REGULATION AND POLICY ON ENERGY EFFICIENCY AND MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

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Demand Side Management Unit
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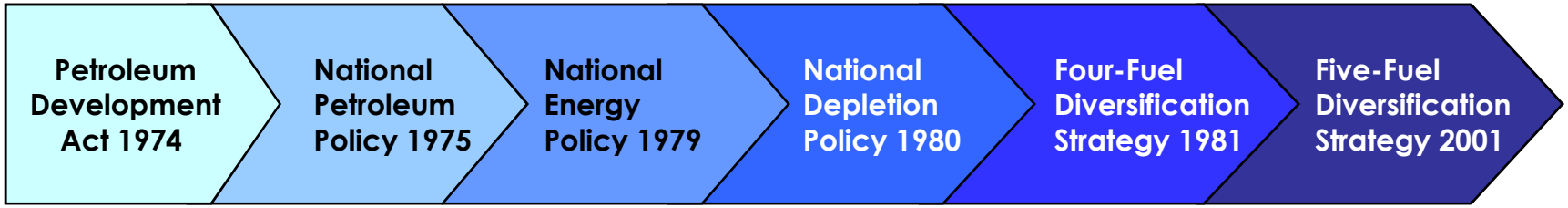
MALAYSIA'S NATIONAL ENERGY POLICY



- Vested on PETRONAS the exclusive rights to explore, develop and produce petroleum resources of Malaysia

- To regulate downstream oil & gas industry via the Petroleum Regulations 1974

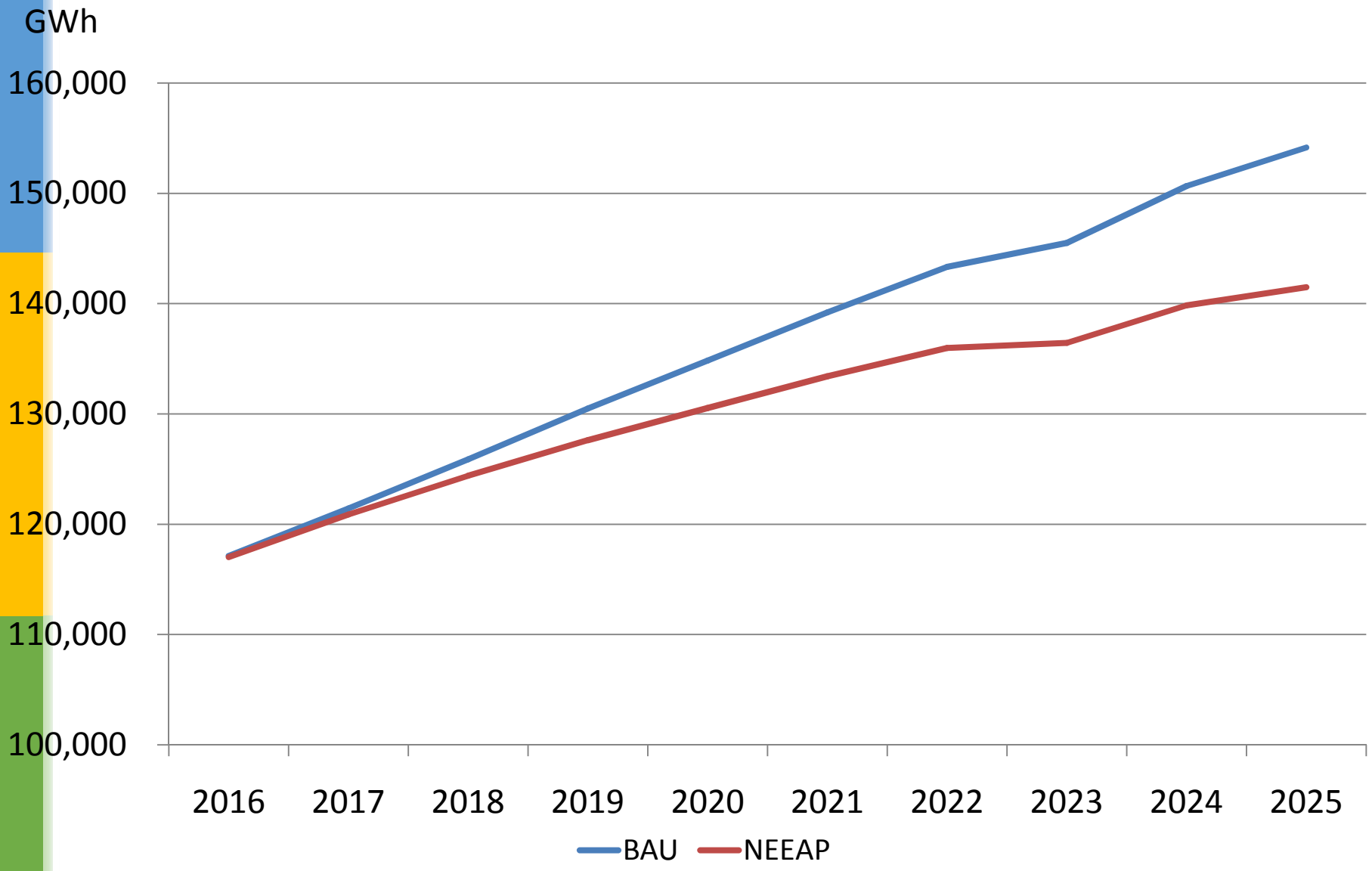
- To ensure adequacy, security and cost-effectiveness of energy supply
- To promote efficient utilization of energy
- To minimize negative environmental impacts in the energy supply chain

