



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019

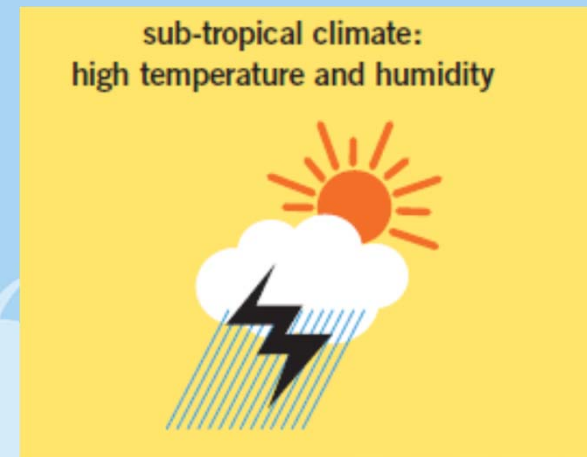
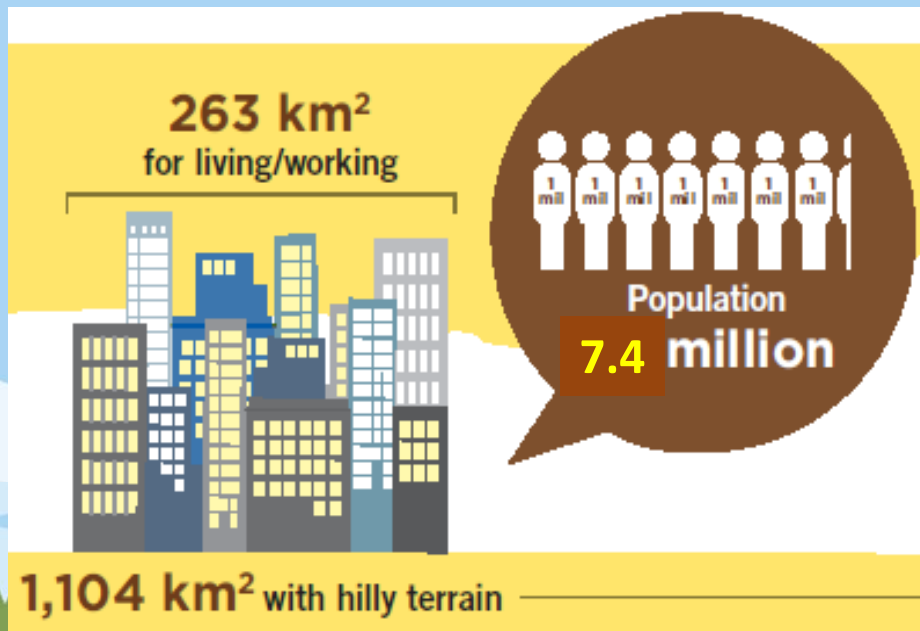
6 May 2019



Hong Kong's Position

**ENERGY SAVING
FOR ALL**

- High population density: approx. 28,000 persons/km² (Built-up areas only)
- High humidity and Hot in summer (average 29 very hot days per year in past 5 years)



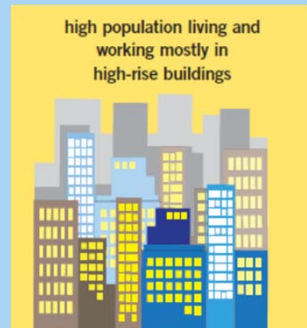


Hong Kong's Position

- 50,000+ buildings (360+ skyscrapers over 150m or 40/F)
- Total energy use (2016) : 289,219 Tera-joules (TJ)
- Total electricity use (2016) : 44,073 million kWh (~500 kWh/month/person)



