

Report

Market Research to inform changes to the Mandatory Energy Efficiency
Label for Residential Appliances / Ref. No. 55465

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Research IQ



Marketing research consulting



energy

Department:
Energy
REPUBLIC OF SOUTH AFRICA



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1 WORKING DEFINITIONS

Rescale: The programme (government) introducing a new scale to rate appliances i.e., A+++ to D to A to G.

Regrade: Manufacturers aligning their products to the new scale.

Class: Relates to the denoting of the A or B or C to G, letter of the alphabet assigned to each bar on a 7-bar scale.

Bar: the coloured rows of the energy scale, standardised at 7 bars with colours ranging through shades starting at red, through orange, yellow and various shades of green symbolising less to more efficient use of electricity, but this research also considers 6, 5, 4 and 3 bar options.

2 INTRODUCTION

Appliance Standards and Labelling regulations have been put in place in South Africa (SA) as one of the energy efficiency programmes promoted by Department of Mineral Resources and Energy in collaboration with the Department of Trade, Industry and Competition (DTIC) and the United Nations Development Programme (UNDP) to meet 2030 climate control targets. The programme promotes energy efficient labelling on certain household and commercial electrical appliances to inform consumer purchasing as well as to set Minimum Energy Performance Standards (MEPS) for certain appliances to phase out the presence and usage of non-efficient models.

Since its launch in 2014, South Africa's S&L (Energy Efficiency Standards and Labelling of Household Appliances in South Africa) programme has started to gain maturity from the retail presence of the Energy Efficiency label on appliances as well as through the ongoing digital awareness and communication campaign that links into the Department of Mineral Resources and Energy's www.savingenergy.org.za website. Public awareness of the energy efficient label continues to grow and with the recent launch in 2018 of the Appliance Energy Calculator App, South Africans now have another tool to compare electricity costs and CO2 emissions to aid purchase decision making.

In 2004, when South Africa first embarked on the project, it took labelling guidance from the European Union (EU) programme which started in 1995. The country's historic ties with Europe meant that most imported appliances at that time originated from the EU. As the region had already established leadership in labelling, it was deemed sensible to align a South African energy efficient label with a EU styled label. The first South African label was based on one used in the EU market from the late 1990s to 2011. This was a two-part label where the A – G energy scale was on the top, and compartmentalised product specifics and performance were produced in text descriptors at the bottom. Instead of the EU star, SA selected to use the SA Energy Efficiency star logo and to include 3 SANS standards.

In 2011, the EU energy efficient label underwent an evolution in design – it kept its seven levels but introduced 'beyond A' categories, excluded lower alphabetised letters and rescaled from A+++–D. The rescale addressed the shift towards a stronger concentration of products in the

higher label classes through the commitment of manufacturing to driving higher and higher performance levels on energy saving; and the regular review of MEPS regulations to recognise innovation. The label also introduced a neutral icon language, which enabled a single-part label design doing away with design complexities, such as printing in 24 different languages catering to the EU community.

Shortly thereafter, SA consumer research in 2012¹ established the feasibility of continuing to adopt the EU styled label but strengthened the SA brand identity on the label through repositioning the SA Energy Efficient star for prominence and adding a bold ENERGY in green as the label heading. As SA’s marketplace was following the EU trend of higher volumes of products in the higher energy classes, the A+++ - D scale was also adopted. Although it was recommended to adopt the icon neutral language as well, the English text descriptors were maintained. This label was launched in 2014 and is the current energy efficient label in use across appliance categories in the SA market [Ref. Figure 1].

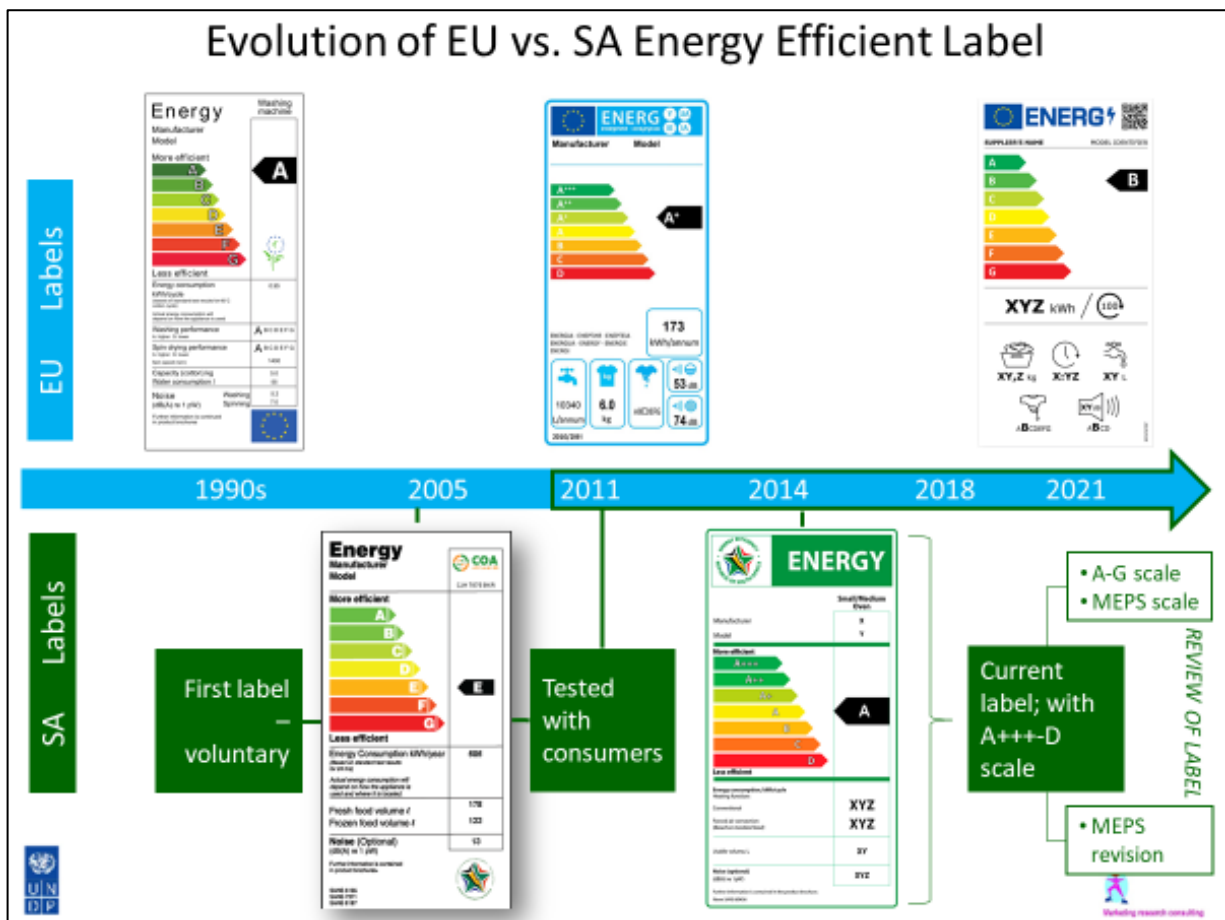


Figure 1: Evolutionary path of the EU and SA energy efficient labels

At the time of both EU and SA label reviews (2011 and 2014 respectively), it was recommended to consider rescaling the 7-bar standard regraded scale, which would be visually consistent for consumers, rather than adding additional classes which would be confusing. This recommendation, however, was opposed by manufacturers as they would lose competitive advantage if, for example, a previously A rated model appeared on the market as a B.

¹ Energy Performance and Labelling Requirements for Specific Electrical Appliances and Equipment, February 2012

10 years on and the EU faces a similar situation where innovation has leapt forward to produce even better energy performance standards, and classes above A+++ need to be introduced. What research showed back then is now playing out – that introducing classes above A is not sustainable beyond a reasonable number of additions. The dominance of products as A++, A+++, etc., has become confusing to the consumer and may account for a lag in motivation to continue to purchase products higher up the energy scale.

The EU has, therefore, published its 2021 rescale plan across appliance categories to the original A – G scale; to upgrade and review iconography and link consumers to product information through a QR code per registered appliance model.

Given the timing of the EU evolution in context of the local SA MEPS review across appliance categories, it appeared a timely opportunity to address an update to the SA Energy Efficiency label to align with manufacturing, market and EU labelling trends.

The research presented in this report explores awareness, understanding and use of the current Energy Efficiency label, from which to determine potential effectiveness of a more evolved label to motivate the South African public to purchase more energy efficient appliances.

3 OVERALL PROJECT OBJECTIVES

3.1 Primary Objectives of this Research

The primary objective for this project is to optimise the effectiveness of the S&L programme by motivating more effective use through updating design. The following areas were identified for evaluation:

1. *Comprehension of current label:* To understand what consumers currently understand about the existing label;
2. *Rescaling the label:* If similar possible circumstances exist in South Africa that classes above A confuse and lower the impact of the energy scale and rating, should SA also consider regrading from the A+++ - D to A - G scale, and what support communication activities would be required;
3. *Key elements of the scale:* If there is an unintended consequence that consumers purchase at MEPS but think they are making a better choice of a higher class; SA could consider removing redundant classes from the bottom of the scale on the label. If this is a possibility, then how would the scale be depicted in terms of number of classes, appropriate colours of the bars and label dimensions:
4. *Innovation of QR code:* The application of a QR code to the Energy Efficiency label will enable both consumers and NRCS (National Regulator for Compulsory Specifications) test inspectors to have instant access to the NRCS online database of all appliances that have successfully met national regulatory requirements and can be legally sold in South Africa. Manufacturers can make any information they like available to consumers through this

- platform but it is important to know whether the investment is feasible and what information is relevant;
5. *Infographics to effectively communicate key information:* To reassess the design of additional technical specifications and performance indicators to enhance communication of model specific information across the South African market of 11 official languages and varied educational levels. Whilst English-only text descriptors are likely to remain a barrier to communication, the language neutral icon route of the latest EU label is preferred but also not optimal. Some are welcoming the addition of a language specific explanatory key to some icon symbols to further enhance understanding;
 6. *Additional useful information:* To understand the kind of additional information that consumers find both useful and acceptable to communicate on the label, e.g., refrigerants for cooling products;
 7. *Recommend refinements to label:* To test design options to establish which best communicate the intended messages to consumers and to recommend changes to the label to ensure effective messaging.

3.2 Specific Information Needs pertaining to this Research

In more detail, the specific information needs, supported by graphic design, were outlined as follows, to:

- Evaluate familiarity with the current label and the level of comprehension so as to ensure that the planned design changes are most likely to improve engagement. Here, technological innovation and programme maturity were to be considered to reflect the ongoing evolution of the programme, namely:
 - ENERGY CLASSES:
 - Determine whether seven colour bars should remain a consistent standard across appliances or limit the bars shown to the number of energy classes allowed by the national standard and regulation for each, e.g., five or three:
 - Explore how to depict a seven-colour bar standard if less than seven classes available for an appliance – is MEPS understood within this and is it relevant for consumers to know?;
 - Determine comprehension, strengths and weaknesses of rescaling A+++ - D to A – G.
 - SECONDARY/SUPPORTING INFORMATION:
 - Determine the understanding and perceived relevance of current text descriptors per appliance category, i.e., kitchen, laundry, etc.;
 - Determine the degree to which infographics may improve comprehension levels:
 - Level to which EU EE label infographics can be adapted to the local SA market;
 - If necessary, to define or design new infographics with stronger relevance and resonance to drive the effectiveness of communication;

- Determine how to drive relevance of new and important information, e.g. refrigerant for cooling products.
- QR codes:
 - Determine level of awareness, usage and role of QR codes in general;
 - In the context of electrical appliances, determine what energy efficiency and additional information the market perceives would be beneficial if accessible through a QR code:
 - Determine most appropriate placement on the EE label.
- Recommend changes to current SA EE label to progress effectiveness of intended messaging:
 - Identify the degree and nature of communication required by Department of Energy to support this evolution.

4 RESEARCH AND DESIGN METHODOLOGY

4.1 Stage 1 and 2 qualitative research

A mixed research methodology was applied that consisted of consumer focus group discussions, business and industry in-depth interviews and an online questionnaire to gather qualitative and quantitative data to understand how consumers understand, use and are motivated by the current as well as the revised energy efficient label designs.

In between the various stages of research, the findings were used to inform changes in label design which were executed by a graphic designer.

The research and design process followed a Design Thinking framework [Ref. figure 2] to innovate the energy efficient label from an ‘as is’ to a ‘to be’ outcome that would enhance comprehension and understanding of the energy efficient label. The collaborative and iterative process entailed four stages of research, with graphic design execution in between each.

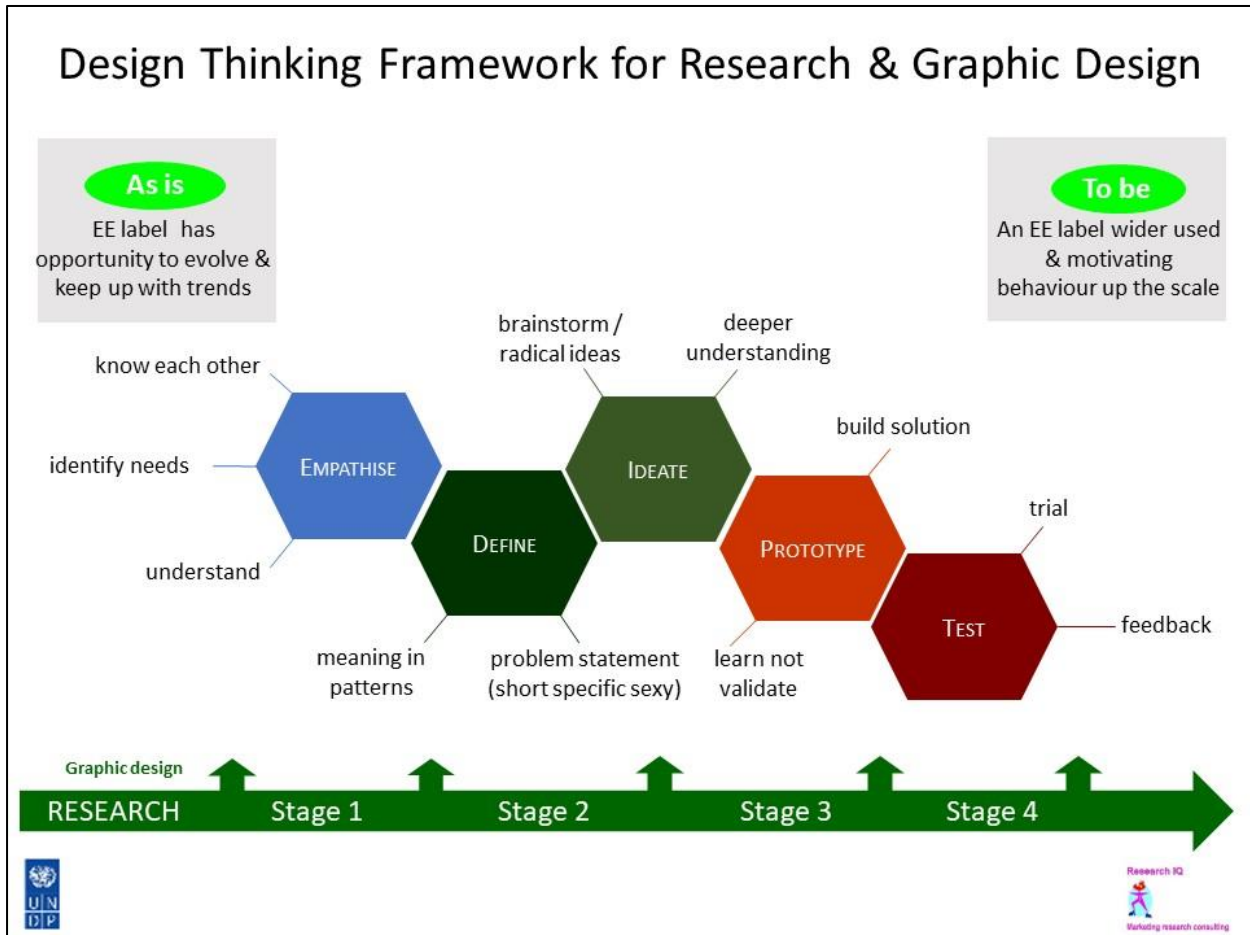


Figure 2: Using Design Thinking as the framework for Research and Graphic Design

Prior to the first stage of research, graphic design adapted the new EU energy efficient label into the SA energy efficient label template [Ref. figure 3, page 12]. The aim of Stage 1 was to explore comprehension of the current SA vs. current EU energy efficient labels.

Stage 1 comprised of five focus group discussions with consumers from LSM 3 – 10+ and seven in-depth interviews Johannesburg (Gauteng), Umhlanga Rocks, Tongaat and Ballito (KwaZulu-Natal), Cape Town and Grabouw (Western Cape). In-depth interviews were conducted with manufacturers and importers of large appliances, retailers and an industry body. In this stage, respondents were exposed to both the current energy efficient label as well as to the new EU label depicting the A - G scale and showing additional product and performance information through icons.

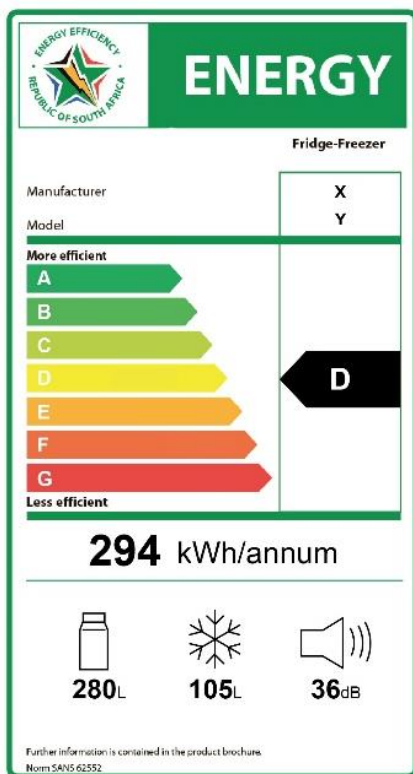


Figure 3: The current EU energy efficient label adapted to SA label template

The findings from Stage 1 were used to re-brief the graphic designer in progressing label design towards the A - G scale, including a QR code and moving towards a neutral iconographic language, but with aid of some key word text descriptors, i.e., a step change strategy. This new design was tested across appliance categories in Stage 2 research which comprised four focus group discussions with consumers from LSM 3 – 10+ in Botshabelo and Bloemfontein (Free State), Seshego and Polokwane (Limpopo). This stage also investigated the feasibility and impact of category specific MEPS scales for each appliance, i.e., only showing the number of levels appropriate to the category depending on MEPS.

4.2 Stage 3 quantitative research

The findings from both stages 1 and 2 qualitative research were used to inform graphic design progression as well as the design of the quantitative online survey for research Stage 3.

4.2.1 Design and piloting

The design of the questionnaire started as the Stage 2 focus groups drew towards completion. Use was made of the consumer findings and language from the qualitative data to identify attributes required for measurement, as well as to define the flow and structure of the questionnaire to ensure all objectives were addressed. The questionnaire (Ref: Annex 5) was piloted among members of the client team as well as a number of people currently employed in the research industry. Completing the questionnaire took approximately 12 to 15 minutes.

4.2.2 Execution, data capture and analysis

Responses to the survey were processed through Google Forms, an online survey platform, yielding 1 357 completed and usable responses. No qualifying criteria were stipulated for participation in the survey. Eight thousand seven hundred (8 700) email invitations were sent to the SA Energy Efficiency social media database of contacts who had responded to two previous social media campaigns. This was database B who had been exposed previously to the Energy Efficiency label through these campaigns, which yielded 831 of the total responses received. Database A comprised 466 completed questionnaires, attracted through a new Facebook campaign promoted on the SA Energy Efficiency Facebook page (7 700 followers) and I’m Staying Facebook page (1 100 000 followers) as well as the S&L database comprising industry stakeholders (manufacturers, retailers, implementing partners, etc.). Table 1 and 2 below respectively outline the demographic breakdowns of the total quantitative sample and the 2 separate databases. All respondents were incentivised to participate by the possibility of winning one of 25 R1 000 cash prizes which were drawn at random.

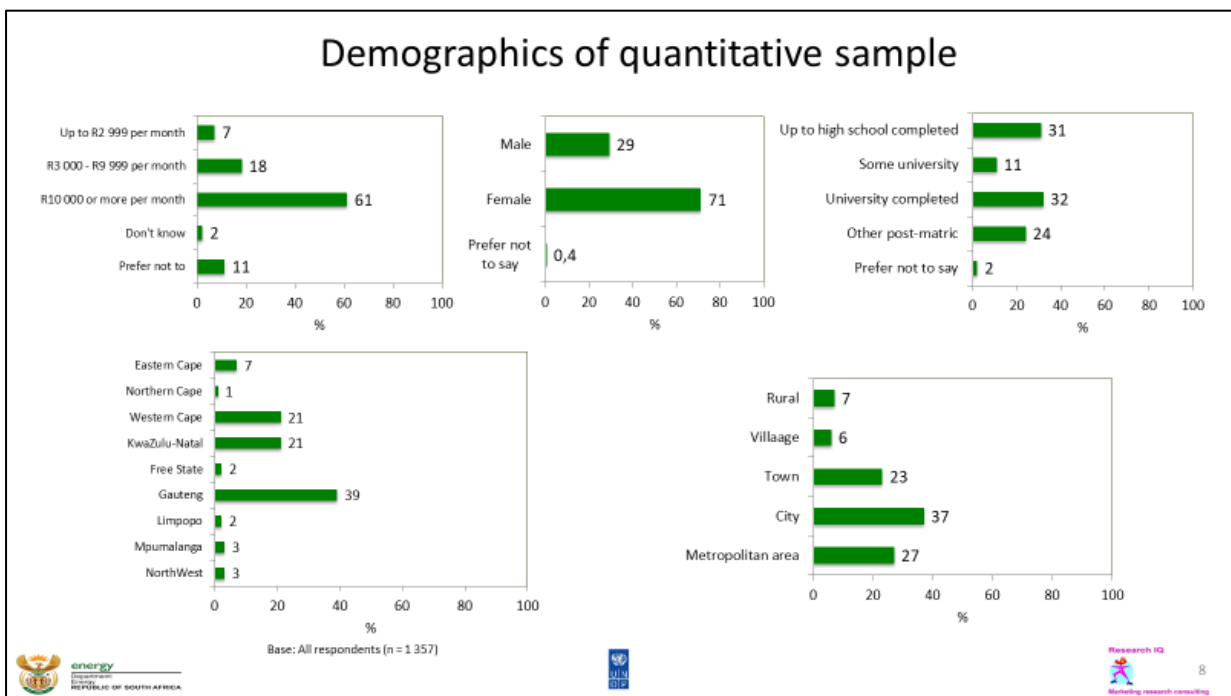


Table 1: Demographics of the Total Quantitative Research Sample

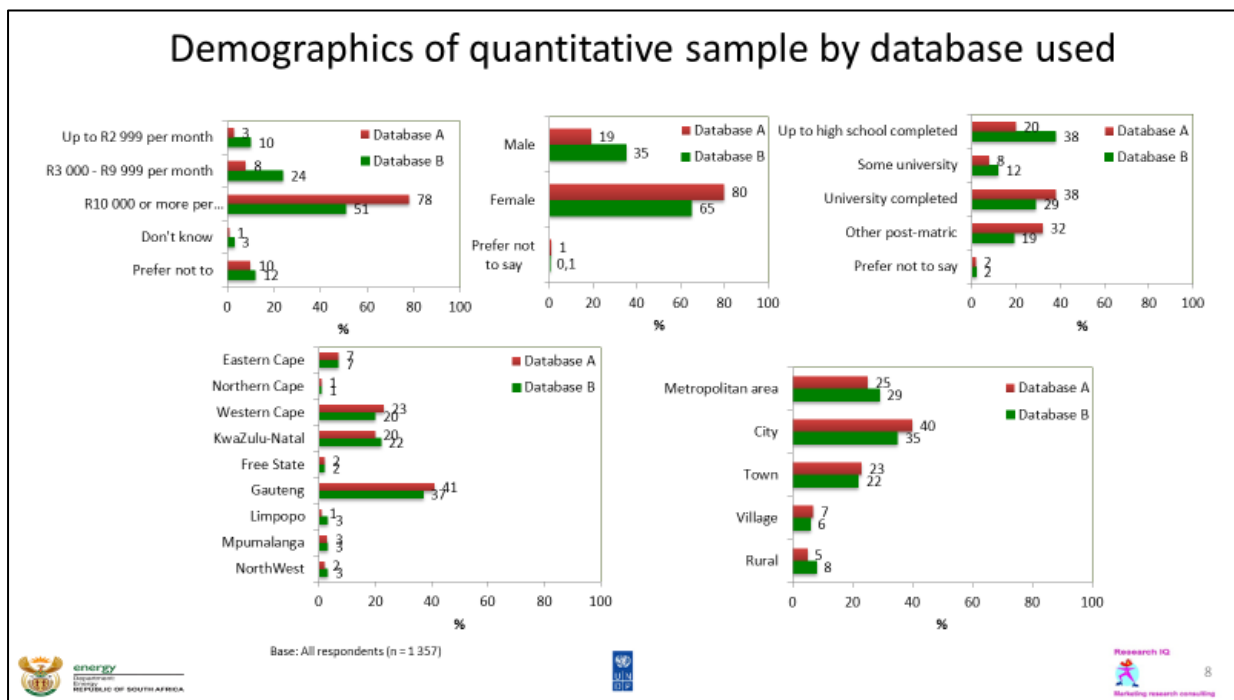


Table 2: Demographics of Quantitative Research Sample by Database

The rationale for splitting the databases was to isolate a potential bias in the sample due to the knowledge that database B had previously been exposed to the Energy Efficient label through previous survey/social media campaign participation.

Consistency checks were carried out on the data prior to running the analysis. Results were analysed in total, by each database A and database B, and by the main demographics breaks of gender (males and females), gross monthly household income (below and above R10 000 per month), highest level of education (up to high school completed, any tertiary education) and region (city/metro, fringe/rural).

4.3 Stage 4 qualitative research

Stage 4 comprised the final three focus group discussions, with consumers LSM 9 – 10+ and small/medium business owners in Johannesburg (Gauteng) and Durban (KwaZulu Natal), specifically to understand the role of the energy efficient label in the context of air conditioning and how to communicate around the label to compel consideration.

4.3.1 Overall qualitative sample and recruitment criteria

The overall qualitative research sample is outlined below, reaching 103 respondents between 26 September 2019 and 16 March 2020. [Ref. figure 4]

Qualitative Research Stages Consumer Focus Group Discussions							Stage 1 sample	Stage 2 sample	Stage 4 sample
	LSM 3	LSM 4-5	LSM 6-7	LSM 8-9	LSM 10-10+	SME	TOTALS		
KwaZulu-Natal		Group 3 Black KwaDukuza [8 respondents]		Group 2 Mixed race, 50% Indian, Durban [8 respondents]		Group 12 Mixed race; Males only Small & medium business owners – installer purchase [8 respondents]	3		
Gauteng					Group 1 Pilot Mixed race Johannesburg [7 respondents] Group 10 Mixed Race Johannesburg [10 respondents]	Group 11 Mixed race & gender Small & medium business owners – retail purchase [10 respondents]	3		
Free State	Group 4 Black Botshabelo [8 respondents]		Group 5 Mixed race Bloemfontein [6 respondents]				2		
Western Cape		Group 7 Black Grabouw [8 respondents]			Group 6 Mixed race Cape Town 8 respondents		2		
Limpopo	Group 8 Black, Seshego [8 respondents]			Group 9 Mixed Race Polokwane [8 respondents]			2		
TOTALS	2	2	1	2	3	2	12		

Business-to-Business In-depth Interviews					
	Manufacturers	Importers	Association	Retail	TOTALS
A spread across regions	3	1	1	1	6

Figure 4: Qualitative Research Sample

A total of 97 consumers (members of SA public) were compliant with the following recruitment criteria:

- Mix gender
- Mix age [key purchase decision maker]
- LSM 3 vs. 4, 5 vs. 6, 7 vs. 8, 9 vs. 10 and 10+
 - For groups 11 and 12: small business owners and key decision makers in the purchase of office equipment
- Purchasers of electricity – either pre-paid or municipal bill
- Had either [split between following criteria]:
 - Purchased a brand-new appliance in the last four years
 - For group 10 – 12: purchased one or more air-conditioners
 - Considered purchasing a major appliance in the last 4 years, i.e., actually went shopping in retail stores, looking at new appliances
 - Intended to purchase a major new appliance in the next 1 – 2 years:
 - Group 1 – 9: washing machine, tumble dryer, washer/dryer; air conditioner, geyser, stove / oven (not hot plate), fridge, freezer, fridge / freezer, dishwasher
 - Group 10 – 12: air-conditioner.

A total of six business-to-business in-depth interviews were recruited using the following criteria:

- Manufacturers:
 - 3 x local manufacturers, between them catering for a range of upper/middle/low income consumers
 - 1 x international importer catering locally for upper income consumers
- Retailer x 1
- Local industry association x 1.

Although the sample of manufacturers, retailers and the industry bodies are small, manufacturers and industry were more inclined to engage with the research than retailers, who proved difficult or nearly impossible to reach, resulting in only one retailer taking part.

4.3.2 Living Standards Measures (LSMs) explained

The Living Standards Measure is a multi-attribute segmentation tool, which is based on a household's access to services and durables, and geographic indicators as determinants of standard of living. No personal demographics are used in the measure, nor is household income ever used.

Even though household income is not one of the variables used to determine into which LSM group a household may fall, there is a high level of correlation between the LSM groups and household income, i.e., the lower the household income, the lower the LSM group and vice versa.

Sampling for this research opted to use LSM groupings rather than household income as a more stable measure in South Africa's current economic depression. The high level of unemployment and retrenchment, particularly in low and middle-income groups results in variable household income levels month to month. This was particularly evident in LSM 3-5 groups where almost all respondents were unemployed and in LSM 6-7 groups where up to half were unemployed or had been retrenched.

Tables 3 and 4 below show a brief description of each LSM group.

	LSM 1	LSM 2	LSM 3	LSM 4	LSM 5
Size (2011)	2%	5%	6%	12%	17%
Size (2015)	1.1%	2.7%	5.7%	12.8%	16.8%
Community	Small urban/ rural	Small urban/ rural	Small urban/ rural	Small urban/ rural	Small urban/ rural
Head of household education (2015)	<i>Some high school</i>	<i>Some high school</i>	<i>Some high school</i>	<i>Some high school</i>	<i>Some high school</i>
Dwelling unit	Traditional hut	Squatter hut shack, matchbox and traditional hut	Squatter hut shack, matchbox and traditional hut	Squatter hut shack, matchbox and traditional hut	House, matchbox/ matchbox improved
Average household income (2011)	R1 369	R1 952	R2 545	R3 141	R4 200
Average household income (2015)	R2 225	R3 352	R3 357	R4 156	R5 636
Access to services and durables	Minimal Radios	Communal access to water Radios, stoves	Water on plot or communal Radios, stoves	Electricity, water on plot or communal, non-flush toilet TV sets, electric hotplates	Electricity, water on plot, flush toilet outside TV sets, hi-fi/radio set, stove, fridge

Table 3: LSM groups 1 to 5 by size, community, dwelling unit, average household income and access to services (Source: AMPS 2011; AMPS 2015)

	LSM 6	LSM 7	LSM 8	LSM 9	LSM 10
Size (2011)	22%	11%	8%	10%	6%
Size (2015)	22.8%	6.8%	4.3%	4.9%	3.1%
Community	Large urban	Urban	Urban	Urban	Urban
Head of household education (2015)	<i>Some high school/ Matric</i>	<i>Matric</i>	<i>Matric and higher</i>	<i>Matric and higher</i>	<i>Matric and higher</i>
Dwelling unit	House/ townhouse/ cluster house	House/ townhouse/ cluster house	House/ townhouse/ cluster house	House/ townhouse/ cluster house	House/ townhouse/ cluster house
Average household income (2011)	R6 454	R11 022	R14 877	R20 667	R30 559
Average household income (2015)	R7 876	R13 434	R19 592	R26 946	R41 747
Access to services and durables	Electricity, water in home, flush toilet in home TV set, stove, fridge/ freezer, microwave oven Pay TV	Same Pay TV, DVD, car Internet access	Same Pay TV, DVD, car, PC Internet access	Same Pay TV, DVD, car, PC Internet access	Same Pay TV, DVD, car, PC Internet access

Table 4: LSM groups 6 to 10 by size, community, dwelling unit, average household income and access to services (Source: AMPS 2011; AMPS 2015)

4.3.3 Execution, instruments and analysis

Focus group discussions were held either at a central viewing facility or a host home. Host homes catered to those groups with demographics that placed their location in peri-urban and rural areas. Central viewing facilities were selected for remaining groups where the demographics placed respondents within access to the facility, mostly metro based. In Johannesburg, this enabled a well-represented group of stakeholders to view the proceedings. This was particularly beneficial for the pilot group on 26 September 2019, after which the observing team could make recommended changes to the initial discussion guide and stimulus material.