- To prolong lifespan of Malaysia's oil reserves for future security & stability of oil supply

- To pursue balanced utilization of oil, gas, hydro and coal

- Renewable Energy included as the "fifth fuel" in energy supply mix

Energy Consumption: BAU vs NEEAP



EFFICIENT MANAGEMENT OF ELECTRICAL ENERGY REGULATION 2008

- Gazette on 15th December 2008
- Requires all installation consumed or generated electrical energy 3,000,000 kWh for 6 consecutive months to appoint Registered Electrical Energy Manager
- Come out with energy management objective and plan for the installation and to report to Energy Commission on the progress and achievement of the plan every 6 months.

Energy Manager

- Qualification
- (a) Malaysian citizen aged 23 years and above who –

- (i) holds a certificate of registration as a Professional Engineer under the Registration of Engineers Act 1967 [Act 138] and possesses at least six months working experience in the efficient management of electrical energy at an installation;

- (ii) holds a degree in Science, Engineering, Architecture or its equivalent and possesses at least one year working experience in the efficient management of electrical energy at an installation; or

- (iii) holds a Certificate of Competency issued by the Commission as an Electrical Services Engineer or a Competent Electrical Engineer and possesses at least nine months working experience in the efficient management of electrical energy at an installation; and

- (b) he demonstrates knowledge of the requirements of the Act and these Regulations that satisfies the Commission.

Duties of an Energy Manager

(a) he shall be responsible –

(i) to audit and analyse the total electrical energy consumption or total net electrical energy generation at the installation, including the significant end use of electricity;

(ii) to advise the private installation licensee or consumer in developing and implementing measures to ensure efficient management of electrical energy at the installation; and

(iii) to monitor effective implementation of the measures referred to in subparagraph (ii);

(b) he shall supervise the keeping of records on efficient management of electrical energy at the installation and verify its accuracy; and

(c) he shall ensure that the private installation licensee or consumer submits the information and report under paragraphs 6(1)(c), (d) and (e) within the periods as specified in regulation 7.

