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**A Research Study Assessing the 'Change the Globe'  
Point-of-Sale (POS) Material Campaign and Guiding  
Further Communication Supporting the Phase-Out of  
Inefficient Incandescent Light Bulbs Program**

**Conducted for**



**Australian Government**  
**Department of Climate Change  
and Energy Efficiency**

**during October 2010**

**Final Report**  
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# Executive Summary

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## Background to the Study

On 20 February 2007, the Australian Government announced its intention to phase-out inefficient incandescent light bulbs by 2012. The first range of inefficient incandescent light bulbs that were phased out involved the general lighting service (GLS) or traditional pear-shaped incandescent versions. The traditional incandescent light bulb is one of a range of incandescent light bulbs being removed from the Australian market in a phased approach up to 2012.

From May 2009 a range of POS materials was developed, tested and disseminated as part of the first stage of the communication strategy for the *Phase-out of Inefficient Incandescent Light Bulbs Program*. This POS material focussed on educating consumers (and store assistants) in-store of the most appropriate energy efficient lamp alternative to the traditional incandescent light bulb. In mid-2010, Winton Sustainable Research Strategies Pty Ltd (WSRS) was commissioned to undertake a research study, the overall objectives of which were to assist with:

- Assessing the current situation:
- Evaluating the existing POS materials:
- Investigating future communications needs:

The research approach involved a series of qualitative focus group discussions, small group sessions and in-depth interviews and quantitative telephone interviews, emailed questionnaires and face-to-face meetings with 195 consumers, 166 specifiers and installers, 131 suppliers, and six industry stakeholders, totalling 498 people, in New South Wales, Victoria, Queensland and Western Australia.

## Response to the Initial Phase-Out Announcements

Several years after the original announcement and a year after sales were restricted, most people now know that incandescents are no longer available (or very hard to find) in retail stores. Indeed, half or more claim to have known for three years or more.

Whereas consumers tended mainly to have first become aware of the phase-out from a retailer, the media or a Council program (eg, giveaway and free installation of CFLs), specifiers and installers were more likely to have first heard about it from announcements from an industry or regulatory body or their lighting supplier, and retailers were mainly likely to have first heard from one or several of their lighting suppliers.

## Response to Publicity, Advertising and Support About the Phase-Out

As indicated earlier, many people already knew incandescents were going to be phased out before the POS campaign materials and associated publicity were released. When asked to recall if they had seen or heard or read any of a prompted list of various kinds of advertising and publicity concerning the phase-out since about the middle of last year, substantial majorities could recall something:

- Consumers recalled mainly media announcements, various POS materials and media advertising, but with three in ten recalling nothing,
- Specifiers and installers recalled mainly media announcements, contacts by suppliers or industry bodies and POS materials,

- Suppliers (retailers and wholesalers) recalled mainly media announcements and POS materials, and.
- Overall, response to the phase-out has generally been quite positive across all target audiences, with most people transitioning relatively smoothly to alternative lighting technologies.

In addition, all target audiences except consumers were asked whether they had received any advice or support in implementing the phase-out. In response, while most specifiers and installers received some kind of support or advice, less than half of the retailers did so:

- With both specifiers and installers the main forms of support or advice received were trade materials or brochures, website links or references and training courses,
- With suppliers (retailers and wholesalers), the main forms of support or advice received were trade materials or brochures, POS materials and website links or references.

While opinions vary somewhat, the broad consensus across the target audiences is that lighting contributes around 10% to 15% of the average household electricity bill. This corresponds closely with figures provided by Energy Efficient Strategies, who estimated the lighting electricity for the residential sector to be 27.8 PJ out of total residential electricity of about 213 PJ, or 13%<sup>1</sup>.

While people see potential environmental benefits in lowering this proportion through the change to more energy efficient light bulbs, many are less convinced that it will also deliver cost savings. Nonetheless, in late 2010 vast majorities (around eight in ten or more) of all target groups examined say that having energy efficient lighting is very or quite important to them.

### **Perceptions of Alternatives to Incandescent Light Bulbs**

Most retail stores contacted in this study maintained that they had more or less exhausted their stocks of standard incandescent light bulbs by now, although among the retail stores we visited in person (around 45 stores of various types and sizes) rather than interviewed by phone or email, many still had small quantities of one or several sizes, and a few (mostly lighting shops) said they held stocks in reserve mainly for trade customers with specific needs. On the other hand almost all stores continue to stock incandescent candle and fancy round globes and occasionally other special types, shapes and/or colours.

Most stores now carry CFLs and some MVHs (ie, similar in look to incandescents), among whom a growing number say their stocks of MVH are increasing (some already equal their CFL stocks in popular sizes) as customers become more aware of them, although most still claim to be selling (far) more CFLs than MVHs at this stage. So far it is really only larger and more specialist stores that carry regular stock of LEDs or other types of globes.

Many stores are self-serve, and even in those stores with sales staff (behind the counter or roaming), most say they tend to let customers buy what they want or ask for, rather than steering them towards one technology or another.

As expected, virtually everyone has heard of CFLs as an alternative to incandescents by now, and most also mention extra lower voltage halogens in this light. MVHs are also viewed in this way by

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<sup>1</sup> Energy Efficient Strategies 2010: Personal communication, Lloyd Harrington, November 2010

majorities of specifiers, installers and suppliers. However only a minority of consumers (around four in ten) have heard of MVHs or see them as an alternative to CFLs. LEDs are known as alternatives to incandescents by majorities of specifiers and installers, but only by minorities of consumers and suppliers. Given that CFLs have been around for a relatively long time and have become very well-known, most people have clear and often strong opinions about them. Many people have a love-hate relationship with them, disliking one or several of their functional characteristics and purchase price outlay while at the same time acknowledging their high energy efficiency and longevity.

MVHs are far less familiar to people than CFLs. Most consumers know little about them, a few who have examined MVHs more closely believe they are not much better than incandescents in terms of efficiency, some assume that they are simply a new or updated version of the incandescent bulb (and therefore wonder why they have not been phased out yet). On the other hand, many people prefer the physical shape, overall look, and colour and brightness of MVHs and for those reasons may increasingly purchase them in preference to CFLs, as they become more familiar with them.

Although many find the numbers of watts to be “a bit odd” with MVHs, most simply look for the incandescent watts equivalent on the packaging to understand how bright they are. However, some people, and particularly those thinking they are a newer incandescent, appear to be choosing the closest wattage, hence installing a light that is brighter and uses more energy than is necessary.

LEDs seem to be better known as car headlights or for their use in torches, than as lights for a home, and (therefore) for having a narrow or concentrated beam. A few have investigated replacing halogen downlights with LEDs, but only very few have so far installed LEDs.

### **Residual Concerns and Knowledge Gaps**

While most people have by now more or less successfully transitioned to one or several alternatives to incandescent light bulbs, many still have residual concerns, misconceptions and gaps in their knowledge and understanding of different aspects of the new lighting regime. These concerns, misconceptions and knowledge gaps are outlined below.

#### *Colour of Light*

Few consumers or retailers and only a moderate majority of specifiers and installers, appear to have much of an understanding of the different colours available in CFLs. And indeed, the range of colour temperatures is generally poorly represented in many retail stores, particularly the smaller supermarkets, hardware stores and the like, where often only one colour will be available in some or most sizes. In some of the larger stores, different colour temperatures are mixed up in the bins. In many cases colour temperatures are not named clearly, or at all, on the packaging, and colour coding if it exists, is not clearly described.

#### *Perceived Efficiency/Inefficiency of Halogens*

Consumers are far less aware of or familiar with MVHs than they are of CFLs. At first consumers are very interested in them as their similarity to old incandescents suggests immediately that they are a more suitable choice than CFLs. However, as they look closer, opinions divide:

- Some people see them as far closer to old incandescents in (in)efficiency than to CFLs, and therefore say they would not buy them.
- Many others recognise their relative inefficiency, but say they would buy them anyway because of their positive features compared with CFLs.

- Probably the largest group seems reasonably happy with the efficiency of MVHs, given that they are still (marginally) better than old incandescents, and therefore would buy them.

### *CFLs not Fitting*

The fact that CFLs do not fit into many old lamp or chandelier fittings is widely known and discussed elsewhere. What we found in this study is that many people have also experienced difficulties in fitting CFLs in what they describe as standard light sockets in their houses, with the bulbs not being able to be pushed deep enough into the socket for the thread to catch (screw fitting) or the pins to engage (bayonet fitting). Many others say they have fittings where the CFLs will appear to be inserted correctly and light up, only to fall out of the socket later. While problems of fit with standard house sockets seem mainly to occur with older houses, a few instances in new houses were also reported.

### *Questions of CFL Brightness and Colour*

Perhaps the most widespread concern about CFLs relates to their brightness and colour – the two are often mentioned together. Although almost all consumers are satisfied with the brightness and colour of at least some of the CFLs they have installed, few are satisfied with all of them. A great many consumers reported at least some CFLs that were too dull or at least less bright than they had expected, whereas hardly anyone had experienced CFLs that were brighter than they expected. Many consumers (also) comment on the variability of brightness of CFLs, even those coming from the same batch. As mentioned elsewhere, the lack of consumer understanding of the colour range of CFLs is rife. This research also reveals that the range of colours of CFLs available in many stores (especially many smaller stores) is quite limited (often only cold white) and often inconsistent from size to size.

### *Other CFL Issues*

Various other issues emerged in relation to CFLs, including the following:

- Some people are adamant that that least some of the new CFLs they have purchased (recently) flicker regularly.
- The incidence of some new CFLs taking some time to reach full brightness was also fairly widely reported.
- A not insignificant minority of consumers across all four states in the study report leaving at least some CFLs switched on 24/7 or at least switched on during the whole day in the belief that they will use less power and/or that they will last longer than if they are turned on and off (more) frequently.
- A number of consumers mentioned exploding CFLs. While some of these instances had occurred a while ago, some others involved quite recently purchased CFLs.
- Some consumers suggest CFLs are easily broken during handling and installation and withdrawal.
- While some consumers and many specifiers and installers talk about the need to dispose of spent CFLs thoughtfully, they query why more provision is not made by retail stores that sell them or local councils for their safe disposal. On the other hand most consumers and a few specifiers see no need to handle their disposal any differently from other glass items.
- After the initial shock, most consumers do see that the longer term cost benefits of CFLs potentially outweigh the initial purchase cost. However, the initial cost continues to be a concern to others.



- Although some dimmable CFLs are now available, many experts question their effectiveness and reliability.

### *Limited beam width of LEDs*

Limited beam width is currently a key perceived limiting factor concerning the growth of LEDs.

### *The Role of Downlights*

Several consumers and a few specifiers and installers raised issues to do with downlights, mainly related to doubts about their efficiency and safety.

### **Recall of the Existing Point-Of-Sale Materials**

As indicated earlier, less than half of the sample recalled seeing any point-of-sale materials to do with the phase-out (consumers 31%, specifiers 27%, installers 41%, suppliers 38%). This relatively low unaided recall level was clarified when selections of the point-of-sale materials were subsequently examined in the consumer focus groups and in most face-to-face interviews and small group sessions with specifiers, installers and retailers.

Given that it more than a year since POS materials were made available, it is perhaps to be expected that few of the retail outlets would be displaying it now (one specialist lighting chain being the notable exception, who were still displaying posters – the one light on the hill). What is interesting, however, is that many retailers interviewed for this study now had little or no recall of being offered, or receiving or displaying the POS material at the time, or in some cases were not working there at the time. Some could remember receiving, and in most cases displaying, one or two of the POS items, but maintained that they had long since been discarded mainly because they were thought to have “done their job” and/or because they were torn or dirty.

At the stores visited in person apart from the specialist lighting chain mentioned above, we saw little evidence now of any POS materials (ours or anyone else’s) for light globes other than the packaging itself, the quality, information content and readability of which varies immensely. In addition to the substantial minority of consumers who had clearly seen and taken note of one or more of the POS items there were many others to whom elements of it, such as the stylised CFL image or the headline (“Change the Globe”) or the Conversion Guide, at least “rang a bell” even though they did not recall seeing the whole item. Some also had vague memories of a hip-pocket-related ‘save money, save energy’ theme, while some others felt it had a climate change-related ‘reduce emissions, save the planet’ theme. Given that most people claimed to have visited a retail store only once or twice, if at all, in the last year or so to buy light bulbs, the vagueness of recall is not unexpected.

On the other hand there is quite reasonable prompted awareness of the POS materials (Did you see these items?), at around 39% of consumers, 48% of specifiers and installers and 53% of suppliers. Prompted awareness was heavily skewed towards the wall posters, with relatively little recall of the other items. Among those who did recall seeing specific CTG POS items, few could now recall in precisely which store(s) they saw them, with lighting stores, hardware stores and supermarkets (in that order) being the main mentions. In most cases people thought it had been “some time ago” (eg, last year or early this year), with only a few mentions of recent sightings (mostly Beacon Lighting).