The six business-to-business in-depth interviews were mostly conducted face-to-face in respondents' offices and a restaurant, and two conducted telephonically.

The qualitative discussion guide with consumers went through three iterations: it was revised after the pilot group, again before Stage 2 and the last time before Stage 4 (Ref. Annex 1, 2 and 3). All refinements were made in alignment with responses to each stage's set of showcards referencing energy efficient label mock-up designs for the various appliances. Labels were progressed through graphic design by refining elements of communication based on feedback from the research respondents. For the in-depth business interviews, a loosely structured set of key discussion points was developed (Ref. Annex 4).

All group discussions and in-depth-interviews were audio recorded from which verbatim transcripts were produced. Some groups and all the in-depth-interviews were conducted in English, whereas remaining focus groups were conducted in the home language of respondents. Dual-language transcribers were used to translate and transcribe this data into English, alongside English transcribers, for purposes of analysis.

Both qualitative content and discourse analysis techniques were used, alongside quantitative data tables produced through Excel, to inform key themes, trends and findings for the full research report.

The results of the research are documented below. Whilst the overall process was iterative in design, i.e., the findings of each stage were used to inform both design and research progression, the report documents the overall directions which emerged to inform final recommendations. Where apparent differences exist between each sample – focus groups and online questionnaire with consumers, and in-depth interviews with manufacturers, retailers and industry bodies – the findings discuss reasons which account for these differences.

5 RESEARCH FINDINGS

5.1 Current value of the Energy Efficient label in the SA consumer marketplace

Approximately 85%² of consumers who took part in the quantitative research have seen the Energy Efficiency label before. They recognise it and some may have used it to some extent to make a purchase decision that ‘feels right’, i.e., I’m buying an energy efficient or eco-friendly appliance; but they are not engaging with it further, thereby largely rendering its current value in the marketplace as weak.

This section outlines the factors that contribute to the finding that without overt market communication and education on how to use the energy efficient label to compare large appliance models, purchase decisions up the scale are unlikely to be motivated.

5.1.1 Energy efficiency as a purchase criterion of large appliances

An in-depth exploration of large appliance purchase decision making criteria show that price (including delivery/transportation costs as well as installation costs for air conditioners), brand (reputation, trust, loyalty, quality), warranty/guarantee, size/capacity, features (basics vs. innovations in the upper income market), aesthetics, and availability of parts remain top of mind for the majority of the consumer market.

Energy efficiency as a decision-making criterion lags far behind the aforementioned factors for the majority. Only three respondents in the two LSM 10-10+ focus groups spontaneously mentioned energy efficiency as a key determining factor of the purchase decision.

“I just weigh the price up against the energy saving. That would be how I would do it. If something is super eco-friendly and it cost R200 more I would go for that ...” (LSM 10-10+, Cape Town)

However, all respondents acknowledge that large appliances draw significant electricity which increases their monthly bills, particularly any appliance that has a heating function – the oven, geyser and tumble dryer specifically, followed by the washing machine and dish washer. In the space of cooling, the fridge/freezer is not really considered a high user of electricity although the cost of it being on all the time is more of a concern to LSM 3-5 consumers. The air conditioner is also regarded as a substantial user of electricity amongst the residential LSM 9-10+ air conditioner consumers and small business owners.

In South Africa, the fridge/freezer is a basic necessity, followed by the oven/stove and washing machine, moving then into geysers as disposable income increases. In the upper end of the consumer market, the dishwasher becomes a necessity, with the tumble dryer and air conditioner more frequently described as luxury ‘nice-to-have’ appliances.

² This figure comes from the quantitative findings of this study but also reflects what was observed in focus group discussions, with almost all upper LSMs being aware of the label and less so in lower LSMs, although the latter was still well represented.

Given the country's electricity shortage and periods of electricity outages, the concept of energy efficiency is well understood across the sample to mean using less electricity, saving electricity or doing things around the home to reduce electricity consumption. South Africans have been widely exposed to campaigns that aim to reduce the use of electricity in the home and the terminology 'energy saver' bulb is very well established. As such, the majority of South Africans are hyper-aware of increasing electricity tariffs and are consciously shifting their behaviour to use less electricity. In discussion around energy efficiency, consumers talk about behaviours in the home to reduce electricity usage but do not mention that purchasing energy efficient appliances could contribute towards this reduction. SA consumers talk about using particular appliances less often, e.g., the oven, washing machine or air conditioner or are using alternative methods for similar functions, e.g., using an air fryer rather than an oven or washing dishes by hand (upper income skew) or reverting to traditional ways of cooking (fire and paraffin in the lower income markets). Some also understand that how appliances are used make a difference, e.g., turning a geyser off during the day, closing windows and doors when the air conditioner is on, not leaving a fridge door open.

Despite a tool, such as the Energy Efficiency label, that exists to assist decision making, energy efficiency has not yet become a strong conscious purchase decision factor of large appliances. One of the possible reasons for this is that, due to electrical blackouts and high tariff increases, the consumer mindset is more about conservation, rather than efficiency.

A hypothesis that emerged during the research was that, even though appliances are recognised to use a lot of electricity, it becomes a null factor without the knowledge of how to determine which model uses more or less electricity in a purchase scenario. Respondents claimed that if there was a tool to help them with this, it would rise as a viable purchase decision criterion. This demonstrates that most are unaware that the Energy Efficiency label exists for this purpose and that there is an appliance energy calculator app on the market for more in-depth measures. As is evidenced in sections 5.1.3 and 5.1.4, the Energy Efficiency label is being used by two in three respondents in the total quantitative sample, with just over half claiming it endorses their purchase of an eco-friendly appliance. What was consistently experienced in the feedback after each research discussion was that the knowledge respondents gained in relation to the role and use of the Energy Efficient label was highly valuable information they would use in future appliance purchases, selecting based on efficiency.

“It was very enlightening, this whole exercise that we did here, because now in my subconscious I know that if I'm going to go to a shop and purchase any appliance, the first thing I will be looking at is this energy saving, which obviously going forward – I think I will be telling other people about it” (SMALL BUSINESS, Johannesburg)

For the few who already regard energy efficiency as an important criterion in the purchase decision of a large appliance, it forms part of the value for money equation, saving money over time and reducing their environmental impact. They have the knowledge, tools and, for some, a keen interest (either in energy efficiency itself or making the right decision for the environment) which enables them to elevate energy efficiency in the value system surrounding appliance purchase and usage in the home. These are the same consumers that manufacturers and retailers refer to as asking upfront about energy efficiency, seeking solar solutions and

being motivated to get off the grid. This, however, is a very small percentage of the total consumer market.

5.1.2 Awareness of current EE label

The current Energy Efficient label is recognised by 85% of respondents who took part in the quantitative research, with some differences between the sample who had been exposed to the label before (9 out of 10 positive recall) and those who had not (76%). A difference in awareness emerges around gender with 90% of males having higher awareness in comparison to 82% of females. There are no significant differences between income, educational levels or region.

Through its growing presence in the market, most claim to recognise the label from large appliances they have purchased themselves or appliances in their environments (family, friend or at work) such as fridges, washing machines and the occasional geyser. Of interest is that recognition also pulls through from seeing it on light bulb packaging, where its inclusion is not yet mandatory. Whilst some online retailers have recently placed the EE label in the appliance product information repository online, respondents do not yet recall seeing it there. The one retailer who took part in the research stated it is yet to appear on promotional models online.

Throughout all the qualitative focus groups, the moderator held up an example of the current Energy Efficient label to ask about awareness thereof. On this first exposure to the label in the research proceedings and when asked “Have you seen this before?”, the most common association is with a sticker that is on appliances, that has something to do with energy. Very few responded spontaneously with greater awareness that it is a sticker demonstrating a rating, or specifically an energy efficiency rating. This suggests that further engagement to determine its role and what it does is fairly low.

“It a sticker on the appliance - a grade or something” (LSM 8-9, Durban)

“The only thing that I checked: how big is the fridge, the colour of the fridge and the price of the fridge. I saw all those ‘what, whats’ but I wasn’t even paying attention” (LSM 4-5, Grabouw)

“They give you a standard, usually on the box or brochure they say that its rated on a B rating or like a D rating. It is also in colours, you can see it goes all the way down to black” (LSM 9-10+, Johannesburg)

“I just thought to myself it was just a design, maybe branding on the side of the fridge like that. I did not even take it that it had to do with energy.” (LSM 8-9, Polokwane)

Awareness levels of the Energy Efficiency label between database A and database B is 90% and 76% respectively. Awareness levels have grown from exposure to social media messaging, surveys and market presence of the label. This is a solid foundation upon which to build more in-depth market knowledge.

5.1.3 Role of current EE label

There was a significant difference in prompted awareness of the role of the current Energy efficient label between qualitative and quantitative research findings. When asked during focus

groups “What do you think the label is designed to do?” there was, in most discussions, an impending silence that followed, demonstrating that conscious thought needed to be applied before a response was formulated. This suggests that the cognitive link between awareness of the label and its purpose as a consumer decision making tool is not yet strongly formed in market’s conscious awareness.

“There is that thing that it is pasted on the wall or on the fridge. Like each and every fridge now that you’re buying, it is got everything to do with energy ... yah but then like to be honest I do not even take that thing into consideration” (LSM 6-7, Bloemfontein)

However, once respondents had engaged directly with the label to think about what it does, they start to deduce its meaning. The quantitative questionnaire prompted the role it played with a checkbox list of numerous possible roles identified by the first two stages of qualitative research. This indicates that, under closer examination, respondents can deduce its role.

In the total quantitative sample, there were limited differences in perceptions of the key role played by the label³ (Ref. Figure 5). Receiving the highest number of mentions at 57% was the opinion that the label’s key role was to communicate how eco-friendly the appliance was. In the qualitative research, this was also the highest spontaneously received reason behind the role of the label and, likewise, with the second highest rating of 52% mentioning the scale that demonstrated the appliance’s electricity consumption. A similar number of mentions was given to the next three perceived key roles of the label in the quantitative sample: it allows comparison of electricity consumption (47%); it shows how much electricity an appliance uses (46%); it guarantees that the appliance meets minimum energy performance standards (44%). Only 5% of the total quantitative sample stated they did not know what the label does, with a 6% difference between database A (the unexposed sample at 9%) and database B (the exposed sample at 3%). Further differences between these two samples were that database B recorded a 52% opinion that the label indicates how much electricity the appliance uses versus database A at 36%; with the lowest opinion of all prompted responses amongst database A at 30% that the appliance meets minimum energy efficient standards versus database B at 52%.

Interestingly, in the qualitative groups discussions, no-one mentioned MEPS as a reason for the perceived role of the label, demonstrating that this knowledge can be deduced if provided as a reason, but it is not spontaneously known.

³ Multi-mentions were allowed on the question of the [Energy Efficient](#) label’s role

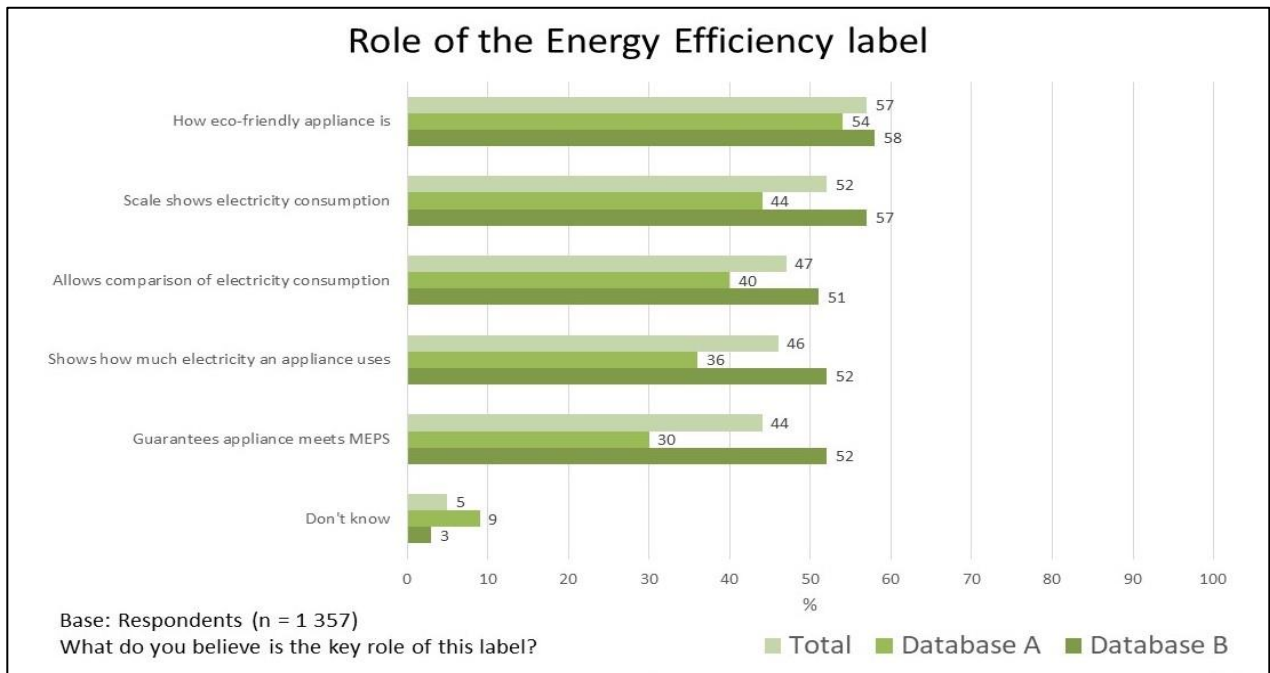


Figure 5: Key factors explaining role of Energy Efficiency label

5.1.4 Use of current EE label

The next question posed to respondents in both the qualitative and quantitative research was whether or not the label had ever been used to help determine choice of large appliance purchase. There are significant variances in responses through the various samples in the research.

In the qualitative research, the few who have used the label have: been exposed to it in the United Kingdom when living there; are naturally inclined towards science and technology or have studied environmental science (youth skew); are comparing appliance models in-store (2 respondents out of 97); or received advice from a sales person, although the latter circumstance is reported as highly limited.

“When I bought the dishwasher ... the guy said it is an energy saving one and it is better than a normal one, it will save you energy. And therefore, I took it” (LSM 8-9, Durban)

“I won’t buy something unless it is in the A section” (LSM 10-10+, Cape Town)

The quantitative findings show that two in three respondents claimed to have made use of the Energy Efficiency label when purchasing a large appliance. Use of the label was significantly higher in database B (68%), among those who had already been exposed to the label. Male respondents were also significantly more likely to have made use of the label (73%) than female respondents (61%). Usage of the label did not differ markedly by income group, however, respondents with tertiary education were somewhat more likely to have made use of the label to assist them when buying a large appliance (66%) than those with a lower level of education (62%).

Of the 35% total sample who had not used the label before, 34% claimed they have never seen it, 23% said it seemed too technical and 19% said they did not know what it meant – this last statement was predominantly from those living in fringe areas such as small towns and rural

areas. The remainder were equally split, with lack of engagement driven by either not having bought appliances for some years, or that energy consumption of appliances was not important to them or that they believed the label was a marketing gimmick.

As will be outlined further in the report, it appears that the Energy Efficiency label is being used more as an endorsement that the appliance selected for purchase as an energy efficient or eco-friendly choice. The difference between what was observed in the qualitative discussions in response to role and use of the label, against that of prompted understanding of its role amounts to a sizable gap. In all of the discussions, where respondents were first exposed to the current label, then a little later asked to compare labels against each other (each respondent provided with their own set of label copies), very few spontaneously noticed the A+++ - D scale versus the A - G scale, which indicates that previous engagement with the label and knowledge of ratings was low. This suggests that further exploration or interrogation of actual energy performance measures at the time of shopping and purchase of a new appliance was highly unlikely.

Some respondents do however check the credibility of whether or not it is a more energy efficient appliance than their previous old model by running some checks through the pre-paid electricity meter once the appliance is installed.

“I've tested this on my new washing machine versus the old one, in a spin cycle the new one draws less power on the prepaid meter than the old one” (LSM 10-10+, Cape Town)

What does not seem to be happening in the actual purchase decision process is one model being compared against another as to which one is more or less energy efficient even though 47% of the quantitative sample say this is a key role of the label. As previously outlined, all consumers shop comparatively for size, price, features, etc., but energy efficiency as an additional specification has not taken hold in the consumer mind as a factor. So they may see the Energy Efficient label and use it to the extent of reassuring themselves they are making an eco-friendly choice with an energy efficient product but are missing the opportunity to identify which model offers the best choice of efficiency and greater saving over the long term. By not using educational campaigns to create awareness of being able to compare energy efficiency levels across models, nor advertising the range of energy efficient models a manufacturer/retailer has available, the supply chain is missing the opportunity to sell consumers 'up' a level.

The effectiveness of the Energy Efficient label is not being optimised in the market given that its role and how to use it comparatively have not been communicated. This leads to one of the key recommendations to drive consumer education around the energy efficient tools that consumers have direct access to in the purchase decision making process. Once consumers know about these tools, where to find them and how to use them, the possibility of motivating behaviour further up the energy scale should be stronger, thereby driving overall value for both stakeholders and consumers.

5.2 Evolving design of the Energy Efficient label

5.2.1 Understanding of the term energy efficiency

All current communication in South Africa through the www.savingenergy.org.za and the South African Energy Efficiency Label Facebook and Twitter pages as well as referring to the label itself uses the terminology ‘Energy Efficiency’ stated in English. Therefore, this was the starting point in focus group discussions where respondents were asked what associations came to mind around this terminology stated in English.

In the pilot group (English, LSM 10-10+), the two terms were first explored separately but associations such as “motivation”, “joy” and “radiance” to the word ‘energy’ meant time was lost redirecting the conversation back into the space of electricity consumption. Hence, the decision to kick off directly with ‘energy efficiency’ was taken from the second group onwards.

Understanding of the terminology was poor overall in LSM 3-6 non-English discussions (isiZulu, isiXhosa, Sepedi), where energy is better comprehended and associated with electricity and power than the word efficiency.

“I may not understand this ‘efficiency’ word, but energy is about power” (LSM 3, Seshego)

With a better or fluent grasp of English, the terminology shifts more accurately towards an indication of how much electricity is used or more specifically how much is saved through design or usage in the context of electrical appliances. This makes sense considering the context of the label within the S&L programme limited to electrical appliances.

“Minimum energy to get maximum output on appliances” (LSM 8-9, Durban)

Importantly, an energy efficient appliance is spontaneously believed to be a better-quality product in design than old appliances because the marketplace is yet to evolve older technologies out of residential usage. Consequently, a strong perception exists that the higher an appliance’s energy rating, the more expensive it will be.

“The higher up you go the more work goes into making it more energy efficient that’s why it will cost more” (LSM 8-9, Durban)

5.2.2 Understanding the energy scale

Of the total quantitative sample, 71% claim to understand the meaning of the energy efficient scale, with 7% saying they do not understand and 22% saying they are not sure, i.e., there was some confusion present.

5.2.3 Clarity of symbolism relating to colours

The colour association and cues to the traffic light system of green/amber/red cueing go/caution/stop are frequently mentioned as symbolism used to understand the scale, where green bars represent safety (life, environment, protection, energy grid is stable) and the red bar (hot, warning, energy grid is overloaded) is danger. There is no doubt at all that understanding of the scale driven by colour is crystal clear across the sample.

The impact of the colour coding, and considering the context in terms of previous ‘save electricity’ campaigns in South Africa, is that, on principle, consumers do not want to purchase in the ‘red’ and are driven to want to purchase an appliance in the ‘green’. Whilst consumers would like to believe that a green rating is possible for all appliances, it is much easier to believe that fridge/freezers, washing machines and dishwashers can achieve green ratings over ovens, geysers, tumble dryers and air conditioners. Therefore, expected MEPS for the latter sit in the bottom half of the scale versus the former in the top half of the scale.

5.2.4 Removing the word ‘efficient’

For those with a good or fluent grasp of English, the descriptors “more efficient” and “less efficient” also clearly communicate that the top green bar represents using the least electricity and, likewise, that red on the bottom uses the most. But the lack of understanding of the word efficient has a direct negative consequence on comprehension of the scale amongst non-first language English speakers. For the majority who struggled to clearly understand the scale, the confusion was difficult to verbalise because whilst the colour coding is clear, the length of the bars in addition to the descriptors was hard to make sense of. Only a couple of respondents could verbalise this by describing the scale as “back to front” or “upside down”, where the red bar should be the shortest and the green bar the longest.

“It is supposed to be the other way around because you’re supposed to go from small to big, from less to more. That one is going from more to less.” (LSM 6-7, Bloemfontein)

Once it was apparent that the source of the confusion was the lack of understanding of the word efficient, the solution became clear. This led to a design change between Stage 1 and Stage 2 [Ref. Figure 6] to change the descriptors to “uses **less** electricity” and “uses **more** electricity” and to bold the highlighted words.

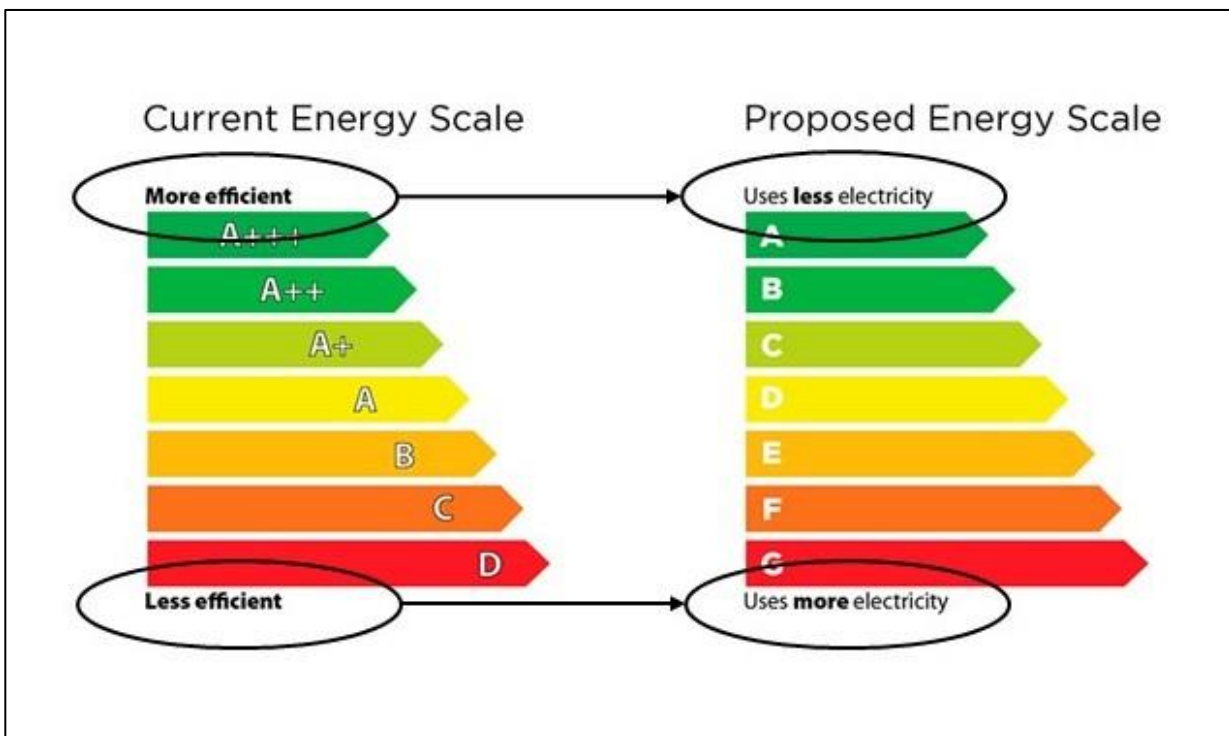


Figure 6: Recommended changes to energy scale descriptor text

This recommendation was made in 2011⁴ however was not instituted.

5.2.5 Eliminating all the pluses

As mentioned in section 4.1.4, some respondents are familiar with the A+++ - D scale having used it or been exposed to it previously and are comfortable with what each class represents. However, for many, the presence of classes above A create confusion. Particularly when overlaid with the symbolism of the colour coded scale.

An “A” is typically understood to be good and between 80 – 100%. For many, their frame of reference is the school grading system. So “A+ A++ A+++” are very, very good but the difference between an “A+ and A++” is marginal and for some (lower income skew) it is confusing. Whereas the difference between “A and B, B and C, etc.” is more straightforward, discernible and the concept of grading is easier to understand. A++ and A+++ are sometimes also associated with batteries and, although not mentioned that frequently, it is mentioned at both higher and lower ends of the market. As upper classes on the scale are perceived to be a better-quality technology, the additional ++s cue an even more expensive product, which for lower income consumers makes them think these classes are out of reach of their budget, so are instantly dismissed in the consideration set.

“Why does the one on top say A and then have 3+++s?” (LSM 3, Botshabelo)

“This one gives you a false hope of a D that is still good ... the AAA rating kind of misguides you, it misleads you because if I am buying an A appliance with that rating, I think I am still doing a good job ...” (LSM 10-10+, Cape Town)

“A is 100%, so how much is A++++? 150%?” (LSM 9-10+, Johannesburg)

“What does A++ mean? Sounds like a battery” (LSM 4-5, Tongaat)

“The higher up you go the more work goes into making it more energy efficient that’s why it will cost more ... if you start going A +++ you are going to pay” (LSM 8-9, Tongaat)

⁴ Pr Amber (Nov 2011) – Research report by KLA, designed and conducted by this current project’s lead qualitative specialist, Toni Blumeris, which demonstrated appeal for the concept of the label, but mixed comprehension levels, with lower LSMs showing less spontaneous comprehension. Improvements mainly focused on clarifying display of secondary product data and using local languages beyond English.

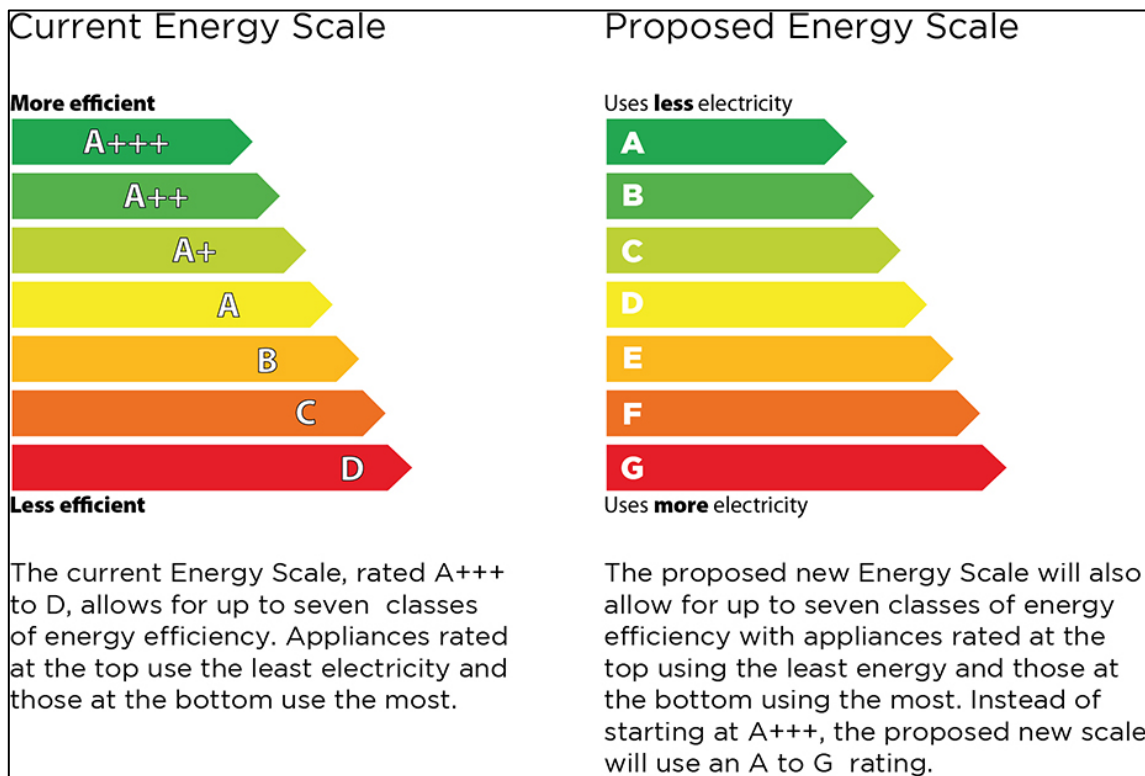


Figure 7: Explanation provided in quantitative questionnaire proposing new scale grading

Whilst the quantitative sample demonstrated 79% understanding that the current A+++ - D scale and the proposed A - G scale communicate the same information, there were significantly more respondents in lower income and educational levels who believed the scales showed different information, supporting that comprehension is a little tougher for this end of the market.

Regardless of the direction the EU is taking with the labelling programme and the question of aligning with the A - G scale for international manufacturers and importers, the A - G scale in SA is easier and more straightforward for the market to understand.

5.2.6 Grading according to MEPS

Whilst a strong majority of the overall sample are in favour of moving to the A - G scale for simplicity and ease of understanding, it also holds consumers more accountable to motivating behaviour up the scale. F and G are typically understood to be 'a fail' and make respondents feel they are not making a particularly good choice, whereas the equivalent of a D on the A+++ - D scale, although still in the red, does not psychologically have the same impact as a G also in the red. So from both a colour and a grading perspective, the A - G scale has stronger potential to motivate choice up the scale than the D-A+++.

With the recent revision of MEPS, there is no appliance category that falls into the G grade. The MEPS of a tumble dryer will be F and, thereafter, the lowest MEPS is at a D for a fridge/freezer, dishwasher, oven and air conditioner, with a washing machine at a C. The latter appliance categories fall within colours and gradings that are deemed acceptable choices. In other words, the motivation to move from yellow into green, from D into A is not as strong as moving from red or orange into yellow and from G to F or E.

As such, on a seven-bar scale, it is likely that the market will see more consumers shifting up levels in the tumble dryer category than other appliance categories.

Although a proposed strategy to eliminate unrepresented lower end classes from the Energy Efficiency label was not tested in the quantitative research stage, it was discussed with respondents in all of the 12 focus groups. There was an almost unanimous sentiment that putting lower classes onto the Energy Efficient label in which there are no appliance models available in the market is highly misleading. Consumers want to know they are making the best choice of energy efficient appliances that fit within their needs, desires and budget. By representing classes on the label that do not exist, they will possibly be purchasing the lowest class available but without knowing it. This does not serve consumer needs and nor does it serve the business objective of motivating choice up the scale.

As such, the recommendation is for each category to eliminate classes from the label which fall below MEPS, as demonstrated below in figure 7 for Dishwasher and Tumble Dryer.