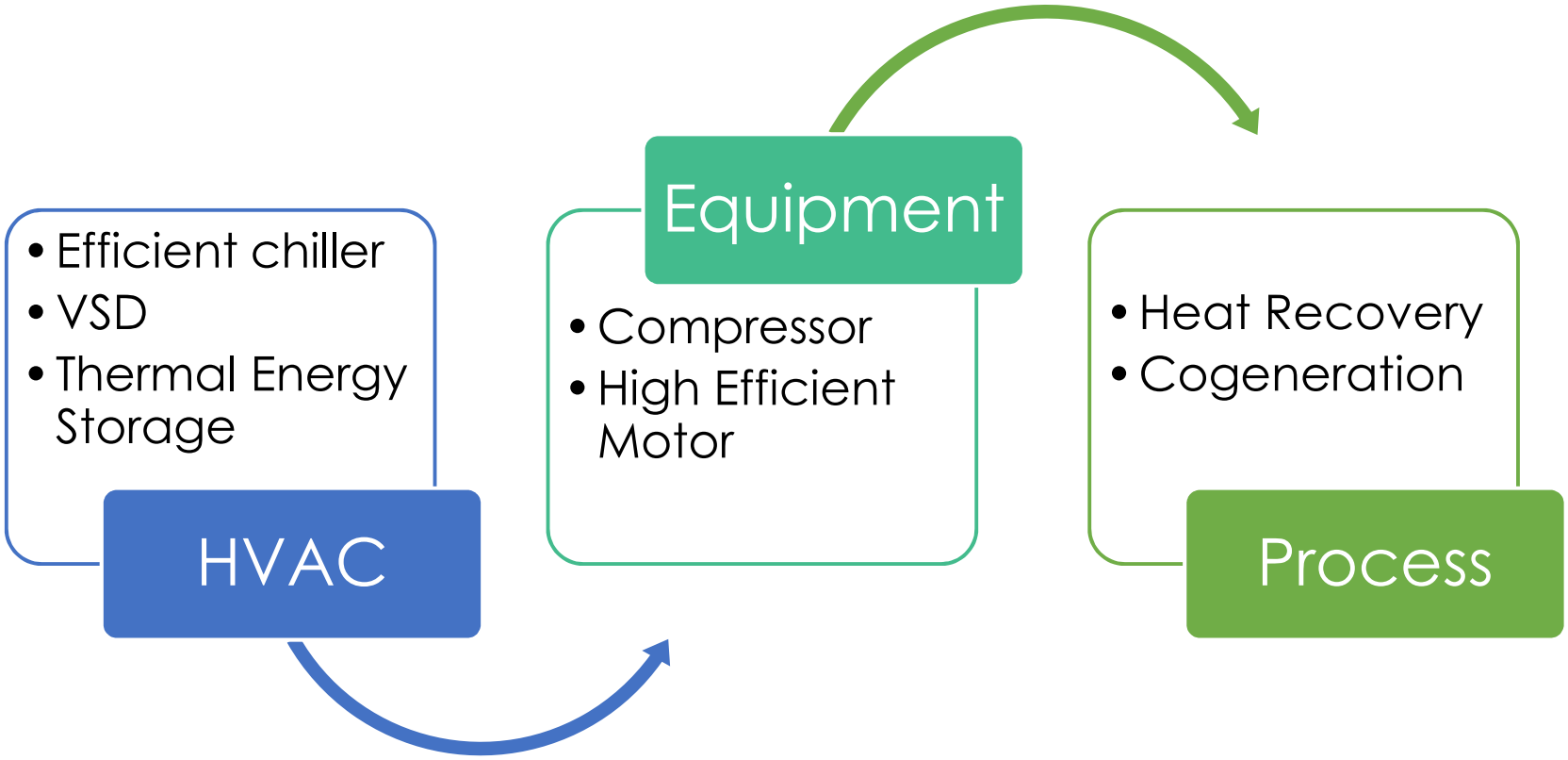
Failure to comply

- Fine not more than RM 5,000 or
- Prison not more than 1 year
- Or both

Since 2009, Government has offered incentives to all company who wish to embark on energy efficiency projects in their installation

