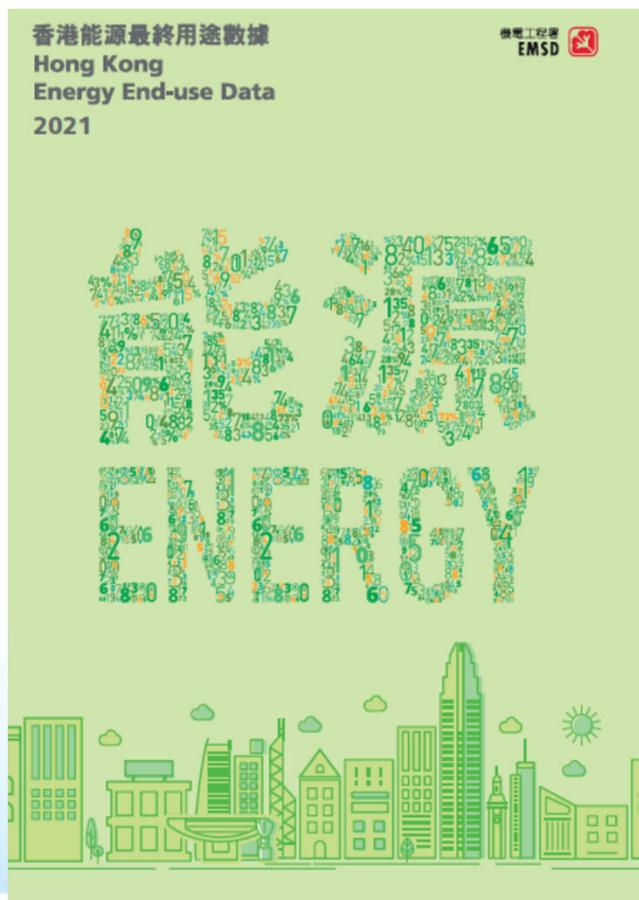


## HKGBC CPD Webinar

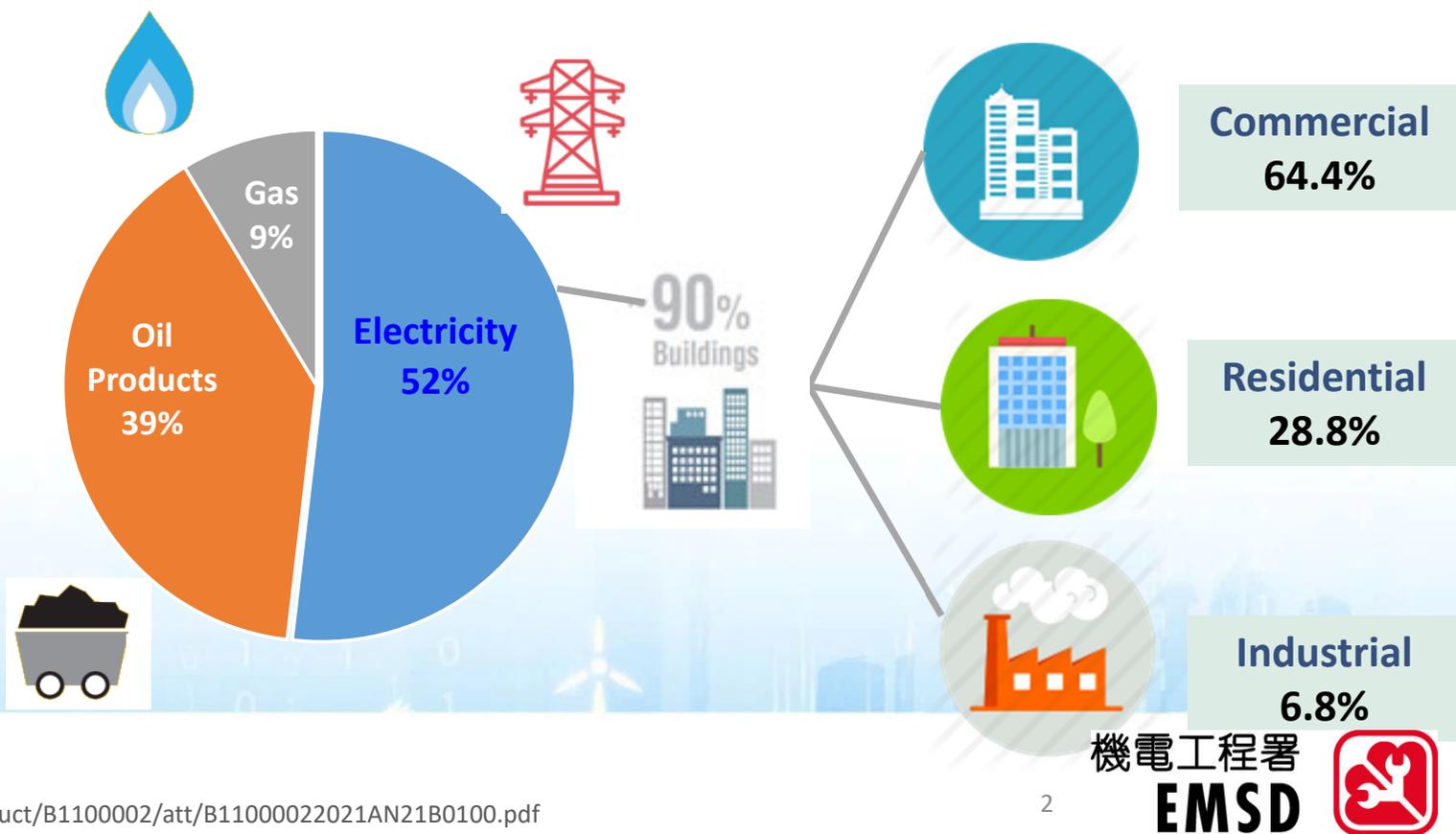
# Enhancing the transparency of energy data and benchmarks in commercial buildings by introducing Online Building Based Electricity Utilization Index Benchmarking Tool