While most maintained that they had already known about the phase-out of incandescent lights before seeing the POS, some others maintained that the POS had alerted them to it. However, at the time most were still able to purchase their desired incandescents as stock was still available.

Given that most people were aware of CFLs before the POS campaign, but far fewer knew much if anything about MVHs (and many still do not know much at all about them), the POS campaign was seen mainly as promoting or reinforcing a 'change to CFLs' message.

### **Response to the Existing Point-Of-Sale Materials**

An examination of the POS materials in the consumer focus groups and in most face-to-face interviews and small group sessions with specifiers, installers and retailers generally confirmed the findings and recommendations of our earlier study<sup>2</sup> which guided their development.

The stylised CFL together with the headline 'Change the Globe' (used in all the materials) was viewed widely as a strong call to action to change from incandescents to CFLs, and many saw this as also suggesting that the world would be better off as a result. In several of the posters, the exclamatory question ('What's in it for me?') was arresting and the body copy answer reinforced the changeover to CFLs. The equation used in most items reinforced both ideas (better for the environment, and saving you money).

The Light Globe Conversion Guide contained in some posters and on one side of the tear-off pads also tested well, except for the lumens column which many perceive as unhelpful or irrelevant (see discussion elsewhere), and for some, the Halogen column as designated by what to them looks like an incandescent bulb. Most consumers seem not to be aware of halogens, except perhaps as downlights (again, see discussion elsewhere). On the other hand the Globe Comparison Chart, although useful to some for its efficiency and energy saving information, was of far less value to most than the Light Globe Conversion Guide.

Inclusion of a column in the Light Globe Conversion Guide depicting the equivalent number of lumens of light output in each row was negatively viewed, often rejected, by many consumers and some specifiers and installers. Clearly most consumers are not familiar with the term, but there is far more to their views than that. People are quite used already to comparing the brightness of CFLs in watts with the equivalent watts level of incandescents. They also see the 'roundness' of the incandescent watts levels as the norm. On the other hand, the magnitude of the lumens figures ("in the hundreds and thousands") is alien to them, a hesitancy compounded by the perceived-as-artificial preciseness of the lumens numbers ("rounded to the nearest ten"). Whether or not the decision is made to continue to include a lumens column in brightness comparison tables in order eventually to educate people, continued inclusion of the incandescent watts column would seem to be mandatory if current relevance and usefulness of the comparison table is to be retained. MVHs are also already included in the table and indications are that its relevance is increasing as people come to know the technology. Other new technologies can be added as they enter the consumer market.

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<sup>2</sup> See our *Final Report on a Qualitative Research Study Testing Point-of-Sale (POS) Concepts for the Phase-out of Inefficient Incandescent Light Bulbs Project*, conducted for the E3 Committee through the Department of the Environment, Water, Heritage and the Arts, Canberra ACT, 28 November 2008



## Investigating Future communications Needs

Whether they had seen the POS materials or not prior to this research, most people thought that it was no longer needed in its current format as the phase-out has largely occurred (although limited stocks still exist in some shops). Most retailers also held this view. However, many consumers (and some specifiers and installers) still lack confidence in choosing the right globe and felt that there was an ongoing need for some kind of POS material containing information to assist with one or more of the following:

- a. Continuing to help people choose the appropriate brightness of light to meet their needs.
  - The Conversion Guide does this well, but needs to be readily available (eg, as a tear-off sheet) where people buy light bulbs, as well as on relevant websites, in home improvement publications, etc.
- b. Helping people choose the appropriate colour or mood of light to meet their needs.
  - A user-friendly guide is needed to provide a clear description of all the different colours and moods of CFLs (and other lights as appropriate) and how these affect their comparative brightness as well.
- c. Introducing and clearly explaining mains voltage halogens (MVHs), light emitting diodes (LEDs) and any other new(er) technologies in residential lighting as they emerge.
  - There is a role for a simple, brief publication listing and clearly displaying the various new lighting technologies, describing their features and characteristics and outlining their key advantages and disadvantages. Again, inclusion of this information on relevant websites and in home improvement publications, etc should be explored.
- d. Giving timely warning and explanation of future lighting phase-outs.
  - A case in point is the imminent phase-out of greater than 40W candle, fancy round and decorative lamps. Consumers may be concerned that their lights will lose their appeal with 40W globes. However, several of the experts interviewed for this study maintain that once MEPs are applied to 40W globes in conjunction with the phase-out, all 40W lamps left on the market will be as bright if not brighter than many of the poorer quality 60W lamps available today.
- e. Providing advice or FAQs on a range of common concerns and issues (mainly to do with CFLs), eg, flickering, slow start-up, mercury, correct disposal, etc.
  - The Department has already made fact sheets available on the Website<sup>3</sup> on a number of relevant issues, with some being referred to by at least several consumers in this study. The repertoire could be expanded to include various other issues about which consumers, specifiers and installers interviewed in this study would like more information, clarification and advice.

While all the above matters should be covered in leaflets, on websites, etc, as general references, many of the issues tend often to be mainly focussed on by consumers at the time and point of purchase.

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<sup>3</sup> <http://www.climatechange.gov.au/en/what-you-need-to-know/lighting/resources.aspx>

- Well designed, relevant and readily available POS material can play a role here, although this study has shown that its coverage and length of time displayed can be less than ideal in practice.
- For matters directly related to the choice of light bulb, a simple and clear message, explanation or instruction on the packaging would be valuable, provided it appears on all (or most) packaging. While importers of light globes may have limited control over what appears on light globe packaging beyond that required under Australian law, consumers, specifiers and installers would like to see it attempted, and preferably mandated if possible.

# 1. Introduction

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## 1.1 Background to the Study

On 20 February 2007, the Australian Government announced its intention to phase-out inefficient incandescent light bulbs by 2012. The first range of inefficient incandescent light bulbs that were phased out were the general lighting service (GLS) or traditional pear-shaped incandescent versions. These light bulbs were widely used for over 125 years, however, they were the least efficient form of electric lighting – wasting some 90 per cent of the energy they used, mainly as heat.

Energy efficient alternatives such as the compact fluorescent lamp (CFL) use only 20 per cent of the electricity to produce the same amount of light. CFLs are not being mandated. More efficient forms of incandescent lighting will continue to be available such as mains voltage halogen lamps (MVH). These lamps have a very similar appearance to the GLS style, can be used in all of the same light fittings, and are readily available. However, mains voltage halogens are not as energy efficient as CFLs.

The traditional incandescent light bulb is one of a range of incandescent light bulbs being removed from the Australian market in a phased approach up to 2012.

## 1.2 The Point-of-Sale (POS) Materials

From May 2009 a range of POS materials was developed, tested and disseminated as part of the first stage of the communication strategy for the *Phase-out of Inefficient Incandescent Light Bulbs Program*. This POS material focussed on educating consumers (and store assistants) in-store of the most appropriate energy efficient lamp alternative to the traditional incandescent light bulb.

Previous qualitative research results<sup>4</sup> indicated that a high percentage of the consumers, who took part in four focus groups conducted in metropolitan and rural Australia, were aware that the sale of incandescent lamps would be phased out and some had noticed changes in stocking ratios of incandescent lamps and the increase of CFLs. However one or two were not aware of the phase out at all.

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<sup>4</sup> Winton Sustainable Research Strategies (2008) *Testing Point-of-Sale (POS) Concepts for the Phase-out of Inefficient Incandescent Light Bulbs Project – Report on a Qualitative Research Study*, 28 November 2008.

## **1.3 Objectives**

E3 would now like to research the need for, and, if appropriate, the format of follow-up communications to support these changes. The aim is to ensure that key stakeholders have an appropriate level of understanding on current and future changes in the lighting market to enable the best energy efficiency outcome in this field with a focus on a positive cost benefit outcome.

The overall objectives of the research are to assist with:

### Assessing the current situation:

- the current state of the market
- the degree of interest and involvement of key target audiences
- the level of understanding of choices available, and ability to choose a compatible and efficient lamp alternative
- residual concerns and knowledge gaps given that consumers have limited choice when purchasing due to the phase out.
- current purchasing trends

### Evaluating the existing POS materials:

- impact of the existing POS material so far

### Investigating future communications needs:

- whether there is a continuing need for POS material, and if so:
  - whether the existing POS material needs to be altered (e.g. to accommodate details of the other incandescent lamps that will be phased out) and/or
  - if another range of POS needs to be developed
- whether other forms of communication need to be developed to help affected and influential audiences (e.g. consumers, commercial architects and installers, property developers, commercial volume users and lighting retailers) during the further phases of the lighting phase-out.

## **1.4 Key stakeholders**

Key stakeholders have been identified broadly as:

### Supply:

- Retailers of light bulbs (mainly to the public: eg, supermarkets, hardware stores, general stores, etc)
- Specialty lighting retailers (public and trade)
- Electrical wholesalers (mainly trade)

### Specification:

- Lighting designers and specifiers
- Property developers

- Commercial architects, designers, specifiers (high rise housing developments, offices, shops, factories, etc)
- Residential architects, designers, specifiers (individual and project-built dwellings)

Installation:

- Electricians
- Electrical contractors
- Home maintenance contractors (these companies are employed by property maintenance/body corporates to do simple maintenance for units, houses, including tasks such as changing tap washers, and changing light globes in hallways, etc)
- Builders and installers

Users:

- Commercial (volume users) e.g. offices and shops
- Consumers

(Other) Stakeholders:

- Lighting manufacturers and importers
- National Electrical Communications Association (NECA)
- Lighting Council Australia
- Ai Group – Australian Industry Group, which absorbed the Australian Electrical and Electronic Manufacturers' Association (AEEMA) in 2007
- Illuminating Engineering Society (IES)
- Australasian Lighting Industry Association (ALIA)
- Other industry associations

## 2. The Research Approach

The research approach involved both qualitative and quantitative techniques. The qualitative research comprised a series of focus group discussions, small group sessions and in-depth interviews which explored the nature, range and scope of awareness, attitudes and behaviour, while the quantitative research used a combination of telephone interviews, emailed questionnaires and face-to-face meetings to provide a robust numerical perspective.

In all, the research covered a total of 498 people from a broad range of industry, supply chain, specifier and installer stakeholders and commercial and domestic consumers across four states. The capital cities and a selection of regional centres were covered in each state, with the regional centres being selected in line with centres where communications materials were broadly distributed.

**Table 1: Achieved Sample Size and Configuration**

	NSW	VIC	QLD	WA	Total
<u>Supply:</u>					
• Retailers of light bulbs	30	21	20	20	91
• Specialty lighting retailers	5	5	5	5	20
• Electrical wholesalers	5	5	5	5	20
<u>Specification:</u>					
• Lighting designers and specifiers	6	5	5	5	21
• Property developers	5	5	5	5	20
• Commercial architects, designers, specifiers (eg, high rise residential)	5	5	5	5	20
• Residential architects, designers, specifiers	5	5	5	5	20
<u>Installation:</u>					
• Electricians	5	6	5	5	21
• Electrical contractors	5	5	5	6	21
• Home maintenance contractors	6	5	5	5	21
• Builders and installers	7	5	5	5	22
<u>Users:</u>					
• Volume consumers (including high rise residential)	20	16	10	5	51
• Individual consumers	51	42	30	21	144
<u>Subtotal:</u>	155	130	110	97	492
<u>(Other) Stakeholders:</u>					
• Industry associations					4
• Lighting importers					2
<u>Subtotal:</u>					6
<u>Total participants</u>					498

To a greater or lesser extent, the stakeholders outlined in the above table all have relevance in terms of the effectiveness of the communications materials up to this point, and in contributing to the nature and message of future communications, especially as the range of lights to be phased out broadens.



## 3. Summary of the Main Study Findings

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### 3.1 The Current State of the Market

By way of background, on 20 February 2007 the then Federal Environment Minister Malcolm Turnbull announced that it was the Government's intention to phase out conventional, incandescent light bulbs over the next three years and replace them with energy-saving globes. On 10 June 2008, the then Environment Minister Peter Garrett announced that a ban on incandescent light bulbs would come into effect in November that year, with retailers having one year to sell current stock before the sale of incandescent light bulbs was restricted in November 2009.

From 1 November 2009, Minimum Energy Performance Standards (MEPS) were also applied at point of sale to compact fluorescent lamps, General Lighting Service incandescent lamps and extra low voltage halogen non-reflector lamps, with extra low voltage halogen reflector lamps and greater than 40W candle, fancy round and decorative lamps being added from 1 October 2010. Mains voltage halogen non reflector lamps will be subject to MEPS from 1 January 2011.

#### 3.1.1 Response to the Phase-out Announcements

##### 3.1.1.1 Initial Awareness of the Phase-Out

Several years after the original announcement and a year after sales were restricted, most people now know that incandescents are no longer available (or very hard to find) in retail stores. Indeed, half or more claim to have known for three years or more (See Table 2).

