholesaler	70	15	21%	1%
Other	378	137	36%	11%

Accounting for the distribution of the survey, the large share of unregistered lamps was found in 'Other' types of stores, which mainly comprise supermarkets (11%). 7% of lamps were unregistered in 'Hardware / DIY store' and 2% in 'Department store' (see Figure 10).

Figure 10: Unregistered Lamps by Store Type as % of all Surveyed Models



Lamps Registrations by Chain

Stores classified as chain stores accounted for 47% of all stores and 91% of all lamp models included in the survey. These stores were divided into three categories by size, as follows:

Large chains more than 80 displayed lamp models;

Medium chains had between 10 and 80 displayed lamp models; and

Small chains less than 10 displayed lamp models.

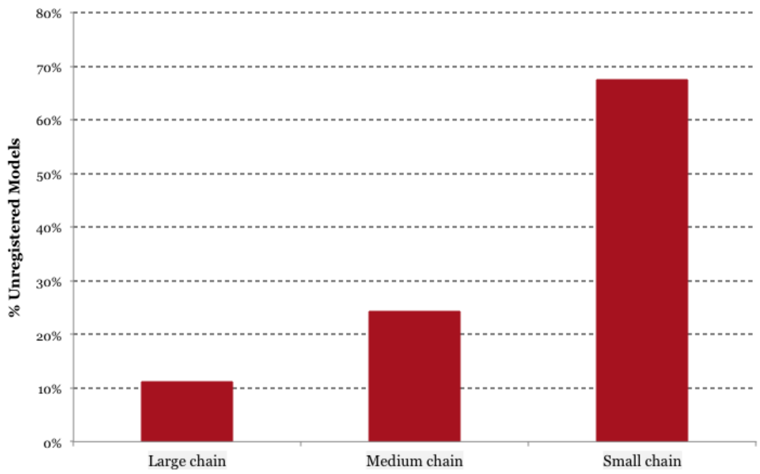
The largest proportion of unregistered lamps were found in small chain stores (67%), with the least found in large chain stores (11%) (see Table 9 and Figure 11).

Overall, 19% of lamps displayed in chain stores were found to be unregistered, compared to 23% across all stores surveyed. Taking account of the distribution of the survey, most unregistered lamps were found in medium-sized chain stores (10%), followed by large chain stores (6%) and small chain stores (3%).

Table 9: Unregistered Lamps by Chain Size

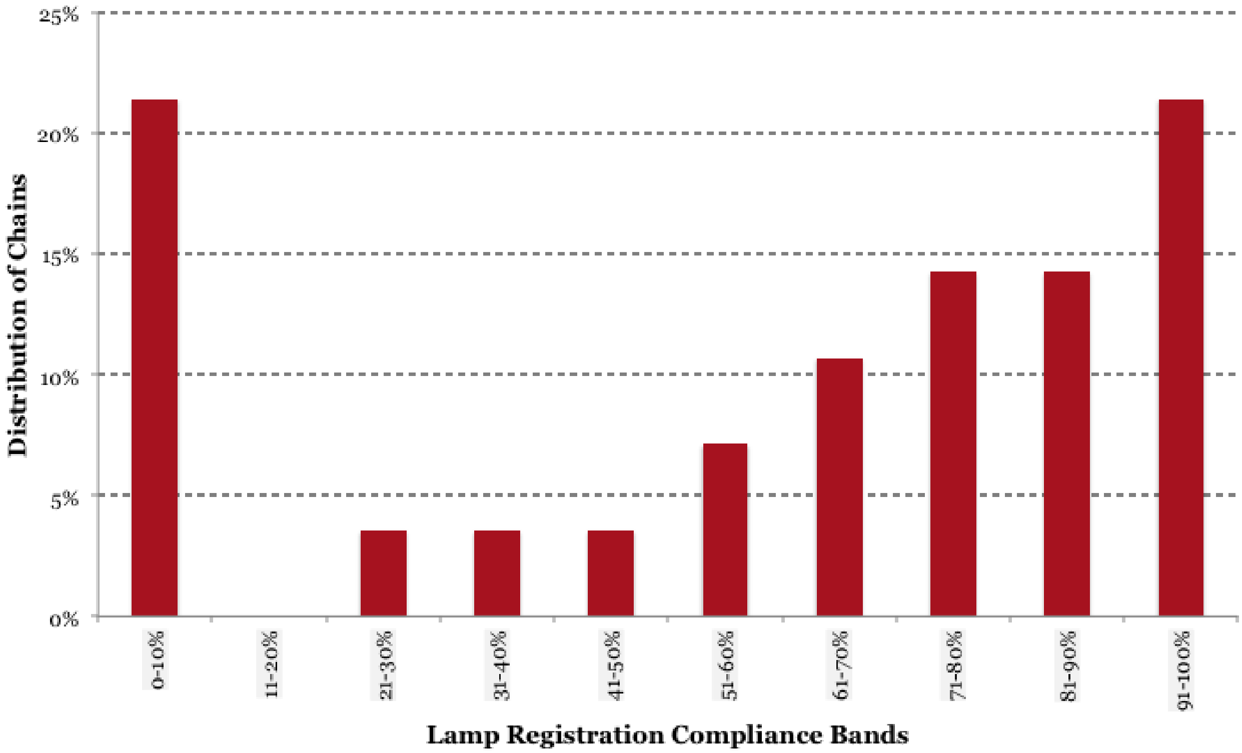
	Number	Models Inspected	Unregistered Models	% Unregistered by Chain size	% Unregistered from Total Sample
Large Chain	4	614	68	11%	6%
Medium Chain	15	442	107	24%	10%
Small Chain	9	43	29	67%	3%
Total	28	1099	204		19%

Figure 11: Unregistered by Chain Size



21% of chains included in the survey had 91-100% of models correctly registered, and the same proportion of chains had 0-10% of the models offered for sale correctly registered, as shown in Figure 12.

