




before 2050

Hong Kong's Pathway to Carbon Neutrality

K S Wong, Secretary for the Environment, Hong Kong SAR @ 6 April 2022

The background of the slide is a wide-angle photograph of the Forbidden City in Beijing, China, taken from a high vantage point. The image captures the vast complex of traditional Chinese palaces and gardens, characterized by their red walls and yellow-tiled roofs. The sky above is a mix of soft pinks, oranges, and blues, indicating a sunset or sunrise. The overall atmosphere is serene and majestic.

**China will scale up its
Intended Nationally Determined Contributions
by adopting more vigorous policies and measures.
We aim to have CO2 emissions peak before 2030
and achieve carbon neutrality before 2060.**

Extracted ***President Xi Jinping's***
statement at the General Debate of the 75th Session of the United Nations General Assembly @ Sep 2020

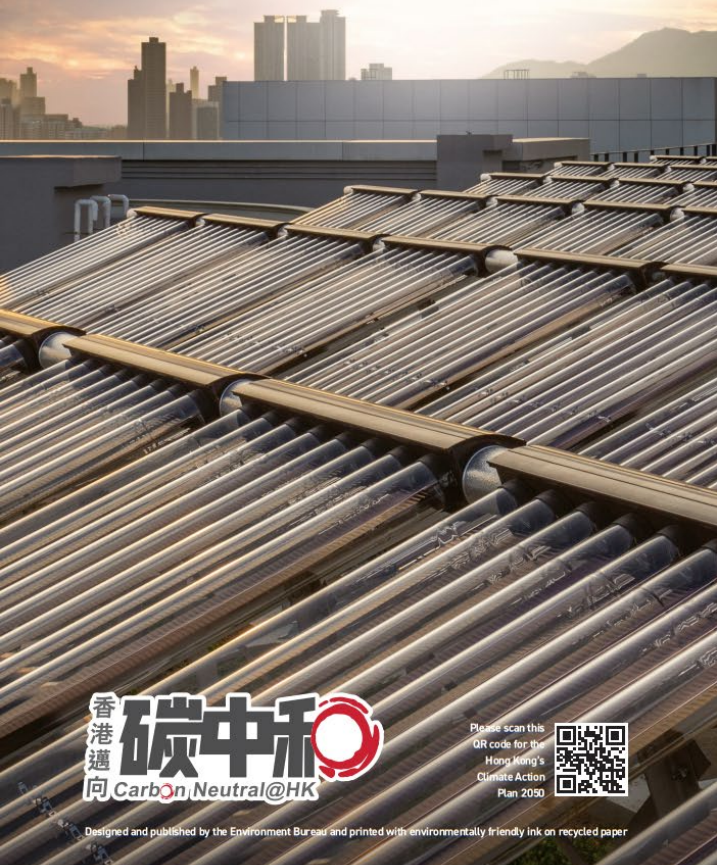
A scenic landscape at sunset or sunrise. In the foreground, a large array of solar panels is floating on a body of water, reflecting the warm colors of the sky. In the background, a range of mountains is silhouetted against the vibrant orange and pink sky. A small, dark structure is visible on the water near the solar panels.

