



**ENERGY SAVING
FOR ALL**

Energy Saving Charter 2018

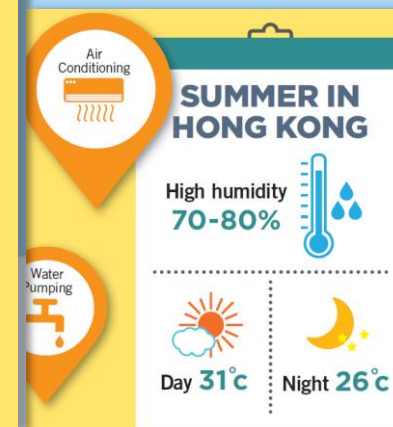
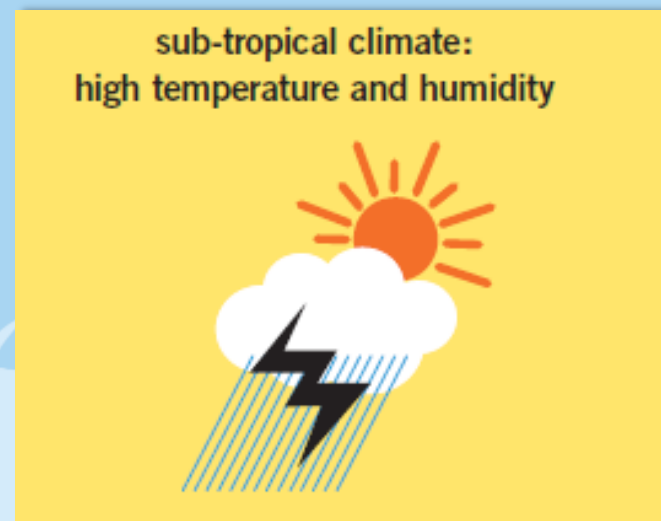
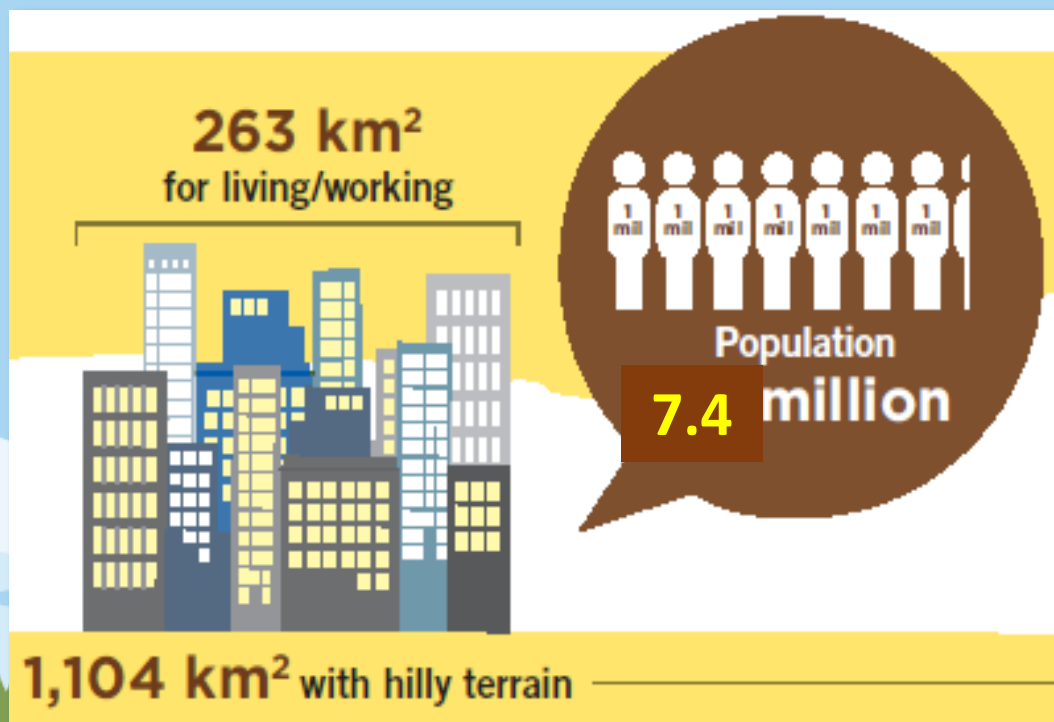
12 March 2018



Hong Kong's Position

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- **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

**ENERGY SAVING
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- 50,000+ buildings (360+ skyscrapers over 150m or 40/F)
- Total energy use (2015) : 287,986 Tera-joules (TJ)
- Total electricity use (2015) : 43,965 million kWh (~500 kWh/month/person)

