

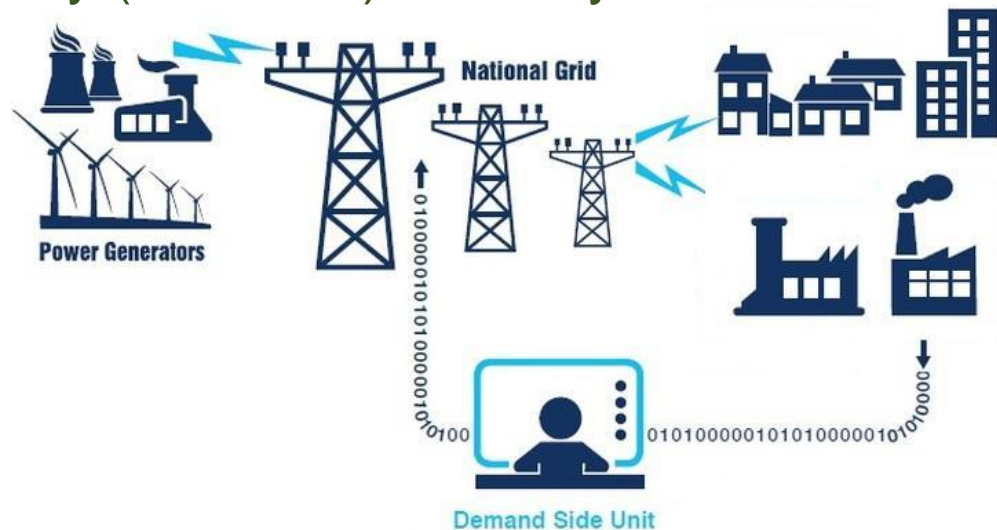
Implementation and Enforcement of Minimum Energy Performance Standards (MEPS) in Malaysia

Zulkiflee Umar

*Demand Side Management,
Energy Commission Malaysia*

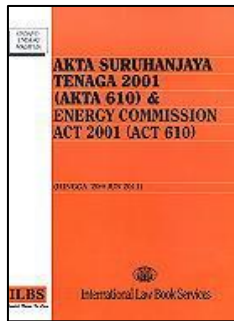
Introduction

- Demand Side Management Unit is one of the unit in Energy Management & Industry Development Department.
- The Unit was establish to promote and regulate energy efficiency (electrical) in Malaysia.

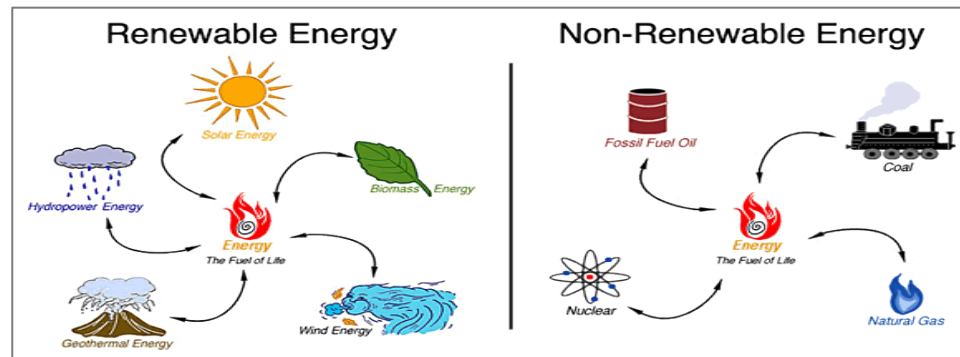


Energy Commission Act 2001

- To promote efficiency, economy and safety in the generation, production, transmission, distribution supply and use of electricity

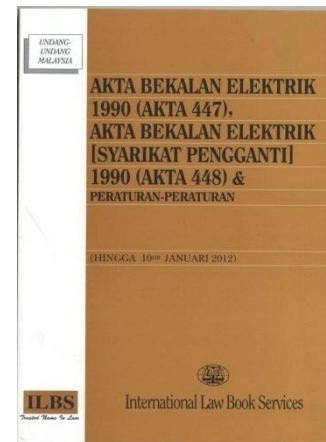
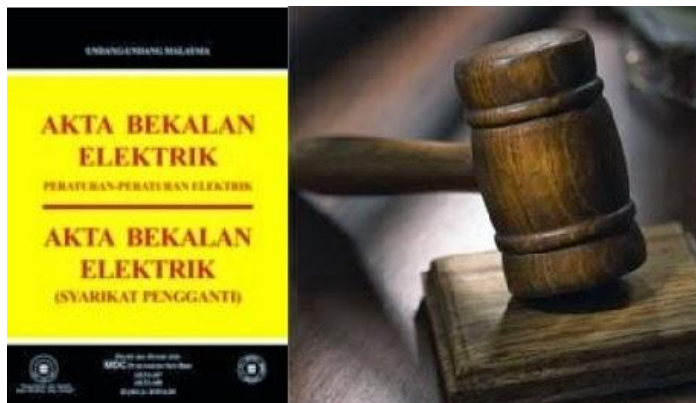