21 July 2022

# Energy Consumption in Hong Kong



## Buildings Consume over 90% of the City's Electricity



Reference:

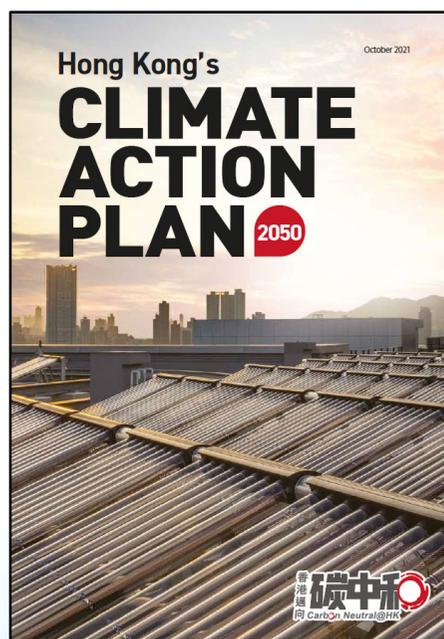
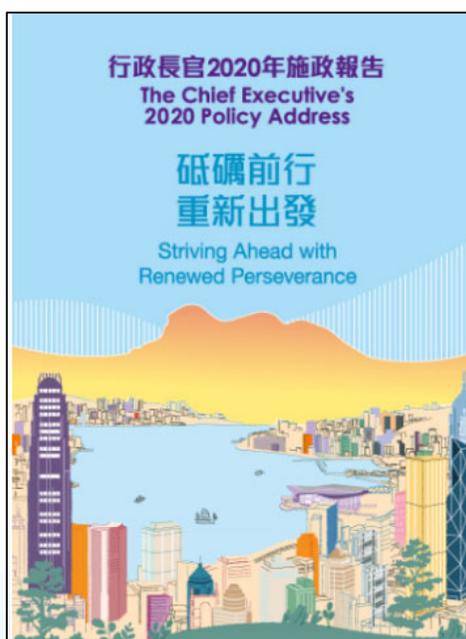
(1) Hong Kong Energy End-use Data 2021, EMSD

(2) [https://www.censtatd.gov.hk/en/data/stat\\_report/product/B1100002/att/B11000022021AN21B0100.pdf](https://www.censtatd.gov.hk/en/data/stat_report/product/B1100002/att/B11000022021AN21B0100.pdf)



