Department of the Environment & Energy.

Light bulb labelling research: qualitative report.

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Prepared for the Department of the Environment and Energy on behalf of the E3 Program.

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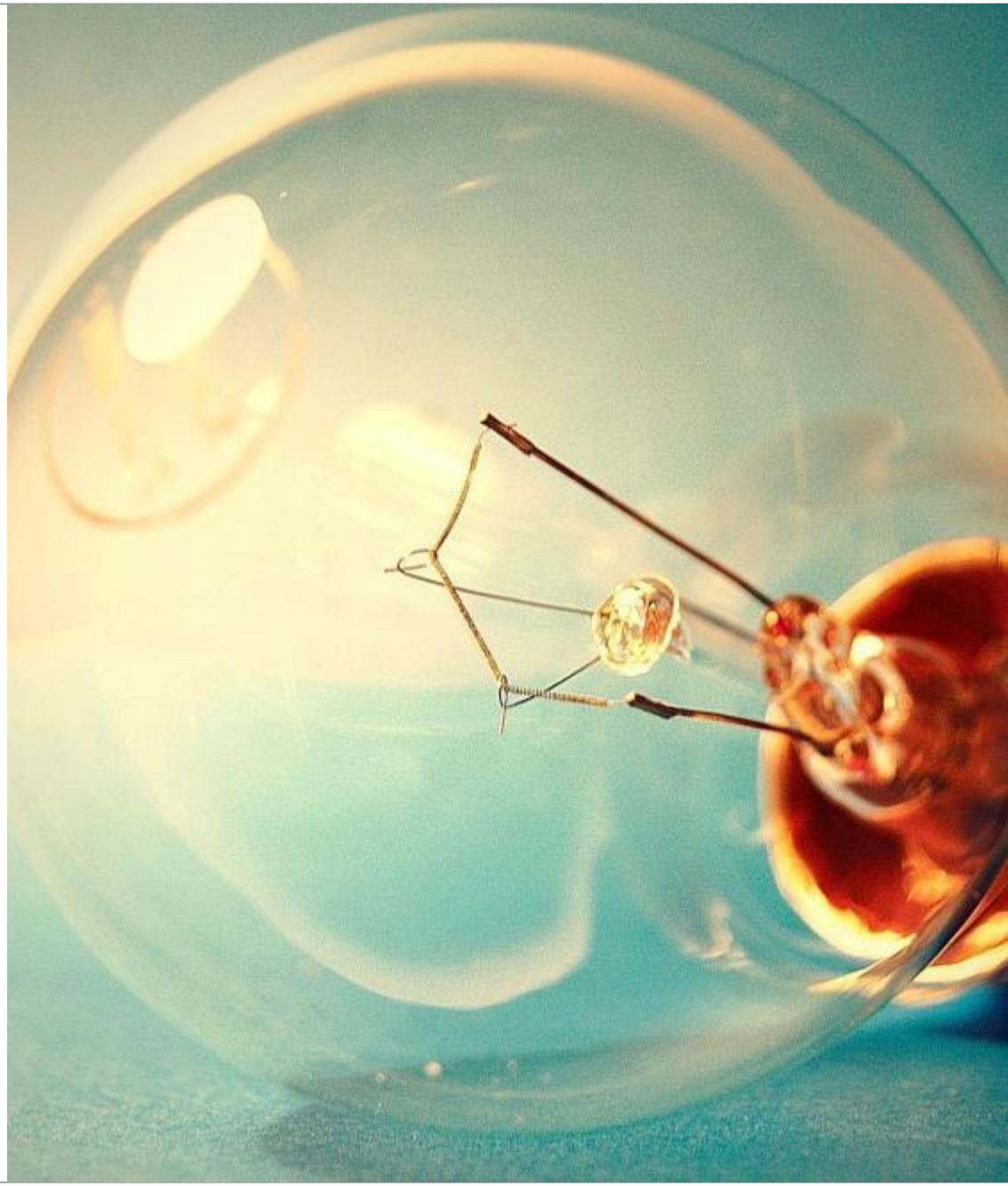
Background.

Background

The overarching purpose of this study is to determine whether a consistent label on light bulb packaging would assist consumers in purchasing the most efficient and appropriate light bulb for their application. Or, alternatively, if product marking requirements (with specific information, but without specifying the design) on packaging would be just as effective as a standardised label.



Background

There is currently a very broad range of packaging styles for light bulbs in Australia and New Zealand, and all display a variety of information, much of which is unlikely to help consumers make comparisons on the most energy efficient choice for their home. This study focused on the information needs of the consumer from this packaging.

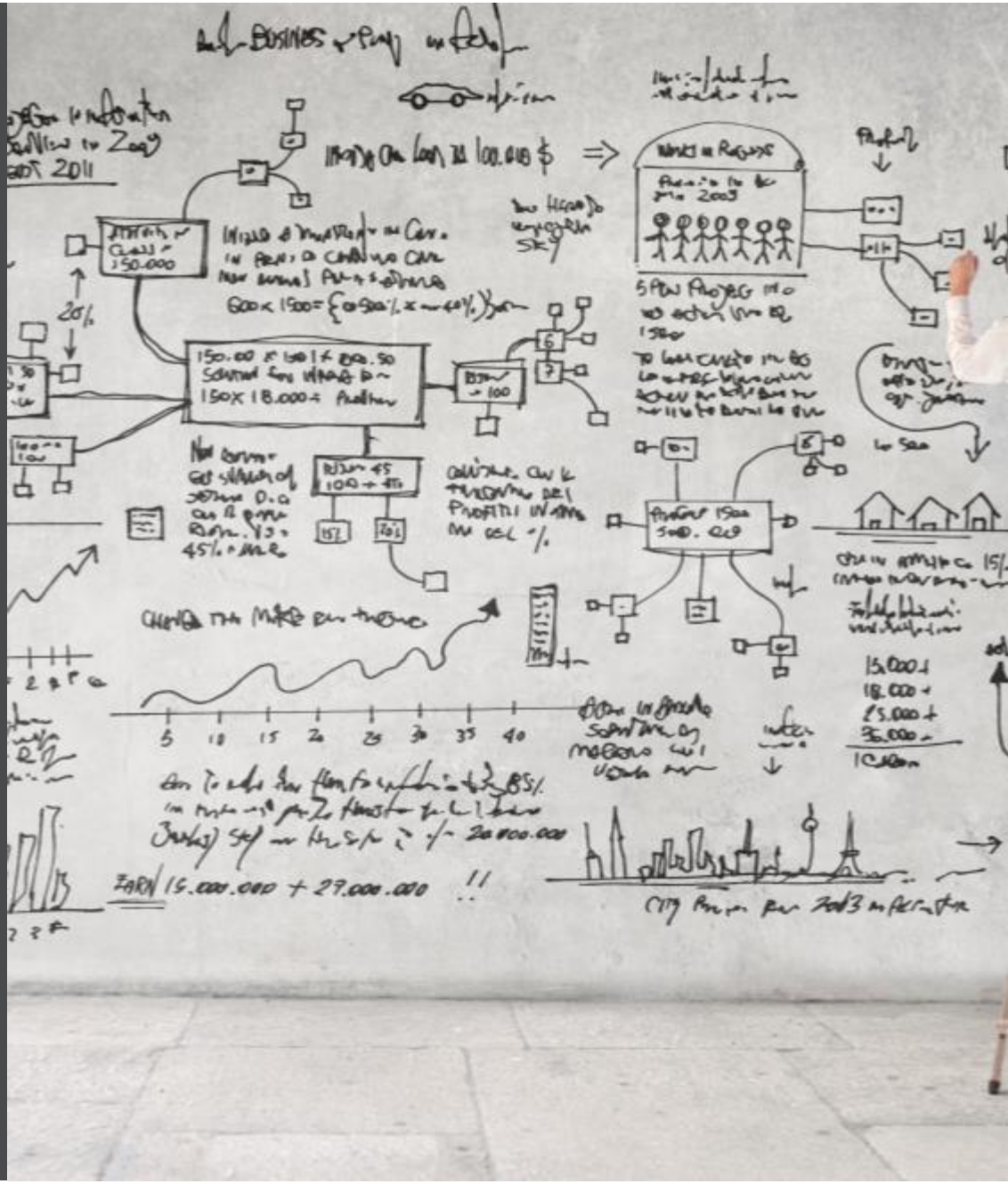
In stage one of the research, the following objectives were explored using a quantitative methodology:

1. What role labelling specifically, currently plays in the purchase decision.
2. The ease with which information is identified on light bulb packaging.
3. Whether labelling information is likely to encourage shoppers to purchase energy efficient light bulbs over standard bulbs.

Specific Objectives for Stage Two

As per the contract, the research objectives for the qualitative phase were to:

1. Understand what information is essential to display on the front of light bulb packaging;
2. Determine what form the most important information should be displayed in;
3. Identify the most effective method for communicating energy efficiency;
4. Identify the most effective method to communicate lifetime;
5. Explore the effectiveness of including incandescent wattage alongside lumens to assist consumers in identifying replacement lamps, including recommended presentation.



Methodology.

Methodology.

Stage one

Phase one
Scoping and planning

Create a shared vision for the research, engaging all relevant decision-makers in the process. Confirm the research objectives, research design, research timings and project team.

Phase two
Contextual scan

Review the recent research on factors which influence lighting purchasing decisions, and current light bulb labelling advice for shoppers in Australia and internationally for shoppers. The findings from this stage will inform the qualitative discussion guide and the final report.