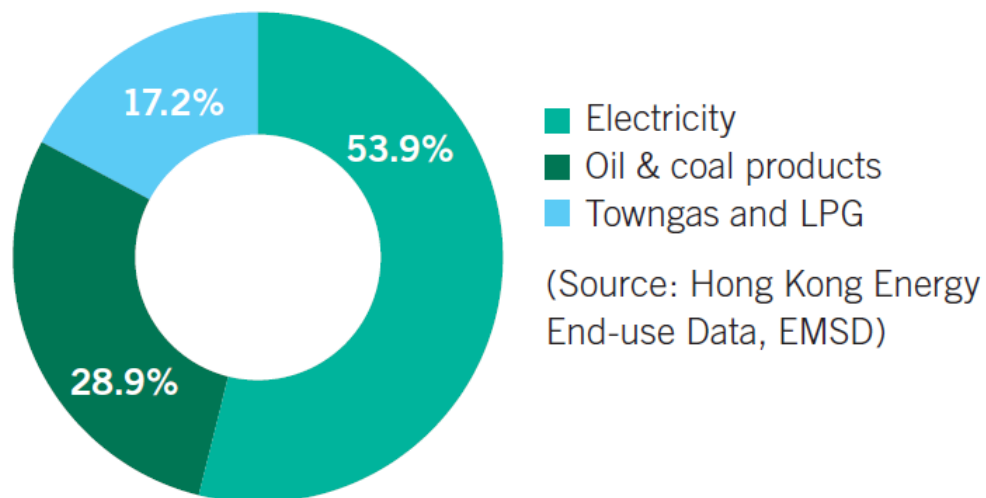




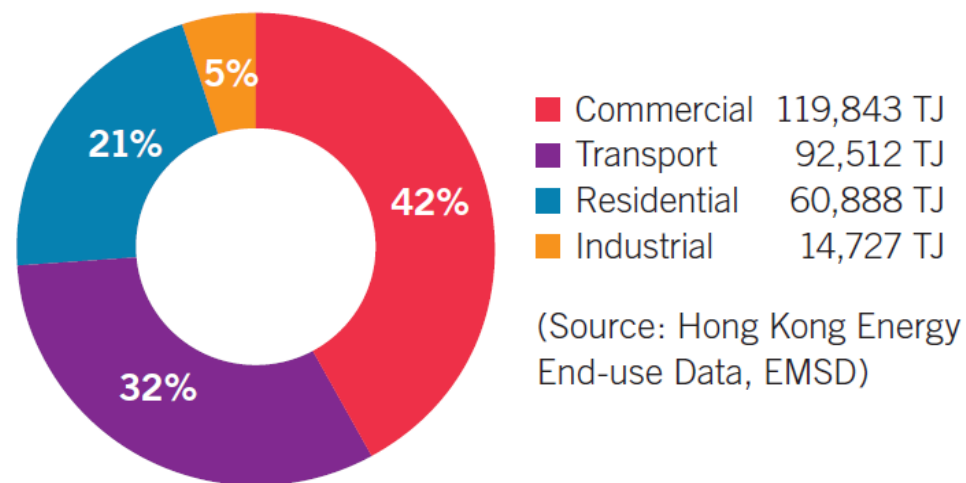
Hong Kong's Energy Use

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Energy End-use by Fuel Types



Energy End-use by Sectors

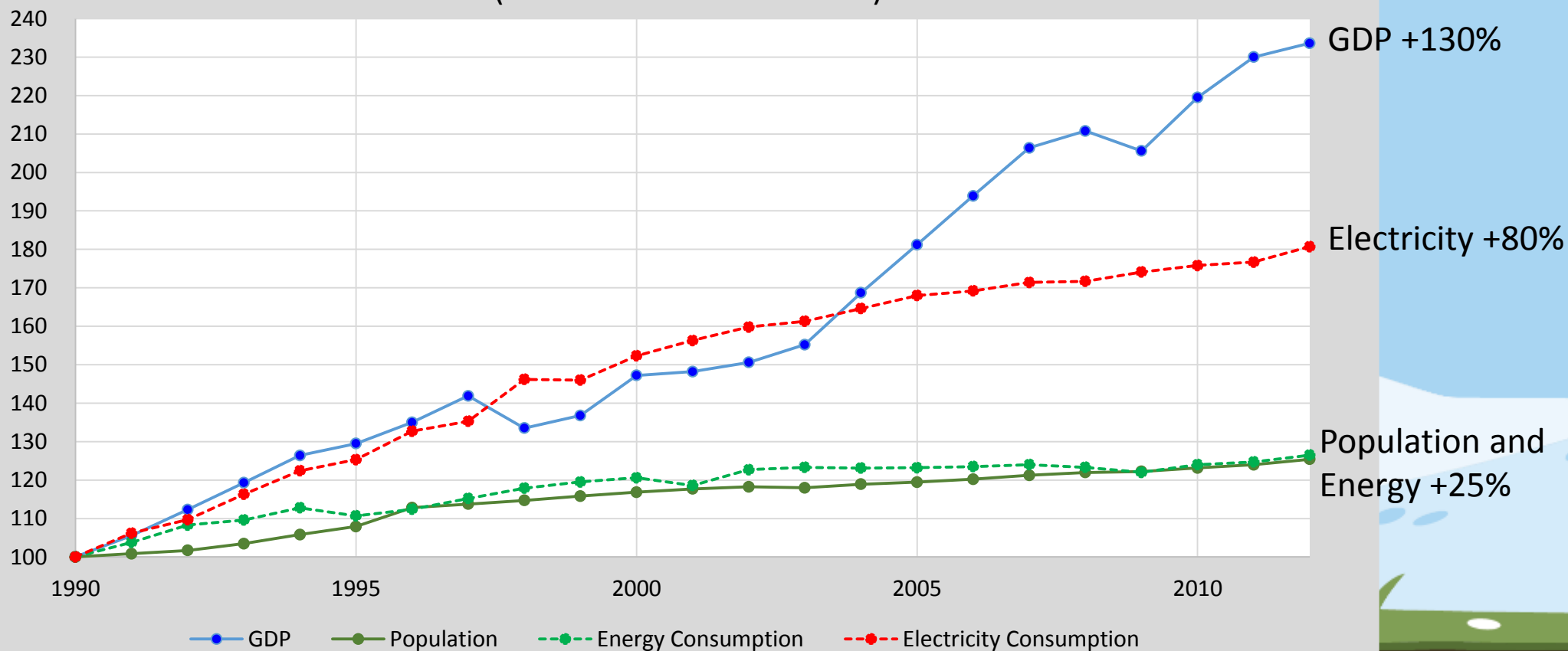




Hong Kong's Energy Use (Cont'd)