- To promote the use of renewable energy and the conservation of non-renewable energy



Electricity supply act 1990

- To promote the efficient use of electricity
- To determine the standards, specifications, practices and measures for the efficient use of electricity.
- Installation and equipment to meet requirements in respect of the efficient use of electricity.



Electricity supply act 1990

- Part V_A - Efficient use of electricity.
 - Section 23A – Minister to determine standards, etc.
- “The Minister may, from time to time, prescribe the standards specifications, practices and measures to be adopted and any other matters in respect of the efficient use of electricity.”

Electricity supply act 1990

- Part V_A - Efficient use of electricity.
 - Section 23B – Installation to meet requirements.
- “No person shall use or operate any installation unless the installation meets such requirements as may be prescribed in respect of efficient use of electricity.”

Electricity supply act 1990

- Part V_A - Efficient use of electricity.
 - Section 23C – Equipment to meet requirements
- “No person shall manufacture, import, sell or offer for sale or lease any equipment unless the equipment meets such requirements as may be prescribed in respect of efficient use of electricity.”

Minimum Energy Performance Standards



Minimum Energy Performance Standards

- Before MEPS, a Voluntary Energy Efficient Appliances and Equipment standards and labeling programme for Energy Efficient Appliances and Equipment was conducted from 2009 to 2012.
- The Voluntary Energy Efficiency Rating and Labeling programme was for the following appliances and equipment:
 - Domestic Refrigerators
 - Domestic Fans
 - Television
 - Air Conditioners (Single Split Wall Mounted Type)
 - Lamps
 - Ballast for Fluorescent Lamps
 - Insulation Materials
 - High Efficiency Motors
- A total of of 5016 appliances and equipment registered.

Minimum Energy Performance Standards

- Incentives that supports the Voluntary Energy Efficiency Rating and Labeling programme are:
 - Sustainability Achieved Via Energy Efficiency (SAVE) Programme.
 - Sales Tax and Import Duty Exemption.

Minimum Energy Performance Standards

- MEPS are incorporated in the amendments of the Electricity Regulations 1994 and has been gazetted by the Minister of Energy, Green Technology and Water Malaysia on the 3rd May 2013.
- Implementation and Enforcement of Minimum Energy Performance Standards (MEPS) for 5 Domestic Electrical Products (Air Conditioner, Refrigerator, Television, Domestic Fan and Lighting).
- Beginning 3rd May 2015, the above 5 appliances will have to adhere to the MEPS requirement for it to be sell in the Malaysian market.

Minimum Energy Performance Standards

- With the regulations in place, the 5 domestic appliances will be issued with a Certificate of Approval (COA) by the Energy Commission Malaysia.
- In order to be issued with a COA, the 5 domestic appliances must satisfy both the safety and performance requirements.
- Foreign test reports are accepted as long as the test laboratory is recognized by Department of Standards Malaysia (a member of ILAC and APLAC)