# Data Transparency and Benchmarks

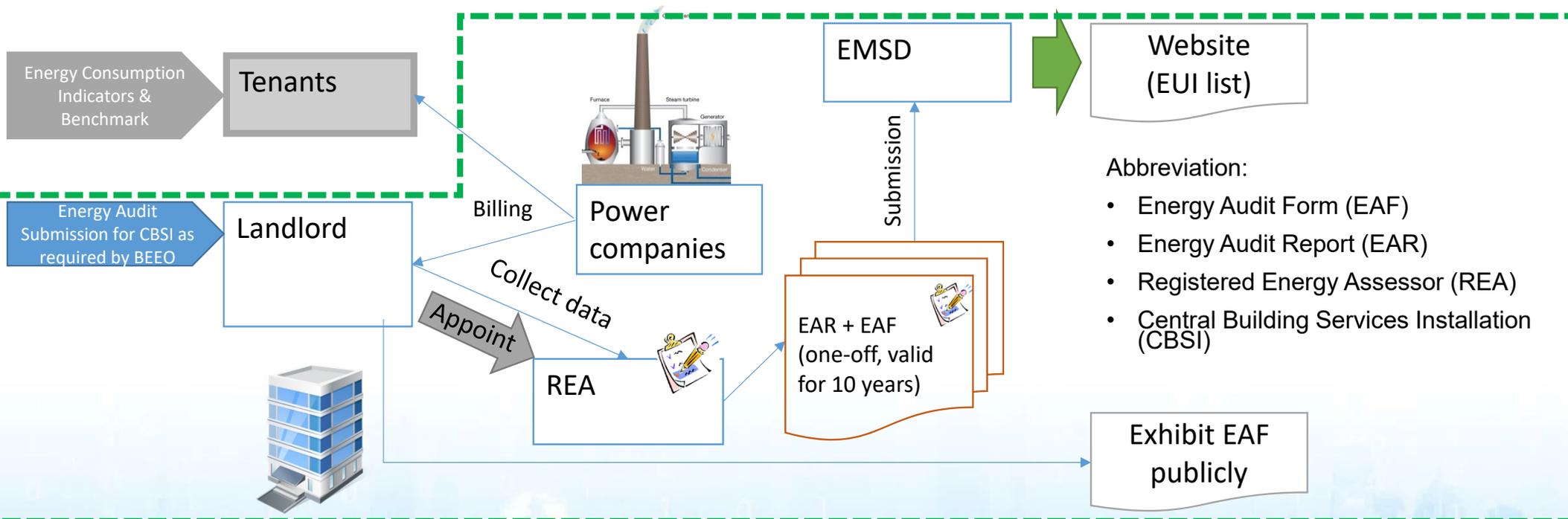
To mobilise the community to take collective actions to conserve energy, we need to enhance the transparency of data and benchmarks. We plan to, through releasing energy data and introducing energy benchmarking tools, facilitate the comparison of building energy consumption performance and establish a two-way partnership in carbon reduction.





# Current BEEO Requirements

## Building



Abbreviation:

- Energy Audit Form (EAF)
- Energy Audit Report (EAR)
- Registered Energy Assessor (REA)
- Central Building Services Installation (CBSI)

- Energy consumption of CBSI over the past 36 months is required to submit.
- EAF is required to exhibit publicly.
- Commercial buildings and commercial portion of composite buildings are required for Energy Audit

# Online Building Based Electricity Utilization Index Benchmarking Tool (Online Benchmarking Tool)

- Benefit of whole Building Electricity Utilization Index:
  - As an index for building owners to identify cost-effective energy upgrades, realize energy and cost savings benefits from those upgrades.
  - As a driving force for building owners to apply energy saving opportunities improving building energy performance
  - allow governments to gain a better understanding of their jurisdictions' building stocks

# Methodology of Building Based EUI Benchmarking Tools

## Building Category

Category	Major usage of Commercial Building
C1	Office Building
C2	Retail Building
C3	Mixed commercial development (IFA $\leq$ 25,000m <sup>2</sup> )
C4	Mixed commercial development (IFA $>$ 25,000m <sup>2</sup> )
C5	Commercial Building without Central A/C

# Launching of Online Benchmarking Tool

**建築物電力使用指數網上基準工具 (網上基準工具)**  
**Online Building Based Electricity Utilization Index Benchmarking Tool (Online Benchmarking Tool)**

已於2022年6月17日正式推出  
 Launched on 17 June 2022

**齊用網上基準工具 共建低碳節能綠建**  
 Wide use of Online Benchmarking Tool for achieving energy saving, promoting low-carbon life style and green building.