**Table 2: When First Became Aware of Phase-Out**

<b>First became aware of the phase-out:</b>	<b>Consumers %</b>	<b>Specifiers &amp; Installers %</b>	<b>Retailers, Wholesalers %</b>
One year ago	15	13	3
Two years ago	33	30	21
Three years ago	25	23	44
Four or more years ago	25	30	31
Unsure	2	4	1
Caution: small bases [n=]	195	166	131

Whereas consumers tended mainly to have first become aware of the phase-out from a retailer, the media or a Council program (eg. giveaway and free installation of CFLs), specifiers and installers were more likely to have first heard about it from announcements from an industry or regulatory

body or their lighting supplier, and retailers were mainly likely to have first heard from one or several of their lighting supplier (See Table 3).

**Table 3 Where First Became Aware of Phase-Out**

First became aware of the phase-out from:	Consumers %	Specifiers & Installers %	Retailers, Wholesalers %
Lighting supplier/retailer	40	31	71
The media (no specifics)	26	11	9
Council program	17	8	2
Announcement (eg, newsletter, bulletin, email) from industry, government or regulatory body	6	36	12
Internet/website	4	6	1
Email (not industry/regulatory)	3	2	4
TAFE/college/training	1	3	0
Unsure	3	3	1
Caution: small bases [n=]	195	166	131

The following verbatim quotations provide some insight into several of the main sources of recall:

**Lighting supplier/retailers:**

*We saw a poster, I think it was last year, when we went to buy lights that compared the old light bulbs with CFLs, that's when we first started paying attention. No, i can't remember where it was, maybe a hardware store?*  
[consumer]

*The light bulb section of our local IGA supermarket was looking a bit bare and we couldn't find the one we wanted, so we asked and that's when we found out, They just said we'd have to buy the fluoro ones in future.* [consumer]

*A few months ago my supplier said he wouldn't be able to sell me any more incandescent bulbs.* [installer-home maintenance contractor]

*About twelve months ago our lighting suppliers ran a course to help us convert our thinking away from incandescents.* [specifier-lighting designer]

*About twelve months ago when we couldn't buy them in bulk anymore, the wholesaler told us why.* [installer-electrician]

*It was probably about five years ago when they started dwindling on supermarket shelves, being replaced largely by CFLs. Phillips explained it to us in detail and helped us with alternatives for our plans.* [specifier-architect]

*One of the lighting reps told us about a year ago. Since then he's dropped off specification sheets and other helpful information.* [specifier-developer]

*We heard about it from the merchandising manager, I think it was him, from head office who sent us regular bulletins a at one stage he sent us a pdf file that contained an A-4 document containing versions of some ads or posters the government had sent him. They were interesting but obviously in that state we*

couldn't use them in the store. No, we didn't hear anything else about them.  
[supplier-supermarket]

We had a visit from one of our directors who explained it to us along with several other issues that were coming up. He said they'd be happy to send us some posters and stuff they had available, but light globes take up only a small section of our shelves and we don't have a place to hang or paste anything like that, so we declined. [supplier-hardware store]

### **Media:**

It has been in the news and on current affairs programs a few times. It was Turnbull from the Liberals who started it and then Peter Garrett kept it going when Labor got in. Both sides of parliament agreed with it so I thought it must be a good idea. [consumer]

I'm vaguely aware of some commercial on telly about three years ago featuring Peter Garrett, telling us of the ban. No, I'm sure it wasn't a news item, I saw it several times. [consumer]

Just a doco piece on Current Affairs or something a few years ago, about changing light bulbs. [consumer]

Oh they rambled on about it on TV a few years ago, that's when I first heard about it. [consumer]

We already knew alternatives like CFLs and LEDs were better for the environment, so we welcomed the ban on incandescents a few years ago because it made it much easier to convince clients, I think it was actually Turnbull who first raised it. [specifier-architect]

Heard about it about 5 to 7 years ago, reading the newspapers. [installer-home builder]

It could have been one to two years ago, mainly talk in the media. [specifier]

Mainly from the news and current affairs programs, it could have been about two years ago. [specifier]

Three years ago, media, newspapers and TV. [specifier]

Years ago, previous government first announced it, Malcolm Turnbull wasn't it?. [specifier-developer]

### **Council:**

Moreland Council (Vic) was big on this a year or so ago, giving out CFLs to anyone who wanted them. [consumer]

People came around and gave out subsidised light bulbs, energy efficient ones, about two years ago. They were pretty crappy bulbs, though, we've had to replace most of them since. [consumer]

There was a program run here in Queensland about two years ago, you got your energy meter, and they gave you up to three free light fluoro bulbs. [consumer]

About five years ago we saw a strong swing towards downlights, then CFLs took off with Council encouragement about two years ago. [specifier]

*The Council offered to change all our bulbs at home for free, and that started me thinking why they'd do that, so I researched it and discovered how much more economical the CFLs are after the initial cash outlay, so I started convincing my clients. [specifier-architect]*

**Newsletter/bulletin from industry, government or regulatory body:**

*I'm an electrician and I saw it explained in our electrical contractor's magazine.[consumer]*

*Six years ago in a trade publication, but I can't remember which one. [specifier]*

*The Institute of Architects sent out lots of information and there were items in the media, about two or three years ago, and then you occasionally saw posters in the shops. [specifier-architect]*

*Three years ago from both Phillips and NECA. [specifier]*

*Three years ago, ECA magazine. [specifier]*

*Two years ago, from a NECA newsletter. [specifier]*

*We found out about 3 to 4 years ago, from the Electrical Contractors Association. [installer-electrical contractor]*

*We heard about three years ago, I think it was the Institute of Architects that first alerted us to it. [specifier-draftsman]*

*We got a screed from EnergySafe (Victoria) in the mail. [specifier-developer]*

*There was a bulletin that came from Energy Safety (WA) that explained it. [specifier-architect]*

*It's funny, quite a few of our members got emails from the government about it, but many didn't. [supplier-retailer]*

*We got an email notifying us that a discussion RIS was available on the Internet. It was very thorough and made a lot of sense but there were a few holes so we put in a submission. Funny thing is the boss of the opposition store down the road says he didn't even know about it yet he's one of the major players in our industry. [supplier-lighting store]*

### **3.1.1.2 Recall of Publicity, Advertising and Support About the Phase-Out**

As indicated earlier, many people already knew incandescents were going to be phased out before the POS campaign materials and associated publicity were released. When asked to recall if they had seen or heard or read any of a prompted list of various kinds of advertising and publicity concerning the phase-out since about the middle of last year, substantial majorities could recall something (See Table 4):

- Consumers recalled mainly media announcements, various POS materials and media advertising, but with three in ten recalling nothing,
- Specifiers and installers recalled mainly media announcements, contacts by suppliers or industry bodies and POS materials, and

- Suppliers (retailers and wholesalers) recalled mainly media announcements and POS materials.

**Table 4 Recall of Publicity or Advertising for Phase-Out**

<b>Prompted Recall of Phase-Out Advertising/ Publicity:</b>	Consumers %	Specifiers & Installers %	Retailers, Wholesalers %
Media Announcements	42	43	40
Contacted by someone (eg, supplier; industry assoc, etc)	3	42	16
POS Campaign/Materials**	31	34	38
Training Courses	0	14	5
Media Advertising	23	13	19
Any adv'ng/publicity recalled	70	96	84
Nothing recalled	30	4	16
Caution: small bases [n=]	195	166	131
* Table adds to more than 100% as some people recalled two or more sources.			
**From various sources, but mostly CTG material.			

In addition, all target audiences except consumers were asked whether they had received any advice or support in implementing the phase-out. In response, while most specifiers and installers received some kind of support or advice, less than half of the retailers did so (See Table 5):

- With both specifiers and installers the main forms of support or advice received were trade materials or brochures, website links or references and training courses,
- With suppliers (retailers and wholesalers) installers, the main forms of support or advice received were trade materials or brochures, POS materials and website links or references.

**Table 5 Support or Advice Received in Implementing the Phase-Out**

<b>Types of Support or Advice Received:</b>	Specifiers %*	Installers %	Retailers and Wholesalers %
Trade material/brochures	31	38	41
Point-of-sale material**	19	18	33
Training courses	21	29	11
Website links/references	29	24	16
Received any support or advice	57	64	44
None received	43	36	56
Caution: small bases [n=]	81	85	131
* Table adds to more than 100% as some people recalled two or more sources.			
**From various sources, not all CTG material.			

### 3.1.1.3 Response to the Phase-Out

Response to the phase-out has generally been quite positive across all target audiences, with most people transitioning relatively smoothly to alternative lighting technologies (See Table 6).

**Table 6 Response to the Phase-Out**

<b>Response to the Phase-Out:</b>	<b>Consumers %</b>	<b>Specifiers &amp; Installers %</b>	<b>Retailers, Wholesalers %</b>
<u>Positive Responses:</u>			
Transitioned to alternative technologies relatively smoothly	54	68	57
Reinforced decisions already implemented	10	21	11
Took more care to pursue appropriate solutions	5	17	6
Sought/took/provided extra training	8	11	3
<u>Less Positive Response:</u>			
Stocked up on (selected) incandescents for future needs	21	9	12
<u>Challenges:</u>			
Issues with Quality of Light	38	44	31
Issues with Aesthetics	19	35	18
Issues with Cost	18	14	26
Issues with Reliability of Supply	9	12	17
Caution: small bases [n=]	195	166	131
* Table adds to more than 100% as some people offered two or more responses.			

**Transitioned to alternative technologies relatively smoothly:**

*I didn't realise until I couldn't find those bulbs in the supermarket any more. That's when I realised they were gone. That was only a couple of months ago. But it hasn't been the end of the world, we've found other globes that suit the purpose. [consumer]*

*I thought it was a reasonable idea. I'd known for a long time, the fluoros are far cheaper to run than the incandescents. [consumer]*

*As long as it looks good, clients don't really care. They listen to what we recommend, that's why they engage us. [specifier]*

*Clients mostly respond well when the economic argument is understood. [specifier]*

*Commercial clients are even more enthusiastic than residential clients, because they can see the economic sense in CFLs long term. [specifier]*

*Having found out about CFLs and LEDs for our own new home, we started specifying them in all new designs and we've had no complaints, people can see the economics long-term as well as the environmental benefits. [specifier-lighting designer]*



*Simply by installing CFLs in place of GLS lamps, we solved the problem with almost no complaints. [specifier-home builder]*

*We choose low voltage wherever possible, it uses much less power and is far safer, that was the advice of our lighting consultants who know about these things. [installer-home builder]*

*We had largely changed to CFLs and the occasional LED, it's caused us no real problems. [specifier]*

*We replaced incandescents with CFLs in all our master plans, it was as simple as that. [specifier-developer]*

*We use 80% CFLs in designs now, with halogens substituted where the lights must look good. That seems to cover all bases. [specifier-developer]*

*We've changed mostly to halogens because we do a lot of period architecture and other globes don't fit the fittings and look out of place anyway. [specifier-architect]*

### **Reinforced decisions already implemented:**

*Someone from our local Council came around installing free CFLs up and down the street to anyone who wanted them. We figured out if we were going to have to do it anyway eventually, we should do it now as it was free. It was a great deal, really, they changed over about 15 lights and i figure at \$8 a pop that's \$120 saved, i just don't know how the Council can afford it doing everybody's lights. [consumer]*

*As we had positioned ourselves as a green company, we started fitting mostly CFLs many years ago before it became topical, so it just made our job easier. [specifier-boutique developer]*

*We've been specifying low voltage halogens and LEDs for a while now because they are much more sustainable and safer provided you locate the transformer wisely. [specifier-architect]*

*With commercial designs we can dictate what lights are to be used, but with domestic designs we have to be more diplomatic and discuss it with clients, trying to encourage them by presenting a wider choice in lights and educate them to the differences. The phase-out has enabled us to argue for very efficient lighting more effectively. [installer-electrical contractor]*

*It was relatively easy as we were already doing it – most clients already wanted sustainable design. [installer-high end builder]*

*We had already been recommending CFLs along with other good environmental practices for some years, so we just stepped up our efforts. [specifier-architect]*

### **Took more care to specify/sell/install appropriate solutions:**

*The first thing we did was check which of our lines of light fittings wouldn't take CFLs easily, and either discontinued those lines or sought modified versions. We also checked our forward ordering schedule and did the same there. [supplier-wholesaler]*

*We take more care now about where we place the lights, and check with our electrician to see what he should do, depending on the room and the space available. [specifier]*

*We tried not to specify fittings that would take incandescents so as to keep our clients honest – they are mainly home unit developers and if they can save a buck, they will. [specifier-architect]*

**Sought/took/provided extra training:**

*Our group ran several courses for staff. One of the positive outcomes was that we felt far more able to educate our customers. [supplier-lighting store]*