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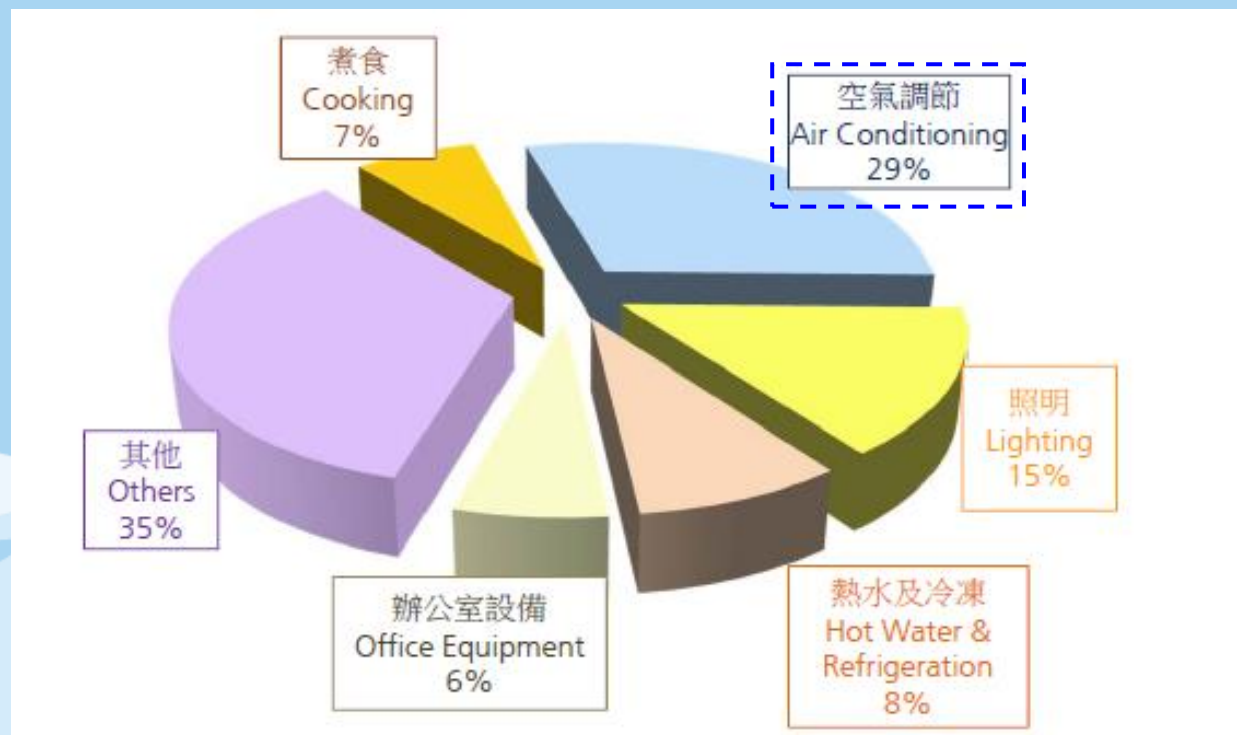
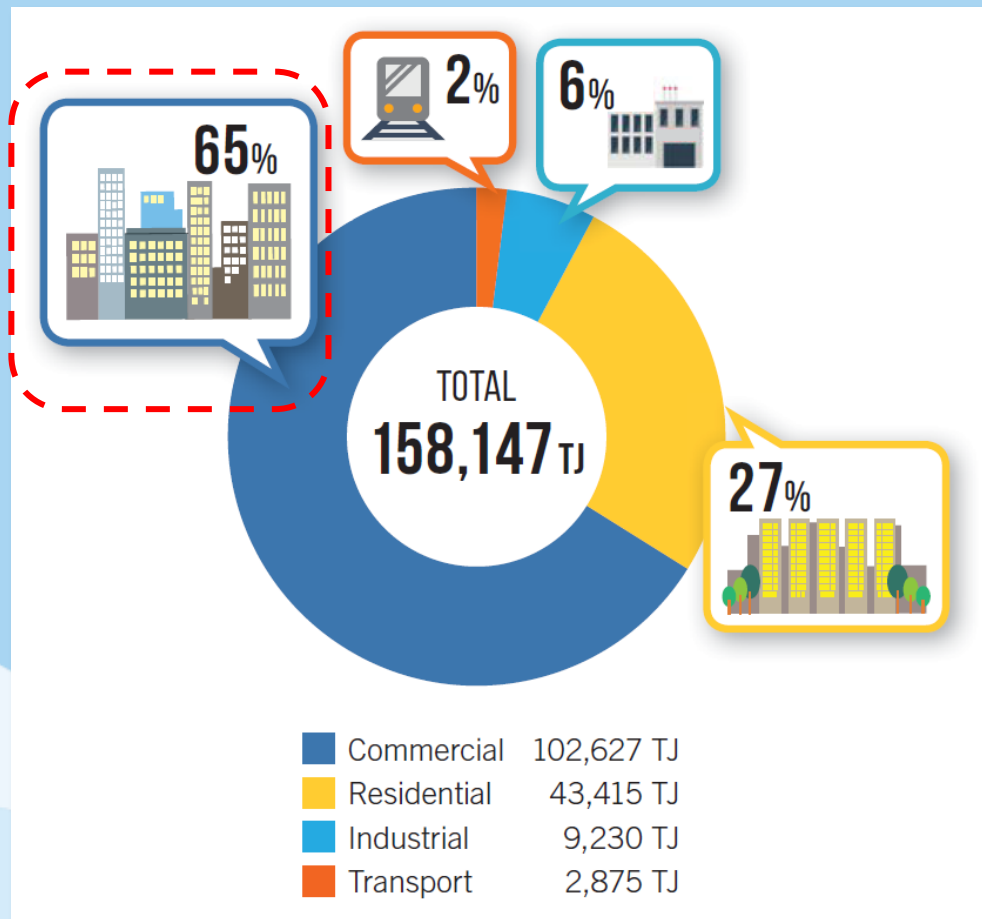
Decoupling Energy and Electricity Uses from GDP and Population
(Base value in 1990 = 100)





