Enhancements to MEPS and MELS with effect from 1 November 2019

1) Minimum Energy Performance Standards (MEPS) for incandescent bulbs will be raised to 2-ticks

<table>
<thead>
<tr>
<th>Product</th>
<th>Wattage (W)</th>
<th>Current MEPS</th>
<th>Revised MEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incandescent Bulb*</td>
<td>25 - 200</td>
<td>$P_{\text{max}} = 0.8 \times (0.88 \sqrt{\phi} + 0.049\phi)$</td>
<td>$P_{\text{max}} = 0.24\sqrt{\phi} + 0.0103\phi$</td>
</tr>
</tbody>
</table>

*With Edison screw and bayonet lamp caps, which are designed to be connected directly to the 230V A.C. mains by means of a socket or connector

$P_{\text{max}}$ is maximum allowable power consumption

$\phi$ is light output in lumen

2) MEPS will be introduced for fluorescent lamp ballasts

<table>
<thead>
<tr>
<th>Product</th>
<th>MEPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fluorescent Lamp Ballast</td>
<td>Energy Efficiency Index (EEI) B1</td>
</tr>
</tbody>
</table>

This will only apply to ballasts used in conjunction with general purpose lamps. Refer to Annex A for a list of excluded ballasts.

Suppliers of regulated ballasts are required to register their companies and their products with NEA and produce test reports to demonstrate compliance. More information on the registration and testing requirements are provided in Annex B.

3) Mandatory Energy Labelling Scheme (MELS) will be introduced for the following:

a) Compact Fluorescent Lamps without integrated ballasts (CFLni) with G24d lamp caps;

b) Linear Fluorescent Lamps (LFL) with diameter of 26mm (T8) and length 0.5m – 1.5m, and

c) the LED direct replacements\(^1\) of (a) and (b).

Refer to Annex A for a list of excluded lamps.

\(^1\) For LED direct replacements of T8 LFL, it refers to double-capped LED lamps that are within the scope of the IEC 62776 safety standard. These T8 LED lamps are designed as direct replacement and do not require any internal modification of the original T8 LFL luminaire.
Enhancements to MEPS and MELS with effect from 1 November 2019

Regulated CFLni and T8 LFL, and their LED direct replacements must meet the following lamp survival and lumen maintenance requirements before they can be registered for supply in Singapore.

<table>
<thead>
<tr>
<th>Lamp Types</th>
<th>CFLni [Lamp cap: G24d]</th>
<th>LFL [Dia. 1-inch (T8 lamp)] 0.5 – 1.5m</th>
<th>LED direct replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lamp survival</td>
<td></td>
<td>90% at 2,000h</td>
<td>95% at 1,000h (Measured)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>90% at 6,000h (Declared)</td>
</tr>
<tr>
<td>Lumen maintenance</td>
<td></td>
<td>80% at 2,000h</td>
<td>85% at 1,000h (Measured)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80% at 6,000h (Declared)</td>
</tr>
</tbody>
</table>

The energy label and proposed rating system are shown below.

**Tick Rating System**

<table>
<thead>
<tr>
<th>Rating</th>
<th>Rated Lamp Efficacy, $\eta = \phi/P$ (lm/W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-tick</td>
<td>$\eta \geq 135$</td>
</tr>
<tr>
<td>2-tick</td>
<td>$110 \leq \eta &lt; 135$</td>
</tr>
<tr>
<td>1-tick</td>
<td>$\eta &lt; 110$</td>
</tr>
</tbody>
</table>

where $P$ is the rated lamp power  
$\phi$ is the rated luminous flux in lumen

The regulated products must be affixed with an energy label on the lamp packaging before they can be supplied in Singapore. For LFL, alternative means of displaying the energy labels are acceptable (e.g. in the form of list/chart showing multiple lamp models and their corresponding energy labels, on shelf price tag) as long as the energy label is displayed at prominent locations near the applicable lamps at the retail stores.

Suppliers of regulated CFLni and T8 LFL, and their LED direct replacements are required to register their companies and the regulated products with NEA. More information on the registration and testing requirements are provided in Annex B.
Enhancements to MEPS and MELS with effect from 1 November 2019

**IMPORTANT NOTE:** Lighting suppliers which are affected by the enhancements of MEPS and MELS for the regulated products mentioned in S/N 1 to S/N 3 will be given a 1-year grace period from November 2019 to October 2020 to:

- a) Clear existing stocks of incandescent bulbs imported before 1 November 2019 that do not meet the revised MEPS of 2-tick;
- b) Clear existing stocks of fluorescent lamp ballasts imported before 1 November 2019 that do not meet MEPS of EEI Class B1; and
- c) Register and label existing stocks of CFLni with G24d lamp caps and T8 LFL, and their LED direct replacements under MELS.