ENERGY SAVING FOR ALL



Source: Energy Saving Plan 2015~2025+

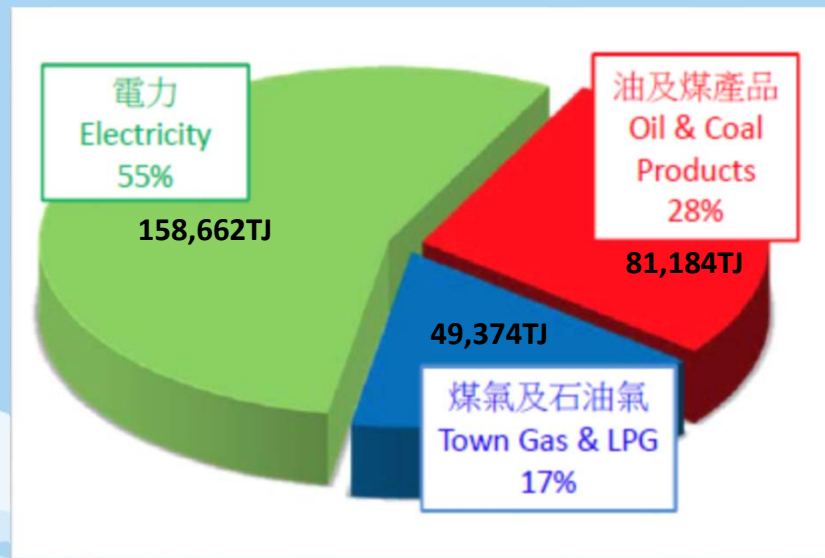




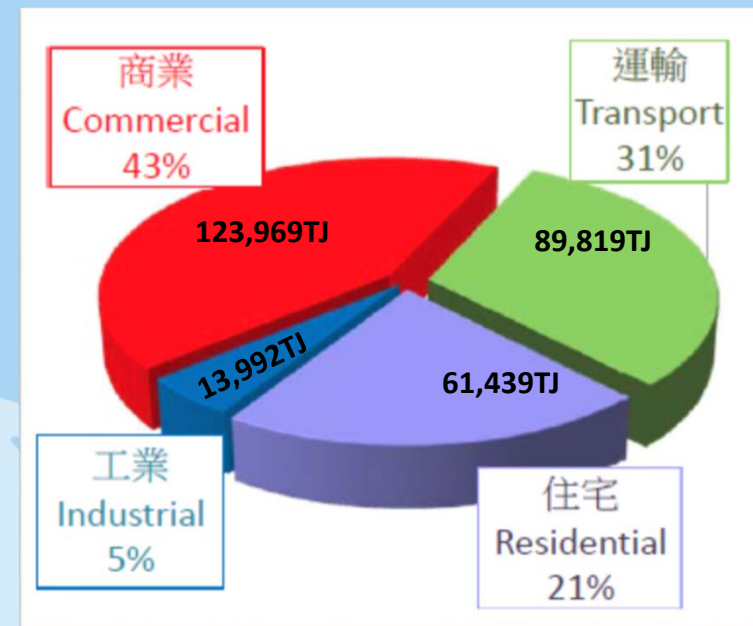
Hong Kong's Energy Use

**ENERGY SAVING
FOR ALL**

Energy End-use by Fuel Types



Energy End-use by Sectors

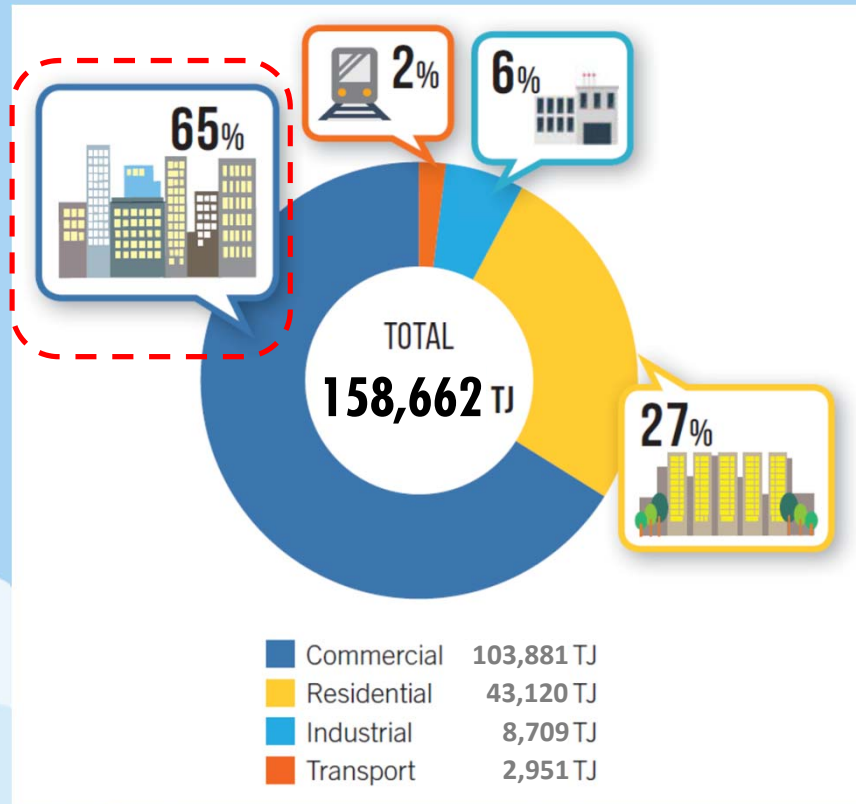


Source: Hong Kong Energy End-use Data, EMSD

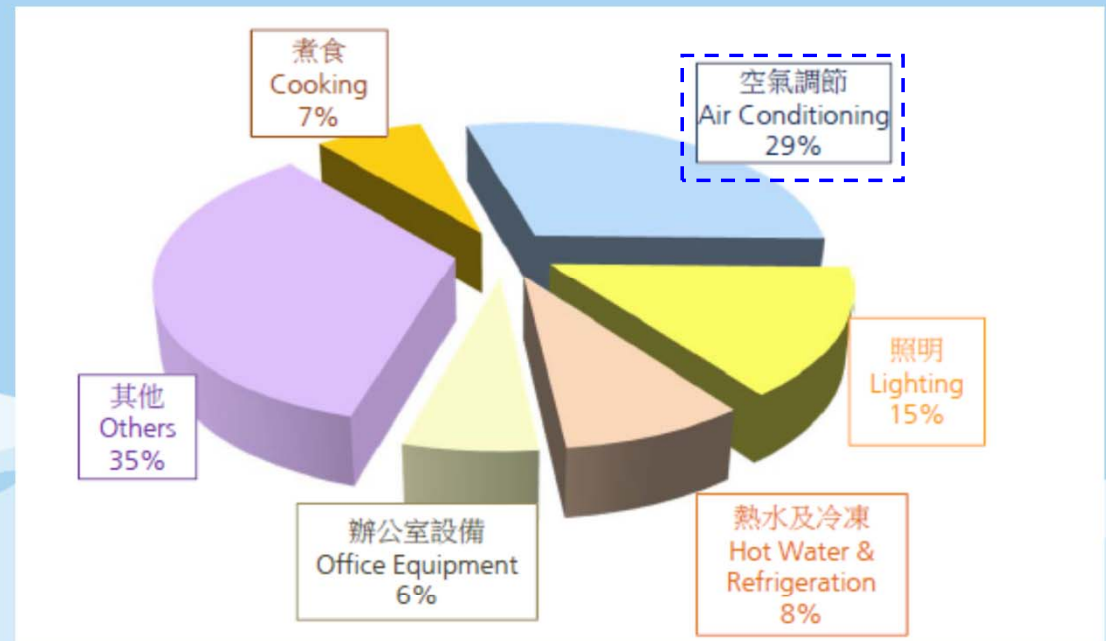


Hong Kong's Electricity Consumption

**ENERGY SAVING
FOR ALL**



Energy End-use of Commercial Segments



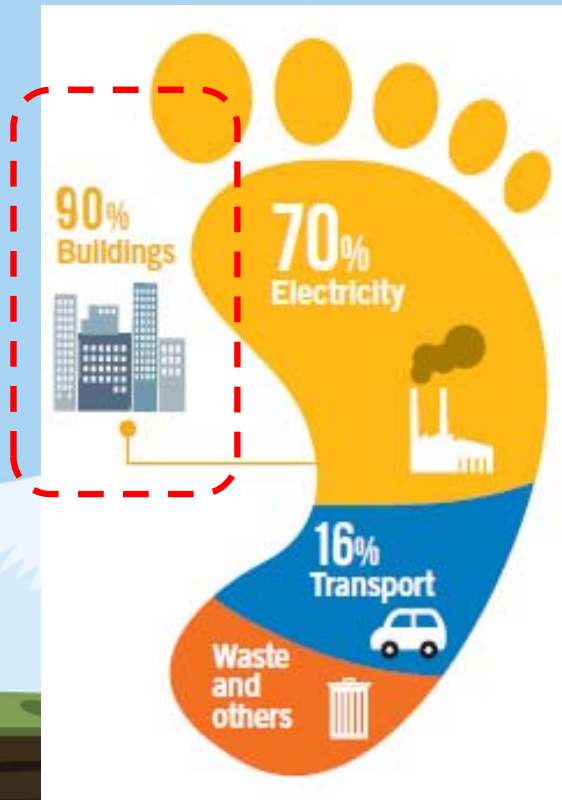
Source: Hong Kong Energy End-use Data https://www.emsd.gov.hk/filemanager/en/content_762/HKKEUD2018.pdf



Hong Kong's Electricity Consumption

**ENERGY SAVING
FOR ALL**

Electricity generation is major source of carbon emissions



Building sector:

~ **90%** electricity

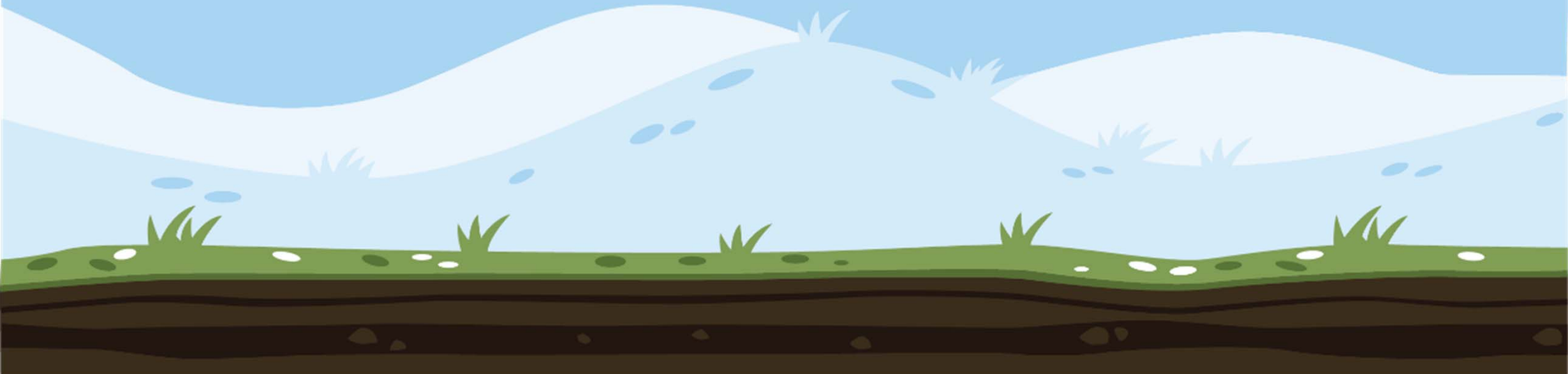
~ **60%** carbon emission