Hong Kong's Electricity Consumption

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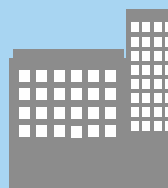
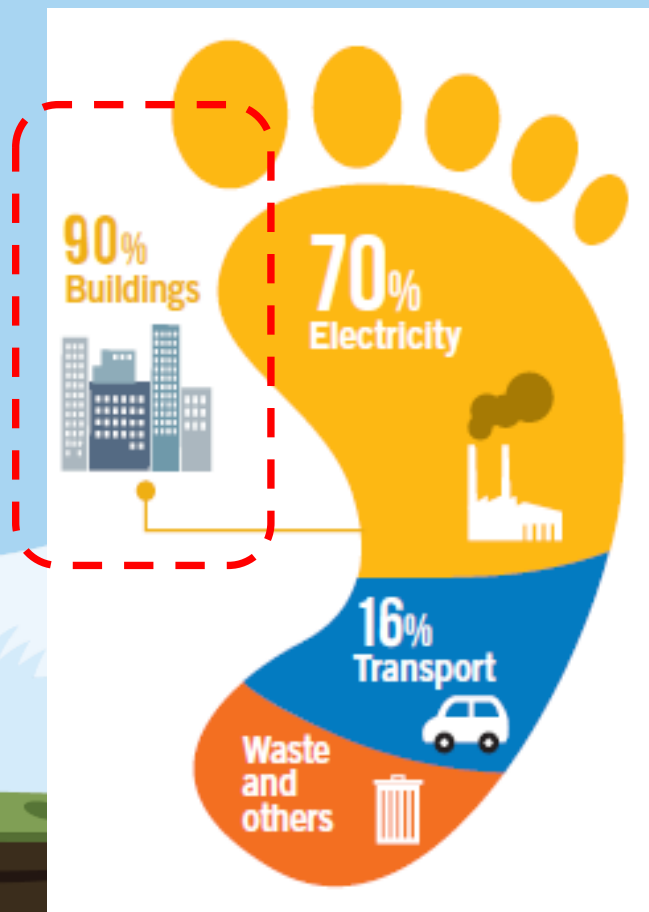
Source: 《Hong Kong Energy End-use Data 2017》 http://www.emsd.gov.hk/filemanager/en/content_762/HKEEUD2017.pdf



Hong Kong's Electricity Consumption

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Electricity generation is major source of carbon emissions



Building sector:

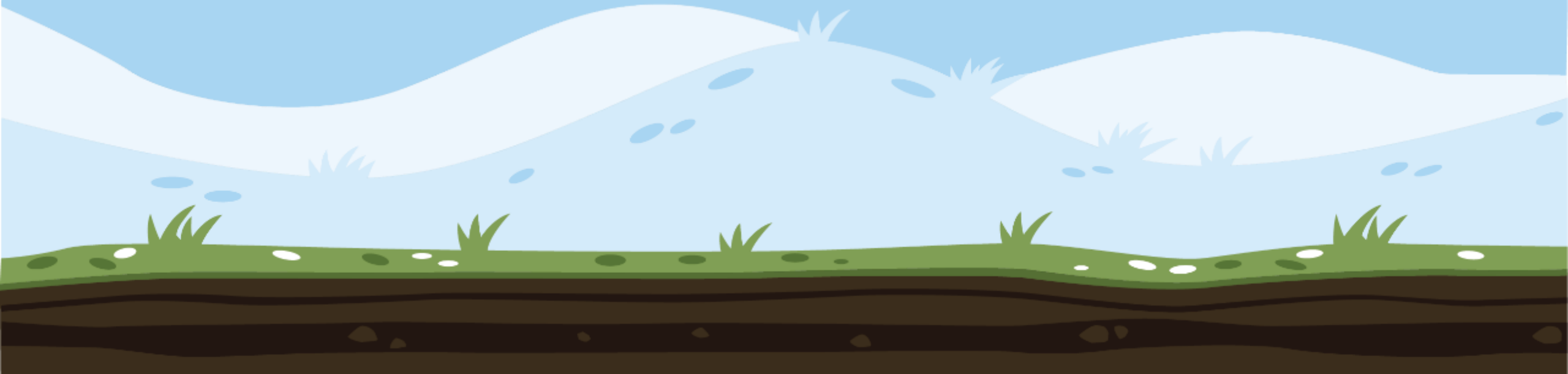
- ~ 90% electricity
- ~ 60% carbon emission



**ENERGY SAVING
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Energy Saving Charter

(First launching in 2012)



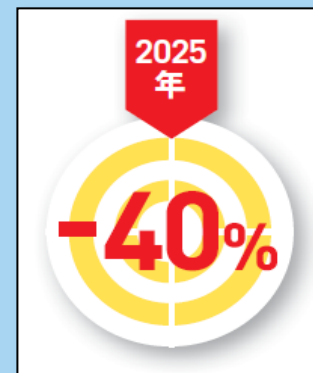


Energy Saving Charter - Background

ENERGY SAVING
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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

Relative Energy Saving Priorities



Commercial & Institutional Buildings

Building design and structure

Inhabitants' behaviour

Appliances inhabitants choose to use

Residential Buildings



1 Appliances inhabitants choose to use

2 Inhabitants' behaviour

3 Building design and structure



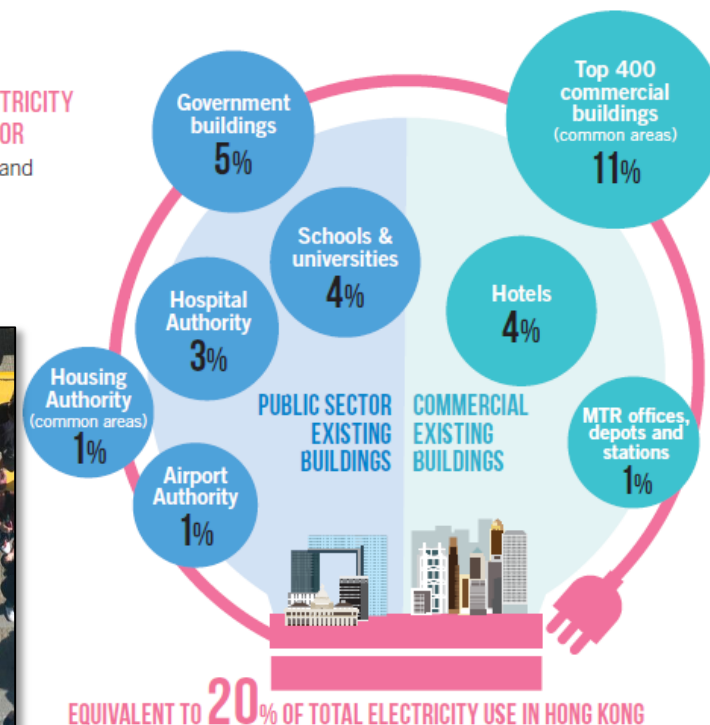
Energy Saving Charter - Background

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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)

