
First published in the *Government Gazette*, Electronic Edition, on 15th July 2011 at 5.00 pm.

No. S 407

ENVIRONMENTAL PROTECTION AND
MANAGEMENT ACT
(CHAPTER 94A)

ENVIRONMENTAL PROTECTION AND MANAGEMENT
(ENERGY CONSERVATION) (AMENDMENT)
REGULATIONS 2011

In exercise of the powers conferred by section 77 of the Environmental Protection and Management Act, the National Environment Agency, with the approval of the Minister for the Environment and Water Resources, hereby makes the following Regulations:

Citation and commencement

1. These Regulations may be cited as the Environmental Protection and Management (Energy Conservation) (Amendment) Regulations 2011 and shall come into operation on 1st September 2011.

New regulation 6A

2. The Environmental Protection and Management (Energy Conservation) Regulations (Rg 10) (referred to in these Regulations as the principal Regulations) are amended by inserting, immediately after regulation 6, the following regulation:

“Minimum Energy Efficiency Standards

6A. The minimum energy efficiency standards specified in the Fourth Schedule for the following registrable goods are prescribed minimum energy efficiency standards for the purposes of section 40C(1)(c) of the Act:

- (a) air-conditioners; and
- (b) refrigerators.”.

Amendment of First Schedule

3. The First Schedule to the principal Regulations is amended by deleting paragraph 2 and substituting the following paragraph:

“2. The number of ticks and energy efficiency rating to be shown on the Energy Label for air-conditioners, refrigerators and clothes dryers shall be determined as follows:

(a) for casement and window type air-conditioners —

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
1	Fair	$2.50 \leq \text{COP} < 2.78$
2	Good	$2.78 \leq \text{COP} < 3.20$
3	Very Good	$\text{COP} \geq 3.20$

(b) for split type (non-inverter) air-conditioners with one indoor unit —

(i) cooling capacity less than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
2	Good	$2.96 \leq \text{COP} < 3.20$
3	Very Good	$\text{COP} \geq 3.20$

(ii) cooling capacity equal to or more than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
1	Fair	$2.50 \leq \text{COP} < 2.78$
2	Good	$2.78 \leq \text{COP} < 3.20$
3	Very Good	$\text{COP} \geq 3.20$

(c) for split type (non-inverter) air-conditioners with more than one indoor unit —

(i) cooling capacity less than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
2	Good	$2.96 \leq \text{COP} < 3.34$
3	Very Good	$\text{COP} \geq 3.34$

(ii) cooling capacity equal to or more than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
1	Fair	$2.64 \leq \text{COP} < 2.92$
2	Good	$2.92 \leq \text{COP} < 3.34$
3	Very Good	$\text{COP} \geq 3.34$

(d) for split type (inverter) air-conditioners with one indoor unit —

(i) cooling capacity less than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
2	Good	$2.96 \leq \text{Weighted COP} < 3.34$
3	Very Good	$\text{Weighted COP} \geq 3.34$ and $\text{COP} \geq 3.06$
4	Excellent	$\text{Weighted COP} \geq 3.76$ and $\text{COP} \geq 3.34$

(ii) cooling capacity equal to or more than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
1	Fair	$2.64 \leq \text{Weighted COP} < 2.92$
2	Good	$2.92 \leq \text{Weighted COP} < 3.34$
3	Very Good	$\text{Weighted COP} \geq 3.34$ and $\text{COP} \geq 3.06$
4	Excellent	$\text{Weighted COP} \geq 3.76$ and $\text{COP} \geq 3.34$

(e) for split type (inverter) air-conditioners with more than one indoor unit —

(i) cooling capacity less than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
2	Good	$2.96 \leq \text{Weighted COP} < 3.34$
3	Very Good	$\text{Weighted COP} \geq 3.34$ and $\text{COP} \geq 3.06$
4	Excellent	$\text{Weighted COP} \geq 3.76$ and $\text{COP} \geq 3.34$

(ii) cooling capacity equal to or more than 7kW:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
1	Fair	$2.64 \leq \text{Weighted COP} < 2.92$
2	Good	$2.92 \leq \text{Weighted COP} < 3.34$
3	Very Good	Weighted COP ≥ 3.34 and COP ≥ 3.06
4	Excellent	Weighted COP ≥ 3.76 and COP ≥ 3.34

