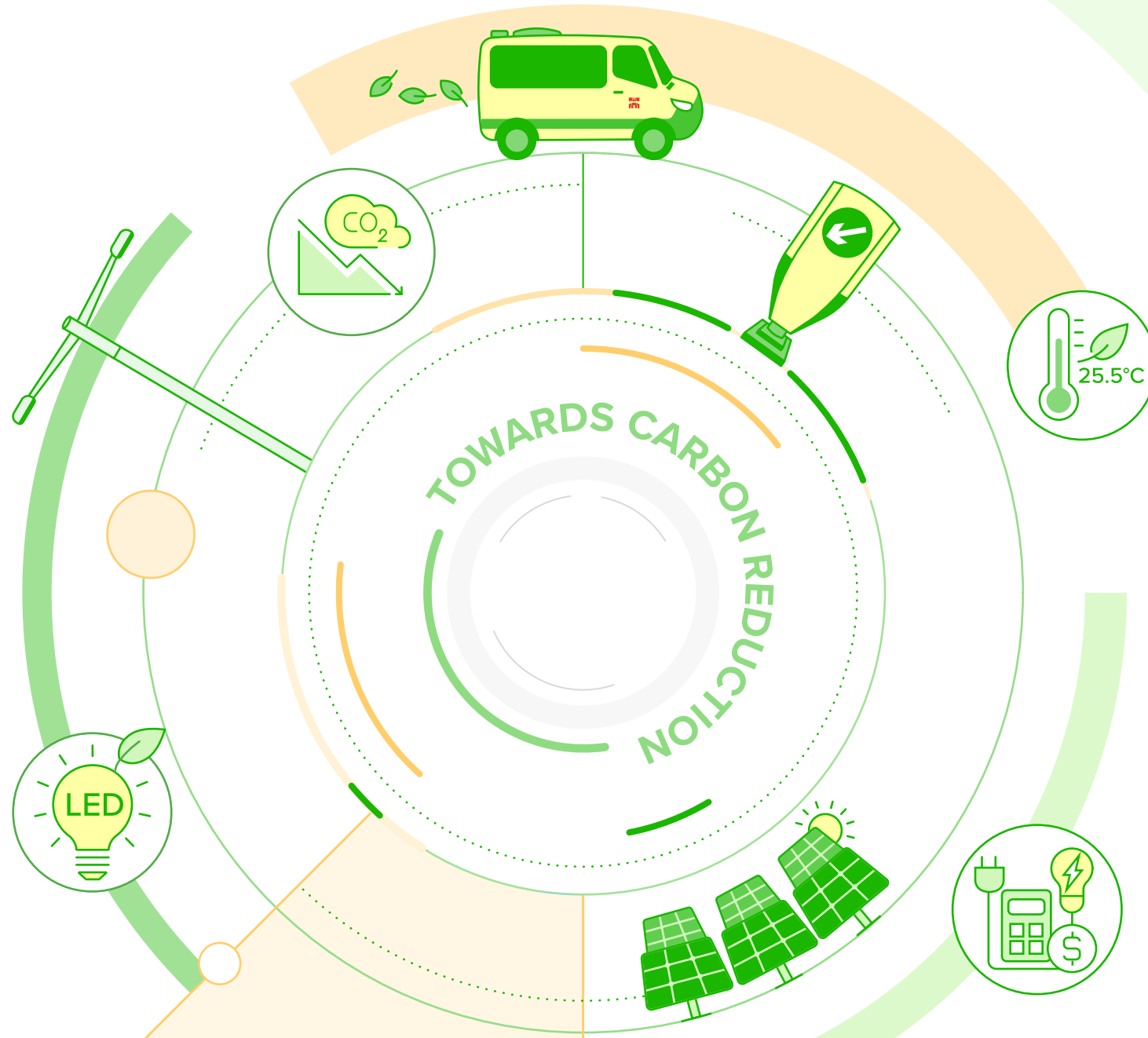


TOWARDS CARBON REDUCTION

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Energy Saving in Public Lighting

Replacement of Illuminated Traffic Bollards (ITBs) with Omni-directional Non-illuminated Retro-reflective Traffic Bollards (O-NRTBs)

The “Hong Kong’s Climate Action Plan 2030+” outlined the medium and long term work against climate change and carbon reduction objectives, with an aim to reduce Hong Kong’s carbon emission by 65% to 70% by 2030 using 2005 as the base. To this end, we have introduced various measures to reduce energy consumption to help achieving the target.

To align with the objectives of reducing carbon intensity with the vision to further enhance the energy efficiency of public lighting in Hong Kong, we launched the Light Emitting Diode (LED) public lighting replacement programme in 2017/18 to replace the conventional road lights, gantry sign and roadside floodlights, and fluorescent tubes at footbridges and subways with LED luminaires. We aim to provide safe, high quality, reliable and sustainable public lighting services to the public.

Other than the LED public lighting replacement programme, we are implementing other energy saving measures in order to help further reduce the emission from electricity generation. One of them is the replacement of the conventional ITBs with O-NRTBs. Traffic bollards are installed at road junctions and refuge islands to provide a visual cue to the approaching vehicles and assist drivers in steering to the correct traffic lane. Conventional ITBs are illuminated by an internal light source for its body to be seen conspicuously at night time.

