

## Hong Kong's circular economy: background and opportunities

Hong Kong has committed itself to achieve full carbon neutrality by 2050, 10 years ahead of Mainland China. In light of this ambition, the Hong Kong Government is looking into various means to reduce carbon emissions, including introducing different types of zero-carbon energy and decarbonisation technology, promoting zero-carbon emission vehicles and green transportation, and building large-scale waste-to-energy facilities, as well as by reducing the demand for energy through ways such as introducing more stringent energy efficiency standard. Finally, the government aims to develop “green finance” thus promoting a future for Hong Kong that is cleaner and more resilient to climate change.

The Netherlands is one of the frontrunners in working with circular business models in practice. Various circular initiatives and business models are being developed nationwide, leading the way in how to make build a circular economy. Examples of these include the creation of *Holland Circular Hotspot*, a platform to showcase the strengths of the Dutch public and private sector in circular economy practices, as well as the *Doughnut Economics* adopted in the city of Amsterdam in 2020 to create a healthy dynamic relationship between inhabitants and the earth to meet social and ecological concerns.

“Circular Economy” practice is not a new concept to Hong Kong. However, Hong Kong’s dominant economic sector is the service industry, as most factories have relocated to mainland China decades ago. While Hong Kong’s recycling business plays an important role in resources recovery, it still relies on the Mainland Chinese market to receive the waste, which has become increasingly difficult in light of stricter regulations in China. The 3R concept – reduce, reuse, and recycle – is familiar to people in Hong Kong as part of public education. In recent years, there has been a growing number of private and public initiatives that enables circularity, as well as a greater adoption of circular business models in Hong Kong.

The Consulate General of the Netherlands in Hong Kong believes there is still much unfilled potential in the bilateral collaboration between the Netherlands and Hong Kong with regard to circularity. Two sectors that are particular worthy of further exchange are the legal frameworks and innovative technologies that are currently implemented in the smart mobility and waste management sectors in the Netherlands.

The Consulate General is happy to support any Netherlands-based sector player, branch affiliate, or knowledge institute that would like to share their experience and knowledge in the realization of the decarbonisation transition in *mobility*, *renewable energy*, and *waste management* sectors, as well as in *green finance* with the respective industry players in Hong Kong.

Under the [Roadmap of popularization of Electric Vehicles \(EVs\)](#) in Hong Kong 2021, the Hong Kong Government will cease all new registration of fuel propelled private cars including hybrid vehicles in 2035. The Government will commence a study to examine the technology and support facilities required for using hydrogen fuel cell vehicles (FCEVs) in Hong Kong. It also aims to curtail carbon emissions by the transport sector by shifting the current mobility system to a more sustainable and active model, based on improving walkability and cyclability, as well as to introduce green energy vehicles in the public transport system, such as hydrogen fuel cell buses and electric ferries.

The Hong Kong Government intends to develop intensive fast-charging infrastructure in order to encourage logistics service providers to switch to lower-emission vehicles and vessel fleets. Some local logistics service players have already been searching for greener options. For instance, Kowloon Bus Motor (KMB) has released a tender on the suppliers recruitment for twenty-six electric double-deck buses with carrying capacity of 115 passengers, while the Government will re-launch the trials of electric taxis in the countryside of Hong Kong by the end of 2021. In the Hong Kong Budget Plan of 2021, the following green initiatives concerning the mobility sector were announced:

- Extra 1,700 public chargers to be provided by 2025. The Government will examine the feasibility to provide *roadside charging facilities*.
- Exploration of turning petrol and LPG filling stations to EV charging stations to offer quick charging service to heavy commercial vehicles.
- Allocate a sum of HK\$350mln (40 mln euros) to launch a pilot scheme to purchase four electric ferries and to install charging facilities at the piers.
- HK\$80 mln (9 mln euros) to be arranged for the purchase of 40 units of green (electric) minibuses and to install charging stations.
- Earmarked HK\$1 bln for Smart Traffic Fund to support enterprises or organizations to conduct researches and applications on vehicle-related information and technologies.
- A sum of HK\$345mln (40 mln euros) for a pilot subsidy scheme for the logistics sector to advance their efficiency via IT application.