**ENERGY SAVING
FOR ALL**

Energy Saving Charter

(First launching in 2012)



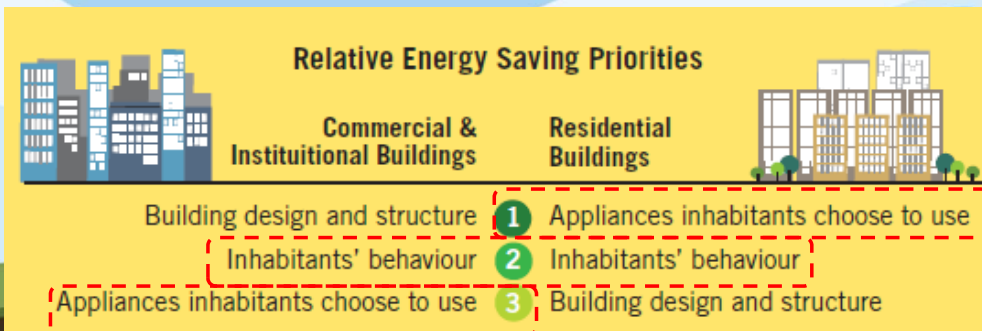
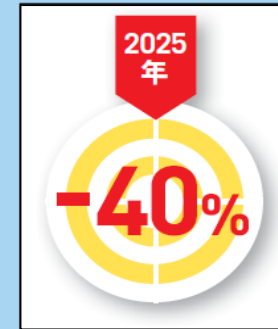


Energy Saving Charter - Background

ENERGY SAVING
FOR ALL

Energy Saving Plan

- Target: **40% reduction** in energy intensity (energy use per GDP) in 2025 (using 2005 as base year)
- Engage large energy commercial users to save energy
- Inhabitants' behavior and use of appliances are critical in energy saving in buildings



KEY ACTIONS

SOCIAL

- 8 Support community campaigns via government funding schemes
- 9 Collaborate with large energy commercial users to develop sector specific campaigns
- 10 Secretary for the Environment to engage built environment leaders to accelerate green building adoption in the private sector

Source: 《Energy Saving Plan 2015~2025+》 <http://www.enb.gov.hk/sc/energysavingplan.html>