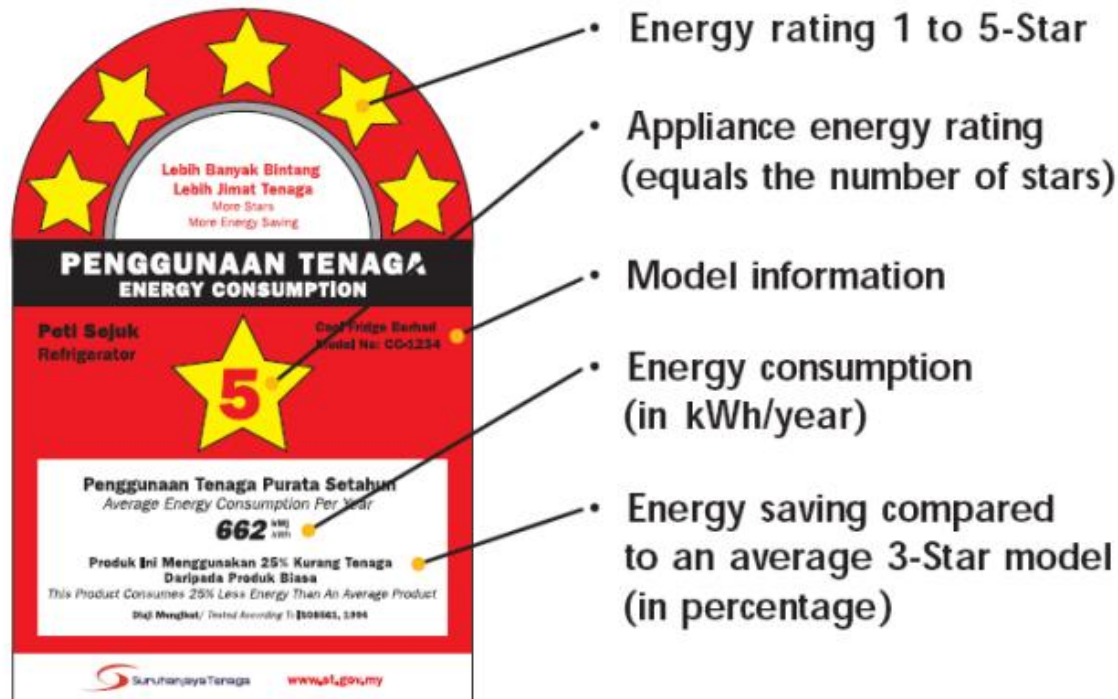
Energy Rating Label

- The 5 domestic appliances must be affixed with an Energy Rating Label apart from the safety label. The label will be printed by the manufacturer or importer themselves after receiving the approval by the Energy Commission.



Energy Rating Label

- Improving the energy efficiency electrical equipment through Product Energy Efficiency Rating & Labeling.





"FOURTH SCHEDULE

(Subregulation 101A (1))

ELECTRICITY SUPPLY ACT 1990



ENERGY PERFORMANCE TESTING STANDARDS, MINIMUM ENERGY
PERFORMANCE STANDARDS AND EFFICIENCY RATINGS FOR THE PURPOSE OF
EFFICIENT USE OF ELECTRICITY





| Equipment | Type of Equipment | Energy Performance Testing Standards | Minimum Energy Perf ormance Standards (MEPS) | Efficiency Ratings | | | | | | | | | | | | |
|--------------|-------------------------------------|---|--|---|-------------|------------------|---|-------------------|---|------------------------|---|-------------------------|---|--------------------------|---|--------------------------|
| Refrigerator | (a) one -door (b) two -doors | MS IEC 62552:2011 (Household refrigerating appliances - Characteristic and test methods) | MEPS’s value = 2 Star | <table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>+25% = Star Index</td></tr><tr><td>4</td><td>+10% = Star Inde <+25%</td></tr><tr><td>3</td><td>-10% = Star Index <+10%</td></tr><tr><td>2</td><td>-25% = Star Index < -10%</td></tr><tr><td>1</td><td>-35% = Star Index < -25%</td></tr></table> | Star Rating | Star Index Value | 5 | +25% = Star Index | 4 | +10% = Star Inde <+25% | 3 | -10% = Star Index <+10% | 2 | -25% = Star Index < -10% | 1 | -35% = Star Index < -25% |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | |
| 5 | +25% = Star Index | | | | | | | | | | | | | | | |
| 4 | +10% = Star Inde <+25% | | | | | | | | | | | | | | | |
| 3 | -10% = Star Index <+10% | | | | | | | | | | | | | | | |
| 2 | -25% = Star Index < -10% | | | | | | | | | | | | | | | |
| 1 | -35% = Star Index < -25% | | | | | | | | | | | | | | | |



