Suruhanjaya Tenaga
Energy Commission

GUIDELINES ON ASCERTAINING A BUILDING AND THE ENERGY INTENSITY PERFORMANCE OF A BUILDING

[GP/ST/No.48/2024 (Pind. 1/2026)]

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ENERGY EFFICIENCY AND CONSERVATION ACT 2024
[*Act 861*]

GUIDELINES ON ASCERTAINING A BUILDING AND THE ENERGY INTENSITY PERFORMANCE OF A BUILDING

GP/ST/No.48/2024 (Pind. 1/2026)

IN exercise of the powers conferred by subparagraph 3(2)*(b)* and section 67 of the Energy Efficiency and Conservation Act 2024 [*Act 861*], the Commission issues the following Guidelines:

Citation and commencement

1. These Guidelines may be cited as the Guidelines on Ascertaining a Building and The Energy Intensity Performance of a Building.

2. These Guidelines shall come into operation on 1 January 2025.

Purpose

3. The purposes of these Guidelines are—

(a) to establish the criteria and mechanisms to ascertain whether a building is applicable under the Energy Efficiency and Conservation Act 2024;

(b) to outline the methodology to calculate the energy intensity performance of a building; and

(c) to specify the requirements for the energy intensity label issued by the Commission.

Dated: 6 August 2026

SITI SAFINAH SALLEH
Chief Executive Officer
Energy Commission

TABLE OF CONTENTS

1. SCOPE 4
2. INTERPRETATION 4
3. ENERGY INTENSITY PERFORMANCE OF A BUILDING 6
4. CRITERIA TO ASCERTAIN A BUILDING 7
A. OFFICE BUILDING 7
5. METHODOLOGY OF CALCULATING THE EIP FOR BUILDING 12
A. OFFICE BUILDING 12
6. ENERGY EFFICIENCY RATING (“EER”) 12
A. OFFICE BUILDING 12
7. ENERGY INTENSITY LABEL 13
8. APPENDIX 15
APPENDIX A: CONVERSION COEFFICIENTS AND EQUIVALENCE 15

1. SCOPE

These Guidelines is for the purpose of ascertaining –

(a) whether a building is applicable under paragraph 3(2)*(b)*; and

(b) the energy intensity performance of the building under subsection 13(3)

of the Energy Efficiency and Conservation Act 2024 [*Act 861*].

2. INTERPRETATION

In these Guidelines, the following terms shall bear the following meanings:

"Act"	means the Energy Efficiency and Conservation Act 2024 [*Act 861*];
"BEI"	means Building Energy Intensity which refers to the energy intensity performance of a building;
"BEI office building"	means the BEI which refers to the energy intensity performance of an office building;
"Commission"	has the same meaning assigned to it in the Act;
"EIP"	means Energy Intensity Performance;
"GFA"	means the Gross Floor Area which refers to the total area of floor space within a building, as measured between the external sides of wall or, in the case of party walls, between the centres of such walls but it excludes the following areas:

(a) parking spaces and circulation areas, including any mechanical or electrical spaces within the parking area of the building;
(b) open or covered parking area outside the building;
(c) staircases and lift shafts on floors other than the ground floor or lobby;
(d) waiting area for commercial vehicles unloading goods;
(e) gardens or recreational facilities for residents provided on the rooftop or podium in open or semi-open spaces;
(f) pedestrian pathway connected to the building or transit station, including any supporting activities; and
(g) pedestrian pathways within building functioning as public walkways.

"measuring point" means the point of physical connection of the device measuring the energy-related parameters where the energy consumption is measured;

"public installation licensee" means a licensee for a public installation under the Electricity Supply Act 1990 [*Act 447*];

"same compound" means a specific area or property where multiple buildings or factories are situated in close proximity to each other within the boundaries of a single land parcel;

"supplier of energy" means any person who supply the energy or energy resources as specified in the First and Second Schedule of the Act which includes but not limited to –

(a) licensees under the Electricity Supply Act 1990 [*Act 447*]; or

(b) licensees under the Gas Supply Act 1993 [*Act 501*].

