“Policy Making and Technologies Deployment of New and Renewable Energy to Achieve APEC Doubling Goal”

HONG KONG, CHINA

APRIL 2024

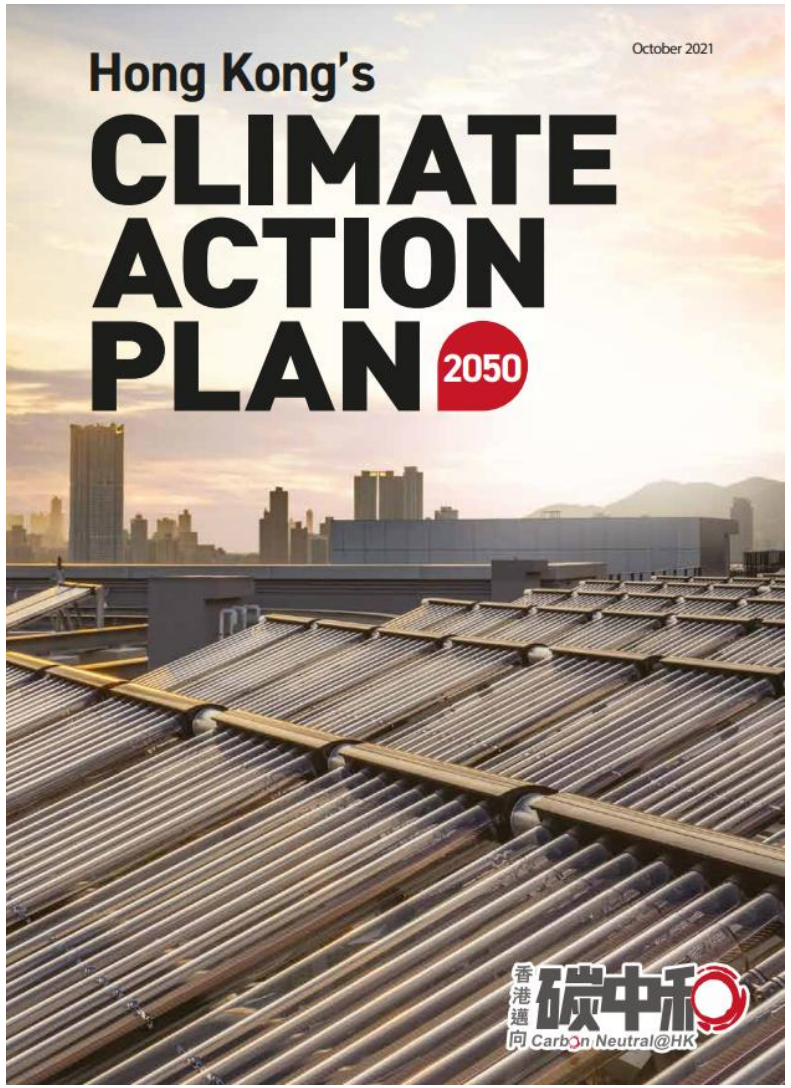
Asia-Pacific Economic Cooperation

Environment and Ecology Bureau
The Government of the Hong Kong Special Administrative Region

機電工程署
EMSD

POLICY MADE

Climate Action Plan 2050



Vision

Zero-carbon Emissions • Liveable City • Sustainable Development

- Net-zero Electricity Generation
- Energy Saving and Green Buildings
- Green Transport
- Waste Reduction

CAP2050 HK RE target

Current	2035	2050
1%	7.5-10% (Increase to 15% subsequently)	Total 15% By 2050

ACTIONS

Efforts in the Private Sector

1,096 TJ annually (~ 91,360 households)