- To apply to MIDA and Energy Commission will evaluate the viability of the projects and proposed for approval
- Investment Tax Allowance, Pioneer Status , Sales Tax and Import Duty Exemption
- Valid until December 2015

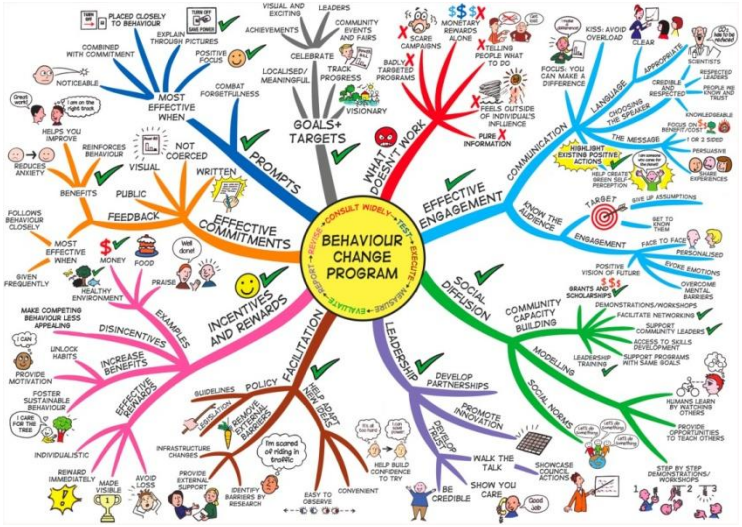
TYPE OF PROJECTS TO BE CONSIDERED



Besides that, behavior change of the employee also can lead to savings

- Inter- department competition- goals and targets
- Incentives and rewards
- Effective commitments
- Leadership
- Establishment of energy