Energy Saving Charter - Background

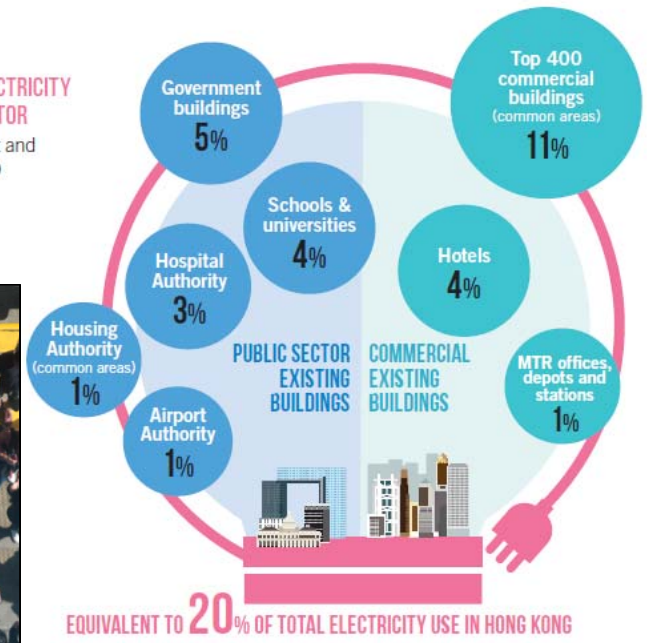
**ENERGY SAVING
FOR ALL**

Major electricity users:

- Commercial buildings (11% for top 400)
- Government buildings (5%)
- Schools & universities (4%)
- Hotels (4%)
- Hospitals (3%)
- Housing Authority (1%)



FIGURE 13
**PERCENTAGE OF ELECTRICITY
IN COMMERCIAL SECTOR**
(includes government and
institutional buildings)



Source: Climate Action Plan 2030+, <http://www.enb.gov.hk/sites/default/files/pdf/ClimateActionPlanEng.pdf>



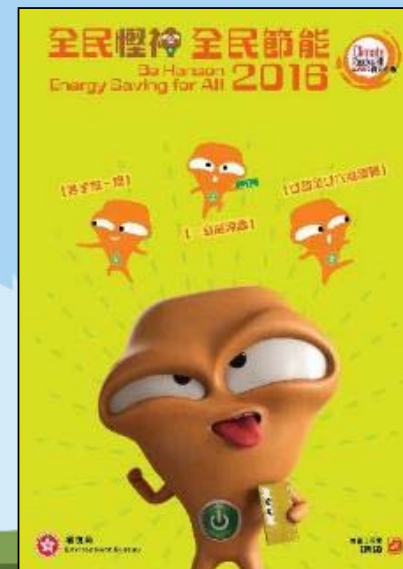
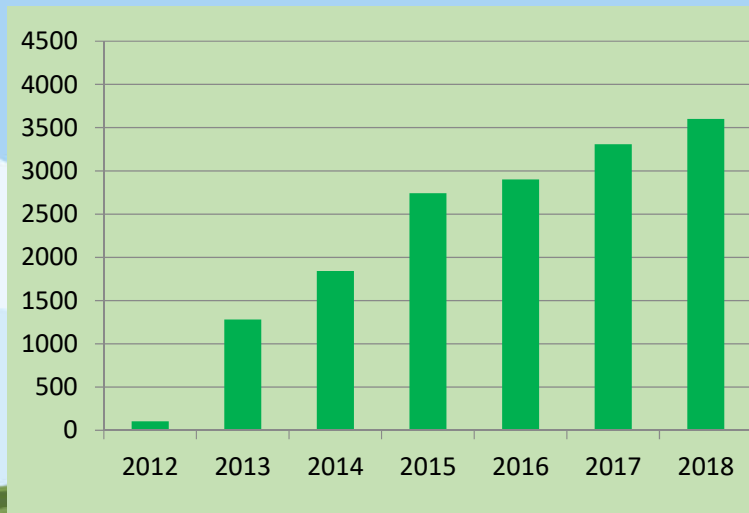
Energy Saving Charter - Scope

**ENERGY SAVING
FOR ALL**



Energy Saving Charter on Indoor Temperature

Energy Saving Charter





Energy Saving Charter - Category

**ENERGY SAVING
FOR ALL**

2012	2013	2014	2015	2016	2017 - 2019
Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall
	Shop	Shop	Shop	Shop	Shop
	Office Building	Office Building	Office Building	Office Building	Office/ Commercial/ Industrial Building
	Office	Office	Office	Office	Office
		Residential Building/ Housing Estate	Residential Building/ Housing Estate	Residential Building/ Housing Estate	Residential Building/ Housing Estate
			NGO	NGO	NGO/ Community Facility
				School	School (Kindergarten/ Primary & Secondary/ Post Secondary)
					Hotel
					Hospital
					Others



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Coverage

Proposed Categories:-

- 1) Shopping Mall
- 2) Residential Building/ Housing Estate
- 3) Office/ Commercial/ Industrial Building
- 4) Office*
- 5) Non-governmental Organization/Community Facilities
- 6) Shop *
- 7) Schools (Kindergarten / Primary & Secondary Schools / Post-Secondary Education Institution)
- 8) Hotel
- 9) Hospital
- 10) Others (not covered in the above sectors, such as Airport Authority, MTRC, quasi-government organizations)

* Supportive organizations (recruit shops/offices)



Energy Saving Charter 2019 – Benefits

ENERGY SAVING FOR ALL

- 1) Participating certificates for signatories
✓ With recognition for premises signed up the Charter (e.g., since 2012)
- 2) Uploading names participating premises to event website

The screenshot displays the 'PARTICIPANTS' section of the Energy Saving Charter 2019 website. It features a sidebar with category filters (Shopping Mall, Office Building, etc.) and a main list of participants under the 'Shopping Mall' category, including ARA Asset Management, Citybase Property Management, and Guardian Management Services. A '2018' badge with a cartoon character is visible. To the right, a certificate template is shown, featuring the Environment Bureau and EMSD logos, the title 'Energy Saving Charter 2019', and a pledge in both Chinese and English. A blue callout bubble with the text 'Since 2012?' points to the participant list. The bottom of the certificate template includes a cartoon character and icons representing energy-saving measures like wind turbines and solar panels.