*The Institute of Architects ran several seminars with lighting experts attending. I went with several of our staff and we got a lot out of it. [specifier-architect]*

*We went to a couple of ECA forums. [installer-electrical contractor]*

**BUT:**

**Stocked up on selected incandescents for future needs:**

*My immediate thought was the cost was going to go up to start with anyway, until such time as there was more production of whatever material they were going to use instead, so I stocked up big on all the sizes of incandescents we use. [consumer]*

*Our home (Toorak, Victoria) has magnificent matching art deco wall and ceiling light fittings in all the formal rooms, there are 26 light bulbs in total, they're the full size globes but neither CFLs nor the new halogens will fit them because their bases are too wide. We knew they were going to stop the sale of incandescent bulbs, so we bought several dozen of the normal light bulbs from our local lighting shop to make sure we'll always have spares. [consumer]*

*I can't find them anywhere anymore, thank goodness I stocked up big when they threatened to ban them a few years ago. [consumer]*

*I must say when they first muttered around it about five years ago, I said to my husband 'they're going to change the light globes, this is going to be a problem' – and he said 'we'll just go and buy a heap of light globes' so we did just that, we are set for years to come now. [consumer]*

*I've got quite a few [incandescents] put away. [consumer]*

*I've still got a good stock [of incandescents] in my shed. [consumer]*

*I was in a meeting with lots of other stores in our group the other week and they asked us whether lots of our customers had stocked up on incandescents after the ban was announced and just about every hand in the room went up. [supplier-lighting store]*

*This is a pretty low income area with a lot of old unrestored houses so CFLs don't suit a lot of their fittings and don't suit their hip-pockets, so we're trying to carry the old-style globes for as long as we can. Last time our supplier said he mightn't be able to help us much longer because he was finding it harder and harder to source supplies, so we bought up as many as we could find space for. [supplier-smaller supermarket]*

*You see because we're a specialist lighting store, many of the people who come to us have chandeliers or art deco or other heritage fittings that don't take CFLs and look ugly with other than clear incandescent globes, so we need to be able to cater for their needs or we'll lose our reputation. As we'd had a couple of good years we could afford to invest in a fair whack of extra stock which hopefully will keep us going until suitable alternatives emerge. [supplier-specialist retailer]*

*Most places we look after we knew we could replace them with CFLs, no worries, but we knew there were some older places with light fittings that wouldn't take them. I know we should have told people they'd have to get new light fittings, but some of them don't have much spare cash anymore, so we purchased a good stock of several different sizes of the old bulbs so we can help them out after they stop selling them. [installer-home maintenance company]*

### **Issues with Quality of Light:**

*I wouldn't mind if their new light globes actually had enough light. I often feel that I can't see. It's not nearly as bright as the old light globes were. They were hot, and I agree with replacing them, but the new ones say they're whatever, equal to 100 watts, but they're not, only about 75 or 80 watts. [consumer]*

*About three years ago I replaced every one of my light bulbs I could with those [CFL] things, but it made absolutely no difference to my power consumption whatsoever and the light they give out is dreadful. [consumer]*

### **Issues with Aesthetics:**

*Retrofitting of CFLs into many older light fittings is problematic, especially heritage houses, due to the size, shape and thickness of the base of the CFLs. [specifier]*

*I think the only real issue is how trashy some of the CFLs look, they're hardly designed with aesthetics in mind, are they?[specifier]*

*Most clients have responded well, but a few refuse to have CFLs mainly because they look so awkward and ugly, so we have had to find alternatives, and that hasn't been easy. [specifier]*

*Most have accepted whatever we recommend, but a few really don't like the look of CFLs. [specifier]*

### **Issues with Cost:**

*I was concerned with the price of CFLs. I thought 'I'm not paying \$8 for a light bulb'. But then I had to, and I must admit that CFL has lasted a long time. Light globes in that part of the house usually only lasted a few months because we're on the 'hospital' circuit but this CFL has lasted two years already. [consumer]*

*It's pointless anyway, because the less power we use, the more they'll charge us for it. That's already happening here [NSW] and we can't do anything about it. [consumer]*

*Most of our clients are home unit developers and it's been really tough with them, because all they're worried about are the upfront costs, the installation costs, they're not worried at all about the running costs or the environment.*

*One even imported a container load of incandescent light bulbs to avoid having to use CFLs. [installer-electrical contractor]*

*Only real objection is the upfront cost with CFLs many times dearer than incandescents. [specifier]*

*Some customers are not happy with extra cost. [specifier]*

#### **Issues with Reliability of Supply:**

*They say we won't be able to buy 60W candle lights for our chandelier much longer, but 40W aren't bright enough. [consumer]*

*We lost several jobs because we couldn't supply replacement light fittings that would take CFLs quickly enough. [installer-electrical contractor]*

*We put in cabling but had to wait for supplies of light fittings to catch up. [installer-electrician]*

*They expect us to stock every size in CFLs plus several other types as well. We're only a small supermarket and we don't have the self space or the volume of sales to justify it, but they're still insisting on us buying a minimum quantity. We might have to stop selling light globes altogether. [supplier-small supermarket].*

#### **3.1.1.4 Attitude to Energy Efficiency in Lighting in Late 2010**

While opinions vary somewhat, the broad consensus across the target audiences is that lighting contributes around 10% to 15% of the average household electricity bill. This corresponds closely with figures provided by Energy Efficient Strategies, who estimated the lighting electricity for the residential sector to be 27.8 PJ out of total residential electricity of about 213 PJ, or 13%<sup>5</sup>.

*Yeah, I'd have to say that lights would be about 10% of our bill, but of course I'm only guessing. [consumer]*

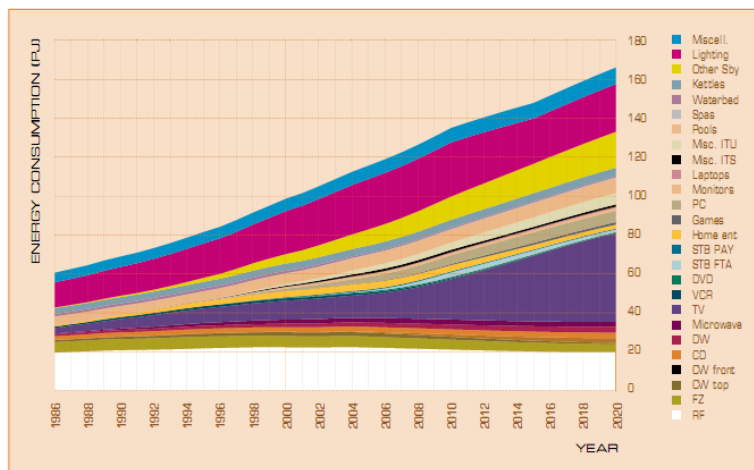
*I reckon about 15-20% is lighting, we don't have any big appliances like air conditioners. [consumer]*

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<sup>5</sup> Energy Efficient Strategies 2010: Personal communication, Lloyd Harrington, November 2010

## Figure 1: Trends in Electrical Appliance Energy by Type - Australia<sup>6</sup>

Figure 24: Trends in Electrical Appliance Energy by Type – Australia



NB: The red band second from the top depicts lighting.

While people see potential environmental benefits in lowering this proportion through the change to more energy efficient light bulbs, others are less convinced that it will also deliver cost savings, as per the following exchange in one of the Melbourne focus group:

*If you can save 80% of 15% to 20% by changing to CFLs, that's a saving of 12% to 16% on your power bills, and that's nothing to scoff at. [consumer]*

**BUT:**

*I can't argue with the lower greenhouse gases but they'll get back at us anyway by increasing our electricity bills, just like they're getting back at us by charging more because we are using less water [Victoria], which is what they asked us to do! I bet you they'll do the same thing with electricity. [consumer]*

Nonetheless, in late 2010 vast majorities (around eight in ten or more) of all target groups examined say that having energy efficient lighting is very or quite important to them (See Table 7).

*Apart from buying 5- or 6-star appliances, it's about the best way to permanently lower your carbon footprint. [consumer]*

*Changing the world, one fluorescent light bulb at a time! [consumer]*

**BUT:**

*It was probably done to make it look like the government was being proactive, but in reality it was a very small action. I was really quite cynical about it all, I mean light bulbs use bugger-all power anyway, who cares, it's things like badly maintained air conditioners they should be going after, that's what wastes the power. [consumer, who is an air conditioning engineer by profession]*

**Table 7: Perceived Importance of Having Energy Efficient Lighting**

Having energy efficient lighting is:	Consumers %	Specifiers & Installers %	Retailers, Wholesalers %

<sup>6</sup> Energy Use in the Australian Residential Sector, Department of the Environment, Water, Heritage and the Arts, 2008, p.41

Very important	73	82	69
Quite important	15	11	9
<b>Total very+quite important</b>	<b>88</b>	<b>93</b>	<b>78</b>
Not very important	6	4	13
Not at all important	3	2	7
Unsure	3	1	2
Caution: small bases [n=]	195	166	131



## **3.1.2 Perceptions of Alternatives to Incandescent Light Bulbs**

### **3.1.2.1 The Range of Choices Available in Retail Stores**

Most retail stores contacted in this study maintained that they had more or less exhausted their stocks of standard incandescent light bulbs by now, although among the retail stores we visited in person (around 45 stores of various types and sizes) rather than interviewed by phone or email, many still had small quantities of one or several sizes, and a few (mostly lighting shops) said they held stocks in reserve mainly for trade customers with specific needs. On the other hand almost all stores continue to stock incandescent candle and fancy round globes and occasionally other special types, shapes and/or colours.

Most stores now carry CFLs and some MVHs (ie, similar in look to incandescents), among whom a growing number say their stocks of MVH are growing (some already equal their CFL stocks in popular sizes) as customers become more aware of them, although most still claim to be selling (far) more CFLs than MVHs at this stage. So far it is really only larger and more specialist stores that carry regular stock of LEDs or other types of globes.

Many stores are self-serve, and even in those stores with sales staff (behind the counter or roaming), most say they tend to let customers buy what they want or ask for, rather than steering them towards one technology or another.

### **3.1.2.2 Awareness and Understanding of Choices**

As expected, virtually everyone has heard of CFLs as an alternative to incandescents by now, and most also mention extra lower voltage halogens in this light. MVHs are also viewed in this way by majorities of specifiers, installers and suppliers. However only a minority of consumers (around four in ten) have heard of MVHs or see them as an alternative to CFLs. LEDs are known as alternatives to incandescents by majorities of specifiers and installers, but only by minorities of consumers and suppliers (See Table 8).

**Table 8 Perceived Replacements for Standard Incandescents in Residential Situations**

<b>We can replace standard incandescents in residential situations with:*</b>	<b>Consumers %</b>	<b>Specifiers &amp; Installers %</b>	<b>Retailers, Wholesalers %</b>
CFLs	97	100	100
Mains Voltage Halogens	38	81	72
Extra low voltage halogens (reflector down lights)	60	71	54
LED (light emitting diodes)	27	64	34
Linear fluorescents	3	32	6
Any others**	1	21	4

\* Table adds to more than 100% as some people mentioned two or more types.  
\*\*Others include metal halide, light emitting plasma, sodium vapour and electronic ballast fluorescent lights.

### **3.1.2.3 Perceptions of the Emerging Alternatives to Incandescents**

CFLs are very well-known and have been around for a relatively long time, and most people have formed often strong opinions about them. Many have a love-hate relationship with them, disliking one or several of their functional characteristics and purchase price outlay while at the same time acknowledging their high energy efficiency and longevity. Many of these aspects are covered in some depth in following sections.

*A friend of mine came to Australia for the Olympics. He came from a country town where when he got a coffee it was only white coffee and sugar.... We went to a café in Sydney and it was all these fancy ones, he was so frustrated with all these terms. It's the same with CFLs, they have so many shapes and colours and brightnesses ... it's very frustrating and time wasting. [consumer]*

*And some are much brighter than others even though they say they're the same wattage. And some are white light whereas others seem to be a slightly green light. They're like a dog's breakfast. [consumer]*

*It's still hard to get the right CFLs, a lot of shops only stock cold white ones. The warm ones are becoming more available now, but it's still pot luck if they have stock or not when you go to buy. [consumer]*

*The free ones the council gave us were too dim, so when I decided to replace them I looked on the different boxes in the shop and found one that said 'equivalent to 150 watts' – I thought that would be bright enough, and it was for a while, but now it's getting duller and duller. [consumer]*

When they see MVHs in shops or when shown a selection in the focus groups, some consumers assume that MVHs are incandescent light bulbs.

