



Promotion of Energy Efficiency in Hong Kong

17 October 2014

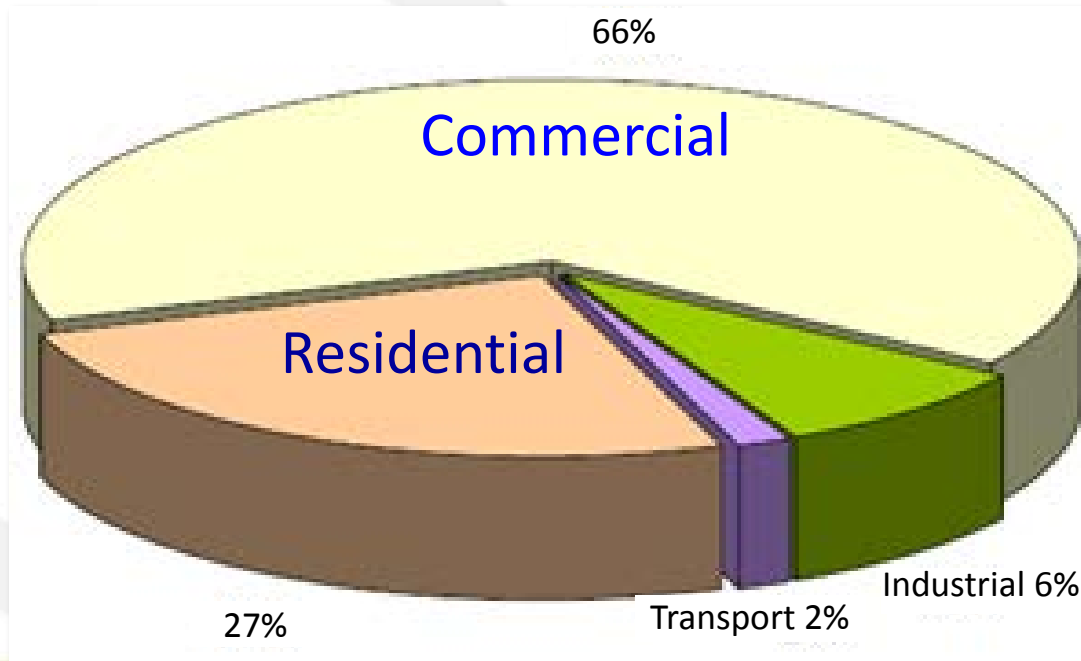
(Ernest Yeung)

Energy Efficiency Office

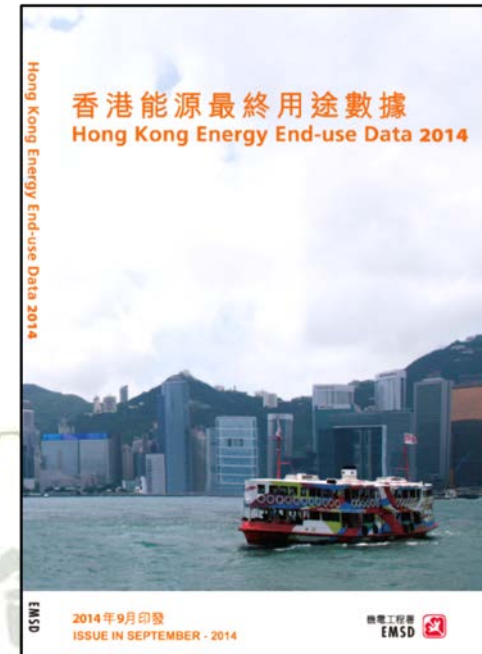
Electrical and Mechanical Services Department

