“Economy Movement Towards Carbon Free Electricity”

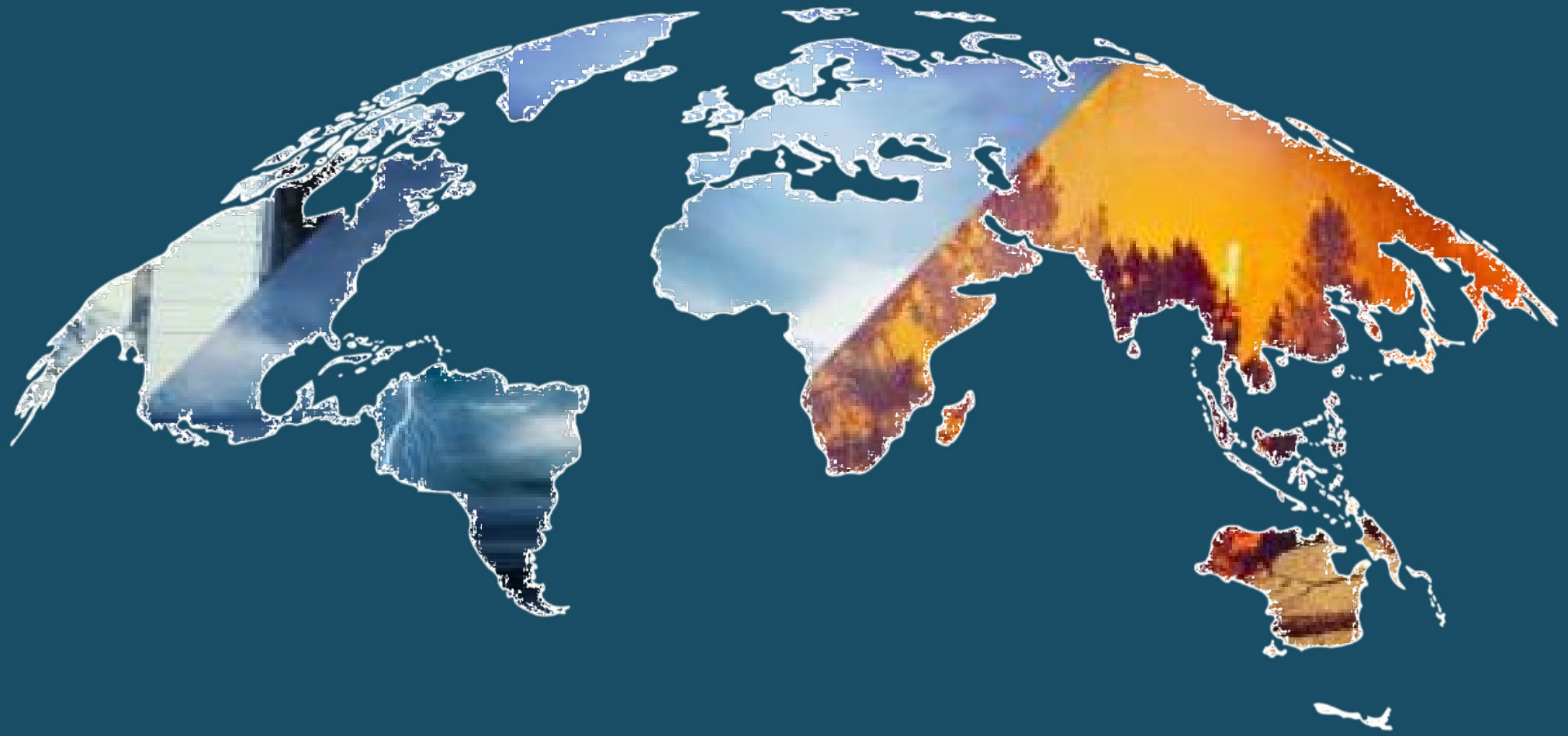
Hong Kong, China

April 2023

Asia-Pacific Economic Cooperation

