Agenda

1. Introduce product policy
2. Introduce Ecodesign and Energy Labelling Directives
3. Explain four lighting Regulations
4. Explain planned consolidation into one Regulation
Expected outcomes

• Better understanding of:
  – Product policy, specifically Ecodesign and Energy Labelling Directives
  – **Existing** regulatory landscape related to lighting
  – **Future** regulatory landscape related to lighting
Introduction to product policy

- Remove the worst performing products
- Promote sales of the best performing products
- Mandatory or voluntary measures
  - Standards
  - Labelling
- Voluntary measures to be discussed on Day 2
Ecodesign Framework Directive
(2009/125/EC)

- Mandatory
- Applies at product design stage
- Affects manufacturers/ importers
- Removes inefficient products
Energy Labelling Directive (2010/30/EU)

Source: EC, 2015
The combined effect of energy labelling and ecodesign

Source: EC, 2015
Why is Ecodesign valuable?

- Forces change
- Potential to cover any environmental impact
- Encourage innovation
- Large energy savings
- Reduce energy bills

http://ec.europa.eu/energy/en/topics/energy-efficiency/energy-efficient-products
Major energy savings due to Energy Labelling and Ecodesign

- Will save >1,900 TWh primary energy per year by 2020
- Responsible for half of EU’s 20% energy efficiency target
- Reduce 23% natural gas imports to EU
- Reduce 37% of coal imports to EU
- €100 Billion per year saved by 2020

Source: EC, 2015
What products are in scope?

- Energy using products
- Energy related products
- >200K unit sales in EU per year
- Large environmental impact
- Large saving potential
- Low cost of savings
## Existing Ecodesign Regulations

<table>
<thead>
<tr>
<th>IMPLEMENTING REGULATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household refrigerating appliances</td>
</tr>
<tr>
<td>Household dishwashers</td>
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<tr>
<td>Household tumble driers</td>
</tr>
<tr>
<td>Household washing machines</td>
</tr>
<tr>
<td>Air conditioners and comfort fans</td>
</tr>
<tr>
<td>Domestic cooking appliances</td>
</tr>
<tr>
<td>Personal computers and servers</td>
</tr>
<tr>
<td>External power supplies</td>
</tr>
<tr>
<td><strong>Non-directional household lamps</strong></td>
</tr>
<tr>
<td><strong>Directional lighting and LED</strong></td>
</tr>
<tr>
<td>Televisions</td>
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<tr>
<td>Simple set-top boxes</td>
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<tr>
<td>Vacuum cleaners</td>
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<tr>
<td>Local space heaters</td>
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<tr>
<td>Space and combination heaters</td>
</tr>
<tr>
<td>Water heaters</td>
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<tr>
<td>Professional refrigerating and freezing equipment</td>
</tr>
<tr>
<td>Electric motors</td>
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<tr>
<td>Fans driven by motors</td>
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<tr>
<td>Circulators</td>
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<tr>
<td><strong>Lighting products in the tertiary sector</strong></td>
</tr>
<tr>
<td>Solid fuel boilers</td>
</tr>
<tr>
<td>Standby and off mode electric power consumption of household and office equipment</td>
</tr>
<tr>
<td>Networked standby losses of energy using products</td>
</tr>
<tr>
<td>Ventilation units</td>
</tr>
<tr>
<td>Water pumps</td>
</tr>
<tr>
<td>Distribution and power transformers</td>
</tr>
</tbody>
</table>
How is Ecodesign implemented?

Step 1: Ecodesign Working Plan
Step 2: Contract Preparatory studies (tender)
Step 3: Preparatory study
Step 4: Consultation Forum + WD
Step 5: Impact assessment + draft IM
Step 6: Cabinet approval for ISC and ISC
Step 7: WTO notification
Step 8*: Regulatory Committee + final draft IM
Step 9*: Scrutiny by EP and Council
Step 10*: Adoption by EC
Step 11: Publication in OJ

Source: Speeding up adoption of Ecodesign and Energy Label Measures, ECEEE 2013 (Hans-Paul Siderius)
Impact of EU energy labelling legislation world-wide

Countries with energy labels and degree of alignment with the EU label. Source: EC / Ecofys, 2014.
Impact of EU ecodesign legislation worldwide

Countries with MEPS and degree of alignment with the EU.
Ecodesign Lighting Regulations

Regulation (EC) No 244/2009 – Non directional household lamps

Regulation (EU) No 1194/2012 – Directional lamps, LED lamps and related equipment

Regulation (EC) No 245/2009 – Fluorescent lamps without integrated ballast, HID lamps, and related ballasts and luminaires

Regulation (EU) No 874/2012 – Energy labelling of electrical lamps and luminaires


Energy Labelling Directive (2010/30/EU)

Domestic

Domestic

Tertiary

Domestic
## Regulation (EC) No 244/2009 – Non directional household lamps

<table>
<thead>
<tr>
<th>Stage</th>
<th>Implementation date</th>
<th>Minimum efficiency class (i.e. anything lower to be removed)</th>
<th>Product removed</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2009</td>
<td>Clear ≥ 100W lamps – ‘C’ class</td>
<td>100W GLS bulbs</td>
</tr>
<tr>
<td>2</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2010</td>
<td>Clear ≥ 75W lamps – ‘C’ class</td>
<td>75W GLS bulbs</td>
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<tr>
<td>3</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2011</td>
<td>Clear ≥ 60W lamps – ‘C’ class</td>
<td>60W GLS bulbs</td>
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<tr>
<td>4</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2012</td>
<td>Clear &lt; 60W lamps – ‘C’ class</td>
<td>&lt; 60W GLS bulbs</td>
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<tr>
<td>5</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2013</td>
<td>Second level functionality requirements</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Sept 2018</td>
<td>B class Halogens* (special cap Halogens C class)</td>
<td>Halogen C* class bulbs</td>
</tr>
</tbody>
</table>

