SYMPOSIUM ON SUSTAINABLE PROCUREMENT

SPP practices – consistency with the principle of "best value for money": national perspectives/experiences

Geneve 22-02-2017
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1. Lighting illumination: HPS versus LED
2. Printing technologies: Laser versus Ink jet
3. Food services: organic versus conventional
Street lighting – Definition

- **Street lighting**: fixed lighting installation intended to provide good visibility to users of outdoor public traffic areas during the hours of darkness to support traffic safety, traffic flow and public security.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>LPS</td>
<td>Low Pressure Sodium</td>
<td>6%</td>
</tr>
<tr>
<td>HPS</td>
<td>High Pressure Sodium</td>
<td>53%</td>
</tr>
<tr>
<td>HPM</td>
<td>High Pressure Mercury</td>
<td>23%</td>
</tr>
<tr>
<td>FL</td>
<td>Fluorescent Light</td>
<td>6%</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
<td>4%</td>
</tr>
<tr>
<td>MH</td>
<td>Metal Halide</td>
<td>8%</td>
</tr>
</tbody>
</table>
Street lighting – Which is the best solution?

**HPS**

**LED**

TECHNOLOGY NEUTRALITY
Street lighting – Which is the best solution?

Technical parameters on **luminaires**

- **Service life**: 60,000 – 80,000 hours
- **Luminaire Efficiency**: 105 – 120 lm/W
Street lighting – Which is the best solution?

Technical parameters on whole service

- **IPEA**: ratio between the whole efficiency of the luminaire and the reference efficiency

- **IPEI**: ratio between the power density of the installation and the reference power density

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**HPS**

10-20%

**LED**

80-90%
Printing systems—Which is the best solution?

TECHNOLOGY NEUTRALITY
**Award green criterion – Quality /Price Ratio –**

*Indoor emissions, hazardous substances to health*

<table>
<thead>
<tr>
<th>(All Values in mg/h, Except for Particle Emissions)</th>
<th>Monochrome Printing</th>
<th>Colour Printing</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-operating Phase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TVOC*</td>
<td>1 (Desktop Devices)</td>
<td>1 (Desktop Devices)</td>
</tr>
<tr>
<td></td>
<td>2 (Floor-mounted Devices, Device Volume &gt;250 l)</td>
<td>2 (Floor-mounted Devices, Device Volume &gt;250 l)</td>
</tr>
<tr>
<td><strong>Print Phase (= Pre-operating + Print Phase)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TVOC*</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>Benzene</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
</tr>
<tr>
<td>Styrene</td>
<td>1.0</td>
<td>1.8</td>
</tr>
<tr>
<td>Unidentified Single Substances VOC</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Ozone</td>
<td>1.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Dust</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>Print Phase</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PEP&lt;sub&gt;10&lt;/sub&gt; [Particles/10 min]</td>
<td>3.5 \times 10&lt;sup&gt;11&lt;/sup&gt;</td>
<td>3.5 \times 10&lt;sup&gt;11&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

* Please see the list of volatile organic compounds which must be considered when measuring emissions from office equipment with printing function (please see Appendix S-M, para. 4.5 VOCs).
Consumables

Original cartridges

**Yield:**
- Toner: ISO/IEC 19752

Remanufactured cartridges

**Quality:**
- Toner: DIN 33870-1; DIN 33870-2; DIN Technical report No. 155:2007-09; ASTM F: 2036
- Cartridges: DIN 33871-1 DIN 33871-2
Could we use LCC instead of Price/Quality ratio?

Yes, if we were able to transform in Euro health damages related to hazardous substances.
The primary production of food stands for the major environmental impact (Baldwin et al., 2011; Calderón et al., 2010)

The food service costs are:
- Food procurement costs: 30%
- Labour costs: 60%
- Other costs (Utilities, Financial, Insurance;…): 10%

Around one third of deaths from cancer are due to behavioral and dietary risks, for example unhealthy diet with low fruit and vegetable intake (WHO 2017)

Many pesticides have been linked to causing cancer and having endocrine disruptor activity and the two most commonly applied herbicides in the US are suspected endocrine disruptors (Horrigan et al 2002).

*source: JRC 2017, GreenSeal
Food Services – Focus on environmental impact

About 30% of the global greenhouse gases

70% of river and stream pollution is caused by agriculture from chemicals, silt, and animal waste

The energy use in kitchen operations has an impact on fossil fuels, carcinogens and eco-toxicity

Landfilling of organic waste is responsible for large GHG emissions and the non-organic waste for other environmental impacts (e.g., leaching...)

Food waste accounts between 4 and 10% of their food procurement.

Menu planning: Meat production accounts for almost one fifth of the world's total GHG emissions.

The substitution with chicken or pig products could conflict with the criterion on animal welfare

School catering service: (24–28% of the total CF)

*source: JRC 2017, GreenSeal
Preliminary Analysis to define a green criterion

Production phase
As Priority

Use phase

GPA

Health

Waste

Transport
Proposal of award green criterion- Quality/Price Ratio -

More costs
(Reducing meat and animal proteins according to OMS recommendation can lead to lower organic meal cost)
Health, Environmental goals achieved

Less costs
(Quality refers to more controlled supply chain in terms of production, storage and transport conditions, transport lower costs, biodiversity protection and bigger variety of agricultural products offered, seasonal products, ...)
Health, Environmental goals achieved

*Protected Designation of Origin, Protected Geographical indication
Could we use LCC instead of Price/Quality ratio?

<table>
<thead>
<tr>
<th>Newly proposed GPP criteria</th>
<th>% difference applying criteria vs standard</th>
<th>Estimated significance at LCC level</th>
<th>% difference at catering level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic food products</td>
<td>+ 2% to +200%</td>
<td>61% of the food procurement</td>
<td>+ 0.4% to +40%</td>
</tr>
<tr>
<td>Integrated production</td>
<td></td>
<td>15% of the food procurement</td>
<td>+ 0.2% to +0.9%</td>
</tr>
<tr>
<td>Marine and aquaculture food products</td>
<td>+5% to +20%</td>
<td>22% of the food procurement</td>
<td>+ 1.0% to +3.6%</td>
</tr>
<tr>
<td>Animal welfare</td>
<td>+15% to + 50%</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Fairly traded products</td>
<td>+2% to +120%</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>Promotion of vegetarian menus</td>
<td>0 to -10%</td>
<td>--</td>
<td>+ 0% to – 1.3%</td>
</tr>
<tr>
<td>Avoidable food waste</td>
<td></td>
<td>1.1% of the overall catering cost due to utilities</td>
<td>Approx.. - 5.9%</td>
</tr>
<tr>
<td>Energy and water consumption in the kitchen</td>
<td>- 42% replacing combi</td>
<td>5.5% of the overall catering cost due to amortizations</td>
<td>- 0.01% better equipment*</td>
</tr>
<tr>
<td></td>
<td>-19% efficient ovens</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 25% efficient refriger.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Exemple of LCC (JRC 2017)

Yes, if we were able to transform in Euro health damages and environmental damages related to food chain.
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