Phase three
Quantitative survey

Design an online survey with n=800, nat rep across NZ and AU, and prepare a short report on the consumer appetite for labelling recommending whether to move to stage two.

Stage two

Phase four
Qualitative discussions

Qualitative research in Melbourne, Sydney and Auckland. In total we ran 6 qualitative discussion groups, and 6 paired in-depth shopper experience interviews.

Phase five
Analysis and reporting

Analysing the findings from the qualitative research and bringing these together with the reflections from the contextual scan into a full draft and final report

We are here.

Who we spoke to: focus groups.

The qualitative phase of research was conducted between the 18th and 21st January 2017.

Focus groups (90mins)	Target audience		Location
Group 1, 5	18-34 years	Currently purchasing energy efficient light bulbs Mix of men & women; home owners & renters	Melbourne, Auckland
Group 2, 6	35-60 years	Open to but not currently purchasing energy efficient light bulbs Mix of men & women; home owners & renters	
Group 3	18-34 years	Open to but not currently purchasing energy efficient light bulbs Mix of men & women; home owners & renters	Sydney
Group 4	35-60 years	Currently purchasing energy efficient light bulbs Mix of men & women; home owners & renters	

Focus groups were conducted with consumers who have an interest in making energy efficient choices when it comes to light bulbs, and with consumers who do not currently buy energy efficient bulbs in order to gather a broad range of perspectives. The key purpose of this phase was to gain a deep understanding of current consumer behaviour and provide direction on how to assist customers to make more informed energy choices. Qualitative research is ideal where depth of understanding and exploration of attitudes, needs, and perceptions is required.

Who we spoke to: depth interviews.

The qualitative phase of research was conducted between the 18th and 21st January 2017.

Paired depth interviews (30 mins)	Target audience		Location
N=3 1 per location	18-60 years	Currently purchasing energy efficient light bulbs Mix of men & women and mix of home owners & renters	Melbourne, Sydney, Auckland
N=3 1 per location	18-60 years	Open to but not currently purchasing energy efficient light bulbs Mix of men & women and mix of home owners & renters	Melbourne, Sydney, Auckland

Depth interviews were run in the form of accompanied shops, recruited independently from the groups. The purpose of the accompanied shop was to obtain real-time, naturalistic data on how consumers navigate the category in-situ. Paired depths allow researchers to obtain a wider range of behaviours in a cost and time efficient way. We will explore the experience of an average light bulb buying trip – what attracts attention, what information is attended to and what is ignored and any information that causes confusion. These interviews will help us to understand how decisions are made in store and how this might differ to stated purchase decision making verbalised in the less natural group setting.

Executive Summary.

Key Findings & Recommendations.

What information do consumers need on the front of light bulb packaging to guide energy efficient choices?

1. Shopping for light bulbs is typically quick. Light bulbs are a low value, low engagement purchases that consumers typically put little thought into. Accompanied shops demonstrated that consumers are unlikely to pick up packs to examine them. Rather, information about the physical features of the lamp are sought out on front of pack and prices are compared. Purchase decisions are driven by suitability of bulb to function/area of the house, suitable fitting (screw in versus bayonet), colour temperature and price.

2. Energy efficiency is not always a priority when making light bulb choices in-store. Consumers demonstrate limited literacy when it comes to light bulb types and terminology making it difficult to compare energy efficiency among available options. Importantly, most consumers do not have a strong belief that a more energy efficient bulb will have a noticeable impact on their energy costs. As such, the incentive to choose more energy efficient options is unclear.

3. The benefits of energy efficient bulbs needs to be made more salient to encourage consumers to choose energy efficient bulbs. For example, clearly highlighting differences in running costs and lifetime. Given the observed tendency not to pick up packs, this information is likely to have most impact if presented on the front of the pack. Key information to incorporate on front of pack includes: energy efficiency, brightness, colour temperature, running costs and lifetime.

How should this information be displayed?

4. Scales represent an efficient way for consumers to make comparisons amongst available products. To maximise ease of use, a single metric that is familiar and easy to interpret should be used. Scales are likely to be effective for not only communicating energy efficiency, but also brightness and colour temperature.

5. Currently, much of the terminology used to describe light globes is perceived as esoteric or jargonistic. To help consumers understand the information presented, all terminology (including scale descriptors) should be functional and describe what it does. For example, power usage/energy consumption rather than watts, light appearance instead of colour temperature and brightness instead of lumens.

Key Findings & Recommendations.

What is the most effective method for communicating energy efficiency?

6. When testing the example labels for clear communication of energy efficiency, the star rating system used on white goods and appliances was preferred by the majority. The star rating system is recognisable, easy to interpret and allows energy efficiency comparisons between products to be made at a glance.

7. The US lighting facts example label was also well-received. This label clearly outlines the practical information consumers look for (brightness and light appearance), and clearly highlights the practical impact of the efficiency of the globe. Like the star rating, this label is presented in a format that is similar to other well known labels (i.e. nutrition facts). Use of colour and including a scale to represent brightness are expected to maximise the impact of this type of label.

8. When consumers were asked to draw their ideal light bulb package, most consumers used a combination of the star rating system and the lighting facts label. A number of consumers also used a scale to represent relative brightness.

What is the most effective method for communicating lifetime?

9. Being long-lasting is a potentially motivating aspect of energy efficient bulbs but at present, there is incomplete understanding of the fact that energy efficient bulbs will also be longer lasting. Standardising how durability is presented and consistently representing this on all packs will help to drive this message, but no clear preference for communicating lifetime in hours or years emerged. Years can generate scepticism but could also be perceived as easier to relate to. In the absence of clear preference an alternative presentation could be considered, e.g. last X times longer than traditional/incandescent light bulb..

10. Warranties / guarantees could lack credibility and interest for this kind of purchase. In particular, lifetime guarantees may not be believable and / or seen as impractical (unlikely to keep receipts needed to take up the offer if needed). Similarly, offers of a warranty are unlikely to taken up by consumers because it is impractical to do so for a such a low value purchase.

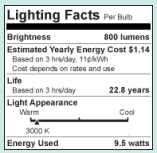
Key Findings & Recommendations.

What is the potential effectiveness of including incandescent wattage alongside lumens to assist consumers in identifying replacement lamps, including recommended presentation?

11. Older consumers tend to rely on incandescent wattage equivalence to determine suitability or preference for bulbs. Older consumers are familiar with choosing light globes for different areas of the house, or for different types of lights based on this system. Younger consumers are generally less familiar with incandescent lights and can find this information confusing or unnecessary.

12. Developing an independent scale to represent relative brightness (e.g. a 5-point graphical scale) is likely to be more widely understood and reduce the need to include incandescent wattage alongside lumens. This approach may also avoid the potential for confusion associated with introducing incandescent wattage in a different context than consumers are familiar with (energy use comparisons between different types of lights).

Communication Examples: Summary of strengths & weaknesses

Example	Preference Ranking*	Strengths	Weaknesses
	1	Familiar, well-known scale for specifically conveying energy efficiency . No education required for consumers to understand.	Does not provide concrete information about the practical benefit of buying the bulb.
	2	Familiar format from food category. Provides concrete information about the practical impact for the consumer (i.e. energy and cost saving).	Can be seen as too mathematical or complicated by some. Layout and colours less likely to capture attention.
	3	Simple, uncluttered presentation of key information. Similar to existing packaging – familiar.	Lacks clear scale for comparing energy efficiency. Does not overcome difficulty associated with limited consumer literacy regarding meaning of watts & lumens.
	4	Colour temperature scale easy to interpret and has potential to change perceptions of energy efficient lighting as appearing too “clinical”.	Lacks clear scale for comparing energy efficiency. Contains “jargon” and much of the information lacks relevance to a typical purchase decision.
	5	Traffic-light style scale easy to interpret and compare across products.	Unfamiliar. Does not provide concrete information about the practical benefit of buying the bulb.
	6	None apparent.	Too detailed/overwhelming. Uses unfamiliar symbols and acronyms that are difficult to interpret.

*Rankings based on qualitative sample and may not be representative. However, please refer to pages 80-84 of the quantitative study report which reflect similar findings.

Findings.


Mindset &
purchase
decision making.

Consumers differentiate light globes based on physical features.

Features include:

- Fitting type (bayonet, screw)
- Shape/style – downlights, spiral, tubes, globes
- Colour temperature – warm white, cool white
- Brand – can be seen as a proxy for quality and therefore durability

While there is general recognition that light globes can vary in their efficiency, knowledge of which globes are most efficient varies widely.

Rather than trying to compare lamps, consumers often have a general heuristic in mind regarding efficiency, for example:

- Halogen = bad, spirals = good; or
- Lower wattage = more efficient

Younger consumers tend to be more aware of and interested in energy efficiency. This dimension is rarely if ever considered by older consumers.

In-store however, accompanied shops demonstrate that energy efficiency can be low in the purchase decision hierarchy. In one case – even though energy efficiency was considered, light bulb ultimately rejected based on price.

Light bulbs are a low value, low engagement purchase that consumers typically put little thought into while in-store.