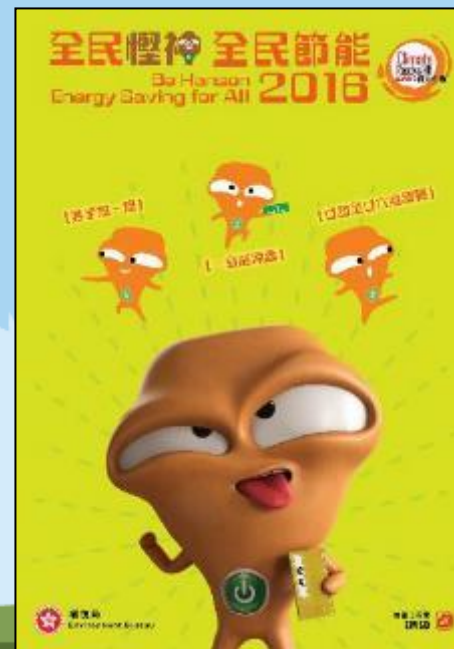
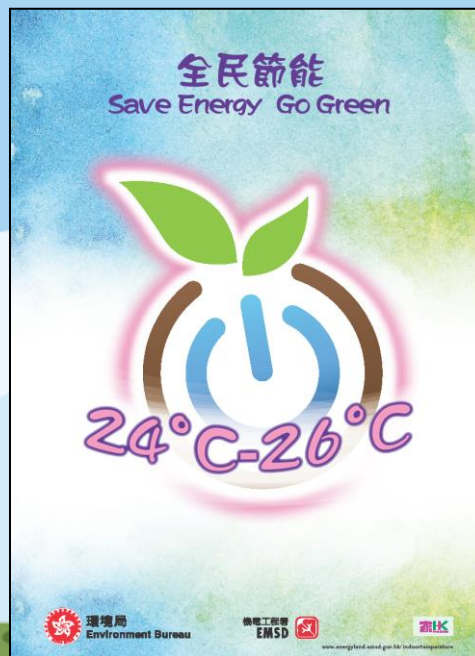
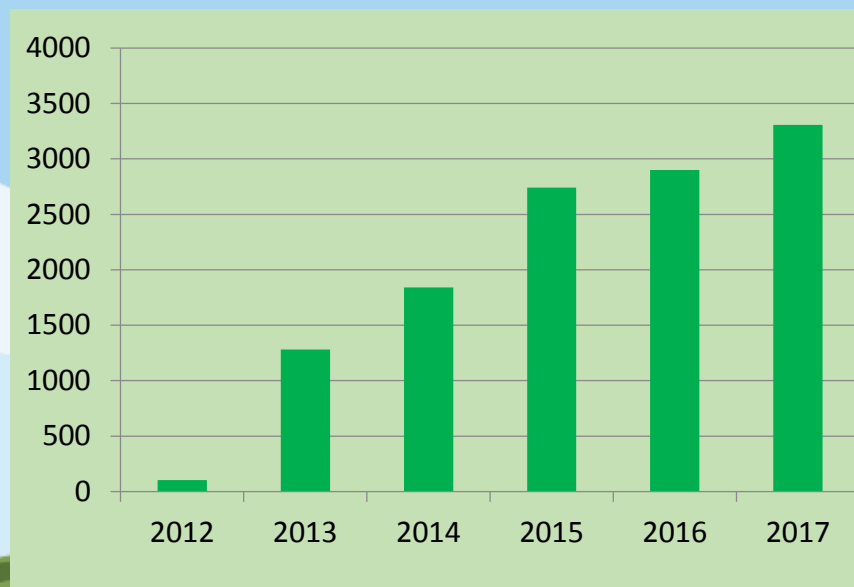
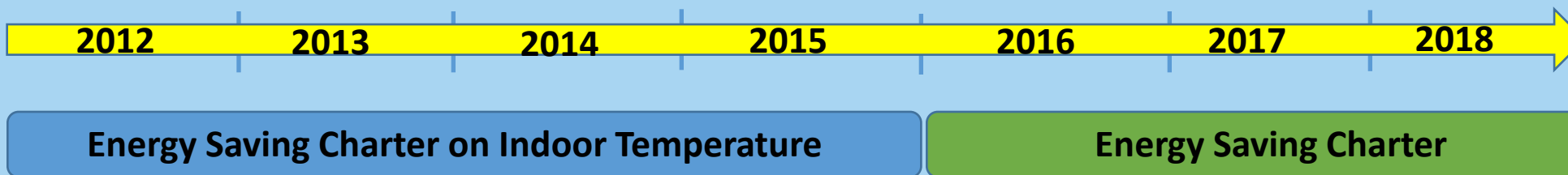


Source: Climate Action Plan 2030+, <http://www.enb.gov.hk/sites/default/files/pdf/ClimateActionPlanEng.pdf>



Energy Saving Charter - Scope

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Energy Saving Charter - Category

**ENERGY SAVING
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2012	2013	2014	2015	2016	2017
Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall	Shopping Mall
	Shop	Shop	Shop	Shop	Shop/ Restaurant/ Supermarket
	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



