

A photograph of a rooftop solar panel installation. The panels are dark blue and arranged in rows on a metal structure. In the background, there is a modern glass building with a complex steel frame and a city skyline under a blue sky with light clouds.

**ASIA-PACIFIC ECONOMIC  
COOPERATION (APEC)  
EGEE&C 53 AND EGNRET 52  
JOINT MEETINGS**

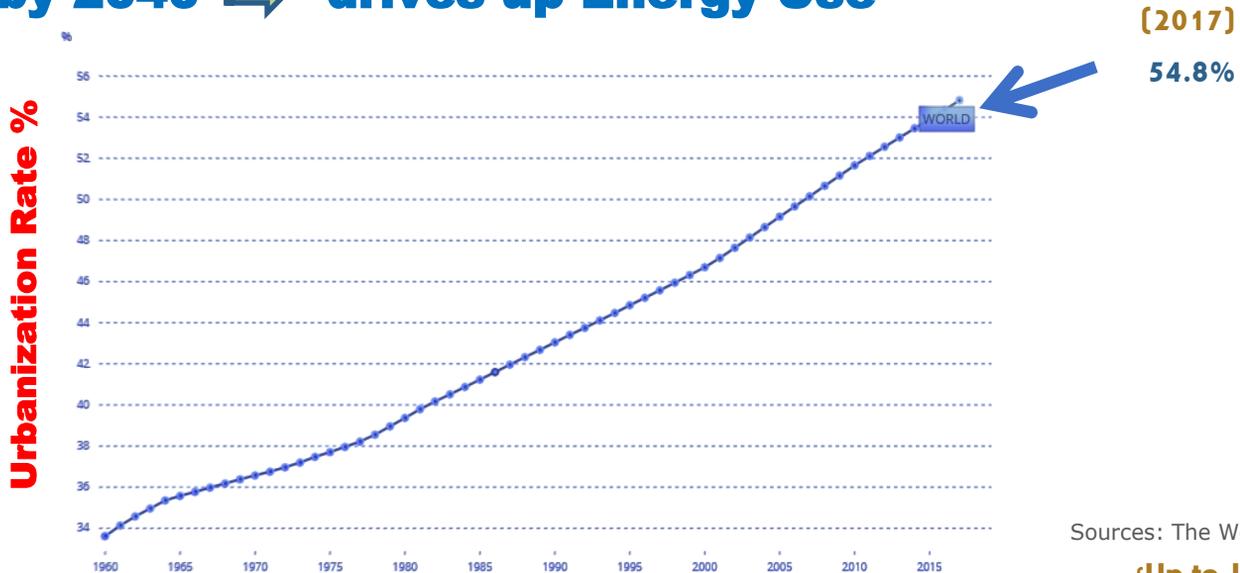
**Official Welcome  
20 March 2019**

# Welcome to Hong Kong



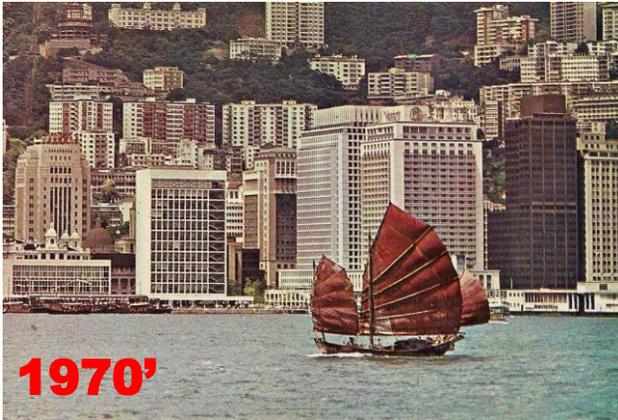
# Urbanization of APEC Region

**Most Economies above 65% of Urbanization Rate by 2040 → drives up Energy Use**



Sources: The World Bank  
[Up to Jan 2019]