3. ENERGY INTENSITY PERFORMANCE OF A BUILDING

3.1 An energy intensity performance is a method of calculation associating the energy consumption of the building to the factors which influence such energy consumption.

3.2 The energy consumption shall be the total amount of energy used by the building within a period of twelve consecutive month which includes electricity, natural gas and any other energy or energy resources consumed for heating, cooling, lighting and other building operations.

3.3 The factors which influence the energy consumption used in calculating the energy intensity performance may depend on the type and category of the building, which includes but not limited to the following:

(a) the GFA of the building;
(b) the rate of occupancy, which refers to the percentage of available or rentable space within that building that is currently being used or leased by tenants or occupants. It is a measure of how much of the building's total area is in active use;
(c) Cooling Degree Days, which is a meteorological metric used to quantify the amount of energy required for cooling in a specific location during a certain period, typically a day, month, or cooling season.
(d) the number of beds in healthcare facility which refers to the total count of available patient beds used to accommodate patients who require medical care, treatment or hospitalization within a specific healthcare facility; and
(e) the number of rooms in hotel, which refers to the total count of individual guest accommodations or lodging units within a specific hotel or hospitality establishment.

4. CRITERIA TO ASCERTAIN A BUILDING

A. Office building

4.1 The criteria for an office building shall be as follows:

(a) any office building which has a GFA of 8,000 square meters and above; and

(b) a building that is solely built or used for office purposes, subject to further determination by the Commission considering the specification or conditions of the building including the measuring point of the energy or energy resources supplied to the building.

4.2 The boundary of the GFA for an office building is illustrated in Figure 1 which referring to the total area of floor space within a building, as measured between the external sides of wall or, in the case of party walls, between the centres of such walls but it excludes the following areas:

(a) parking spaces and circulation areas, including any mechanical or electrical spaces within the parking area of the building;

(b) open or covered parking area outside the building;

(c) staircases and lift shafts on floors other than the ground floor or lobby;

(d) waiting area for commercial vehicles unloading goods;

(e) gardens or recreational facilities for residents provided on the rooftop or podium in open or semi-open spaces;

(f) pedestrian pathway connected to the building or transit station, including any supporting activities; and

(g) pedestrian pathways within building functioning as public walkways.

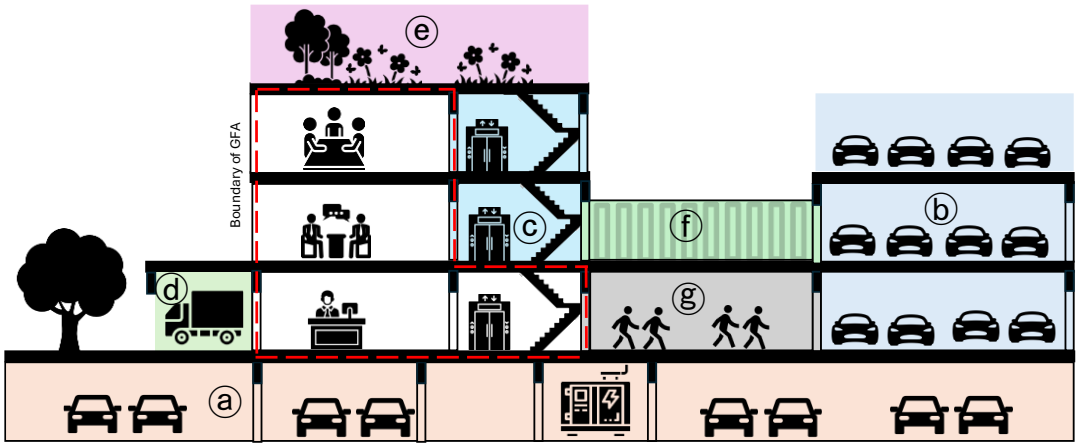


Figure 1: The usual boundary of the GFA for an office building

4.3 In determining the boundary of the GFA of an office building, the determination shall be based on the circumstances of such office building, which includes but not limited to the following:

4.3.1 Where one or more energy or energy resources measured at one or more measuring point is supplied by the supplier of energy to any office building, the determination of the boundary of the GFA shall include the floor area within the boundary where the energy or energy resources is supplied to such office building.