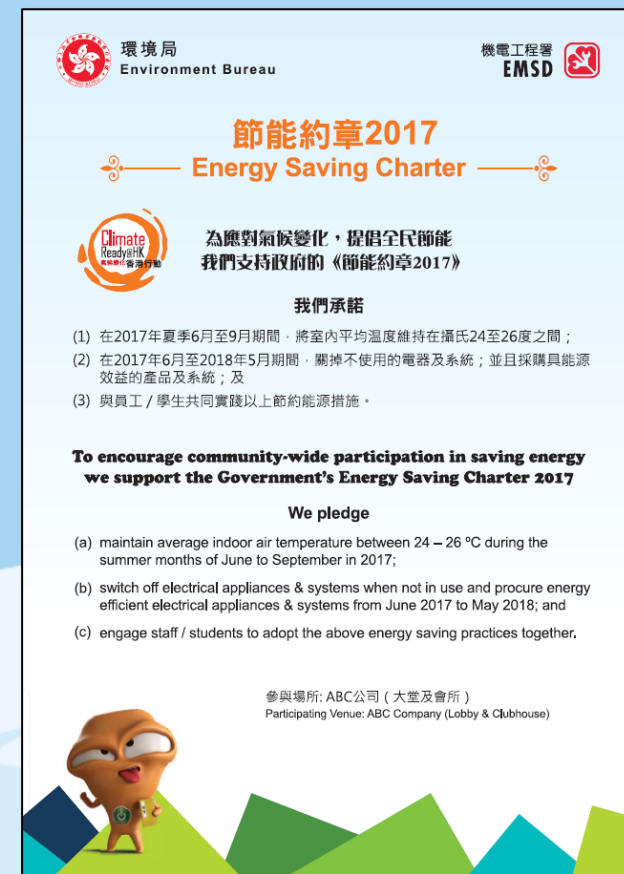
ENERGY SAVING
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Energy Saving Charter 2018 – Coverage

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)





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Energy Saving Charter 2018 – Benefits

- 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

PARTICIPANTS	
Shopping Mall	
Office Building / Commercial Building / Industrial Building	
Housing Estate / Residential Building	
Office	
Shop / Restaurant / Supermarket	
Non-governmental Organisation / Community Facility	
School (Kindergarten / Primary & Secondary Schools / Post-Secondary Education Institution)	
Hotel	
Hospital	
Others	

2017	
	

Shopping Mall	
(As of 28 February 2018, listed in alphabetical order)	
ARA Asset Management (Fortune) Limited	
• Caribbean Square	● ●
• Centre de Laguna	● ●
• Fortune Kingswood	● ●
• Fourtune Metropolis	●
• Laguna Plaza	● ●
• Metro Town	●
• Provident Square	● ●
• Smartland	● ●
Citybase Property Management Limited	
• The Banyan Mall	● ●
• The Pacifica Mall	● ●
Country House Property Management Limited	
• Pioneer Centre	●
Goodwell Property Management Limited	

**環境局**
Environment Bureau

**機電工程署**
EMSD

節能約章2017

Energy Saving Charter

**為應對氣候變化，提倡全民節能**
我們支持政府的《節能約章2017》

我們承諾

- (1) 在2017年夏季6月至9月期間，將室內平均溫度維持在攝氏24至26度之間；
- (2) 在2017年6月至2018年5月期間，關掉不使用的電器及系統；並且採購具能源效益的產品及系統；及
- (3) 與員工 / 學生共同實踐以上節約能源措施。

To encourage community-wide participation in saving energy we support the Government's Energy Saving Charter 2017

We pledge

- (a) maintain average indoor air temperature between 24 – 26 °C during the summer months of June to September in 2017;
- (b) switch off electrical appliances & systems when not in use and procure energy efficient electrical appliances & systems from June 2017 to May 2018; and
- (c) engage staff / students to adopt the above energy saving practices together.

參與場所: ABC公司 (大堂及會所)
Participating Venue: ABC Company (Lobby & Clubhouse)

Since
201?





**ENERGY SAVING
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Energy Saving Charter 2018 – Benefits

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





**ENERGY SAVING
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Energy Saving Charter 2018 – Scope

- 1) To implement energy saving practices
 - ✓ Maintain indoor temperature at 24-26°C during summer (*June to September 2018*)
 - ✓ Switch off appliances and systems when not in use
 - ✓ Procure energy efficient products and systems (*such as Grade 1 electrical appliances, fridge with door*)
 - ✓ Engage staff/students/tenants to adopt the above practices together
- 2) Implement from June 2018 and May 2019 (12 months)





Energy Saving Charter 2018 – Scope

Procure fridges with door

- Approach head offices of chain shop, supermarkets



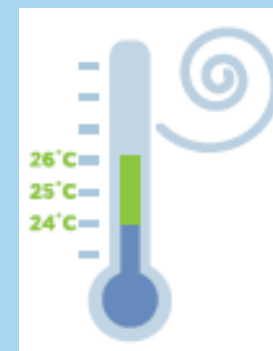


**ENERGY SAVING
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Energy Saving Charter 2018 – Scope

(1) Maintain 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 Charter 2018 – 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 Charter 2018 – Scope

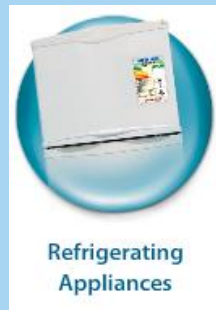
(2) Switch off appliances and systems when not in use