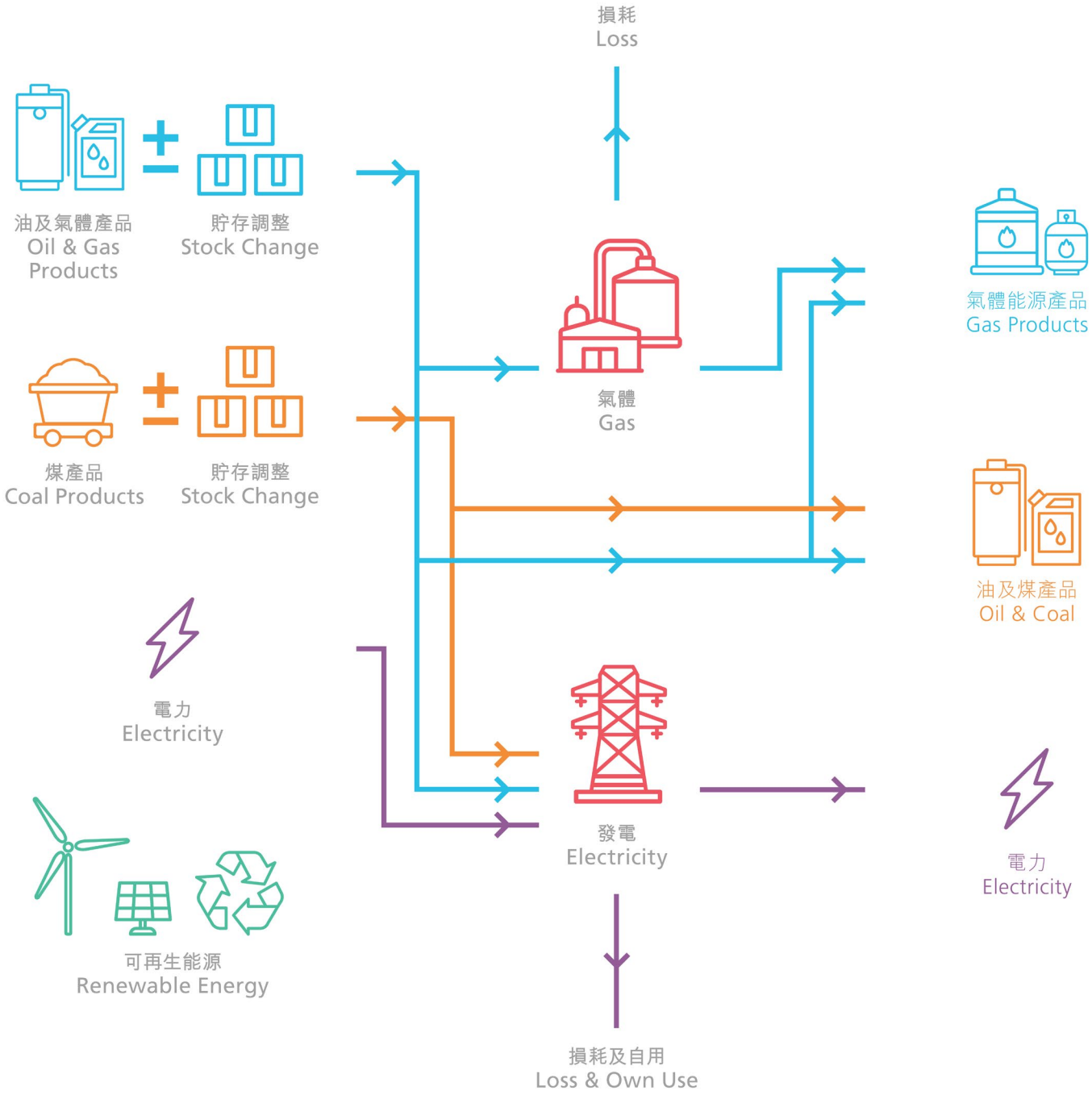
Environment and Ecology Bureau
The Government of the Hong Kong Special Administrative Region