Examples of situations referred to in paragraph 4.3.1 are illustrated in Figures 2 to 6 respectively:

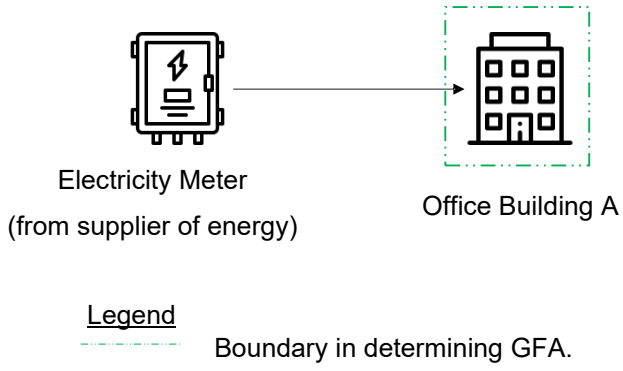


Figure 2: One energy or energy resources measured at one measuring point to one office building

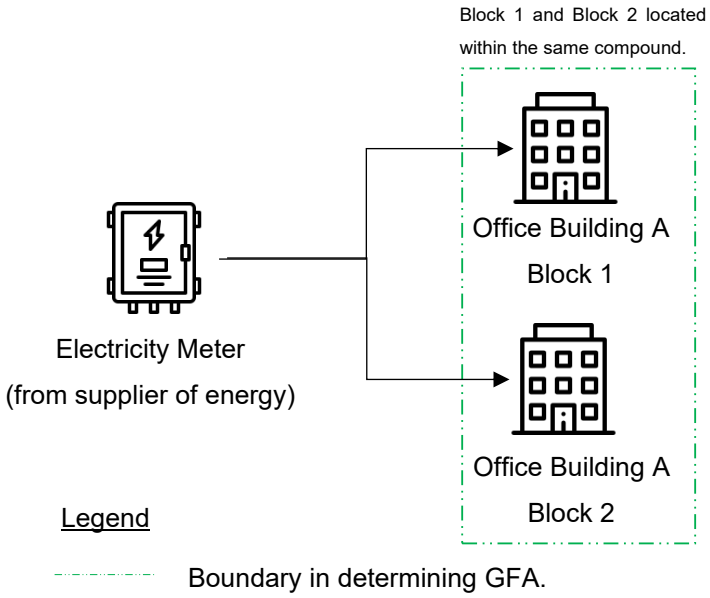


Figure 3: One energy or energy resources measured at one measuring point to multiple office buildings located in the same compound