**Hong Kong reached its GHG emissions peak in 2014
and strives to achieve carbon neutrality before 2050**

October 2021

Hong Kong's

CLIMATE ACTION PLAN 2050

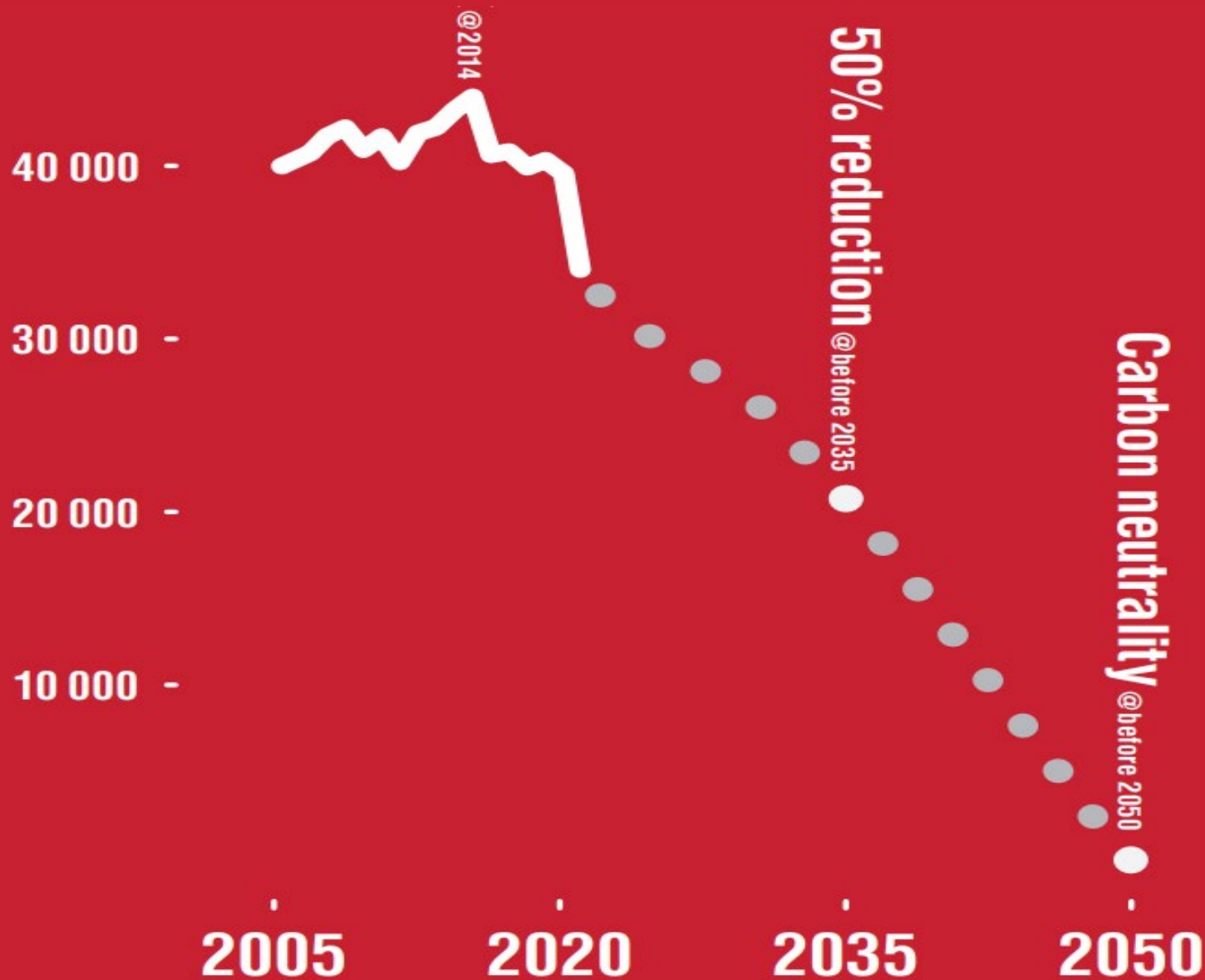


Please scan this QR code for the Hong Kong's Climate Action Plan 2050

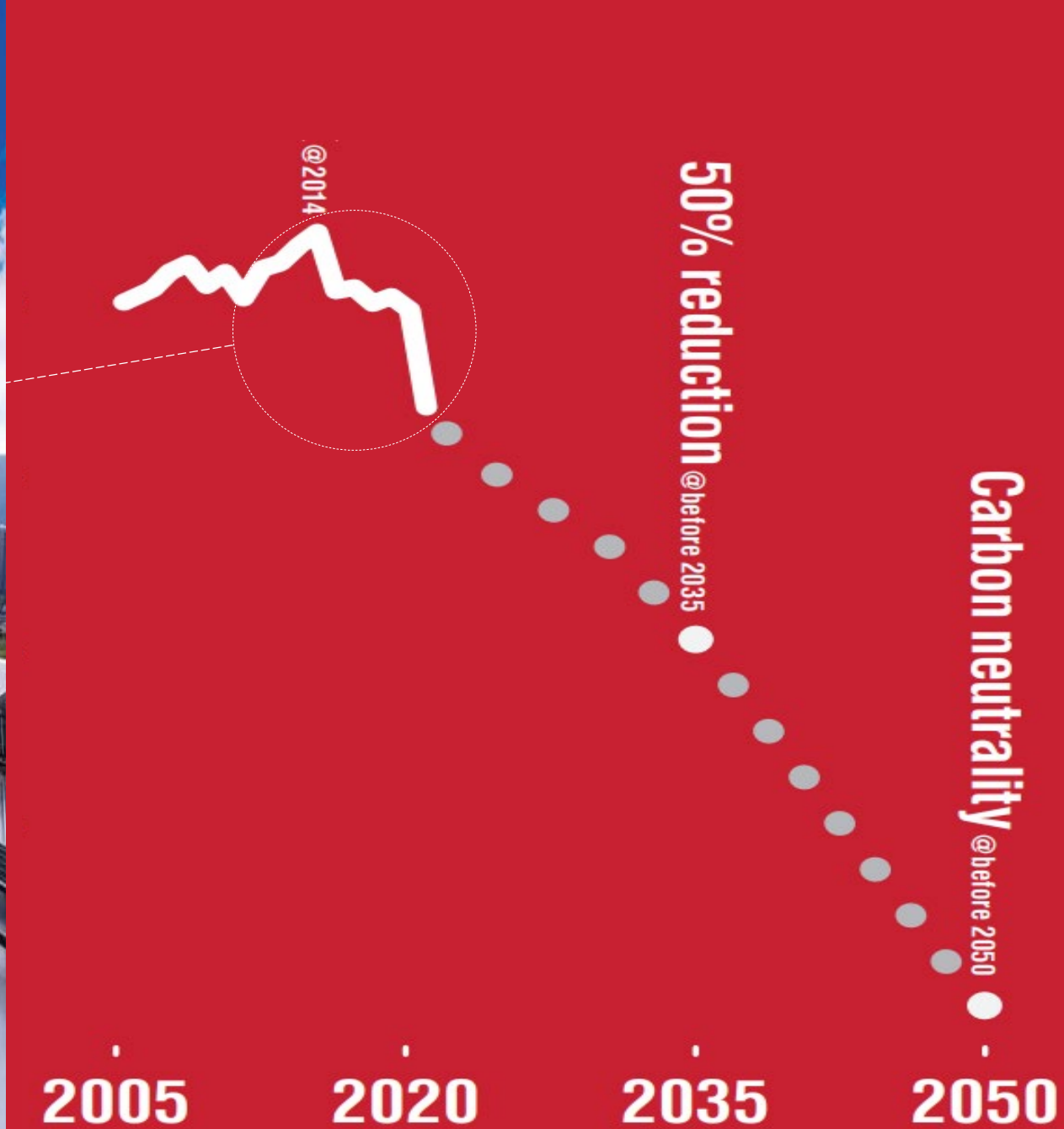


Designed and published by the Environment Bureau and printed with environmentally friendly ink on recycled paper