- Shopping for light bulbs is generally very quick – take the old bulb and match or look for simple features (shape, connection type, colour temperature). Consumers tend to be drawn to bulbs they have used in the past.
- After consideration of fitting type and shape, other physical features are considered - preference for warm rather than cool light and expected brightness.
- Shopping can also be a highly price sensitive decision. From both accompanied shops and groups it is apparent that there is considerable resistance to paying $15 for one light bulb, even if it does last for a long time. For many consumers, the 'acceptable' price range for bulbs is between $1 - $4, with a $5 bulb is considered a 'luxury' item. The notion of a $15 bulb is simply beyond the normally considered range for most consumers.
- Attention may be limited to bulbs in lower price ranges, or available in multi-packs to take advantage of bulk-buy discounts.
- Brands is also important to many consumers. Low cost/generic brands can be assumed to be lower quality and therefore not long lasting and avoided. Branded products can be considered worth paying a bit more to avoid the inconvenience of having to change the light bulb too often.
- For more complex purchases, e.g. range hood lights, consumers report that the in-store experience can cause frustration due to difficulty comparing or choosing. As a result, some prefer to go to specialty lighting stores or rely on others in the family to make less typical purchases.

Accompanied shops demonstrated that much of the on pack information is not used or understood.

- Consumers rarely pick up the packs to learn about the lights in any technical detail. Rather, they glean the practical information needed to determine if it will suit their purpose from the front of the pack.
- Simple, non-scientific phrases such as “energy saving”, pictures of the shape and fitting, and descriptors of colour temperature do attract some attention.
- Beyond these factors, comparisons between available options is limited.
- Sometimes watts are referred to, though typically as an indication of brightness rather than energy efficiency or power draw.
- Lumens are not always noticed.
- Even when long-lasting is stated as an important element of the shop, claims around lifetime of bulb are not commonly considered or noticed. Instead, expected lifetime tends to be based on previous experience with a type of light, or brand as a proxy for “lasting”.
- Most consumers would not return a bulb which didn’t last as long as claimed because it is a relatively low investment and unlikely to have retained receipt or packaging.
- Limited consideration is given to long-term running costs. Instead, initial outlay tends to direct choice, particularly for those on low incomes who may not be able to afford large initial capital expenditures.


Consumer Literacy:
light bulb types and
terminology.

In general, understanding of how different types of lights differ from one another is limited

Even if consumers are able to articulate what various acronyms stand for, there is little understanding of the differences between halogen/fluoro/CFL/LED.

- Incandescent types are well known but not by that name – more commonly associated with being “old fashioned”.
- Halogens can be confused with incandescent globes based on having a similar shape and appearance.
- Fluorescent lights are strongly associated with tubes and are sometimes confused with neon lights, particularly by older consumers.
- CFLs known as the “curly” ones but not necessarily known to be a fluorescent light. For some they are a standard in the home, for others they are perceived as ugly and avoided.
- LEDs are generally known as being newer. Some awareness that they are more expensive which may be assumed to be because they are longer lasting. Also associated with TVs but no real understanding of how the technology works.

Awareness of how different technology works, and how different types use power or generate light is variable.

- Only a few consumers demonstrated clear understanding and awareness of the differences in technology.
- As a general rule, younger consumers think of halogen as older, less efficient technology.
- Older consumers tend to associate spiral globes with energy efficiency. They are known to have been heavily promoted, and even given away, by government to encourage energy efficiency in the past.
- Some older consumers use incandescent lights as their baseline for comparison and believe that all commonly available types (halogen, LED, CFL) are “better” in this regard.
- Only a few consumers demonstrate clear understanding and awareness of the differences in technology.

Understanding of terminology relevant to energy use and output of a light is also limited.

- **Watts:** Consumers are familiar with watts being some kind of measure of power. However, some confusion exists about the exact meaning specifically in the context of light bulbs. Watts in relation to light bulbs (as opposed to appliances) can be interpreted as:
  - the brightness of the bulb or the amount of brightness or power the bulb puts out,
  - the power it takes to run the bulb,
  - or the maximum power/brightness that a particular light can take.

  Most consumers are familiar with the idea that different wattage globes are desirable for different areas in the house due to the different light intensity of incandescent bulbs.
- **Lumens:** few consumers are familiar with lumens as an indicator of brightness.
- The term **colour temperature** is also unfamiliar but consumers are familiar with difference between warm/cool white.
- **Lifetime:** easy to interpret as referring to the length of time the product is intended to last. However, can have limited value / relevance / lack credibility.
- **Standby Power Use:** understood but consumers have rarely considered this in relation to their light globes/assume that turning lights off at the wall switch means that this should always be zero.
- **ELVC converter capability:** no understanding. When asked to guess dimming capabilities or something to do with smart houses.
- **Efficacy:** lacks meaning in relation to light bulbs. Could be assumed to be related to efficiency or even overall quality.

Consumer understanding of energy efficiency.

Being “energy efficient” is broadly understood as being better for the environment, having lower running costs, or for many, being longer lasting.

- Overall, the general concept is somewhat better understood by younger consumers, particularly those from NZ. Older consumers may interpret “energy efficiency” to mean only how long the bulb lasts for (no mention of amount of power used).
- However, limited literacy around the meaning of energy efficiency and the terminology used to convey this makes it difficult for consumers to determine and compare bulbs on this dimension.
- Rather than direct comparisons, consumers may have a general heuristic in mind for understanding the energy efficiency of different light types. For younger consumers, typically: Halogen = bad, LED = good. For older consumers, the “curly” types are the considered to be the energy efficient ones.
- There is little understanding of lumens per watt ratio as an indicator of “efficiency” suggesting that the broader concept is not well understood. Only a minority understand the reason why the number of watts vary between light bulb types: The more energy efficient ones use fewer watts (less energy) to produce the same amount of light. More typically, energy efficiency is considered along a single dimension – amount of power used.
- However, this relatively complex relationship between older/newer bulbs and lumens vs. watts was not only confusing for some consumers; but also a source of great frustration. This was particularly true of older consumers who tended to simply ignore this information out of frustration and lack of understanding. Some even felt that the complexity of some claims was a marketing trick to sell ‘new fangled bulbs’.

Most consumers do not have a strong belief that a more energy efficient lamp will have any practical impact on their energy costs. As such, the incentive to choose more energy efficient options is unclear.

Other factors also influence willingness to buy more energy efficient bulbs:

Price

- Some consumers are extremely price sensitive and demonstrate limited willingness to incur higher upfront costs than necessary to have light in their homes.
- Shortage of total budget at any given shop can dictate choices.

Timing of purchase

- Consumers living in more short-term accommodation can be less willing to pay higher upfront costs for long term returns they are unlikely to benefit from, e.g. when moving out of a rental home.

Pack format

- Multi-packs can be preferred so as to have one as a “back-up”, and take advantage of the cost benefits of bulk purchase.

Consumer understanding of brightness.

Understanding how bright a globe will be is an area of confusion and difficulty for consumers

- Most consumers have not heard of lumens. Some have heard the name but don't really know what it means.
- With consideration, younger consumers tend to be better able to deduce from information provided on-pack that brightness must be signified by lumens.
- Older consumers typically assume that Watts = brightness.
- When attention is directed to lumens, there is no clear understanding of the scale. That is, what X lumens should look like.

Presentation of incandescent wattage equivalence has variable appeal

- Older consumers find this more easy to relate to and understand.
- Using the ‘equivalence’ or preferably ‘replacement’ wattage value has the advantage that the new (lower and actual) wattage value can simply be ignored and the older consumer can still choose the bulb that is suitable for them.
- For some younger consumers, this kind of scale lacks meaning and relevance because of a lack of familiarity with incandescent bulbs. Some of these consumers demonstrated an understanding of wattage as a proxy measure of brightness, however this group of younger consumers tended to be in the minority.
- Overall, younger consumers tend to look for price and shape/fitting. Beyond these practical features there is no clear decision-making hierarchy for many younger consumers.
- Brightness/watts/type of light may be next most important consideration for a few young consumers.

Communicating lifetime.

Long-lasting is a potentially motivating aspect of energy efficient bulbs.

At present however, there is incomplete understanding of the fact that energy efficiency will also be longer lasting.

Standardising how lifetime is presented and consistently representing this on all packs will help to drive this message.

However, consumers' preference for communicating lifetime in hours or years is mixed.

- Years has the benefit of being easy to understand in practical terms and reduces the "work" required to imagine how long the lifetime is. However, long life spans can lack credibility for some.
- Hours have the benefit of being more familiar and could avoid potential for the information to be seen as lacking credibility.

As no clear preference emerged for communicating lifetime in years or hours, an alternative presentation could be considered, e.g. lasts X times longer than traditional/incandescent light bulb.


Communicating
energy efficiency.

Current communication strategies are not working well to help consumers compare lightbulbs.

- Consumers have limited literacy when it comes to lightbulb terminology and tend to skip over information they don't understand.
- As a result, much of the information provided on pack is ignored.
- As a consequence, it remains difficult for many consumers to judge energy. Instead, some simply opt for a type of light they believe to be most energy efficient (which may or may not be correct), some look for watts and some for life span.
- There is also little consistency across brands and types. Helpful information found on one pack is often not available on all potential options, limiting the utility of this information for comparing relative benefits.