Feed-in Tariff (FiT) Scheme

RE Net

採電學社 SOLAR HARVEST

Open carpark

ACTIONS

Efforts in the Private Sector

2021-2023

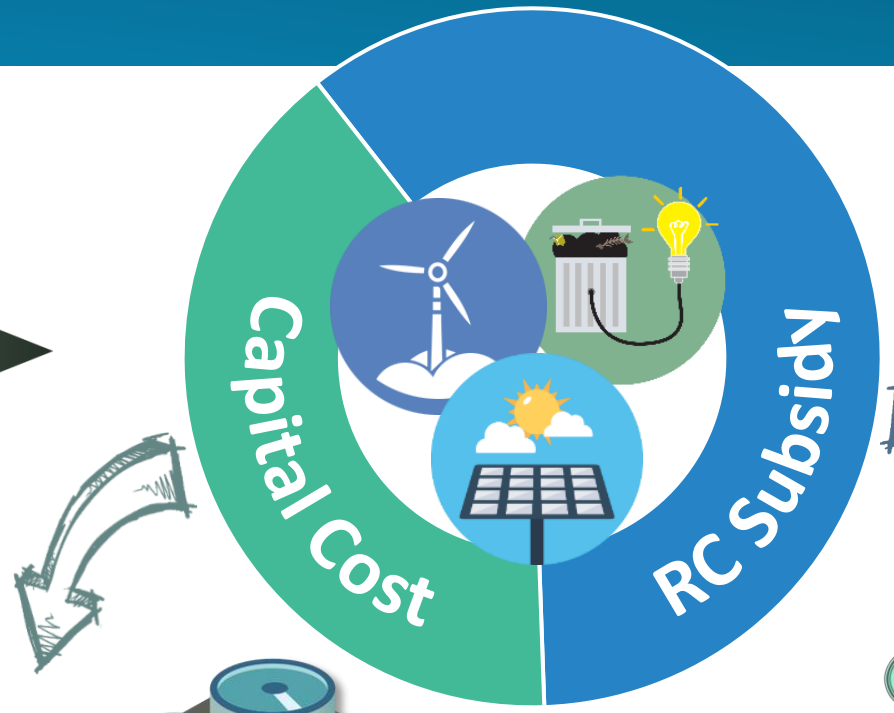
~80 Seminars with 10,000 Participants

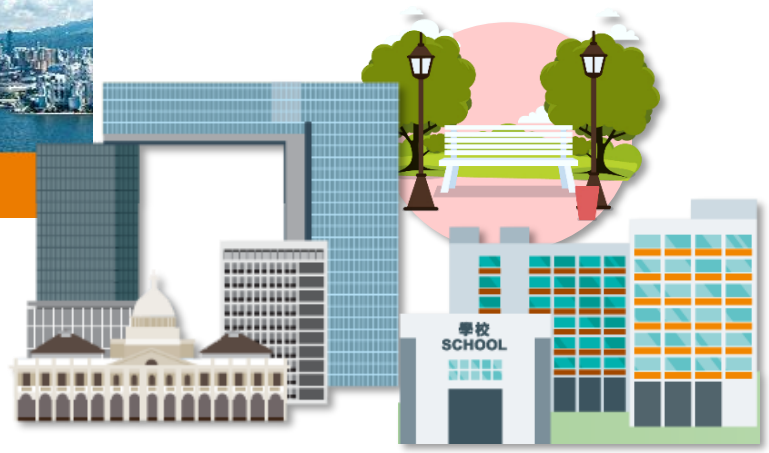
ACTIONS

Efforts in the Government - $3B

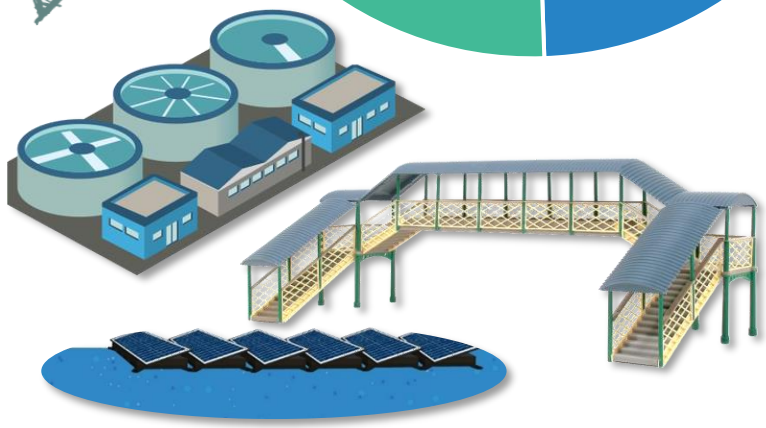
Since 2017

$ 3B RE Funding





RE at Building Facilities



RE at Non-Building Facilities

TECHNOLOGIES DEPLOYED

Efforts in the Government - PV

FPV on Shek Pik Reservoir

FPV on Tai Lam Chung Reservoir

Thin-film system at Stonecutters Island Sewage Treatment Works

Benefits of installing Floating Solar Power Systems in Reservoirs

- Reduce water evaporation of impounding reservoirs (By avoiding the water surface exposed under the sunlight)
- Suppress algae growth to improve the water quality (Because of less photosynthesis effect)
- Reduce carbon emissions (By using less fossil fuel)
- Enhance power generation efficiency of the system (Due to cooling effect of water)