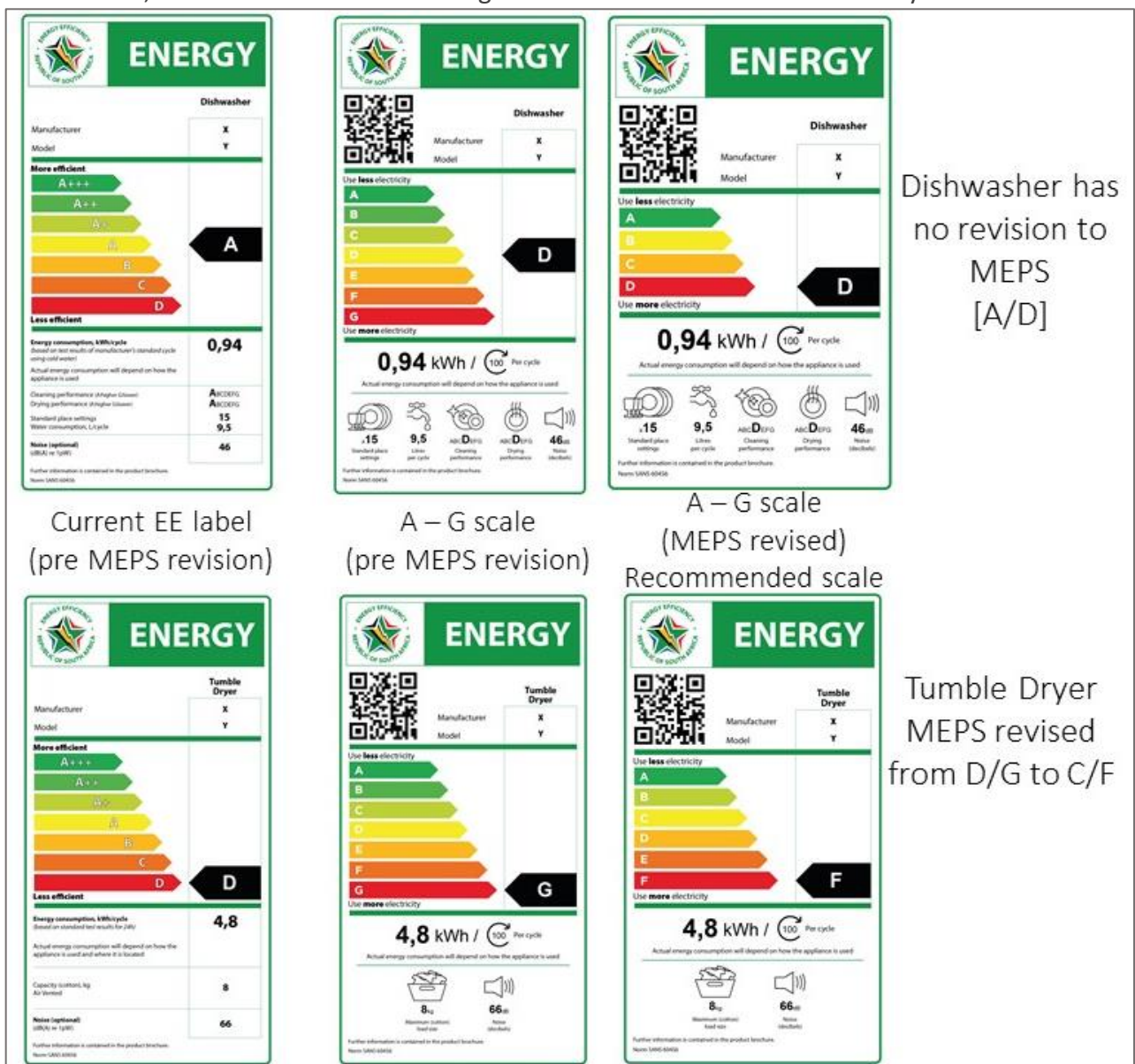


Figure 8: Demonstration of A - G MEPS scales

In the figure above, all labels demonstrate appliance ratings that fall at MEPS levels, i.e., the dishwasher is currently graded A and the tumble dryer is graded D using the current scale A+++ - D. With recent revisions to MEPS, there has been no change for dishwasher, so the current A becomes a D on the A - G scale, whereas tumble dryer has been changed to a C, which becomes an F on the A - G scale. Using the figure above as an example, respondents state that on the A - G scale, it is more motivating, if purchasing a tumble dryer, to stretch the budget for a model that exceeds a G or an F rating, whereas if purchasing a dishwasher, most would be happy with the D rating that falls within budget, some may push a little higher. The same motivation, however, would apply for both a tumble dryer and dish washer on the A - G MEPS scales, i.e., the dishwasher would leverage the 'red' grading and the tumble dryer would leverage both the 'F' rating and the 'red' grading to motivate a purchase decision further up the scale.

Manufacturers with poor performing appliances on the lowest class of 'red' will be encouraged to improve their MEPS in order to remain competitive. If the appliance category in question has a MEPS of A, on the current A+++ - D scale, the brand leverages the mid-way/yellow/A positioning that consumers consider acceptable. However, with a MEPS scale recommendation, the brand would only compete on the bottom/red/D positioning and may lose consumers to a competitor brand who hold models in C and above.

An area of possible resistance from manufacturers relates to printing of Energy Efficient labels that are not standardised in size. Different appliance categories with a variance in the number of bars represented in the scale may result in different label sizes. Currently, manufacturers get a standardised template with all the colour elements printed professionally, then print all the black elements (model, rating, measures) inhouse prior to packaging labels into appliance boxes. Whilst this is not regarded as an insurmountable obstacle, it does introduce more complexity and additional cost to the process. Design options have been considered to address this (Ref. Section 9.7). In addition, the S&L programme would be encouraged to provide an appropriately long notice period to allow manufacturers to deplete their stocks of existing labels before new ones come into effect.

"It was a R150,000 write off last time the scale shifted" (Local manufacturer)

Regardless of some manufacturers stating that their brand ambassadors train retail sales-people in the retail chains about energy efficiency, this is not emerging as being experienced by respondents.

5.2.7 Understanding the key energy performance indicators

There was little overt discussion around the black arrow and letters indicating the rating on the scale of a particular appliance model. During discussion of each of the many labels shown as material across the focus group discussions, no-one raised this as confusing or difficult to understand.

However, there were some significant differences in understanding the other key energy performance indicator which is kWh (kilowatt-hour). The quantitative findings demonstrate that 70% of the total sample claim to understand what this means, with 11% saying they do not understand and 19% saying they are not sure of its meaning. Within the 30% who either do not understand or are unsure, there is a bias towards females, households earning below R10 000

per month and those with education levels up to high school. This was mirrored in the qualitative research groups where males tended to explain kWh to the females and where lower income groups relied on one or two people in the discussion to share the understanding that this is a measure of how much electricity an appliance uses. It was not necessarily an unfamiliar or new terminology – most had heard of it before – but found it difficult to explain. However, kilowatt-hours was used interchangeably with kilowatts. What was more difficult for some to understand was that some appliances measure kWh in cycles and some per annum.

Despite whether or not kWh is understood, 88% of the total quantitative sample say this is an important measure that should be on the Energy Efficient label, with males thinking it is slightly more important than females and households earning less than R10 000 per month and those with education levels up to high school rating it as slightly less important.

On the current Energy Efficient label (Ref. Figure 9), the kWh is written in text and very small so many do not pick it up spontaneously. It has little stand-out and is easily missed. The way in which consumers need to engage with the label to notice and find this measure does not mirror the reality of what is happening in-store. In comparison, the EU kWh stands out better on the label through its more dominant placement and surrounded by white space. However, the $\frac{3}{4}$ circle with the arrow surrounding 100 served more to confuse than clarify what ‘per cycle’ meant and after Stage 2, it was removed for Stage 3. At this point, to drive further stand out, the explanation around actual performance depending on appliance use was also removed. However, in Stage 4, the analysis showed there was not as much discussion around energy performance depending on actual use of appliances (in this case, air conditioners), which had been useful in previous discussions to bring up topics such as performance on eco-cycles, normal cycles, and personal habits, e.g., leaving the fridge door open, not closing windows when the air conditioner is on, etc. As such, it is recommended to keep the revised and enlarged kWh performance measure, which is more spontaneously noticed, but to reinsert the consumption statement.

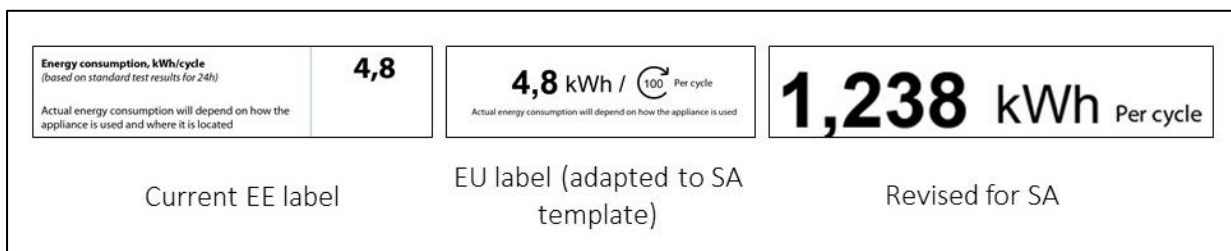


Figure 9: Evolution of kWh energy performance indicator

As is also evident with all other numerical values across the appliance categories that, whilst the kWh performance measure may not be understood nor carry much meaning to some respondents, it is used more and has more impact in comparative situations when comparing one label against another. As such, it does not need to be deeply understood in order for respondents to determine that a better rated energy efficient measure, plus a lower energy performance measure helps them determine which model is more or less efficient than another.

This performance measure, plus the energy scale and rating are the key elements that respondents use to determine the overall efficiency of a particular Energy Efficient label. If a

decision was ever taken to minimise the information on the label, it would be recommended that the aforementioned three factors would be the basic information to keep.

5.2.8 A step change between only text and only icons

Whilst respondents may not notice the shift between A+++ - D and A - G energy scale, they do respond both spontaneously and favourably to the move from text descriptors to icons saying the pictures are more visually appealing, have better stand out and are a little easier to interpret. Various examples of Energy Efficient labels for the range of categories (fridge/freezer, washing machine, oven/stove, geyser, dishwasher, tumble dryer and air conditioner) were created for Stage 1 using the EU current label template and icons as examples, but adapting real specifications from appliance models in the SA marketplace per category. Findings from Stage 1 around icon meanings and design were used to refine designs and were tested again in Stage 2, before more design changes were made as input to Stage 3. In the first two stages, across the various income demographics, most of the appliances were well represented in order to understand each appliance in-depth, i.e., all except the air conditioner. The last three focus groups were designed to investigate air conditioners specifically.

As the geyser only has one icon and the tumble dryer two icons similar in meaning to those of other appliances, these appliance icons were not tested in the quantitative stage as this would have unfavourably extended the length of the questionnaire putting completion rates at risk. The air conditioner was also excluded from the quantitative phase given that volume purchase share in the residential market in South Africa is small in comparison to business and commerce. Recommendations for these three appliances are based on principle lessons from the quantitative data and in-depth market insights from qualitative data.

A key finding from Stage 1 was that the layout of the secondary information consisting of various performance measures and specification indicators was largely perceived as too technical and off-putting to read, subsequently, very few respondents have engaged with the label at this level. Whether or not in-depth evaluation yields comprehension or not, few are enticed to read it. This alone diminishes its value and impact. As the SA market consists of 11 languages, with a significant variance in literacy, education and maturity levels around energy efficiency, the icon route immediately made more sense to engage a wider audience. However, some of the icons presented, although visually appealing, were difficult to understand as recognition and symbolism lack the same level of familiarity and fluency as in the EU where icons have been used for much longer. The recommendation coming back from the marketplace suggested a step change strategy consisting of icon plus a brief key word text descriptor. Subsequently, the level of engagement and comprehension of new step change designs increased substantially. Even if respondents did not understand the meaning of a specific measure, they could still determine which is the more efficient choice through comparing one model against this other. The experience in itself becomes empowering and educational as a result.

The following section reports per appliance category to demonstrate the evolution of icons through each of the research stages. Please note that level of comprehension has not been indicated because, although it was tested for all icons, lack of comprehension across was negligible. Small town and rural dwellers rated level of importance of displaying the majority of

icons on the Energy Efficiency label as slightly below average in comparison to those from other locations.

5.2.9 Fridge/freezer

On the current SA Energy Efficient label, understanding is clear possibly due to respondents in the qualitative sample owning and operating a fridge/freezer. It is mostly the text layout that is off-putting, particularly for those less educated and literate. The detailed explanation about testing over a 24-hour period and decibels are not engaged with at all. The word 'volume' is understood amongst English speakers but less so by other first language respondents.

The labels with icons yielded the following feedback:

- The 'milk carton' first developed was not understood to mean the fridge component of the unit and, therefore, little understanding of fresh food volume emerged. A new icon was developed showing three milk bottles instead, and the words 'fridge size' was introduced to the second label design.
- The 'snowflake' mostly worked to indicate freezer component although there was some confusion amongst respondents not familiar with a snowflake, particularly in South Africa where snow is not a widespread phenomenon. By adding 'freezer size', this clarified the meaning.
- The 'noise' icon became clearer when the text was simplified to 'dB Noise' although for some the noise of a fridge is not that relevant as it is generally a quiet appliance.
- Although the possible addition of a refrigerant warning icon was discussed in the last five focus groups, it was tested in the quantitative research and showed that 95% believed the ozone depleting potential warning should be displayed on appropriate appliances, i.e., fridge/freezer and air conditioners. As such, it should be added to the final label design for this appliance.
- The ranking of level of importance of displaying each of the icons on the Energy Efficiency label: fridge size (91%); freezer size (88%)| noise (74%).

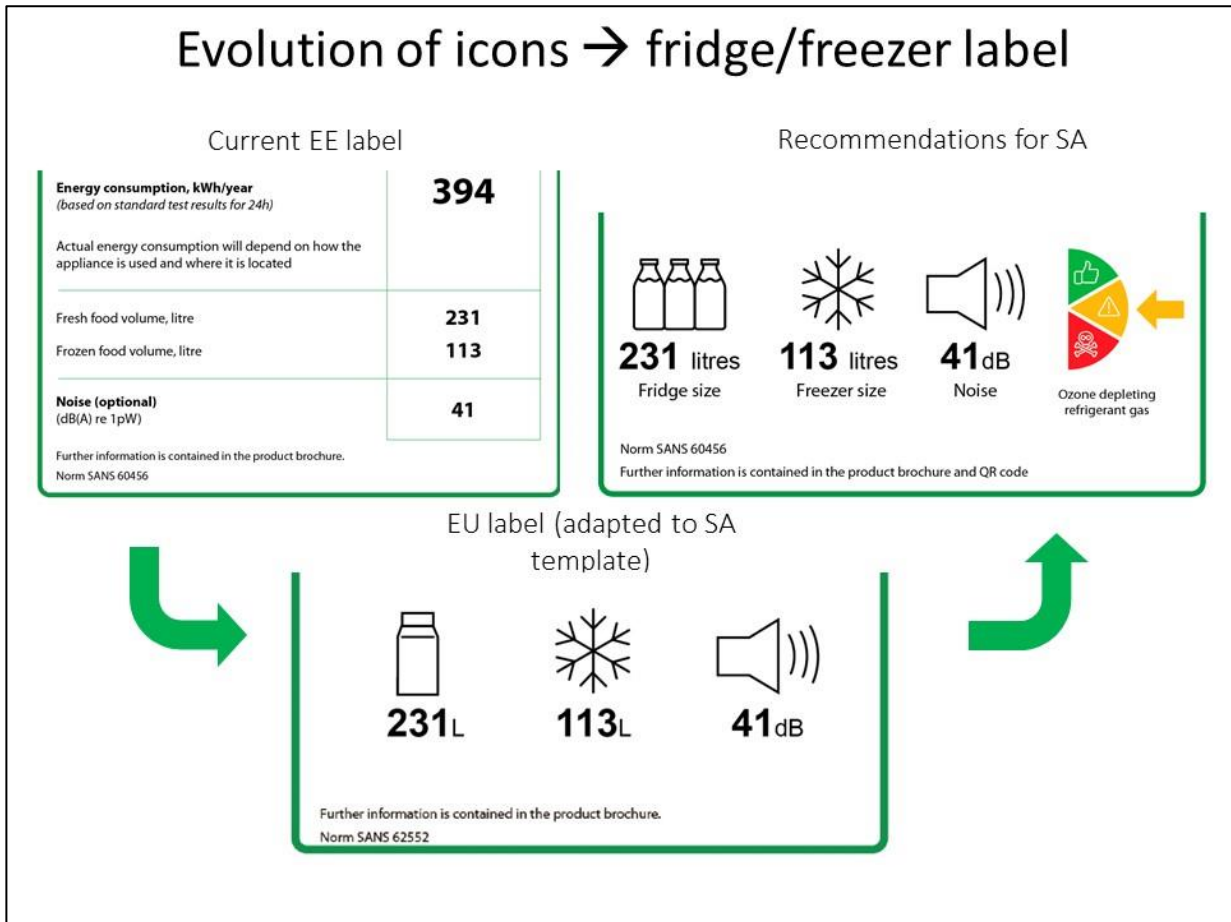


Figure 10: Evolution of fridge/freezer icons

5.2.10 Washing machine

The text descriptors on the washing machine are mostly clear. Similar to the fridge/freezer, many are familiar with washing machines even if not personally owning one.

The labels with icons yielded the following feedback:

- The clothes in a tub was immediately understood as machine capacity, yet respondents refer to this as ‘load size’ in SA, hence the text descriptor together with kg selected in the final design.
- The tap indicating amount of water used per load was also clear. Respondents also mention that water consumption, given increasing shortages country wide, is gaining a lot more importance than in the past.
- Spin speed was much easier to understand as a text descriptor in the current SA label rather than in the first design given that the twisted short icon representing spin had no meaning. As the spin symbol used in the ‘spin noise’ icon was understood to some extent, this was selected for the revised design, with the descriptor spin speed, plus rpm as the measure. The functional consumption measure of spin dry performance was also not understood, so again the spin symbol was used along with the appropriate wording.

- As both spin speed and performance drop down in importance for the label, and as the label is already cluttered with six icons, removing these two from the label is recommended. Secondary energy efficiency ratings and performance measures can be explained further in the QR code.
- Whilst the two noise text descriptors were fairly clear on the current SA label, they were not completely apparent in the first icon label design but with the added descriptors, comprehension improved in the final testing. Further, in qualitative discussions, the noise of the spin cycle, in particular, is a factor mentioned spontaneously as being more important than wash noise.
- Ranking of the level of importance of showing each of the icons on the Energy Efficient label: load size (95%), water consumption (94%), noise – spin and wash (73%), spin performance (73%), spin speed (71%).
 - When comparing the various washing machine labels to evaluate comprehension of energy efficiency performance measures, respondents frequently placed load size ahead of energy efficiency, especially where a smaller load size had higher energy efficiency rating and a larger load size used more energy and water. Many rationalised that the water from a larger washing machine can be recycled and that more energy would be saved by doing one wash on a large machine versus two washes on a smaller machine.

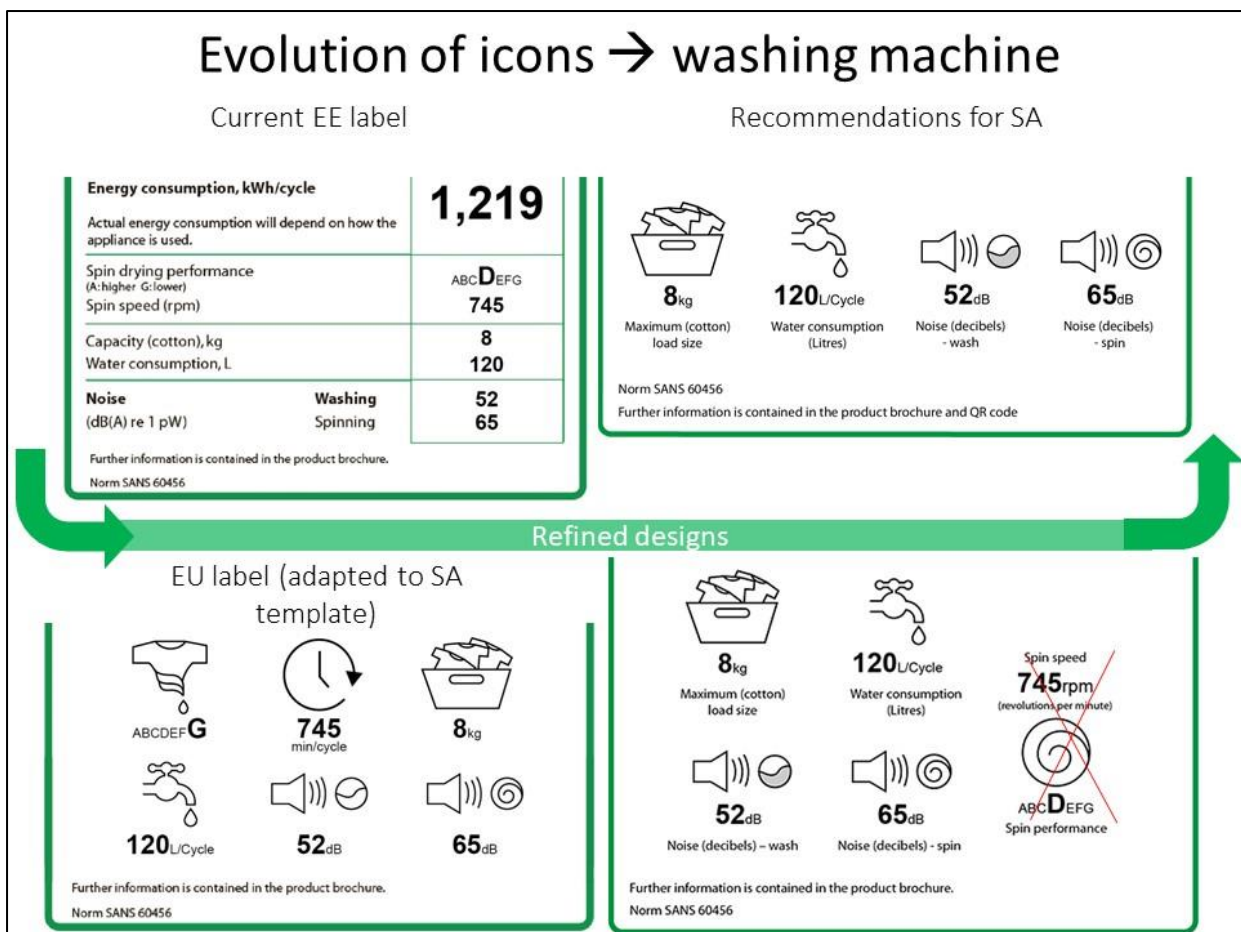


Figure 11: Evolution of washing machine icons

5.2.11 Oven/stove

Understanding of the text descriptors for oven was mostly very poor, despite this being a familiar and frequently used and owned appliance. Respondents acknowledge that different meals require different cooking times and heat levels, so do not understand what standard of cycle should be used as a reference point. In addition, the terminology convection versus convention is not understood by many, although the functions, thereof, are more familiar; and usable volume is confused with oven dials and switches (LSM 3). Lastly, noise is not relevant in the context of oven.

The labels with icons yielded the following feedback:

- The convention icon is understood to be how a meal is cooked with a heating element on both above and below. The kWh/cycle is difficult as a measure to understand; however, it is recognised as taking longer therefore using more electricity and being the higher of the two measures.
- The convection oven, for those who understand baking, uses a fan feature to speed up cooking and to cook more evenly. The fan, therefore, makes sense for those who understand it.
- As usable volume was not understood as terminology, nor was capacity as depicted in the first icon design, a new design was sourced to look more like an oven. As respondents spoke more about the capacity of an oven, this word was selected as the descriptor as well as litres for the measure.
- As noise is not relevant, it was not tested and could be considered for removal from the label design.
- Ranking of level of importance of showing each of the icons on the Energy Efficient label: oven capacity (86%); convention cooking (81%); convection cooking (76%).

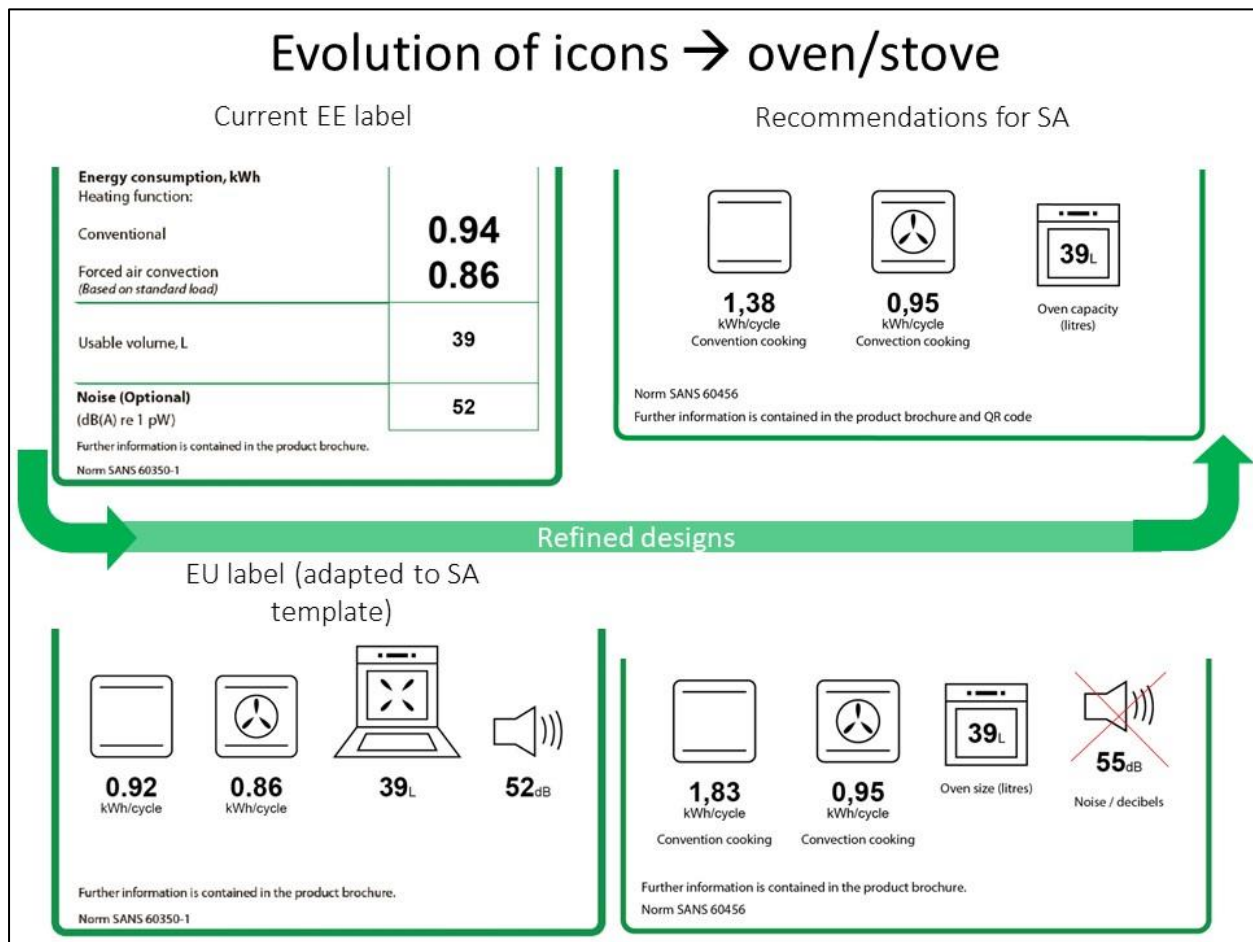


Figure 12: Evolution of oven/stove icons

5.2.12 Dishwasher

The icons relating to dishwasher were only explored with respondents in LSM 10-10+ focus group discussions given that the prevalence of dishwasher use in South African homes is mostly found in upper income homes. However, the total quantitative sample was exposed to the dishwasher section in the online study and, interestingly, there were no significant differences in level of importance or understanding between sample demographics.

The labels with icons yielded the following feedback:

- Standard place settings were clearly understood by respondents through the EU label, but for purposes of consistency, the descriptor was still added to the revised label icon. This may aid comprehension for those new to dishwasher functionality and purchase decision making in the future.
- Whilst the tap clearly depicts water consumption, the ‘L/cycle’ descriptor was not immediately understood. Therefore, although the text descriptor ‘water consumption’ was not added to the revised icon, clearly spelling out ‘litres per cycle’ was necessary.
- The sun icon communicated heat rather than cleaning, thus creating confusion when differentiating from the icon used for drying performance. In South Africa, a symbol depicting ‘shiny plates’ has been used for a long time in the dishwashing by hand category and it was recommended to use this instead.

- The vertical wavy lines used in the drying performance icon are associated with heat and steam (steamy hot drinks, hot air rising), which when teamed up with a plate work to depict drying performance, although it takes a little cognitive processing to arrive at the usually correct interpretation. By adding the descriptor ‘drying performance’, comprehension is quicker. As a secondary energy performance indicator however, with less of a majority vote of importance, this icon could fall away from the label (Ref. Figure 12).
- The noise icon is easy for most to comprehend. What is surprising, however, is that this is the lowest ranked icon in terms of level of importance as respondents in the focus groups said the noise factor of a dishwasher is one of the key factors they investigate when purchasing a dishwasher.
- Ranking the level of importance of showing each of the icons on the Energy Efficient label: water consumption (94%); standard place settings (89%); cleaning performance (86%); drying performance (76%); noise (75%):
 - Similarly to washing machine, water consumption is a critical factor in the selection of an appliance that uses water.

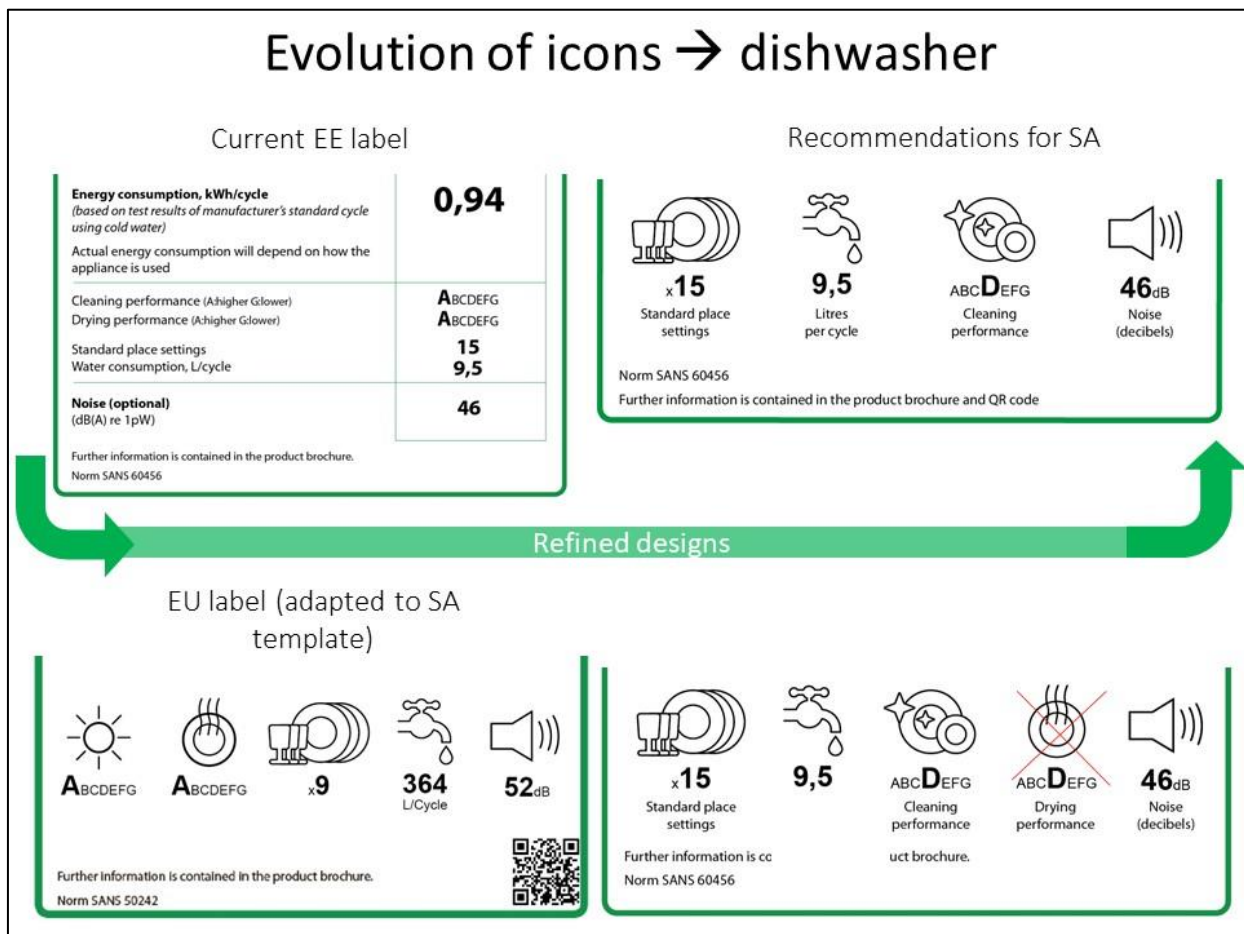


Figure 13: Evolution of dishwasher icons

5.2.13 Geyser

The energy efficiency performance of a geyser is reflected differently to that of other Energy Efficiency labels and some respondents notice that it is not kWh per cycle/annum. Only one respondent in the sample had previously used the Energy Efficient label to purchase a geyser

and had only looked at the energy efficiency rating, not at the secondary information or energy consumption measure. That energy performance is measured in Watts based on energy lost whilst hot water is not being drawn is not understood at all. For those who may be interested, this information could be accessed through the QR code (Ref. section 4.2.6).

The labels with energy performance descriptors and icons yielded the following feedback:

- Despite a lack of understanding of the energy consumption measure, it is still required for comparative purposes.
- Whilst the icon depicting the geyser tank is recognised, the 150l is better understood if more explicitly communicated with the text descriptor ‘water storage capacity (litres)’. This is key element of the purchase decision journey for geysers.