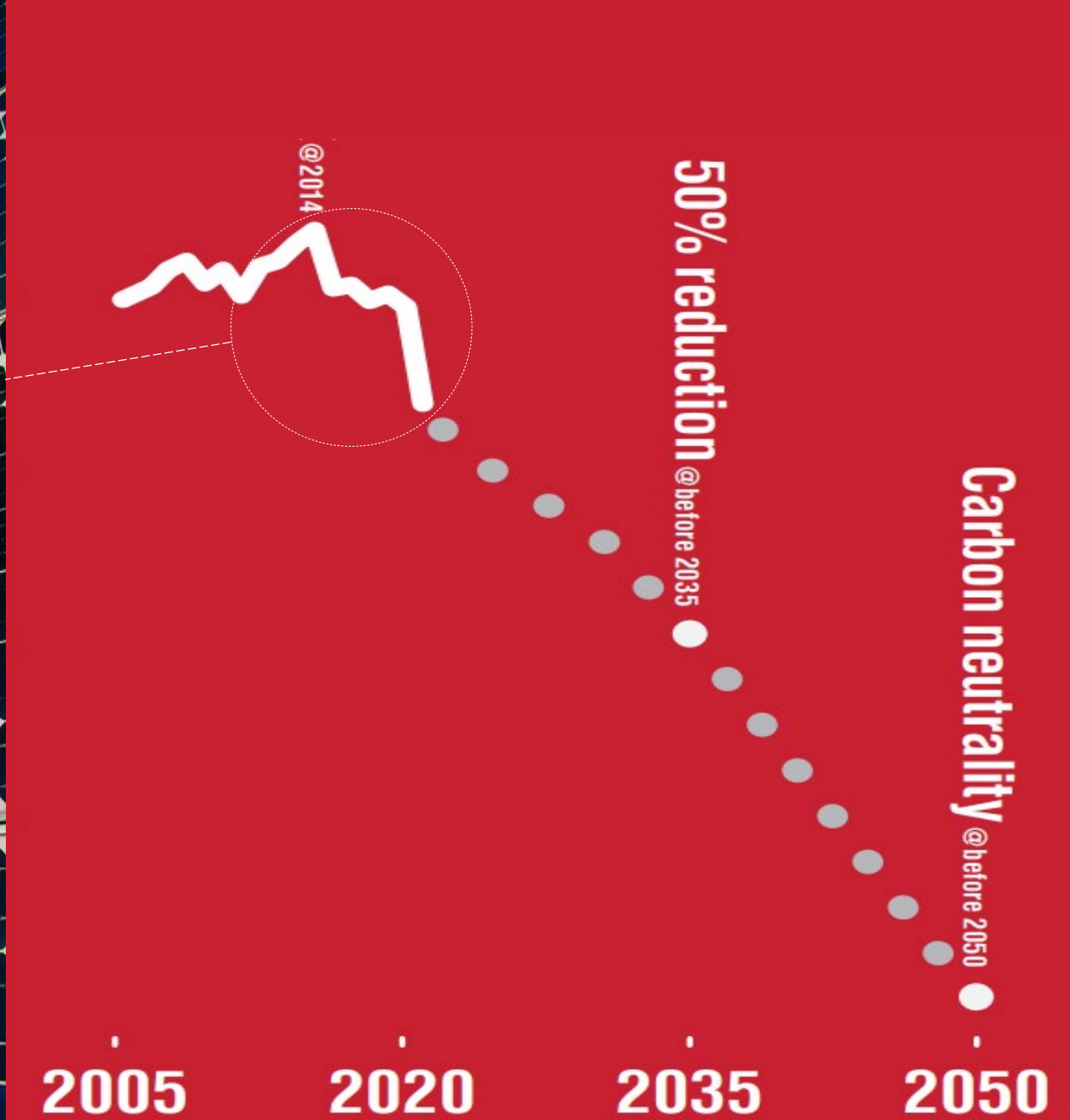
Total carbon emissions (kilotonnes)



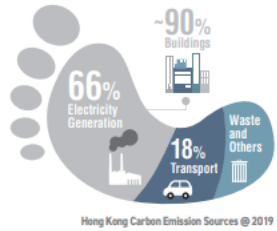
Over the last decade, Hong Kong has allocated over HK\$47B (~USD 6B) to implement various energy saving and renewable energy measures, promote electric vehicles & vessels, and introduce waste-to-energy and waste-to-resources facilities



In their last and current development plans spanning 10 years, the investment of the two power companies in major decarbonization projects amounts to HK\$39B (~USD 5B)



Hong Kong's Climate Action Plan 2050



Retrospect and Prospect



Decarbonisation

Over the past decade, the Government has allocated over \$47 billion to implement various carbon reduction measures. The two power companies have also allocated about \$39 billion to decarbonisation projects

Reduce Coal for Electricity Generation

Reduce the share of coal in the fuel mix for electricity generation from around half in 2015 to less than a quarter



Energy Saving and Green Buildings

About 2.1 billion kWh of electricity was saved in 2020 as compared with 2015 (-4.7%)



Electric Vehicles (EVs)

In the first half of 2021, one out of every five newly registered private cars is EV



Adaptation and Resilience

The Climate Change Working Group on Infrastructure: Major Studies

Strengthening Infrastructure

- Study on resilience of Government critical infrastructure in Hong Kong under extreme weather
- Sensitivity test under direct hit by super typhoons
- Frequency analysis of extreme sea levels

Tropical Cyclones

- Projection of extreme winds

Extreme Temperatures

- Study on potential impacts on Government infrastructure under extreme temperatures

Reduce Flood Risk

Eliminated 127 flooding blackspots, improvement works for the remaining 4 black spots will be completed in phases

Contingency Plan for Transport System

Update contingency plans to handle emergency situations at major transport infrastructure

Contingency Plan for Natural Disasters

Inter-departmental Steering Committee chaired by the Chief Secretary for Administration to handle natural disasters of a substantial scale

Emergency Alert System

Disseminate messages to mobile users during emergency situations to remind the public to adopt contingency measures



Zero-carbon Emissions • Liveable City • Sustainable Development

Roadmap to Carbon Neutrality

Strategies • Opportunities

Moving towards carbon neutrality can bring ample and diverse development opportunities, enhance Hong Kong's competitiveness and support sustainable development

