

# CLEAN AIR CHARTER

## LED LIGHTS REPLACEMENT PROGRAMME

From 1 Jan 2021 to 31 Mar 2022

LED luminaries provide

**40,000**  
lighting points replaced

**~30%**  
energy saving

## ENERGY SAVING IN OFFICE

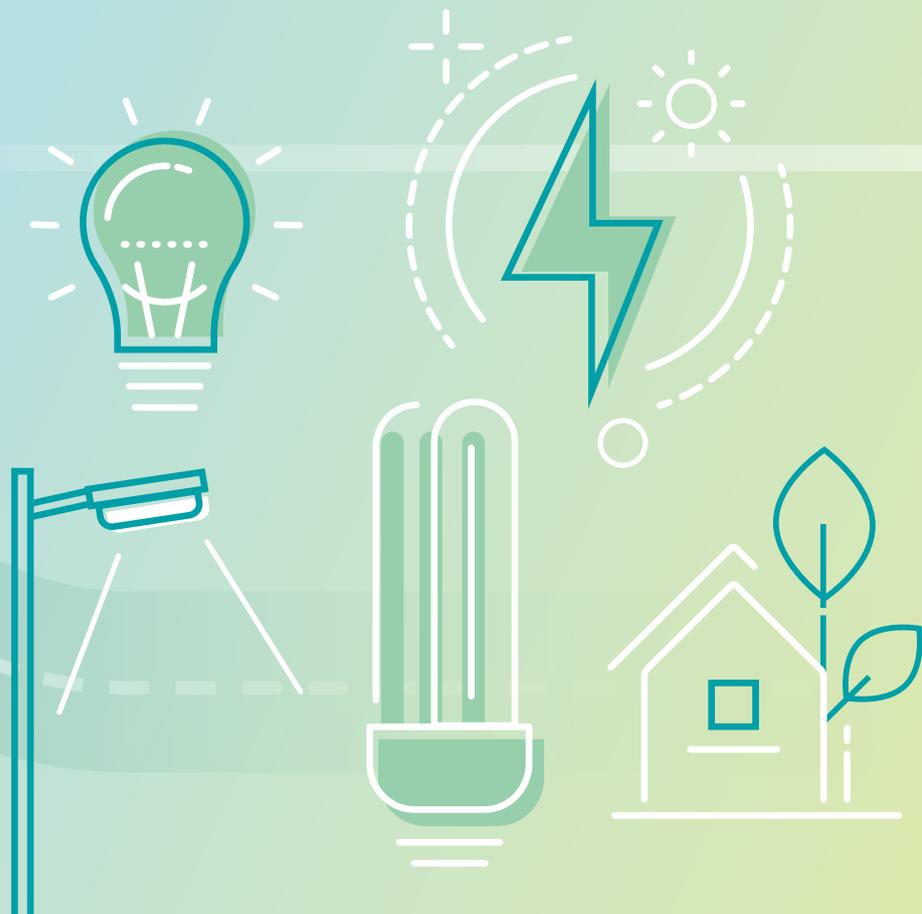
**9 offices**

have been installed with individual electricity meters to monitor energy consumption

## CONTRIBUTION TO REDUCE EMISSION

**50%**  
of saloon cars in HyD's fleet  
are electric cars

**5**  
HyD offices attained Excellent Class  
or Good Class IAQ Certificates



The Hong Kong Special Administrative Region Government has endorsed and signed the Clean Air Charter, a project launched by the Hong Kong General Chamber of Commerce and the Hong Kong Business Coalition on the Environment aiming to engage the whole community in tackling air pollution. The Highways Department continued to support the Charter by taking various measures to reduce emission and energy consumption.

## ENERGY SAVING IN PUBLIC LIGHTING

### Background

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 reducing Hong Kong's carbon emission by 65% to 70% by 2030 using 2005 as the base. 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 to replace the conventional road lights, floodlights of directional and gantry signs and fluorescent tubes of subways and footbridges with LED luminaires.



A public road with LED lights



Conventional High Pressure Sodium lights at Tai Au Mun Road in Sai Kung

Same location after replacement with LED lights

### Advantages of LED Luminaries

As compared with conventional High Pressure Sodium lights, LED lights are of more energy-saving, durable, environmentally friendly and higher colour rendering. In addition to savings in operating and maintenance costs, LED lights could improve the performance and reliability of public lighting, and provide road users with a safe and high quality lighting environment.

### Target and Achievement

Under the current programme, we target to replace 6,500 road lights and 1,500 fluorescent tubes at footbridges and subways with LED lights each year, and replace 4,500 directional sign and gantry sign lights in 5 years.

From 1 January 2021 to 31 March 2022, we have replaced about 40,000 lighting points which are well above our annual target. Since the commencement of the programme, we have replaced about 93,000 various lighting points, covering about 50% of total road lights in Hong Kong. We have also achieved our 5-year target to replace 4,500 directional sign and gantry sign lights with LED lights.