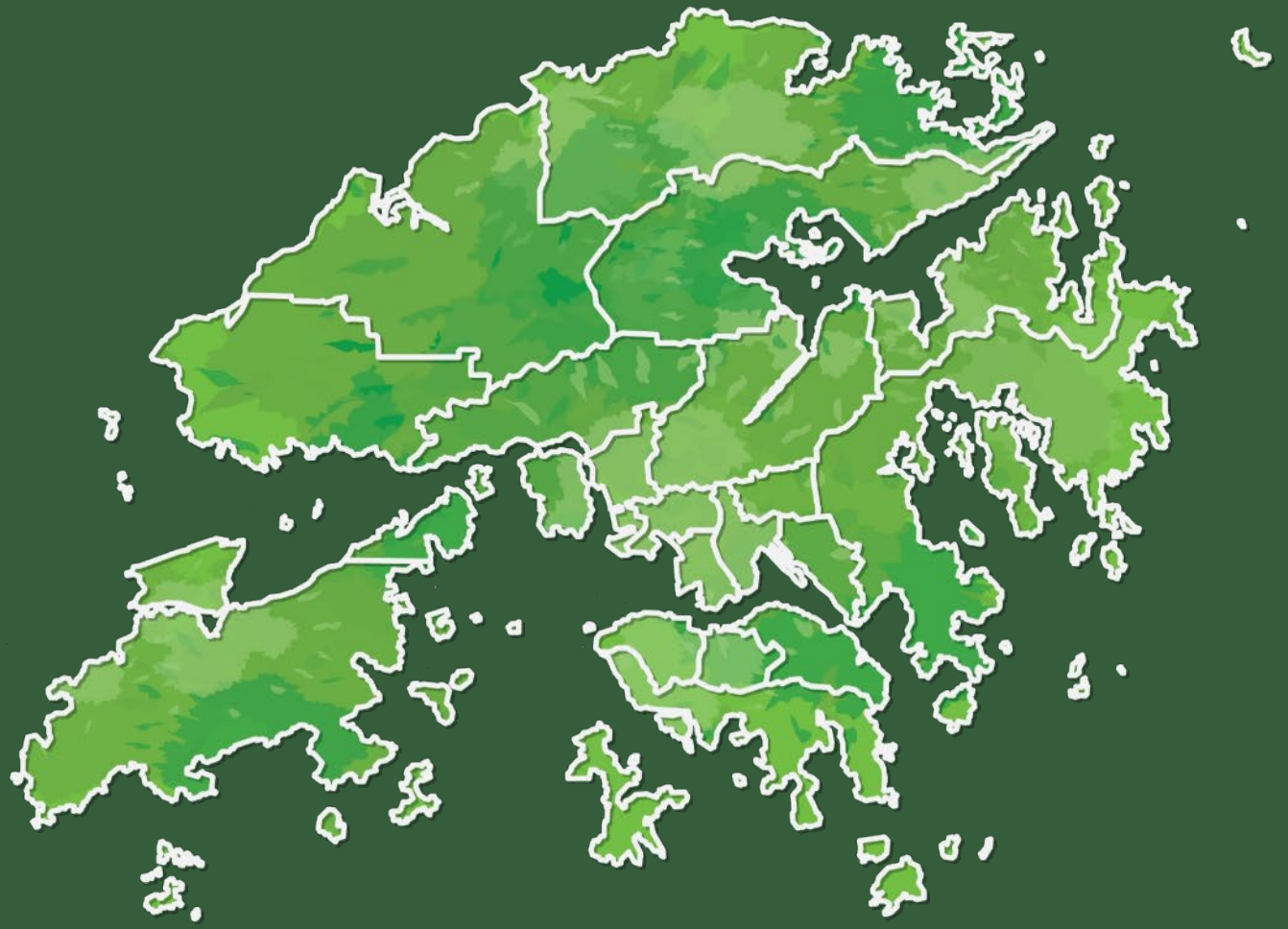
機電工程署 EMSD



Climate Change

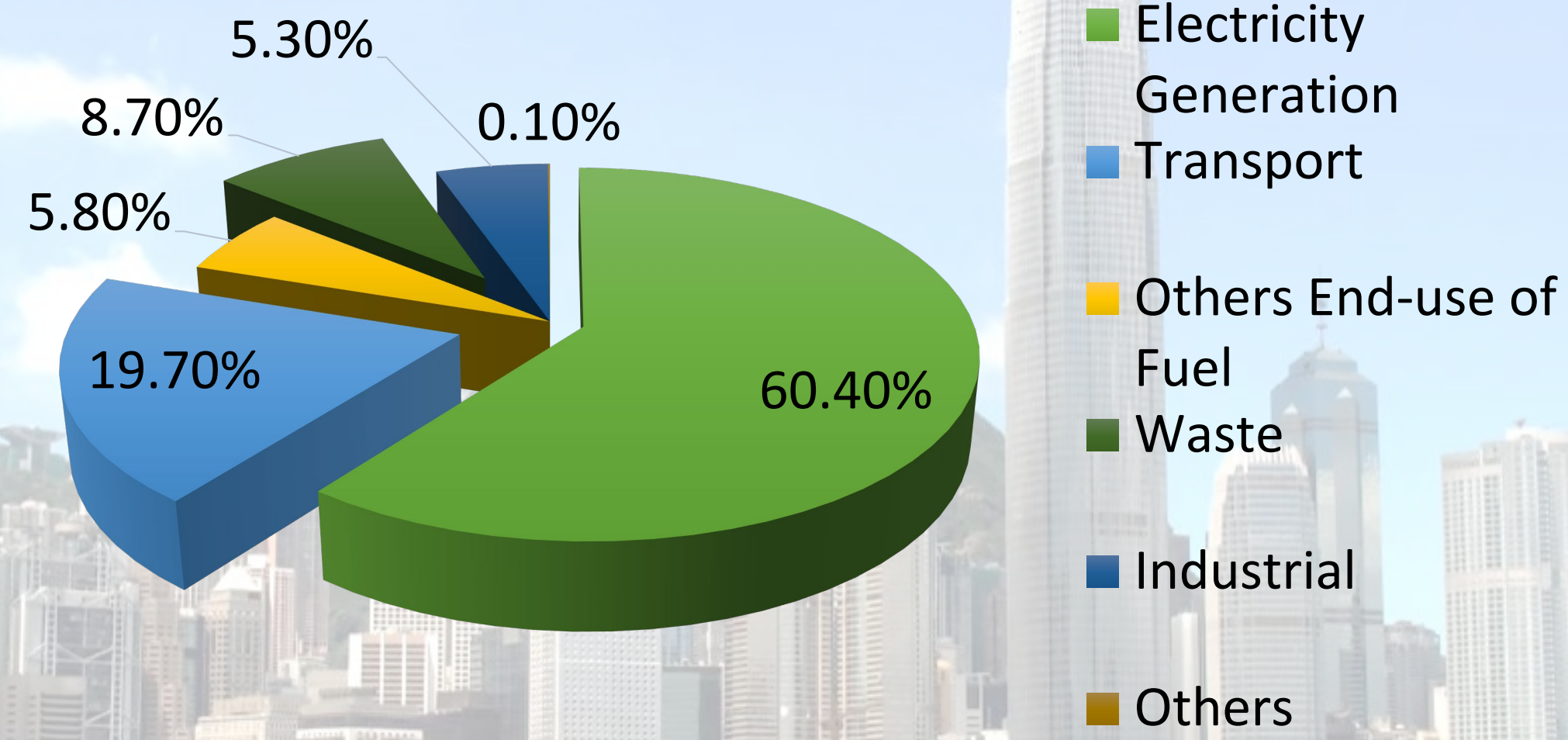
Energy Mix in HKC





Hong Kong, China

HKC's GHG Emission in 2020



Hong Kong's Climate Action Plan 2050

Vision

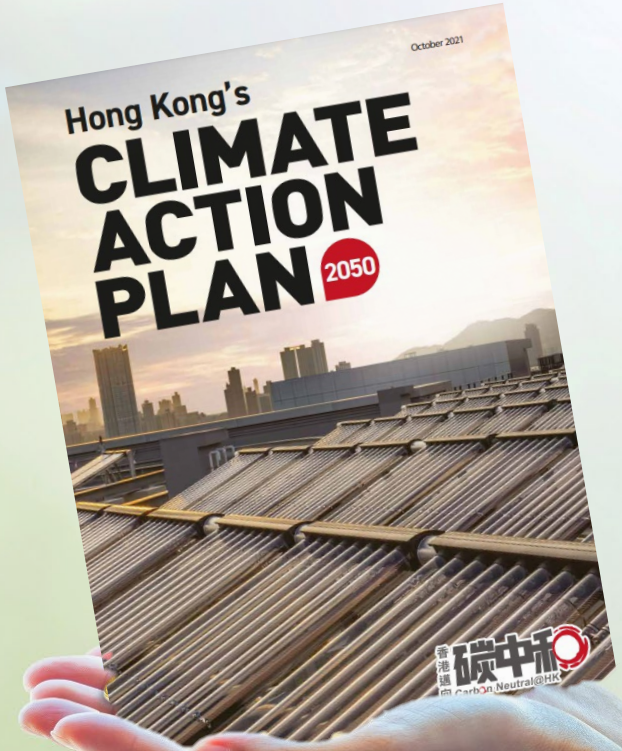