Steering and Coordination

The Steering Committee on Climate Change and Carbon Neutrality under the chairmanship of the Chief Executive to formulate the overall strategy

Climate Budget

Allocate ~\$240 billion to combat climate change in the next 15 to 20 years

Office of Climate Change and Carbon Neutrality

Set up a new office to strengthen coordination and promote decarbonisation

Challenges

- Cost of Decarbonisation
- Space Constraint
- Technology Breakthrough
- Extreme Weather
- Demand for Talent
- Participation for All

Advisory Committee

Establish a dedicated advisory committee to encourage public participation, including young people

Public Engagement

Government to work together with different sectors to promote low-carbon lifestyle

Green Finance

Accelerate the development of green and sustainable finance, develop Hong Kong into a green financial hub in the region

Green Economy

Facilitate the development of green industries, create investment and job opportunities

Technology and Innovation

Promote I&T development and re-industrialisation, facilitate the application of decarbonisation technologies and green R&D

Capacity Building

Climate change-related content to be incorporated into the curricula of tertiary institutions

Carbon-neutral Communities

Develop strategic growth areas into carbon-neutral communities

Net-zero Electricity Generation • Energy Saving and Green Buildings

In 2019, electricity generation accounted for about 66% of total carbon emissions. Hong Kong will gradually reduce the use of fossil fuel and expedite the use of clean zero-carbon energy

No Coal for Electricity Generation

2035
Cease using coal for daily electricity generation, to be replaced by low to zero-carbon energy

Zero-carbon Energy

2035 60-70%
Trial of new energy and closer cooperation with neighbouring areas to increase the supply of zero-carbon electricity

Renewable Energy (RE)

2035 7.5-10%
(Increase to 15% subsequently)

Cooperation and Innovation

Seek investment and development opportunities, participate in and operate zero-carbon energy projects near Hong Kong

Electricity Saving in Buildings

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Electricity consumption (Compared with 2015)

COMMERCIAL BUILDINGS 15-20%
(Reduce by 30-40% subsequently)

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Strengthening Regulation

- Continuous enhancement of energy performance of buildings
- Expand the scope of regulation to cover all buildings with high energy consumption
- Conduct more frequent energy audits
- Implement the identified energy management opportunities
- Strengthen the promotion of retro-commissioning

Explore setting a minimum energy efficiency requirement for specified appliances

Smart Management

Use smart technologies to enhance energy saving management and energy efficiency of buildings and infrastructure



Incorporate district cooling systems in development projects



Green Transport

Transport constituted about 18% of total carbon emissions in 2019. Popularisation of EVs and other new energy transport can help the transport sector achieve zero carbon emissions

Clean Air Plan for Hong Kong 2035

Hong Kong Roadmap on Popularisation of Electric Vehicles

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Implement strategies in the Clean Air Plan to promote adoption of new energy transport to expedite low-carbon transformation

2050
Take forward measures set forth in the EV Roadmap to attain zero vehicular emissions before 2050



Hydrogen Fuel Cell Vehicles

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Test out hydrogen fuel cell electric buses and heavy vehicles

Electric Private Cars

2035
Cease the new registration of fuel-propelled and hybrid private cars in 2035 or earlier

New Energy Transport

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Progressively adopt new energy ferries



Waste Reduction

Waste accounted for about 7% of total carbon emissions in 2019. Developing waste-to-energy facilities and promoting waste reduction and recycling will enable us to move away from reliance on landfills for municipal waste disposal

Waste Blueprint for Hong Kong 2035



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Municipal Solid Waste Charging

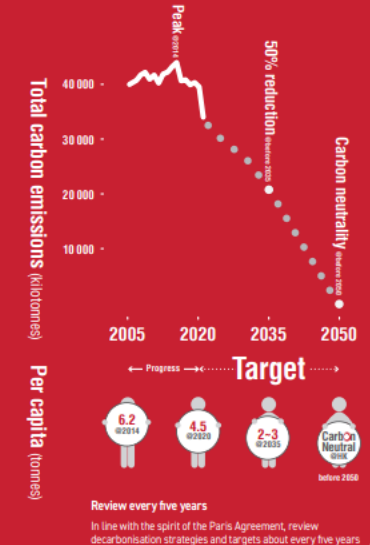
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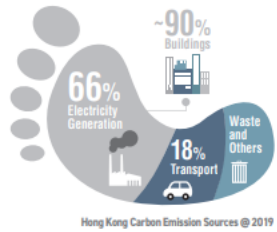
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Investment Infrastructure Innovation Interaction Integration

Hong Kong's Climate Action Plan 2050



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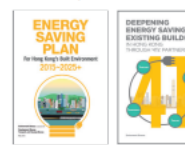
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Advisory Committee

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Public Engagement

Government to work together with different sectors to promote low-carbon lifestyle.

Green Finance

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Green Economy

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Technology and Innovation

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Zero-carbon Energy

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Cooperation and Innovation

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Decarbonisation comes at a price. Buildings account for about 90% of Hong Kong's total electricity consumption. Promoting energy conservation and improving energy efficiency can help reduce the cost of transformation.