珍惜資源
全民節能

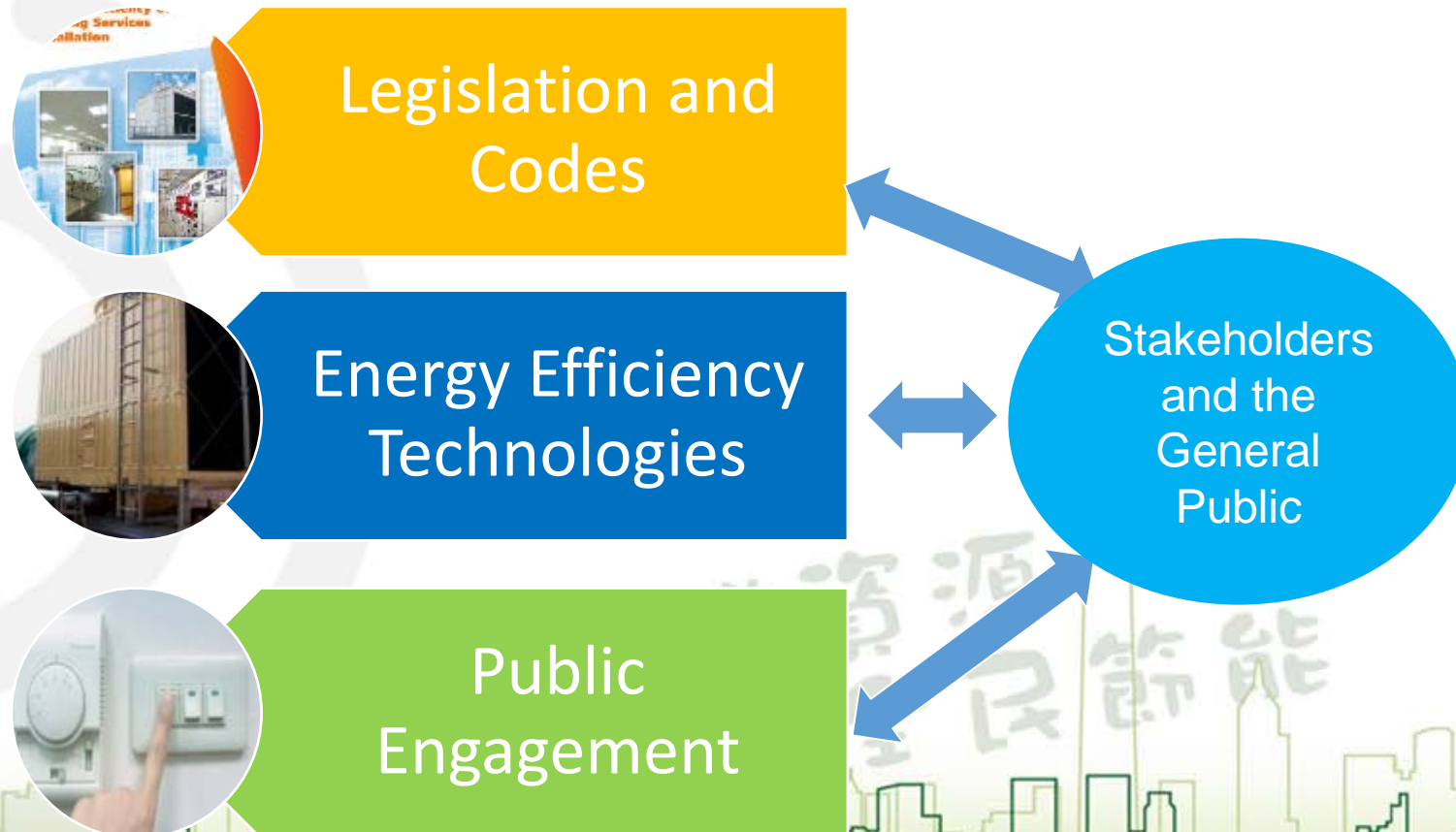
Electricity End-use in Hong Kong



Total 155,079 TJ (~43,000 million kWh) in 2012



Strategy to promote energy efficiency



Legislation and Codes

Voluntary Energy Efficiency Labelling Scheme (VEELS) – launched since 1995

✦ Household Electrical Appliances



Legislation and Codes

Voluntary Energy Efficiency Labelling Scheme (VEELS) – launched since 1995

- ✿ Office Equipment
- ✿ Gas Appliances

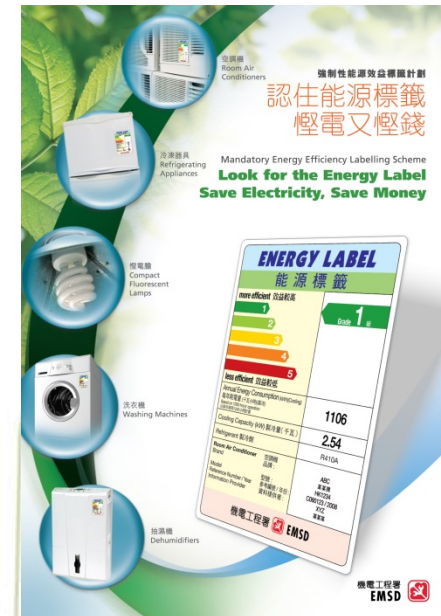


Legislation and Codes

Mandatory Energy Efficiency Labelling Scheme (MEELS) - implemented since 2009

5 Prescribed Products

- room air conditioners
- refrigerating appliances
- compact fluorescent lamps
- washing machines
- dehumidifiers



Legislation and Codes



Anticipated Benefits

- Provide information
- Raise public awareness
- Phase out less energy efficient appliances
- **Save Electricity, Save Money**



機電工程署
EMSD

珍惜資源
全民節能

Legislation and Codes



Building Energy Codes (BEC)

Specify energy performance of

- Lighting Installations
- Air-conditioning Installations
- Electrical Installations
- Lift and Escalator Installations

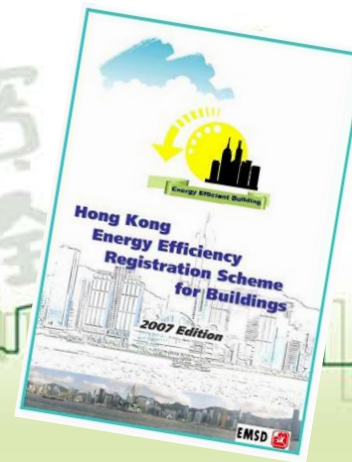