4) **Energy labels shall be displayed in all print and digital materials**, such as brochures, advertisements and online purchasing platforms, used by the retailers and suppliers to promote regulated appliances. This is in addition to the current MELS requirement that requires suppliers to affix energy labels on regulated appliances.

If the energy label cannot be seen clearly in the print and digital materials, the tick rating shall be shown in text as prominently as the main text. Examples of how the energy label or tick rating can be displayed is shown below:

![Example of how an energy label can be displayed next to a promoted product](image1)

Model A
Storage capacity: 123L

Example of how the tick rating can be displayed next to a promoted product

![Example of how the tick rating can be displayed next to a promoted product](image2)

Model A
Storage capacity: 123L
Energy Rating: 3 ticks
Enhancements to MEPS and MELS with effect from 1 November 2019

Annex A

Excluded Ballasts

The following fluorescent lamp ballasts will **not** be covered under MEPS.

Ballast –

a) integrated as an irreplaceable part of a luminaire,
b) used primarily in D.C. circuits,
c) for use as reference ballast in laboratories for lighting measurement techniques, and
d) intended for use in emergency lighting luminaires, and designed to operate the lamps in emergency conditions

Excluded Lamps

The following lamps will **not** be covered under MELS

Lamp –

a) having at least 80% light output within a solid angle of π steradian (corresponding to a 120° angle cone);
b) having a luminous flux of below 130 lumens;
c) that is designed to be used only
   - to emit light as an agent in a chemical or biological process;
   - for image capture and image projection;
   - to provide heating; or
   - in signalling devices;
d) (coloured lamps) with chromaticity coordinates within the range of
   - \( x < 0.270 \) or \( x > 0.530 \) and
   - \( y < -2.3172x^2 + 2.3653x - 0.2199 \) or \( y > -2.3172x^2 + 2.3653x - 0.1595 \);
e) that has a spectral distribution that is adjusted to the specific needs of technical equipment;
f) that is designed to protect a subject lit by the lamp from the negative effects of the light emitted by the lamp;
g) that is designed to withstand rough use, extreme vibration, or temperature below -20°C or above 50°C; or
h) that is incorporated in a product the primary purpose of which is not to emit light.
Enhancements to MEPS and MELS with effect from 1 November 2019

Annex B

Registration
Importers and manufacturers of regulated products that are covered under these requirements must register themselves and their products with NEA.

Please refer to the following links for more information on the registration process:
a) Registration of suppliers
b) Registration of products

Note: The registration portal for lamp ballasts, CFLni, LFL and the LED direct replacements will open from 4Q2019.

Lamp models of the same make\(^2\), same rated wattage and rated luminous flux that are declared/rated the same efficacy by a manufacturer can be registered in the same application. For such models, test is required to be done for only one model in the group. As a difference in CCT can sometimes result in variation of efficacies between these models, test shall be conducted on the least efficient model.

Registration Fees
Supplier registration: No Charge
New product registration: $38 per family of model
Product renewal: $20 per family of model

Each product registration is valid for 3 years.

Test Standards

<table>
<thead>
<tr>
<th>Products</th>
<th>CFLni [Lamp cap: G24d]</th>
<th>LFL [Dia. 1-inch (T8 lamp)] 0.5 – 1.5m</th>
<th>LED direct replacement</th>
<th>Ballast</th>
</tr>
</thead>
</table>

* Only relevant clauses of IEC 62612 apply.

\(^2\) “Same make” refers to same design characteristics, common features of materials, components, and/or method of processing, and only vary in terms of CCT, lamp caps etc.
Enhancements to MEPS and MELS with effect from 1 November 2019

Test reports from the following laboratories are acceptable:

a) Manufacturers’ in-house test laboratories;

b) Test laboratories that have been accredited by the Singapore Accreditation Council (SAC) to carry out the test in accordance with the applicable test standards; or

c) Overseas test laboratories that have been accredited by their local accreditation bodies and have signed a Mutual Recognition Arrangement with SAC to carry out the test in accordance with the applicable test standards.