- 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



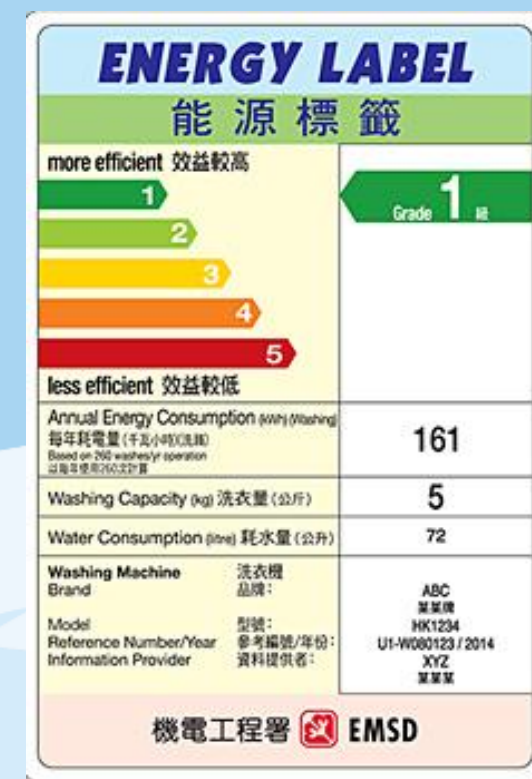
Energy Saving Charter 2018 – Scope

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



• Percentage of Energy Saving

	Room Air Conditioners		Refrigerating Appliances	Washing Machines
	Window Type Room Air Conditioners	Split Type Room Air Conditioners		
Grade 1 vs Grade 3	11%	36%	41%	23%
Grade 1 vs Grade 5	25%	61%	97%	48%





Energy Saving Charter 2018 – Scope

(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 and Electric Clothes Dryers

Recognition Type	
Household Appliances	Non-integrated Type Compact Fluorescent Lamps, Electric Rice-Cookers, Dehumidifiers (Voluntary Scheme), (Light Emitting Diode) LED Lamp, Microwave Ovens, Induction Cookers 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

ENERGY LABEL 能源標籤	
Brand 牌子	ABC 某某牌
Model 型號	HK1234
Annual Energy Consumption * kWh/yr 每年耗電量 每年耗電量	364
Actual consumption depends on where the appliance is located and how it is used. Based on 200 washes per year. 實際耗電量視乎洗衣機安裝地點及使用方法。基於每年洗衣200次。	
Energy Efficiency Grade* 能源效益級別	2
Among the five grades, Grade 1 is the most energy efficient. 在五級級別中，第一級最為省電。	
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 is 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益標籤計劃的規定列出。有關註冊記錄可查閱網址：www.emsd.gov.hk	

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 Charter 2018 – 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.



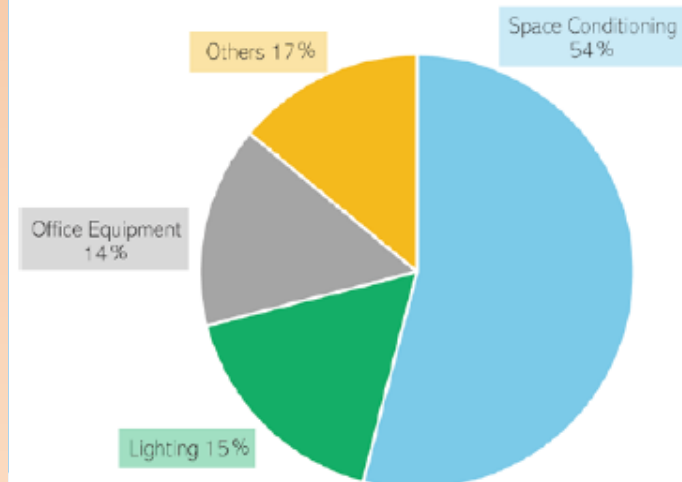
Energy Saving Charter 2018 – Saving Tips

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.



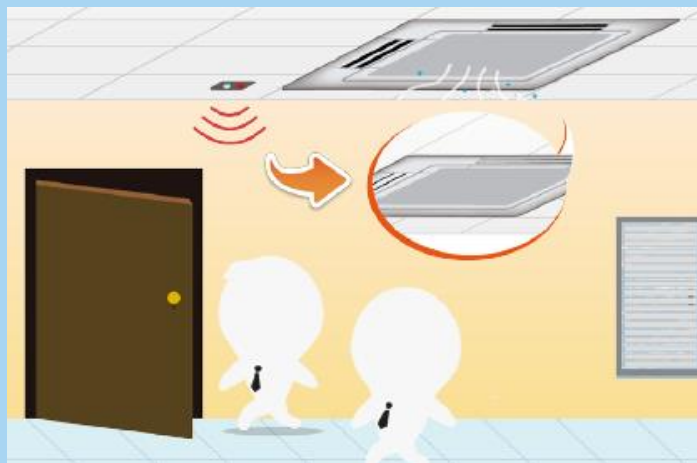
Breakdown of Energy Use of a Typical Office



Energy Saving Charter 2018 – Saving Tips

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.

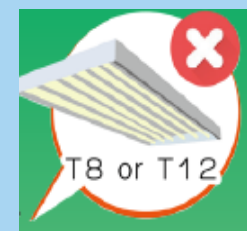


Energy Saving Charter 2018 – Saving Tips

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 2018 – Saving Tips

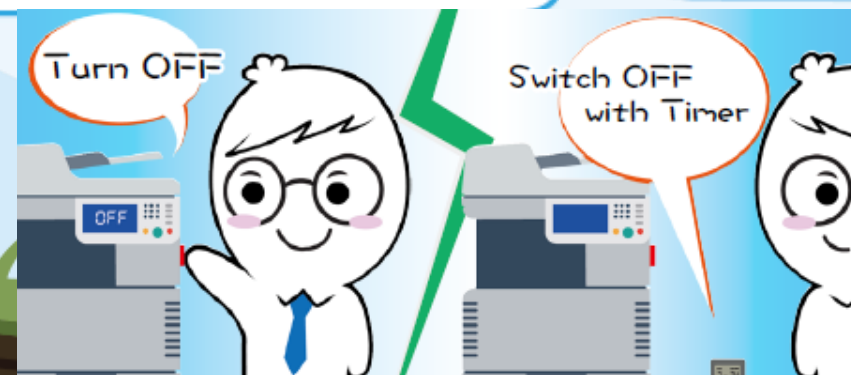
Office Equipment

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.