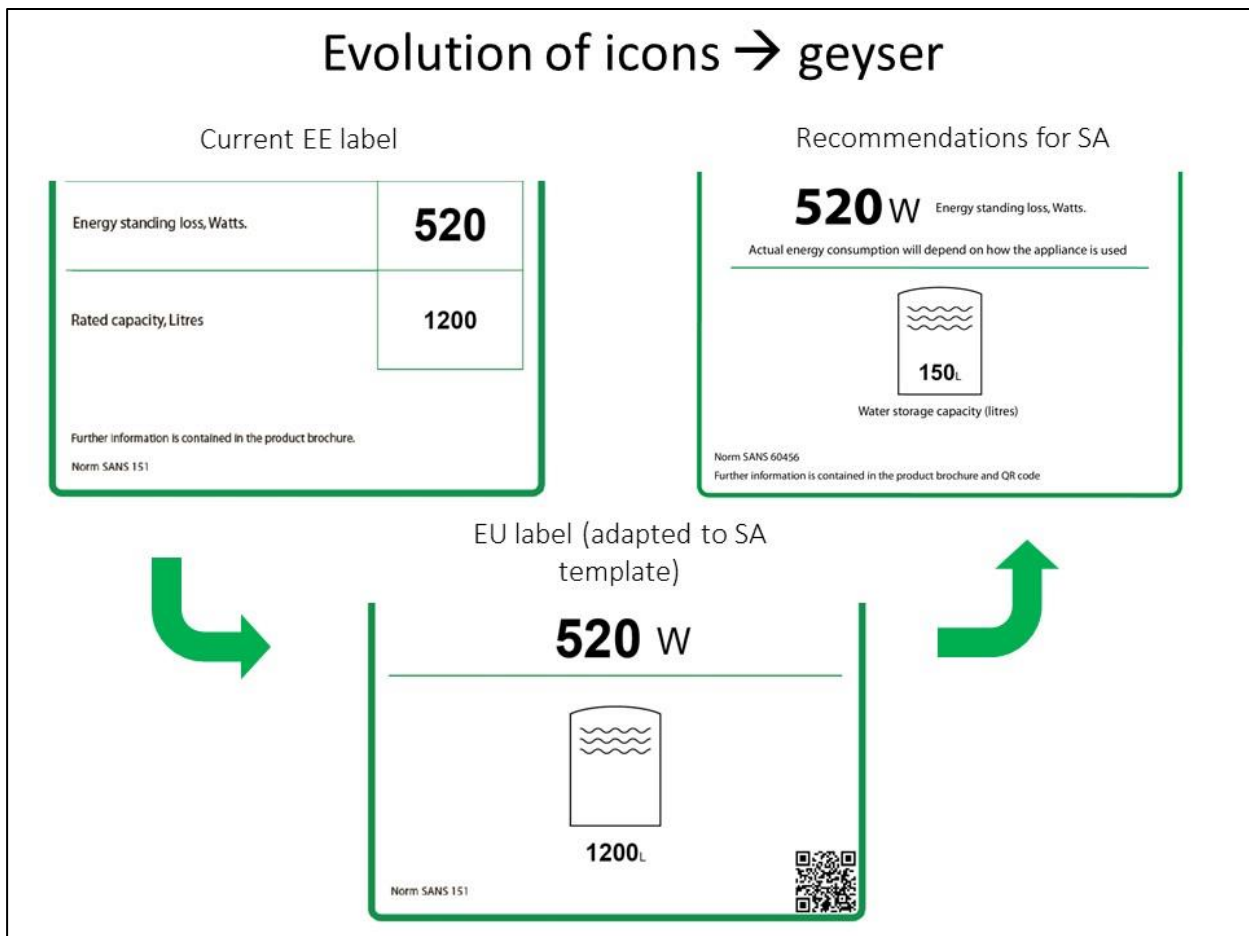


Figure 14: Evolution of geyser icons

5.2.14 Tumble dryer

The energy efficient label for tumble dryer is the most straightforward of all the appliance categories where both text descriptors and icons were easily understood by respondents in LSM 10-10+ to whom they were exposed.

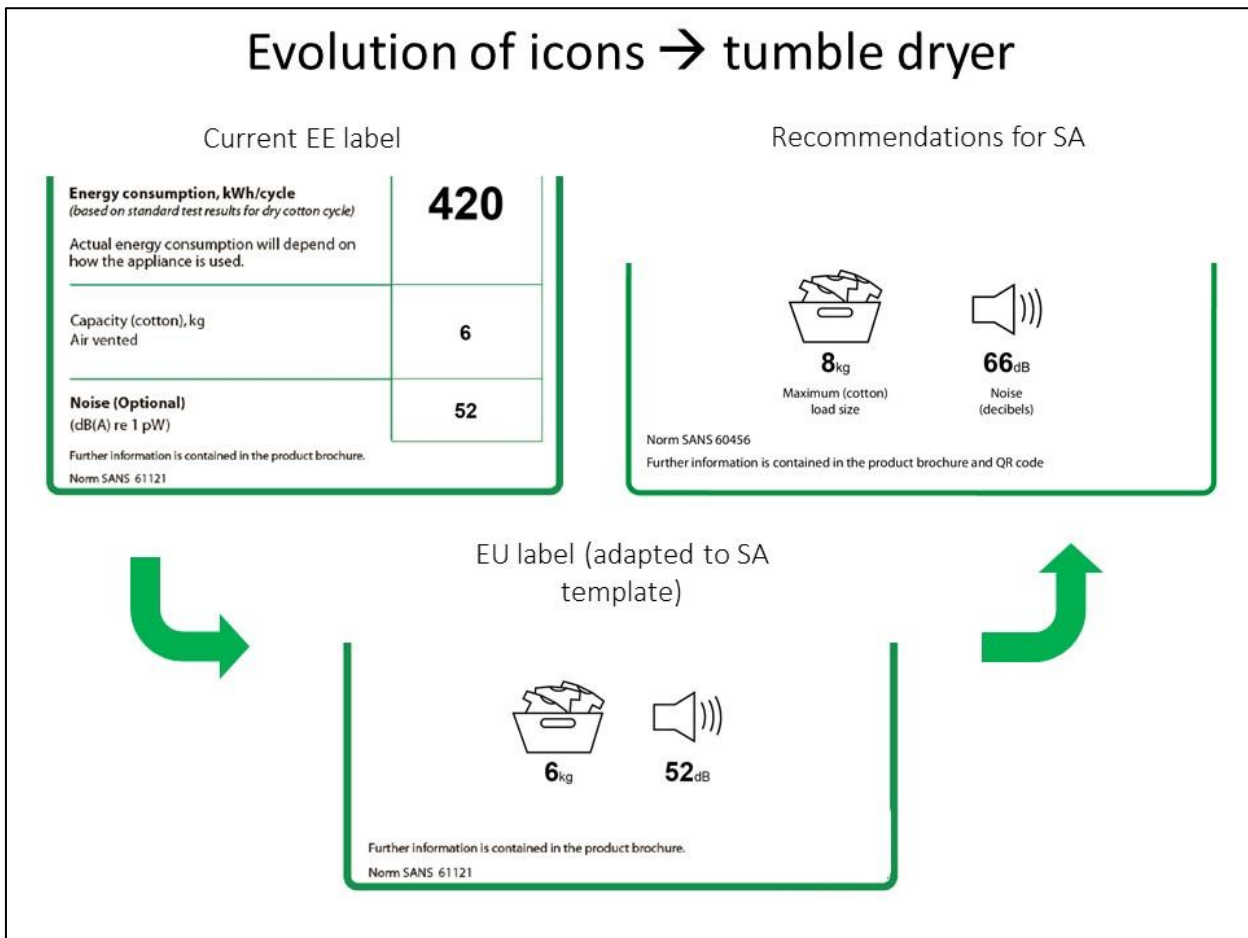


Figure 15: Evolution of tumble dryer icons

5.2.15 Air conditioner

There is awareness of more energy efficient air conditioners available on the market, but respondents perceive them as expensive and still out of reach over and above installation, maintenance and running costs. By the range of prices paid for new air conditioners, either bought individually (residential skew) or in bulk (small business skew) it appears there were a few inverter users in the discussions who did not know much about the technology. Prices of air conditioners bought ranged R1000 – R4000 for portables, R4000 – R12000 for 12000 BTU, and there was some awareness of 24000 BTU models priced between R10000 – R27000.

The value of comfort outweighs the cost of excess electricity charges and environmental harm, for some, more specifically, the ozone layer. Some, however, do not feel comfortable with the trade-off, so the idea of inverter technology when they learn the investment will reduce electricity bills and environmental harm is appealing. Only one respondent has noticed the positive impact on electricity consumption.

“I look at it from a professional look. I look at carbon emission and all of those things, so ... I think if I knew more, I would have relooked that decision of mine ... So, if we had that information, I think I would have had more knowledge and we would have most probably purchased in a different way” (SMALL BUSINESS, Durban)

*“Technology has come a long way ... mine is making a noise but not using a lot of electricity”
(LSM 10-10+, Cape Town)*

The models purchased were determined against fit with room size, budget and brand credibility, mostly through retail channels and one group of small business owners through installers. There is little knowledge of technical specifications of the category and how air conditioners work and similar to geysers, all have used professional installers to install the units, except those with portable units. The only specification most are familiar with is the size of the unit: 9000, 12000 and 24000 BTU but there is no knowledge of what BTU means.

There is some awareness of refrigerants, that they are bad for the environment and deplete the ozone layer but are more strongly associated with refrigerators than air conditioners and are commonly referred to as ‘gases’ or ‘refrigerant gases’ or ‘CFC gases’. There is a perception that the type of refrigerant gases used today are regulated by government and fall outside the scope of consumer concern.

“That’s where I think compliance came into place and automatically have to regulate that. It shouldn’t be the consumers’ problem” (LSM 10-10+, Johannesburg)

Given that the over-riding use of air conditioners in South Africa is cooling, most revert to this function for context through which to navigate understanding of the model specifications on the Energy Efficient label, particularly on the designs with icons which do not specifically state whether the kWh measure is referring to cooling or heating. Whilst more understanding of the label can be deduced by looking at the text descriptors on the current label in-depth, the degree of written technical information is intimidating and off-putting. The icon design routes are much preferred to invite engagement and, therefore, increasing comprehension levels around these is important.

The labels with energy performance descriptors and icons yielded the following feedback:

- As an air conditioner produces both heating and cooling functions there is some hesitance as to what the kWh refers to, as expectations are that energy performance would differ according to function. In the absence of text or symbols to indicate whether energy performance in kWh refers to heating or cooling, most will assume it is the latter, but it is preferable to state in order to reduce any doubt. Some regard kWh to specifically mean energy performance under optimal usage conditions. The home/office icons in the recommended label are clearest in communicating the value as a per annum indicator and that more hours in use will raise the overall average, but it does not carry an indicator of cooling mode which the current label does better.

“This tells me that a business uses more electricity if I have more air conditioners – this is informative” (Small business, Johannesburg)

- The EER (Energy Efficiency Ratio) is an additional energy performance indicator that has no meaning across the sample (and from the research findings, it is anticipated that there

would be no value either attached to SEER⁵ and COP⁶ as alternatives). Respondents are confused by an additional energy performance measure over and above the energy efficiency rating and kWh/annum. Particularly as the difference between EER and kWh is vast, i.e., 2.6 versus 520 in the label tested in research. However, as a commonly cited standard measure in the category, the EER (or SEER or COP)⁷ may hold value for installers on the label. This should be further investigated.

- A quiet air conditioner is a key selling point in the category, although may be traded-off against price if its noise factor will not interfere with lifestyle or work productivity. The omission of the sound icon is spontaneously noticed between the EU adapted label and the first new design option discussed.
- Cooling output, cooling efficiency, heating output and heating efficiency ratings carry little value as what they mean and measure are unknown specifications. There is some awareness that cooling and heating output relates to how quickly a room reaches optimal temperatures required. Whilst of potential interest to some, these are best placed in instruction manuals and on the QR code.
- As the market believes refrigerants in current use are safe, the rating used on test labels substantiates this perception, when in reality the refrigerants used still fall into the ‘danger’ zone. As such, the icon will carry educational value, although it is not certain the extent to which purchase will be prevented by indicating the unit falls into ‘danger’. Although for some respondents, the icon is considered unnecessary as they believe the label endorses eco-friendly and safety. An alternative rating scale is suggested as the ‘faces’ option is confusing and open to misinterpretation. In addition the descriptor should indicate “refrigerant gas” to align with market terminology. 95% of the qualitative sample shared the sentiment that a refrigerant gas warning should be placed on the Energy Efficiency labels of appropriate appliances, i.e., fridge/freezer and air conditioners.

“The whole idea of this sticker is to tell you that it is safe for the ozone, so you don’t need that in there” (LSM 9-10+, Johannesburg)

- The label is missing the vital capacity communication which has consistently been an important specification across all the appliances. In the case of air conditioners the BTU measure is recommended for inclusion.

The research explored communication cues to a range of symbols (Ref. Figure 16) relating to heating and cooling which may not be used yet but can serve as a future repository for icon

⁵ Seasonal Energy Efficiency Ratio

⁶ Coefficient of Performance

⁷ Additional research with large commercial businesses and specialist installers is required to survey final recommendations on air conditioner labelling as this fell outside the scope of the market defined for this research. As outlined in the “Market assessment of residential and small commercial air conditioners in South Africa” (May, 2019) report, there are different reasons for using either EER, SEER and COP as individual energy efficiency performance measures and the value of each needs to be established to determine which is best placed on the Energy Efficiency label, and whether a standardised label across all air conditioner types is even possible.

development.







<p>Additional symbols explored</p>						
<p>Associations to symbols</p>	<ul style="list-style-type: none"> • Snowflake, cold, freezing, Castle Lite [a symbol used on some air con remotes] • Cooling functions 	<ul style="list-style-type: none"> • Water – water flow, waves • Air movement • Car – check radiator • Air conditioner – air flow 	<ul style="list-style-type: none"> • A measure of cooling • Temperature variance – cooling 	<ul style="list-style-type: none"> • Steam and hot air rising, hot drink • Smoke 	<ul style="list-style-type: none"> • Hot • Flame, fire, flammable 	<ul style="list-style-type: none"> • Heating up • A measure of heating • Temperature variance – heating

Figure 16: Symbolism of cooling and heating icons

Through the three qualitative stages of research, the learnings evolved towards the following recommended label design (Ref. Figure 17).

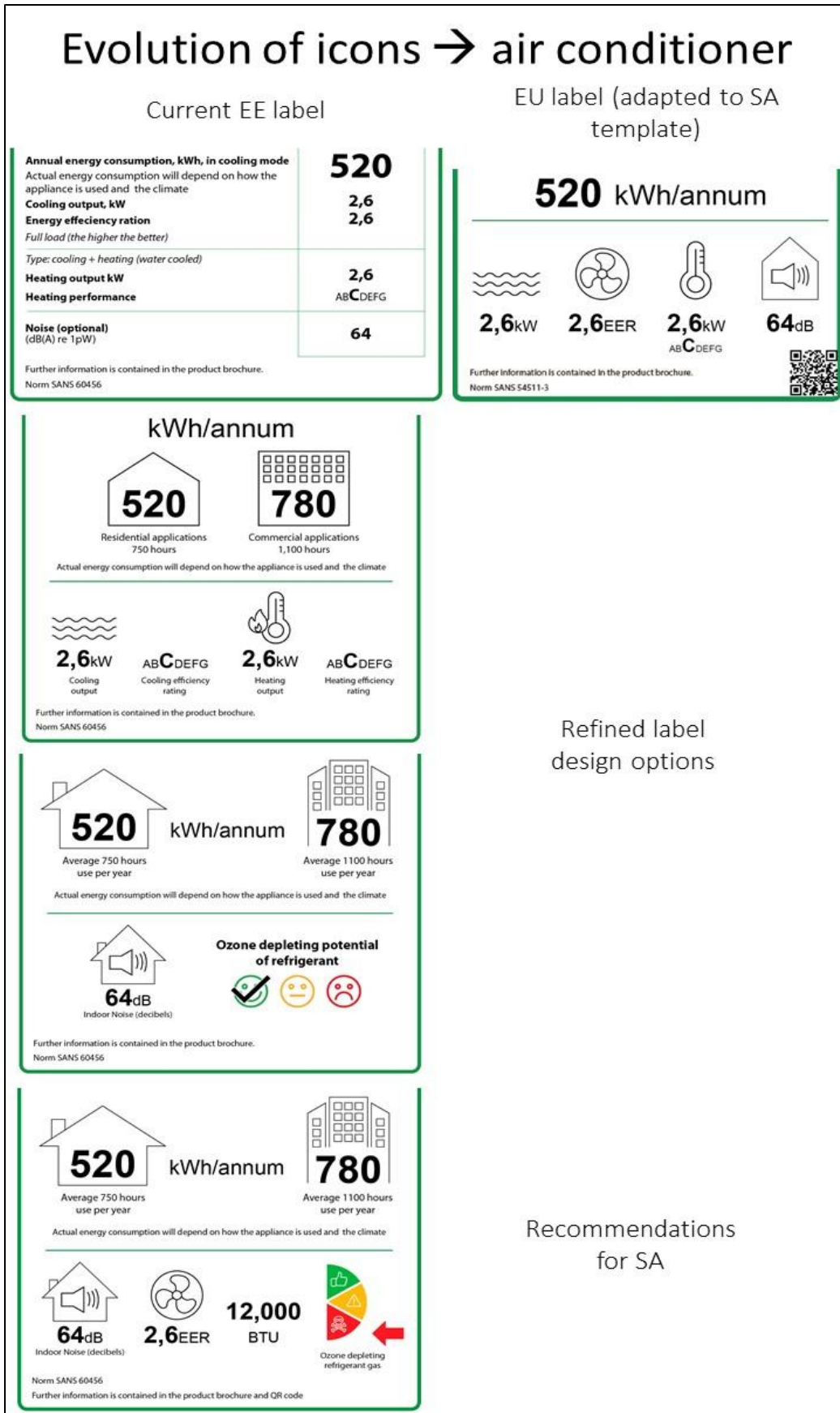


Figure 17: Evolution of air conditioner icons

5.2.16 Strategic summary of label design elements

Just as too many text elements trying to explain too much information results in the current SA Energy efficient label being perceived as too technical, the same issue can arise with trying to get too many icons onto any one energy label design.

An evaluation of all current and EU adapted label designs suggests that in the past, information from the original labels has largely been replicated as icons, but not interrogated for value and purpose. A benefit of exploring numerous iterations of label designs across the four stages of research, alongside in-depth exploration of appliance use and purchase decision criteria enables a more strategic view over what is necessary information contributing to engagement and what information may detract, thus minimising the required impact of the label. What stands out particularly in evaluating the washing machine and the air conditioner, is that both have multiple functions (heating vs. cooling, hot water vs. cold water, wash vs. spin, etc.) with specific measures behind each, many of which are either not understood or found interesting by consumers. Keeping all these measures could lead to a visual clutter that demotivates engagement.

The key elements of the label to which consumers respond (Ref. figure 18) are the energy scale and overall appliance energy rating relative to other models. Following that, consumers respond to the overall energy consumption measure (kWh/W) and water consumption measure (litres), capacity/size, noise and refrigerant warning. These elements should be kept on the labels and regarded as the generic measures required to inform Energy Efficiency design protocols.

Secondary information needs include additional individual appliance category measures or additional energy efficiency measures, but none of these are deemed primary information needs by respondents and are recommended for exclusion from label design. With the addition of a QR code, the overall simplicity and visual attractiveness of the label could be safe guarded from clutter by moving the secondary information needs into the information repository.

Evaluating key elements: for label or QR code?									
	Energy rating - overall	Energy performance measure			Water performance measure	Capacity / size	Noise	Refrigerant warning	Additional
APPLIANCE CATEGORY	(no of bars)	Energy consumption		Energy Efficiency - function	Water consumption				
		Text	Icon	Icon	Icon	Icon	Icon	Icon	Icon
Fridge	D (4)	kWh/annum				- Fridge (litres) - Freezer (litres)	Yes	Yes	
Washing machine	C (3)	kWh/cycle		Spin performance	Litre per cycle	Load (kg)	Yes - Wash - Spin		Spin speed
Oven	D (4)		kWh/cycle - Convection - Convection			Litres	Yes		
Geysler	D (4)	W/per standing loss				Litres			
Dishwasher	D (4)	kWh/cycle		- Cleaning performance - Drying performance	Litre per cycle		Yes		
Tumble dryer	F (6)	kWh/cycle				Load (kg)	Yes		
Air conditioner	D (4)		kWh/annum - Small - Large	EER		BTU	Yes, indoor	Yes	
		YES – keep on label		Either label or QR code			NOT on label – put in QR code		

Figure 18: Strategic evaluation of label design elements

5.2.17 Addition of the QR code

Of the total quantitative sample, 92% would like to see the additional information on the label as well as having a QR code holding access to product and category information. In comparison, 8% want primary energy efficiency (scale and rating) and consumption information (kWh) on the label, opting rather for extra information to go onto the QR code. Interest in the QR code is slightly driven urban consumers, skewed towards males, with less interest from females, and those with education levels up to high school. In the qualitative research, the male youth were engaging most with QR codes but overall 52% of the sample say they have used them before. More females than males say they have not used a QR code and across both genders either the use of data or not knowing how to download a QR code app are barriers to uptake.

All the aspects considered important to have in the QR code in the quantitative research emerged as important during focus group discussions. Of most importance across the sample at 95% is the warranty and having access to this information, with particularly strong sentiment from the fringe/rural segment of the market. Then 94% would like guidelines on how to use the Energy Efficiency label to purchase appliances and how to understand the energy efficiency of the make and model under consideration. 91% believe having an appliance energy calculator would assist their purchase decision. This confirms a hypothesis that emerged at the beginning

of the qualitative fieldwork that there is likely to be a shift towards consideration of energy efficiency if consumers had a tool for easily calculating actual electricity savings.

“What they do on solar panels, they will actually tell you how much you will save over a period, and then that basically influences your decision whether to spend the money or not” (Small business, Durban)

“The claim of energy efficiency is all well and good, but to me I like to see statistically that there’s a 20% difference .. an actual study, or comparatively to other machines. I don’t take it on face value” (LSM 8-9, Durban)

Having help and support close at hand through accessing service centre details on the QR code is considered useful to 88% of the sample.

Some frequently and less frequently mentioned information areas came through from the open-ended responses:

- Appliance Energy calculator:
 - Comparative dashboard with clear charts
 - Overall household appliance consumption
- Service expectations:
 - Online support for maintenance/DIY questions and ordering parts
- Manufacturer and supplier (installer) websites:
 - Products and services
 - FAQ
 - Customer reviews
- Make and model information:
 - Technical specifications, energy rating, carbon footprint
 - Instruction manual
 - Life span and maintenance information
 - Recycling information
 - How to protect your appliance from impact of load shedding
- Personal data:
 - Storage of date and location of purchase
 - Warranty conditions and records
- Educational resources on energy efficiency:
 - Labelling
 - How to save electricity
 - Alternative energy sources.

Manufacturers and importers are also in favour of the QR code, the potential it holds for recording legislative documentation and product information, as well as having direct access to the database to upload data and documents. From the additional ideas mentioned above, manufacturers could also use the QR code to open up a world of information and support to customers. The QR code could become an impactful customer engagement tool if the experience upon access is customer centric, easy to navigate and helps customers find what

they need. Positioning of the QR code is important and its visibility top left of the Energy Efficiency label was more successful than layouts where it was bottom right.

5.2.18 Regulator of the Energy Efficient label

Even though the Energy Label is somewhat identified with government through the Energy Efficiency logo, this is not a strong cue that people really pick up or look at on the label. Currently, 51% of the sample believe that manufacturers are behind the issuing of the label on large appliances, followed by 36% thinking government, 4% retailer and 8% 'other' such as CSIR, independent NGO or statutory bodies such as SABS.

Those who perceive the labelling initiative is driven by manufacturers raise a concern about the trustworthiness of information provided and imagine there is some kind of regulation to prevent falsification of data. Government ownership is considered more objective and in the greater interest of all rather than being biased. The credibility of the Energy Efficiency label may increase with promotion thereof by government to raise greater awareness.

“You see those ratings, but I don't know how far its true ... a manufacturer is bound to try manipulate and show better results” (Small business, Durban)

6 CONCERNS TO ADDRESS WITH SUPPLY CHAIN STAKEHOLDERS

Manufacturers, importers and retailers understand the benefit to consumers of an Energy Efficiency label that is easier to understand and more appealing to look at. Yet they caution that it concerns everyone in the supply chain who need to be consulted prior to final approvals. The concept of evolving the label raised the following concerns to address through appropriate communication:

- If the label design is taking direction from EU, would the same recalculations done in the EU be applied in South Africa as this could lower the energy rating and require investment to upgrade product design for compliance.
- As this proposition for label change comes at a similar time to the MEPS revision in SA, there is some caution from manufacturers and importers around what a final regrade will look like and whether there will be an impact on the price tag of products.
- Changes in label design need to consider the most effective sizing and printing strategy, particularly if adopting a MEPS strategy where number of classes per appliance category could be different (range between 3 and 6). From a printing perspective, the current 'one size fits all' design is cost effective and easy to implement across appliance categories.
- Industry would need to collaborate on how best to “roll out” a new label design across the trade most effectively, considering high volumes of stock in both trade and retail.

Manufacturers, importers and retailers do not believe that consumers really understand the label so welcome changes to improve the impact of its communication.

7 RESEARCH FINDINGS AND RECOMMENDATIONS

The SA Energy Efficiency label is a residential market transformation tool targeted at reducing consumption of the third highest population sector by influencing consumers to purchase higher rated energy efficient appliances.

7.1 In summary

The research has identified which elements of label design can be refined to drive clarity of key energy and other performance measures and most manufacturers and importers are in support of implementing changes if this increases understanding of the label.

Table 5 below summarises each key objective outlined in section 2.1 and the emerging recommendation based on research findings, resulting in a summary of suggested label changes.

Key objective	Recommendation
Comprehension of current label	<ul style="list-style-type: none"> • High recognition • An endorsement, not comparative label • Perception placed by manufacturer stronger than placed by government
Rescaling the label	<ul style="list-style-type: none"> • A - G scale
Key elements of the scale	<ul style="list-style-type: none"> • Scale to depict MEPS • MEPS is always red • Move MEPS standard down by 1 class across all categories
Innovation of QR code	<ul style="list-style-type: none"> • The visual 'call to action' linking consumer to world of appliance and energy efficient information (Ref. section 4.2.5)
Infographics	<ul style="list-style-type: none"> • Mix method → symbol + key word descriptor
Additional useful information	<ul style="list-style-type: none"> • Add refrigerant gas indicator to fridge/freezer and air conditioner • Add BTU capacity for air conditioner
Recommended label changes	<ul style="list-style-type: none"> • Ref. section 7.8

Table 5: Summary of key objectives and recommendations

7.2 Current label recognised as endorsement of eco-friendliness

The current energy efficient label is recognised by 85% of consumers, but is seen as an endorsement label in the purchase of an eco-friendly appliance, rather than a comparative label to make the most energy efficient choice. Within the context of a dominant SA mindset focused on conservation of electricity, only a very small percentage have efficiency in mind when purchasing appliances and are aware of what the energy scale and rating depicts. The majority have not actively engaged with the scale or energy and other performance measures. Further,

more than half of consumers believe it is placed on appliances by manufacturers rather than government.

7.3 Rescaling the label to A - G

The majority of manufacturers, importers and consumers are in favour of rescaling the seven bar A+++ - D scale to the original A - G scale. This will re-establish a well-balanced midway point of average back to yellow at a D; and mitigate the confusion of differentiating 'beyond A' classes which lowers motivation to move up the scale from A upwards on the current scale. Whilst red is strongly associated with 'stop' and 'danger' it is less powerful at the current D. However, its power is strengthened on the A - G scale, when teamed with a class G, one class below an F for fail.

In the energy efficiency space, the appliance energy calculator can play a strong role in substantiating the savings value between appliances rated in the top 3 levels – all of which are 'green' and therefore inherently a better choice. In other words, too many green levels serve the same level of confusion as too many +++s on 'A beyond' classes.

7.4 Key elements – strengthening MEPS as red

The rescaling of the label would be ideal if the majority of appliance models fell in the lower classes of the A - G scale, given the power of Red (G) and Dark orange (F) to motivate a choice into a higher class. However, in SA following the new MEPS for large appliances, only tumble dryer has a MEPS of F, the remaining categories are D and above (Ref. figure 19 top table).

Research findings were clear that in the top half of the scale, the graded alphabet ratings show a stronger motivation to move from D up towards A, than from A up to A+++, whereas in the bottom half of the scale, stronger motivation comes from colour, i.e., red to yellow is more powerful than yellow to green. As hardly anyone in the focus group discussions spontaneously noticed new class descriptors (A - G) on new label concepts, it appears that between the two key grading elements – alphabet versus colour – colour has the strongest influence.

Further, consumers were unanimous in not wanting to see unpopulated lower classes on the label as this would mislead their decision towards an 'average' performer when in fact they are purchasing at the minimum level available.

With the revision of MEPS, five (fridges, ovens, geysers, dishwashers and air-conditioners) of the seven appliance categories carry a D on the A - G scale. If the unpopulated E-G classes are removed, four classes will remain from D/yellow up to A/green. Washing machine at C will only show three classes, all shades of green. Tumble dryer, with the lowest MEPS of F, is the only category to benefit from the strong psychological colour and lettering association, but the overall problem for South Africa is that no single category leverages the power of red.

To leverage the natural human inclination to move upwards from red, or a G or an F, a key recommendation emerging from the findings is to always delineate MEPS as red, whether an

appliance category offers A-F (tumble dryer), A-D (fridge, oven, geyser, dishwasher, air-conditioner) or A-C (washing machine).

MEPS ON REGRADED A-G SCALE							
Standard format	Washing Machine	Fridge	Oven	Geyser	Dishwasher	Air conditioner	Tumble dryer
A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C
D		D	D	D	D	D	D
E							E
F							F
G							
7 bar	3 bar	4 bar	4 bar	4 bar	4 bar	4 bar	6 bar

Leverage motivation up the scale by using colour coding – always make MEPS red, no matter how many classes in category

MEPS (IN RED) ON REGRADED A-G SCALE							
Standard format	Washing Machine	Fridge	Oven	Geyser	Dishwasher	Air conditioner	Tumble dryer
A	A	A	A	A	A	A	A
B	B	B	B	B	B	B	B
C	C	C	C	C	C	C	C
D		D	D	D	D	D	D
E							E
F							F
G							
7 bar	3 bar	4 bar	4 bar	4 bar	4 bar	4 bar	6 bar

Figure 19: Demonstrating impact of MEPS at 3 to 6 bars

However, manufacturers and the one retailer were concerned that a variety of different numbers of bars (six vs. four vs. three) across various category scales may be confusing for consumers. In addition, concern with the scale recommended above is that there does not appear any room for growth within technology in the upper classes. Investigation into the current key volume classes of every appliance category is required to establish the prevalence of models across categories and in the A+++ class specifically.

To avoid another rescale in the short-term⁸, provision is recommended for an ‘empty class’ at the top of the scale, i.e., ensuring no models are classed A when the A - G scale is relaunched. Figure 20 below shows the adoption of the A - G scale, but lowering the new MEPS standards to one class below, e.g., washing machine graded at C (current A+) becomes a D, a fridge graded at D (current A), becomes an E, and tumble dryer graded at F (current C), becomes a G.

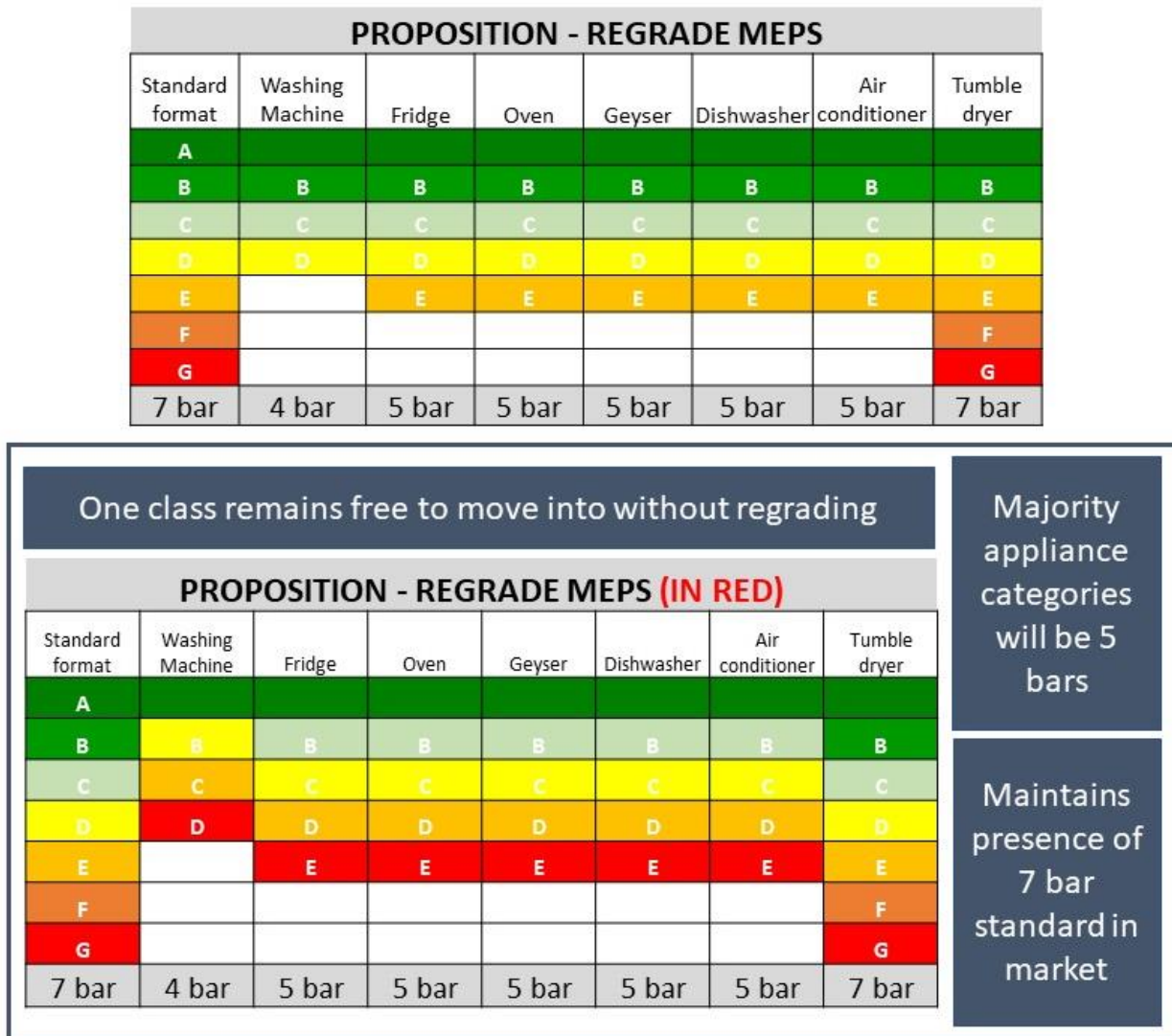


Figure 20: Demonstrating impact of MEPS at red and keeping 4 – 7 bars

The further benefit shown through the tables in the above figure 20 is that some familiarity of the seven-bar standard would remain in the market until tumble dryer innovates out of class G. This familiar point of reference can be used as education to demonstrate the impact of MEPS and technological advancement towards five-bar scales (majority of appliance categories) and extreme innovation in washing machines to a four-bar scale – all the while keeping one class free for future innovation.