Zero-carbon Emissions • Liveable City • Sustainable Development

Net-zero Electricity Generation

Energy Saving and Green Buildings

Green Transport

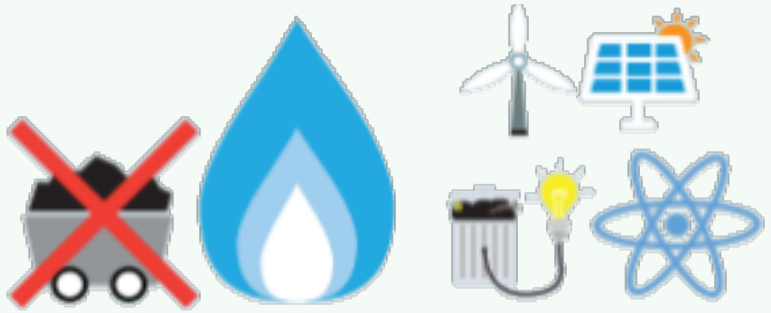
Waste Reduction



碳中和

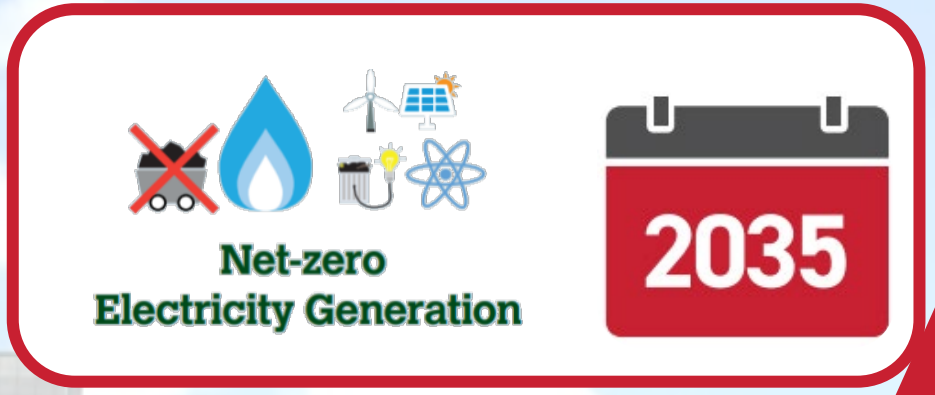
Carbon Neutrality

唯一出路 THE ONLY WAY OUT



Net-zero Electricity Generation

Cease Using Coal for Electricity Generation



Floating Storage Regasification Units (FSRU)


Transition to
Carbon Zero
Natural Gas

RENEWABLE ENERGY

Renewable Energy (RE)

2035 **7.5-10%**

(Increase to 15% subsequently)