# Urbanization of Hong Kong



Approx. 3.9 million Population  
& 9,500 Buildings



Approx. 7.4 million Population  
& 50,000 Buildings



# Hong Kong's Situation

small land mass

1,104 km<sup>2</sup>

152 m<sup>2</sup> per person  
(Population  
Density)

sub-tropical climate:  
high temperature and humidity



High humidity  
70-80%



Day 31°C

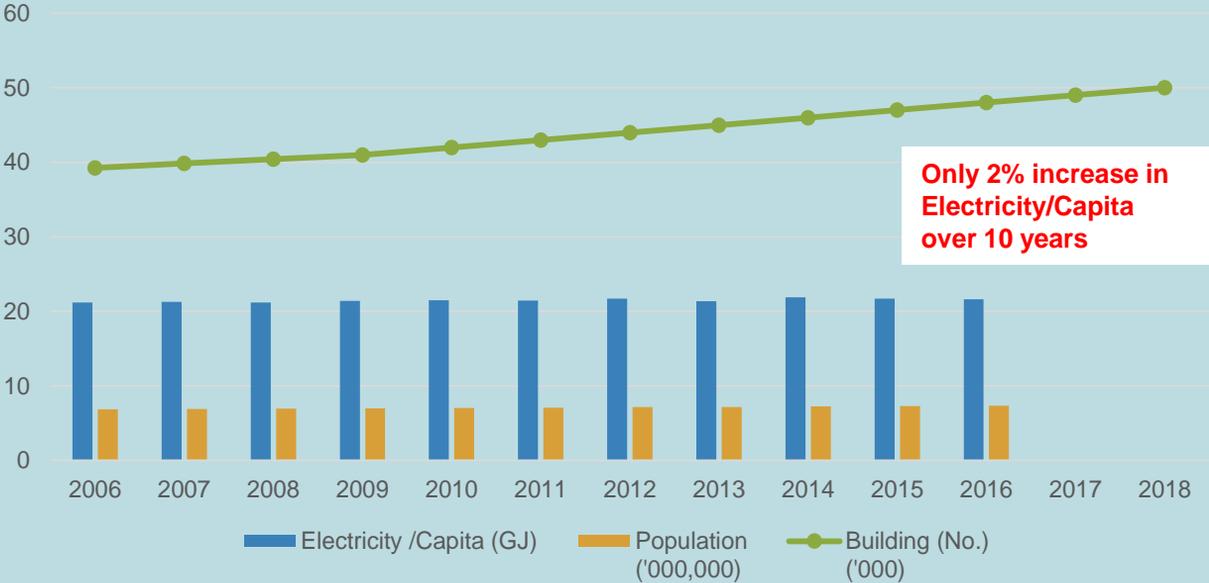


Night 26°C

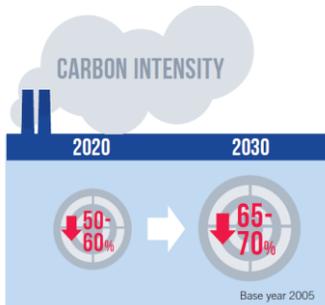


# Electricity Demand in Hong Kong

## Profiles of Electricity Consumption vs Buildings in Hong Kong



# Energy Plans



Energy  
Intensity =  
Energy/GDP



# Key Strategies

## Policy & Commitment

## Public/ Trade Engagement & Incentives

## Legislations & Codes

**EERSB**  
Energy Efficiency  
Registration Scheme for Buildings



**District Cooling System (DCS)**



**Retro-Commissioning**

**EE(LP)O (Cap. 598)**  
Energy Efficiency  
(Labelling of Products)  
Ordinance

ENERGY LABEL 能源標籤	
Energy Efficiency 能源效率	1
Energy Efficiency Class 能源效率級別	1
Energy Efficiency Index 能源效率指數	161
Power Capacity 額定功率 (kW)	5
Power Consumption 耗電量 (kWh/100kWh)	72
Climate Change 氣候變化	OK
Water 水	OK
Material 材料	OK
Recycling 回收	OK
Manufacturer's Name 製造商名稱	EMSD
Manufacturer's Address 製造商地址	EMSD