詳情請參閱以下網址  
 For details, please refer to the website at the following link:



# Online Benchmarking Tool

TEXT SIZE | 繁 | 簡
EMSD
HOME | TERMS AND CONDITIONS OF USE

建築物電力使用指數網上基準工具 (網上基準工具)  
**Online Building Based Electricity Utilization Index Benchmarking Tool (Online Benchmarking Tool)**

INTRODUCTION   GLOSSARY   STEP TO USE   OVERVIEW OF ELECTRICITY UTILIZATION INDEX   ONLINE BENCHMARKING TOOL

## Introduction

To mobilise the community to take collective actions to improve building energy efficiency and enhance the transparency of data and benchmarks, the Energy Efficiency Office of the Electrical and Mechanical Services Department (EMSD) has launched the Online Building Based Electricity Utilization Index Benchmarking Tool (online benchmarking tool) for five categories of commercial buildings in Hong Kong.

The online benchmarking tool serves to facilitate the comparison and review of building electricity utilization performance, thereby allowing building owners to benchmark their own electricity utilization performance with others having similar building usage. It also provides general advice on promoting building energy saving.

The online benchmarking tool is applicable to the following major categories of commercial building:

Category	Major usage of Commercial Building
C1	Office Building
C2	Retail Building
C3	Mixed commercial development (Total internal floor area ≤ 25,000m <sup>2</sup> )
C4	Mixed commercial development (Total internal floor area > 25,000m <sup>2</sup> )
C5	Building without Central A/C



建築物電力使用指數網上基準工具 (網上基準工具)  
**Online Building Based Electricity Utilization Index Benchmarking Tool (Online Benchmarking Tool)**

INTRODUCTION   GLOSSARY   STEP TO USE   OVERVIEW OF ELECTRICITY UTILIZATION INDEX   ONLINE BENCHMARKING TOOL

## Online Benchmarking Tool

Building Category \*

Building Name

Address

District

# Step to use Online Benchmarking Tool

## Step 1: Selecting your Building Category & Entering Building Information

To choose the building category of their building and enter the building information (if available)

### Online Benchmarking Tool

Building Category \*  
Office Building  
Office Building  
Retail Building  
Mixed commercial development (TIFA ≤ 25,000m<sup>2</sup>)  
Mixed commercial development (TIFA > 25,000m<sup>2</sup>)  
Commercial Building without Central A/C

Building Name

Address

District  
No Preference

Your calculated Electricity Utilization Index (kWh/m<sup>2</sup>/annum) <sup>a</sup>

OR

Annual Electricity Consumption (kWh/annum) <sup>a</sup>

Total Internal Floor Area (m<sup>2</sup>) <sup>b</sup>

Calculate

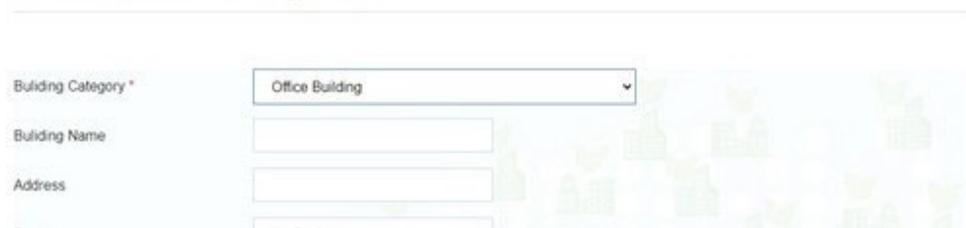
Electricity Utilization Index calculated by the tool (kWh/m<sup>2</sup>/annum)