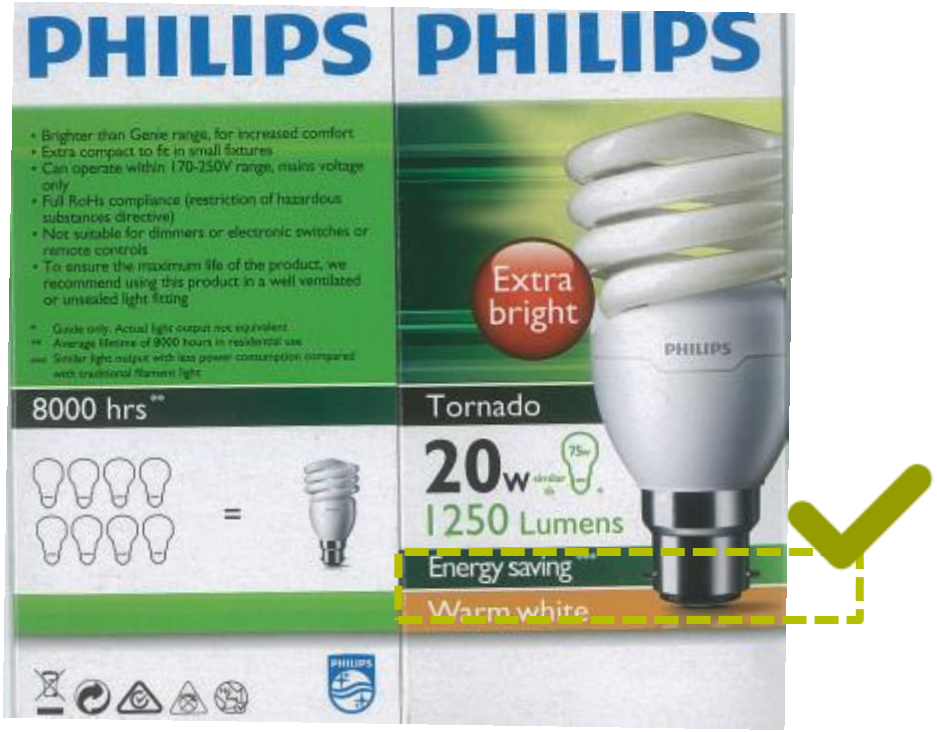
There is clear scope to disambiguate this information and help consumers make more informed choices. The idea of a consistent label to help make comparisons is positively received.

Pack elements that use clear uncluttered layouts to present key information on front of pack are most positively received.

Tables work less well if they are too small or cluttered.

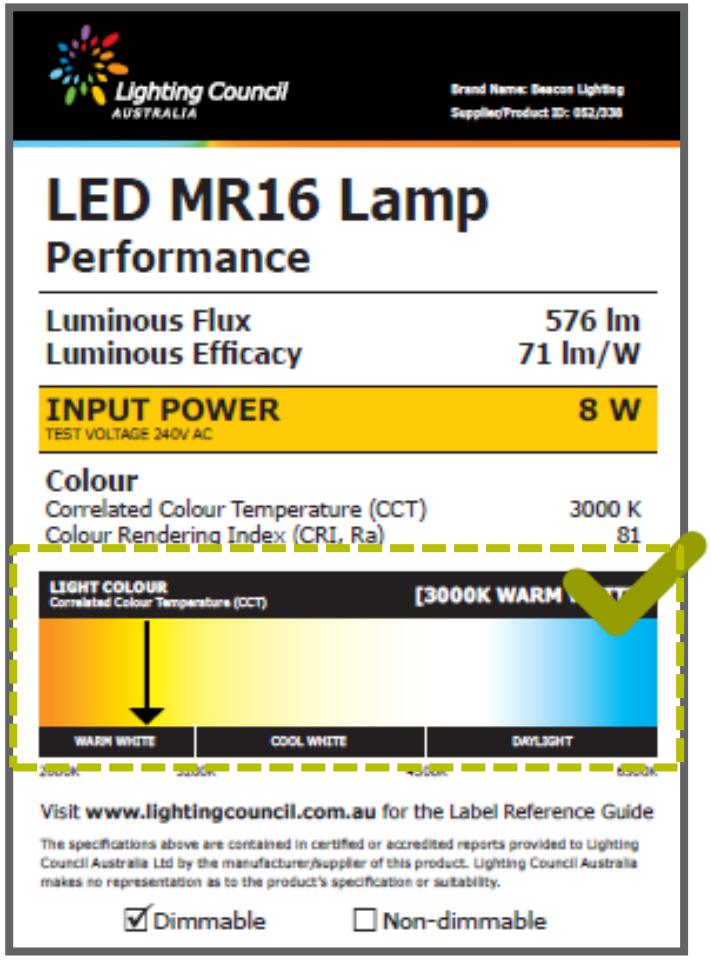
Clear, concise statements about the benefits are also well received

Information about estimated cost perceived as novel and potential motivating. However, not always noticed on back of pack.



Call outs such as “energy saving” are perceived as helpful in directing attention.

Many of the examples tested had elements with some appeal. Clear, simple scales and concrete statements about potential benefits were expected to be most useful for making comparisons.



Top of mind responses

- Too much information to take in.
- Colour temperature scale draws attention and is well-liked and understood.

Comprehension

- Contains “jargon” that is difficult to understand, e.g. Luminous Flux/Efficacy, Colour Temperature, Colour Rendering Index, Kelvins.
- Acronyms not well understood.
- Unclear which information conveys the energy efficiency. With consideration, input power number can be assumed to be the primary number but in isolation, the number lacks meaning, i.e., Is 71 lm/W or 8W is efficient or not?

Level of detail & layout

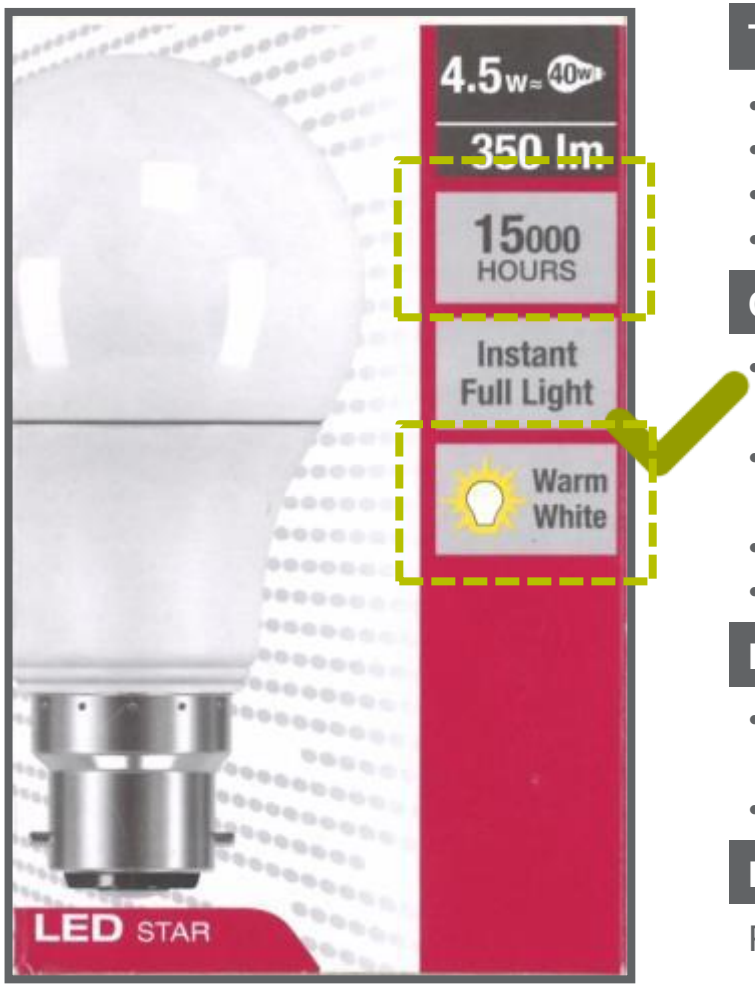
- Contains superfluous and not well understood information, e.g. CCT, CRI – as a general principle, few acronyms are understood, most are ignored.
- Information about dimming capabilities can be missed.

Potential strengths

Colour temp scale has the potential to overcome barriers to buying energy efficient lights (otherwise can be assumed to be bright white /fluorescent light).

Potential enhancements

Rename elements to describe the function of the information or convey in more consumer friendly terms, e.g. Luminous Flux = Brightness; Luminous Efficacy = Energy Efficiency. Include a scale that allows quick comparisons across bulbs.



Top of mind responses

- Clear, concise and simple.
- Familiar layout.
- Easy to interpret the light colour.
- Provision of expected lifetime information is noticed and generally well-liked.

Comprehension

- Older consumers tend to find the wattage equivalence information easier to interpret than younger consumers who are less familiar with incandescent lights.
- “lm” not well understood as unit of brightness and therefore the meaning of this information is unclear.
- Remains unclear how “energy efficient” the light is.
- Meaning of instant full light can be deduced but is not a primary concern.

Level of detail & layout

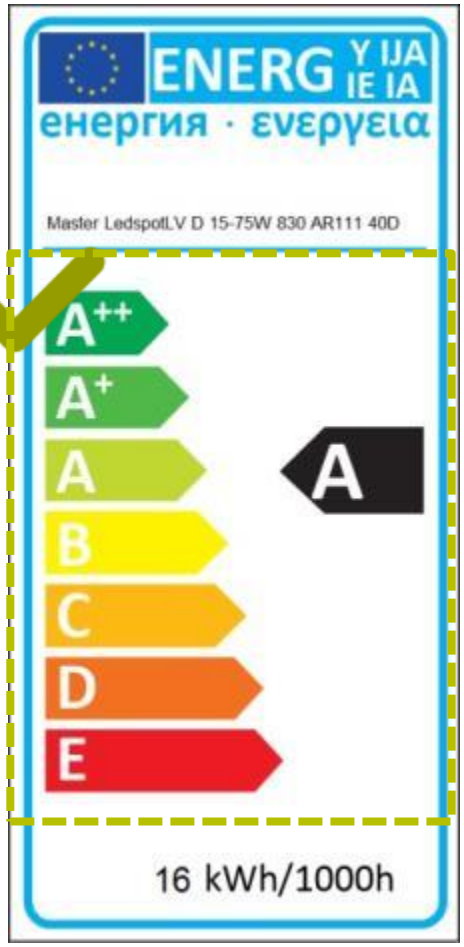
- Provides appropriate level of detail in terms of highlighting key information to guide choice.
- Clear, uncluttered presentation of key information.