Legislation and Codes

Energy Efficiency Registration Scheme for Buildings

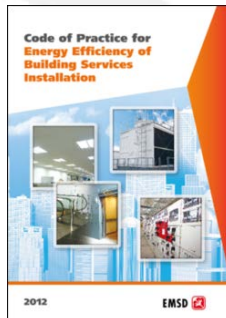
– launched since 1998

- Voluntary compliance with BEC to enhance building energy efficiency
- Around 1,630 buildings registered



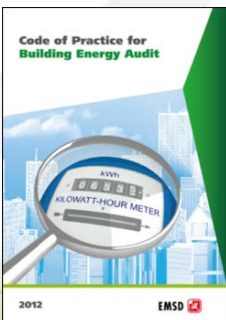
Legislation and Codes

Buildings Energy Efficiency Ordinance (BEEO), Cap. 610 - implemented since 2011



Newly constructed buildings

Major retrofitting works in units or common areas in both newly constructed & existing buildings



Central BS installations of newly constructed commercial buildings & existing commercial buildings

Energy Efficiency Technologies



Air-conditioning (A/C) Installations

- Air-cooled A/C : Base case
- Fresh Water-cooled A/C : Energy saving up to 20%
- Sea Water-cooled A/C : Energy saving up to 28%
- District Cooling System : Energy saving up to 35%

珍惜資源
全民節能

Energy Efficiency Technologies

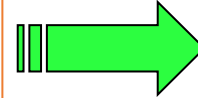


Fresh Water Cooling Towers Scheme - launched since 2000

- Promote wider use of fresh water cooling towers
- About 1,800 cooling towers completed and put into operation under the Scheme