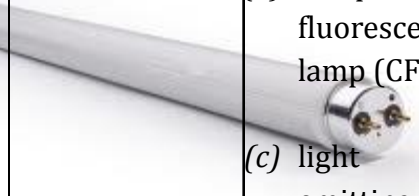

| Equipment | Type of Equipment | Energy Performance Testing Standards | Minimum Energy Performance Standards (MEPS) | Efficiency Ratings | | | | | | | | | | | | | | | | | | | | | | | | |
|-----------------|---|--|---|--|-------------|------------------|---|--------|---|---------------|---|---------------|---|--------------|---|-------------|-------------|------------------|---|--------|---|--------------|---|-------------|---|-------------|---|-------------|
| Air conditioner | Single split wall mounted air conditioner capacity up to 25,000 Btu/h | MS ISO 5151:2004 (Non -ducted air conditioners and heat pumps : Test ing and rating for performance) | MEPS's value = 2 Star | <div>(a) Cooling capacity < 4.5kW:<table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>≤11.94</td></tr><tr><td>4</td><td>11.16 - 11.93</td></tr><tr><td>3</td><td>10.37 - 11.15</td></tr><tr><td>2</td><td>9.56 - 10.36</td></tr><tr><td>1</td><td>9.00 - 9.55</td></tr></table></div> <div>(b) 4.5kW < cooling Capacity < 7.1kW:<table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>≤10.71</td></tr><tr><td>4</td><td>9.83 - 10.70</td></tr><tr><td>3</td><td>8.94 - 9.82</td></tr><tr><td>2</td><td>8.03 - 8.93</td></tr><tr><td>1</td><td>7.50 - 8.02</td></tr></table></div> | Star Rating | Star Index Value | 5 | ≤11.94 | 4 | 11.16 - 11.93 | 3 | 10.37 - 11.15 | 2 | 9.56 - 10.36 | 1 | 9.00 - 9.55 | Star Rating | Star Index Value | 5 | ≤10.71 | 4 | 9.83 - 10.70 | 3 | 8.94 - 9.82 | 2 | 8.03 - 8.93 | 1 | 7.50 - 8.02 |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ≤11.94 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 11.16 - 11.93 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 10.37 - 11.15 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 9.56 - 10.36 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 9.00 - 9.55 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ≤10.71 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 9.83 - 10.70 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 8.94 - 9.82 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 8.03 - 8.93 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 7.50 - 8.02 | | | | | | | | | | | | | | | | | | | | | | | | | | | |






| Equipment | Type of Equipment | Energy Performance Testing Standards | Minimum Energy Performance Standards (MEPS) | Efficiency Ratings | | | | | | | | | | | | |
|-------------|--|---|---|---|-------------|------------------|---|------------------|---|------------------------|---|------------------------|---|-------------------------|---|-------------------------|
| Television | <p>The type of television are of the following list and of size up to or equal to 70 inches:</p> <p>(a) plasma</p> <p>(b) liquid crystal display (LCD)</p> <p>(c) light emitting diode (LED)</p> <p>(d) cathode ray tube (CRT)</p> | <p>(a) IEC 62087 Edition 2.0 2008 -10 for power measurement at On Mode</p> <p>(b) MS IEC 62301:2006 for power measurement at Standby Mode I</p> | MEPS's value = 2 Star | <table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>+20%≤ Star Index</td></tr><tr><td>4</td><td>+10%≤ Star Index <+20%</td></tr><tr><td>3</td><td>-10%≤ Star Index <+10%</td></tr><tr><td>2</td><td>-20%≤ Star Index < -10%</td></tr><tr><td>1</td><td>-30%≤ Star Index < -20%</td></tr></table> | Star Rating | Star Index Value | 5 | +20%≤ Star Index | 4 | +10%≤ Star Index <+20% | 3 | -10%≤ Star Index <+10% | 2 | -20%≤ Star Index < -10% | 1 | -30%≤ Star Index < -20% |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | |
| 5 | +20%≤ Star Index | | | | | | | | | | | | | | | |
| 4 | +10%≤ Star Index <+20% | | | | | | | | | | | | | | | |
| 3 | -10%≤ Star Index <+10% | | | | | | | | | | | | | | | |
| 2 | -20%≤ Star Index < -10% | | | | | | | | | | | | | | | |
| 1 | -30%≤ Star Index < -20% | | | | | | | | | | | | | | | |



| Equipment | Type of Equipment | Energy Performance Testing Standards | Minimum Energy Performance Standards (MEPS) | Efficiency Ratings | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|--|--|-------------|------------------|---|--------|---|-------------|---|-------------|---|-------------|---|-------------|-------------|------------------|---|--------|---|-------------|---|-------------|---|-------------|---|-------------|
| Domestic fan   | (a) wall (b) desk (c) pedestal (d) ceiling | MS 1220:2001 (performance and construction of electric circulating fans and regulators) second revision | MEPS's value = 2 Star   | (a) Ceiling fan: <table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>≥ 3.00</td></tr><tr><td>4</td><td>2.74 – 2.99</td></tr><tr><td>3</td><td>2.66 – 2.73</td></tr><tr><td>2</td><td>2.58 – 2.65</td></tr><tr><td>1</td><td>2.50 – 2.57</td></tr></table> (b) Pedestal, wall and desk fan: <table><tr><th>Star Rating</th><th>Star Index Value</th></tr><tr><td>5</td><td>≥ 1.20</td></tr><tr><td>4</td><td>1.12 – 1.19</td></tr><tr><td>3</td><td>1.08 – 1.11</td></tr><tr><td>2</td><td>1.01 – 1.07</td></tr><tr><td>1</td><td>0.93 – 1.00</td></tr></table> | Star Rating | Star Index Value | 5 | ≥ 3.00 | 4 | 2.74 – 2.99 | 3 | 2.66 – 2.73 | 2 | 2.58 – 2.65 | 1 | 2.50 – 2.57 | Star Rating | Star Index Value | 5 | ≥ 1.20 | 4 | 1.12 – 1.19 | 3 | 1.08 – 1.11 | 2 | 1.01 – 1.07 | 1 | 0.93 – 1.00 |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ≥ 3.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 2.74 – 2.99 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 2.66 – 2.73 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 2.58 – 2.65 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2.50 – 2.57 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Star Rating | Star Index Value | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | ≥ 1.20 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | 1.12 – 1.19 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | 1.08 – 1.11 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1.01 – 1.07 | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 0.93 – 1.00 | | | | | | | | | | | | | | | | | | | | | | | | | | | |