Management team

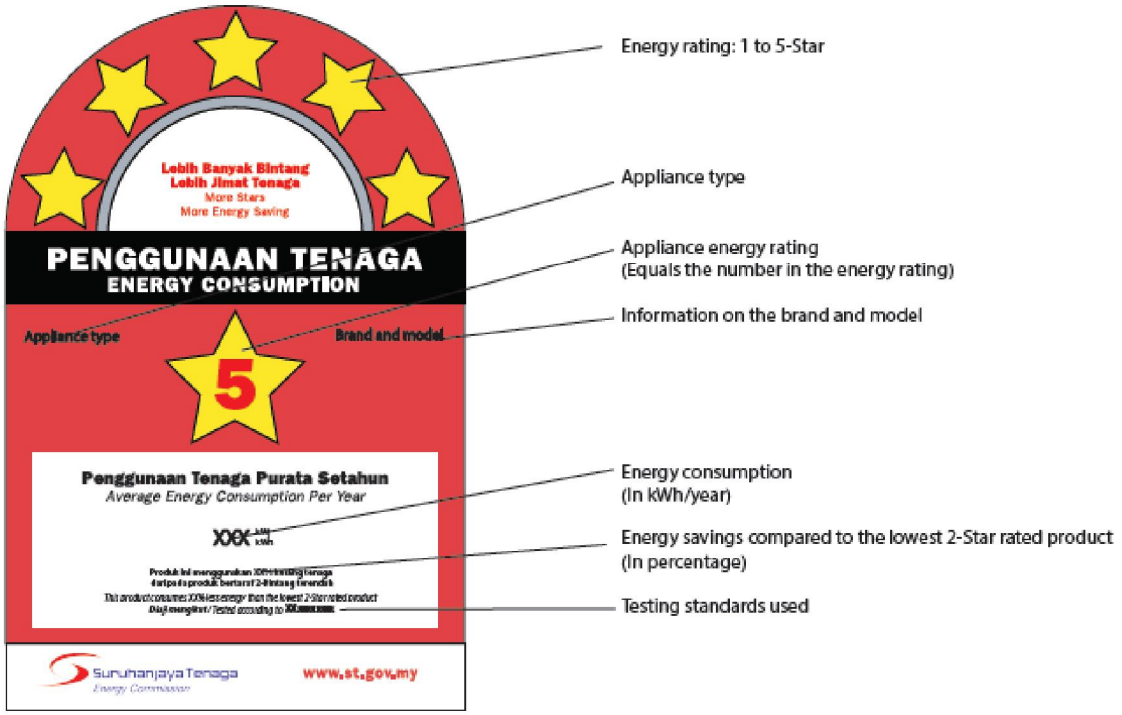


MINIMUM ENERGY PERFORMANCE STANDARDS (MEPS)

What is MEPS?

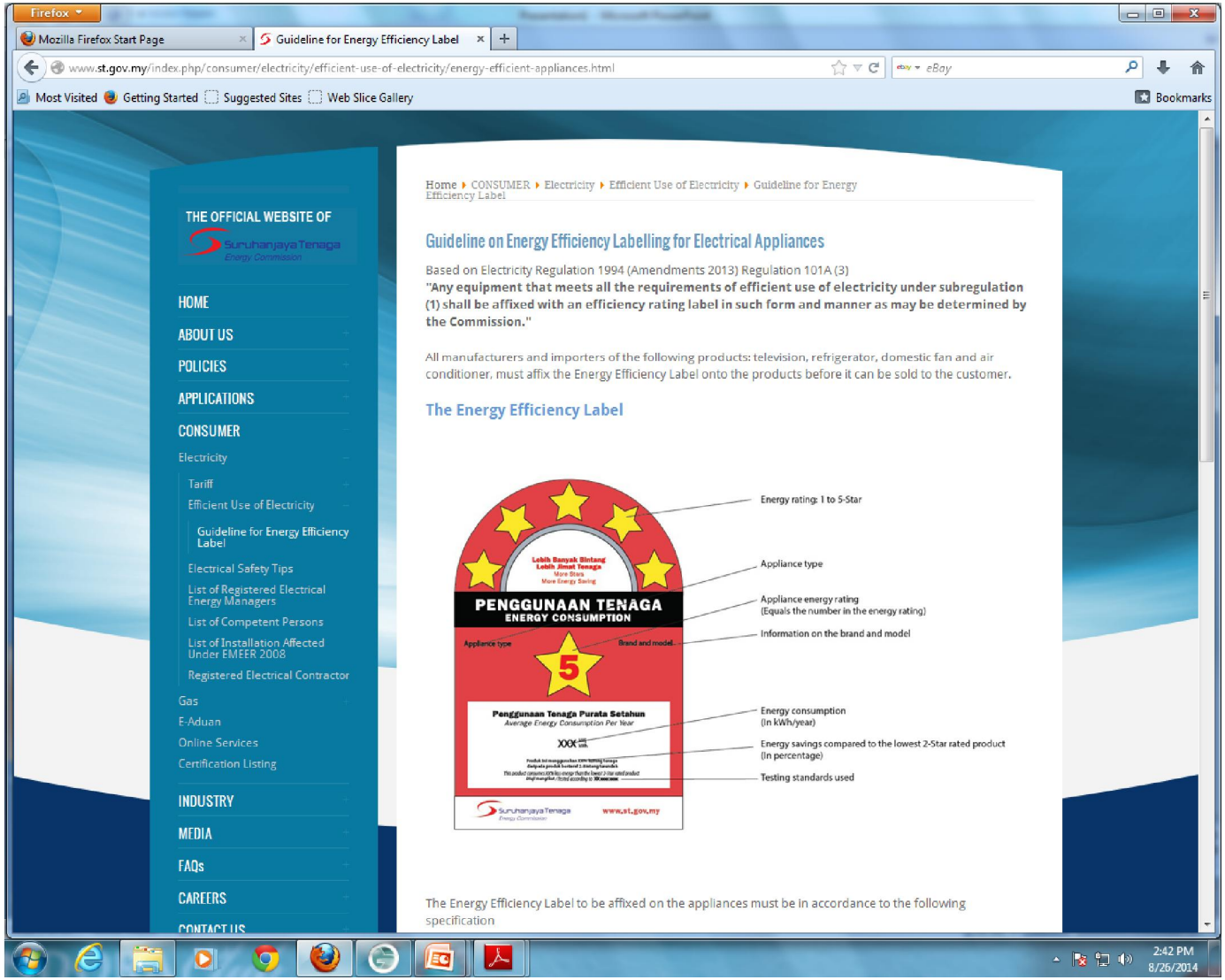
- Minimum requirement to be met by an appliances
- Govern by Electricity Regulation 1994 (Amendment 2013) gazette on 3rd May 2013
- To be applied for 5 appliances – television, refrigerator, air conditioner, fan, lamp
- To be affix with energy efficient label