⁸ This recommendation emerged during the final and overall analysis and interpretation of the research data and hence was not tested amongst consumers and industry stakeholders.

From a printing perspective, this would either require three different sized labels depending on whether the scale is seven bars (A - G), five bars (A-E) or four bars (A-D).

7.5 Infographics – quick reference to important performance measures

Most importantly, the infographic route is immediately more engaging through offering consumers a visually inviting way to read numbers and technical language. Whilst there is a lot of interesting information that could possibly go on the label, it is detrimental to risk clutter and a ‘less-is-more’ approach should be adopted. Consequently, icons that represent functions or measures with little relevance or understanding are recommended for exclusion from the label.

Beyond the kWh energy performance measure, the infographics consumers most want on the Energy Efficient label align well to key performance factors sought in the purchase decision journey namely:

- Capacity – litres/load size/standard placements/BTU
- Sound - except oven, geysers, fridge
- Water consumption – washing machine, dishwasher

Having these details on the energy label is convenient as a quick reference to establish fit of model with other needs not related to energy performance. Consumers generally do not have an in-depth understanding of kWh/annum/cycle or decibel or BTU and will struggle to explain the meaning in isolation. They can, however, make sense of whether measures are ‘good or bad’, ‘high or low’ when used in comparison with measures from another label. Ideally, consumers will benefit from communication to demonstrate the comparative use of energy efficient labels to determine what best suits their needs and resources.

Consumers are more likely to place value in an infographic they understand, which is frequently aided by access and experience with the appliance. Hence, adding a key descriptor alongside graphic icons will assist those less literate or less familiar with certain appliances. This strategy is in alignment with a key finding from the EU in 2013 that icons on their own are less effective than those with key word descriptions.⁹

Where energy performance indicators can best be explained in the context of a picture, e.g., 520kWh/annum for residential use (house) against higher energy used by commerce (office building), they are encouraged to do so to further enhance comprehension.

7.6 QR code – the link to a world of Energy Efficient information

With growing awareness and use of the QR code in the South African market, it offers consumers a world of information, resources and tools to better understand and calculate

⁹ CLASP, 2013. The new energy label: assessing consumer comprehension and effectiveness as a market transformation tool

energy performance. As such, its positioning on the label is important, both for visual clarity and easy scanning. A further cue to the QR code is recommended in the text descriptor at the bottom left of the label which suggests consumers find additional product information in the product brochure and through the QR code.

Manufacturers and retailers also see the advantage of a QR code not just for record keeping and compliance, but to offer a wider experience of brand and product beyond the model of appliance immediately of interest. As education and knowledge of energy efficiency is so valued by consumers, the QR code offers great opportunities for brand building – and can even be used as a tool in the retailer’s sales pitch.

7.7 Additions of refrigerant gas indicator and BTU measure

7.7.1 Refrigerant gas indicator for fridge/freezer and air conditioner

95% of the quantitative sample shared the sentiment that a refrigerant gas warning should be placed on the Energy Efficiency labels of appropriate appliances, i.e., fridge/freezer and air conditioners. Those with awareness of refrigerant gases want to know the status of what they are choosing, to challenge the overarching perception that refrigerants in use are regulated, safe and, therefore, fall out the scope of consumer concern.

7.7.2 BTU (British Thermal Unit)

In an appliance category where there is very little knowledge of technical specifications, BTU is currently an obvious measure missing off the Energy Efficiency label for air conditioners. Its inclusion is important as a capacity/size identifier – one of the key performance indicators sought across all categories in the purchase decision process.

7.8 Proposed Energy Efficient label design layouts

Based on research findings, the two templates below outline the principle guidelines for all large appliance categories. The three key changes are:

- Point 6 – an evolved MEPS scale, breaking away from the standardised seven-bar scale, always depicting MEPS as the bottom bar in red
- Point 8 – the key energy performance measure in bold and centralised in the middle of the label
- Point 9 – bottom space with which to populate customised infographics depicting other performance measures (Ref. Figure 21: Individual appliance labels in Section 7.8.1)

Figure 21 below is the most recommended layout to account for manufacturing innovation and to avoid another rescale of the Energy Efficiency label in the short-term. However, as this layout was not tested amongst manufacturers and consumers, there could be an unidentified barrier.

In which case, the recommendation would be the MEPS scale using recently revised MEPS standards as the baseline (Ref. Figure 22).

Following a MEPS strategy poses some challenges that the ‘one-size-fits-all’ print template of the current label avoids. Having appliance categories with a different number of bars driven by varying MEPS potential necessitates printing labels of different width and height dimensions (Ref. Figure 23). Consequently, both figures below take the following design guidelines into account to assist manufacturers with printing and production:

- The current label size or smaller is preferred
- All layouts can be printed the same size in length and width by¹⁰:
 - Scale: varying the thickness of the bars to keep the overall scale diameter a standard size, i.e., having thinner bars with six/seven classes and thicker bars with four/three classes;
 - kWh: keeping a standard space for the energy performance measure;
 - Icons: only having one row of icons and limiting number of icons to four; varying the size of the icons for fit to the space.

Further, the programme must provide an appropriately long notice period to allow manufacturers to deplete their stocks of existing labels before the new one comes into effect.

¹⁰ Please note that label designs in section 7.8.2 and 7.8.4 reflect content recommendations and have not accounted for standardisation of width and length on label templates

7.8.1 Most recommended layout – MEPS-1 scale

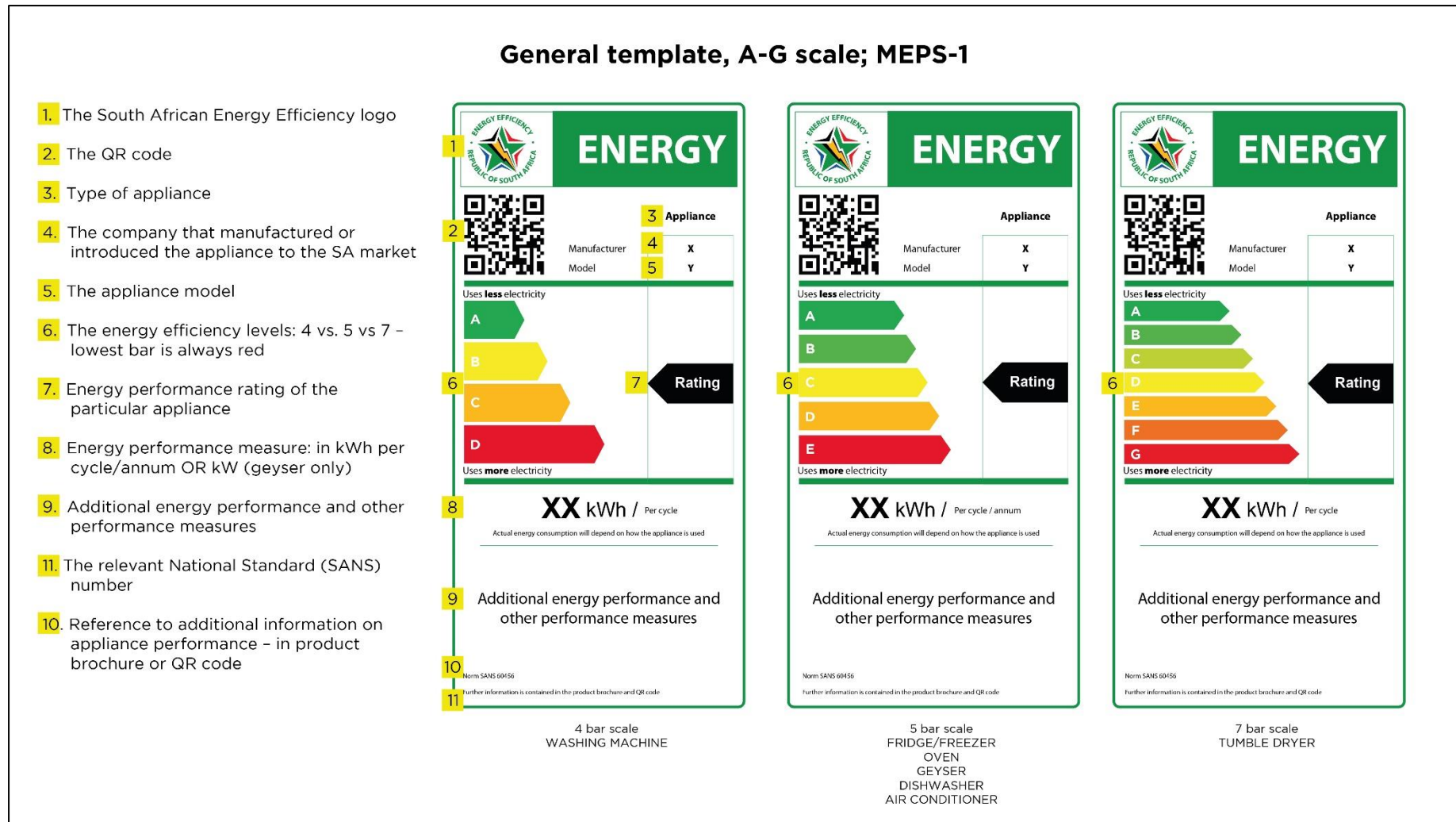


Figure 21: Recommended A - G scale, MEPS-1

7.8.2 Recommended content for appliance category labels – MEPS-1 scale Figure 22: Recommended A - G scale, MEPS-1

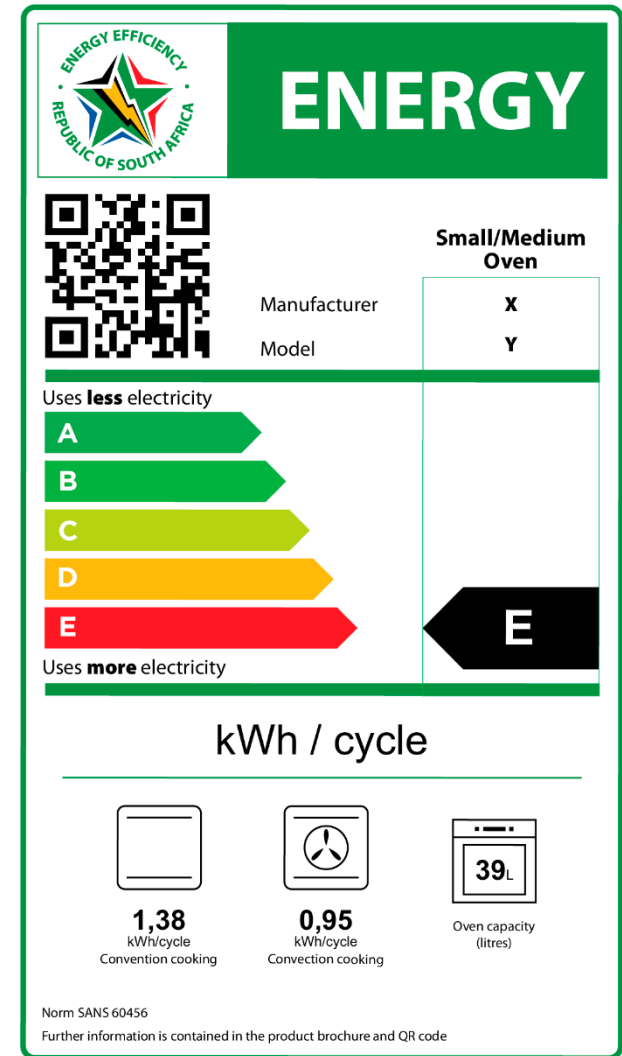
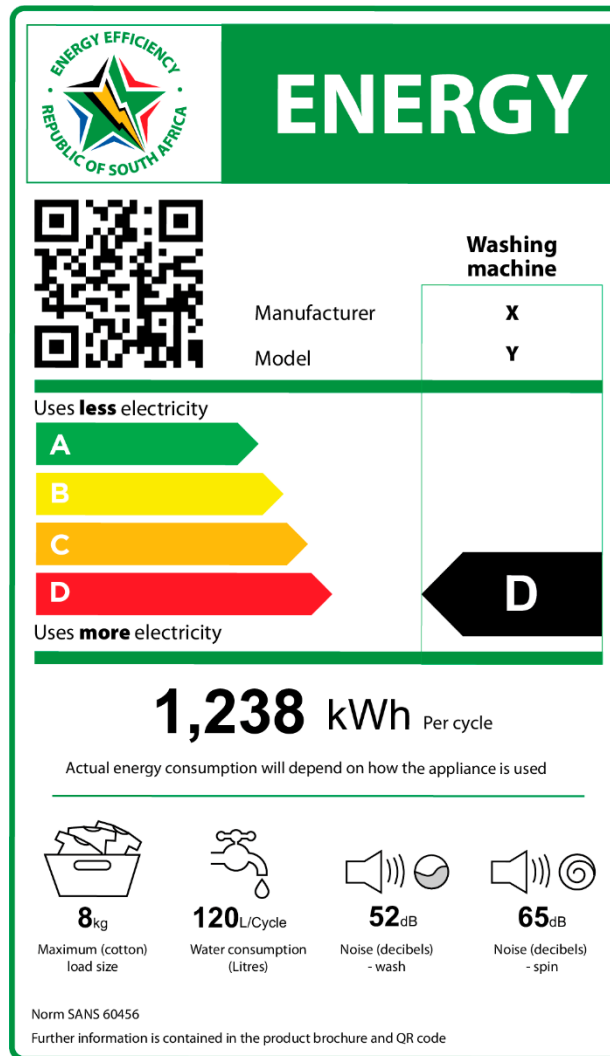
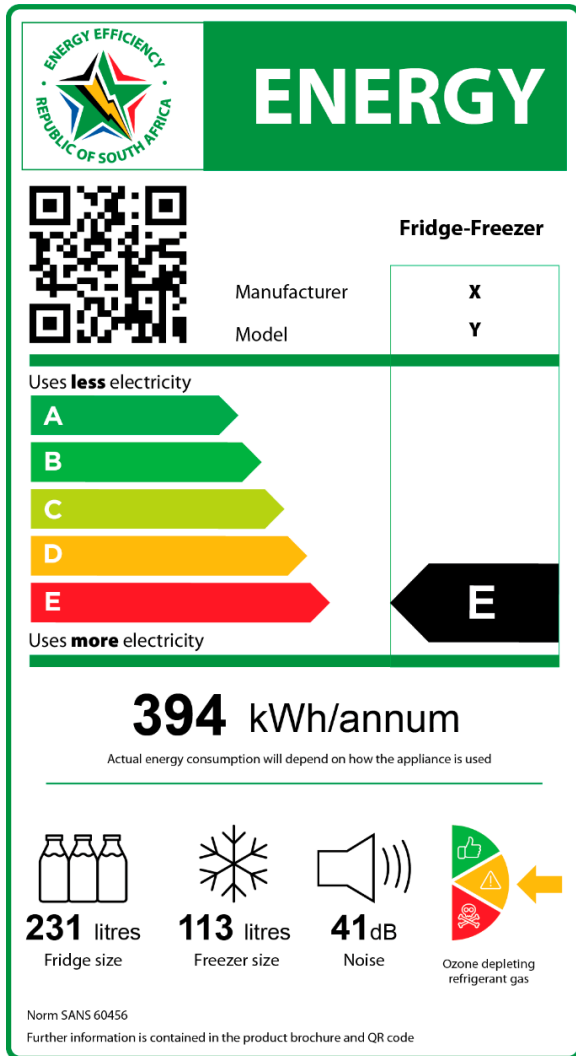




Figure 22: Recommended A - G scale, MEPS-1



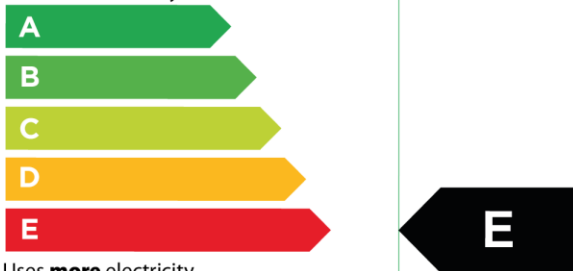
ENERGY



Storage water heater

Manufacturer	X
Model	Y

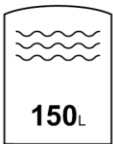
Uses **less** electricity



Uses **more** electricity

520 W Energy standing loss, Watts.


Actual energy consumption will depend on how the appliance is used




150L

Water storage capacity (litres)

Norm SANS 60456
Further information is contained in the product brochure and QR code



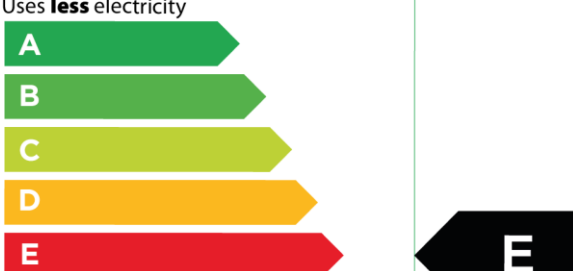
ENERGY



Dishwasher

Manufacturer	X
Model	Y


Uses **less** electricity




Uses **more** electricity

0,94 kWh / Per cycle


Actual energy consumption will depend on how the appliance is used




x 15
Standard place settings



9,5
Litres per cycle




ABC**D**EFG
Cleaning performance




46dB
Noise (decibels)

Norm SANS 60456
Further information is contained in the product brochure and QR code




ENERGY




Tumble Dryer

Manufacturer	X
Model	Y


Uses **less** electricity




Uses **more** electricity

4,8 kWh /  Per cycle

Actual energy consumption will depend on how the appliance is used




8kg
Maximum (cotton) load size




66dB
Noise (decibels)

Norm SANS 60456
Further information is contained in the product brochure and QR code



ENERGY



**Air
Conditioner**

Manufacturer	X
Model	Y

Uses **less** electricity


A

B

C


D

E



Uses **more** electricity

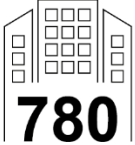
E



520

kWh/annum

Average 750 hours
use per year




780

kWh/annum


Average 1100 hours
use per year

Actual energy consumption will depend on how the appliance is used and the climate



64dB


Indoor Noise (decibels)



2,6EER

12,000

BTU



Ozone depleting
refrigerant gas

Norm SANS 60456
Further information is contained in the product brochure and QR code

7.8.3 Optional layout – MEPS scale

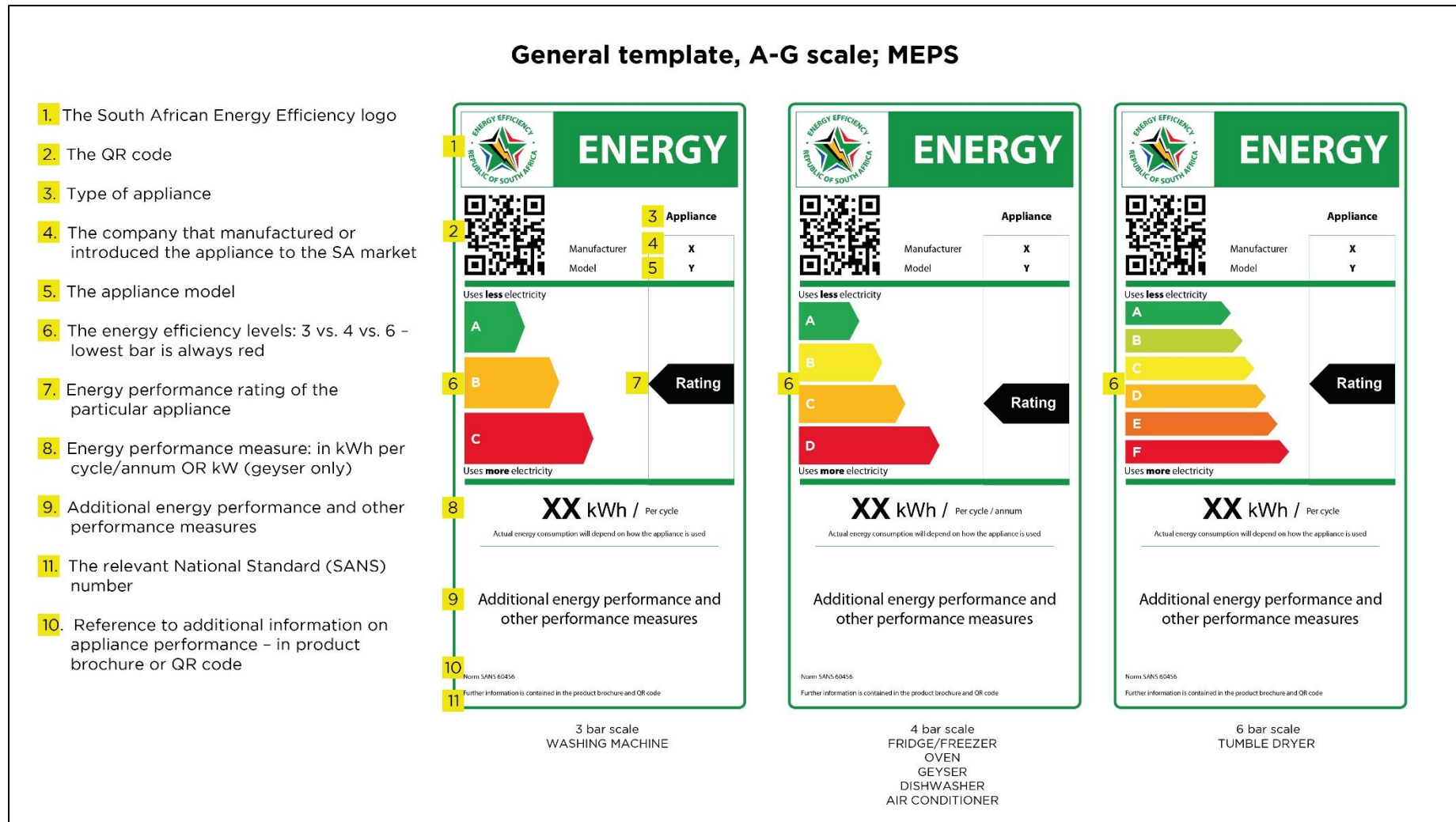


Figure 23: Optional A-G scale, MEPS

7.8.4 Recommended content for appliance category labels – MEPS scale

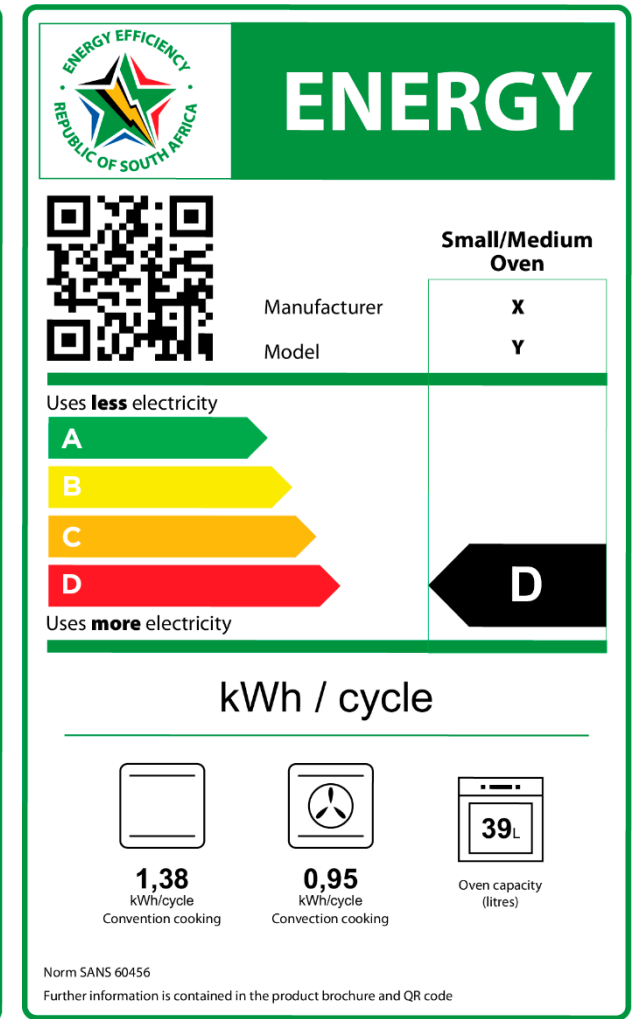
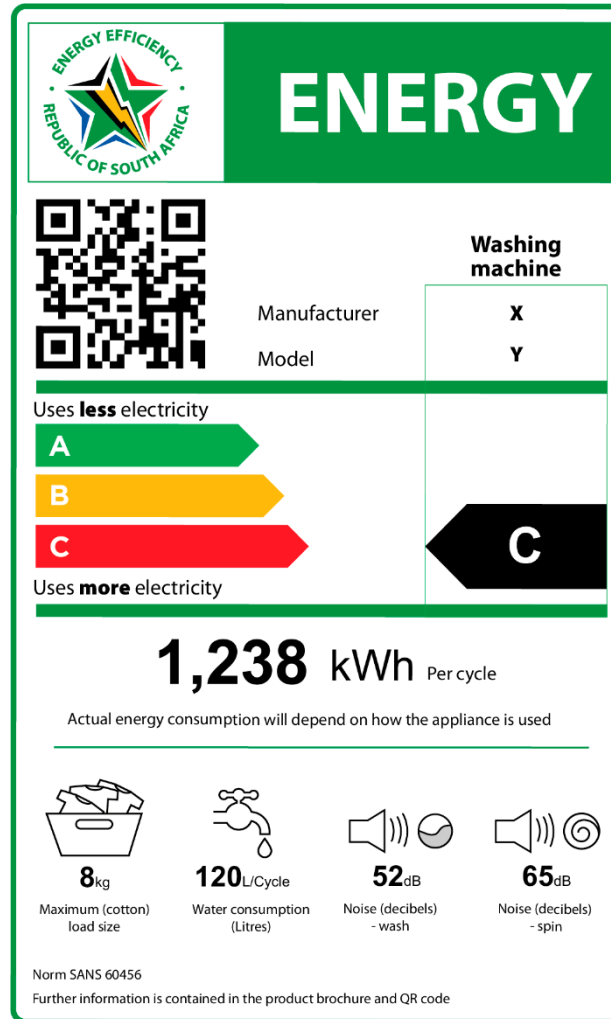
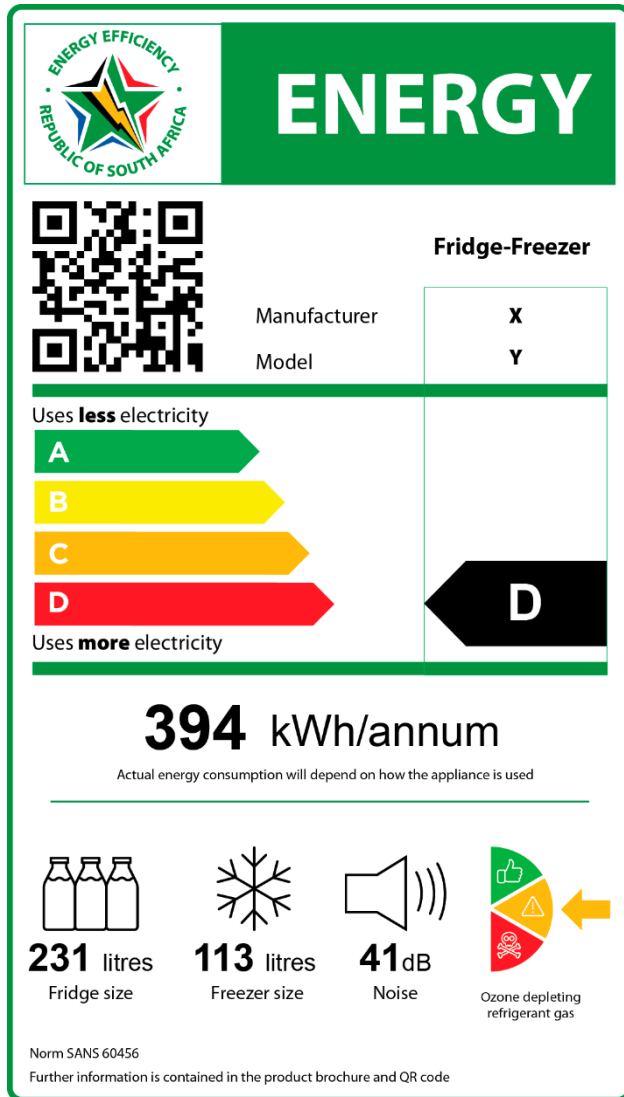




Figure 24: Optional A-G scale, MEPS




ENERGY



Storage water heater

Manufacturer	X
Model	Y

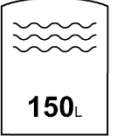
Uses **less** electricity



Uses **more** electricity

520W Energy standing loss, Watts.


Actual energy consumption will depend on how the appliance is used




150L

Water storage capacity (litres)

Norm SANS 60456
Further information is contained in the product brochure and QR code




ENERGY



Dishwasher

Manufacturer	X
Model	Y


Uses **less** electricity




Uses **more** electricity

0,94 kWh / Per cycle


Actual energy consumption will depend on how the appliance is used




x15
Standard place settings



9,5
Litres per cycle




ABC**D**EFG
Cleaning performance




46dB
Noise (decibels)

Norm SANS 60456
Further information is contained in the product brochure and QR code




ENERGY



Tumble Dryer

Manufacturer	X
Model	Y


Uses **less** electricity




Uses **more** electricity

4,8 kWh Per cycle

Actual energy consumption will depend on how the appliance is used




8kg
Maximum (cotton) load size




66dB
Noise (decibels)

Norm SANS 60456
Further information is contained in the product brochure and QR code



ENERGY




	Air Conditioner
Manufacturer	X
Model	Y

Uses **less** electricity

D


Uses **more** electricity



520

kWh/annum

Average 750 hours use per year




780

kWh/annum

Average 1100 hours use per year


Actual energy consumption will depend on how the appliance is used and the climate



64

dB

Indoor Noise (decibels)




2,6

EEER

12,000

BTU



Ozone depleting refrigerant gas

Norm SANS 60456
Further information is contained in the product brochure and QR code

7.9 Supportive communication

Optimal changes to the label will require investment by government, manufacturers and retailers, the impact of which would be best leveraged with a supporting communication campaign. This would add impetus to market understanding of the labels' key role and further drive its effectiveness as a market transformation tool if consumers are made aware of how to use the label comparatively.

In summary, the key information needs identified through the research to drive the evolved Energy Efficiency label as a behavioural transformation tool include:

- The Energy Efficiency star as an endorsement of MEPS set by government regulation;
- That MEPS has been recently revised, and an updated version of the Energy Efficient label will be seen in the retail trade;
 - What the different components of the Energy Efficient label look like and mean;
- That the red bar always symbolises the lowest energy efficiency class allowed by regulation;
- The benefits of the label overall to the consumer;
- How to use the label comparatively, like comparing price, features, size, etc.;
- How to use the QR code and where to find the DMRE's www.savingenergy.org.za website to access important information and tools like the appliance energy calculator.

In terms of awareness and reach, television advertising on mainstream channels would be most effective to reach traditional consumer markets, but social media campaigns on Facebook, Twitter, YouTube and WA are also widely effective platforms with growing national reach, urban and rural. In-store and on-line retail channels are obvious places for consumers to find information. The DMRE perhaps could consider developing content that can disseminate the same message but through multiple formats and channels, e.g., POS posters and pamphlets, digital video messages for online, social media and TV.

8 REFERENCES

Covary, T. and Lengoasa, L., (2012). Energy Performance and Labelling Requirements for Specific Electrical Appliances and Equipment (February 2012). Report commissioned by Trade and Industry Chamber South Africa and Fund for Research into Industrial Development, Growth and Equity (FRIDGE).