100kW FPV:

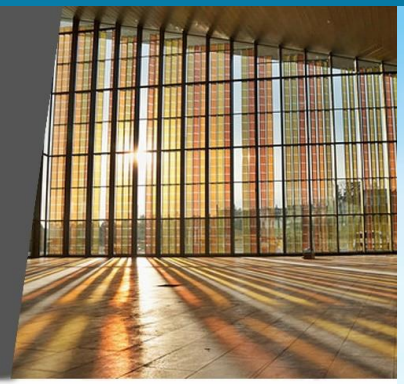
- Shek Pik Reservoir
- Plover Cove Reservoir
- Tai Lam Chung Reservoir

TECHNOLOGIES DEPLOYED

Efforts in the Government - BIPV

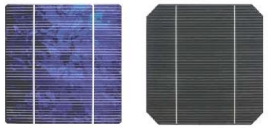
Building-integrated Photovoltaics

Sustainable & Aesthetic



Source of images are from online

晶態硅太陽能電池
C-Si solar cell

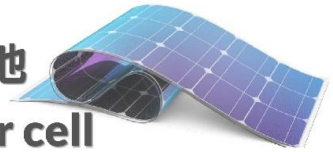


typical efficiency : 15-20%

materials : mc-Si and p-Si

- Widely used in residential, commercial, and large-scale applications. Market dominance due to proven performance and ongoing enhancements

薄膜太陽能電池
Thin-film solar cell

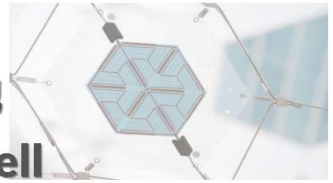


typical efficiency : 10%~20%

materials : CdTe, CIGS, a-Si

- Lower material usage and reduced manufacturing costs. Suitable for low-light conditions and higher temperature coefficient

有機太陽能電池
Organic solar cell



typical efficiency : 10%~15%

materials : organic polymers, small organic molecules

- Mechanical flexibility and potential for transparency. Challenges include lower energy conversion efficiency and stability

鈣鈦礦太陽能電池
Perovskite solar cell

typical efficiency : ~ over 25%

materials : perovskite-structured materials

- Rapid advancements in conversion efficiency. Low production costs. Challenges include long-term durability and stability

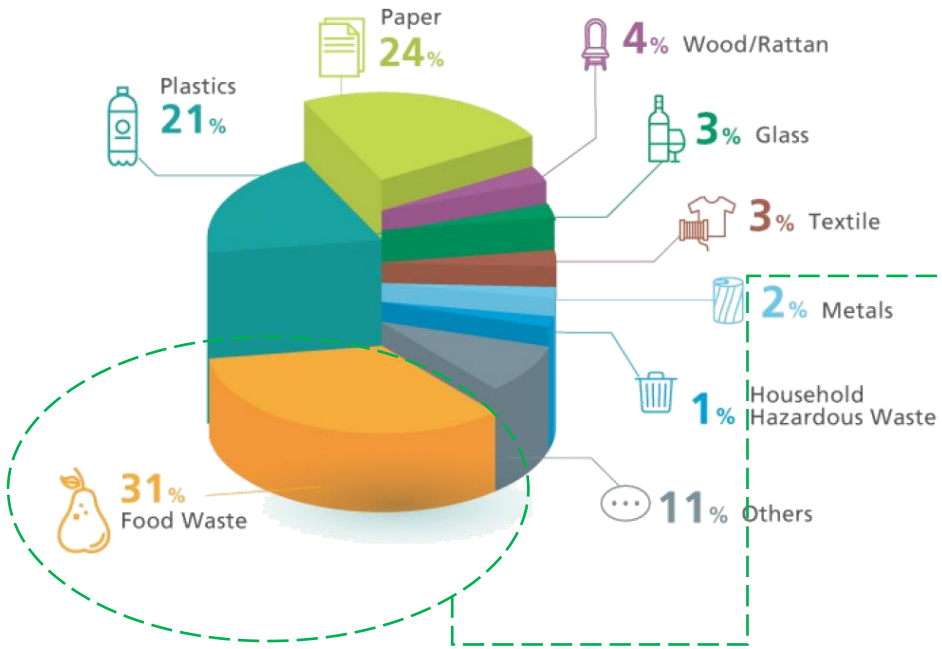
Pilot Scheme on Building-Integrated Photovoltaics (BIPV) at the Electrical and Mechanical Services Department (EMSD) Headquarters