Electricity Saving in Buildings

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Continuous enhancement of energy performance of buildings

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Use smart technologies to enhance energy saving management and energy efficiency of buildings and infrastructure



Incorporate district cooling systems in development projects

Green Transport

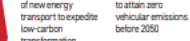
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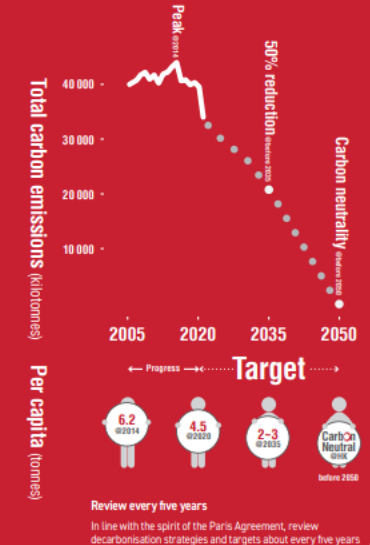
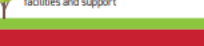
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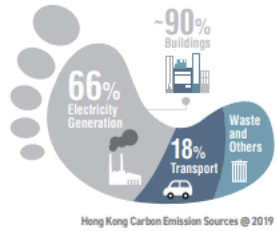
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Investment

Climate Budget : HK\$240B (~USD 31B) in the next 15-20 yrs
 Government Green Bond Programme (since 2019)
 Green & Sustainable Finance Cross-Agency SG (since 2020)
 Green Finance Hub development in the region

Hong Kong's Climate Action Plan 2050



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Roadmap to Carbon Neutrality

Strategies • Opportunities

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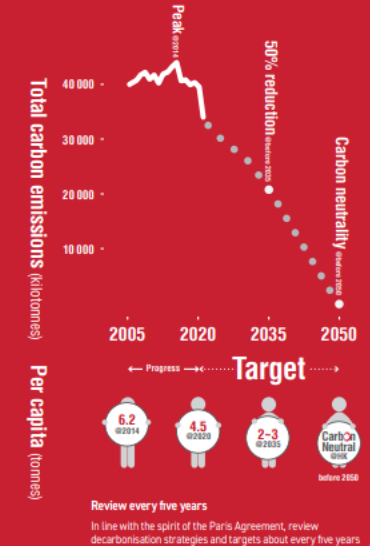
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Review every five years
In line with the spirit of the Paris Agreement, review decarbonisation strategies and targets about every five years

Infrastructure

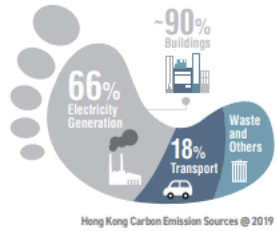
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Waste-to-Energy/Resources Facilities

Hong Kong's Climate Action Plan 2050



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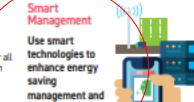
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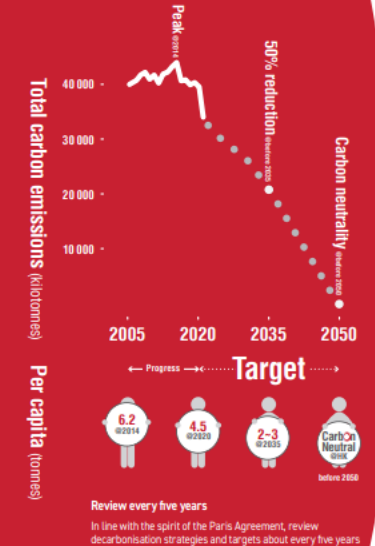
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Innovation

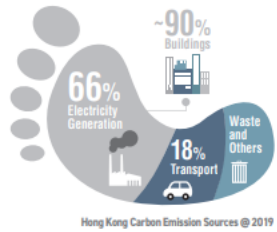
Green Tech Fund (for decarbonization and green projects)

Smart Meters (for all electricity meters in Hong Kong)

Marketization of EV Charging (in public/commercial carparks)

Smart Recycling (e.g. RVM for plastic beverage bottles)

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Eliminated 127 flooding blackspots, improvement works for the remaining 4 black spots will be completed in phases.

Contingency Plan for Transport System

Update contingency plans to handle emergency situations at major transport infrastructure.

Contingency Plan for Natural Disasters

Inter-departmental Steering Committee chaired by the Chief Secretary for Administration to handle natural disasters of a substantial scale.

Emergency Alert System

Disseminate messages to mobile users during emergency situations to remind the public to adopt contingency measures.



Zero-carbon Emissions • Liveable City • Sustainable Development

Roadmap to Carbon Neutrality

Strategies • Opportunities

Moving towards carbon neutrality can bring ample and diverse development opportunities, enhance Hong Kong's competitiveness and support sustainable development.

Steering and Coordination

The Steering Committee on Climate Change and Carbon Neutrality under the chairmanship of the Chief Executive to formulate the overall strategy.

Climate Budget

Allocate ~\$240 billion to combat climate change in the next 15 to 20 years.

Office of Climate Change and Carbon Neutrality

Set up a new office to strengthen coordination and promote decarbonisation.

Advisory Committee

Establish a dedicated advisory committee to encourage public participation, including young people.

Public Engagement

Government to work together with different sectors to promote low-carbon lifestyle.

Green Finance

Accelerate the development of green and sustainable finance, develop Hong Kong into a green financial hub in the region.

Green Economy

Facilitate the development of green industries, create investment and job opportunities.

Technology and Innovation

Promote ICT development and industrialisation, facilitate the application of decarbonisation technologies and green R&D.

Capacity Building

Climate change-related content to be incorporated into the curricula of tertiary institutions.

Carbon-neutral Communities

Develop strategic growth areas into carbon-neutral communities.

Net-zero Electricity Generation • Energy Saving and Green Buildings

In 2019, electricity generation accounted for about 66% of total carbon emissions. Hong Kong will gradually reduce the use of fossil fuel and expedite the use of clean zero-carbon energy.

No Coal for Electricity Generation

2035
Cease using coal for daily electricity generation, to be replaced by low to zero-carbon energy.

Zero-carbon Energy

2035 **60-70%**
Trial of new energy and closer cooperation with neighbouring areas to increase the supply of zero-carbon electricity.

Renewable Energy (RE)

2035 **7.5-10%**
(Increase to 15% subsequently)

Cooperation and Innovation

Seek investment and development opportunities, participate in and operate zero-carbon energy projects near Hong Kong.