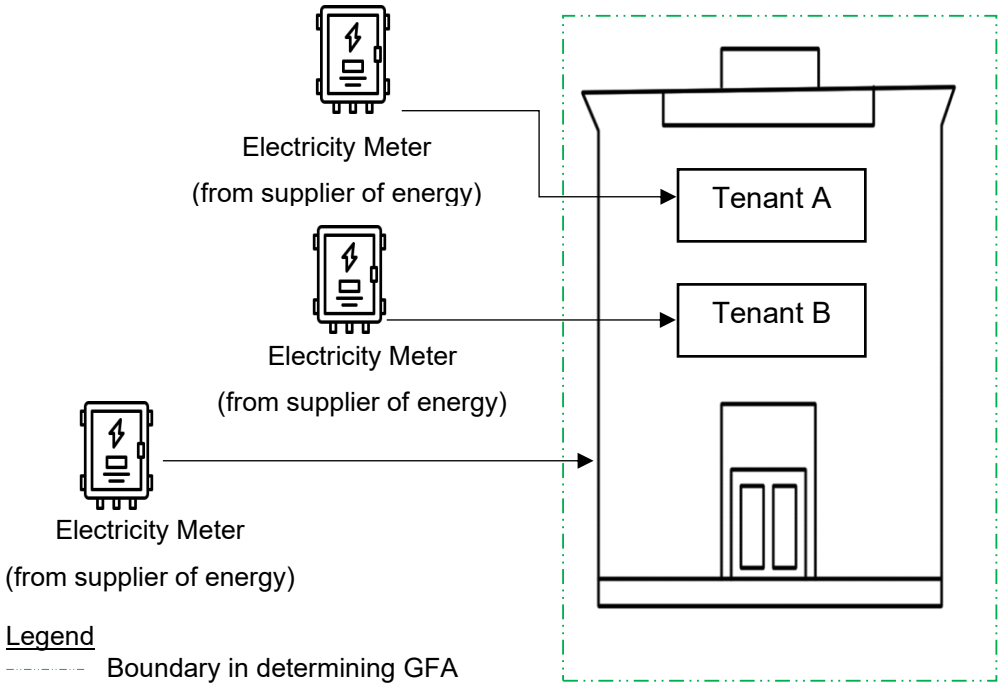


Figure 4: One or more energy or energy resources measured at one or more measuring points supplied by the supplier of energy to multiple office premises located in the same office building

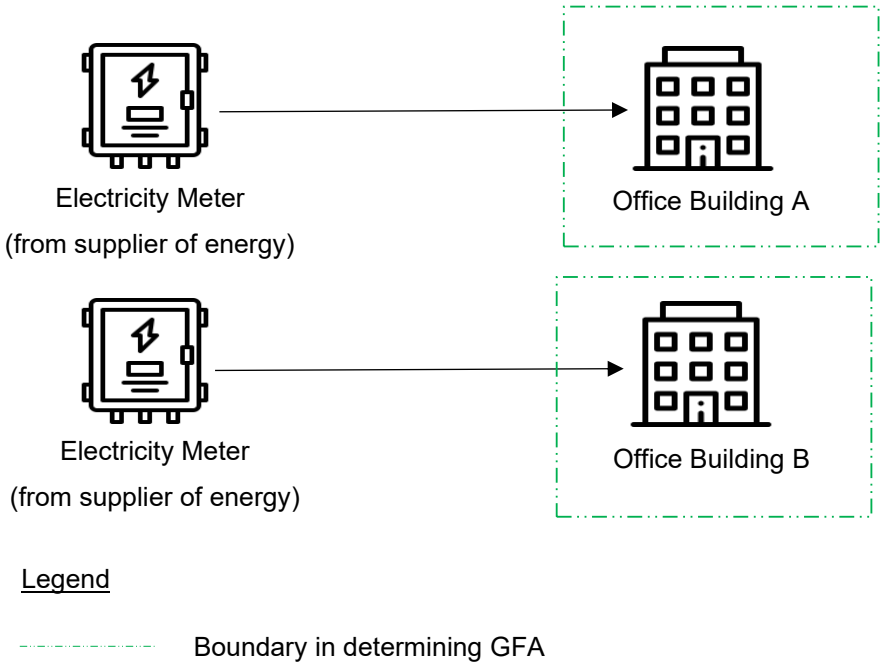


Figure 5: Two energy or energy resources measured at two different measuring points, supplied separately by the supplier of energy to two office buildings located in the same compound.