Air-cooled A/C System



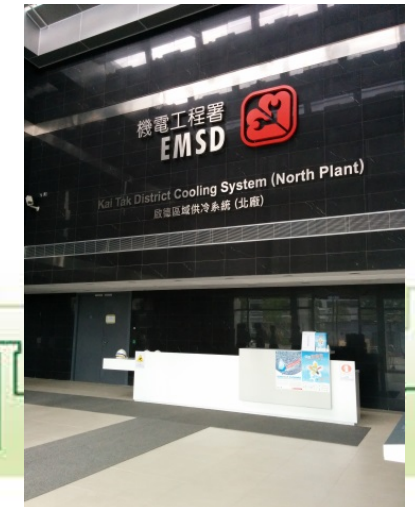
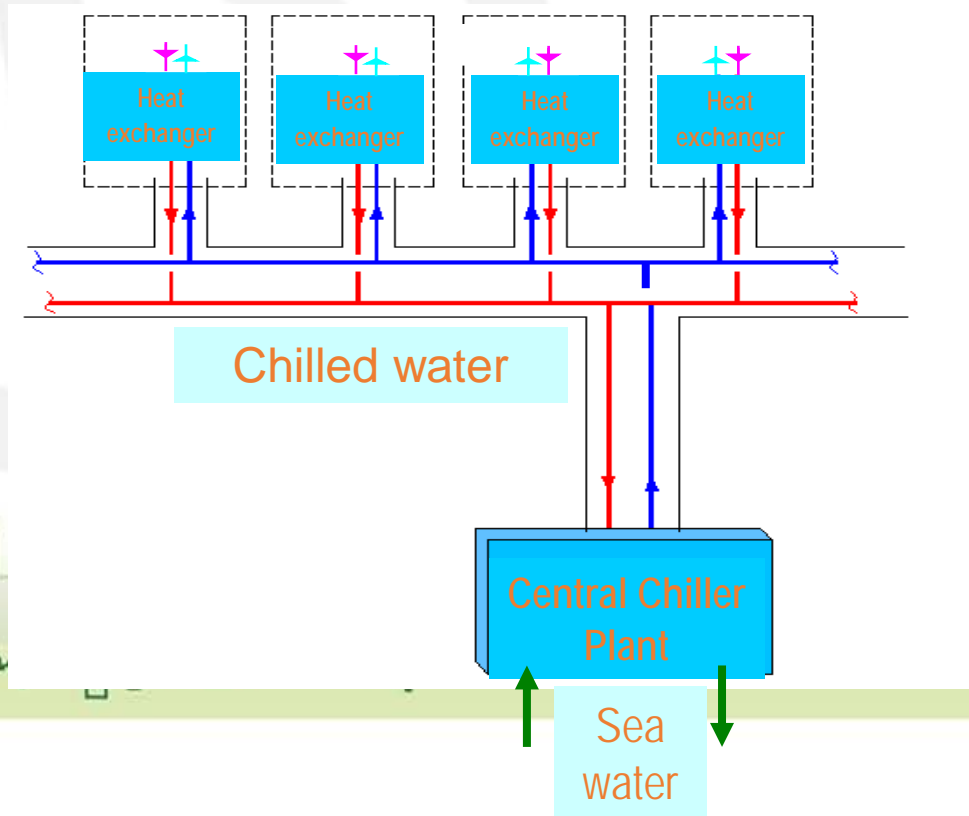
Water-cooled A/C system

Energy Efficiency Technologies



District Cooling System (DCS) at Kai Tak Development

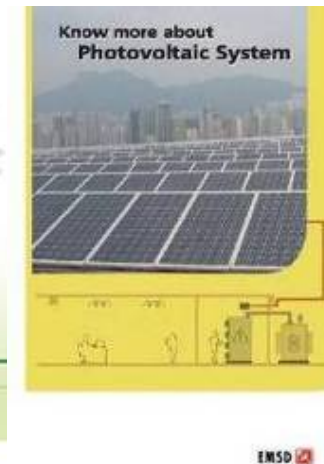
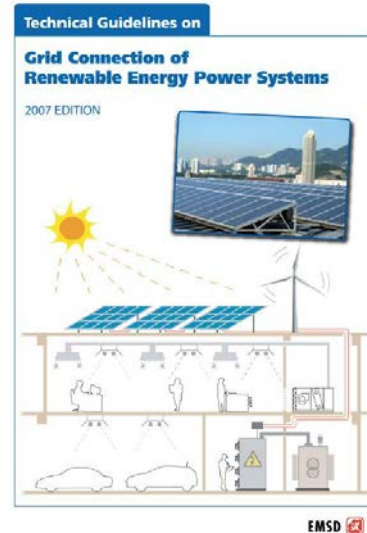
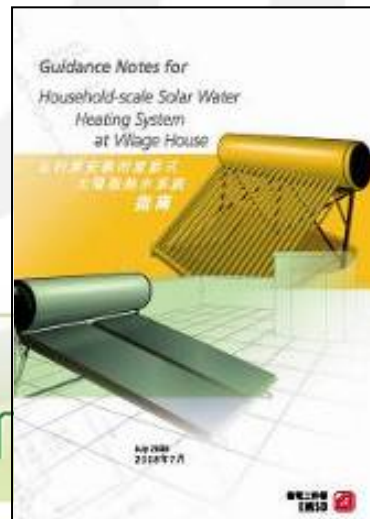
- Planned total cooling floor space of 1.7 million m²
- Cooling capacity of about 284 MWr