Berkley Lab and Eighty 20., (2019), Market Assessment of Residential and Small Commercial Air Conditioners in South Africa (May 2019). Report commissioned by United Nations Development Programme and Department of Energy South Africa.

KLA Market Research, (2011). Market Research to Understand the South African Consumer Perception of Energy Efficient Labelling Concept and Prototype Designs (November 2011). Report commissioned by Unlimited Energy South Africa.

Waide, P. and Watson Navigant, R., (2013). The New European Energy Label: Assessing Consumer Comprehension and Effectiveness as a Market Transformation Tool. Final report, May 2013. In Partnership with The Collaborative Labelling and Appliance Standards Program (CLASP).

9 ANNEXES

9.1 Annex 1 – Consumer discussion guide Stage One

DISCUSSION GUIDE

PR RENEW

Version 3 – 27 September 2019



Stimulus material checklist:

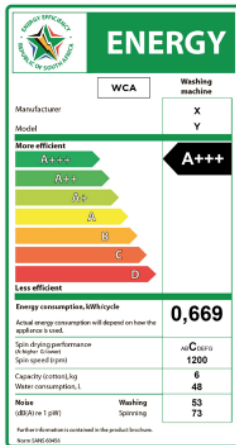
- Flipchart
- A4 paper
- Prestik
- Markers – red, green, black
- Pencils
- Labels: → all printed high res, laminated
 - EE labels for testing:
 - Current scale & New scale (both blank)
 - Current: 2 each for Fridge/freezer, Oven, Washing machine
 - New: 2 each for Fridge/freezer, Oven, Washing machine
 - QR codes x 2 [if time]
 - EE real label example [DEFY]
 - Price tags x 12
 - Icons:
 - Pack of laminates – x 23 – one for each symbol

ORDER OF STIMULUS MATERIAL ROTATION					
	LSM 3 (G3)	LSM 4-5 (G4)	LSM 6-7 (G2)	LSM 8-9 (G5)	LSM 10-10+ (G1)
Energy Efficient label	New [A - G]	Current [A+++ - D]	New [A - G]	Current [A+++ - D]	Current [A+++ - D]
Order of appliances	Fridge/freezer Oven	Oven Fridge/freezer Washing machine	Fridge/freezer Washing machine Oven	Oven Washing machine Fridge/freezer	Dishwasher Air conditioner Tumble dryer
Order of labels	New / current	Current / new	New / current	Current / new	[pilot discussion guide rotation]
Appliances to discuss [section 3]	Oven Washing machine	Oven Geyser	Oven Washing machine Tumble dryer	Oven Tumble dryer Dish washer	Oven Dish washer Air condition

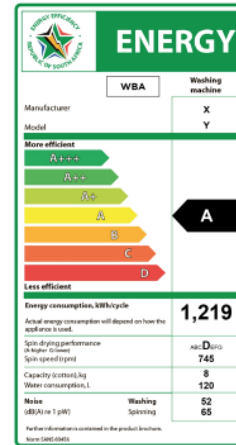
2 different scales: A+++ - D vs. A - G



Washing machine: 2 options in current layout



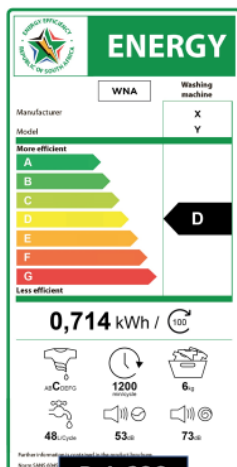
W – Washing machine
C – Current label
A / B - option



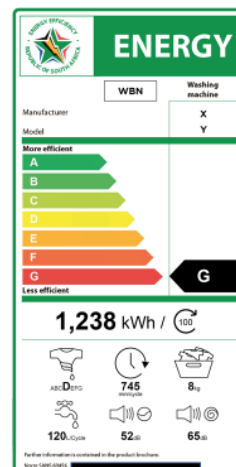
R 4,699

R 3,699

Washing machine: 2 options in new layout



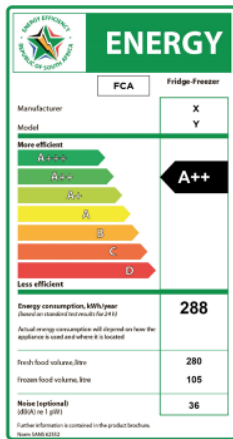
W – Washing machine
N – New label
A / B - option



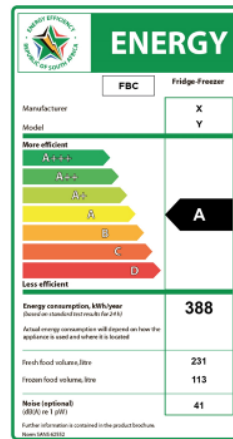
R 4,699

R 3,699

Fridge/freezer: 2 options in current layout



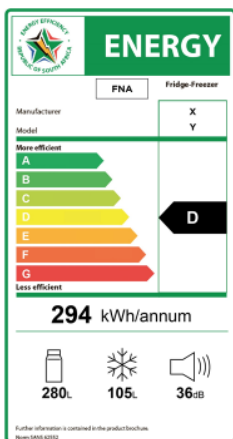
F – Fridge freezer
C – Current label
A / B - option



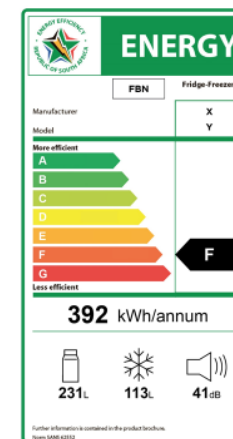
R8,999

R5,299

Fridge/freezer: 2 options in new layout



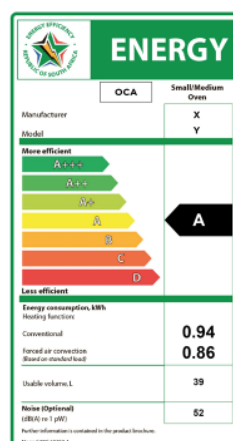
F – Fridge freezer
N – New label
A / B - option



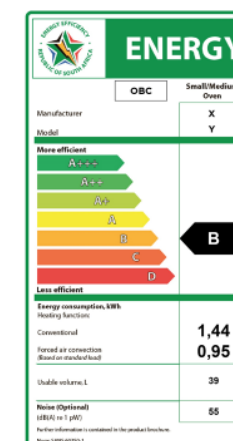
R8,999

R5,299

Oven: 2 options in current layout



O – Oven
C – Current label
A / B - option



R 4,299

R 3,999

Oven: 2 options in new layout

R 4,299

O – Oven
N – New label
A / B - option

R 3,999

QR codes: provide 2 options of different placements

Ref Makro pricing 28 Sept 219

For reference purposes only – 28 Sept

For reference purposes only – 30 Sept – changed dimensions on NEW labels slightly (to appear like different models)

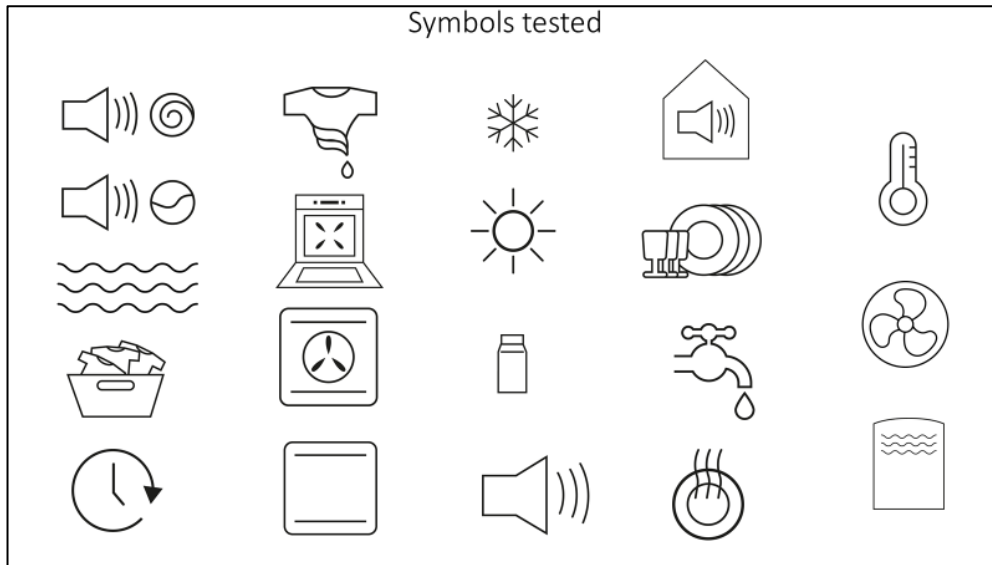
DEFY 600 MM UNDERCOUNTER OVEN & HOB SET
R4,299
A

UNIVA 600 MM UNDERCOUNTER OVEN & HOB SET
R3,999
B

Fridge-Freezer	
A++	
288 kWh/YR	
280 L	
105 L	
40	
DEFY 385 Fridge Freezer R8,999	KIC344 Fridge Freezer R5,299

Bosch 6KG FRONT Loader R4,699	Dofy 8KG TOP Loader R3,699

Bosch 6KG FRONT Loader R4,699	Dofy 8KG TOP Loader R3,699



Section 1: Introduction

Duration 15 min (15)

Outcome: to position discussion

Welcome to our discussion today and thank you all for coming.

The Department of Energy has commissioned our company, Research IQ, to do the research for them. The reason we are here today is that the Department of Energy wants to learn more about how people in South Africa understand and use major electrical appliances, like ovens and fridges. They want to improve some educational information to help people make better decisions around appliances for themselves, their homes and the environment.

My job today is to make sure I ask you all the questions from the Department of Energy. The discussion will be 2 hours and your job today is to answer my questions with honesty; there are no right or wrong answers. In fact, we are here to learn from you, and we thank you for that. That's why I ask for your honesty, if you tell me you understand something, but you are confused about it, we could make wrong decisions. Other people we've spoken to said everything we show you and speak about was informative and fun, so I hope that when you leave you will have found the experience to be valuable too.

We have your details as we are required by SAMRA, our industry governing body, to keep track of everyone who participates in research. We, however, do not provide the government with your names and contact details and we do not give your information to anyone.

I tape the discussion so that I can listen to it afterwards instead of taking notes. We use the information from all our discussions to write our report. Please now turn your cell phones off or to silent as the noise of the call interferes with my audio recorder.

[Explain PC/viewing observation if appropriate]

Any questions about today?

Let's start with each of you introducing yourself to me and the group so that we can all know each other a little better:

- Name, family situation, place of residence
- Occupation, work status, place of work

- Personal interests and hobbies

Brief discussion on what life is like here, where you live?

- What works – some of the nice things, the joys?
- What does not work, some of the less nice things, the challenges?

Section 2: Appliance usage, needs and purchase decision making criteria

Duration 30 min (45)

Outcome: understand usage and attitudes of electrical appliances & spontaneous presence of Energy Efficiency as a factor that influences selection of appliance

- Remove question and rather define appliances
 - Do you have any appliances that you do not use? If not, reasons why?
- **MOD: FOR EACH APPLIANCE MENTIONED [ensure by end of Stage 1 that relevant appliances have been discussed – fridge/freezer, oven, washing machine, tumble dryer, geyser, dishwasher, air conditioner]:**
 - How often is it used per day / week / month?
 - Where in your home is it kept?
 - When did you get it?
 - Did you buy it? How?
 - What would you miss most if it broke down tomorrow?
 - What do you wish it could do that it currently can't?
- Let's pretend ... you are giving your oven to someone ... so you have the opportunity to buy a new one ... perhaps think about and remember your most recent experience of buying a new major appliance ... please tell me the whole journey from step one until the appliance is home and working ... how do you go about finding the refrigerator you want?
 - What is the first step? What does step one give you? What is important about this?
 - What happens next? What do you get from this step? What is important?
 - **MOD:**
 - Continue journey until appliance is home and working
 - Probe:
 - All online sources and retail outlets considered
 - Any trade-offs observed
 - Observe key factors that shape decision making e.g. budget, space for appliance, need of home (no of people, lifestyle, mindset, financial standing, etc)
 - Buying a large electrical appliance costs a lot of money – how does this make you feel to spend so much on an appliance?
 - would you pay more (stretch the budget) for features you deem desirable but not absolutely necessary (bigger, energy efficiency, features, style, reputation /hip)?
 - Do you shop for a major appliance differently to a small one, like a kettle or an iron?
 - What, if anything, in your journey could have made your shopping experience easier?
 - What information could be available online that isn't?

- What could shop keepers and salespeople do better?
 - We know that **price** plays a very important role in buying a major appliance so does **size** and for some the **warranty** and **brand**, which says something reassuring about quality. Are there any other factors you also consider when choosing a major appliance?

Section 3: awareness and knowledge of energy efficiency in major appliances

Duration 30 min (75)

Outcome: understanding the role EE labels need to play to influence purchase decision

- **MOD: MINDMAP:** see if **energy efficiency** comes up spontaneously, if not prompt by writing 'ENERGY EFFICIENCY' on flipchart or paper:
 - What do you associate with 'Energy Efficiency' ... what words and descriptions come to mind?
- Is the energy efficiency of a major electrical appliance important to you? If so, what is important to you personally?
 - **MOD:** use laddering technique on each factor mentioned, i.e. what are the underlying subconscious drivers
- How do you know the EE of an appliance? How do you specifically investigate its EE?
 - Where have you learnt this from?
- **MOD:** introduce scale where appropriate in discussion [**Show Current or New scale depending on rotation order**], if not introduce:
 - Is this what you mean? OR
 - What about this? Have you seen this before?
 - What does this tell you about an appliance?
 - Probe in depth about energy efficiency to determine level of awareness and knowledge
 - What is the reason for each level on the scale?
 - What does A mean in comparison to B ... what can you expect as a consumer from an appliance in each of these colours?
 - What else? [probe factors such as overall quality of product, price]
 - So, lets carry on with the exercise of buying an oven:
 - What grade oven do you think is acceptable to buy, personally, for you? Reasons for this?
 - What grade would you not buy?
 - **MOD: choose 2 other appliances to grade** – acceptable vs. not? [**rotate appliances through groups**]
 - Any reasons for different expectations, if they come up, of various appliances? [e.g. appliance function drives electricity usage, some use more than others, etc]
- [**MOD: if not mentioned already**] who has seen this EE label before?
 - Where and when?
 - Did it influence your purchase at all? If so how?
 - Did you use it to compare it to other appliances or did it just reinforce your decision?

- What do you think the Department of Energy is wanting to achieve by putting these labels on major electrical appliances?
 - How will this help you, if at all, to make better decisions around major appliances in your life? Benefit for family? What about the environment?
- Is there any other information the label could include to help you with your decision? For what reason is this useful?
- What portion of your electricity bill do you think all your major appliances take up each month?
 - Which appliance uses the most electricity? And which, the least? What are the reasons?
 - [MOD: are the differences between appliance consumption driven by people (over usage) or functionality of appliance?]
- How would you rate your usage of electricity in general (not just appliance usage) as a home?
- How much electricity do you use on average every day / week / month?
 - How do you know this? (MOD: establish whether usage is thought of spontaneously in ZAR or kWh)
 - How do you pay for it?
 - Pre-paid or municipal?
- Do you do anything in your house to use less electricity? Anything with appliances in particular?

Section 4: Evaluate strength of current vs. new scale to motivate higher grade usage

Duration 35 min (110)

Outcome: understanding the degree to which the current EE label meets information needs of consumers and extent to which intended communication is received

MOD: please follow the rotation grid on page 1.

- **Display Option A and Option B of EE labels** where respondents can look at them up close (Prestik provided) [WITHOUT PRICES & WITHOUT CALLING THEM OPTION A AND B .. just say I have two labels for you, one is called WCA and the other is WBC] Explain that these are both washing machines but different brands and models. In reality, the EE label is a little smaller and included with appliance brochures or stuck to the outside of an appliance. Today I've made them bigger so we can all see it. When they are looking at the two appliances, please ask themselves:
 - *What are the pros and cons of each appliance?*
 - *Which appliance best suits the needs of my home?*
- Then discuss the above questions in the group:
 - MOD: establish what role each of the following play in communication & messaging:
 - Level of grade?
 - Colour of grade?
 - Secondary information?
 - If not already mentioned:
 - What is the perceived price of each appliance? Reasons why?
 - Considering all factors mentioned, which is the most reasonable choice for YOUR home? Reasons why?

- **MOD:** *[looking to establish difference in motivation between up trading grades on the scale – first influenced by EE class/grade preference, then by influence of price ... speaks to individual power of each scale]*
 - **Stick pricing to each appliance.**
 - Any shift in decision to purchase one model over another? Reasons why?

MOD: REPEAT FOR ALTERNATIVE EE LABEL IN SAME APPLIANCE CATEGORY

- **MOD: Show EE LABEL [in same order] for 2nd appliance ... REPEAT ABOVE BUT MUCH QUICKER**
 - Discuss which appliance would be the most reasonable choice [pre-exposure to pricing]
 - Then show pricing and establish reasons for any shift in choice
- **MOD: Show alternative EE label in same price category:**
 - Pre pricing choice
 - Post pricing choice & establish reasons for shift

MOD: IF TIME, SHOW AND EXPLORE LAST APPLIANCE CATEGORY [do not leave out the next few questions]

- Looking at this whole programme of labelling, is this something that is useful for you?
- What is the most important piece of information this programme helps you with?
- What is nice to have information?
- Any information that you would exclude?

- Who should be giving you this information?
 - **MOD:** probe role of store, manufacturer, government, self, online etc.
- What is the best place for you to find this information or for it to reach you?
 - **MOD:** probe packaging, in the store, where in the store, advertising, online, etc

- One problem the Department of Energy is trying to solve is that because technology has advanced, some levels on the scale have become 'empty' ... there are no appliances in them. So, you think you are making a good choice with an A, but now there aren't any Bs, Cs and Ds left. *[Only explain if necessary, that there is a law that exists behind this label to prohibit appliances with low EE ratings to be sold in South Africa. It is called MEPS – which stands for the Minimum Energy Efficiency Performance Standard. Most of the appliance brands in SA comply with MEPS. This law exists because appliances use a lot of energy and brands had to think of ways to design appliances to use less energy. So sometimes a MEPS is a B, meaning A is the lowest level allowed]*
 - How would you feel about that?
 - Would you prefer the label tell you this by blanking out or greying out the grades that are no longer relevant, that you cannot buy?

- **MOD: show real label.** This is an example of the real size of these labels going onto appliances [MOD: state which appliance]:
 - What are your thoughts around the size of the label?
 - Where would you most notice the label when its stuck on an appliance?

Section 5: Role and placement of QR code [if time]

Duration 5 min (115)

Outcome: understanding awareness and usage of QR codes, with focus on EE information and potential as a useful tool

- Does anyone know what a QR code is?
 - **MOD:** establish spontaneous reactions?
 - Have you ever used them?
 - With what kind of purchases?
 - What are the benefits and disadvantages?
- **MOD:** show 2 QR code labels:
 - The idea is for you to use your smart phone to scan this code which will take you into a library that stores useful information about each brand and model of appliance. It can help you compare the performance of appliances against their price over a 10 year period. It will also provide you with environmental info, i.e., the emissions over a 10 year period.
 - How, if at all, would this be useful for you?
 - What information would be most relevant?

Section 8: Questions and answers

Duration 5 min (120)

Outcome: summary of impact from respondents, address any closing questions or comments

- We are almost at the end of our discussion.
- Overall, is there any shift in knowledge, key learnings relating to energy efficiency having seen this information today?
 - Does what you've seen today make you consider your next major appliance purchase any differently? What may you do differently as a result?
 - **[MOD:** Observe if any increased awareness around appliances energy ratings in general, that there is significant innovation to produce more EE appliances, that there is a minimum energy efficiency performance (MEPS) required by legislation]
- Can you think of anything you would like to say before we close, is there anything you would like to ask?
- Let me see if the research team has any questions, please excuse me while I check
 - Address any final questions to respondents
- Thank respondents for their time

9.2 Annex 2 – Consumer discussion Stage Two

DISCUSSION GUIDE

PR RENEW

Version 5 – 20 October 2019

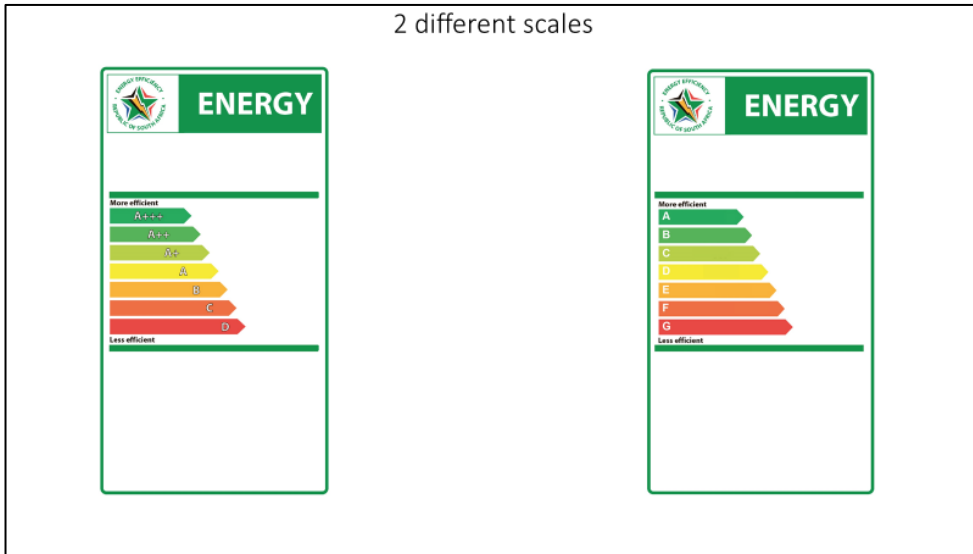


Stimulus material checklist:

- Flipchart
- A4 paper
- Prestik
- Markers – red, green, black
- Pencils
- Labels: → all printed high res, laminated
 - EE labels for testing:
 - Current A+++ - D and A – G scale templates
 - Current:
 - 2 each for Fridge/freezer, Oven, Washing machine – for comparative discussion
 - 1 for Tumble Dryer, Dishwasher, Geyser, Air conditioner
 - New – step change design:
 - 2 each for Fridge/freezer, Oven, Washing machine – for comparative discussion
 - 1 for Tumble Dryer, Dishwasher, Geyser, Air conditioner
 - ‘Greyed out’ label options
 - 5 bar scale
 - Price tags x 12

ORDER OF STIMULUS MATERIAL ROTATION				
	LSM 3 (G9)	LSM 4-5 (G7)	LSM 8-9 (G8)	LSM 10-10+ (G6)
Energy Efficient label	New [A - G]	Current [A+++ - D]	Current [A+++ - D]	Current [A+++ - D]
Order of appliances	Fridge/freezer Oven	Oven Fridge/freezer Washing machine	Washing machine Oven Geyser Air conditioner	Fridge / freezer Washing machine Dishwasher Air conditioner Tumble dryer
Order of labels	New / current	New / current	New / current	New / current

2 different scales



W S A Washing machine: 2 options in step change layout W S B

R 4,699

R 3,699

W C A Washing machine: 2 options in current layout W C B

R 4,699

R 3,699

Fridge freezer: 2 options in step change layout

FSA
FSB

ENERGY

Fridge-Freezer

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

294 kWh/annum

280 litres Fridge size
105 litres Freezer size
36dB Noise

R8,999

ENERGY

Fridge-Freezer

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

394 kWh/annum

231 litres Fridge size
113 litres Freezer size
41dB Noise

R5,299

Fridge freezer: 2 options in current layout

FCA
FCB

ENERGY

Fridge-Freezer

Manufacturer: X
Model: Y

More efficient

A+++
A++
A+
A
B
C
D

Less efficient

294

Energy consumption, kWh/year
(Standardised test results for 201)

Actual energy consumption will depend on how the appliance is used and where it is located.

Fresh food volume, litre: 280
Frozen food volume, litre: 105
Noise (optional) dB(A) re 1pW: 36

R8,999

ENERGY

Fridge-Freezer

Manufacturer: X
Model: Y

More efficient

A+++
A++
A+
A
B
C
D

Less efficient

394

Energy consumption, kWh/year
(Standardised test results for 201)

Actual energy consumption will depend on how the appliance is used and where it is located.

Fresh food volume, litre: 231
Frozen food volume, litre: 113
Noise (optional) dB(A) re 1pW: 41

R5,299

Oven: 2 options in step change layout

OSA
OSB

ENERGY

Small/Medium Oven

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

0.92 kWh/cycle
Conventional cooking

0.86 kWh/cycle
Convection cooking

39dB Noise (optional)

R 4,299

ENERGY

Small/Medium Oven

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

1.38 kWh/cycle
Conventional cooking

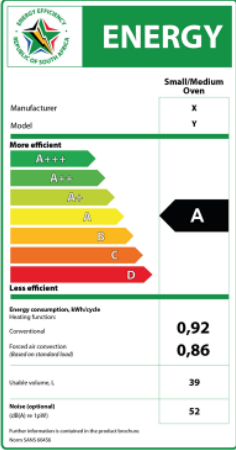
0.95 kWh/cycle
Convection cooking

55dB Noise (optional)

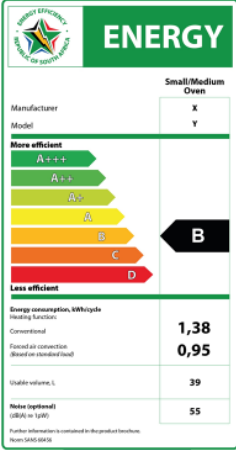
R 3,999

Oven: 2 options in current layout

OCA
OCB



R 4,299

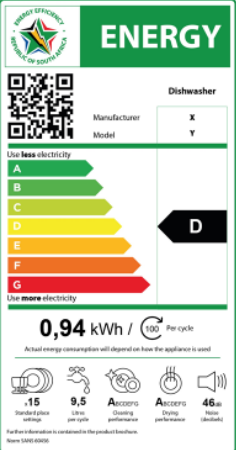


R 3,999

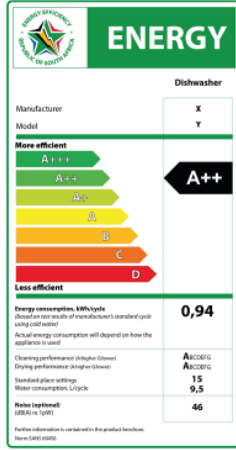
Dishwasher: 1 option

DSA
DCA

step change



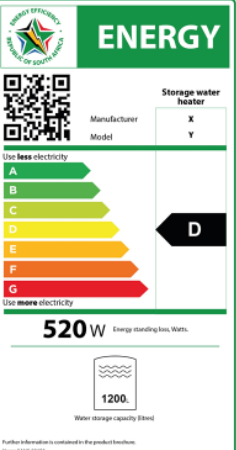
current



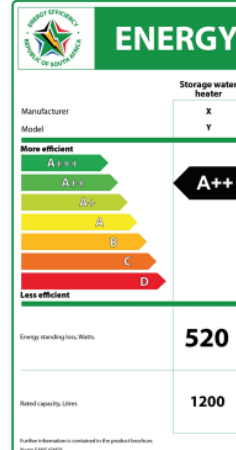
Geyser: 1 option

GSA
GCA

step change



current



Tumble dryer: 1 option

TSA
TCA

step change

ENERGY

QR code

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

4,8 kWh / 100 Per cycle

Actual energy consumption will depend on how the appliance is used

8kg Maximum capacity
66dB Noise level

Further information is contained in the product brochure.
Items 1000-0000

current

ENERGY

QR code

Manufacturer: X
Model: Y

More efficient

A+++
A++
A+
A
B
C
D

Less efficient

B

Energy consumption, kWh/cycle (Based on standard test results for 2kg)

4,8

Actual energy consumption will depend on how the appliance is used and where it is located

Capacity (sum), kg
A3 (wet)

8

Noise (typical) (dB(A) re 1pW)

66

Further information is contained in the product brochure.
Items 1000-0000

Air con: 1 option

ASA
ACA

step change

ENERGY

QR code

Manufacturer: X
Model: Y

Use less electricity

A
B
C
D
E
F
G

Use more electricity

F

kWh/annum

520 Residential applications
780 Commercial applications

Actual energy consumption will depend on how the appliance is used and the climate

2,6kW Cooling output
2,6kW Heating output

Further information is contained in the product brochure.
Items 1000-0000

current

ENERGY

QR code

Manufacturer: X
Model: Y

More efficient

A+++
A++
A+
A
B
C
D

Less efficient

A

Annual energy consumption, kWh, for heating & cooling modes

Residential applications, 750 hours
Commercial applications, 1,100 hours

Actual energy consumption will depend on how the appliance is used and the climate

Cooling output kW
Heating output kW

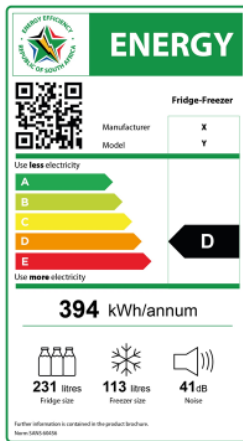
Cooling efficiency ratio
Heating efficiency ratio

520
780

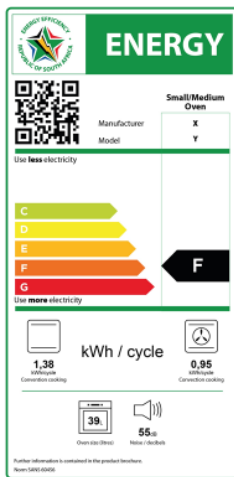
2,6
2,6

Further information is contained in the product brochure.
Items 1000-0000

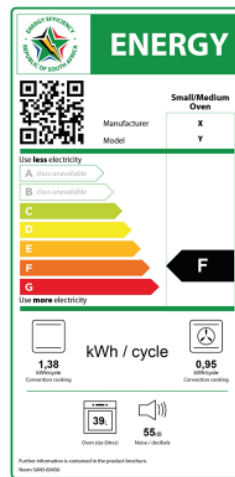
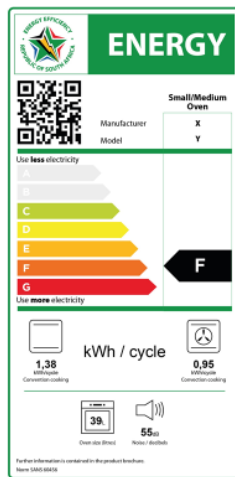
5 bar scale option



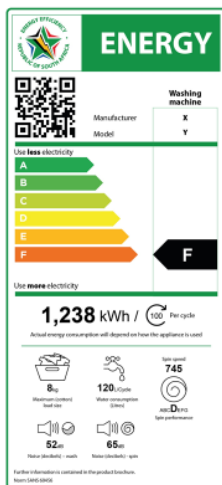
'greying out' options (1)



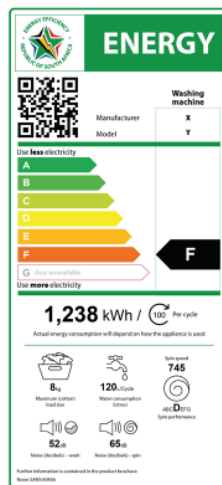
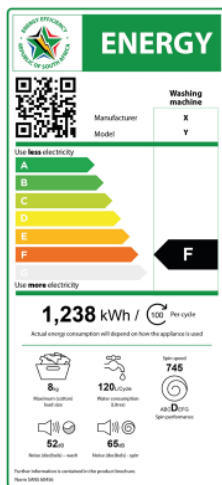
Shown to groups 6 & 7

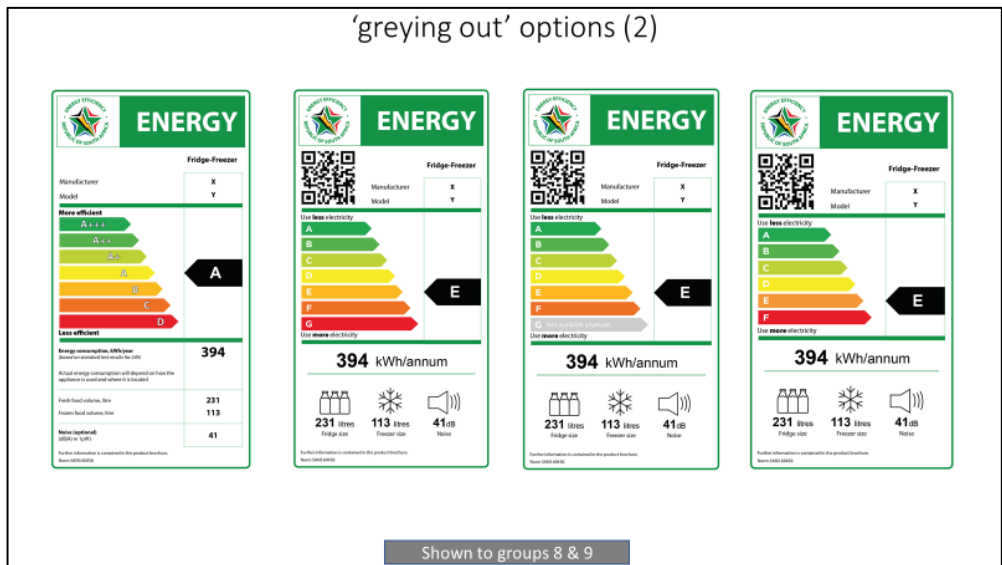
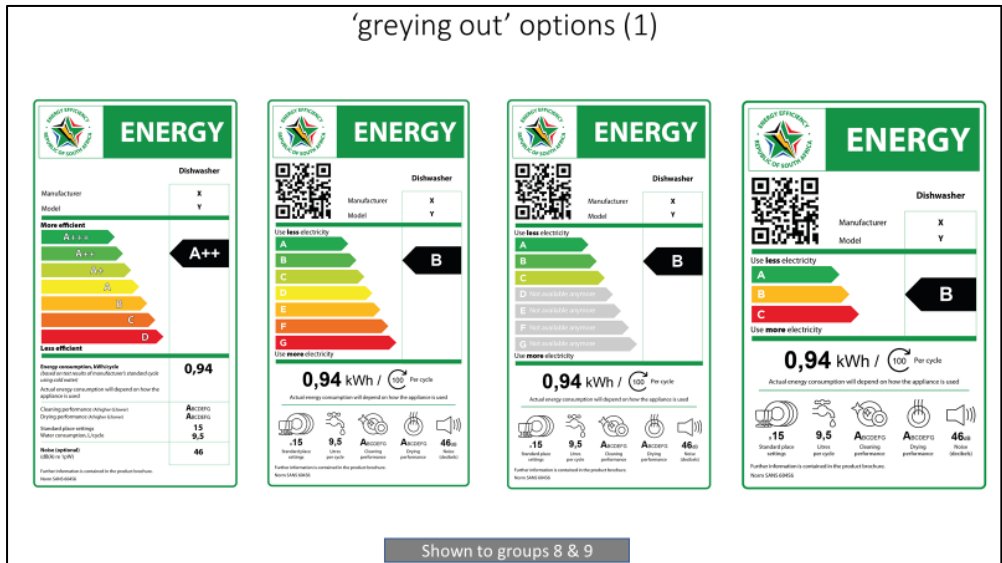


'greying out' options (2)



Shown to groups 6 & 7





Section 1: Introduction

Duration 15 min (15)

Outcome: to position discussion

Welcome to our discussion today and thank you all for coming.