Directional sign illuminated with LED lights



Gantry sign illuminated with LED lights

We will continue to monitor the latest development of LED luminaries and other new lighting technologies, and to optimize the design standards as well as operational and maintenance works of public lighting systems. We aim to provide safe, high quality, reliable and sustainable public lighting services to the public.

## ENERGY SAVING IN OFFICE

### Energy Saving Measures

We endeavour to reduce energy consumption in office as far as possible. The following measures have been promulgated to enhance energy saving in our offices.



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



Switch off computer equipment and electric appliances when not in use



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



Encourage the use of staircase for inter-floor traffic



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



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

### Electricity consumption in 2021 with corresponding indirect gas emission figures

| OFFICES                           | Electricity Consumption (kWh) | Comparison with 2020 | Indirect Gas Emissions (kg) |                 |       |
|-----------------------------------|-------------------------------|----------------------|-----------------------------|-----------------|-------|
|                                   |                               |                      | SO <sub>2</sub>             | NO <sub>x</sub> | RSP   |
| Ho Man Tin Government Offices     | 922,609                       | +10.39%              | 1,762.18                    | 1,070.23        | 55.36 |
| North Point Government Offices    | 184,307                       | +10.01%              | 352.03                      | 213.80          | 11.60 |
| Trade and Industry Tower          | 627,303                       | +3.29%               | 1,198.15                    | 727.67          | 37.64 |
| Nan Fung Commercial Centre        | 432,661                       | +16.25%              | 826.38                      | 501.89          | 25.96 |
| Grand City Plaza                  | 24,134                        | -4.59%               | 46.10                       | 28.00           | 1.45  |
| Cheung Sha Wan Plaza <sup>1</sup> | 9,818                         | +35.50%              | 18.75                       | 11.39           | 0.59  |
| The Harbourfront Tower 1          | 64,255                        | -7.59%               | 122.73                      | 74.54           | 3.86  |
| The Harbourfront Tower 2          | 14,620                        | -0.16%               | 27.92                       | 16.96           | 0.88  |
| Spectrum Tower <sup>2</sup>       | 241,694                       | N/A                  | 461.64                      | 280.37          | N/A   |

Since 2021, we have been exploring the feasibility of replacing lighting fittings with LED tubes for open-plan areas at Ho Man Tin Government Offices (HMTGO) to achieve a further reduction of energy consumption of our offices. The replacement of existing compact fluorescent lamps with LED lights would reduce the annual energy consumption by 285,061 kWh, equivalent to 38% of the whole building's energy consumption annually. We will conduct a trial of replacement of lighting fittings with LED lights for the open-plan area on 5/F HMTGO. Depending on the results of the trial, we will consider extending the proposed lighting replacement works to other floors in HMTGO by phases.

#### Notes

<sup>1</sup> Office in Cheung Sha Wan Plaza was under renovation in Q4 2020. The electricity consumption in that period was very low and the total electricity consumption in 2020 represented office operation for approximately 9 months only. Therefore, electricity consumption was increased significantly in 2021 when compared with that in 2020.

<sup>2</sup> Offices were progressively moving in to Spectrum Tower from 2020 to 2022. It is not meaningful to compare electricity consumption during that period.

# CONTRIBUTION TO REDUCING EMISSION



Electric saloon cars

## Environmentally Friendly Vehicles

To support Government’s policy on using environmentally friendly vehicles for better air quality, we have replaced the hybrid saloon car in our fleet with an electric saloon car with a driving range of over 300km in December 2021. Along with the new electric saloon car, a new 32A medium charger was installed in the carpark of Trade and Industry Tower in addition to the charger in HMTGO for charging electric vehicles. 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 replace progressively other saloon cars in our fleet with electric vehicles.



New 32A medium charger at Trade and Industry Tower

## Special Measures to Cope With the Air Quality

To increase staff awareness on air quality, we reminded our staff when the Air Quality Health Index has reached or is forecasted to reach the “very high” or “serious” health risk categories. A set of precautionary measures for reference by front-line staff and their supervisors were provided with the reminders. The measures included conducting risk assessment of outdoor work for workers performing heavy manual work and actions to reduce outdoor physical exertion and time of staying outdoor, especially in areas with heavy traffic.

## Indoor Air Quality Certification

In 2003, EPD launched the Indoor Air Quality (IAQ) Certification Scheme to promote and commend good IAQ management practice. Up to 2021, HMTGO has been awarded the Good Class IAQ Certificate consecutively for 18 years. In 2021, North Point Government Offices and Trade and Industry Tower attained Excellent Class IAQ, while Cheung Sha Wan Government Offices and our offices in Nan Fung Commercial Centre attained Good Class IAQ. We would continue our efforts in maintaining good IAQ in offices and open spaces in order to safeguard the health of building users and increase productivity of our staff.



IAQ certificates of our offices