*Oh look, they haven't banned incandescents after all. [consumer]*

*That's similar to a light bulb in a car, it's just an incandescent bulb that's made to last longer and withstand more knocks and jerks than the ordinary ones with flimsier filaments. [consumer]*

*One of my clients complained when we put MVHs through their house – they took a lot of convincing that they wouldn't have to change them when the ban (on incandescents) came in. They really thought (I think they still do) that the MVHs are incandescent light bulbs. [specifier]*

A few have examined MVHs more closely and judged them as not much better than incandescents in terms of efficiency, or assume because of this similarity that they are simply a new or updated version of the incandescent bulb.

*I'm very keen about these ones [MVH], can you get these at normal shops, I've never seen these new incandescents, but won't they be banning them, too, I thought it applied to all incandescents? [consumer]*

*Oh is that a new one [MVH]? Shows you how much I know. I recently had a visit from the climate man who left me an armful of CFLs, but I don't like the light. So are they allowed to sell these, they look very similar to incandescents, and where can you get them? [consumer]*

*53 watts [MVH] isn't a great deal less than 75 watts (the equivalent incandescent). [consumer]*

*Although the new technologies are all more efficient than incandescents, there is still a vast range in the new ones. For example, a MVH uses about three times as much electricity as a CFL to deliver the same brightness, and lasts only about quarter the time, yet they cost much the same, and both cost far more than the old incandescents. So although the environment might benefit a bit, really you aren't much better off if at all financially if you buy MVHs, whereas with CFLs both your wallet and the environment benefit greatly in the long run. [specifier]*

*Some halogens are only a little more energy efficient than incandescents, they still give out most of the power as heat not light. In my view halogens are really nearly as bad as the older incandescents. [specifier]*

*I assume halogens are just a stopgap until they produce something better. [specifier]*

On the other hand, many people prefer the physical shape, overall look, and colour and brightness of MVHs and for those reasons may increasingly purchase them in preference to CFLs, as they become more familiar with them.

*In June I was doing tax returns. We put a fluoro in the dining room above the table, I whinged about it being so useless, so dark. It was dark in the house, it was raining. I went to the local supermarket and looked at warm ones, cool ones... and we went to Beacon Lighting for something. They have a wall with all the different globes. I said I need a good light for writing under in my dining room. She pulled out a halogen and said 'this should work' – I didn't even know you could get them. [consumer]*

*I've never seen this one [MVH], but if it's a warm colour, I prefer the warm colours, I'd definitely go for that instead of a CFL. [consumer]*

Although many find the numbers of watts to be “a bit odd” with MVHs, most simply look for the incandescent watts equivalent on the packaging to understand how bright they are. However, some people, and particularly those thinking they are a newer incandescent, appear to be choosing the closest wattage, hence installing a light that is brighter and uses more energy than is necessary.

*Gees, it's not that hard, if you're looking for a 60 watt globe, you just look till you find (a MVH) with 42 or 43 watts on it and that will be 60 watts on the old scale, just like 11 watts will be with a CFL. [consumer]*

**BUT:**

*The numbers are a bit odd, not rounded somehow, for example I wanted a 40 watt globe but had to buy a 42 watt, which is much brighter, too bright for what I need, really. [consumer]*

LEDs seem to be better known as car headlights or for their use in torches, than as lights for a home, and (therefore) for having a narrow or concentrated beam.

*As soon as I saw that [LED] I thought of the latest car headlights that seem to have multiple light sources in the one globe instead of just the one. [consumer]*

*They've got LED globes now, I think they're even using them in new car headlights now. I've seen some cars with headlights on high beam you think and they're not, but really, really bright, like the LED downlights I've seen. They seem to have a very narrow beam, though, great to highlight a painting or wall hanging, but lousy for area lighting. [consumer]*

*I bought some coloured LEDs on EBay. Some shops also have them, but they are a specialist light, not suitable for normal room use. [consumer]*

A few have investigated replacing halogen downlights with LEDs, but only very few have so far installed LEDs.

*There is a lot of misinformation about LEDs. They're not as good as a lot of people think. The government needs to crack down on the poor quality ones that aren't efficient. I think it's also important to realise that like halogens, LEDs are not nearly as efficient as CFLs. [installer-electrical contractor]*

*I've looked into LEDs recently and they're a bit of a con. Although the best of them are very efficient, there are some very poor ones out there, but it's very difficult to tell the good from the bad just from the packaging. [installer-electrical contractor]*

*We need a lot more information about where LEDs are heading. I've always thought they were incredibly efficient, but the lighting rep says they aren't. We were also told some time back that wide beam LEDs were coming, but nothing's happened so far. [supplier-large retailer]*

### **3.1.3 Residual Concerns and Knowledge Gaps**

While most people have by now more or less successfully transitioned to one or several alternatives to incandescent light bulbs, many still have residual concerns, misconceptions and gaps in their knowledge and understanding of different aspects of the new lighting regime. These concerns, misconceptions and knowledge gaps are discussed below.

#### **3.1.3.1 Colour of Light**

As announced on the New Zealand Government's RightLight website:<sup>7</sup>

"Most people tend to prefer 'warm white' light. In fact, we have been conditioned to find warm appearing lamps 'normal' at low lighting levels, since it mimics the colour of fire which we have used as a light source for thousands of years. Cool White is generally the preferred colour for work areas and offices, while daylight is used in some shops and areas where a blue/white light is preferred."

The Light Globe conversion Table on the Australian Government's Climate Change website<sup>8</sup> describes these colours as:

- Warm White—provides a soft warmer light comparable to light provided by traditional incandescent light bulbs
- Cool White—provides neutral light comparable to office lighting
- Daylight—similar to outdoor light comparable to midday lighting conditions.

The RightLight website comments on these colours and their respective colour temperatures as follows:

"Although different bulb suppliers describe the light colour in different ways, the colour temperature marked on the pack is the best guide to the colour of light you'll receive. 'Warm white' is often used to describe 2700K or 3000K, 'cool white' equates to 4000K and daylight colours will be marked at around 6000K or higher."

Unfortunately, few consumers or retailers and only a moderate majority of specifiers and installers, appear to have much of an understanding of the different colours.

*I have a basic understanding of it – the more watts the whiter it is – it seem to go greener or bluer as the wattages decrease. [consumer]*

*I've noticed that different CFLs can look quite different. An electrician told me they apparently have different colours for different situations, like cold colour for your home office and warm colour for your lounge room, and different again*

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<sup>7</sup> See <http://www.rightlight.govt.nz/residential/lighting-style/which-white-is-right>

<sup>8</sup> See <http://www.climatechange.gov.au/what-you-need-to-know/lighting.aspx>

*for outside lights. But the packaging doesn't tell you this in the shops so you can easily buy the wrong ones. [consumer]*

*What sort of light do they [MVH] put out, warm or cool light? It's no use if they are cold light like CFLs, my wife and I both can't live with those, it's like a cold unfriendly house with those [CFLs]. [consumer]*

*Yellow, blue, cool, warm. I just want one to give me good light and true colours of the food in my kitchen above the stove. But when I looked on the packet, they had warm yellow, cool blue, or bright white. Then when I turned it on it had a green tinge. I can't have that sort of light, so what do I do? [consumer]*

*Frankly I've never liked the colour of the light with CFLs, it's far too green, not natural at all. [specifier]*

And indeed, the range of colour temperatures is generally poorly represented in many retail stores, particularly the smaller supermarkets, hardware stores and the like, where often only one colour will be available in some or most sizes.

*Where I live, there's only an IGA supermarket and they seem to have only one choice in CFLs, the ones giving out a cold light. I asked the owner once why they didn't stock the warm ones and daylight ones as well and he said they only have shelf space for one type. [consumer]*

*With CFLs, we need a lot more variety of sizes and shapes, and we need a better colour range, like at the moment they only give out a very cold light similar to the strip fluoros in offices. It would be nice to have a warmer version, and perhaps even a full spectrum one that's closer to daylight. I know they are available overseas, but most shops here don't have them. [installer-electrician]*

*Someone comes in to stock our hardware and lighting shelves and she says that in all the smaller stores like ours with limited shelf and hanging space, they can only put in one colour range. [supplier – small supermarket]*

In some of the larger stores, different colour temperatures are mixed up in the bins.

*I bought two CFLs the other day, I picked them off the same shelf so I thought they were the same. But one's called warm white and one is cool white, they're two different colours, too different levels of brightness, two different moods. But the packaging is identical. [consumer]*

*I have a wall lamp that takes three globes. I'd run out of incandescents and couldn't find anymore because they've banned them, so I put in three CFLs from the stock I'd bought. They were all the same wattage, but when I turned it on they looked totally different colours, one was a warm glow, one was quite cold-looking and stark, and one had a slightly yellowy-green tinge, It's silly, they should pick one colour as standard and ban all the rest. [consumer]*

*I think we display the stock in separate groups to start with, but when they are trying to choose customers often put them back in the wrong place. Then it's hard to sort them out again because not all of them have the colour clearly marked. [supplier – large supermarket]*



In many cases colour temperatures are not named clearly, or at all, on the packaging, and colour coding if it exists, is not clearly described.

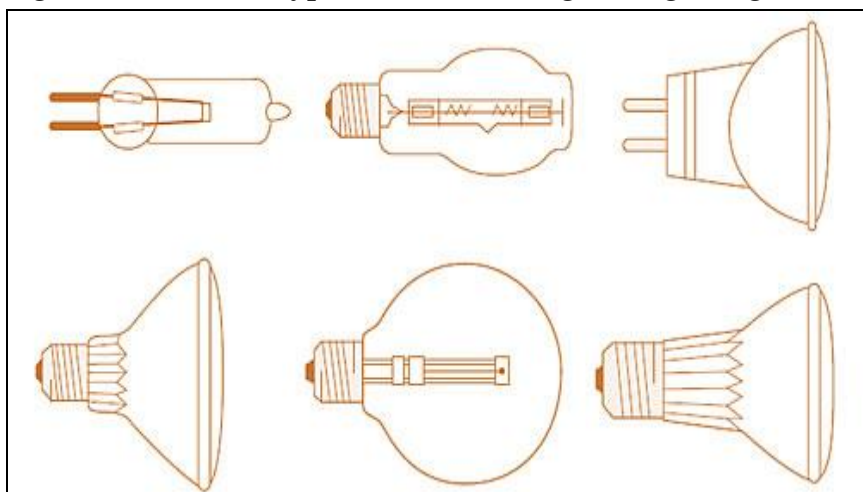
*I think they should just keep it simple and say 'a light for reading', 'a light for working', 'a light for romancing' and 'a light for whatever', that would make much more sense than 'warm', 'cold', 'bright white' or 'daylight'. [consumer]*

*I was looking at the Phillips box it had six globes equals one of the new ones – we talked about rankings and colours – you could have little globes, 1 globe, 2 globes, 3 globes – and even though that six globes there says longevity of it – it could easily be luminescence. Like just a little picture, something really simple – a picture of an office for the cold ones, a lounge room for the warm ones, and a scene in nature for the daylight one. [consumer]*

### **3.1.3.2 Confusing Halogens with Older Incandescents**

A major training manual issued under the National Framework for Energy Efficiency opens Section 3.2, Tungsten Halogen Lamps with the statement: “Halogen lamps are also a type of incandescent lamp”<sup>9</sup>, and herein lies the clue to the considerable confusion in the market place concerning the identification, naming and provenance of MVHs .

**Figure 2: Various Types of Mains Voltage Halogen Lights**



NB: The globe in the middle of the bottom row is the most plentiful and looks most like the old incandescent bulbs.

*They are still incandescents, but they've made the element thicker so they last a bit longer, it's about time! But hang on, haven't they banned incandescent light bulbs, how come you can still buy these?[consumer]*

*They're quite good actually [MVH], I bought a pile of them a while ago thinking I was stocking up on incandescents before they ran out. I remember thinking the sizes were a bit odd at the time, they weren't your usual 60, 75 or 100, so I just bought the closest to what I wanted thinking they must be a foreign brand someone had imported illegally since they are now supposedly banned. They turned out to be brighter than the old incandescents so I looked at*

<sup>9</sup> *The Basics of Efficient Lighting: A Reference Manual for Training in Efficient Lighting Principles*, National Framework for Energy Efficiency (Australia), First Edition, December 2009.



*the packs and discovered they were this new type of globe. They are certainly more expensive, but a lot brighter. [consumer]*

*I want that one [mistaking halogen for older incandescent], can I buy it from you when we finish. I look out for those old ones everywhere I go, because they're getting really hard to find these days, and I won't buy those dreadful fluoro things, they're just expensive rubbish. [consumer]*

*That's a new one is it, I thought it was an incandescent one. It looks much better than the CFLs. [consumer]*

*With MVHs its problematical because the watts don't match up with the old incandescents very well. What I've been finding is that when people think they're just a modern or 'post-ban' form of incandescents they tend to buy the one with the watts closest to the old ones. Like instead of buying a 52W MVH if they're replacing a 75W incandescent, they'll buy the 70W MVH and wonder why it's so much brighter. That decision also doesn't lower greenhouse gas emissions much, either. [installer – electrician]*

### **3.1.3.3 Perceived Efficiency/Inefficiency of Halogens**

As mentioned earlier, consumers are far less aware of or familiar with MVHs than they are of CFLs. At first consumers are very interested in them as their similarity to old incandescents suggests immediately that they are a more suitable choice than CFLs. However, as they look closer, opinions divide:

- Some people see them as far closer to old incandescents in (in)efficiency than to CFLs, and therefore say they would not buy them.