Electricity Saving in Buildings

2035
Electricity consumption (Compared with 2015)
COMMERCIAL BUILDINGS 15-20%
(Reduce by 30-40% subsequently)
RESIDENTIAL BUILDINGS 10-15%
(Reduce by 20-30% subsequently)

Strengthening Regulation

Continuous enhancement of energy performance of buildings
• Expand the scope of regulation to cover all buildings with high energy consumption
• Conduct more frequent energy audits
• Implement the identified energy management opportunities
• Strengthen the promotion of retro-commissioning

Smart Management

Use smart technologies to enhance energy saving management and energy efficiency of buildings and infrastructure

Explore setting a minimum energy efficiency requirement for specified appliances

Incorporate district cooling systems in development projects

Green Transport

Transport constituted about 18% of total carbon emissions in 2019. Popularisation of EVs and other new energy transport can help the transport sector achieve zero carbon emissions.

Clean Air Plan for Hong Kong 2035

Hong Kong Roadmap on Popularisation of Electric Vehicles

2035
Implement strategies in the Clean Air Plan to promote adoption of new energy transport to expedite low-carbon transformation.

2050
Take forward measures set forth in the EV Roadmap to attain zero vehicular emissions before 2050.



Hydrogen Fuel Cell Vehicles

2035
Test out hydrogen fuel cell electric buses and heavy vehicles.

Electric Private Cars

2035
Cease the new registration of fuel-propelled and hybrid private cars in 2035 or earlier.

New Energy Transport

2035
Progressively adopt new energy ferries.

Waste Reduction

Waste accounted for about 7% of total carbon emissions in 2019. Developing waste-to-energy facilities and promoting waste reduction and recycling will enable us to move away from reliance on landfills for municipal waste disposal.

Waste Blueprint for Hong Kong 2035



Municipal Solid Waste Charging

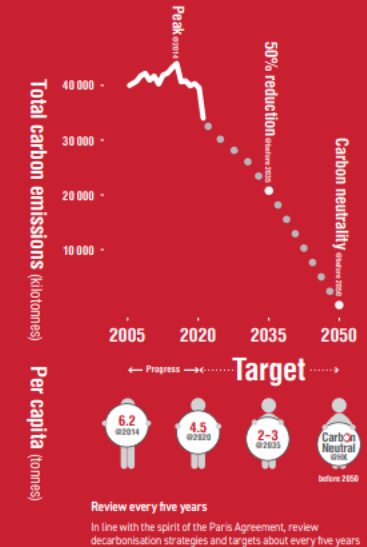
2023
Prepare for implementation of waste charging, encourage waste reduction and recycling, and strengthen community facilities and support.

Regulation of Disposable Plastic Tableware

2025
Regulate disposable plastic tableware, etc. in phases, reduce plastic at source.

Waste-to-energy

2035
Develop adequate waste-to-energy facilities, move away from reliance on landfills for municipal waste disposal.



Interaction

C40 Cities

Eco Expo Asia (annual trade show and green conference)

Greater Bay Area (closer regional collaboration)

Task Force (on new decarbonization technologies globally)

Hong Kong launched 4 environmental blueprints in 2021

February 2021

WASTE BLUEPRINT

for Hong Kong 2035



Integration

環境局
Environment Bureau

Please scan this QR code for the "Waste Blueprint for Hong Kong 2035"



Designed and published by the Environment Bureau and printed by Government Logistics Department on environmentally-friendly ink on recycled paper.

環境局
Environment Bureau

Hong Kong ROADMAP ON POPULARISATION OF ELECTRIC VEHICLES

March 2021



Please scan this QR code for the "Roadmap on Popularisation of Electric Vehicles"



Designed and published by the Environment Bureau and printed by Government Logistics Department on environmentally friendly ink on recycled paper.

June 2021

CLEAN AIR PLAN

for Hong Kong 2035



Please scan this QR code for the "Clean Air Plan for Hong Kong 2035"



環境局
Environment Bureau

運輸及房屋局
Transport and Housing Bureau

食物及衛生局
Food and Health Bureau

發展局
Development Bureau

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October 2021

Hong Kong's CLIMATE ACTION PLAN

2050



香港邁向 Carbon Neutral@HK

環境局
Environment Bureau

請掃描此QR碼以獲取香港氣候行動計劃2050



Designed and published by the Environment Bureau and printed with environmentally friendly ink on recycled paper.

Hong Kong Roadmap on Popularization of Electric Vehicles

2020 Number of electric vehicles (EVs):
1 EV in every 8 new private cars
(made up of 2.7% of all private cars)



Existing Key Initiatives

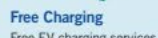
First Registration Tax (FRT) Concessions

FRT concessions and One-for-One Replacement Scheme for e-private cars. Accumulated concessions exceeding **\$7.4 billion** in 6 years since 2015



Lower Vehicle Licence Fees

Licence fees for e-private cars are lower



Free Charging

Free EV charging services at government car parks



Tax Concessions

Full FRT waiver and profits tax deduction for e-commercial vehicles



Supporting Technological Developments

\$1.1 billion New Energy Transport Fund to subsidise trials and application of green transport technologies



Private Charging Facilities

NEW BUILDINGS: Must install charging infrastructure to apply for gross floor area concessions for car parks starting from 2011. 68 000 parking spaces have been approved

EXISTING BUILDINGS: **\$2 billion EV-charging at Home Subsidy Scheme** open for application since end-2020 which is expected to subsidise installation of charging infrastructure for more than 60 000 parking spaces in existing private residential buildings

Public Charging Network

NEW BUILDINGS: Install EV medium chargers at 30% of parking spaces at new government buildings

EXISTING CAR PARKS: Allocated \$120 million to add 1 000+ medium chargers at government car parks by 2022

Vision

Zero Carbon Emissions • Clean Air • Smart City



Green and Decarbonisation • Innovation and Cooperation

Multi-pronged approach to create conducive environment for popularisation of EVs

Task Force

Examine high-end development of new decarbonisation technologies globally, including new energy vehicles and fuel technology such as hydrogen fuel