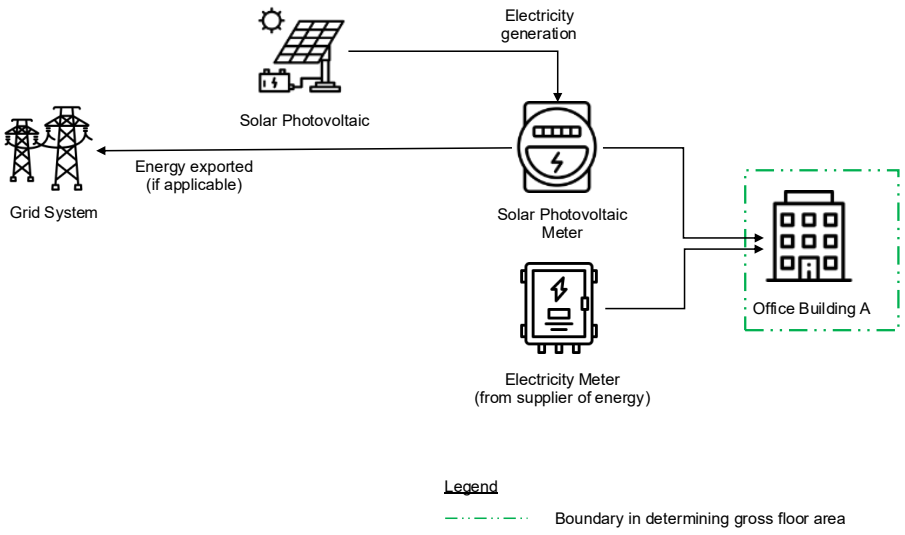


Figure 6: A building supplied with energy generated from solar photovoltaic and energy or energy resources by the supplier of energy measured at two different measuring point

4.3.2 Where an energy is supplied to an office building which is managed, operated or owned by a public installation licensee for the purpose of distributing the energy to the tenants and consumer of such office building, the determination

of the boundary of GFA shall include the floor of the tenants or consumer which the energy is supplied to. The situation is as illustrated in Figure 7 below:

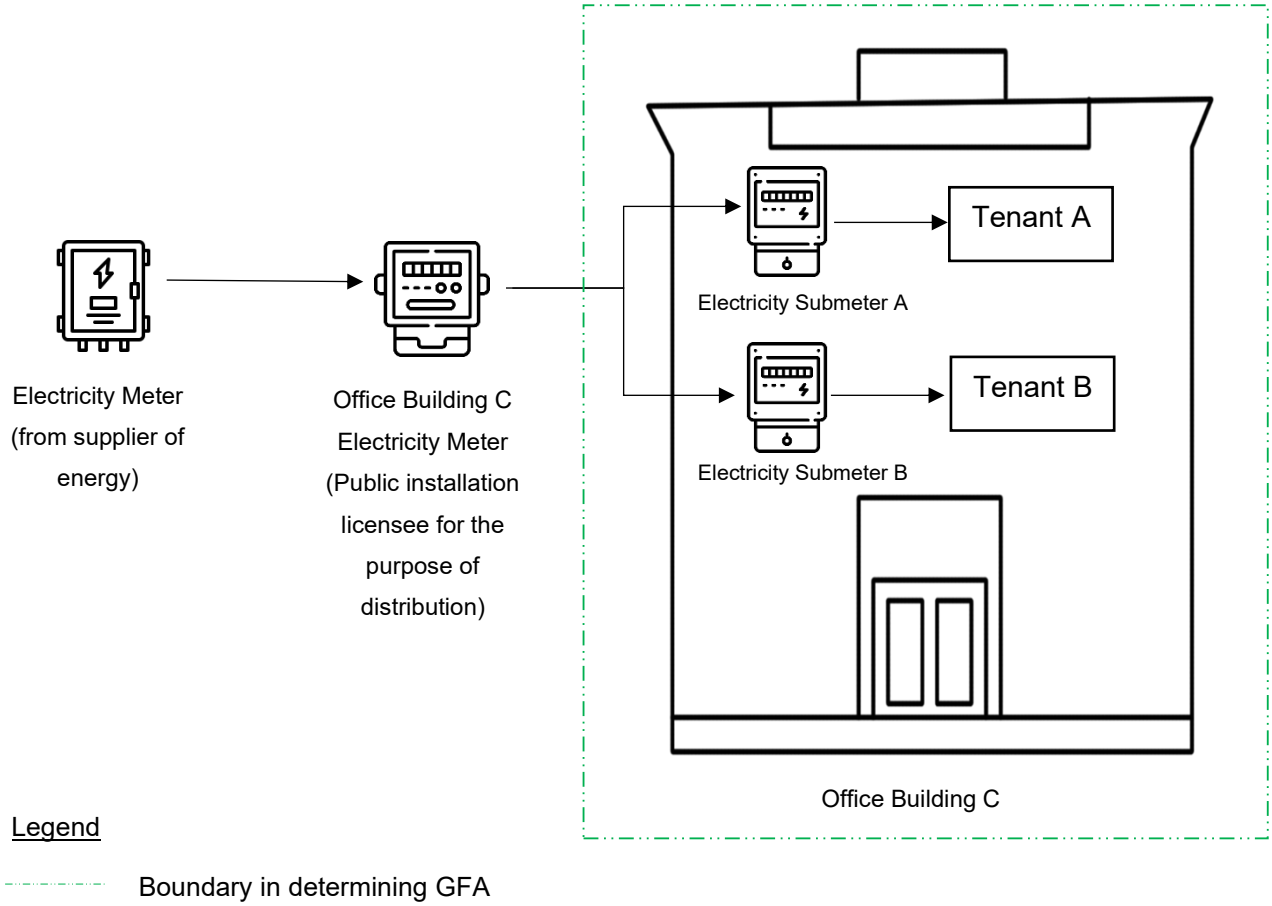


Figure 7: Energy is supplied to an office building which is managed, operated or owned by a public installation licensee for the purpose of distributing the energy to the tenants and consumers of such office building.

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5. METHODOLOGY OF CALCULATING THE EIP FOR BUILDING

A. Office building

5.1 The BEI office building refers to the ratio of the amount of energy or energy resources over a period of twelve consecutive months consumed by the office building to the GFA of such office building.

5.2 The BEI office building referred to in paragraph 5.1 shall be expressed in energy units in gigajoule (GJ) per square meter (GJ/m^2) and calculated based on the following formula in Equation 1 below.

$$BEI\ office\ building\ = \frac{Energy\ Consumption\ (GJ)}{\text{GFA}\ (m^2)}$$

Equation 1: Formula for BEI office building

6. ENERGY EFFICIENCY RATING ("EER")

1. Office building

6.1 The EER for an office building shall be in accordance with subregulation 12*(1)* of the Energy Efficiency and Conservation Regulations 2024 ("Regulations").

6.2 The star rating as stated in the Regulations shall be based on Table 1 and Table 2 below. The conversion table can be referred to Appendix A: Conversion Coefficients and Equivalence.

Star Rating	EIP Range (GJ/m^2/year)	EIP Range (kWh/m^2/year) 1 GJ = 277.778 kWh	Indication
5-Star	EIP ≤ 0.324	EIP ≤ 90	Very efficient
4-Star	0.324 < EIP ≤ 0.396	90 < EIP ≤ 110	Efficient
3-Star	0.396 < EIP ≤ 0.576	110 < EIP ≤ 160	Moderate efficient
2-Star	0.576 < EIP ≤ 0.720	160 < EIP ≤ 200	Slightly efficient
1-Star	EIP > 0.720	EIP > 200	Least efficient

Table 1: The EER for an office building.

Star Rating	EIP Range (GJ/m^2/year)	EIP Range (kWh/m^2/year) 1 GJ = 277.778 kWh	Indication
5-Star	EIP ≤ 0.684	EIP ≤ 190	Very efficient
4-Star	0.684 < EIP ≤ 0.864	190 < EIP ≤ 240	Efficient
3-Star	0.864 < EIP ≤ 1.224	240 < EIP ≤ 340	Moderate efficient
2-Star	1.224 < EIP ≤ 1.512	340 < EIP ≤ 420	Slightly efficient
1-Star	EIP > 1.512	EIP > 420	Least efficient