*When you look at the efficiency comparisons on this chart [Globe Comparison Chart] MVHs are just incandescents in drag, not much better than the incandescent column and still awfully inefficient compared to the CFLs. [consumer]*

*The public should be made aware that some halogens are no more energy efficient than incandescents. [specifier]*

- Many others recognise their relative inefficiency, but say they would buy them anyway because of their positive features compared with CFLs.

*Halogens are reasonably energy efficient compared to the old lights. They're claiming 70 watts [MVH] will provide the same brightness as 100 watts [incandescent], so that's a 30% saving, but nowhere near the roughly 80% saving you get with CFLs which only use 18 to 23 watts. Still, I can't stand CFLs so now I know about these [MVHs] I'll go for them in future. [consumer]*

*Presumably they'll eventually phase out the halogens as well because they aren't very efficient. It's not a new technology [MVH], they've used them in car headlights for years. It's old inefficient technology, but then I've got no other choice in my house. [consumer]*

*Halogens are a better option than CFLs for many applications, although they are not much more efficient than incandescents so they'll probably be banned sometime soon, too, but at least it's an option in the meantime. [specifier]*

- Probably the largest group seems happy with the efficiency of MVHs,, given that they are still (marginally) better than old incandescents, and therefore would buy them.

*I don't know what you're all going on about, these [MVHs] are about a third more efficient than the old ones and CFLs aren't an option, so go for it!*

### **3.1.3.4 CFLs not Fitting**

The fact that CFLs do not fit into many old lamp or chandelier fittings is widely known and discussed elsewhere.

*The problem with these CFLs is that they won't fit in some of our fancy light fittings which are a real feature in our house, they're from the 1930s when it was built and we love them. [consumer]*

*The first time I couldn't buy my old globes in the supermarket I lashed out to buy some of these new ones for my standard lamps, they were expensive, I took them home and they didn't fit the fittings, which really ticks me off. Then I had to take them back to Woolworths, get a refund, and I still had no idea what I needed to buy to fit the fitting. No one in the store could help me. So consequently I've been scouring different supermarkets trying to find old globes and buying up big when I do find them. I'm certainly never buying the new ones again. [consumer]*

*We've got several lovely old antique lamps, so we went to several little old-style hardware shops, they still have bulbs for lamps like that. I suppose once they run out we can try to buy them on the internet from a country that hasn't banned them. [consumer]*

*CFLs don't fit in with period fixtures, even if they fit physically which they often don't, they're too big and bulky. [specifier]*

*There are a lot of chandeliers and dainty wall fittings in heritage houses throughout Melbourne and country Victoria, and CFLs won't fit most of them – we send these people to a specialist lighting shop that bought up huge stocks of bulbs for these situations before the ban especially for this purpose, but although he's careful only to sell them to people with a genuine need like this, he thinks he's only got about two years supply left, so I don't know what we are going to do when he runs out. [specifier]*

What we found in this study is that many people have also experienced difficulties in fitting CFLs in what they describe as standard light sockets in their houses, with the bulbs not being able to be pushed deep enough into the socket for the thread to catch (screw fitting) or the pins to engage (bayonet fitting). Many others say they have fittings where the CFLs will appear to be inserted correctly and light up, only to fall out of the socket later.

*CFLs will fit in most of my light sockets, but I've had three now that have popped out inexplicably. No, not straight away, it could be weeks later. [consumer]*

*We have had to change a lot of light fittings in older houses to accept CFLs. It's a big added expense and a lot of people can't afford it [installer-electrician]*

*It's often very difficult to retrofit CFLs into existing building make-overs, especially in heritage buildings, which are a large part of our practice, mainly old mansions and deco apartment buildings – they don't look right even where they do fit into the fittings which is rarely. [specifier-architect]*

While problems of fit with standard house sockets seem mainly to occur with older houses, a few instances in new houses were also reported.

*We need CFLs that will fit all light fittings, not just the common ones, there are cheap sockets on the market that some builders use that you can't put some brands of CFL in. [specifier]*

*The only trouble with CFLs is that the fittings are bigger, cumbersome and not as compact, plus they are definitely not aesthetically pleasing. But the economic argument is very compelling, if only they made them to fit in all standard light sockets, including some of the modern ones. [specifier]*

### **3.1.3.5 CFLs Flickering**

Some people are adamant that that least some of the new CFLs they have purchased flicker regularly.

*My brother has had epilepsy since he was 14, he's 40 now, and he has to watch it a lot flickering TVs or strobe lighting. If he came to my office where the CFLs are always flickering, we have to leave quickly because of that affecting him. I've had them changed several times but they still flicker, the electrician says it's the power supply, but I don't think so because it happens at home as well.. [consumer]*

*Some CFLs flicker when the current's lower during peak times. [consumer]*

*CFLs still give out very uneven light, some of them flicker, and it's a cold green light for the first minute or so that I really don't like. [specifier]*

*With the newer lights you can get interference from other power sources causing flickering and interfering with dimmer operation. [specifier]*

*Some CFLs take a few minutes to achieve full brightness and others still flicker. Both of these characteristics pose problems for old people and others with balance problems, as well as people with epilepsy. They say they've solved these problems but some new globes I buy still have them. [specifier]*

### **3.1.3.6 CFLs Slow to Light Up**

The incidence of some new CFLs taking some time to reach full brightness was also fairly widely reported.

*A lot of the CFLs we put in take a long time to heat up, and they're far more expensive as well. [consumer]*

*I've noticed with several of the fluoro ones I have, when you first turn them on they're dull and then they brighten. It's usually only a few seconds, but can be*

*up to a minute in the evenings, I suppose everyone is using their lights then so the voltage is lower making it harder for them to start up properly, but it is annoying. [consumer]*

*I have a cluster of four downlights in a ceiling fitting that I've managed to fit small CFLs in. They are 240 volts, not the 12 volt type. When I turn it on, one globe comes on straight away but the other three start off very dull and only reach full strength after about 30 seconds to a minute. [consumer]*

*Then there's the added problem that a lot of CFLs take quite a while to heat up, so it can be half a minute or more before you know how bright they are anyway. It's not just the cheap brands, either, it seems some out of every batch are slower to heat up than others. [installer]*

*The fact that some CFLs even now take some time to reach full brightness, some take as long as ten seconds, can be a problem when you walk into a room with obstacles. I've had people say they tripped over things because they didn't see them even though they had turned on the light as they entered the room. [specifier]*

### **3.1.3.7 The Belief that CFLs Need to be Left On**

A not insignificant minority of consumers across all four states in the study report leaving at least some CFLs switched on 24/7 or at least switched on during the whole day in the belief that they will use less power and/or that they will last longer than if they are turned on and off (more) frequently.

*We leave our CFLs on all the time because they say they use more power and don't last as long if you keep turning them on and off. [consumer]*

*CFLs are fluorescent lights and all fluorescent lights last longer and use less power if you leave them on, because when they start up there's this initial surge of power to get them started. That's what an electrical engineer told me twenty years ago, and he was very good. [consumer]*

### **3.1.3.8 Questions of CFL Brightness and Colour**

Perhaps the most widespread concern about CFLs relates to their brightness and colour – the two are often mentioned together. Although almost all consumers are satisfied with the brightness and colour of at least some of the CFLs they have installed, few are satisfied with all of them.

A great many consumers reported at least some CFLs that were too dull or at least less bright than they had expected, whereas hardly anyone had experienced CFLs that were brighter than they expected.

*I put in a CFL that claimed to be the same as the 75 watt incandescent it was replacing, but I couldn't read under it because it was too dull. I tried putting in the next size up hoping it would be bright enough, but the glass part is too long for the fitting. [consumer]*

*I have real issues with the different colour renditions of CFLs versus their light output. The warm ones are hardly ever as bright as the cold ones, yet they should be. [specifier]*

*CFLs still aren't bright enough compared to the equivalent incandescents. [specifier]*

*It has created real issues in knowing how many lights to provide per room – you need more or brighter CFLs than with incandescent lights, and that can compromise the energy savings. [specifier-architect]*

*You learn early in your career that it's always wiser to over-specify than under-specify, and this is particularly the case with lighting. Even if you've followed all the rules, some people will say some of their rooms are not lit brightly enough. We got that a lot after we started introducing CFLs after the phase-out was announced, and it's not as easy to fix as just putting in brighter bulbs which often won't fit anyway. So if in doubt, I'll always over-specify slightly – fewer people complain and I've yet to hear anyone complain their lights are too bright. [specifier]*

Many consumers (also) comment on the variability of brightness of CFLs, even those coming from the same batch.

*That's what's wrong with the fluoros we buy, though. You go in and ask for a fluoro lamp, okay 7 watts, that's good, that saves me power, you plug it in, fine. Then you get another one, plug it in, it's from the same batch but one's much brighter than the other. How can that be? [consumer]*

*Whenever I shop I've always used wattage as my basis of how bright I want a light. The CFL packets do say their globes are equivalent to 60 or 75 or 100 watts, but they aren't really. When you go to use them you find they're either too bright or more often too dull for what you want, rarely just right. [consumer]*

*Many CFLs didn't perform well initially, they were really inconsistent on brightness and how long they lasted, but we have noticed some improvement over time, but not enough yet. [specifier]*

*With CFLs there is very little consistency between the brands. Different brands are markedly brighter than others and the sizes differ sufficiently that some will fit difficult fittings and others won't. And the quality is still all over the place. And there's no consistency in the colours, either, nor how they describe them – there needs to be an Australian Standard in terms of what must be included on the packaging and how it should be expressed. [supplier-large specialist lighting store]*

*There are still some issues with inconsistent quality of CFLs, mostly brightness variation even in the same batch. [specifier]*

*There is not enough information available on the real differences in wattages between incandescents and CFLs. Like in your chart here it says the equivalent of a 75 watt incandescent is anywhere between 13 and 18 watts in a CFL. But I've found some 13 watt CFLs are far too dull and some 18 watt CFLs are far too bright. Yet you have no way of telling in the shop whether any given CFL is*



*going to be far brighter or far duller than your average CFL of the same wattage. [installer]*

*That's what's so silly about including this lumens column [in the Light Globe Conversion Guide]. They've rounded the lumens figures to an accuracy of the nearest 10 lumens (eg, 720, 930) whereas any given CFL might vary by as much as 50 lumens up or down from the next one. CFLs just aren't as precise as to use lumens, the watts approximation is far better, easier to understand, and certainly more honest. [specifier-lighting specialist]*

As mentioned elsewhere, the lack of consumer understanding of the colour range of CFLs is rife. This research also reveals that the range of colours of CFLs available in many stores (especially many smaller stores) is quite limited and often inconsistent from size to size.

*I said to the bloke in the shop that as my wife doesn't like the stark white ones, I'd like a warm white one. The bloke looked at me blankly and said we've just got these, sir, they only come in white. [consumer]*

*CFLs have such a cold light, no warmth in the white colour at all. Someone told me they come in cold and warm versions, but they didn't know anything about that when I asked in the shop [her local hardware store] – they said they only stock the white ones. In another shop I did find one with 'warm white' on the pack, but when I got it home it was much duller than the other one, so it wasn't much use. [consumer]*

### **3.1.3.9 CFLs May Explode**

A number of consumers mentioned exploding CFLs. While some of these instances had occurred a while ago, some others involved quite recently purchased CFLs.

*I've been told they can just explode and shatter everywhere, and you're getting bits out of the carpet for months ... yeah, that's happened to me ... me, too! [an exchange among several consumers in a Perth focus group]*

*I had a new one in the bathroom that just exploded while I was in the shower, I'd only put it in about a month before. I cut my foot on the pieces as I stepped out. [consumer]*

*One of the CFLs in the kitchen fell out of the socket and exploded when it smashed on the bench into the food. [consumer]*

### **3.1.3.10 CFLs are Easily Broken**

Some consumers suggest CFLs are easily broken during handling.

*I've found that several times CFLs I've bought in supermarkets have broken while I've been taking them home. The boxes aren't very rigid. [consumer]*

*With many light sockets you can't reach down to the base of the CFLs so you have to screw them out or screw them in by twisting the glass spiral, and they break so easily.*

BUT:

*One advantage to the CFLs is I feel safer taking one out than the incandescents, they won't break in your hand, or burn your fingers, they are safer to change, they take that fear away. [consumer]*

### **3.1.3.11 Disposal of CFLs**

While some consumers and many specifiers and installers talk about the need to dispose of spent CFLs thoughtfully, they query why more provision is not made by retail stores that sell them or local councils for their safe disposal.