The Department of Energy has commissioned our company, Research IQ, to do the research for them. The reason we are here today is that the Department of Energy wants to learn more about how people in South Africa understand and use large electrical appliances, like ovens and fridges. They want to improve some educational information to help people make better decisions around appliances for themselves, their homes and the environment.

My job today is to make sure I ask you all the questions from the Department of Energy. The discussion will be 2 hours and your job today is to answer my questions with honesty; there are no right or wrong answers. In fact, we are here to learn from you, and we thank you for that. That’s why I ask for your

honesty, if you tell me you understand something, but you are confused about it, we could make wrong decisions. Other people we've spoken to said everything we show you and speak about was informative and fun, so I hope that when you leave you will have found the experience to be valuable too.

We have your details as we are required by SAMRA, our industry governing body, to keep track of everyone who participates in research. We, however, do not provide the government with your names and contact details and we do not give your information to anyone.

I tape the discussion so that I can listen to it afterwards instead of taking notes. We use the information from all our discussions to write our report. Please now turn your cell phones off or to silent as the noise of the call interferes with my audio recorder.

[Explain PC/viewing observation if appropriate]

Any questions about today?

Let's start with each of you introducing yourself to me and the group so that we can all know each other a little better:

- Name, family situation, place of residence
- Occupation, work status, place of work
- Personal interests and hobbies

Brief discussion on what life is like here, where you live?

- What works – some of the nice things, the joys?
- What does not work, some of the less nice things, the challenges?

Section 2: Appliance usage, needs and purchase decision making criteria

Duration 10 min (25)

Outcome: understand usage and attitudes of electrical appliances & spontaneous presence of energy efficiency as a factor that influences selection of appliance

- Today we are talking about large appliances [**MOD**: maintain focus throughout on BIG/LARGE appliances]
- **MOD: FOR EACH APPLIANCE MENTIONED [ensure by end of Stage 1 that relevant appliances have been discussed – fridge/freezer, oven, washing machine, tumble dryer, geyser, dishwasher, air conditioner]:**
 - Who has a ... [fill in appliance and discuss individually]?
 - How often is it used per day / week / month?
- When it comes to replacing a large appliance, how do you go about looking for, then deciding what new model to purchase?
 - What are the key factors that you consider in the decision making process?
 - **MOD: observe what comes up spontaneously:** budget, features/ style (differentiate), aesthetics, space for appliance, need of home (no of people, lifestyle, mindset, financial standing, etc), size, weight, guarantee, brand
 - **Probe quality:** what about quality?
 - What factors say, 'this is quality large appliance model'?
 - Buying a large electrical appliance costs a lot of money – what features in a large appliance would you consider stretching the budget for?

- (MOD: observe what comes up spontaneously bigger, energy efficiency, features, style, reputation /hip)?

Section 3: awareness and importance of energy efficiency in large appliances

Duration 10 min (35)

Outcome: understanding the role EE labels need to play to influence purchase decision

- MOD: **MINDMAP**: see if **energy efficiency** comes up spontaneously, if it not prompt by writing 'ENERGY EFFICIENCY' on flipchart or paper:
 - What do you associate with 'Energy Efficiency' ... what words and descriptions come to mind?
- Is the energy efficiency of a large electrical appliance important to you? If so, what is important to you personally?
 - MOD: use laddering technique on each factor mentioned, i.e. what are the underlying subconscious drivers
 - IF no-one has mentioned energy efficiency in section 2, challenge if they say it is important – you say it is important but did not mention this earlier – this is interesting to me – what makes you say it is important now?
- How do you know the EE of an appliance? How do you specifically investigate its EE?
 - Where have you learnt this from?

Section 4: Evaluate strength of current vs. new scale to motivate up-trade in energy performance

Duration 20 min (55)

Outcome: understanding the degree to which the current vs. new EE label grading compels consumers to up-trade on energy performance

- MOD: introduce the current A+++ - D scale where appropriate in discussion – either earlier or at this point if EE hasn't been spontaneously mentioned:
 - Is this what you mean? OR
 - What about this? Have you seen this before? [**record how many for transcript**]
 - Where and when have you seen this?
 - Has this EE label played any role for you in influencing the purchase of a large appliance?
 - If so how? MOD: ask respondent to elaborate on their purchase decision journey
 - What does this tell you about the energy performance of an appliance?
 - Probe in depth to determine level of awareness and knowledge
 - What is the reason for each level on the scale?
 - What does G mean in comparison to F, F to E, etc ... A++ to A+++ A
 - What can you expect as a consumer from an appliance in each of these classes?
 - How do you understand each of the colours?
 - What else? [observe if factors such as overall quality of product, price, etc come up]
 - Has anyone used it to compare it to other appliances? [MOD: this is important as too little time is spent on using it to compare as opposed to confirm the appliance's performance specs]
 - Or did it just reinforce your decision?

- **MOD:** introduce the new A – G scale:
 - What does G mean in comparison to F, F to E, etc ... B to A
 - What can you expect as a consumer from an appliance in each of these classes?
 - How does this scale differ to the previous one?
 - How do you understand the red on this scale in comparison to the other? And the orange, yellow, light green, green?
- **MOD:** show both scales together:
 - Let's imagine that you are purchasing a fridge and there are fridges available in every class on both scales:
 - What level/s fridge would you NOT want to buy? Reasons for this?
 - At what level/s would you start to consider buying a fridge?
 - At what level/s would you ideally want to buy? Reasons for this?
 - What about a washing machine?
 - [Repeat above]
 - What about an oven?
 - [Repeat above]

Section 4: Evaluate strength of new step change label vs. current label to communicate key intended messaging

Duration 50 min (105)

Outcome: understanding the degree to which the current vs. new EE label motivates up-trade in energy performance & communicates secondary information needs

MOD: please follow the rotation grid on page 1.

Display Option A and Option B of new step change EE labels where respondents can look at them up close [WITHOUT PRICES & WITHOUT CALLING THEM OPTION A AND B .. just say I have two labels for you, called [insert option codes] Explain that these are both [fill in appliance] but different brands and models. In reality, the EE label is a little smaller and included with appliance brochures or stuck to the outside of an appliance. Today I've made them bigger so we can all see it.

- **MOD:** discuss in depth:
- Which of the models would be your most probable choice to suit your needs at home?
 - What key factors influenced your choice? Reasons why? [**MOD:** get show of hands in preference for each label]
 - Probe:
 - Role of grade
 - Role of colour
 - Role of secondary information
 - What factors shown are relevant and important to you?
 - Which are not important?
 - Which are clear vs. confusing? [**MOD:** determine if lack of understanding influences level of importance]
 - For any that are confusing ... what could we do to make this easier to understand?
 - Is there any information you want or need that is not in this section?

- What is the perceived price of each appliance? Reasons why?

MOD: Show CURRENT EE LABEL IN SAME APPLIANCE CATEGORY

- Repeat questions as above

COMPARISON OF ALL 4 LABELS: [20 min total]

- Which layout do you prefer? Probe:
 - Scale:
 - Reasons for choice
 - Which makes you want to choose further up the scale?
 - Is this influenced by grade or colour? Reasons?
 - Text only vs. icons & text
- For washing machine:
 - There is R1000 difference between each model [A vs. B on each label]
 - To what extent, if any does this change your mind on what model is a probable fit taking all factors into consideration?
- For fridge / freezer:
 - There is R3500 difference between each model
 - To what extent, if any does this change your mind on what model is a reasonable fit taking all factors into consideration?
- For oven:
 - There is R300 difference between each model
 - To what extent, if any does this change your mind on what model is a reasonable fit taking all factors into consideration?

MOD: FOR REMAINING APPLIANCES SHOW BOTH NEW AND CURRENT LABELS AT THE SAME TIME: [30 min total]

- What grade would you ideally want to purchase for this appliance?
 - What are the reasons for this?
- Secondary information?
 - What factors shown are relevant and important to you?
 - Which are not important?
 - Which are clear vs. confusing? [MOD: determine if lack of understanding influences level of importance]
 - For any that are confusing ... what could we do to make this easier to understand?
 - Is there any information you want or need that is not in this section?

Section 5: Role and placement of QR code

Duration 5 min (110)

Outcome: understanding awareness and usage of QR codes, with focus on EE information and potential as a useful tool

- Does anyone know what a QR code is?
 - MOD: establish spontaneous reactions?
 - Have you ever used them?

- With what kind of purchases?
- What are the benefits and disadvantages?
- **MOD: point out the QR code on all new labels**
 - The idea is for you to use your smart phone to scan this code which will take you into a library that stores useful information about each brand and model of appliance. It can help you compare appliances.
 - How, if at all, would this be useful for you?
 - What information would be most relevant?
 - Where is the best place to put a QR code on the EE label

Section 6: Perceptions of 'greying out' irrelevant classes

Duration 5 min (115)

Outcome: understand reactions to not showing classes in which no current models exist

- One problem the Department of Energy is trying to solve is that because technology has advanced, some levels on the scale have become 'empty' ... there are no appliances in them. So, you think you are making a good choice with an A, but now there aren't any Bs, Cs and Ds left. *[Only explain if necessary, that there is a law that exists behind this label to prohibit appliances with low EE ratings to be sold in South Africa. It is called MEPS – which stands for the Minimum Energy Efficiency Performance Standard. Most of the appliance brands in SA comply with MEPS. This law exists because appliances use a lot of energy and brands had to think of ways to design appliances to use less energy. So sometimes a MEPS is a B, meaning A is the lowest level allowed]*
- Here are some of our initial ideas on how to show these on the label **[show upper 'greyed' out classes first, then below options]**
 - What do you think of the overall idea?
 - Which, if any of these options – above and below – is the most effective in communicating 'no model available in this class'? Reasons why?

Section 7: Perceptions 5 bar scale

Duration 5 min (120)

Outcome: understand reactions to reducing scale from 7 classes to 5

- Finally, I have one last label to show you – this is a 5 class scale in comparison to all the others we have seen today
 - Spontaneous reactions & reasons why
 - Which feels easier for you to understand – 7 as we've been looking at, or 5? Reasons?
 - If we drop 2 classes – which colours should be eliminated? Reasons for this?

Section 8: Questions and answers

Duration 5 min (125)

Outcome: summary of impact from respondents, address any closing questions or comments

- We are almost at the end of our discussion.
- Does what you've seen today make you consider your next large appliance purchase any differently? What may you do differently as a result?

- **[MOD:** Observe if any increased awareness around appliances energy ratings in general, that there is significant innovation to produce more EE appliances, that there is a minimum energy efficiency performance (MEPS) required by legislation]
- How will this help you, if at all, to make better decisions around large appliances in your life? Benefit for family? What about the environment?
- Is there any other information the label could include to help you with your decision? For what reason is this useful?
- Let me see if the research team has any questions, please excuse me while I check
 - Address any final questions to respondents
- Thank respondents for their time

9.3 Annex 3 – Consumer discussion Stage Three

DISCUSSION GUIDE

PR RENEW

Version 5 – 20 October 2019

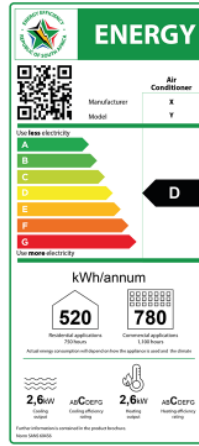
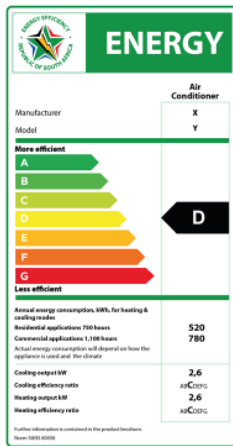


Stimulus material checklist:

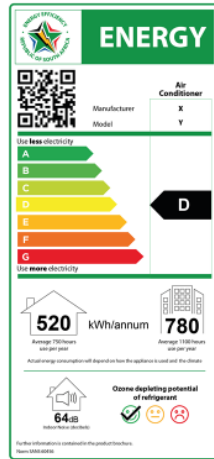
- Flipchart
- A4 paper
- Prestik
- Markers – red, green, black
- Pencils
- Latest results of EE survey for discussion and interrogation
- Labels: → all printed high res, laminated
 - EE labels for testing: all Air Conditioner
 - Current A+++ - D scale → current text descriptors
 - A - G scale → current infographics
 - A - G scale → new text descriptors
 - A - G scale → new infographics
 - A - G scale → simplified infographics
 - Icon options

Air con – current text descriptors vs. current infographics

Air con – new text descriptors vs. new infographics

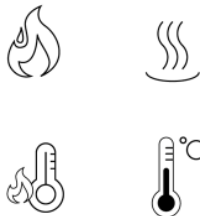


Air con – simplified infographics



Air con – icon options

Heating



Cooling



Section 1: Introduction

Duration 15 min (15)

Outcome: to position discussion

Welcome to our discussion today and thank you all for coming.

The Department of Energy has commissioned our company, Research IQ, to do the research for them. The reason we are here today is that the Department of Energy wants to learn more about how people in South Africa understand and use large electrical appliances, particularly for today Air Conditioners. They want to improve some educational information to help people make better decisions around AC for themselves, their homes and the environment.

My job today is to make sure I ask you all the questions from the Department of Energy. The discussion will be a max of 2 hours and your job today is to answer my questions with honesty; there are no right or wrong answers. In fact, we are here to learn from you, and we thank you for that. That's why I ask for your honesty, if you tell me you understand something, but you are confused about it, we could make wrong decisions. Other people we've spoken to said everything we show you and speak about was informative and fun, so I hope that when you leave you will have found the experience to be valuable too.

We have your details as we are required by SAMRA, our industry governing body, to keep track of everyone who participates in research. We, however, do not provide the government with your names and contact details and we do not give your information to anyone.

I tape the discussion so that I can listen to it afterwards instead of taking notes. We use the information from all our discussions to write our report. Please now turn your cell phones off or to silent as the noise of the call interferes with my audio recorder.

[Explain PC/viewing observation if appropriate]

Any questions about today?

Let's start with each of you introducing yourself to me and the group so that we can all know each other a little better:

- Name, family situation, place of residence
- Occupation, work status, place of work
- Personal interests and hobbies

Brief discussion on what life is like here, where you live?

- What works – some of the nice things, the joys?
- What does not work, some of the less nice things, the challenges?

Section 2: AC category knowledge usage, needs and purchase decision making criteria

Duration 20 min (35)

Outcome: understand perceptions, needs and usage behaviour as well as purchase decision factors and trade-offs

- We've been having many discussions around large electrical appliances but today we are focusing particularly on air conditioners: **MIND MAP 'AIR CONDITIONER'**
 - Spontaneous associations and perceptions?
 - Probe to second level to understand each factor mentioned

- Leave any discussion on energy efficiency until last [unless key in decision/purchase]
- Benefits of AC
 - Role?
 - Satisfaction of needs or projected future needs?
 - How do AC's work?
- How often is it used per day / week / month?
- Disadvantages of AC
 - [Any awareness of refrigerants?]
 - Impact on electricity bill?
 - % of electricity spend?
- The purchase decision process
 - When last purchased / intention to purchase?
 - How many?
 - What type?
 - For what need?
 - Where purchased?
 - Cost?
 - Level of advice & information sought, and where?
 - How was / is it going to be installed?
 - Factors involved – key vs. secondary
 - Budget, features/ style (differentiate), aesthetics, space for appliance, need of home (no of people, lifestyle, mindset, financial standing, etc), size, weight, guarantee, brand, quality, energy efficiency, performance – what factors?

Section 2: Energy efficiency in AC – spontaneous understanding, awareness & knowledge

Duration 20 min (55)

Outcome: understand usage and attitudes of electrical appliances & spontaneous presence of energy efficiency as a factor that influences selection of appliance

- Awareness
- Level of knowledge
 - How has this been gathered?
 - Level of importance – role played in purchase decision making
 - Trade-offs against other key purchase factors
- How EE of AC determined?
 - Knowledge of technology – inverter (more efficient) vs. non-inverter
 - Inverter [explanations for moderator information]
 - An inverter is used to control the speed of the compressor motor → continuously regulating the temperature, i.e., the cooling and heating output
 - The drive converts the incoming AC current to DC

- A electrical convertor and controller samples the ambient air temperature and adjusts the speed of the compressor relative to whether you want heat or cooling
 - It is more efficient – with the electricity it uses, extends life of parts
 - Makes the AC quieter, lower operating costs and less break downs
 - Its more expensive to buy but payback time is approx. two years
 - *Inverter systems start at full throttle to reach the desired temperature quickly and effectively. Once the climate is controlled, the operation is continually adjusted to retain temperature, without the variations of single speed air conditioners.*
 - Non-invertor / single speed AC
 - Constant speed air conditioner but cheaper, less efficient, more noisy
 - It runs a full capacity from the moment you turn on
 - Causes power surge with turning on and off – draws more electricity
- Knowledge of energy efficient measures relating to AC
 - **Cooling** output (kWh)
 - Energy efficiency ratio (EER) – a constant measure of efficiency (calculated using a constant outside and inside temperature), typically determined by a set outside/inside temperature; an older measure than SEER;
 - The higher the EER the more efficient the AC unit
 - E.g. EER – 8 [means EER of 8 BTU British Thermal Units]
 - Used more for smaller wall or window mount ACs
 - ONLY compare EER against EER
 - Seasonal energy efficiency ratio (SEER) – measure of seasonal efficiency [calculated across a wide temperature range reflecting an average temperature] and more common metric BUT only measures cooling!
 - The higher the SEER, the more efficient the AC unit
 - E.g. SEER – 10 [means SEER of 10 BTU British Thermal Units]
 - Used more for central AC systems
 - ONLY compare SEER against SEER
 - **Heating** output (kWh)
 - Heating efficiency ratio (COP) – Coefficient of Performance – ratio of heat output to the amount of energy input for a heat pump
 - COP 1 = same as 3.4 EER
- Climate risk factors
 - Knowledge of refrigerants
 - A refrigerant is a substance used in a heat cycle to transfer heat from one area and remove it to another. It is found in refrigerators, freezers and air conditioners (all cooling appliances). Traditionally, CFCs (chlorofluorocarbons) were used as refrigerants, but they are being phased out because of their high ozone depleting effect. Being replaced with HFCs and PFCs with less global warming potential (but toxicity and flammability concerns), so being replaced with HFO-1234yfs.

Section 4: Explore AC label understanding and design options

Duration 50 min (105)

Outcome: understanding the degree to which the current vs. new EE label grading compels consumers to up-trade on energy performance

- **MOD: introduce the current A+++ - D scale** where appropriate in discussion – either earlier or at this point if EE hasn't been spontaneously mentioned
 - Spontaneous understanding of overall label
 - Meaning
 - Role
 - Use
 - Of label elements:
 - Energy scale and rating
 - Additional information
 - Ownership
 - MEPS (spontaneous – not probed)
- **MOD: introduce current A - G scale**
 - Explain A - G
 - Check if understanding of information is same or different
 - Awareness of QR code
 - Previous usage?
 - With what kind of purchases?
 - What are the benefits and disadvantages?
 - Level of interest and importance in EE label
 - What kind of information should be accessible behind the AC QR code?
 - Check any shift in understanding through icons depicted
- **MOD: introduce A - G scale + new design**
 - Focus on preference for simplification of additional information
 - Does this shift any information needs to QR code
- **MOD: expose additional icons**
 - Meaning of each in relation to AC:
 - Cooling
 - Heating
 - Variant cooling
 - What measure would go with this?
 - Variant heating
 - What measure would go with this?
 - Which can play a role on the EE label?
 - Which should go into QR code?
- **OVERALL:**
 - Impression of EE label?
 - Any shifts in perceptions?
 - How can you use this label effectively? [check comparative label evaluation]

Section 3: awareness and importance of energy efficiency in large appliances

Duration 30 min (75)

Outcome: understanding the role EE labels need to play to influence purchase decision

- Go through EE label survey
 - To create context for:
 - Awareness
 - Shift to A - G scale
 - Exposure:
 - to other appliances
 - to infographics
 - to QR code
 - to ownership
 - INTERROGATE PERCEPTION OF MANUFACTURER
 - What possible misperceptions/barriers exist for S&L / DoE IF perception that label is driven by manufacturer?
 - To refrigerant warning
 - Awareness of MEPS (Minimum Energy Performance Standard)

Section 4: In group survey

Duration 10 min (115)

Outcome: use survey exposure to further enhance understanding of AC energy efficient label & to explore any 'gaps' in relation to survey findings

MOD: please click onto the link you downloaded whilst waiting to come into the group and take the survey – should take you about 5 to 7 minutes

- **MOD:** discuss any shifts in awareness and/or understanding of the label in general
- Would your understanding of the AC label have been helped in any way by first doing this survey? [to demonstrate that communication is KEY to uptake and use of the label]

POST SURVEY GAPS

- Some think the shift between A+++ - D vs. A - G results in a scale that communicates different information.
 - How do you think the information could be different?
 - What do you think same vs. different?
- Survey shows that more people in SA think manufacturers are behind the EE label
 - What about yourselves?
 - Is there any difference in the credibility of the EE label whether 'owned'/'promoted' by Government vs. Manufacturers?
- Check understanding of 2 x sound WM icons
- [complete after further analysis of data]

Section 8: Questions and answers

Duration 5 min (120)

Outcome: summary of impact from respondents, address any closing questions or comments

- We are almost at the end of our discussion.

- Does what you've seen today make you consider your next large appliance purchase any differently? What may you do differently as a result?
 - **[MOD:** Observe if any increased awareness around appliances energy ratings in general, that there is significant innovation to produce more EE appliances, that there is a minimum energy efficiency performance (MEPS) required by legislation]
- Address any final observer questions to respondents
- Thank respondents for their time

9.4 Annex 4 – Business-to-business discussion points

IDI KEY TOPIC AREAS

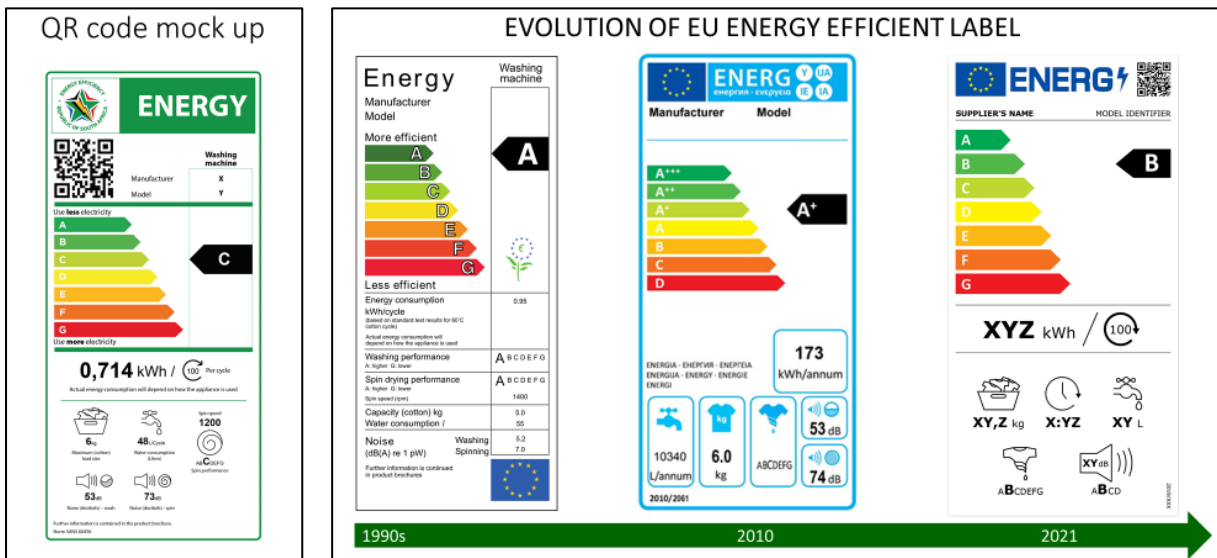
PR RENEW

Version 1 – 27 September 2019



Stimulus material checklist:

- Labels: → all printed high res, A4, laminated
 - Stimulus material from Discussion Guide Stage One (Ref. Annex 1)
 - QR code mock-up
 - Energy efficiency evolution slide



Key questions:

- Respondent role
- Explain objective of research
- How and where the EE label and MEPS influence's industry
 - Consumer market profile – any impact depending on market?
- Show evolution slide of EU EE label
- Spontaneous thoughts on evolution
- What perceived benefits for industry in SA context – impact on consumer?
- What perceived disadvantages for industry – impact on consumer?
- Deep dive into EE label design specifics
- Perceptions of EE amongst SA public
- What erroneous perceptions does s/he encounter
- Blue skies

9.5 Annex 5 – Quantitative Questionnaire

SA Energy Efficiency Label - A Review

Have your say to improve understanding and use of the Energy Efficient Label

* Required



Please indicate whether you are completing this questionnaire on a mobile phone, on a laptop or desk computer or on an iPad/tablet. If you are completing these questions on a mobile phone you may need to scroll down or across if you cannot see the answers to the questions. *

A mobile phone

A laptop or desk computer

An iPad or tablet

Since 2015, the label you will see throughout the survey has been mandatory for the following appliances: air conditioner, dishwasher, fridge/freezer, geyser, oven, tumble dryer and washing machine. On the shop floor retailers are required to display it prominently (in the front) on appliances under mandatory labelling. It is also a requirement that a label is placed in the instruction manual. *

Please mark this box to move to the next question

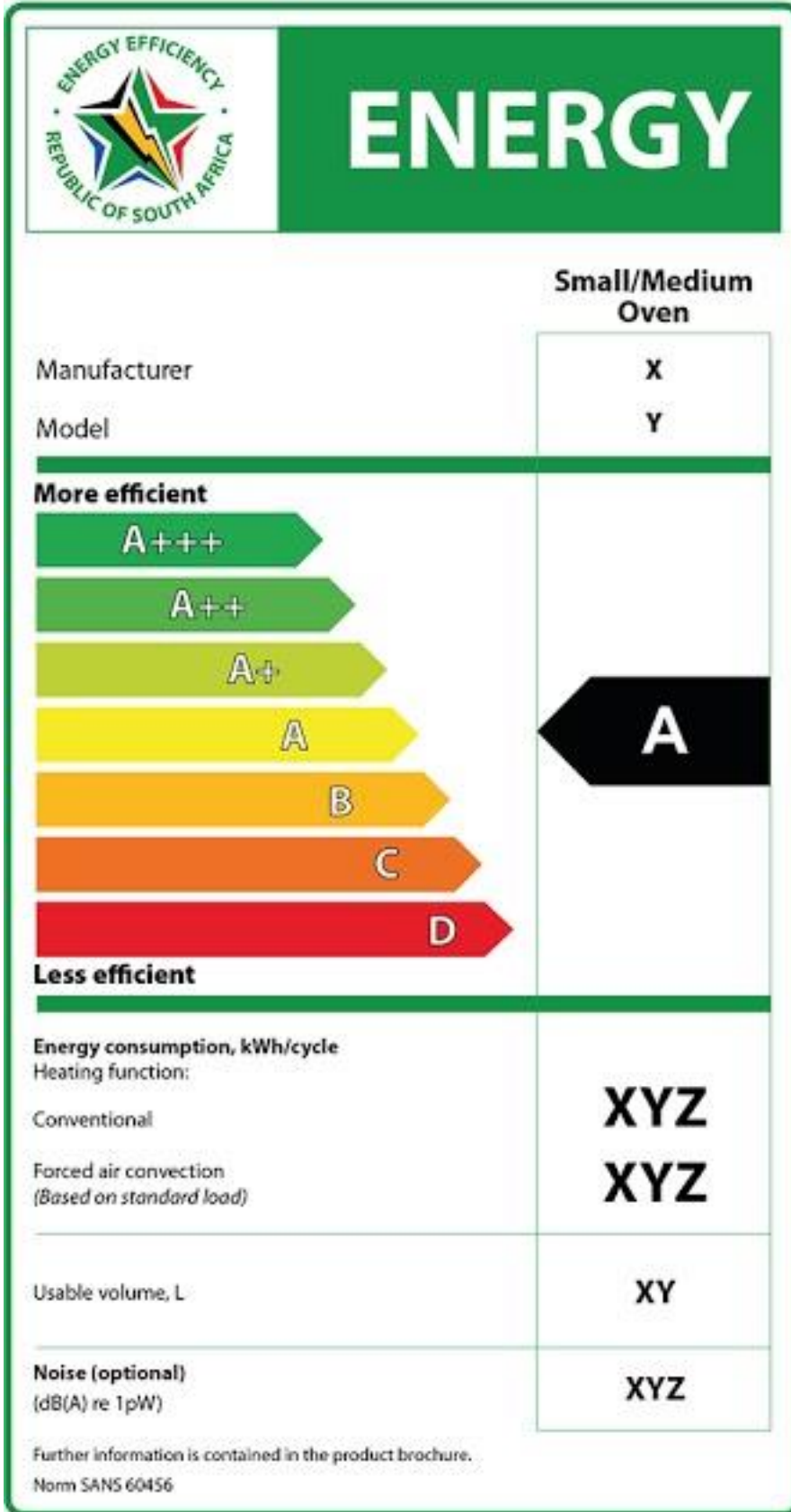
Have you have seen this label before? *

Small/Medium Oven	
Manufacturer	X
Model	Y
More efficient A+++ A++ A+ A B C D Less efficient	
Energy consumption, kWh/cycle Heating function: Conventional Forced air convection (Based on standard load)	XYZ XYZ
Usable volume, L	XY
Noise (optional) (dB(A) re 1pW)	XYZ
Further information is contained in the product brochure. Norm SANS 60456	

Yes

No

What do you believe is the key role of this label ? (multiple answers are accepted) *



- I don't know
- Shows how much electricity an appliance uses
- Shows how eco-friendly the appliance is
- A scale showing the appliance's electricity consumption
- Allows comparison of electricity consumption between appliances
- It guarantees that the appliance meets minimum energy efficient standards
- Other:

Have you ever used the SA Energy Efficient label to help you buy any of the following appliances: air conditioner, dishwasher, fridge/freezer, geyser, oven, tumble dryer or washing machine? *

- Yes
- No

If you answered YES to the previous question, please select 'skip this question'. If you answered NO, what is the key reason for never using this label to help you buy a large electrical appliance? (multiple answers are accepted) *

- Skip this question
- I have never see it before
- I don't know what it means
- Energy consumption of appliances is not important to me
- It seems too technical
- It's just a marketing gimmick
- Other:

Which organisation or body do you think is responsible for the Energy Efficiency labels? *