Potential strengths

Familiar, uncluttered layout.

Potential enhancements

Include a star rating or other graphic device to clearly communicate relative energy efficiency and allow for easy comparisons across products.



Top of mind responses

- Easy to interpret traffic light style scale – green is good, red is bad.
- Expected to be helpful in making quick comparisons.

Comprehension

- Scale easy to read and understand. However, the practical impact of choosing a more energy efficient light bulb remains unclear.
- Meaning and purpose of providing the power use ratio not understood.
- Not immediately apparent that the A in black signified the light that was inside.

Level of detail & layout

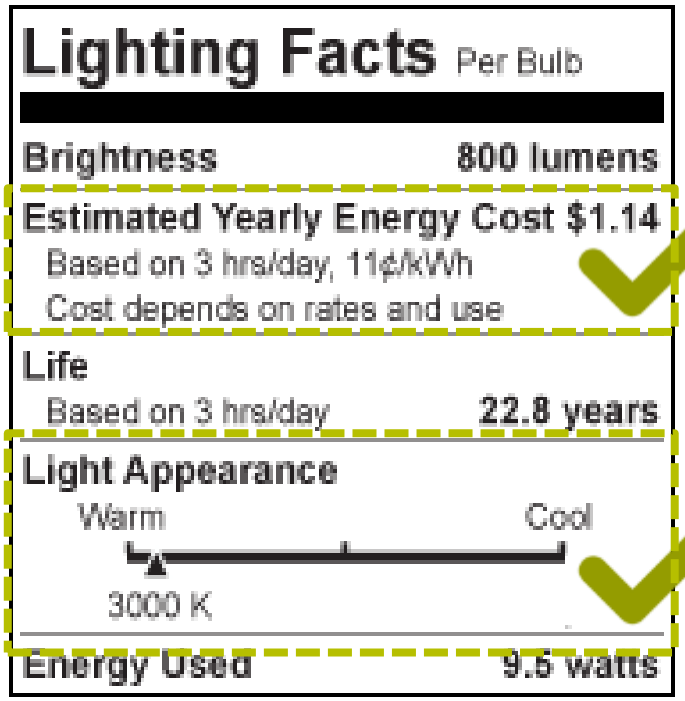
- May be appropriate for conveying efficiency information alone.
- Some consumers would need to see what information the scale takes into account in order understand what the rating means to them.
- Layout is clear and uncluttered.

Potential strengths

Despite being unfamiliar, the traffic light style scale is easy to interpret and use of colour is eye-catching.

Potential enhancements

To aid interpretation, position on the scale could be circled rather than using a separate icon.



Top of mind responses

- Similar to Nutrition Information Panel on food labels which are familiar.
- Yearly energy cost novel to some and generally well received.
- Not immediately engaging, bland.

Comprehension

- Headings easy to interpret, no jargon.
- Dollar values easily understood (but difficult to interpret as good / bad in isolation).
- Yearly energy cost rejected by some based on being unrealistic.
- Life in years can be mistrusted.

Level of detail & layout

- At first, can be seen as too much information. After consideration, thought to contain all the key information required to make choices between options.
- Presentation is clear but less eye catching than other alternatives.

Potential strengths

Similar presentation to well-known information labels in other categories. Provides of concrete information to convey practical impact for consumer and covers most critical information needed to choose between options. However, can be seen as too complicated or mathematical for some.

Potential enhancements

To reduce level of detail, retain dollar estimate of yearly energy cost but provide detail about basis for calculation elsewhere (e.g. online). kWh rate should be broadly representative of typical prices paid by residential consumers. Include a scale for brightness to help consumers quickly understand type of light provided, ideally with colour. Include a scale to summarise energy cost.

Top of mind responses

- Overwhelming. Too much information.
- Terms and symbols lack familiarity and are difficult to interpret.
- Unlikely to capture attention.

Comprehension

- Only W = watts immediately understand.
- Excessive use of unfamiliar and unclear scientific acronyms and abbreviations overall (few knew that Hg is the chemical symbol for mercury, for example).
- Meaning of symbols not easy to interpret/deduce.
- Operating temperature could be misinterpreted as indicating globe temperature when in use.
- Very low comprehension of fitting type.

Level of detail & layout

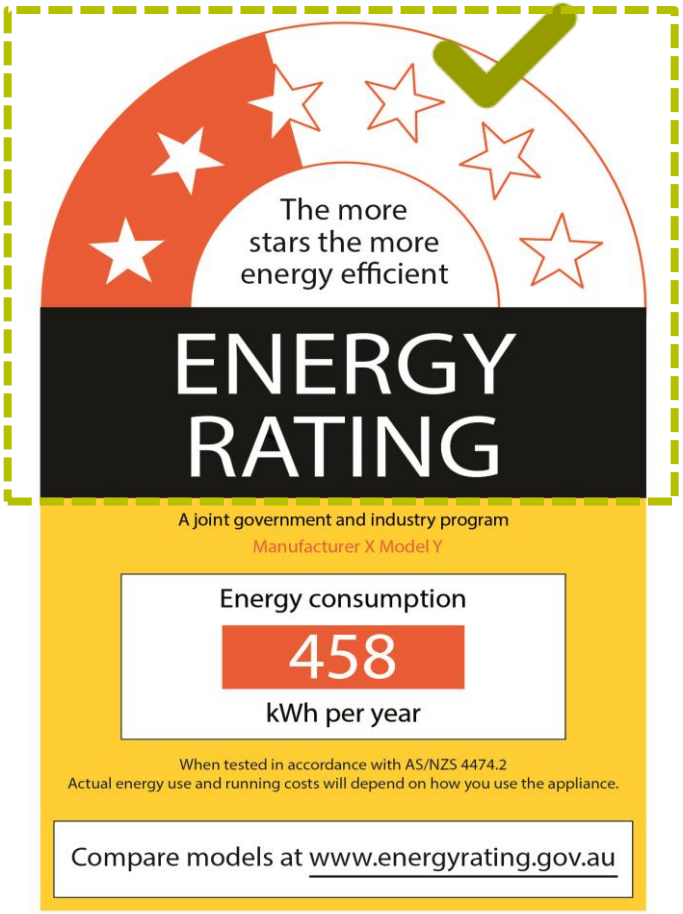
- Too detailed – 12 rows of small text is excessive, no more than four rows or measures are likely to be read.
- Most information presented superfluous to actual decision making.
- Busy.
- Very unlikely to capture attention.

Potential strengths

None apparent.

Potential enhancements

Reduce level of information to key features – energy efficiency, watts, brightness, colour temperature, dimming capability, fitting. Replace symbols/acronyms with functional labels (e.g. power use, brightness, colour type, etc.)



Top of mind responses

- Familiar.
- Easy to understand.
- Well liked.

Comprehension

- Stars provide a clear, easy to compare standard for making comparisons.
- Meaning of energy consumption in kWh per year understood but can be seen as unnecessary - consumers don't think about their energy consumption in kWh per year and therefore can be seen as lacking relevance.
- The method by which the star rating was derived was of no interest to most consumers – they were just pleased to have a simple, single metric for comparison.

Level of detail & layout

- Simple, with a large uncluttered graphic as the primary element.
- Not sufficient for choosing a bulb.
- Busy.
- Contains information perceived as superfluous by some (e.g. which standard was tested against).

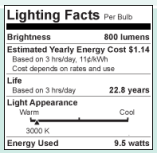
Potential strengths

Familiar, well-known scale for conveying energy efficiency specifically. No education required for consumers to understand.

Potential enhancements

Remove non-critical level of information. Star rating could stand alone in this context.

Communication Examples: Summary of strengths & weaknesses

Example	Preference Ranking*	Strengths	Weaknesses
	1	Familiar, well-known scale for specifically conveying energy efficiency. No education required for consumers to understand.	Does not provide concrete information about the practical benefit of buying the bulb (i.e. running cost in dollars as energy consumption alone perceived as esoteric).
	2	Familiar format from food category. Provides concrete information about the practical impact for the consumer (i.e. energy and cost saving).	Can be seen as too mathematical or complicated by some. Layout and colours less likely to capture attention.
	3	Simple, uncluttered presentation of key information. Similar to existing packaging – familiar.	Lacks clear scale for comparing energy efficiency. Does not overcome difficulty associated with limited consumer literacy regarding meaning of watts & lumens.
	4	Colour temperature scale easy to interpret and has potential to change perceptions of energy efficient lighting as being too “clinical”.	Lacks clear scale for comparing energy efficiency. Contains “jargon” and much of the information lacks relevance to a typical purchase decision.
	5	Traffic-light style scale easy to interpret and compare across products.	Unfamiliar. Does not provide concrete information about the practical benefit of buying the bulb.
	6	None apparent.	Too detailed/overwhelming. Uses unfamiliar symbols and acronyms that are difficult to interpret.

*Rankings based on qualitative sample and may not be representative. However, please refer to pages 80-84 of the quantitative study report which reflect similar findings.

General communication guidelines.

Key elements to communicate include:

Efficiency rating

Brightness

Colour temperature

Running costs

$

Based on consideration across these findings, general principles for recommended labelling relating specifically to energy efficiency are:

1. Terminology should describes what each element means in plain English, not using scientific abbreviations or terms. For example, power usage/energy consumption not watts, brightness not lumens.