Energy Efficiency Technologies



- Lead by examples
- Encourage private participation
- Provide technology support and information
- Promote application of Energy Efficiency (EE) and Renewable Energy (RE) technologies



Energy Efficiency Technologies - Examples



Variable voltage variable frequency (VVVF) drive for Lift

- Typically electricity saving : ~ up to 30%



Service-on-demand (SOD) control for escalators

- Typical electricity saving : ~ 10-15%



Intelligent Power Socket

- Typical electricity saving : depends on load and usage

Energy Efficiency Technologies - Examples



Variable speed drive (VSD) control

Typical electricity saving : ~ 20%



Energy efficient lamp (e.g. compact fluorescent lamp or LED)

- Typical electricity saving : ~ 70% to 80%



Occupancy and/or daylight sensors in addition to light switches

- Typically electricity saving : up to 20% depends on the usage

Public Engagement

Lighting

Maintain only those lighting which are essentially needed in areas that are infrequently occupied

Make use of daylight whenever possible and turn off or dim lighting in perimeter area

Use task lighting to directly illuminate work areas while only few people work in the office

Turn off lighting after use, during lunch time and after office hours

Regular cleaning to the light bulbs and fittings to maximise the illumination



Public Engagement

Air-conditioning

Set the A/C system to the most energy-efficient operational mode when the outdoor air temperature is below 25.5°C.

Purchase room air conditioners with Grade 1 energy label upon replacement of old equipment

Turn on air-conditioner no sooner than you use a room, and the last man out to turn it off upon leaving

Dress lightly to minimize the use of A/C

Clean dust filters and fan coil units regularly; Remove obstructions at air inlets and outlets of the A/C and ventilation



Public Engagement

Office Equipment

Set office equipment to “energy saving” mode, and turn them off after use, during lunch and after office hours

Unplug equipment chargers and adapters when not under charging

Arrange for energy warden (last-man-out) to turn off all equipment or use 7-day timer for common office equipment where appropriate

Switch off all the extra essential fax machines, if there are many, by diverting the calls to one or two essential units before leaving the workplace after work





Public Engagement

Lifts & Escalators

Use the stairs for 1 or 2 floors
up or down

Shut down some of the non-
essential lifts and escalators
during non-peak hours

珍惜資源
全民節能

Public Engagement

Community-wide Publicity and Education

Involving all sectors in Energy Saving Charters

- Indoor Temperature
- No Incandescent Light Bulb



Public Engagement

- Education Path
- School Outreach
- Green Carnival
- Seminar



Public Engagement

Publications

1. EnergyWits
2. Energy Label Newsletter
3. Education Kit
4. SingTao Daily

Dedicated website

1. Hong Kong Sustainable Technology Net
2. Energyland
3. YouTube Channel



Conclusion

- Legislation
- Technologies
- People
- Promotion

- the minimum requirement
- the tools
- the true driving force
- the path





Energy Efficiency Office

能源效益事務處

Thank you !

Enquiry : 2808 3465

Email : eepublic@emsd.gov.hk

Address : 3 Kai Shing Street, Kowloon

Website : www.emsd.gov.hk