Submit

## Step to use Online Benchmarking Tool

### Step 2: Input Electricity Utilization Index of a building

#### Online Benchmarking Tool

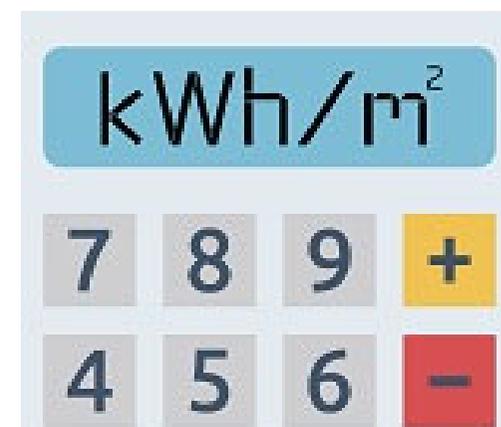


Building Category \* Office Building

Building Name

Address

District

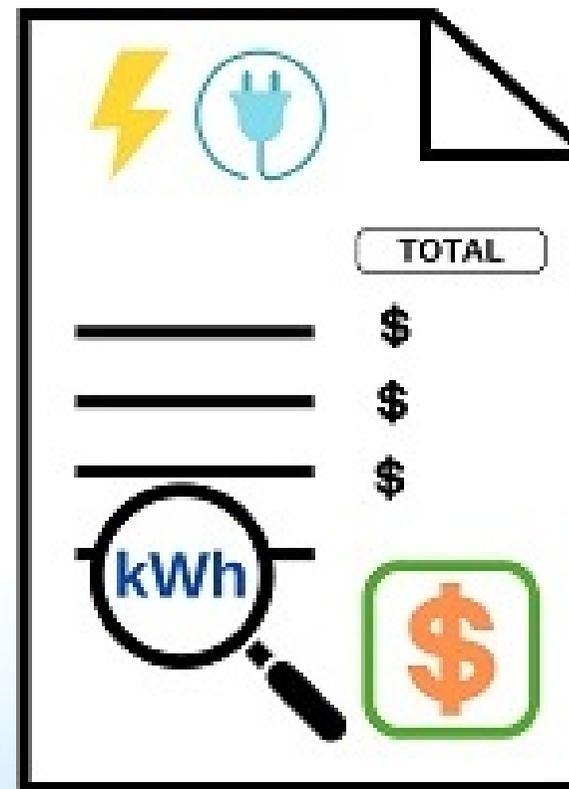


$$\text{Electricity Utilization Index} = \frac{\text{Annual Total Electricity Consumption of Whole Building (kWh / annum)}}{\text{Total Internal Floor Area of Whole Building (m}^2\text{)}}$$

## Step to use Online Benchmarking Tool

### Step 3: How to obtain Annual Electricity Consumption (kWh/annum) of your building?

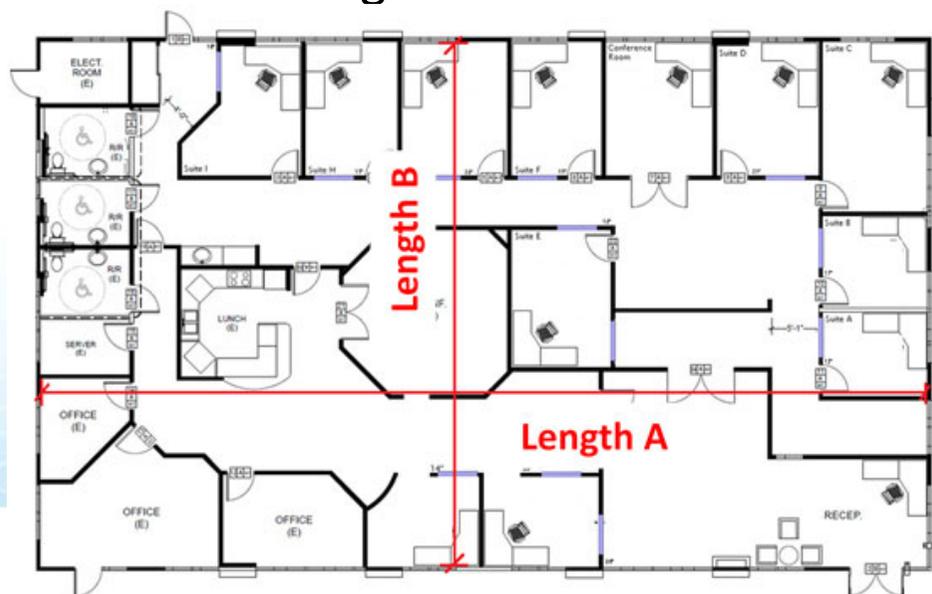
- User can collect the 12-month period electricity consumption data of a building from associated meter devices if available; or
- Collect the 12-month period electricity consumption data of a building in kWh from landlord's and all tenants' electricity bills.