In light of the above, the following areas of cooperation and sharing of knowledge and expertise by Dutch industry players with their Hong Kong counterparts can be identified:

- Dutch design standards on cycling track i.e. a human centric approach, taking sustainability into account.
- Advancement of automotive charging solutions - by use of renewable energy sources.
- Use of renewable energy to power sea transport units.
- Legislation process and implementation development of “autonomous vehicles” and “connected vehicles” in the Netherlands
- Supplies of commercial electric vehicles such as buses, taxis, or trucks.

## Waste Management

Hong Kong is ranked at the top position of daily waste disposal rate per person among Asian cities; around 1.45 kg per capita per day, meaning the average daily solid waste disposed at landfills stood at 15,500 tonnes in 2017. A basket of measures has been formulated by the Hong Kong Government which include the implementation of municipal solid waste (MSW) charging in the coming years, the construction of integrated waste management (incineration) facilities, the provision of financial support to the recycling sector for upgrading its facilities, and the provision of funds for public engagement and environmental education.

Paper and plastic recyclers in Hong Kong previously have looked for other end markets for exporting recyclables or have looked to invest in revamping their recycling processing lines in Hong Kong. The establishment of Eco Park as an industrial park for the recycling industry, the launch of a waste electrical and electronic equipment (WEEE) facility and two organic waste treatment facilities (OWFT), as well as the upcoming yard waste recycling facility (Y-Park), therefore has been welcomed by Hong Kong recycling industry players, as the innovative waste treatment technologies introduced on these sites allow for a more effective manner to retrieve resources. The Hong Kong [Waste Management Blueprint 2035](#) provides a comprehensive outline of the local government's ambitions and describes challenges towards which Dutch equipment and technologies providers may be able to provide solutions.

## Resource circulation

As the average flat size in Hong Kong is small and space on the streets is equally limited, there is an ongoing discussion on how to collect and separate waste most efficiently. An idea is to set up the localized waste sorting facilities to recover resources such as paper, plastics, wood or metal instead of placing the recycling bins on roadside or at the lobbies of residential blocks. An effective waste separation system could be the ultimate solution to increase the recycling rate in a compact city, such as Hong Kong.

In Amsterdam, a post-separation plant for household waste has been launched to recover resources before incineration. Other renowned Dutch providers of innovative and well-tested resources sorting systems, include those targeting wet organic waste (Omrin) or plastics (Attero), as well as bottom-ash recovery for incineration facilities (Inashco). These advanced Dutch resources separation systems may provide solutions for Hong Kong's need to maximize recycling efficiency and minimize labour demand.

## Reduce plastic waste

Plastic waste contributes to about 20% of Hong Kong municipal solid waste disposal; 10% are plastic containers. Less than 1% of PET plastic bottles was recycled in Hong Kong in 2018. In this light, consultations on the [producer responsibility scheme on plastic beverage containers](#) (PPRS) have been launched in Feb 2021. Local beverage manufacturers need to streamline the package design or to provide reverse vending machines scheme for plastic beverage containers. One of the major Hong Kong's beverage manufacturers has set up a plastic recycling plant to recycle PE beverage bottles into food grade use plastics for exports to Europe or the Asia Pacific.

Other measures to tackle the plastic waste problem are currently being debated, such as a further increase of the plastic bag levy, or by the use of pyrolysis technology to turn plastic waste into an energy source, similar to the current circular economy practice at the Port of Amsterdam.

Circular economy policies as pursued by the Dutch government are underpinned by a similar assessment on the challenges and possible solutions as those put forward by Hong Kong. Proven Dutch technologies and practices in circular economy could provide some reference for Hong Kong's industry players such as:

- Innovative waste treatment technologies or waste-to-energy applications,
- Automation on waste sorting separation or resources recovery systems, and
- Streamline package design and material used.

## Renewable energy (RE)

While fossil fuels still dominate Hong Kong's energy market, power generation is mainly by coal (53%) and natural gas (22%), imported nuclear energy from China (23%), and renewable energy (2%). Energy generation accounts for the largest portion of Hong Kong's locally produced greenhouse gas emissions. As the commitment to the Paris Climate Change Agreement, Hong Kong is keen to increase the use of natural gas in its total fuel mix for power generation. To completely phase out coal power by 2038, the gap should be covered by an uptake in natural gas (69%), renewable energy (3%) and nuclear energy. A portion of the renewable energy could also be imported from neighboring regions in Mainland China that like Hong Kong are part of the "Greater Bay Area".