*People are so green spirited these days, that if we were provided a bin at home, like we are for recycling, then I think you'd probably get a lot of people who would use that. I've never seen anything at the supermarket to put them in. [consumer]*

*Someone told me they have mercury in them, but if that were true surely they'd have arranged some system to collect and dispose of them safely. [consumer]*

*Maybe those rubbish stations where you dump your rubbish, if you have a little box say every six months and took bulbs and so on and put them out there? [consumer]*

*I think there are bins in lots of places for people to put their old mobile phones in – so places that sell bulbs, if it was known throughout the community that was going to happen, people would be conscious to take their old ones when they go to buy more bulbs.... [consumer]*

*Then there's the hazardous nature of the gases, hence the need to dispose of them thoughtfully. [specifier]*

*I know they've reduced the mercury content, but mercury is such an insidious thing, what happens when it's spread throughout our landfill? [specifier-architect]*

On the other hand most consumers and a few specifiers see no need to handle their disposal any differently from other glass items.

*I always keep the boxes so I can put the old globes in them and dispose of them safely in the rubbish bin. [consumer]*

*We wrap any glass or china in old newspaper before throwing in the rubbish so it won't hurt people. [consumer]*

*I put it back in the box. The old one goes back in the box, gets wrapped and goes in the bin. [consumer]*

*They are hard to dispose of, you aren't supposed to just throw them in the garbage, but where can you dispose of them. At least I throw them in the recycling bin so they can reuse the bases for new ones. [consumer]*

*CFLs are not easy to dispose of responsibly, so most people are just throwing them in with the garbage or worse still the recycling. [specifier]*

*Recycling of CFLs adds to costs, and it's not really necessary. [specifier]*



*People throw spent CFLs away in the garbage because nobody has warned them of the dangers. There needs to be a government campaign educating people how to dispose of them safely, and putting some onus on stores to provide collection bins, and on councils to have clean-up points as they do for dead car batteries, old mobile phones and computers, etc. [specifier]*

### **3.1.3.12 The Cost of CFLs**

After the initial shock, most consumers do see that the longer term cost benefits of CFLs potentially outweigh the initial purchase cost. However, the initial cost continues to be a concern to others.

*It was fine when the council changed all my light globes for free, but what about when I have to replace them all, it won't be cheap and I'm only on the pension. [consumer]*

*CFLs are more expensive than the old globes, but you only buy one at a time so it's not too difficult to find the extra dollars. [consumer]*

*A lot of people want the cheapest option even if it's not cheaper in the long run. For some, it's all they can afford at the time. [installer]*

*CFLs have greatly increased the cost of lighting, even though they are more economical in the end. [specifier]*

*There's a much higher upfront cost for CFLs, but it's not too hard to convince clients of the economies in the long run, it just depends how flush they are with funds in the first place. [installer-home maintenance contractor]*

### **3.1.3.13 CFLs Unsuitable for Dimmers or Motion Detectors**

Although some dimmable CFLs are now available, many experts question their effectiveness and reliability.

*There are at least four generations of dimmers and supposedly dimmer-friendly CFLs don't work in them all. [installer – electrician]*

*'Dimmable' CFLs aren't as reliable as incandescents. [specifier]*

*Motion detectors and security lighting don't work well with dimmable CFLs, no matter what they tell you. [specifier]*

*What else are you going to put in dimmers and security lighting – CFLs don't work in those, especially the older dimmers. [supplier-lighting store]*

### **3.1.3.14 Limited beam width of LEDs**

Limited beam width is currently a key perceived limiting factor concerning the growth of LEDs.

*I've got quite a few LEDs, the car headlights, several torches and in a few downlights. On the one hand they're great because they are so bright for such a little power source, but on the other, have you noticed they all have very narrow beams. I really noticed it first with the torch – unless you have it pointed right at something you mightn't even see it, everything not in the beam is in darkness, not like with an ordinary torch. [consumer]*

*LEDs have very limited application as they have no beam width, they're not really a viable alternative. [specifier-architect]*

*One day LEDs will be the answer to many of our concerns with CFLs and halogens, but not at the moment, Apart from the immense variability in efficiency and performance, the narrowness of beam is a real limiting factor. [installer – electrical contractor]*

### **3.1.3.15 The Role of Downlights**

Several consumers and a few specifiers and installers raised issues to do with downlights, mainly related to doubts about their efficiency and safety.

*You can't tell me that a globe fully enclosed on all sides can cast nearly as much light as an ordinary uncovered globe – that's why you need half a dozen downlights to light the same area, presumably using up to six times as much electricity. That's why I'd never have downlights, they're so inefficient.*

*The issues with the Government's roof insulation program highlighted a problem we've know for a long time with downlights, especially when they are installed by unqualified tradesmen, which is far more often than most people would be aware of. [specifier]*

*Any of our lads can wire up the low voltage downlights as long as one of us has done the transformer, you don't need a qualified electrician as the downlights themselves are only 12 volts. But depending on the type of ceiling you do have to check sometimes that they allow enough air to circulate so you won't get fires in the roof. [installer-electrical contractor]*

*The Government really needs to dispel the misconception about light fittings causing fires, it's the cheap globes, or inappropriate installation, or overlapped insulation that causes fires, never the light fittings themselves. [supplier – specialist lighting store]*

### **3.1.3.16 Shortages and Supply Issues**

*Our local supermarket has run out of incandescent light bulbs and has hardly any of the new ones, either – they say they don't have the space to stock so many, so they are only stocking a few types and sizes. [consumer]*

*Although there are plenty of CFLs out there, it's very hard to find the warm ones. [consumer]*

*The smaller supermarkets haven't really caught on yet, they tend to have only a few sizes in one or two colour varieties, and far less choice of size than we had in incandescents. [consumer]*

*We couldn't get enough stock of the new lights for some months, but fortunately we had stock up on incandescents expecting this to happen. [installer-electrician]*

*In the past you only had two choices, clear or pearl. Nowadays you have well over a dozen choices with several colours in several shapes of two or three different new types of lights. In other words you need about six times the shelf*

*space than before, and we can't do that so we have to compromise and stock only the popular colours and types. [supplier – hardware store]*

### **3.1.3.17 Miscellaneous Technical Issues**

*Backlit switch plates are not compatible with LED fittings. [installer-electrical contractor]*

*Should have more emphasis on light emitting plasmas (LEPs), they will be more efficient than CFLs and perform far better than LEDs. [specifier]*

*Some older houses are wired in series rather than parallel, so rewiring becomes necessary to accommodate the CFLs. [installer-electrician]*

*We have heard they are phasing out mercury vapour lamps, but don't know who to believe. We don't know who to ask, either. [specifier]*

## **3.2 Evaluating the Point-Of-Sale Material**

### **3.2.1 Recall of the Existing Point-Of-Sale Materials**

As indicated earlier, less than half of the sample recalled seeing any point-of-sale materials to do with the phase-out (consumers 31%, specifiers 27%, installers 41%, suppliers 38%). This relatively low unaided recall level was clarified when selections of the point-of-sale materials were subsequently examined in the consumer focus groups and in most face-to-face interviews and small group sessions with specifiers, installers and retailers.

Given that it more than a year since POS materials were made available, it is perhaps to be expected that few of the retail outlets would be displaying it now (one specialist lighting chain being the notable exception, who were still displaying posters – the one light on the hill). What is interesting, however, is that many retailers interviewed for this study now had little or no recall of being offered, or receiving or displaying the POS material at the time, or in some cases were not working there at the time. Some could remember receiving, and in most cases displaying, one or two of the POS items, but maintained that they had long since been discarded mainly because they were thought to have “done their job” and/or because they were torn or dirty.

At the stores visited in person apart from the specialist lighting chain mentioned above, we saw little evidence now of any POS materials (ours or anyone else’s) for light globes other than the packaging itself, the quality, information content and readability of which varies immensely.

In addition to the substantial minority of consumers who had clearly seen and taken note of one or more of the POS items there were many others to whom elements of it, such as the stylised CFL image or the headline (‘Change the Globe’) or the Conversion Guide, at least “rang a bell” even though they did not recall seeing the whole item. Some also had vague memories of a hip-pocket-related ‘save money, save energy’ theme, while some others felt it had a climate change-related ‘reduce emissions, save the planet’ theme. Given that most people claimed to have visited a retail store only once or twice, if at all, in the last year or so to buy light bulbs, the vagueness of recall is not unexpected.

On the other hand there is quite reasonable prompted awareness of the POS materials (Did you see these items?), at around 39% of consumers, 48% of specifiers and installers and 53% of suppliers. Prompted awareness was heavily skewed towards the wall posters, with relatively little recall of the other items (See Table 9).

**Table 9 Fully Prompted Recall of Phase-Out POS Materials**

<b>Fully Prompted Recall on Reviewing Phase-Out POS Materials:</b>	<b>Consumers</b>	<b>Specifiers &amp; Installers</b>	<b>Retailers, Wholesalers</b>
	<b>%</b>	<b>%</b>	<b>%</b>

Wall Poster (any)	31	40	49
Tear-off pads	5	6	6
Suspended poster	2	3	6
Shelf wobblers/strips	2	3	5
Any POS recalled after prompt	39	48	53
Nothing recalled	61	52	47
Caution: small bases [n=]	195	166	131

Among those who did recall seeing specific CTG POS items, few could now recall in precisely which store(s) they saw them, with lighting stores, hardware stores and supermarkets (in that order) being the main mentions. In most cases people thought it had been “some time ago” (eg, last year or early this year), with only a few mentions of recent sightings (mostly Beacon Lighting).

While most maintained that they had already known about the phase-out of incandescent lights before seeing the POS, some others maintained that the POS had alerted them to it. However, at the time most were still able to purchase their desired incandescents as stock was still available.

*I could still buy the ordinary ones at the time, and I bought a couple extra on the strength of it, but what it (ie, the POS) did do was give me time to get used to the fact that I'd need to buy CFLs next time.*

Given that most people were aware of CFLs before the POS campaign, but far fewer knew much if anything about MVHs (and many still do not know much at all about them), the POS campaign was seen mainly as promoting or reinforcing a ‘change to CFLs’ message.

### **3.2.2 Evaluating the Existing Point-Of-Sale Materials**

An examination of the POS materials in the consumer focus groups and in most face-to-face interviews and small group sessions with specifiers, installers and retailers generally confirmed the findings and recommendations of our earlier study<sup>10</sup> which guided their development.

The stylised CFL together with the headline ‘Change the Globe’ (used in all the materials) was viewed widely as a strong call to action to change from incandescents to CFLs, and many saw this as also suggesting that the world would be better off as a result.



<sup>10</sup> See our *Final Report on a Qualitative Research Study Testing Point-of-Sale (POS) Concepts for the Phase-out of Inefficient Incandescent Light Bulbs Project*, conducted for the E3 Committee through the Department of the Environment, Water, Heritage and the Arts, Canberra ACT, 28 November 2008

*I remember seeing that poster the first time and thinking ‘Change the Globe’, that’s a good pun, change from old globes to CFLs and you are also changing the world’s chances of survival. It’s a very nice idea. [consumer]*

In several of the posters, the exclamatory question (‘What’s in it for me?’) was arresting and the body copy answer reinforced the changeover to CFLs.