Smart City

Make good use of development in technologies including Internet of Things, big data and artificial intelligence. Continue to promote the adoption of autonomous driving and technologies in smart mobility

Green Tech Fund

\$200 million Green Tech Fund to fund R&D of green technologies, including EV projects



Regional Collaboration

Seize opportunities to be brought about by the EV technological development in Greater Bay Area

Electric Private Cars

No new registration of fuel-propelled private cars including hybrid vehicles in 2035 or earlier



Tax Concessions
Increased the FRT concession cap under **One-for-One Replacement Scheme** for e-private cars to **\$287,500**

Extended FRT concessions and **One-for-One Replacement Scheme** to March 2024

Government Taking the Lead

EV as standard for government small and medium private cars to be procured or replaced

Public Organisations

Encourage public organisations to make reference to the government's new green procurement policy for vehicles

Electric Commercial Vehicles

Dedicated Trials

Promoting trials for electric public transport and commercial vehicles proactively, with a view to setting a more concrete way forward and timetable around 2025

Single-deck Bus

\$180 million trial for single-deck e-buses to put into service progressively to test the operational performance

Double-decker

Trials for double-deckers and other types of buses under New Energy Transport Fund (NET Fund)

Public Light Bus

\$80 million trial for e-public light buses to be commenced in 2023

Taxi

Explore with operators for suitable operational mode and EV models for trial

Goods Vehicle

Trial for available medium goods vehicles model under NET Fund

Other Vehicles

Funding scope of NET Fund expanded to cover motorcycles and non-road vehicles

Charging Network

Private Charging Facilities
2025 ≥150 000

With the encouragement and incentive measures, we expect more private commercial or residential parking spaces to be equipped with charging infrastructure

Examine requiring parking spaces in new private buildings to be equipped with charging infrastructure

Public Charging Facilities
2025 ≥5 000
(Plan to double in the future)

Public Transport
Designate charging bays for public transport at public transport interchanges of new development areas

Quick Charging Facilities

Identify sites for a territory-wide quick charging network, including exploring the feasibility to convert petrol and LPG filling stations to charging stations

Promoting Marketisation

Fees for EV charging at government car parks to be imposed from around 2025

Marketise charging services progressively with a view to promoting its sustainable development in the long run

Travelling to the Mainland

Study proposals to facilitate EV charging in the Mainland

Maintenance Services

Post-secondary Training

Work closely with post-secondary institutions to provide sufficient training, re-training and education opportunities



Collaboration with the Trade

Strengthen communication with the trade and facilitate cooperation between EV suppliers and local institutes to offer additional education programmes

Battery Recycling

Eco-responsibility

Strive to legislate a Producer Responsibility Scheme for retired EV batteries in the next few years

Green Technologies

Cover second life applications of EV batteries in the priority themes under the Green Tech Fund

Target



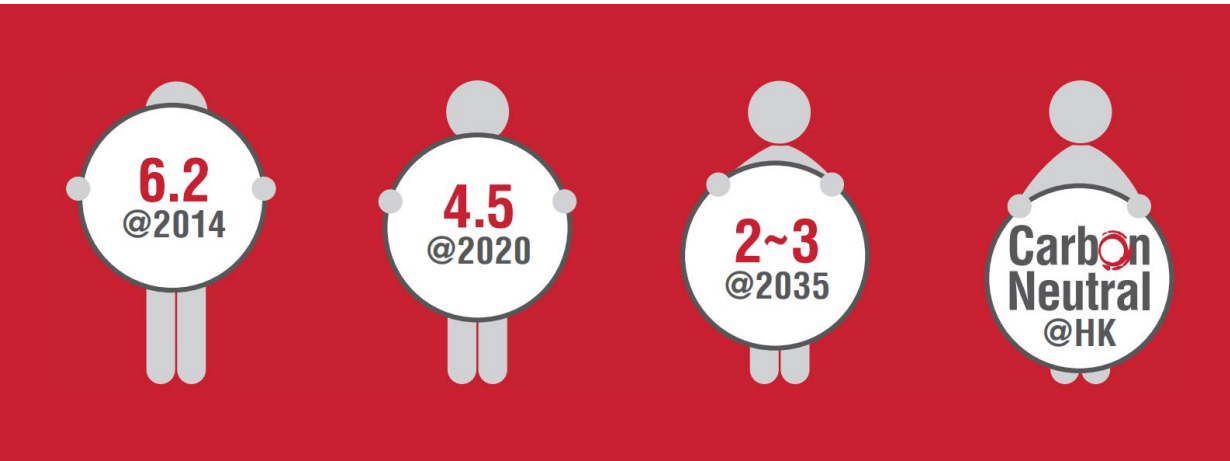
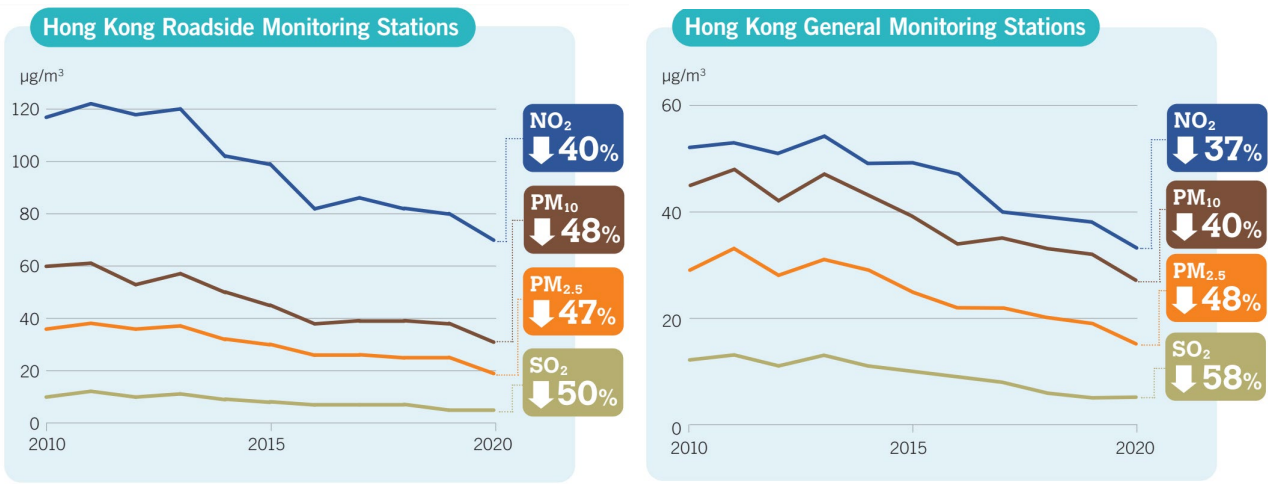
Zero Vehicular Emissions