## Step to use Online Benchmarking Tool

### Step 4: How to obtain total internal floor area (m<sup>2</sup>) of your building?

With reference to the Building Energy Efficiency Ordinance (Cap.610), 'total internal floor area', in relation to a building, a space or a unit, means the sum of the floor area of all enclosed spaces measured to the internal faces of enclosing external and/or party walls for the whole building



$$\text{Total Internal Floor Area (TIFA)} = \text{Length A} \times \text{Length B}$$

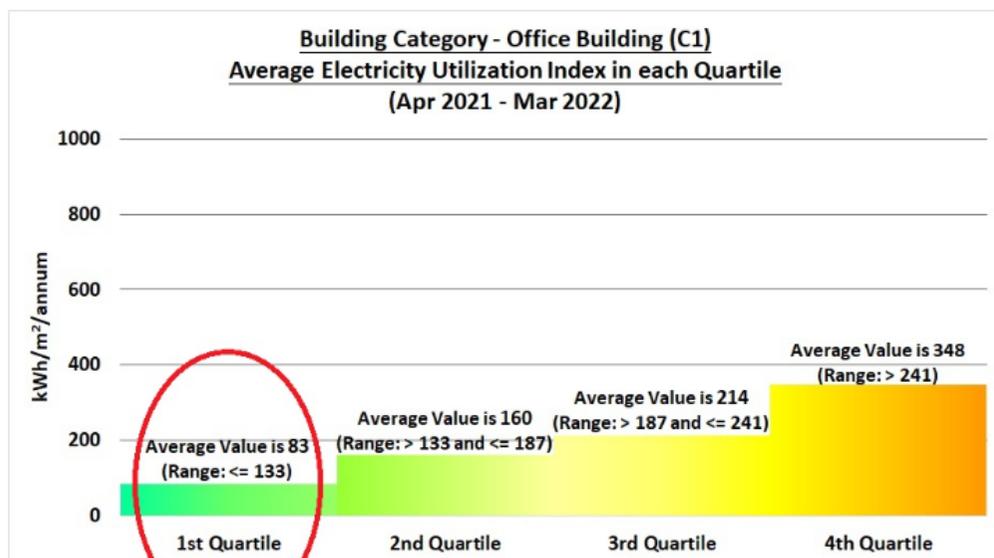
## Step to use Online Benchmarking Tool

### Step 5: Benchmark the Electricity Utilization Index of Building

To input the calculated electricity utilization index into the Online Benchmarking Tool, and the rating of its electricity utilization index among similar buildings will be obtained.

#### 1<sup>st</sup> QUARTILE

Your reported Electricity Utilization Index of whole building is 128 kWh/m<sup>2</sup>/annum



- **Lower EUI value** will be categorized in **lower quartile of benchmarking tools** and implied that **higher building energy efficiency** compared with other buildings in 2<sup>nd</sup> to 4<sup>th</sup> quartiles.
- Benchmark result based on the period of **Apr 2021 - Mar 2022** and will be **updated annually**, next round by **around Q3 of 2023**.

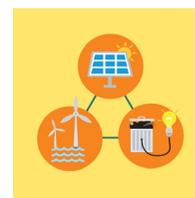


# Step to use Online Benchmarking Tool

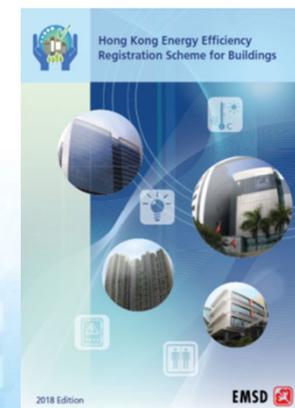
## Step 6: Tips for enhancing building energy efficiency

Building owners may consider adopting the general advice on energy saving proposed by the tool to enhance building energy efficiency and improve the electricity utilization performance of the building after using this Online Benchmarking Tool

How to improve energy performance of building?

An energy label showing a scale from 1 (most efficient) to 5 (least efficient). The label is currently set to level 1. It includes fields for Annual Energy Consumption, Cooling Capacity, Refrigerant, and Name of Consultant.

more efficient 節能更優	1
Annual Energy Consumption 全年總耗電量	420
Cooling Capacity (kW) (冷量) (Y & L)	2.54
Refrigerant 制冷剂	None
Name of Consultant 顧問	HK 中電 香港電力有限公司



# 建築物電力使用指數網上基準工具

## Online Building Based Electricity Utilization Index Benchmarking Tool

香港邁向 Carbon Neutral@HK

Thank You

機電工程署  EMSD