Certificate template is for reference only, design will be further finalized



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Benefits

- 3) Supportive organizations (recruit shops/offices) – recognition by appreciation certificates/ invite Hanson to visit supportive shopping malls





Energy Saving Charter 2019 – Scope

**ENERGY SAVING
FOR ALL**

- 1) To implement energy saving practices
 - ✓ Maintain average indoor temperature at 24-26°C during summer (*June to September 2019*)
 - ✓ Switch off appliances and systems when not in use
 - ✓ Procure energy efficient products and systems (*such as Grade 1 electrical appliances*)
 - ✓ Engage staff/students/tenants to adopt the above practices together
- 2) Implement from June 2019 and May 2020 (12 months)



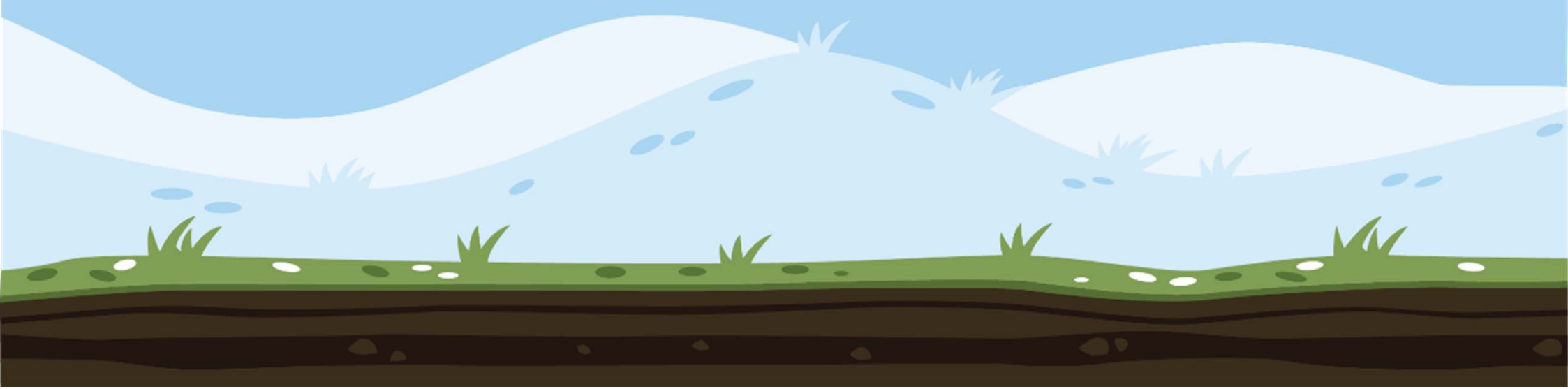
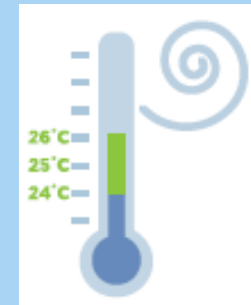


Energy Saving Charter 2019 – Scope

**ENERGY SAVING
FOR ALL**

(1) Maintain average indoor room temperature at 24-26°C during summer (June to September)

- Similar practice adopted in the Mainland (26°C), Japan (26°C) and US (78°F, which is about 25.5°C)
- Save up to 3% energy for keeping 1°C higher





**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Scope

(1) Maintain indoor room temperature at 24-26°C during summer

- Conduct air temperature measurement regularly
- Keep all the windows and doors close when air-conditioner is running.
- Keep doors between air-conditioned and non-air-conditioned areas such as those connecting the outside of the building, lift lobbies, toilets and stores shut so as to minimize air infiltration when the air-conditioner is operating.
- Procure fridges with doors and keep doors of fridges closed.



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Scope

(2) Switch off appliances and systems when not in use

- Lights, air-conditioners should be switched off in areas that are unoccupied.
- lift and escalator idled or with light load during non-peak hours.
- Use appliances with timer control or automatically switch-off control functions to avoid leaving appliances in standby mode for a long period
- Switch off the computer screen can save more energy instead of letting the "screen saver" run.
- Arrange for the last-man-out to check and switch off the power source when leaving office

See more tips at http://www.energysaving.gov.hk/esc2018/filemanager/doc/be_hanson_energy_saving_tips.pdf



ENERGY SAVING FOR ALL

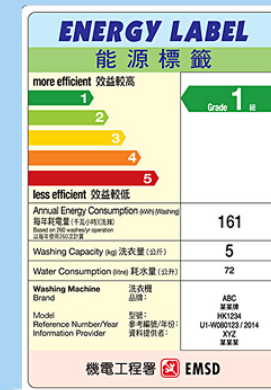
Energy Saving Charter 2019 – Scope

(3) Procure energy efficient appliances and systems, such as appliances with **Grade 1 energy label**

The diagram illustrates the scope of the Energy Saving Charter 2019, third phase, categorized into three groups:

- Existing prescribed products (現有訂明產品):** Refrigerating Appliances (冷凍器具), Compact Fluorescent Lamps (CFLs) (慳電膽), Dehumidifiers (抽濕機), Room Air Conditioners (包括製冷及供暖表現) (空調機), and Washing Machines (由額定洗衣量不多於7公斤增至不多於10公斤) (洗衣機).
- Existing prescribed products extended scopes in third phase (第三階段擴展涵蓋範圍的現有訂明產品):** Room Air Conditioners (包括製冷及供暖表現) (空調機) and Washing Machines (由額定洗衣量不多於7公斤增至不多於10公斤) (洗衣機).
- New prescribed products in third phase (第三階段新納入的產品):** Televisions (電視機), Storage Type Electric Water Heaters (儲水式電熱水器), and Induction Cookers (電磁爐).

*第三階段於2018年6月1日起生效，有18個月寬限期。
*The third phase commenced on 1 June 2018 with an 18-month grace period.