    1.a. Use of abbreviations should be minimised, if not removed all together.

2. Use a visual scale to communicate relative energy efficiency and brightness. This has greater potential to overcome current difficulties consumers have interpreting information provided.

3. Ensure that the chosen scales is quick & easy to compare. That is, use a metric that is familiar and easy to interpret. A single number could be indicated on the scale using either something countable (stars, bulbs) or a numeric value that accompanies a line scale. This will enable easy comparison if looked at side-by-side.

    3.a. For example in the case of energy, the star system works well because it is a quick, familiar way to compare across products. The traffic-light style EU example could also be used, but because it unfamiliar, can take longer to interpret.

4. To compel consumers to choose a more energy efficient lamp, the benefit of energy efficiency needs to be made clear. Lifetime and cost per year is an easy to understand way to highlight the practical benefits.

What we recommend.

Recommendations.

Consumers currently find light bulb packaging difficult to interpret

- Few consumers demonstrated clear understanding of the differences between types of light globe technology, or a clear concept of the meaning of much of the terminology used to describe the features of a light globe. This makes comparing globes difficult for many. Clear labelling that uses terminology which describes the function of each feature is needed to help consumers interpret the category and make more informed choices.

Demonstrate how the consumer will benefit by making energy efficient choices.

- Light bulb purchases are quick, often habit driven and highly price sensitive. It is also difficult for consumers to imagine how the energy efficiency of a light globe impacts their ongoing energy costs. To educate and change behaviour, labelling must clearly demonstrate the benefit to the consumer in the face of potentially higher up front costs.

Make the connection between energy efficiency and longer lasting.

- Standardising how durability is presented and consistently representing this on all packs will help to drive the connection between energy efficiency and longer lasting, but no clear preference for communicating lifetime in hours or years emerged. In the absence of clear preference an alternative presentation should be considered, e.g. last X times longer than traditional/incandescent light bulb.

Recommendations.

Designing the most effective label.

- A star rating system is considered the most effective way of communicating energy efficiency as this allows quick comparisons across products. In the context of light bulbs however, this information is not sufficient and elements of the US lighting facts label should also be incorporated to convey other essential information.

Essential information for future labels.

- Labelling should incorporate information about energy efficiency, brightness and light type of the globe. An efficiency rating, running cost and lifetime, colour temperature and brightness are essential to include. Where possible, scales will simplify interpretation and facilitate comparisons. Using functional descriptions will also ensure information is understood.

Testing the recommendations

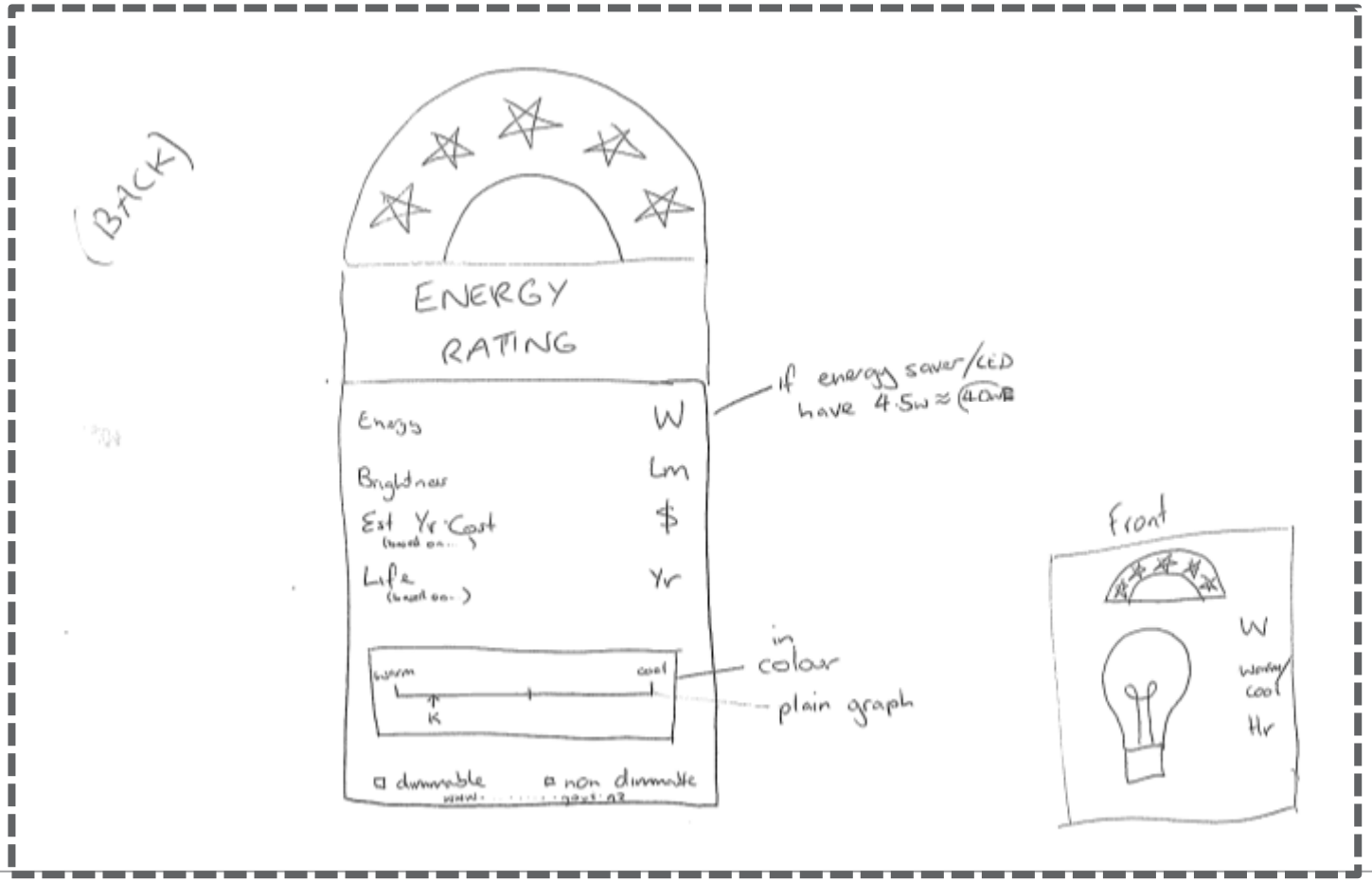
- Future research could be used to test the impact of these recommendations on changing consumer behaviour.

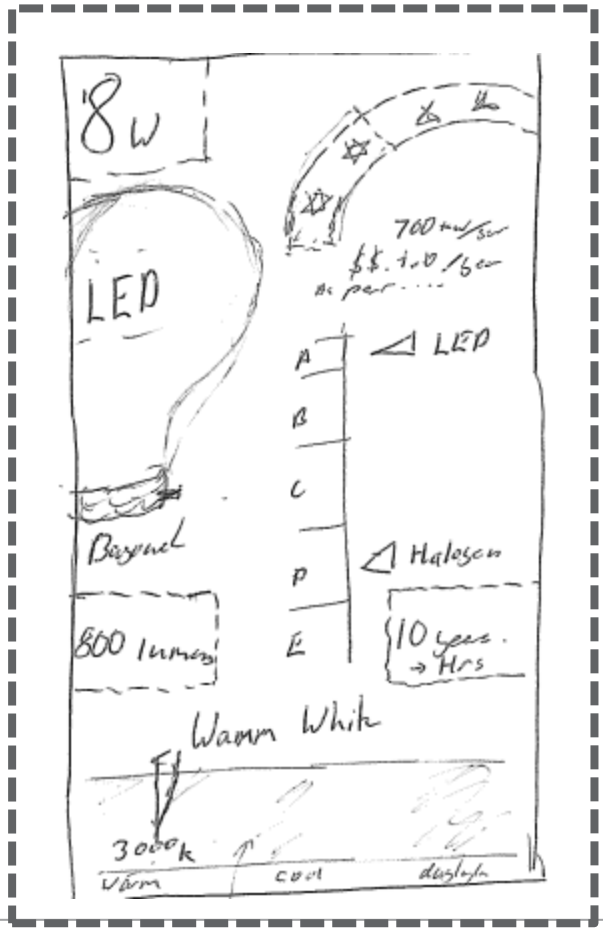
Appendix

Consumers’ ideal light bulb packaging.