Restored landfills

Floating PV at Reservoirs

PV at Rooftops

RENEWABLE ENERGY

Wind 3.5-4%

+

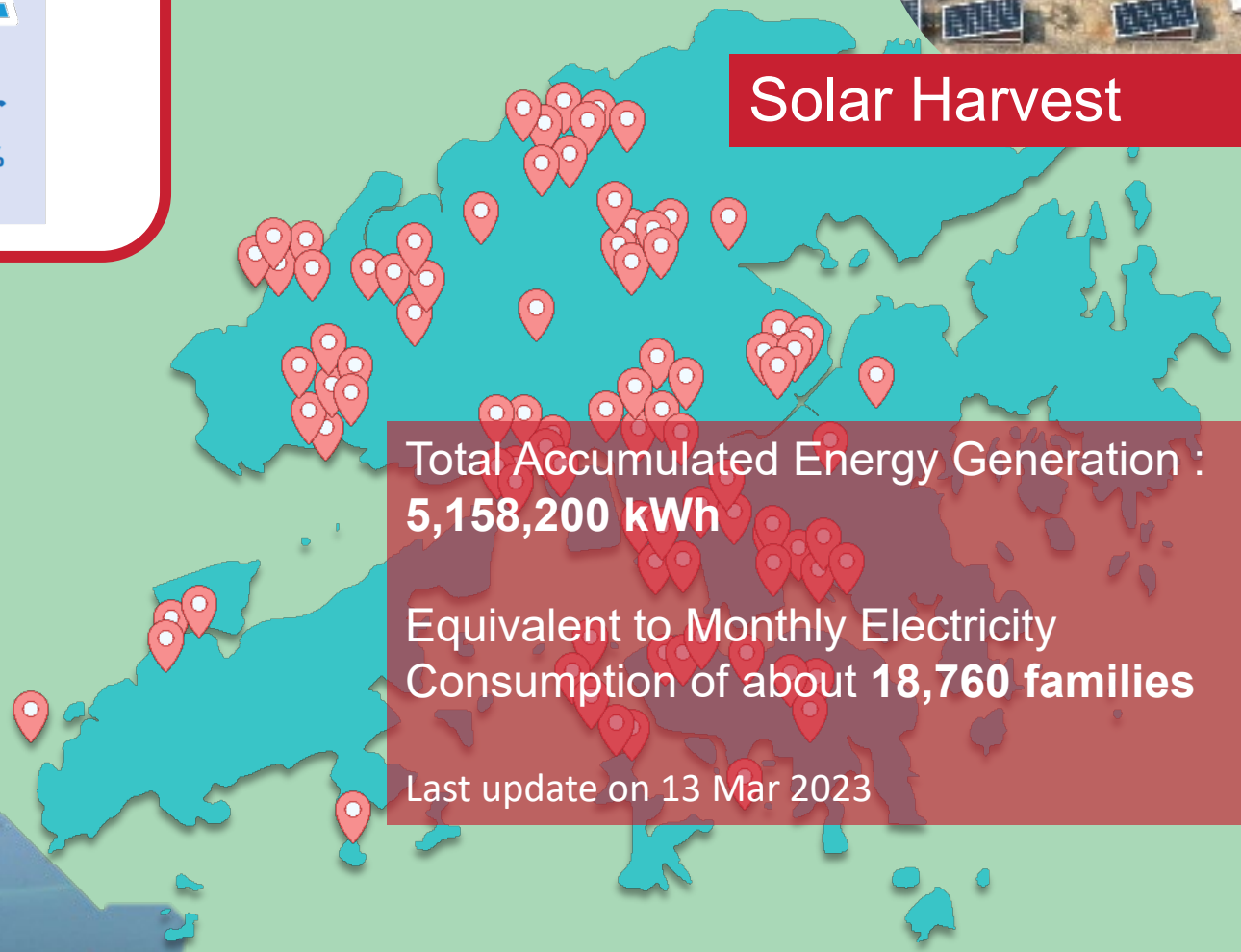
Solar 1-2%

Development of an Offshore **Wind farm** in **Hong Kong**

2027

Image Source: hkelectric

Solar Harvest



Total Accumulated Energy Generation : **5,158,200 kWh**

Equivalent to Monthly Electricity Consumption of about **18,760 families**

Last update on 13 Mar 2023

Net-zero
Electricity Generation