ENERGY EFFICIENCY LABEL



LABEL 2 STAR TO 5 STAR

Guideline on Energy Efficiency Labelling for Electrical Appliances



"FOURTH SCHEDULE

(Subregulation 101A (1))

ELECTRICI TY 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	

Star Rating	Star Index Value
5	+25% <Star Index
4	+10% <Star Index <+25%
3	-10% >Star Index <+10%
2	-25% > Star Index > -10%
1	-35% >Star Index < -25%

<table>
<tr><th>Equipment</th><th>Type of Equipment</th><th>Energy Performance Testing Standards</th><th>Minimum Energy Perf ormance Standards (MEPS)</th><th>Efficiency Ratings</th></tr>
<tr>
<td>Air conditioner</td>
<td>Single split wall mounted air conditioner capacity up to 25, 000 Btu/h</td>
<td>MS ISO 5151:2004

(Non -ducted air conditioners and heat pumps : Test ing and rating for performance)</td>
<td>MEPS's value = 2 Star</td>
<td>
(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>
(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>
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</tr>
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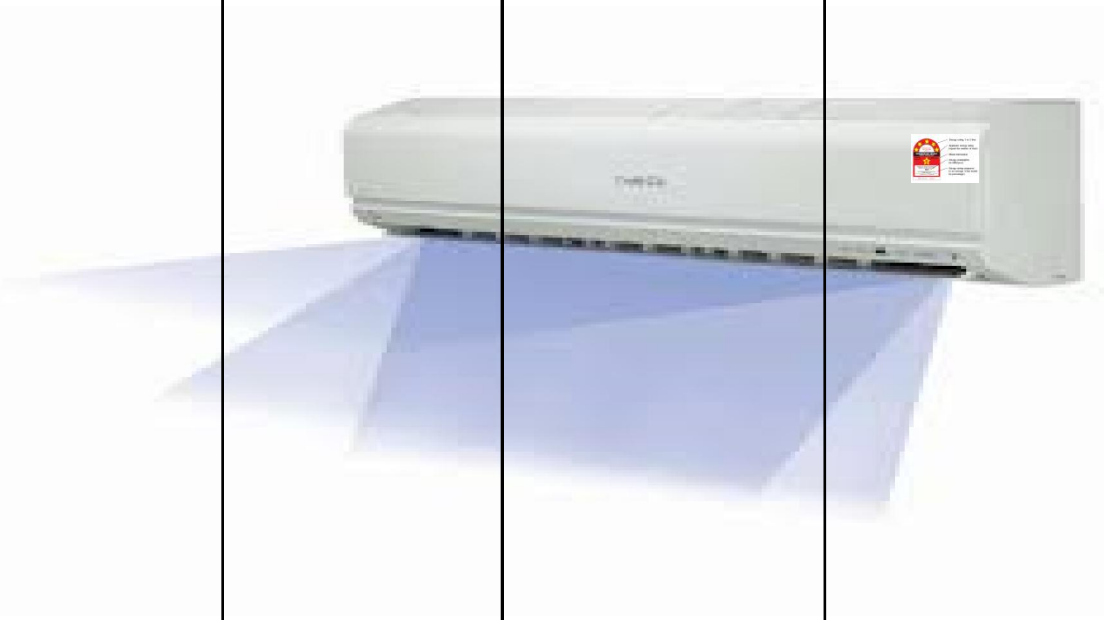