| Equipment | Type of Equipment | Energy Performance Testing Standards | Minimum Energy Performance Standards (MEPS) | Efficiency Ratings | | | | | | | | | | | | | |
|---|--|--|--|--------------------|-------------|-------------|----|-------|----|-----|----|----|----|----|-----|----|--|
| Lighting | (a) fluorescent | (a) MS IEC 60969: (Self –ballasted lamps for general lighting services – Performance requirements) for fluorescent lamp | (a) Tubular Fluorescent: <table><tr><th>Type</th><th>(W)</th><th>MEPS (lm/W)</th></tr><tr><td rowspan="2">T8</td><td>18-30</td><td>70</td></tr><tr><td>≥31</td><td>85</td></tr><tr><td rowspan="2">T5</td><td>14</td><td>80</td></tr><tr><td>≥15</td><td>85</td></tr></table> | Type | (W) | MEPS (lm/W) | T8 | 18-30 | 70 | ≥31 | 85 | T5 | 14 | 80 | ≥15 | 85 | NIL   |
| | Type | | | (W) | MEPS (lm/W) | | | | | | | | | | | | |
| T8 | 18-30 | 70 | | | | | | | | | | | | | | | |
| | ≥31 | 85 | | | | | | | | | | | | | | | |
| T5 | 14 | 80 | | | | | | | | | | | | | | | |
| | ≥15 | 85 | | | | | | | | | | | | | | | |
| (b) compact fluorescent lamp (CFL)  (c) light emitting diode (LED)  (d) incandescent | (b) LM 79 -08 (IESNA Approved Method for the electrical and photometric measurement of solid -state lighting products) for LED lights | (b) Other lighting type: | | | | | | | | | | | | | | | |



| <i>Equipment</i> | <i>Type of Equipment</i> | <i>Energy Performance Testing Standards</i> | <i>Minimum Energy Performance Standards (MEPS)</i> | | <i>Efficiency Ratings</i> |
|---|--|---|--|-------------|---|
|  |  | <p>(a) MS IEC 62612 (P)</p> <p>(Self -ballasted LED -lamps for general lighting services - performance requirement)</p> | Type | MEPS (lm/W) |  |
| | | | CFLi (Self ballasted) | | |
| | | | < 9 W | 55 | |
| | | | 9- 15 W | 60 | |
| | | | 16 -24 W | 60 | |
| | | | ≥25 W | 60 | |
| | | | CFL (Non integrated lamps) | | |
| | | | ?10 W | 60 | |
| | | | 11 -26 W | 65 | |
| | | | ≥ 27 W | 85 | |
| | | | LED Lamp | 55 | |
| | | | Incandescent Lamp* | 20 | |

*The Minimum Energy Performance Standards (MEPS) value for incandescent lamp shall not apply for the following use:

- (a) components in electrical appliances;
- (b) medical and lab equipment;
- (c) internal decoration, shows and exhibition;
- (d) safety and signaling;
- (e) conservation of animals and as repellant for insects;
- (f) heating and testing;
- (g) cleanliness and health;
- (h) beauty treatment;
- (i) lamps that cannot be directly replaced with other type of lamp; and
- (j) incandescent lamp for other purposes deemed suitable by the Commission to be excluded



What next?

Five Malaysian Standards for MEPS are currently being finalized for Air-Conditioning, Refrigerator, Television and Domestic Fan.

THANK YOU

**Energy Commission Malaysia
(Suruhanjaya Tenaga)
Demand Side Management
Energy Management & Industry Development
No12, Jalan Tun Hussein, Precinct 2
62100, Putrajaya
Malaysia**

**Tel: 03-8870 8532
Fax: 03-8888 8648
Email: zulkiflee@st.gov.my
Website address : www.st.gov.my**