Act in concert with Hong Kong's target to achieve carbon neutrality before 2050

Regular reviews
Strategies and targets will be reviewed roughly every 5 years to keep abreast of the latest situation

Number of EV in newly registered private cars (1:4 in 2021)
New Energy Transport Fund (on commercial vehicles etc)
Private charging infrastructure (> 150 000 by 2025)
Public charging infrastructure (> 5 000 before 2025)
Green Tech Fund (on hydrogen, EVB technologies etc)

Roadside/General Air Quality▲▼Per Capita Carbon Footprint



Integration

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Develop strategic growth areas into carbon-neutral communities

Challenges

- Cost of Decarbonisation
- Space Constraint
- Technology Breakthrough
- Extreme Weather
- Demand for Talent
- Participation for All

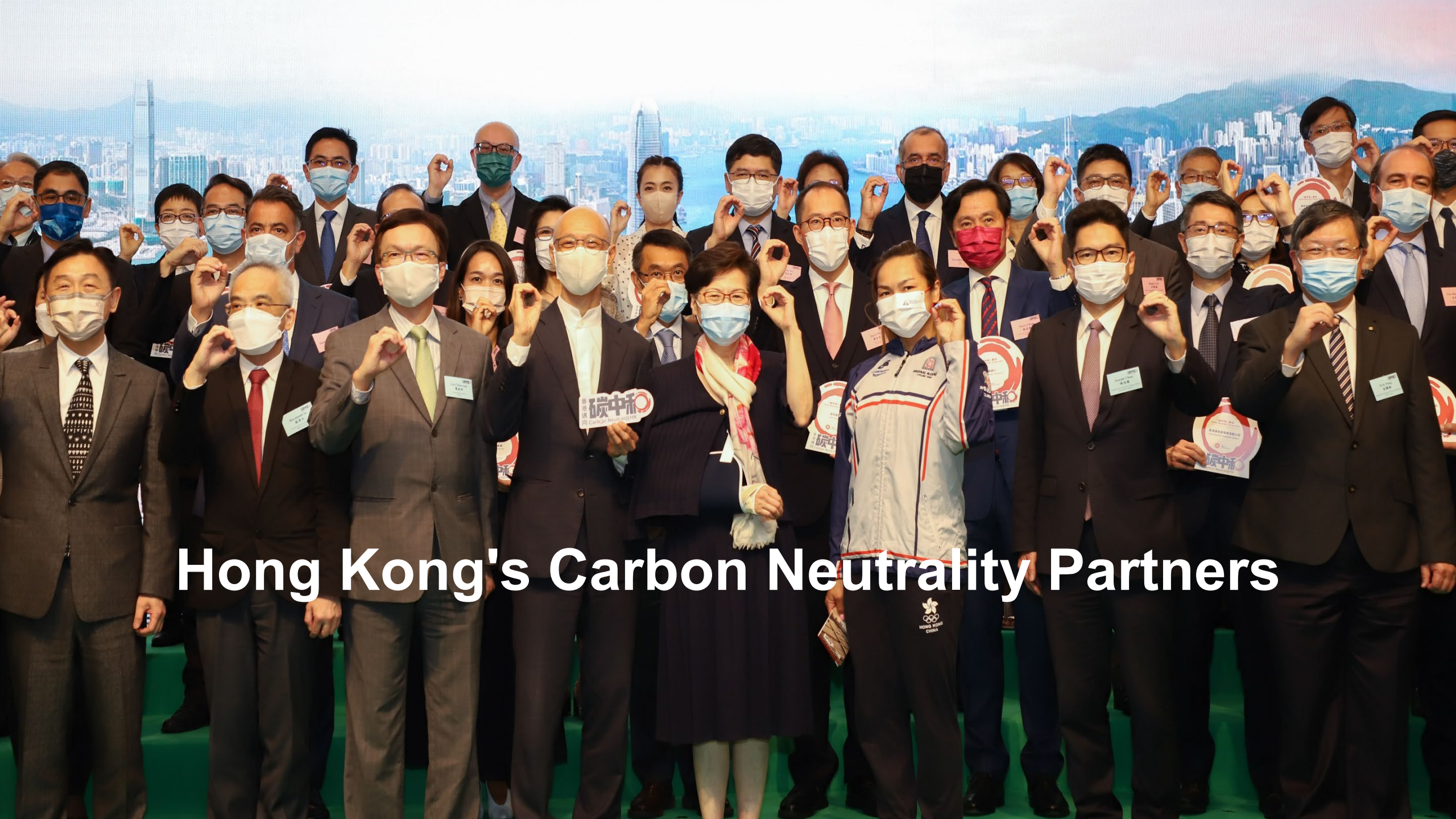
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Green Finance
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Integration



Northern Metropolis



Hong Kong's Carbon Neutrality Partners