**What’s in it  
for me?**

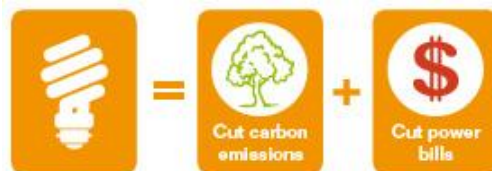
**The right choice will  
save you money**

- Together we spend around \$900 million each year on lighting our homes
- Simply by switching to energy efficient light globes you can cut your lighting costs by up to 80%
- By choosing an energy efficient light globe, each of us can **change the Globe™** today

*This one with black is quite familiar for some reason, i must have read it before somewhere. [consumer]*

*Very vaguely I remember seeing the poster, was it hanging? I can’t remember which shop it was but I do remember seeing it, I recognise the odd-shaped CFL at the top and the olive green colouring. [consumer]*

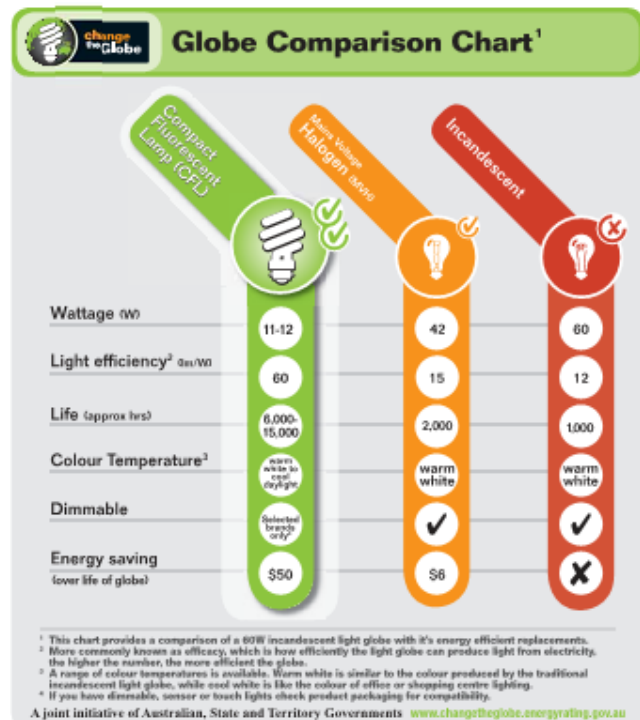
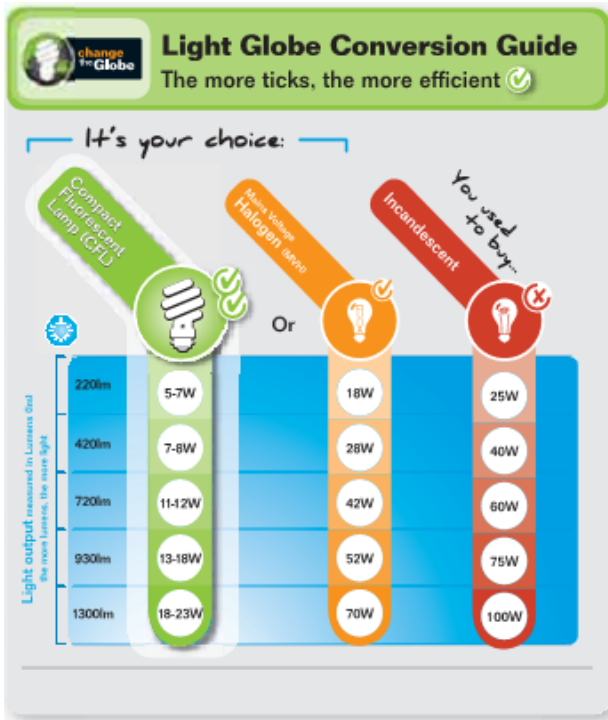
The equation used in most items reinforced both ideas (better for the environment, and saving you money):



*It’s a neat way of summing up the whole exercise, it’s a win-win situation – a win for us and a win for the environment. [consumer]*

The Light Globe Conversion Guide contained in some posters and on one side of the tear-off pads also tested well, except for the lumens column which many perceive as unhelpful or irrelevant (see discussion elsewhere), and for some, the Halogen column as designated by what to them looks like an incandescent bulb. Most consumers seem not to be aware of halogens, except perhaps as downlights (again, see discussion elsewhere). On the other hand the Globe Comparison Chart, although useful to some for its efficiency and energy saving information, was of far less value to most than the Light Globe Conversion Guide.





*I read it in our local Beacon Lighting shop, it tells you the equivalent wattage for each of the three types, and also the different power of them against the things on the left hand side, whatever they are [the lumens column]. [consumer]*

*The chart [in the poster] looks familiar, I've seen that somewhere. I can't remember where, now, but I do remember reading it at the time and it made sense to me then because I was buying CFLs. [consumer]*

*It's simple, straightforward and effective, provided you get rid of that first column. [consumer]*

*I haven't seen the poster, but I remember seeing a pad of leaflets you could tear off in the shop I go to, comparing different globes. I think it was that one – I didn't take one, but I remember thinking it was a damned good idea at the time. [consumer]*

**BUT:**

*I looked at that chart but I couldn't figure it out so I gave up. It was this first column that bamboozled me. I understood the comparison with the watts comparing CFLs with incandescents and these other things [MVH] I'd never heard of, but then they've got this silly lumens column which confused me completely. [consumer]*

*I replaced the light in the spare bedroom with one of those CFLs, using the comparison in that chart to choose the right one, but my grandson's comment when he came to stay was 'do I have to get a match to see if the light is on, and I hope I don't have to read'. It's supposed to be the same brightness, but it's much duller, so the chart is obviously wrong. [consumer]*

Inclusion of a column in the Light Globe Conversion Guide depicting the equivalent number of lumens of light output in each row was negatively viewed, often rejected, by many consumers and some specifiers and installers. Clearly most consumers are not familiar with the term, but there is



far more to their views than that. People are quite used already to comparing the brightness of CFLs in watts with the equivalent watts level of incandescents. They also see the ‘roundness’ of the incandescent watts levels as the norm. On the other hand, the magnitude of the lumens figures (“in the hundreds and thousands”) is alien to them, a hesitancy compounded by the perceived-as-artificial preciseness of the lumens numbers (“rounded to the nearest ten”). Whether or not the decision is made to continue to include a lumens column in brightness comparison tables in order eventually to educate people, continued inclusion of the incandescent watts column would seem to be mandatory if current relevance and usefulness of the comparison table is to be retained. MVHs are also already included in the table and indications are that its relevance is increasing as people come to know the technology. Other new technologies can be added as they enter the consumer market.

*I’m an electrical engineer by training, but although I understand the lumens argument and why you’d want to change to lumens, I still talk in watts when I’m thinking how bright lights will be and certainly so do all our clients. It’s not like the change to metric measurement or decimal currency – both of those were changing from uneven numbering systems with twelve inches to a foot, and twenty shillings to a pound, to simple 10-based systems. Here the lumens numbers, 220, 420, 720, 930 and 1300, make less sense than the simple 25, 40, 60, 75 and 100 watts we all know. [specifier – lighting engineer]*

*I know technically it’s hard to argue against lumens, but commonsense says if people are already comfortable with something that works, they won’t listen to you. We’ve all grown up with incandescents and know exactly how bright a 25 or 40 or 60 or 75 or 100 watt globe is, so that’s our yard stick. We don’t go into the shop asking for an 11-12 watt or a 14 -18 watt CFL, and we wouldn’t ask for a 720 or 930 lumens globe either. Rather, we look for the one that says it is equivalent to a 60 watt or 75 watt incandescent – at least we know how bright that is. By all means have both units (lumens and incandescent watts equivalent) on packs and in comparison tables, but don’t drop the incandescent watts equivalent just yet or you’ll have pandemonium. Maybe in ten years time you can drop the incandescent watts equivalent column, or maybe it’s even a generational thing, but certainly you wouldn’t drop it anytime soon. [specifier-architect]*

*A much simpler way would be to give each size a letter – 25 watts is A, 40 watts is B, 60 watts is C, and so on. That would be much easier to understand. In my job I see a lot of consumer complaints, and as soon as you make things complex like this [lumens], you have problems – if you say this is an A, B, C, D, or E in brightness, everyone will understand. [consumer]*

*Doing a times table, there’s something fundamentally wrong with the lumens column. See 220 lumens is a fair bit less than ten times 25 watts, 420 lumens is roughly ten times 40 watts, and 1300 lumens is way over ten times 100 watts. So whoever calculated the lumens column got it horribly wrong. [consumer]*

*Round the lumens to hundreds then drop a nought and call them deci-lumens, then you’ll get 20,40, 70, 90 and 130 deci-lumens which sit much better against their watts equivalents of 25, 40, 60, 75 and 100 watts. It would still be on a human scale. [consumer]*

*There's too many numbers in the lumen column – you don't want a globe that's hundreds or even thousands of units in brightness, no, 100 watts is the strongest I'll ever need. [consumer]*

*You have rounded numbers with watts, but with lumens you are splitting straws, and it's not as precise as that. Just round all the lumens up or down to the nearest hundred and that will look much more credible, I would have thought. [consumer]*

*I work in special education and you have pictures rather than words, one picture for each colour or mood is all you need for everybody. [consumer]*

*Prior to tonight if I saw a light bulb with 18 or 25 watts, I'd dismiss it as far too dull, that's why I've never bought CFLs. But now I have an understanding of the comparison, I might buy them. But globes with these lumens would be far too bright, they're in the hundreds. [consumer]*

## **3.3 Investigating Future communications Needs**

### **3.3.1 The Role of POS Revisited**

Whether they had seen the POS materials or not prior to this research, most people thought that it was no longer needed in its current format as the phase-out has largely occurred (although limited stocks still exist in some shops). Most retailers also held this view.

However, many consumers (and some specifiers and installers) still lack confidence in choosing the right globe and felt that there was an ongoing need for some kind of POS material containing information to assist with one or more of the following:

- f. Continuing to help people choose the appropriate brightness of light to meet their needs.
  - The Conversion Guide does this well, but needs to be readily available (eg, as a tear-off sheet) where people buy light bulbs, as well as on relevant websites, in home improvement publications, etc.
- g. Helping people choose the appropriate colour or mood of light to meet their needs.
  - A user-friendly guide is needed to provide a clear description of all the different colours and moods of CFLs (and other lights as appropriate) and how these affect their comparative brightness as well.
- h. Introducing and clearly explaining mains voltage halogens (MVHs), light emitting diodes (LEDs) and any other new(er) technologies in residential lighting as they emerge.
  - There is a role for a simple, brief publication listing and clearly displaying the various new lighting technologies, describing their features and characteristics and outlining their key advantages and disadvantages. Again, inclusion of this information on relevant websites and in home improvement publications, etc should be explored.
- i. Giving timely warning and explanation of future lighting phase-outs.
  - A case in point is the imminent phase-out of greater than 40W candle, fancy round and decorative lamps. Consumers may be concerned that their lights will lose their appeal with 40W globes. However, several of the experts interviewed for this study maintain that once MEPs are applied to 40W globes in conjunction with the phase-out, all 40W lamps left on the market will be as bright if not brighter than many of the poorer quality 60W lamps available today.
- j. Providing advice or FAQs on a range of common concerns and issues (mainly to do with CFLs), eg, flickering, slow start-up, mercury, correct disposal, etc.

- The Department has already made fact sheets available on the Website<sup>11</sup> on a number of relevant issues, with some being referred to by at least several consumers in this study. The repertoire could be expanded to include various other issues about which consumers, specifiers and installers interviewed in this study would like more information, clarification and advice.

While all the above matters should be covered in leaflets, on websites, etc, as general references, many of the issues tend often to be mainly focussed on by consumers at the time and point of purchase.

- Well designed, relevant and readily available POS material can play a role here, although this study has shown that its coverage and length of time displayed can be less than ideal in practice.
- For matters directly related to the choice of light bulb, a simple and clear message, explanation or instruction on the packaging would be valuable, provided it appears on all (or most) packaging. While importers of light globes may have limited control over what appears on light globe packaging beyond that required under Australian law, consumers, specifiers and installers would like to see it attempted, and preferably mandated if possible.

*I don't carry a Choice magazine with me when I duck out to the supermarket to buy my light bulb, I need information in the store or better still on the packet, but they don't describe the colour on the packet. [consumer]*

*Why don't they just put the comparison table on every packet, then it's right in front of you when you're making a decision. [consumer]*

*Because they're all imported now, and Australia's a tiny market in the overall scheme of things, it's probably difficult to get manufacturers in China to put uniform information on every pack. But maybe if we had an Australian Standard like we do with other building products that only allowed lights to be sold if they did have the required information on the packaging, this might make it easier to get them to listen. [specifier-architect]*

*The most important thing is that when a colour is described and the pack colour-coded, all packs need to have the same descriptions and use the same colour codes. The way it is at the moment, some have a description, some don't, some colour-code, some don't, it's all over the place. [specifier-lighting designer]*

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<sup>11</sup> <http://www.climatechange.gov.au/en/what-you-need-to-know/lighting/resources.aspx>

### **3.3.2 Other Suggestions and Implications for Further Communication**

Many issues, concerns and knowledge gaps emerged spontaneously throughout the study and have been documented earlier. Late in each focus group and interview we asked people whether they would like to see (more) information and advice about seven specific issues (See Table 10).

**Table 10 Issues About Which People Need More Information and Advice**

<b>Prompted issues about which people need more information and advice:</b>	<b>Consumers %</b>	<b>Specifiers &amp; Installers %</b>	<b>Retailers, Wholesalers %</b>
1. Dispel lingering environmental and health issues to do with alternatives to incandescents.	58	81	60
2. Mains Voltage Halogens look similar to the traditional Incandescent with the halogen capsule in the centre of the globe.	41	76	58
3. The greater efficiency of Compact Fluorescents, compared to Mains Voltage Halogens and Extra Low Voltage Halogens.	34	67	73
4. Educating people how to handle, install and dispose of the newer light bulbs.	37	62	53
5. Reassessing how bright people really need lights to be	16	42	14
6. Using lumens (or not) to portray comparative brightness, rather than watts.	19	31	13
7. Strategies to deal with downlights.	11	27	9
No response	21	7	9
Caution: small bases [n=]	195	166	131