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<tr><th>Equipment</th><th>Type of Equipment</th><th>Energy Performance Testing Standards</th><th>Minimum Energy Perf ormance Standards (MEPS)</th><th>Efficiency Ratings</th></tr>
<tr>
<td>Television</td>
<td>The type of television are of the following list and of size up to or equal to 70 inches:

(a) plasma

(b) liquid crystal display (LCD)

(c) light emitting diode (LED)

(d) cathode ra y tube (CRT)</td>
<td>(a) IEC 62087 Edition 2.0 2008 -10 for power measurement at On Mode

(b) MS IEC 62301:2006 for power measurement at Standby Mode l</td>
<td>MEPS’s value = 2 Star</td>
<td>
<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 Ind ex <+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>
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<tr><th>Equipment</th><th>Type of Equipment</th><th>Energy Performance Testing Standards</th><th>Minimum Energy Perf ormance Standards (MEPS)</th><th>Efficiency Ratings</th></tr>
<tr>
<td>Domestic fan
 
  </td>
<td>(a) wall
(b) desk
(c) pedestal
(d) ceiling</td>
<td>MS 1220:2001
(performance and construction of electric circulating fans and regulators) second revision
  </td>
<td>MEPS’s value = 2 Star
  </td>
<td>(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>
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</table>

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<tr><th>Equipment</th><th>Type of Equipment</th><th>Energy Performance Testing Standards</th><th>Minimum Energy Perf ormance Standards (MEPS)</th><th>Efficiency Ratings</th></tr>
<tr>
<td>Lighting</td>
<td>(a) fluorescent

(b) compact fluorescent lamp (CFL)

(c) light emitting diode (LED)

(d) incandescent</td>
<td>(a) MS IEC 60969:

(Self –ballasted lamps for general lighting services – Performance requirements) for fluorescent lamp

(b) LM 79 -08

(IESNA Approved Method f or the electrical and photometric measurement of solid -state lighting products) for LED lights</td>
<td>(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>

(b) Other lighting type:</td>
<td>NIL

 

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</tr>
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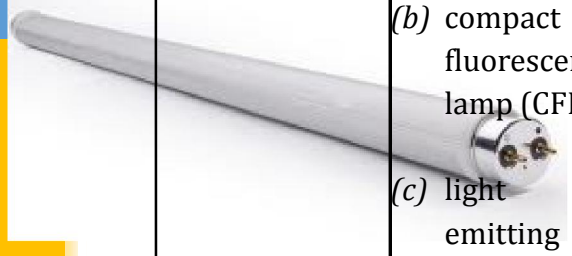

Equipment	*Type of Equipment*	*Energy Performance Testing Standards*	*Minimum Energy Perf ormance Standards (MEPS)*		*Efficiency Ratings*
		*(a)* MS IEC 62612 (P) (Self -ballasted LED -lamps for general lighting services - performance requirement)	*Type*	*MEPS (lm/ W)*	
			CFLi (Self ballasted)		
			< 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

MEPS (ISSUANCE OF COA)

Approval Mechanism:

- ✓ With the regulations in place, the 5 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 appliances must satisfy both the safety and performance requirements by submitting test reports together with the COA application.
- ✓ 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 efficiency is a continuous efforts

- To add more appliances into the list in the future
  - Rice cooker, instant water heater, washing machine etc
- Enforcement activities – on going ,visit to the electric shop and affected installation
- Market Surveillance – to gauge the level of compliances
- Awareness and engagement program

THANK YOU