TECHNOLOGIES DEPLOYED

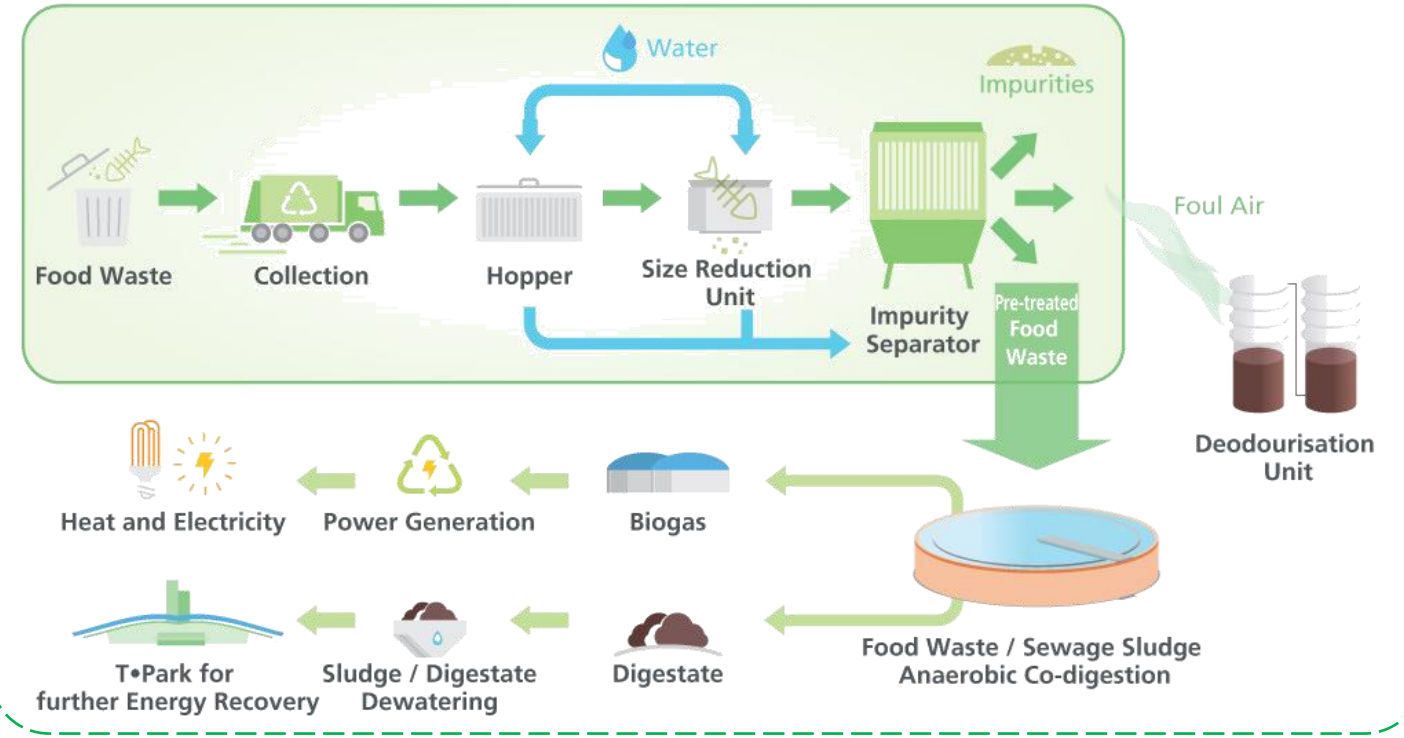
Efforts in the Government - Waste-to-Energy

Sewage Treatment Works + T·PARK + O·PARK 1 + O·PARK 2 + I·PARK 1 = 1,814 TJ

Composition of Municipal Solid Waste Disposed of at Landfills in 2018



Process flow of Food Waste/ Sewage Sludge Anaerobic Co-digestion Trial Scheme



POLICY MAKING

Hydrogen in HKC

Thank you.