Table 2: The EER for an office building with chilled water supply

7. ENERGY INTENSITY LABEL

7.1. An energy intensity label is as shown in Figure 8 of these Guidelines. *Pin. 1/2026*



Figure 8: The energy intensity label for building

7.2. The size specification of the energy intensity label is shown in Figure 9 of these Guidelines. *Pin. 1/2026*

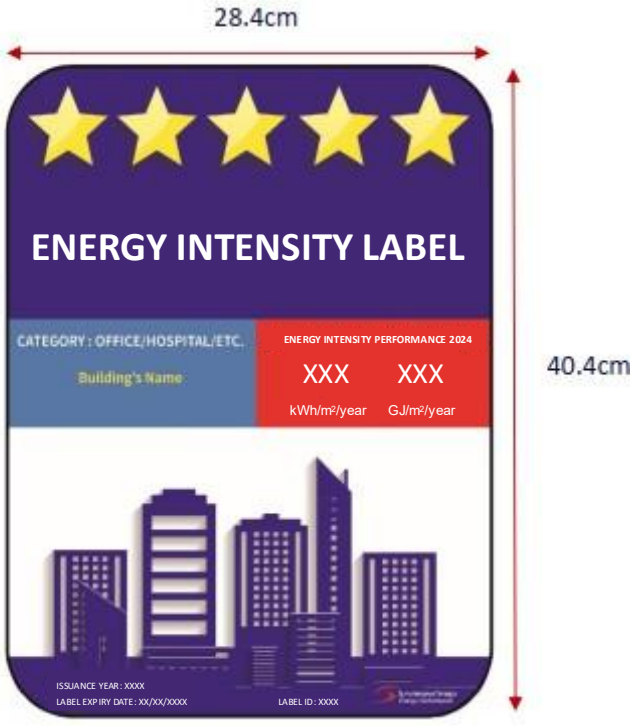


Figure 9: Size specification for an energy intensity label

7.3. The energy intensity label shall be from 1-Star until 5-Star as shown in Figure 10 of these Guidelines. *Pin. 1/2026*



Figure 10: Energy intensity label from 1-Star until 5-Star

8. APPENDIX

Pin. 1/2026

APPENDIX A: CONVERSION COEFFICIENTS AND EQUIVALENCE

Energy Resources

Energy Resources	*Conversion Coefficients/Equivalence*
Hard coal	29.3076 GJ/tonne
Coke/oven coke	26.3768 GJ/tonne
Gas coke	26.3768 GJ/tonne
Brown coal coke	19.6361 GJ/tonne
Pattern fuel briquettes	29.3076 GJ/tonne
Lignite/brown coal	11.2834 GJ/tonne
Peat	9.5250 GJ/tonne
Lignite briquettes	19.6361 GJ/tonne
Liquefied Natural Gas (LNG)	45.1923 GJ/tonne
Butane	50.393 GJ/tonne
Propane	49.473 GJ/tonne
Liquefied Petroleum Gas (LPG) (Mixture of Butane and Propane)	0.045544 GJ/kg 0.13640 GJ/m^3
Natural Gas	1000 GJ/MMscf 1.055 GJ/MMBtu 0.047233 GJ/m^3
Ethane	1,067.82 GJ/MMscf 47.8 GJ/tonne
Methane	1,131.31 GJ/MMscf
Solar Photovoltaic	0.0036 GJ/kWh
Solar Thermal	0.0036 GJ/kWh
Biogas	50.4 GJ/tonne
Biodiesel	42.4960 GJ/tonne 0.03564 GJ/litre
Charcoal	29.5 GJ/tonne
Empty Fruit Bunch (EFB)	18.8 GJ/tonne
Fuelwood	15.6 GJ/tonne
Mesocarp Fibre	18.8 GJ/tonne
Palm Kernel Shell (PKS)	20.1 GJ/tonne

Energy

Energy	***Conversion Coefficients/Equivalence***
Electricity	0.0036 GJ/kWh
Chilled water	0.01266 GJ/RTH 0.0036 GJ/kWrh
Steam (saturated condition) *(a)* at 10 bar steam pressure *(b)* at 8 bar steam pressure *(c)* at 6 bar steam pressure	 2.7771 GJ/tonne 2.7683 GJ/tonne 2.7561 GJ/tonne
Hot water (saturated condition) *(a)* at 80°C hot water temperature *(b)* at 90°C hot water temperature	 0.3350 GJ/tonne 0.3255 GJ/m^3 0.3770 GJ/tonne 0.3639 GJ/m^3

Note:

1. For steam or hot water at temperatures or pressures which is not specified in the list, the conversion factor shall be as specified in the International Steam Tables, Properties of Water and Steam based on the Industrial Formulation IAPWS-IF97.
2. In relation to the conversion coefficients and equivalence of energy, the Appendix may be reviewed by the Commission every two (2) years, where necessary.