Solar energy has been widely adopted as a renewable energy source in Hong Kong. The RE feed-in tariff scheme provided by the two Hong Kong-based power companies have stimulated a substantial number of households and organizations (e.g. schools) to install solar photovoltaic systems. Solar PV system providers from other countries have been actively promoting their products in Hong Kong.

Buildings in Hong Kong contribute 60% of total carbon emissions and account for around 90% of the total electricity consumption in 2017. Hong Kong policy makers have been promoting awareness of energy efficiency within the buildings by providing subsidies for ongoing energy efficiency management projects in buildings such as total solutions for smart building technologies covering energy optimization, air conditioning, intelligent control and automation by use of information and communications (ICT) systems and building technology systems to reduce the carbon emission.

The energy transition is high on the agenda in the Netherlands. Dutch solutions in the field of off-shore wind energy, solar technology, charging solutions for electric vehicles, and sustainable and smart cities provide interesting leads for Hong Kong. Let's review the opportunities for the Dutch companies in the clean energy sector in Hong Kong:

- HKD 1 billion for installing renewable power plants on government buildings and infrastructure, as stated in the Budget Report 2021.
- Use of LNG as a greener energy option for shipping sectors and for power generation of the two Hong Kong-based power companies via the offshore LNG bunkering terminal to commence in 2022.
- Photovoltaic (PV) system providers especially for the *thin film* modules performances.
- Standardization of data collection and benchmarking system for energy consumption in buildings.

More links on Hong Kong's transition to a circular economy on energy, waste management & mobility sectors,

<https://www.hk2050isnow.org/>

[https://www.bec.org.hk/sites/default/files/publications/BEC\\_Circularity\\_Assessment\\_Report\\_final.pdf](https://www.bec.org.hk/sites/default/files/publications/BEC_Circularity_Assessment_Report_final.pdf)

[https://www.epd.gov.hk/epd/english/environmentinhk/waste/prob\\_solutions/waste\\_problems.html](https://www.epd.gov.hk/epd/english/environmentinhk/waste/prob_solutions/waste_problems.html)

<https://www.gov.hk/en/residents/environment/renewable/index.htm>

## Green Finance

The financial sector is a key partner with regard to the transition to a circular economy, especially when it comes to new models for financing of circular business cases and addressing existing barriers regarding the transition agenda. As described in the Budget Report 2021, the Hong Kong Government will issue green bonds worth HK\$ 175 bln in the next five years. In 2019, a sum of HK\$ 86 bln (10 bln euros) of green bonds were issued in Hong Kong establishing Hong Kong as one of the major green finance hubs. The [Sustainable and Green Exchange Portal for Green Finance](#) (CGF) has been established by the Hong Kong Monetary Authority (HKMA) to serve as the focal point for capacity building and experience sharing in Green Finance, especially on Asian's infrastructure investments.

Following the release of the HK Government's [Long-term Decarbonisation Strategy](#) in 2020, more investors look for zero-carbon, low-carbon or other environmental friendly investments. Listed companies are required to disclose accurate, relevant information about their activities so as to increase transparency on relative corporate risks. With such information being mandated in Europe, Hong Kong and also mainland China, a whole new industry in environmental, social and governance (ESG) disclosures is blossoming.

The Dutch government has issued green bonds with a total worth of over EUR 6 bln for low-carbon development and sustainable water management projects in 2019: one of the largest offerings of green bonds in the world. The Dutch bond sets the best practices in terms of credible green finance credentials and also represents the first sovereign bond certified under the Climate Bonds Initiative. During the visit of Prime Minister Mark Rutte to Hong Kong in April 2018, the Netherlands and Hong Kong developments in Green Finance were welcomed. There is therefore fertile ground for deepening collaboration between Dutch and Hong Kong green finance practitioners, in relation to the upcoming Hong Kong Government's green bond issues offering.

Meer weten? Neem contact op met de Economische afdeling van het Nederlands Consulaat-Generaal in Hong Kong: [hon-ea@minbuza.nl](mailto:hon-ea@minbuza.nl).