(f) for refrigerators —

(i) without freezer:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Annual Energy Consumption (AEC) in kWh</i>
2	Good	$(368 + 0.892 \times \text{Vadj tot}) \times 0.812 \geq \text{AEC} > (368 + 0.892 \times \text{Vadj tot}) \times 0.74$
3	Very Good	$(368 + 0.892 \times \text{Vadj tot}) \times 0.74 \geq \text{AEC} > (368 + 0.892 \times \text{Vadj tot}) \times 0.64$
4	Excellent	$(368 + 0.892 \times \text{Vadj tot}) \times 0.64 \geq \text{AEC}$

(ii) with freezer:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Annual Energy Consumption (AEC) in kWh</i>
2	Good	$(465 + 1.378 \times \text{Vadj tot}) \times 0.699 \geq \text{AEC} > (465 + 1.378 \times \text{Vadj tot}) \times 0.593$
3	Very Good	$(465 + 1.378 \times \text{Vadj tot}) \times 0.593 \geq \text{AEC} > (465 + 1.378 \times \text{Vadj tot}) \times 0.457$
4	Excellent	$(465 + 1.378 \times \text{Vadj tot}) \times 0.457 \geq \text{AEC}$

(iii) with freezer and through-the-door ice dispenser:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Annual Energy Consumption (AEC) in kWh</i>
2	Good	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.646 \geq AEC > (585 + 1.378 \times V_{adj \text{ tot}}) \times 0.593$
3	Very Good	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.593 \geq AEC > (585 + 1.378 \times V_{adj \text{ tot}}) \times 0.457$
4	Excellent	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.457 \geq AEC$

(g) for clothes dryers —

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Energy Consumption (EC) Per Wash in kWh</i>
0	Low	$EC > \text{Rated Capacity}$
1	Fair	$\text{Rated Capacity} \geq EC > \text{Rated Capacity} \times 0.83$
2	Good	$\text{Rated Capacity} \times 0.83 \geq EC > \text{Rated Capacity} \times 0.67$
3	Very Good	$\text{Rated Capacity} \times 0.67 \geq EC > \text{Rated Capacity} \times 0.50$
4	Excellent	$\text{Rated Capacity} \times 0.50 \geq EC$ ”.

New Fourth Schedule

4. The principal Regulations are amended by inserting, immediately after the Third Schedule, the following Schedule:

“FOURTH SCHEDULE

Regulation 6A

MINIMUM ENERGY EFFICIENCY STANDARDS

<i>Registrable Goods</i>	<i>Minimum Energy Efficiency Standards</i>
1. Casement and window type air-conditioners	COP \geq 2.50
2. Split type (non-inverter) air-conditioners with one indoor unit (cooling capacity less than 7kW)	COP \geq 2.96
3. Split type (non-inverter) air-conditioners with one indoor unit (cooling capacity equal to or more than 7kW)	COP \geq 2.50
4. Split type (non-inverter) air-conditioners with more than one indoor unit (cooling capacity less than 7kW)	COP \geq 2.96
5. Split type (non-inverter) air-conditioners with more than one indoor unit (cooling capacity equal to or more than 7kW)	COP \geq 2.64
6. Split type (inverter) air-conditioners with one indoor unit (cooling capacity less than 7kW)	Weighted COP \geq 2.96
7. Split type (inverter) air-conditioners with one indoor unit (cooling capacity equal to or more than 7kW)	Weighted COP \geq 2.64
8. Split type (inverter) air-conditioners with more than one indoor unit (cooling capacity less than 7kW)	Weighted COP \geq 2.96
9. Split type (inverter) air-conditioners with more than one indoor unit (cooling capacity equal to or more than 7kW)	Weighted COP \geq 2.64
10. Refrigerators without freezer	$AEC \leq (368 + 0.892 \times V_{adj\ tot}) \times 0.812$
11. Refrigerators with freezer	$AEC \leq (465 + 1.378 \times V_{adj\ tot}) \times 0.699$
12. Refrigerators with freezer and through-the-door ice dispenser	$AEC \leq (585 + 1.378 \times V_{adj\ tot}) \times 0.646$ ”.

[G.N. Nos. S 92/2009; S 352/2010]

Made this 15th day of July 2011.

CHEW GEK KHIM
Chairman,
National Environment Agency,
Singapore.

[NEA/LD/38/4/Vol. 1; AG/LLRD/SL/94A/2010/3 Vol. 1]

(To be presented to Parliament under section 77(3) of the Environmental Protection and Management Act).