Shifting Consumers to Efficient Lighting – South Africa’s Lighting Information Label

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EEDAL 2019 Jinan, China
Country Facts

Population: 55 million
GDP: $350 billion
GDP / capita $6,600 pa

Economy
Energy intensive – mining & associated industries plus some services

Installed capacity ~42GW (~30 GW available at any one time)

Source: Eskom 95% coal (Grid Emission Factor: ~1 kg of CO₂ / kWh)

Country Targets
To reduce its GHG emissions to 34% below its “business-as-usual” growth trajectory by 2020, and by 42% by 2025, subject to specified conditions

National EE Strategy: Voluntary national target of a 12% reduction in final energy demand by 2015

3.4 GW DSM by 2030 - IRP
Background

• Power shortages were first experienced regionally (2005).
• National blackouts occurred 2007/08, again in 2014/15 and 2019
• The country lives under the constant threat of outages
• Residential sector accounts for 17% BUT 35% of demand during peak periods
• Eskom Demand Side Management Report therefore prioritized households:
  • Lightings swap out: incandescent → CFL (100, 80, 60W replaced 20, 16, 11W)
  • Solar water heater incentive programme
  • Awareness campaign
Performance of CFL Swap out Programme

• By the end of the programme in 2015 70m CFL had been distributed
• 2005 to 2018 electricity savings of 4 521MW of which CFL contribution for these years was
  • 2016 69%;
  • 2017 66%;
  • 2018 95%.
Unintended Consequences

• National standards for CFL’s but not LED’s
• CFL’s symbolize EE – affecting shift to next generation technology LED
• With no free CFL’s, low income consumers buying incandescent
• To enter market, LED’s have lower technical specifications potentially affecting user experience
• S&L program has recognized the high risk of hard gained electricity reductions to inefficient lamps
  • Develop technology neutral technical specifications for GSL
  • Information Label
## Original (and International) Label

<table>
<thead>
<tr>
<th>Colour Temperature</th>
<th>Bulb Type</th>
<th>Least Efficient</th>
<th>Most Efficient</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incandescent</td>
<td>40w</td>
<td>3–6w</td>
</tr>
<tr>
<td></td>
<td>Halogen</td>
<td>28w</td>
<td>6–9w</td>
</tr>
<tr>
<td></td>
<td>CFL</td>
<td>9–12w</td>
<td>6–9w</td>
</tr>
<tr>
<td></td>
<td>LED</td>
<td>3–6w</td>
<td>10–15w</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LUMENS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,500+</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1,300+</td>
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<td>1,200+</td>
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<td>1,100+</td>
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<td>1,000+</td>
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<td>900+</td>
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<td>800+</td>
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<td>600+</td>
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<td>500+</td>
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<td></td>
</tr>
<tr>
<td>400+</td>
<td></td>
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</tr>
</tbody>
</table>

### Life Span

- **Incandescent**: Shortest life span
- **Halogen**: Longer life span
- **CFL**: Medium life span
- **LED**: Longest life span

### Annual Cost

- **Incandescent**: Most expensive
- **Halogen**: Medium cost
- **CFL**: Least expensive
- **LED**: Lowest cost
# Revised Label

<table>
<thead>
<tr>
<th>BULB TYPE</th>
<th>400+ LUMENS</th>
<th>700+ LUMENS</th>
<th>900+ LUMENS</th>
<th>1300+ LUMENS</th>
<th>LIFE SPAN</th>
<th>ANNUAL COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED</td>
<td>3-6w</td>
<td>6-9w</td>
<td>10-15w</td>
<td>16-20w</td>
<td>⚡️</td>
<td>⚡️</td>
</tr>
<tr>
<td>CFL</td>
<td>9-12w</td>
<td>12-15w</td>
<td>15-16w</td>
<td>18-23w</td>
<td>⚡️</td>
<td>⚡️</td>
</tr>
<tr>
<td>HALOGEN</td>
<td>28w</td>
<td>42-53w</td>
<td>53-57w</td>
<td>70w</td>
<td>⚡️</td>
<td>⚡️</td>
</tr>
<tr>
<td>INCANDESCENT</td>
<td>40w</td>
<td>60w</td>
<td>75w</td>
<td>100w</td>
<td>⚡️</td>
<td>⚡️</td>
</tr>
</tbody>
</table>

**Colour Temperature**

- 1,800K: Soft White
- 2,800K: Warm White
- 3,500K: Daylight White
- 4,800K: Cool White
- 5,800K: Ice Blue
- 6,500K: Blue Ice
- 7,500K: Clear Blue

**Lumens - Light Output**

- ⚡️: Most Efficient
- ⚡️: Efficient
- ⚡️: Standard
- ⚡️: Less Efficient
- ⚡️: Least Efficient
DO YOU NEED A NEW LIGHTBULB?

STEP 1  Know what fit you need

Bulb Fitting Guide

- Screw Cap
- Small Edison Screw
- Bayonet
- Small Bayonet

STEP 2  For brightness pick Lumens not Watts

Brightness of light is measured in lumens (lm)

- 400 Lumens
- 1300 Lumens

EXAMPLE: 1300 Lumens

In this example:

- Higher watts uses more electricity
- Lower watts uses less electricity

Same Brightness 1300 Lumens
STEP 3  You have new options!

STEP 4  Better quality lasts longer

STEP 5  Quality bulbs save money

Annual cost = Price of bulb + Electricity
STEP 6 Choose Green Bulbs!

Green = Less Power Used

STEP 7 Create your tone/mood

Warm White
Cool White

Soft toned mood, e.g., for bedroom
Clear toned mood, e.g., for kitchen

Measured in KELVINS
Overall responses to final infographic label

Responses to the infographic label were very positive, with the most finding the information useful, easy to understand and informative.

- Younger (16-34 years) and female respondents in particular, strongly acknowledged they learnt about light bulbs, lumens and wattage, encouraging trial of different light bulbs.

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**The information provided is very useful to me**
- Strongly agree: 65%
- Somewhat agree: 26%

**The information is easy to understand**
- Strongly agree: 60%
- Somewhat agree: 27%

**I learned something about lumens that I didn’t know before**
- Strongly agree: 52%
- Somewhat agree: 26%

**The diagram made me think I might try different light bulbs**
- Strongly agree: 46%
- Somewhat agree: 29%

**I learned something about light bulbs that I didn’t know before**
- Strongly agree: 45%
- Somewhat agree: 34%

**I learned something about wattage that I didn’t know before**
- Strongly agree: 39%
- Somewhat agree: 32%

**There is too much information in the diagram**
- Strongly agree: 13%
- Somewhat agree: 20%

**The information provided is too technical**
- Strongly agree: 7%
- Somewhat agree: 16%

Younger respondents particularly

Base: Respondents (n=254)

In answering this question, please indicate your immediate response to the poster above by indicating how much you agree or disagree with each statement. Try not to scroll back to the information a second time. You will be given an opportunity to provide more detailed answers to each step in the next few questions.