Figure 12: Rate of Registration Compliance by % of Chains



3. Conclusions

Compared to the results of previous surveys into the compliance of appliances in Australia with mandatory registration requirements, a higher proportion of lamps are failing to register in accordance with regulatory requirements than for whitegoods, air conditioners and televisions.

As shown in Figure 13, linear fluorescent lamps have a higher level of registration compliance than other lamp types, but are still less compliant than the other appliances, even though linear fluorescent lamps have been subject to regulations since 2004 and therefore suppliers should be aware of the requirements (see Table 10).

The rate of registration compliance for CFLs compares poorly to televisions, even though mandatory requirements for both were introduced at approximately the same time (2009[6]). Regulations for incandescent lamps have been introduced progressively since 2009, with the most recent coming into force in October 2012, which may account for the lower registration rate.

Figure 13: Comparison of Registration Compliance from Australian Surveys

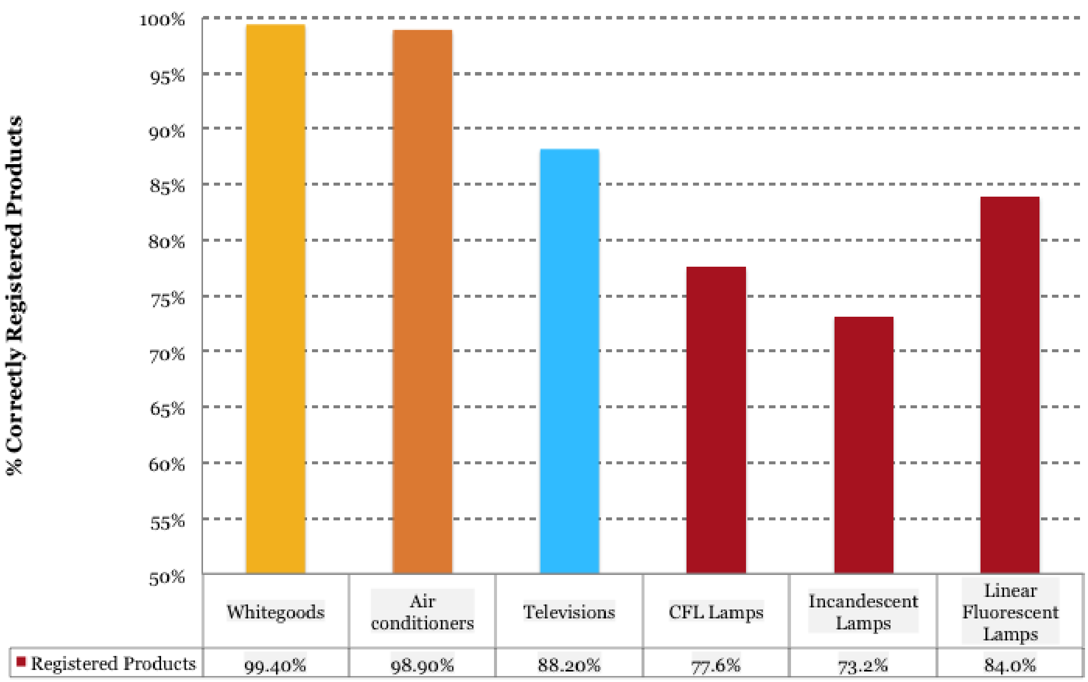


Table 10: Registration Compliance from Australian Surveys

Product Category	Registration Compliance Rate	Date Regulation Introduced	Date of Survey
Whitegoods	99.4%	1992	2009
Air conditioners	98.9%	1992	2009
Televisions	88.2%	2009	2011
CFL Lamps	77.6%	2009	2013
Incandescent Lamps	73.2%	2009	2013
Linear Fluorescent Lamps	84.0%	2004	2013

[6] The introduction of regulations for televisions were preceded by a voluntary labeling program, which meant that many suppliers were aware of the need to register well in advance of mandatory regulations.

Since the introduction of GEMS legislation on 1 October 2012 there has been an obligation under Section 12 of the GEMS Act to register products against relevant GEMS determinations. The results of this survey will be assessed by the GEMS Regulator and responses to instances of possible non-compliance with the Act will be considered in accordance with the GEMS compliance policy.

The number of suppliers found to be selling a high proportion of models without registration suggests that some suppliers may not be aware of their obligations. This indicates that further education and awareness raising is warranted for this product sector.

Survey results will be provided to individual retailers surveyed and product suppliers along with information on their obligations under the Act.

The results of the survey provide a benchmark for the Regulator to measure improvements in the compliance of this sector over time. A follow up to this survey is proposed for early 2014.

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