**BEOO (Cap. 610)**  
Buildings Energy  
Efficiency Ordinance

- Building Energy Code & Energy Audit Code 2018
- Regular review



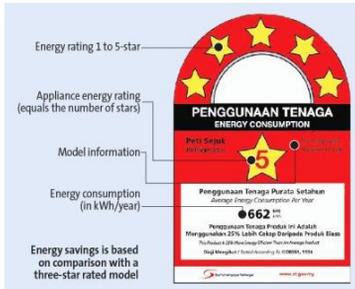
# International Engagement



**Asia-Pacific  
Economic Cooperation**

**Hong Kong, China**

# APEC Region Energy Efficiency Policies



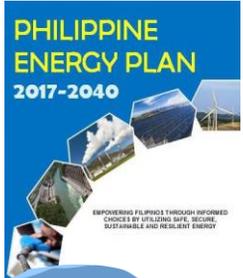
Malaysia Energy Labelling



Indonesia MEPS



Vietnam Energy Efficiency Certification



Philippine Energy Plan (2017-2040)



Thailand Integrated Energy Blueprint (TIEB)



BCA GREEN MARK



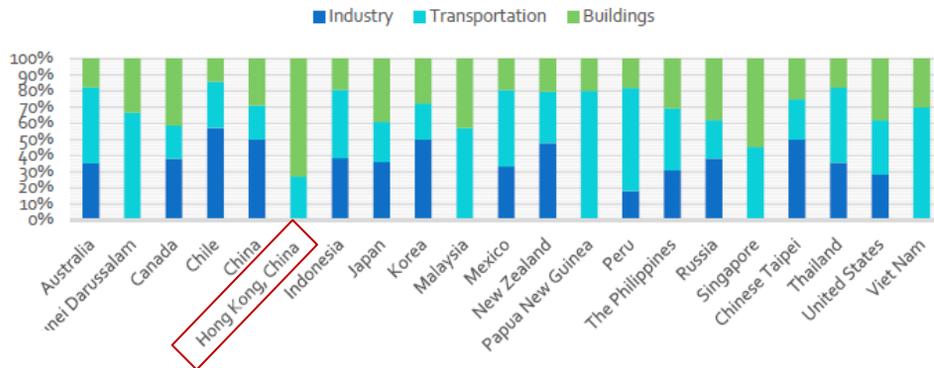
Hong Kong, China



# Hong Kong's Achievement

Most Dense Economy : Over 70% saving in Building Sector

Relative Percentage of Sector Savings, Improved Efficiency Scenario



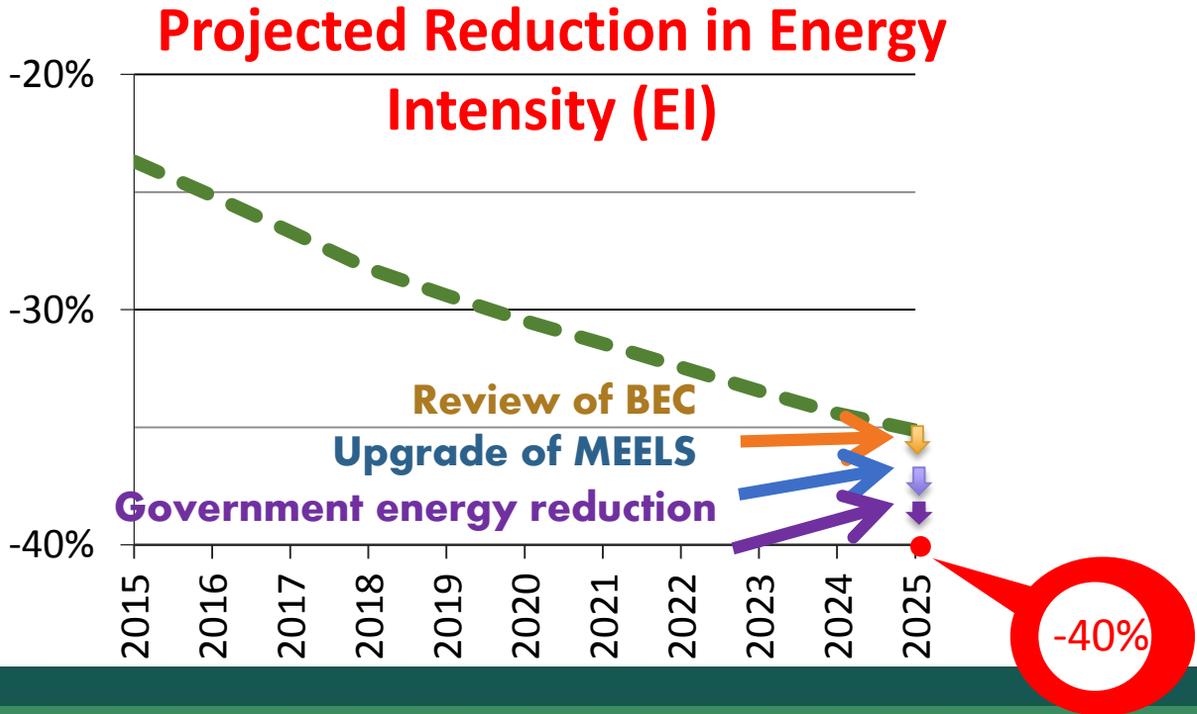
28% energy intensity reduction up to 2016

\*(2005 as base year)



Figure 5. Percentage Sector Savings in the IEE Scenario, APERC 2016

# Hong Kong's Achievement



# Green Building Recognition

## Existing and New Buildings



**PLATINUM**  
鉑金級

18 新建築獎  
V1.2 2017

HKGBC  
BEAM Plus  
綠建環評



Hong Kong, China

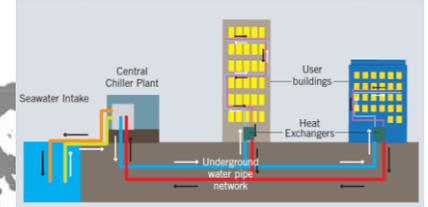
# New Plans and Initiatives

## Green Infrastructures – District Cooling System (DCS)



-  New Development Areas under Planning
-  DCS under Construction and Operation

DCS system at Kai Tak Development



# New Plans and Initiatives

## Retro-commissioning (RCx)



**65%**  
**(over 20 years**  
**old buildings)**

**Memorandum  
of Co-operation  
(MOC) in  
Guangdong-  
Hong Kong-  
Macao Greater  
Bay Area**



# New Plans and Initiatives

## Innovation and Technology - InnoPortal

**E&M InnoPortal** Home I&T Solutions I&T Wish List Success Cases Highlights More - 機電工程署 EMSD

To Connect  
To Share  
To Co-Create

E&M InnoPortal

In line with the directive of 2017 Policy Address on development of Innovation and Technology (I&T) in Hong Kong, EMSD launches EAM InnoPortal which is a platform for I&T collaboration and maintains a list of the technology development needs of various government departments, public bodies and the E&M trade. We warmly welcome universities and start-ups etc. to provide EAM related innovation and technology for putting on the platform for matching. We will provide venues for trial of suitable projects, conduct prototype testing and pilot project in a collaborative way, and upload validated performance reports of trial cases to the platform for sharing with the public with a view to jointly promoting and driving the R&D and application of EAM related innovation and technology.