	第1級比第3級 Grade 1 vs Grade 3	第1級比第5級 Grade 1 vs Grade 5
空調機（製冷表現） Room Air Conditioners (Cooling Performance)	23%	43%
空調機（供暖表現） Room Air Conditioners (Heating Performance)	18%	37%
冷凍器具 Refrigerating Appliances	41%	97%
慳電膽 Compact Fluorescent Lamps (CFLs)	14%	18%

Source: <https://www.emsd.gov.hk/energylabel/en/about/background2.html>



Energy Saving Charter 2019 – Scope

ENERGY SAVING FOR ALL

(3) Procure energy efficient appliances and systems, such as appliances with **Voluntary Energy Efficiency Labelling Scheme (VEELS)**

Grading Type	
Household Appliances	Refrigerating Appliances (Voluntary Scheme), Room Air Conditioners (Voluntary Scheme), Household Electric Storage Water Heaters, Washing Machines (Voluntary Scheme), Television, (Light Emitting Diode) LED Lamp, Induction Cookers and Electric Clothes Dryers

Recognition Type	
Household Appliances	Non-integrated Type Compact Fluorescent Lamps, Electric Rice-Cookers, Dehumidifiers (Voluntary Scheme), Microwave Ovens and Electronic Ballasts
Office Equipment	Computers, Hot/ Cold Bottled Water Dispensers, LCD Monitors, Photocopiers, Fax Machines, Multifunction Devices and Printers
Gas Appliance	Domestic Gas Instantaneous Water Heaters and Gas Cookers

Source: <https://www.energysaving.gov.hk/esc2019/en/tips/index.html>

ENERGY LABEL
能源標籤

Brand 牌子	ABC
Model 型號	某某牌 HK1234
Annual Energy Consumption * kWh/yr 每年耗電量 每年度小時	364
Energy Efficiency Grade* 能源效率級別	2
Washing Machine Category * 洗衣機類別	1
Washing Capacity (kg) 洗衣量 (公斤)	5
Water Consumption (litre) 耗水量 (公升)	72
EEL Registration Number 能源標籤登記號碼	W 97-0001

* The data are provided according to the Hong Kong Energy Efficiency Labelling Scheme for Washing Machines administered by the Electrical and Mechanical Services Department (EMSD), Government of the Hong Kong Special Administrative Region. The registration record can be found at the EMSD website at www.emsd.gov.hk.

資料根據香港特別行政區政府機電工程署推行的香港洗衣機能源效率標籤計劃的規定列出。有關註冊記錄可查閱網址 www.emsd.gov.hk。

機電工程署 EMSD

ENERGY LABEL
能源標籤

Reg. No. 登記號碼: RC11-0001

Electric Rice-Cooker
(電飯煲)

機電工程署 EMSD

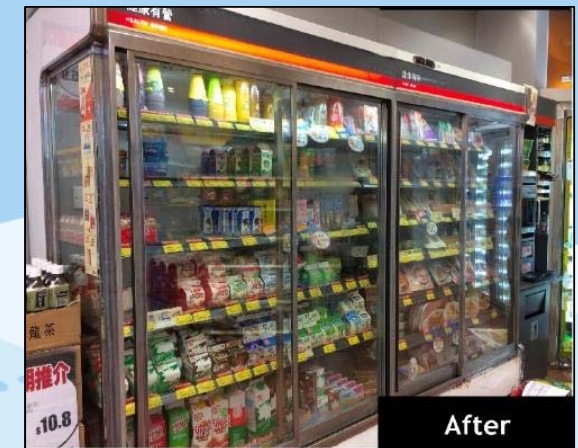
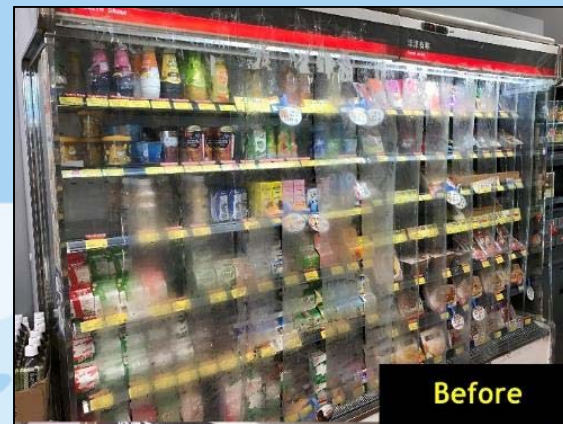


**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Scope

Procure fridges with door

- Approach head offices of chain shop, supermarkets



Source: <https://www.wwf.org.hk/en/news/featuredstories/?19520/Feature-Story-Fridge-Doors-Save-the-Climate-Hong-Kongs-first-energy-report-and-best-practice-guide-on-commercial-refrigeration>



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2019 – Scope

(4) Engage staff / students to adopt the above energy saving practices together

- Involve staff / students in planning and implementation of energy saving practices.
- Set goals and provide feedback to staff / students on progress / results of energy saving practices
- Provide briefing / seminar / workshops to staff / students
- Communicate regularly with staff / students on energy saving practices
- Create opportunities for sharing of goals and accomplishments.



Energy Saving Charter 2019 – Saving Tips

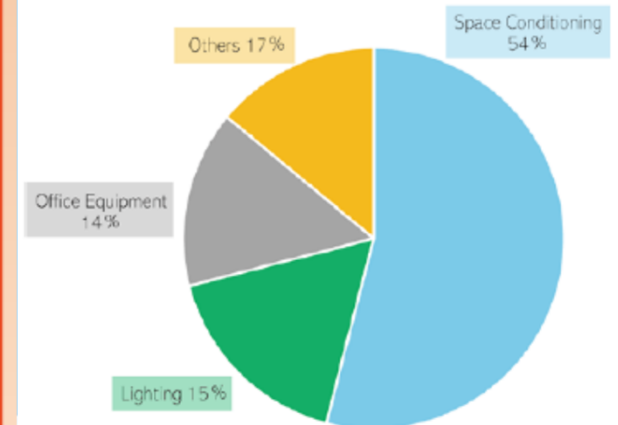
**ENERGY SAVING
FOR ALL**

Introduction

This booklet aims to provide tips for saving energy in the office*.

Some simple energy saving tips at office:

- ◆ Set and maintain air-conditioned room temperature between 24°C and 26°C in summer.
- ◆ Switch off office equipment that is not in use.
- ◆ Use appliances with timer control or automatically switch-off control functions to avoid leaving appliances in standby mode for a long period.
- ◆ Procure energy efficient office equipment.
- ◆ Carry out regular maintenance on office equipment for optimal energy efficiency performance.
- ◆ When leaving office, arrange for the last-man-out to check and switch off the power source to all air conditioning, lighting and office equipment that are not in use.