Waste Reduction

Waste to Energy

2023

150 TJ (42 M-kWh) of Generation

12,700 households

Waste to Energy

Integrated Waste Management Facilities (IWMF) Phase 1, Shek Kwu Chau

1,725 TJ (480 M-kWh) of Generation

145,000 households

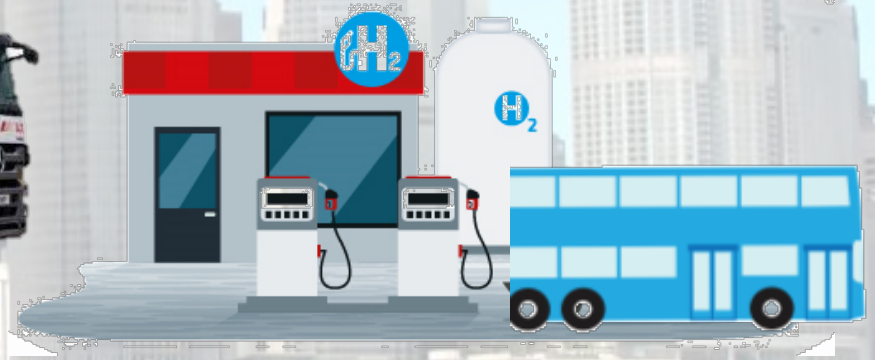

H2
“Increasing” - Hydrogen as “new zero-carbon” energy

HKC's unique advantage in Hydrogen Supply

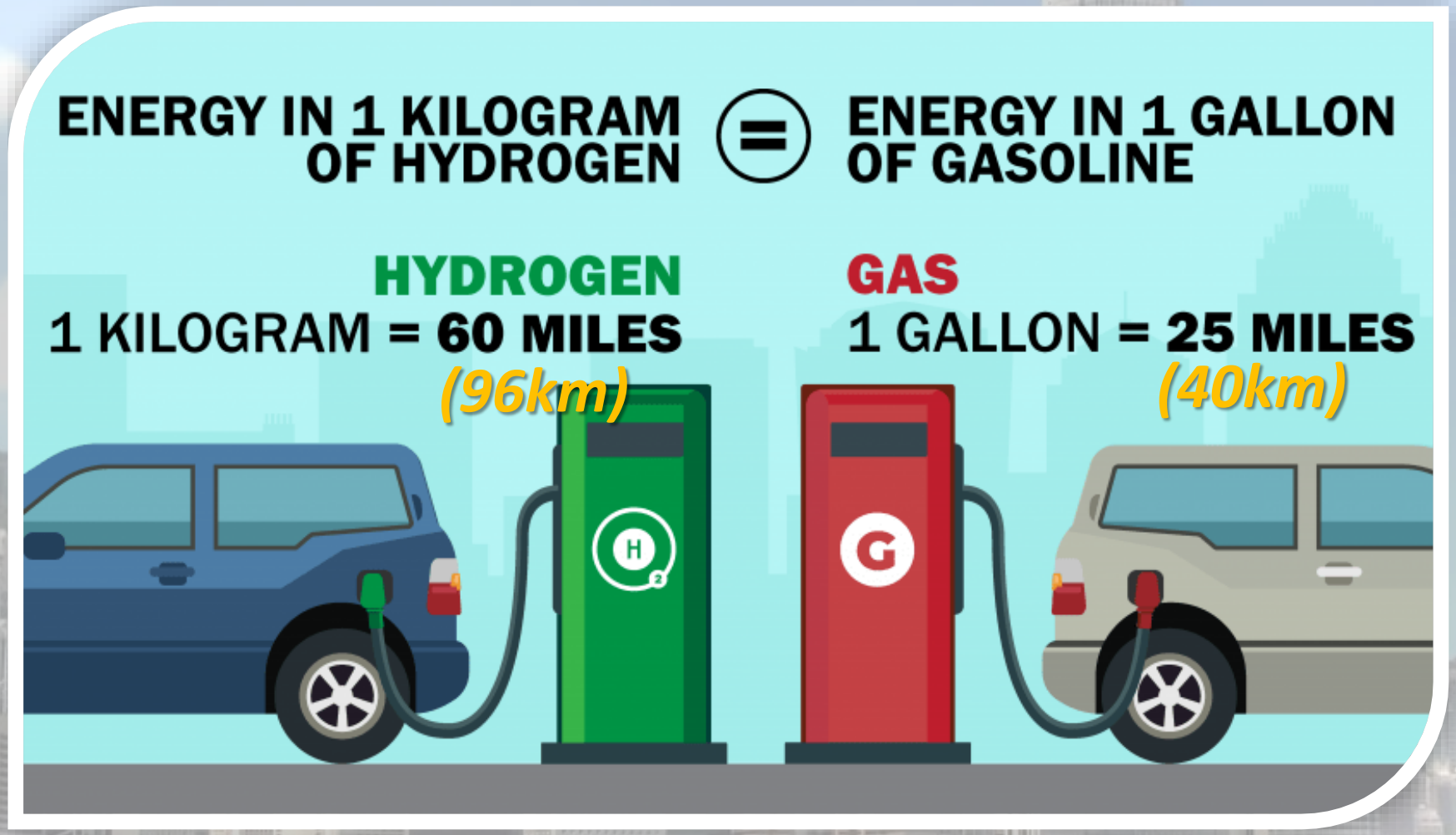
Hydrogen Production Facility in Guangzhou