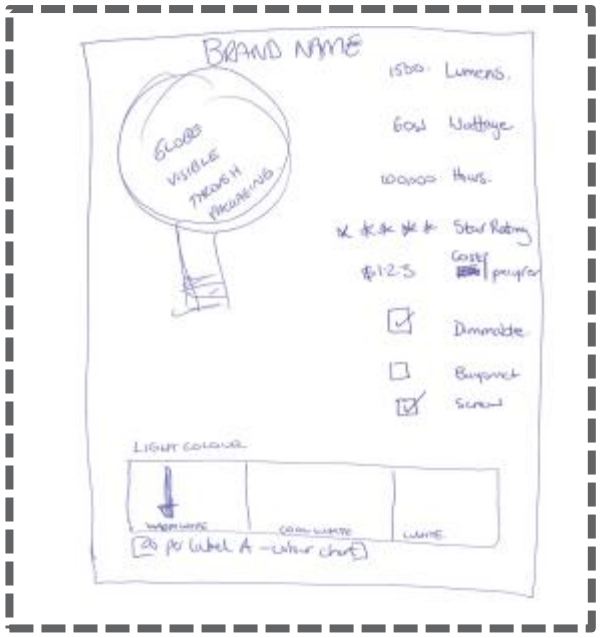
Consumers drew their ideal light bulb packaging…

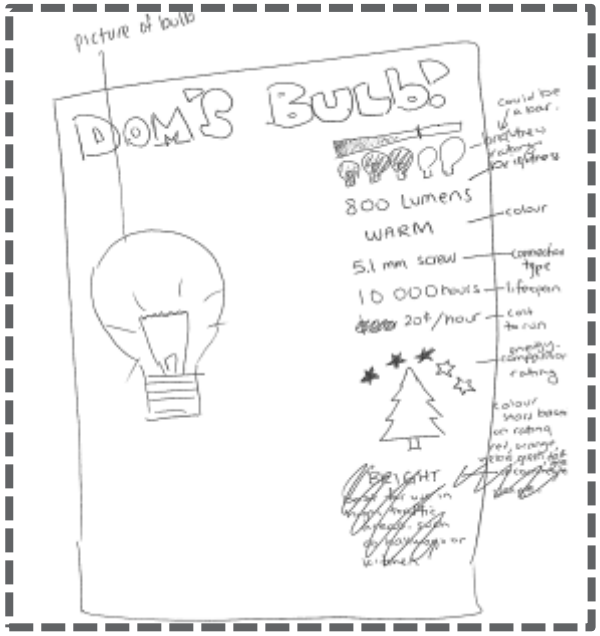
The majority of examples featured a star rating for energy efficiency, and many also included a colour temperature scale, brightness scale and information about lifetime and cost.

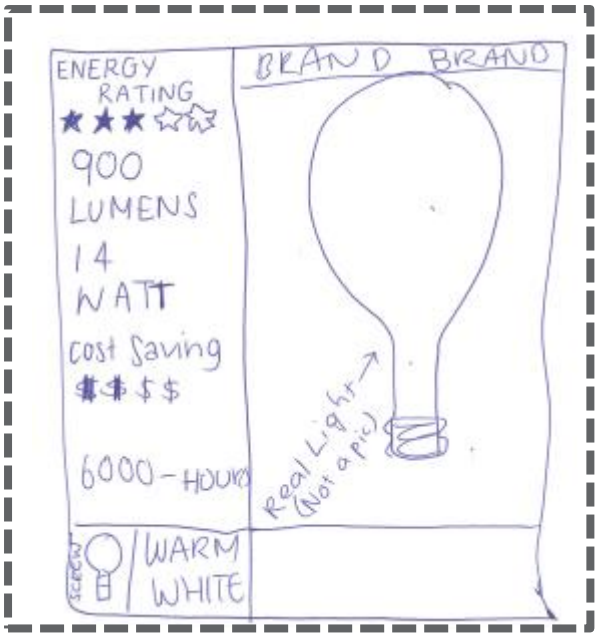


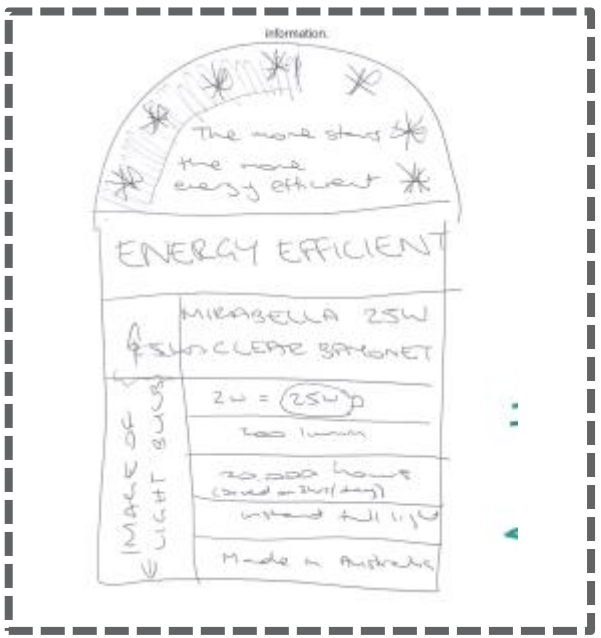


Images from consumers own representations of the ideal light globe pack.

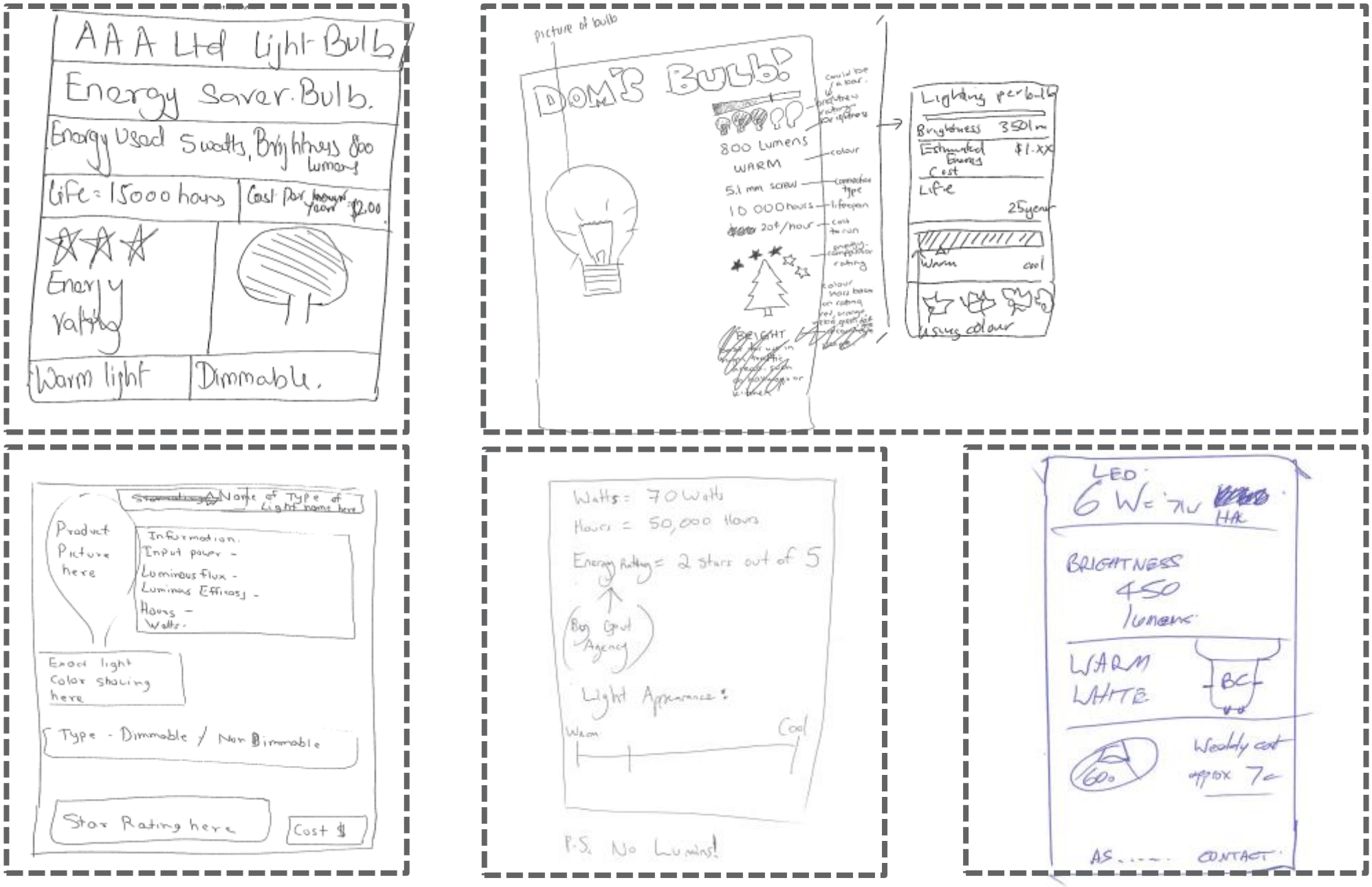








Images from consumers own representations of the ideal light globe pack.



Images from consumers own representations of the ideal light globe pack.

Focus Group Discussion Guide.

QMS QUAL MODERATOR FOCUS GROUP DISCUSSION GUIDE	
Department of the Environment and Energy Light Bulb Labelling Research	
Project No.: DIIS0005	Project Name: Light Bulb Labelling Research
Main Client Service Contact: Kirstin Couper	
Other Client Service Team Members: David Spicer, Cathy North, Elise Harrison	
Issue Date: 18/01/2017	Interview Type: Focus Groups

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TOPIC 1. GENERAL INTRODUCTION (10 minutes)

Aim: To introduce group process and gather background information.

PRIVACY ACT REQUIREMENTS

- **Introduce topic and provide a brief outline of what the group will involve**
  - Today we are going to be talking about shopping for light bulbs.
  - There are no right or wrong answers. We just want your own thoughts and feelings.
  - No special knowledge is needed. We expect that some people might not have thought much about this topic at all while others may know a bit more. That's fine as we want a range of different perspectives.
  - The group will last for about 1 ½ hours
- **Confidentiality**
  - Information and opinions will be used for research purposes only.
  - All answers are combined with other participants at the end of the study.
  - (IF ASKED: The client is an Australian Government department.
- **Observation**
  - Describe who if relevant
  - Describe how (one way mirror, closed circuit TV)
  - Give assurance that if any one recognises respondent they will cease to observe
- **Recording**
  - Describe how (Via DVD/Video/Audio)
  - Give assurance that recordings will only be used for research purposes
- **Facilities (i.e. toilets) + food and drinks provided, mobiles off, etc.**
- **Any questions before we begin?**
- **RESPONDENTS INTRODUCE THEMSELVES WITH:**
  - Name
  - Household structure
  - What doing with time – work, study, home duties etc.