Breakdown of Energy Use of a Typical Office

Source: https://www.emsd.gov.hk/filemanager/en/content_718/Energy_Saving_Tips_for_Office.pdf

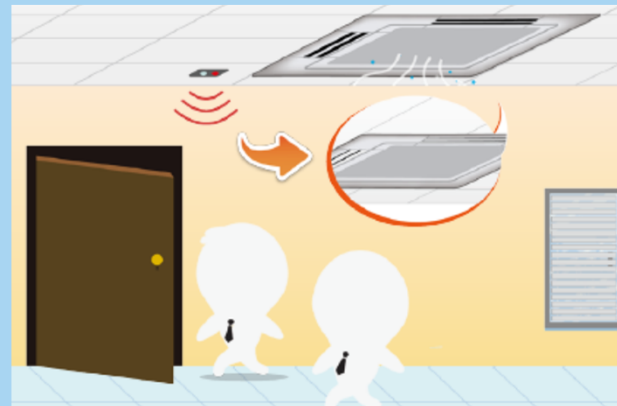


Energy Saving Charter 2019 – Saving Tips

**ENERGY SAVING
FOR ALL**

Air Conditioning (AC) and Ventilation

- ◆ Switch off the AC in offices, meeting rooms, etc. right after use. Affix “Save Energy” stickers as a reminder at the exit.
- ◆ Install occupancy/motion sensors to automatically switch on and off the air-conditioning in those areas infrequently used, e.g. in conference rooms.
- ◆ Keep the windows and doors closed when the AC is turned on and use curtains or blinds to shade against sunlight.
- ◆ Switch off lighting and heat-producing appliances that are not in use to reduce air-conditioning load.



- ◆ Dress light to minimize the use of AC.
- ◆ Maintain average room temperature between 24°C and 26°C in summer months.
- ◆ Install thermometers to monitor the room temperature to avoid excessive cooling.
- ◆ Set the fan coil to “low” fan speed as the normal setting. Use a high fan speed rather than lowering the temperature setting to cater for increased cooling demand.
- ◆ Consider using fan in conjunction with AC to spread the cooled air more effectively.
- ◆ Clean dust filters and fan coil units regularly. Remove obstructions at air inlets and outlets of the AC and ventilation.



Energy Saving Charter 2019 – Saving Tips

**ENERGY SAVING
FOR ALL**

Lighting

- ◆ Switch off lights that are not in use. Affix "Save Energy" stickers near the switches as a reminder.
- ◆ Remove excess lighting in areas that are too bright.
- ◆ Maintain only those lighting which are essentially needed for safety, security or other specific purposes in areas that are infrequently occupied.
- ◆ Maximize daylight usage.
- ◆ Use task light to minimize general lighting.
- ◆ Install parabolic-type lighting reflectors to reflect sufficient light with fewer fluorescent tubes.
- ◆ With few people working in the office, switch off the non-essential lighting and use task lighting to directly illuminate work areas.

- ◆ Install occupancy/motion sensors to automatically control on/off of lighting in public areas such as corridors, toilets etc.
- ◆ Install lighting zone control wherever possible to switch lighting off in unoccupied areas.
- ◆ Keep all windows, light bulbs and light fittings clean to maintain optimum lighting performance.
- ◆ Replace T8 and T12 fluorescent lamps with T5 fluorescent, compact fluorescent or Light Emitting Diode (LED) lamps for higher energy efficient.
- ◆ Replace conventional "Exit" signs with LED "Exit" signs for energy saving and longer lamp life.





Energy Saving Charter 2019 – Saving Tips

Office Equipment

Photocopier and Printer

- ◆ Switch off photocopiers and printers after office hours.
- ◆ Set the "Low Power" and "Off" mode default period to the lowest setting.
- ◆ Follow the maintenance schedules of appliances as recommended in the instruction manual of the related appliance.
- ◆ Photocopy in batch as it can minimize energy consumption due to less frequent starting.
- ◆ Arrange the "last-man-out" to switch off all photocopiers and printers or use timer switches to reduce power consumption.
- ◆ Use the "Print Preview" function to check the layout and style of document before printing.
- ◆ Adjust the margins and font size of documents in order to optimize use of paper.

Fax Machine

- ◆ Divert calls to one or two units after office hours and switch off the remaining units if there are many fax machines.
- ◆ Preset the "sleep" mode default period to the lowest setting.
- ◆ Select fax machines with power management capabilities, e.g. fax machines of model with energy saving function.
- ◆ Avoid using a full sheet of paper as a covering page for fax. If necessary, use a stick-on label instead of a covering page to save paper.
- ◆ Using existing computer to receive fax can save resources in printing fax.





Energy Saving Charter 2019 – Saving Tips

Computer

- ◆ Switch off computers after office hours or when leaving the workplace to reduce power consumption.
- ◆ Use the power management feature to preset the computer to "sleep" or "hibernation" mode when it is idle.
- ◆ Switching off the screen can save even more energy than just letting the screen savers run.
- ◆ Reduce the brightness level of the screen to the lowest comfortable level.
- ◆ Use intelligent adaptor to automatically switch off peripheral devices, such as monitor and printer, for reducing standby power.



Charger

- ◆ Unplug all equipment chargers and adapters when they are not in use.



Avoid Standby Mode after Office Hours

- ◆ The energy wasted by a photocopier left in "standby" mode overnight is enough for making up to 700 copies of A4 size paper.
- ◆ The power wasted by a desktop printer left in "standby" mode after office hours accounts for 70% of the total energy consumed by the printer.





Energy Saving Charter 2019 – Saving Tips

ENERGY SAVING
FOR ALL

Switch off electrical appliances when not in use

Appliances on standby mode also consume energy

Example

- Assuming 20 electrical appliances in household, each appliance consume 1 Watt at standby mode
- Standby power consumption may consume up to 3 % of a household electricity consumption.