Supply from Towngas

Local production plant



Hydrogen as “New Zero-carbon” Energy



Source: The U.S. Department of Energy

Inter-departmental Working Group on Using Hydrogen as Fuel

Environmental and Ecology Bureau

Development Bureau

Transport and Logistics Bureau

Security Bureau

EPD

EMSD

FSD

TD

MD

ArchSD

BD

LandsD

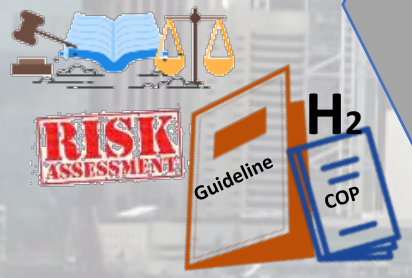
PlanD

R&D for Hydrogen as fuel

2023: Trials of hydrogen fuel cell electric double-deck buses and heavy vehicles

Risk assessments on hydrogen refilling stations

Development of best practices, codes, standards and regulations



Hydrogen Filling Facility

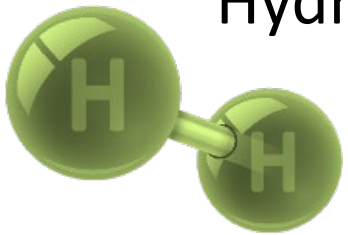
Continue R&D

Research & Development

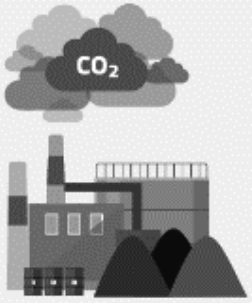
Zero-carbon Energy

- Blue and green hydrogen energy
- Ammonia nitrogen
- Carbon capture and storage
- Carbon-neutral natural gas
- Carbon sinks

Hydrogen

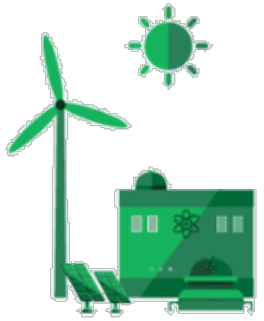


No emission when burned or used in a fuel cell



Grey Hydrogen
CO_2 emitted into the atmosphere

Blue Hydrogen
95-97% CO_2 stored or re-used



Green Hydrogen
No CO_2 emitted
Ultimate solution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