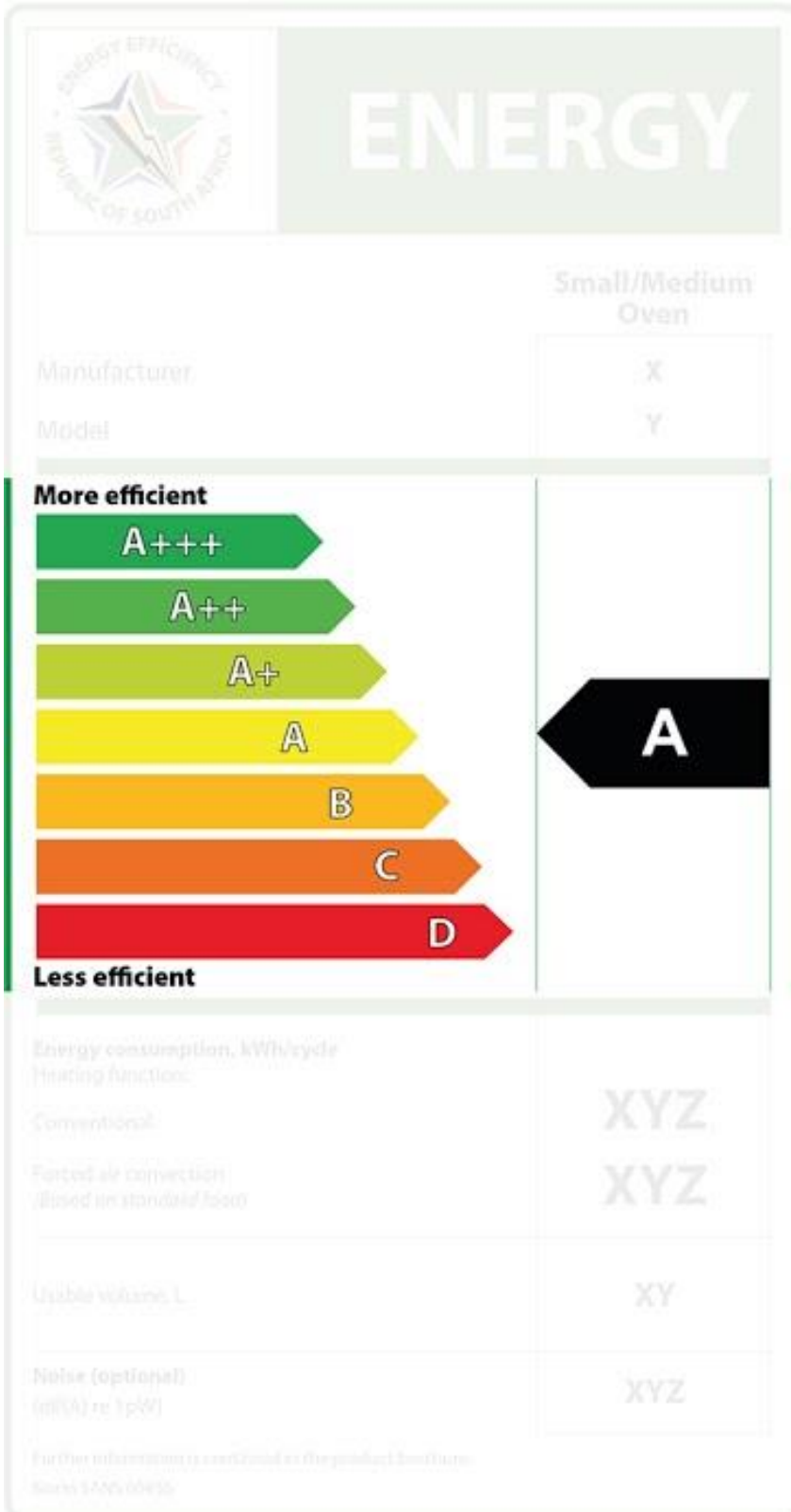
- Government
- Manufacturer
- Retail appliance seller
- I don't know
- Other



ENERGY

	Small/Medium Oven
Manufacturer:	X
Model:	Y
<p>More efficient</p>  <p>Less efficient</p>	
Energy consumption, kWh/cycle (cooking functions)	XYZ
Conventional forced air convection (based on standard load)	XYZ
Oven Volume, l	XY
Noise (optional) (dB(A) re 1pW)	XYZ
<p><small>For full information, see certificate of the product manufacturer. www.SANS 50456</small></p>	

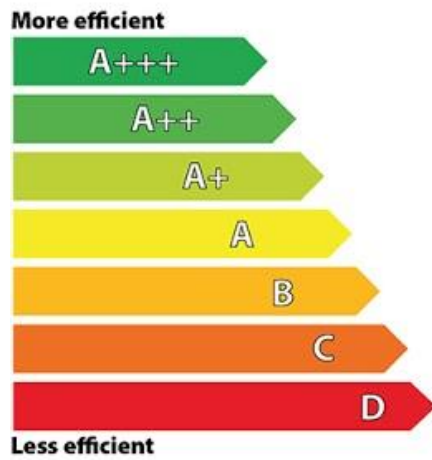
Do you understand the meaning of the Energy Efficiency Scale part of the label? *



- Yes
- I'm not sure
- No

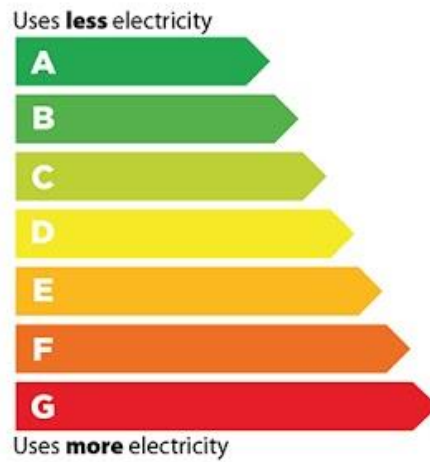
Please read the explanations of the Energy Scales below. *

Current Energy Scale



The current Energy Scale, rated A+++ to D, allows for up to seven classes of energy efficiency. Appliances rated at the top use the least electricity and those at the bottom use the most.

Proposed Energy Scale



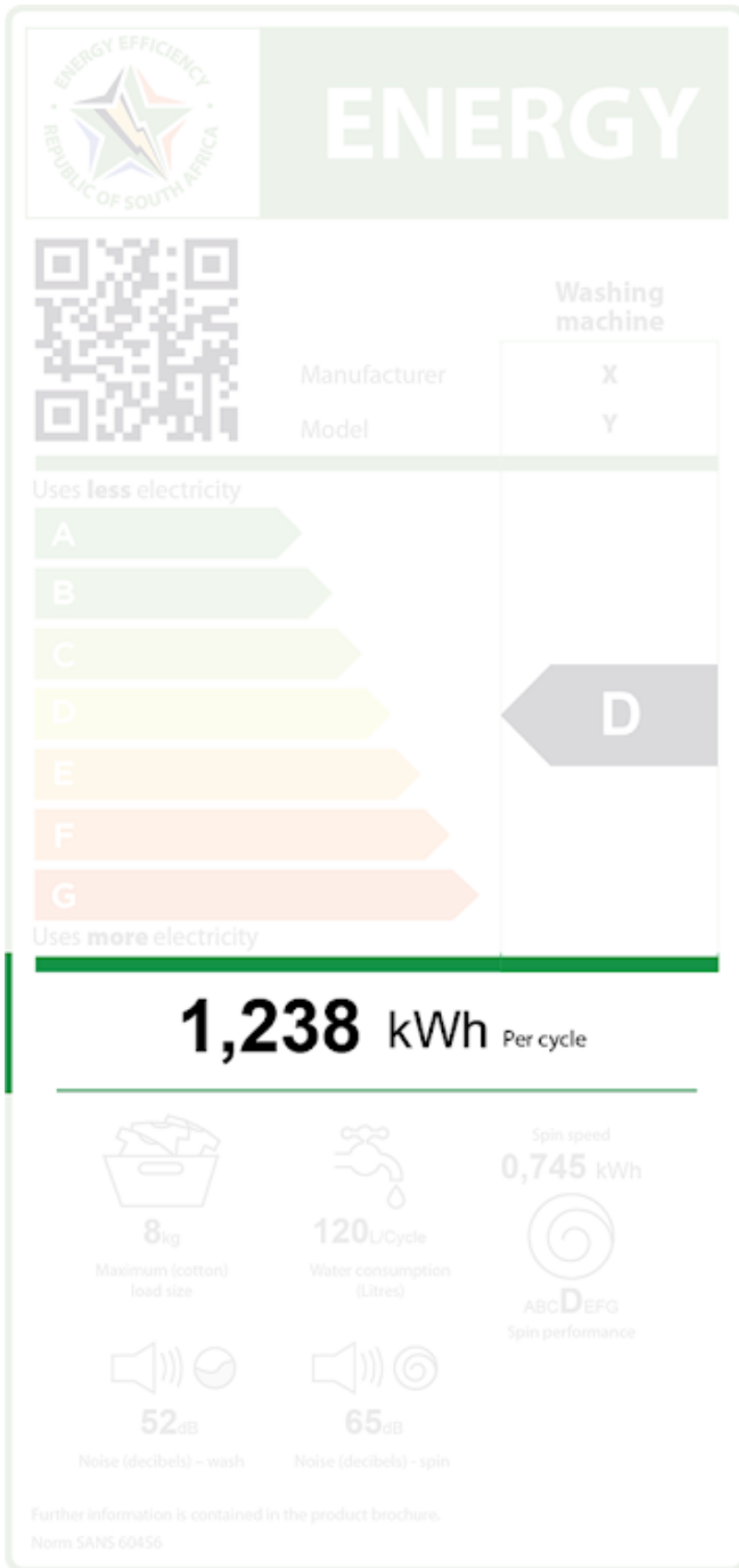
The proposed new Energy Scale will also allow for up to seven classes of energy efficiency with appliances rated at the top using the least energy and those at the bottom using the most. Instead of starting at A+++ , the proposed new scale will use an A to G rating.

Please mark this box to move to the next question

As explained, the proposed new label is moving to a simpler rating. Do you understand that these two scales communicate the same information, or do you think they are giving different information? *

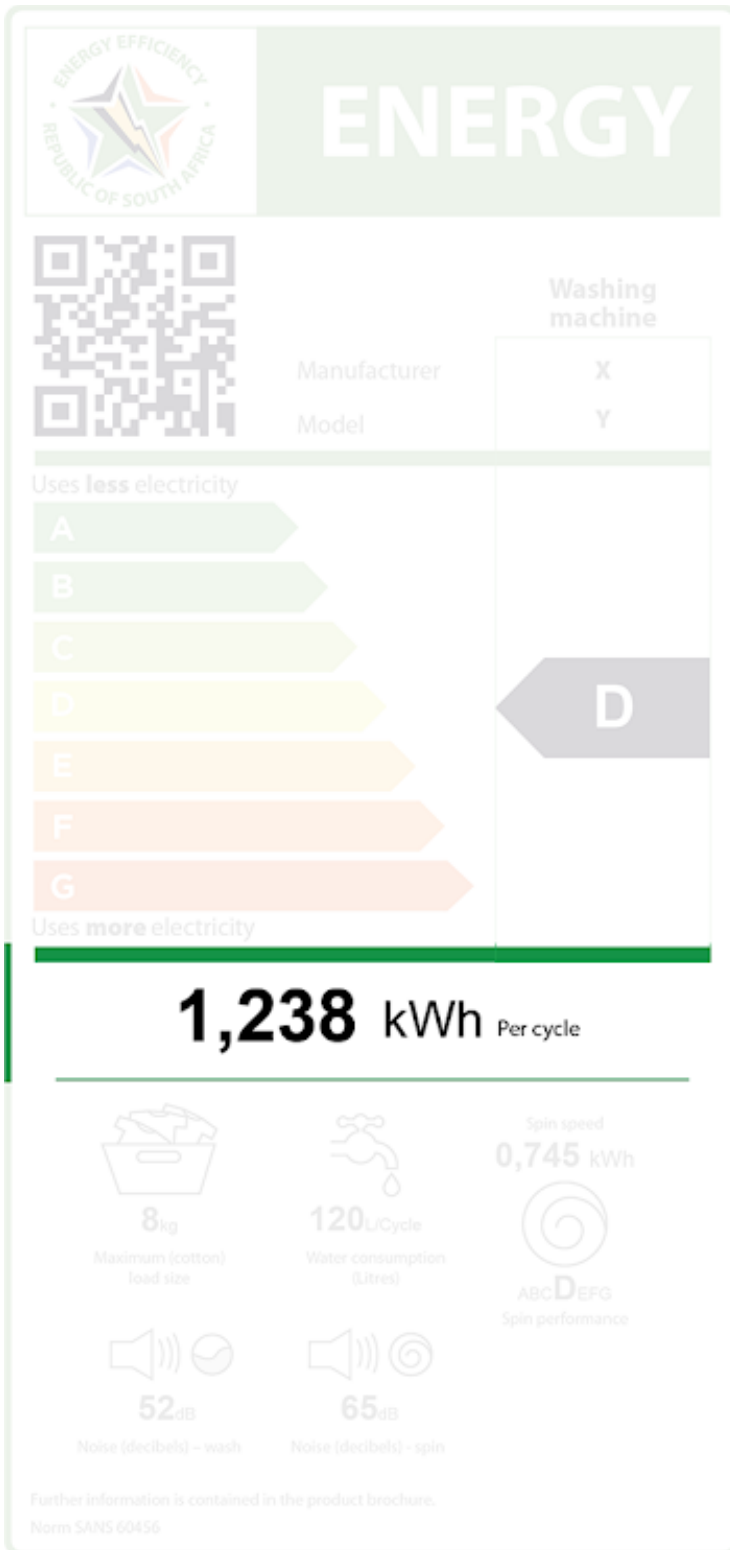
- The same information
- Different information

Do you understand what the kWh numeric value means that is seen on the energy label on large appliances, using a Washing Machine as seen below as an example? *



- Yes
- I'm not sure
- No

The numeric kWh value shows the average amount of electricity used by an appliance. The example below shows a model of Washing Machine that uses 1.238 kWh for an average cycle of washing. How important is it to you personally to know this information? *



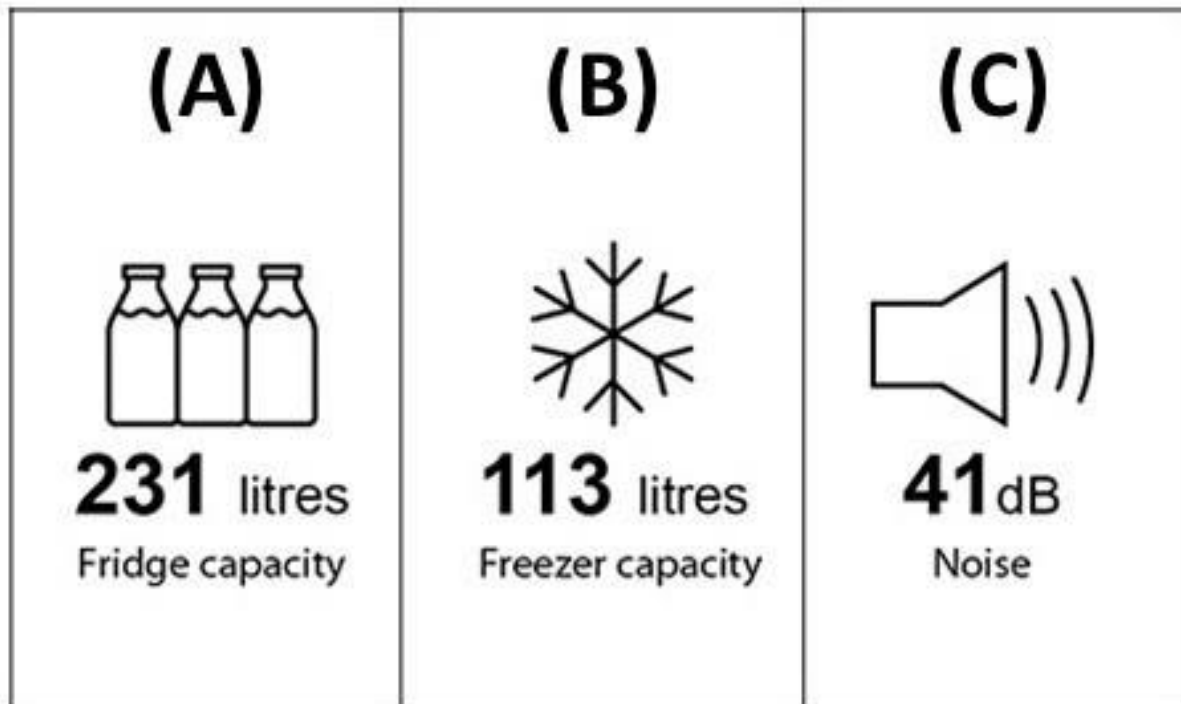
- It is important
- Not important

The symbols below tell you more information about a model of Fridge/Freezer. *



Please mark this box to move to the next question

If you were to consider purchasing a Fridge/Freezer, how important or not would each piece of information be to you? Or, do you not understand the symbol? *



- Important
- Not important
- I don't understand the symbol

Image A

Image B

Image C

A refrigerant is a substance used in a heat cycle to transfer heat from one area and remove it to another. It is found in refrigerators, freezers and air conditioners (all cooling appliances). Traditionally, CFCs (chlorofluorocarbons) were used as refrigerants, but they are being phased out because of their high ozone depleting effect. Would it be useful if the label included a simple indicator which grades the ozone depleting effects of the refrigerant? *







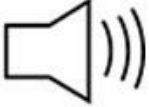
- Yes
- No

The symbols below tell you more information about a model of Dishwasher. *



Please mark this box to move to the next question

If you were to consider purchasing a Dishwasher, how important or not would each piece of information be to you? Or, do you not understand the symbol? *

(A)	(B)	(C)	(D)	(E)
				
x15 Standard place settings	9,5 Litres per cycle	ABC D EF Cleaning performance	ABC D EF Drying performance	46dB Noise (decibels)

- Important
- Not important
- I don't understand the symbol

Image A

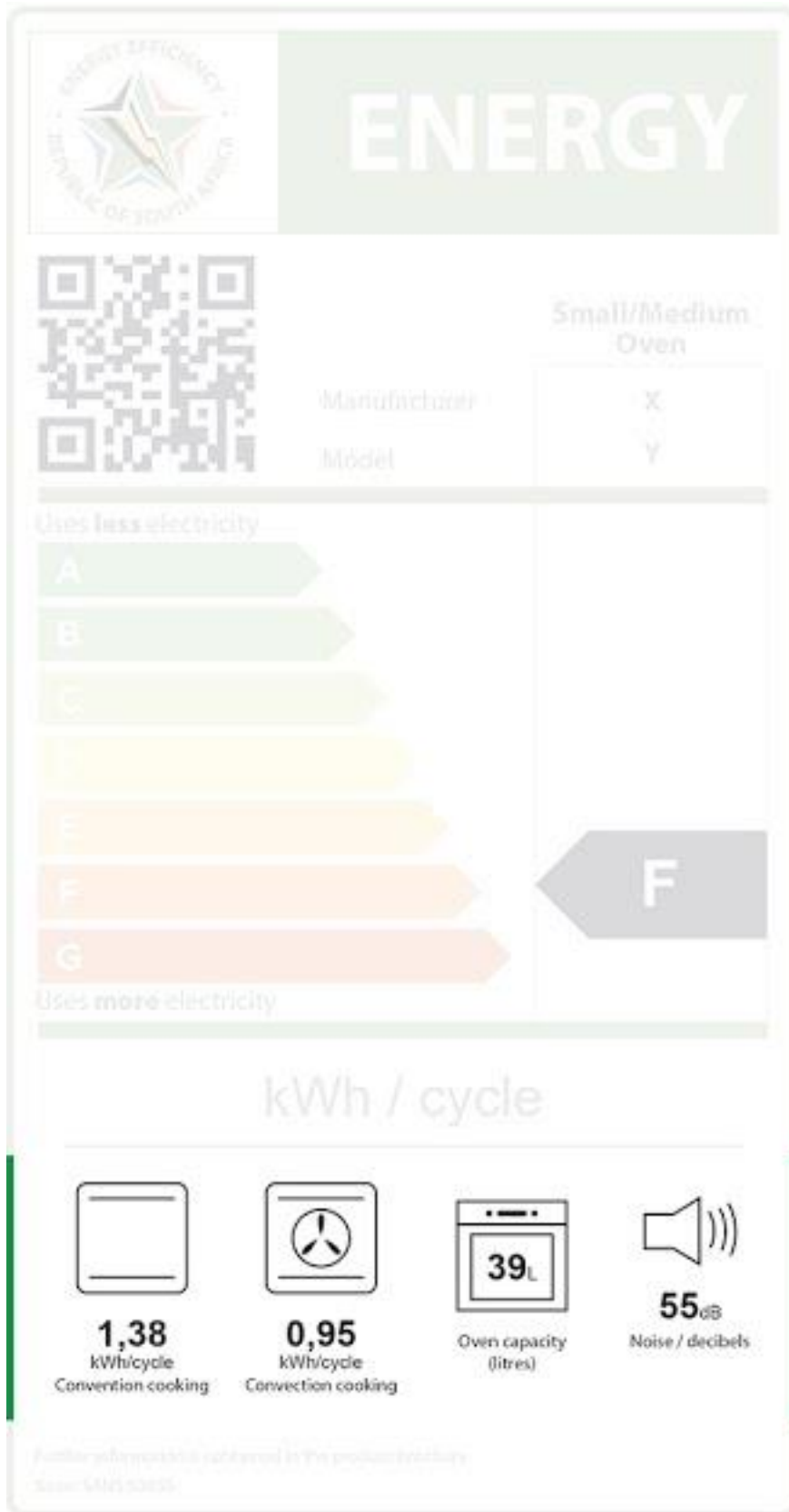
Image B

Image C

Image D




Image E

The symbols below tell you more information about a model of Small/Medium Oven. *



Please mark this box to move to the next question

If you were to consider purchasing a Small/Medium Oven, how important or not would each piece of information be to you? Or, do you not understand the symbol? *

(A)	(B)	(C)
 1,38 kWh/cycle	 0,95 kWh/cycle	 Oven capacity (litres)

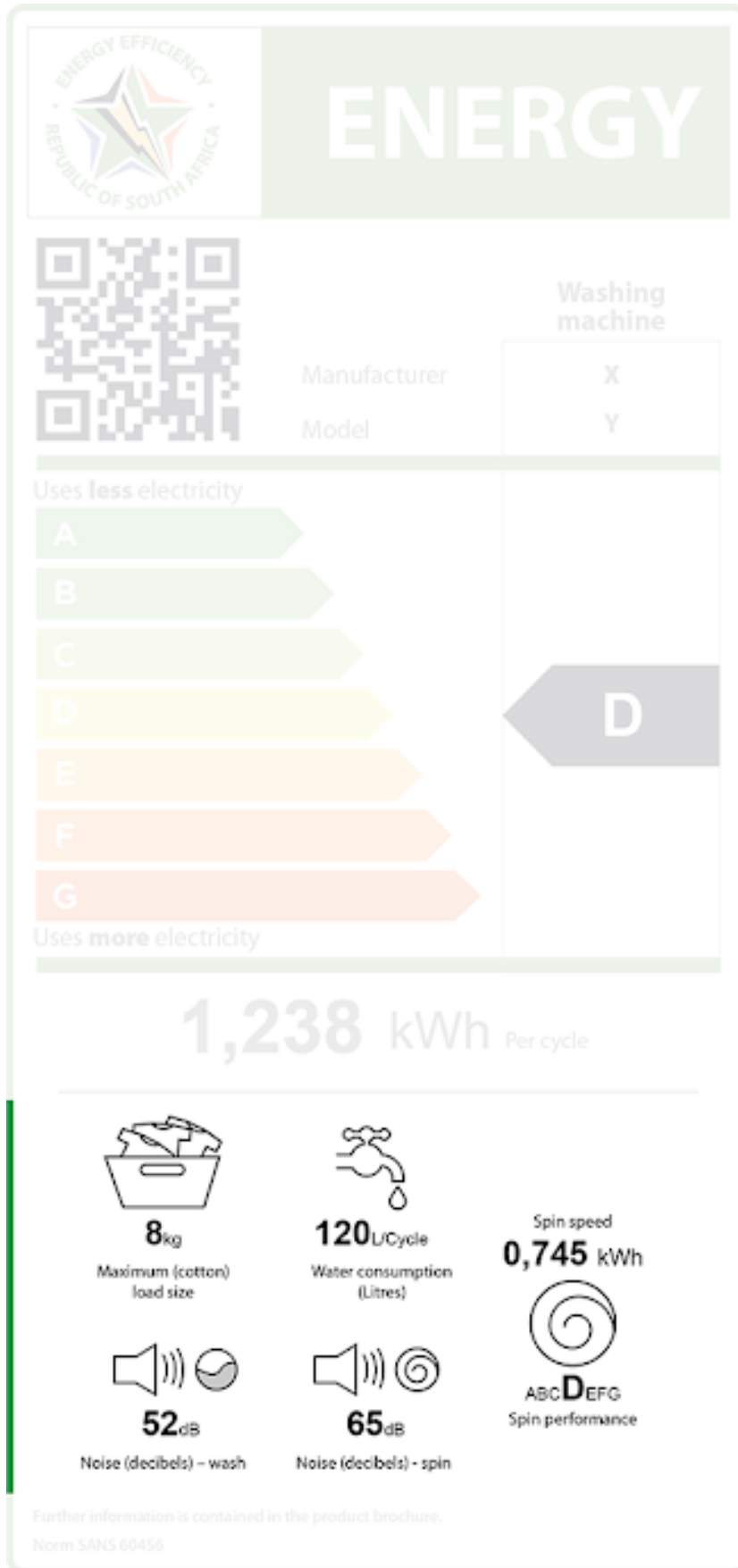
- Important
- Not important
- I don't understand the symbol

Image A

Image B



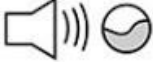
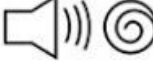


Image C

The symbols below tell you more information about a model of Washing Machine. *



Please mark this box to move to the next question

If you were to consider purchasing a Washing Machine, how important or not would each piece of information be to you? Or, do you not understand the symbol? *

(A)	(B)	(C)	(D)	(E)	(F)
 <p>8kg Maximum (cotton) load size</p>	 <p>120L/Cycle Water consumption (Litres)</p>	 <p>52dB Noise (decibels) – wash</p>	 <p>65dB Noise (decibels) - spin</p>	<p>Spin speed 0,745 kWh</p> 	 <p>ABCDEF Spin performance</p>

- Important
- Not important
- I don't understand the symbol

Image A

Image B

Image C

Image D

Image E

Image F

Have you ever made use of a QR code? *

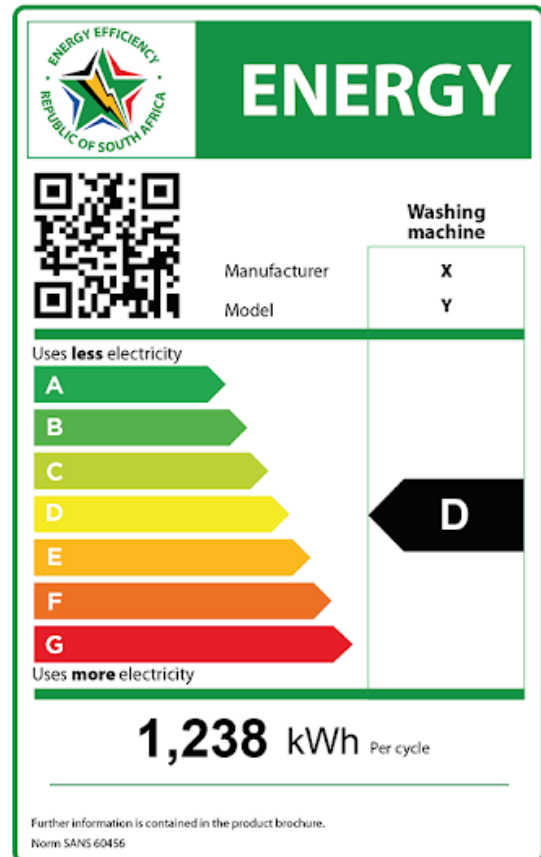
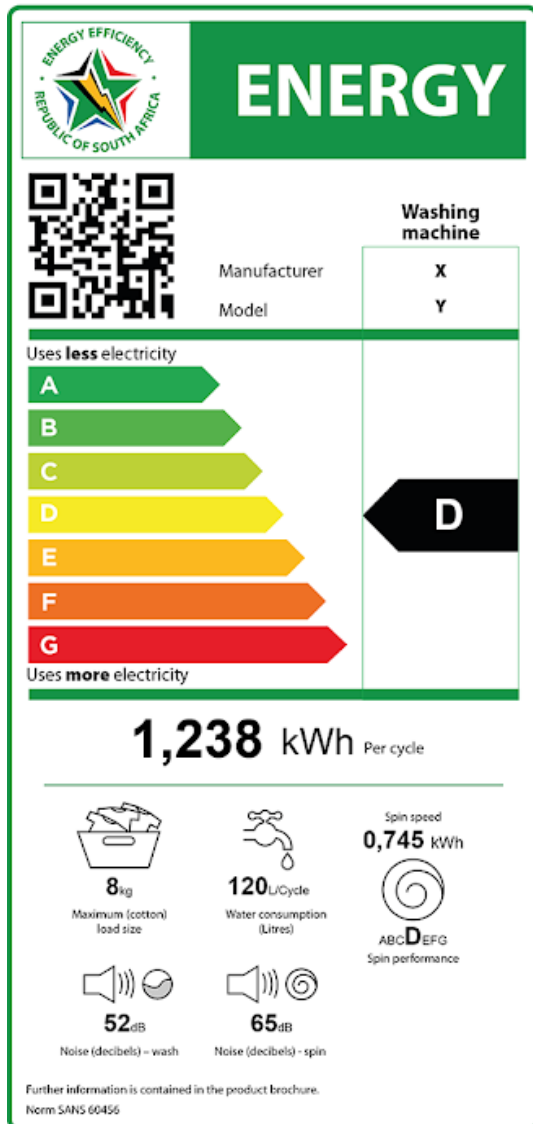
The image shows a detailed energy efficiency label for a washing machine. At the top left is the South African Energy Efficiency logo. The word "ENERGY" is prominently displayed in a large green box. A QR code is located on the left side. The label identifies the product as a "Washing machine" with manufacturer "X" and model "Y". A bar chart shows energy efficiency levels from A (green) to G (red), with the product's rating "D" highlighted in a grey arrow pointing to the right. The energy consumption is listed as 1,238 kWh per cycle. Below this, four icons represent: maximum cotton load size (8 kg), water consumption (120 L/cycle), spin speed (0,745 kWh), noise during wash (52 dB), and noise during spin (65 dB). A spin performance icon shows a rating of "D" among categories A through G. At the bottom, it states "Further information is contained in the product brochure, Norm SANS 60456".

- Yes
- No

The QR code will give you online access to all the additional information you have just evaluated. Knowing this, which label representing the SAME model of Washing Machine below is better in your opinion? *

(1) QR CODE & ADDITIONAL INFORMATION

(2) QR CODE ONLY



- QR code and additional information
- QR code only

QR codes gives you access to a lot of information with the convenience of having it all in one place. Which of the following would be useful to include when using the QR code? *

- List of applicable service centres, locations and contact details
- Guidelines on how to understand the energy efficiency of the make and model you want to purchase
- Guidelines on how to use the Energy Efficiency label
- Warranty

- Appliance energy calculator app to compare energy efficiency of various appliance models

If there is any other information you would like to be able to access through the QR code, please enter below.

Your answer

Please indicate your gender below. *

- Female
- Male
- Other
- Prefer not to say

Please indicate which group best describes the TOTAL MONTHLY HOUSEHOLD INCOME of all the people in your household. Include all sources of income, i.e., salaries, pensions, government grants, income from investments, etc. *

- Above R10 000 per month
- R3 000 - R9 999 per month
- R1 - R2 999 per month
- Would prefer not to say
- I don't know

What is your highest education qualification? *

- Up to some high school
- High school completed
- Some university
- University completed
- Other post matric qualifications
- Would prefer not to say

Province *

- Western Cape
- Eastern Cape
- Northern Cape
- Free State
- Gauteng
- Limpopo
- Mpumalanga
- Northwest
- Kwazulu-Natal
- Other:

Community *

- Metropolitan
- City
- Town
- Village
- Rural

Would you like to enter the draw for the prizes for completing your questionnaire?
Remember the prize is R1 000 each to 25 participants who have completed their questionnaire in full. *

- Yes
- No

If you are one of the lucky winners of R1000 we need to contact you to deliver your prize. Please CORRECTLY record your name, email address and cell phone number below. Your contact details will only be used to reach you if you win a prize.

Your answer

Please press SUBMIT below to close the questionnaire. If you have left out a question or not completed it fully, you will be taken back to that question. Once completing it, scroll back down to this point and press SUBMIT below to close. *

Please mark this box then press SUBMIT