**I&T Solutions**  
We have been actively supporting the development of Electrical and Mechanical (EAM) start-ups to turn their research and development projects into products for launching in the market. The EMSD...  
[See More](#)

**I&T Wish List**  
This platform maintain a list of the technology development needs ("I&T Wish List") of various government departments, public bodies and the Electrical and Mechanical (EAM) trade. On the oth...  
[See More](#)

**Success Cases**  
We will provide venues for trial of suitable projects, conduct prototype testing and pilot project in a collaborative way, and upload validated performance reports of trial cases to the platform for sharing wit...  
[See More](#)

### HK Government

Energy Efficiency  
Renewable Energy

E&M Start-ups  
Trials (Community)

*Encouraging  
Innovation*

Hong Kong, China

# Renewable Energy Development in Hong Kong



- Geographical limitations
- High population density



# Renewable Energy Development in Hong Kong

Wind Power



Waste-to-Energy

Solar Energy



# Renewable Energy Development in Hong Kong

## Solar Energy



**Solar Plant –  
Sewage  
Treatment Works**

## Floating PV - Reservoirs



# Renewable Energy Development in Hong Kong



**Feed-in-Tariff Scheme**



# Facilitator on Renewable Energy



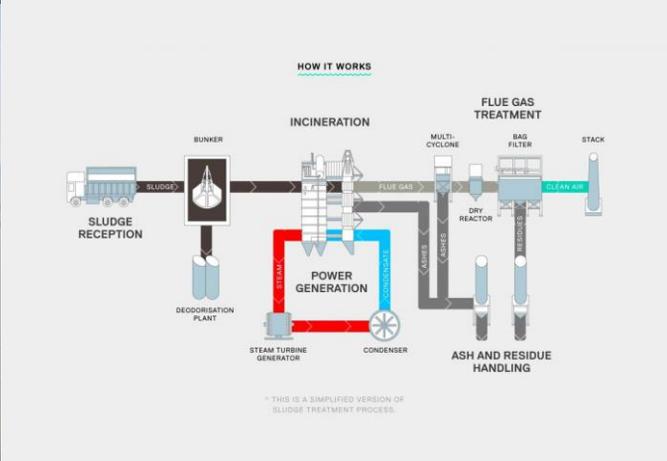
## Solar Energy Support Scheme



**Schools and Welfare  
Non-Governmental  
Organizations**

# Renewable Energy Development in Hong Kong

## Waste-to-Energy



**PLATINUM**  
鉑金級

DB 新建築  
V1.2 2017

HKGBC  
BEAM Plus  
綠建環評

**T · Park – Sludge to Power Generation**

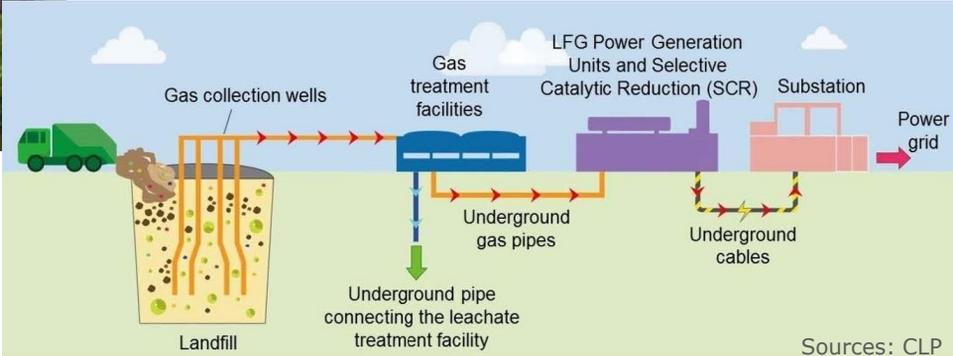
Sources: T · Park

# Renewable Energy Development in Hong Kong

## Waste-to-Energy



### Landfill Gas to Power Generation



Sources: CLP



# Renewable Energy Development in Hong Kong

## Wind Power



Hong Kong, China

# Achievements

## Association of Energy Engineer (AEE) Award



# Collaboration with APEC Economies

**LET'S  
WORK  
TOGETHER**



**Asia-Pacific  
Economic Cooperation**

**Hong Kong, China**

# Opportunities and Synergy by **Collaboration**