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Energy Saving Charter 2018 – 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.

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.



Charger

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





**ENERGY SAVING
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Energy Saving Charter 2018 – Saving Tips

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.



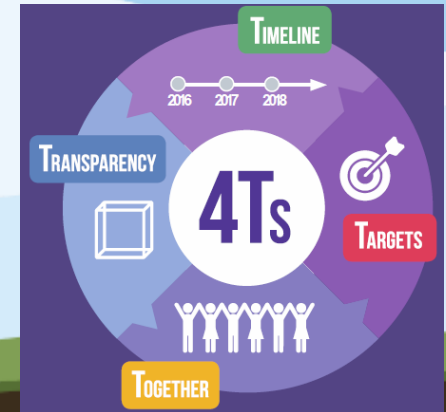
Source: https://www.emsd.gov.hk/filemanager/en/content_718/Reducing_Standby_Power_Consumption.pdf



**ENERGY SAVING
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4Ts Charter

(Launched in 2017)





4Ts Charter

ENERGY SAVING
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4Ts Charter

Pledging to

- set energy saving **target** with a **timeline**
- ensure **transparency** to track energy saving result
- encourage inhabitants to work **together** on the above energy saving on the above energy saving target

Categories

- Shopping Mall
- Office/Commercial/Industrial Building
- Housing Estate/Residential Building
- Office
- Shop/Restaurant/Supermarket
- 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/esc2017/en/charter/index.html>)
for details.



Details: <http://www.energysaving.gov.hk/esc2017/en/4ts-tips/index.html>



**ENERGY SAVING
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Energy Saving Championship scheme 2018

1. Competition on Innovative EE&C and RE Technologies
2. Student Competition on Promotion of EE&C and RE Technologies





ENERGY SAVING
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Championship Scheme 2018 – Background

To promote **Innovation and Technology (I&T)** on EE&C and RE through technological collaborative platforms for:-

- 1) Enterprises (organizations)
- 2) I&T start-ups/companies, academies, research centres

行政長官出席科技「一帶一路」與粵港澳大灣區創新論壇的致辭

…做一個試驗平台，讓一些初創企業…做試驗



Source: <http://www.info.gov.hk/gia/general/201711/30/P2017113001022.htm>



Competition on Innovative EE&C and RE Technologies

Objective

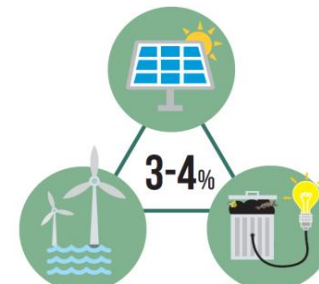
To support Policy Address 2017 to promote **EE&C** and **RE** through **innovation and technologies (I&T)**

To encourage joint participation of following 2 parties:-

- 1) Enterprises/organisations to offer financial supports and even site for trial
- 2) I&T companies/start-ups, academies or research centres to demonstrate their applications on innovative technologies related to EE&C or RE



HONG KONG'S REALISABLE RE POTENTIAL UP TO 2030





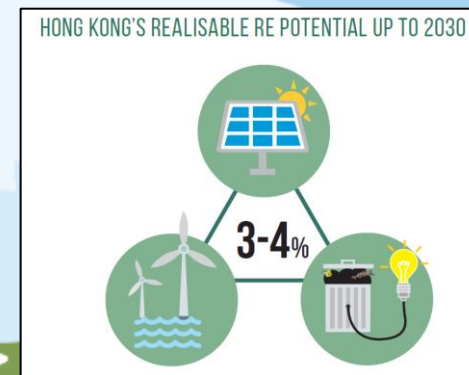
**ENERGY SAVING
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Competition on Innovative EE&C and RE Technologies

Focusing on following potential participating premises:-

- Shopping malls, office buildings, hotels
- Residential buildings/ Housing estates
- Airport, MTRC, hospitals, tertiary education institutions, utility companies, etc.

Details will be announced by June 2018





Competition on Innovative EE&C and RE Technologies

Benefits to winning teams:-

- 1) Media publicity for the Champion for showcasing
- 2) Present award to Champion and certificates to other winning teams
- 3) Winning teams as role models to share experience through
 - ✓ seminars/ exhibitions for the trade
 - ✓ outreach scheme with roving exhibition panels
 - ✓ video clips and presentation materials uploaded to “Energy Saving for All” website (www.energysaving.gov.hk)



Student Competition on Promotion of EE&C and RE Technologies

Proposed categories

- 1) Kindergarten and Primary School (親子組別)
 - ✓ Student(s) with their parent(s)
- 2) Secondary or Post-secondary School (中學及專上學院組別)
 - ✓ Individual and group of maximum 10 students



Student Competition on Promotion of EE&C and RE Technologies

Invite students to submit proposal (max 4 pages) and following items (one or more):-

- 1) Poster/drawing (A3 size)
- 2) Power point file (up to 20 slides)
- 3) Multimedia video (up to 5 mins)
- 4) Model (up to 0.8m x 0.8m x 0.8m volume)

✓ Present appreciation certificate(s) to supportive school(s)

Details will be announced by June 2018



Student Competition on Promotion of EE&C and RE Technologies

Benefits to winning teams include:-

- 1) Present award to Champion and certificates to other winning teams
- 2) Winning teams as role models to share experience through
 - ✓ seminars/ exhibitions for schools
 - ✓ outreach scheme with roving exhibition panels
 - ✓ video clips and presentation materials uploaded to “Energy Saving for All” website (www.energysaving.gov.hk)



Energy Saving for All Portal

A thematic communication portal website www.energysaving.gov.hk (with mobile version) to disseminate energy saving tips and information about energy saving activities organized by the Government and 50+ stakeholders.





**ENERGY SAVING
FOR ALL**

Thanks
Q & A