As one of the energy saving measures, we have introduced a new kind of traffic bollard, namely non-illuminated retro-reflective traffic bollards (NRTBs), which does not equip with an internal light source but retro-reflective sign plates that are highly visible when lighted by vehicle’s headlights, rendering its legibility at night time. NRTBs have started replacing conventional ITBs at suitable locations since 2006. Recently, another new type of NRTB, namely O-NRTB, have been adopted for the replacement of existing ITBs located at the

front side, the side facing the junction of refuge islands at T-road junctions and cross-road junctions since 2023. O-NRTBs, with retro-reflective panels on all its sides, provide an enhanced visibility for the drivers approaching from all directions, making them more effective in guiding traffic. With the completion of full-scale replacement of about 11,700 numbers of ITBs by NRTBs and O-NRTBs over the whole territory of Hong Kong by 2024, it is expected that an annual energy saving of about 1,080,000 kWh could be achieved.

Conventional ITB



NRTB




O-NRTB




Energy Saving in Office

Energy Saving Measures


We endeavour to reduce energy consumption in office and have promulgated the following measures:




Appoint Energy Wardens to monitor the usage of lighting equipment and to keep the illumination level to the minimum but acceptable level




Maintain air-conditioning temperature not lower than 25.5°C in hot seasons




Switch off lights during lunch or when staff are away for long periods



Switch off computer equipment and electric appliances when not in use



Encourage the use of staircase for inter-floor traffic



Monitor the electricity consumption of offices of the Highways Department with individual electricity meters installed

Since 2021, we have been exploring the feasibility of replacing lighting fittings with LED tubes at our offices to achieve a further reduction of energy consumption. The replacement of lighting fittings with LED tubes for the majority of our offices on 13/F of Nan Fung Commercial Centre has been completed in 2023/24 and the replacement exercise for the remaining offices at the same premise will be arranged tentatively in 2024/25. We are seeking the advice of Electrical and Mechanical Services Department for extending the lighting fitting replacement works to our department’s other offices by phases.

Electricity consumption in 2023/24 with corresponding indirect gas emission figures:

Offices	Electricity Consumption (kWh) [Comparison with 2022/23]	Indirect Gas Emissions (kg)		
		SO ₂	NO _x	RSP
Cheung Sha Wan Plaza	10,558 [-2.79%]	20.17	12.25	0.63
Grand City Plaza	23,461 [2.30%]	44.81	27.21	1.41
Ho Man Tin Government Offices	884,995 [-0.65%]	1,690.34	1, 026.59	53.10
The Harbourfront Tower 1	69,204 [0.53%]	132.18	80.28	4.15
The Harbourfront Tower 2	13,843 [4.63%]	26.44	16.06	0.83
Trade and Industry Tower	676,700 [5.23%]	1,292.50	784.97	40.60
Nan Fung Commercial Centre	415,446 [-6.97%]	793.50	481.92	24.93
North Point Government Offices	160,805 [-5.29%]	307.14	186.53	9.65
One Sky Parc ¹	380,606 [N/A]	726.96	441.50	22.84

¹Offices were progressively moved into One Sky Parc from 2020 to 2023, so no comparison was made.

Contribution to Reducing Emission



PV System at the covered walkway at Hong Chong Road near Hong Kong Polytechnic University

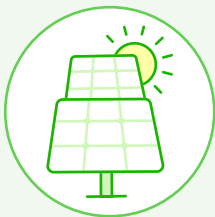


PV system at the covered walkway at Hong Chong Road near Hong Kong Polytechnic University



PV system at the footbridge at Chatham Road South near Hong Kong Science Museum

Promoting the Use of Renewable Energy on Highway Structures



To align with the objectives of achieving sustainable development and meeting the Green Energy Target of the Government, the Highways Department spares no effort to promote the use of renewable energy. We have installed photovoltaic (PV) systems at existing highway structures such as footbridges and subways, to promote the use of renewable energy as well as to raise the public awareness of the benefits of renewable energy.

The electricity generated by the PV systems is first supplied to the electrical facilities at the structures. The systems are also connected to the electricity grid to enhance supply reliability. If there is surplus electricity, the generated electricity will be exported to the grid for full utilisation.

We have identified certain existing highway structures suitable for installation of PV systems. PV panels which convert sun light into electricity are installed on the roof of the suitable structures in order to optimize the use of the open spaces and increase the efficiency of light absorption. There are a wide range of considerations for identifying the suitable locations for installing the

PV systems in Hong Kong's well-developed urban environment, such as the structural capacity of existing structures for adding PV systems on top, and the need to maintain continuous services of the structures for users.

Following to the completion of PV systems installation on the roof of three existing subways in 2020 to 2022, another three PV systems are being installed on the roof of existing footbridges and covered walkway. Among which, the PV system installation at the covered walkway at Hong Chong Road and footbridge at Chatham Road South have been completed in 2023/24 while the remaining one at the footbridge at Gloucester Road is in progress for completion by 2024/25.

We will continue to explore opportunities to promote the use of renewable energy on different highway structures, with a view to achieving the Green Energy Target and striving towards carbon neutrality.

Contribution to Reducing Emission



Environmentally Friendly Vehicles

In 2023/24, we have replaced two large vans with environmentally friendly vehicle models approved by the Environmental Protection Department, which have exhaust emission standards more stringent than the prevailing statutory requirements. With less air pollutant release, the new vehicles could help contribute to better air quality which in turn protected the health and well-being of the community. In view of the latest government-wide policy of setting electric vehicles as standard for small and medium private cars in the government fleet, we will progressively replace the saloon cars in our fleet with electric vehicles.