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TOPIC 2. MARKET MAPPING AND UNDERSTANDING (15 minutes)

Aim: To understand how consumers see the market and what cues they use to navigate the light bulb category. Identify areas of difficulty or confusion in classifying types of light bulbs.

STIMULUS: A RANGE OF PACKAGED INCANDESCENT/HALOGEN/LED/CFL/FLUORESCENT LIGHT BULBS.

MODERATOR PLACES STIMULUS ON TABLE IN VIEW OF RESPONDENTS.

Here are some of the light bulbs currently available. First of all let's divide them into different groups. There are many different ways that we could do this. I'm interested in how you might categorise them in your own minds. What are some of the different ways that we could divide these up? ELICIT SUGGESTIONS FROM GROUP. OK, let's now split them up by…. (MODERATOR SELECTS A COMMON CATEGORISATION. IF ENERGY EFFICIENCY IS MENTIONED AT THIS POINT USE THIS FACTOR TO CATEGORISE)

For each group:

- What would we call this group?
- What do the products have in common?
- What signs/clues tell us that a product is in the group? PROBE: product features, brands, packaging/purpose/brightness/power (W)/technology type. NOTE HOW CONSUMERS USE PACKAGING CUES TO INTERPRET THE MARKET.

Overall:

- What are the main differences between the groups?
    - Probe communication of energy efficiency related information if it arises in the discussion.
- Are there any aspects of the market or communication which are difficult to understand?

TOPIC 3. PURCHASE DECISION MAKING AND UNDERSTANDING OF KEY TERMINOLOGY (15 minutes)

Aim: To understand which factors are most important in purchase decision making and ascertain consumer understanding of a range of light bulb descriptors.

STIMULUS: TERMINOLOGY AS BELOW PRINTED ON CARDS.

- How do you shop for light bulbs? What do you look for when choosing light bulbs?
- What is the most important feature? And next?
- What role does price play?
    - (For each type of bulb) How much would we expect to pay for this type of bulb?
    - What price is too expensive?
- What role does the length of time that a bulb lasts play? Do you weigh this up with the price?Which information from the packaging do you look at? Which information is less relevant?
- What information do you need to make a choice?
- Are there any examples of light bulb packaging which are more useful than others in helping you choose light bulbs?
- What other information would be useful to help you choose?
- Ideally, how would this information be presented?
- What terminology would you prefer for the lifetime of the light bulb? (Hours/years?) Would you be confident returning a light bulb with a lifetime claim/vs a warranty
- What do you use to select brightness (watts/lumens/equivalency)

Now let's look at some specific terminology? (IF NOT ALREADY COVERED)

- What does halogen/LED/CFL/Fluorescent mean? What are the differences between them?
- What does watts/lumens/efficacy/colour temperature/lifetime/ELVC converter compatibility/standby power use mean?
- If you are looking at watts to judge brightness, how do you interpret watts when used with different types of light bulbs? For example, if comparing a 42 watt halogen bulb versus a 15 watt LED bulb?

TOPIC 4. ROLE OF ENERGY EFFICIENCY IN PURCHASE DECISION (20 minutes)

Aim: To understand whether and how consumers factor energy efficiency into their purchase decisions.

- When you shop for light bulbs do you look at energy efficiency?
- What does it mean if a light bulb is energy efficient? What is the benefit to you?
- Are some light bulbs more energy efficient than others?
- How can you tell what the energy efficiency of the bulb is? What information do you look for? 1. If the answer is Watts, also prompt lumens per Watt, to see if they understand. 2. When choosing a more efficient light bulb, how do you make sure it is the brightness you need?
- How do you compare the energy efficiency of different light bulbs?
- Is it easy or difficult to compare energy efficiency? What makes it easy/difficult?
- RE-GROUP LIGHT BULB SAMPLES FROM TOPIC TWO ACCORDING TO ENERGY EFFICIENCY IF NOT PREVIOUSLY GROUPED IN THIS WAY.

TOPIC 5. COMMUNICATING ENERGY EFFICIENCY (20 minutes)

Aim: To determine the optimal communication approach to assist and encourage consumers to select energy efficient light bulbs.

STIMULUS: COMMUNICATION OPTIONS AS ILLUSTRATED BELOW. ONE SET PER RESPONDENT IN A4 BOOKLET

TOP OF MIND IDEAS:

- Ideally, how would the energy efficiency of light bulbs be communicated?
- What approach would make this information easy to understand and use?

COMMUNICATION EXAMPLES:

- Here are some suggestions for communicating energy efficiency. Please spend a few minutes having a look at these. MODERATOR HANDS OUT A4 BOOKLET AND ALLOWS TIME FOR READING.
- FOR EACH EXAMPLE:
  - Top of mind responses
  - What does this mean? CHECK FOR COMPREHENSION
  - How well/otherwise does this approach communicate energy efficiency?
  - How could it be improved?
- Which approach works best overall to help you choose an energy efficient light bulb? Why? Are there any improvements that we can make to this strategy?
- Any other suggested approaches?
- How can we best communicate the idea that energy efficient bulbs last longer?

TOPIC 7. OPTIMAL LIGHT BULB PACKAGING (10 minutes)

Aim: To summarise the optimal approach at individual level.

STIMULUS: PEN AND PAPER

- To sum up I'd like you to draw your ideal light bulb pack, showing us what information you need (both about energy efficiency and more generally). You can use the size and position of words and symbols on the pack to show us how much emphasis to give to each piece of information.
- MODERATOR ALLOWS TIME FOR RESPONDENTS TO DRAW THEIR LIGHT BULB PACK. EACH RESPONDENT SHOWS AND EXPLAINS THEIR PACK.

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Depth Interview Discussion Guide.

QMS QUAL MODERATOR INTERVIEW DISCUSSION GUIDE	
Department of the Environment and Energy Light Bulb Labelling Research	
Project No.: DIIS0005	Project Name: Light Bulb Labelling Research
Main Client Service Contact: Kirstin Couper	
Other Client Service Team Members: David Spicer, Cathy North, Elise Harrison	
Issue Date: 18/01/2017	Interview Type: Paired depth interviews

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Objectives & Logistics

Objectives

The purpose of the accompanied shop is to obtain real-time, naturalistic insight on how consumers navigate the category in-situ. Paired depths allow researchers to obtain a wider range of behaviours in a cost and time efficient way. We will explore the experience of an average light bulb buying trip – what attracts attention, what information is attended to and what is ignored and any information that causes confusion. These interviews will help us to understand how decisions are made in store and how this might differ to stated purchase decision making verbalised in the less natural group setting.

Logistics

Prior to the depth interviews participants will be asked to select a light bulb in their house to replace, and come to the interview ready to shop for the replacement. The researcher will meet the participant at the store, explain the flow of the interview and answer any initial questions.

- Participants will be recruited to specific criteria and met at a pre-designated store.
- When met at the store the researcher will greet the participant and explain the purpose of the study, allaying any fears or concerns about their participation.
- The researcher will explain that the participant is here to purchase a replacement lightbulb and that the researcher will be taking a few notes as they walk around the store together.

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TOPIC 1. Introduction and warm up (1 minute)
Aim: Establish rapport with the participants and set the scene for the shop and interview • Greet participants and explain that the interview involves buying a replacement light bulb for their house, which they might ordinarily do as part of a regular grocery shop. We're interested in their experience of their normal decision making process in store.
TOPIC 2. Pre-shop exploration (3 minutes)
Aim: Ascertain level of pre-planning. Confirm the product features, brand and price point of expected purchase. • Discussion of the intended purchase – type of bulb, product features and attributes, area of the home and type of light the bulb will be used in. What parameters did they bring with them? Watts, lumens, colour temp, cap type, shape, colour rendering?
TOPIC 3. Shopping trip (20 minutes)
Aim: Observe and understand how consumers make decisions in-store. Understand how consumers comprehend the market and what cues they use to navigate the light bulb category. Identify areas of difficulty or confusion in comparing types of light bulbs in-store. In this section, participants will be asked to talk through their decision making process. • What captures attention on-shelf? • What information is required? • How easy is it to find the information required? MODERATOR NOTE: This may be different to the info they brought with them. • How participants handle and review products? • Whether and how alternatives are compared? • What information is used to make a final decision? • Any areas of confusion? MODERATOR NOTE: If respondent only looks for the exact identical product, ask them whether there are other types of light bulbs on the shelf that could do the same job. Ask them to select one.

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TOPIC 3. Post-shop review (5 minutes)
Aim: Review of shopping trip and purchase process. Understand any difficulties or problems encountered. Review if and how intended purchase was altered in store and what prompted these changes. • Review of shopping trip including whether they found the light bulb they were looking for, how decisions were made, whether product selected differed from intended purchase and why, anything found to be particularly easy or difficult and reasons why.

TOPIC 4. SUMMING UP & CLOSE (1 minute)
○ Thanks for all your feedback and ideas. Any further comments or suggestions? ○ Inform participants that it is the end of the interview and thank them for their time and opinions. ○ State that as this is market research, it is carried out in compliance with the Privacy Act / information provided will only be used for research purposes. ○ Advise if any queries, call the Market Research Society's free Survey Line on 1300 364 830 or CBR on 1800 555 145. ○ AUCKLAND: give incentives and obtain signatures, Melbourne/Sydney explain that incentives will be delivered via email using Giftpay.

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