*Note: Non-clear (frosted lamps) must be ‘A’ class in tiers 1-4 for the various wattages.*
Non-directional lighting technology

Incandescents reduced, but still persist

and halogens dominate

because anticipated switch to CFLs did not happen

But LEDs made an earlier entry than expected

2009 fore-cast

2013 reality
Regulation (EC) No 245/2009 – Fluorescent lamps without integrated ballast, HID lamps, and related ballasts and luminaires

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<tr>
<td>1</td>
<td>13(^{th}) April 2010</td>
<td>Various levels by technology &amp; wattage</td>
<td>Halophosphate Fluorescent Lamps: T8 linear; U shaped; T9 circular; T4 linear lamps</td>
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<tr>
<td>2</td>
<td>13(^{th}) April 2012</td>
<td>Various levels by technology &amp; wattage</td>
<td>Halophosphate Fluorescent Lamps: T10; T12 High Pressure Sodium Metal Halide Lamps</td>
</tr>
<tr>
<td>3</td>
<td>13(^{th}) April 2017</td>
<td>Various levels by technology &amp; wattage</td>
<td>Low performing Metal halide lamps CFLs with 2 pin caps and integral starter switch</td>
</tr>
</tbody>
</table>
Regulation (EC) No 1194/2012 – Directional and light emitting diode lamps and related equipment

<table>
<thead>
<tr>
<th>Stage</th>
<th>Implementation date</th>
<th>Minimum efficiency class (i.e. anything lower to be removed)</th>
<th>Products removed</th>
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<tbody>
<tr>
<td>1</td>
<td>1\textsuperscript{st} September 2013</td>
<td>Various EEI requirements by technology and luminous flux</td>
<td>Tungsten reflectors (GLS), inefficient MV and LV halogens</td>
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<td>1\textsuperscript{st} September 2014</td>
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<td>1\textsuperscript{st} September 2016</td>
<td>Various EEI requirements by technology and luminous flux</td>
<td>CFL reflectors, low efficiency compact metal halide</td>
</tr>
</tbody>
</table>
EC proposal to consolidate Lighting Regulations

- Current proposals are technology neutral
- Reduced functionality requirements
- Product information to be simplified
- Verification procedures to be simplified
- Energy label likely to move to A-G rating alongside a set of ‘application rules’
Proposed scope

• Lighting Products...
  – Mains voltage lamps
  – Luminaires sold with light sources

• Lighting Product Components...
  – Non-mains voltage lamps (e.g., HID, fluorescent tubes, 12V spots)
  – Lighting Transformers
Proposed Minimum Performance Standards

<table>
<thead>
<tr>
<th>Stage</th>
<th>Minimum standard</th>
<th>Implementation date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60 lm/W</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; September 2018</td>
</tr>
<tr>
<td>2</td>
<td>80 lm/W</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; September 2020</td>
</tr>
<tr>
<td>3</td>
<td>120 lm/W</td>
<td>1&lt;sup&gt;st&lt;/sup&gt; September 2024</td>
</tr>
</tbody>
</table>
Proposed Functionality requirements

- Warm-up time ($t_{wu}$)
- Colour rendering (CRI)
- Power factor (PF)
- Colour consistency
- Lumen deterioration ($\Phi_{det}$)
- Failure rate (Fr)
- Flicker ($I_F$)
Key Issues

Stakeholders may argue the following:

- Ambition levels
- Implementation schedule
Ecodesign Efficacy requirements

- Curved shape – with scope of coverage starts at 60 lm.

- Note that the popular 800 lm lamp (60W) equivalent is:
  - Tier 1: 52 lm/W
  - Tier 2: 67 lm/W
  - Tier 3: 92 lm/W

Source: CLASP, 2015
Ecodesign Efficacy requirements

CFLs are pretty much phased out in 2020.

Source: CLASP, 2015
Ecodesign Efficacy requirements

- Curve flattens out at higher flux

Linear Fluorescent – T5, T8, T12 are not phased out until 2024

Source: CLASP, 2015
Ecodesign Efficacy requirements

- LED linear tubes are black dots – basically beyond Stage 3 already
- LED street lights are purple circles – nearly all are beyond Stage 2 already

Source: CLASP, 2015
Ecodesign Schedule

Article 3
Ecodesign requirements

1. No lighting product or lighting product component shall be placed on the Union's market, which is designed in a way to alter its performance during a verification process with the objective to improve its energy efficiency or functionality.

2. The products in scope of this Regulation shall meet the ecodesign requirements set out in Annex II of this Regulation.

Each ecodesign requirement shall apply in accordance with the following stages:

Stage 1: 1 September 2018;
Stage 2: 1 September 2020; and
Stage 3: 1 September 2024.

Unless a requirement is superseded or it is otherwise specified, it shall continue to apply together with the other requirements introduced at later stages.

Article 8
Review

The Commission shall review this Regulation no later than 1 September 2025 and shall present the results to the Ecodesign Consultation Forum.
Thank you for listening
Any questions?

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Visit web portal: www.inogate.org