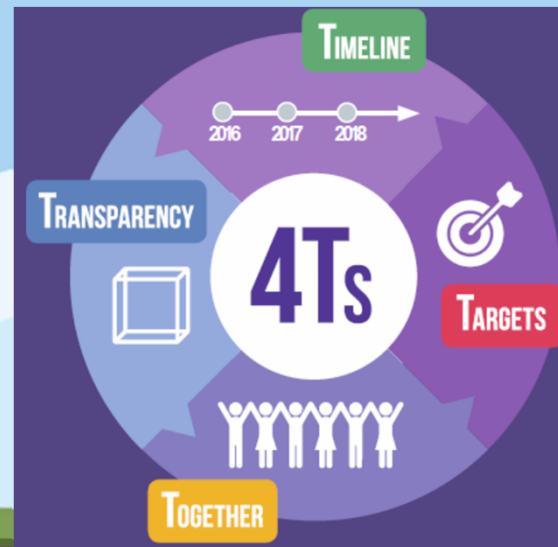
Source: https://www.emsd.gov.hk/filemanager/en/content_718/Reducing_Standby_Power_Consumption.pdf



**ENERGY SAVING
FOR ALL**

4Ts Charter

First launched in 2017





4Ts Charter

ENERGY SAVING FOR ALL

4Ts Charter

Pledging to

- set energy saving **target** with a **timeline**
- ensure **transparency** on energy saving results and **building energy data***
- encourage inhabitants (including staff, students, occupants, tenants) to work **together** on the above energy saving

*New pledge on Data Transparency

- ✓ To engage tenants to participate together

Categories

- Shopping Mall
- Office/ Commerical/ Industrial Building
- Housing Estate/ Residential Building
- Office
- Shop
- Non-governmental Organisation/ Community Facility
- Kindergarten/ Primary School/ Secondary School/ Post-Secondary Education Institution
- Hotel
- Hospital
- Others

Please refer to the website
(<http://www.energysaving.gov.hk/esc2019/en/charter/index.html>)
for details.
For enquiries, please contact the Secretariat
Tel. 3155 3977



Details: <https://www.energysaving.gov.hk/esc2019/en/4ts-tips/index.html>



4Ts Charter

**ENERGY SAVING
FOR ALL**

- Establishing energy saving **target** with **timeline**:-

Example

8 years energy saving target plan

(i)	基準年份 Base Year	2017	年份 Year
(ii)	目標年份 Target Year	2025	年份 Year
(iii)	與基準年份相比，目標年份能源節省的百份比 Percentage of Energy Reduction by Target Year when compare with Base Year	6	%
(iv)	基準年份的總能源消耗 ¹ Total Energy Consumption of Base Year	6,856,561	兆焦耳 (MJ)

Include 12 months of energy consumption of the base year

Note ¹: 1 kWh is equivalent to 3.6 Mega Joules (MJ)

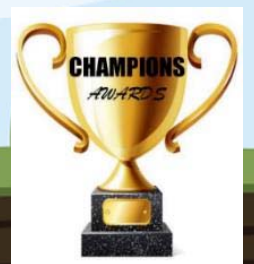
Total energy consumption including electricity in kWh x 3.6 MJ + gas consumption in MJ



**ENERGY SAVING
FOR ALL**

Energy Saving Championship scheme 2019

1. Student Competition on Promotion of EE&C and RE Technologies
2. Competition on Retro-commissioning





Student Competition on Promotion of EE&C and RE Technologies

**ENERGY SAVING
FOR ALL**

新世代慳神大比拼2.0

Objective – to encourage youth to express their ideas on EE&C and/or RE initiatives or technologies

Proposed categories

- 1) Primary School (小學親子組)
 - ✓ Individual with parent(s)/ guardian(s)
- 2) Secondary or Post-secondary School (中學及專上學院組別)
 - ✓ Individual or group of maximum 5 students



**ENERGY SAVING
FOR ALL**

Student Competition on Promotion of EE&C and RE Technologies

Primary School – inviting students to submit

- 1) Drawing/Sketch with brief description (A3 size)

Secondary or Post-secondary School – inviting students to submit following items (one or more)

- 1) Drawing/Sketch with brief description (A3 size)
- 2) Multimedia video (up to 5 mins)
- 3) Power point file (up to 20 slides)

Details will be announced by June 2019



Competition for Organisations

ENERGY SAVING FOR ALL

- **Retro-commissioning (RCx)** is one of the key energy saving initiatives for **existing buildings**



DEEPENING ENERGY SAVING IN EXISTING BUILDINGS IN HONG KONG THROUGH '4Ts' PARTNERSHIP



Environment Bureau

June 2017



Technical Guidelines on Retro-commissioning



2018

EMSD



Competition for Organizations – Awards

**ENERGY SAVING
FOR ALL**

Hanson Retro-commissioning (RCx) Competition Award 慳神-重新校驗節能大比拼

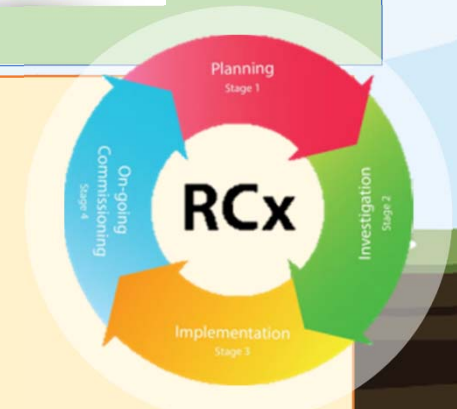


- **Building-based Awards**
- All building types are welcome
- For **ALL** practitioners commenced retro-commissioning (RCx)
 - (i) including RCx projects at **“Planning Stage”**, OR
 - (ii) including RCx projects at **“Implementation Stage”**



Target Participants

- **Building owners, Property Management Companies**
- **RCx services providers (including consultants, contractors)**





**ENERGY SAVING
FOR ALL**

Competition for Organisations/Students

Tentative programme and assessment process

July to October 2019	Publicity and promotion of new competition
October to December 2019	Registration period
January to February 2020	Event Secretariat and assessor to scrutinize submissions and shortlist finalists
March / Apr 2020	Judging Panel to interview finalists and select winners (No interview for applicants of primary schools)
May / June 2020	Announcement and presentation of awards





**ENERGY SAVING
FOR ALL**

Thanks
Q & A

