

## LCQ18: Encouraging transport trade to switch to electric vehicles

Following is a question by the Hon Chan Hak-kan and a written reply by the Acting Secretary for the Environment, Mr Tse Chin-wan, in the Legislative Council today (May 22):

Question:

The Government launched incentive schemes in 2000 and 2002 respectively to push the transport trade to replace diesel taxis and diesel light buses with liquefied petroleum gas (LPG) ones. It has been over 17 years since such schemes were launched. On the other hand, it has been reported that LPG light buses currently produced by a single manufacturer will cease to be produced in 2021. The proprietors of some motor trading companies have expressed that the retirement age for LPG light buses is about 20 years, and those light buses purchased under the aforesaid incentive scheme will need to be replaced in the coming few years. On encouraging the transport trade to switch to the use of electric vehicles, will the Government inform this Council:

(1) of the numbers of light buses and taxis that will reach their normal retirement age in the coming three years; whether it will subsidise the owners concerned to switch to the use of electric vehicles; if so, of the details; if not, the reasons for that;

(2) given that in 2016, the carbon monoxide emissions by public light buses (PLBs) and taxis accounted for 28 per cent of the relevant emissions by all vehicles in Hong Kong, what new measures, apart from the Pilot Green Transport Fund, the Government has put in place to encourage the vehicle owners concerned to switch to the use of electric vehicles, with a view to improving air quality; and

(3) whether it will (i) explore the feasibility of installing charging facilities for electric light buses at PLB termini, and (ii) study the allocation of land for building quick charging stations for electric taxis; if so, of the details; if not, the reasons for that?

Reply:

President,

The level of roadside carbon monoxide in Hong Kong has already been better than the World Health Organization's guideline level. Currently, roadside air pollution is mainly caused by respirable suspended particulates (RSP) and nitrogen oxides (NO<sub>x</sub>), and commercial vehicles (CVs) account for 95 per cent of the vehicular emissions of these two air pollutants. Hence, CVs as a whole has all along been a major target of the Government's measures to improve roadside air quality. The Government has been implementing various measures to reduce vehicular emissions in recent years. They include phasing

out old diesel CVs, strengthening emission control on vehicles using petrol or liquefied petroleum gas (LPG), and retrofitting franchised buses of earlier models with emission reduction devices. Concentrations of major roadside air pollutants have dropped by around 30 per cent from 2013 to 2018.

In 2000, the Government introduced a scheme to incentivise the replacement of diesel taxis by cleaner LPG ones. Since August 1, 2001, taxis registered for the first time have been mandated to be fuelled by either LPG or petrol. As at the end of 2018, all registered taxis use LPG, except for a few using petrol.

As regards light buses, the Government launched a scheme in 2002 to encourage owners of diesel light buses to switch to those running on cleaner power/fuels like LPG and electricity. The scheme is on encouraged basis ended in 2005. Given that the Government has not mandated the type of power/fuels used by light buses, light bus owners may, based on their operational needs, choose LPG, diesel, electric or petrol vehicles. As at the end of 2018, nearly 60 per cent of registered light buses ran on LPG, around 40 per cent on diesel, and less than 1 per cent on electricity.

At present, LPG light buses in the local market are all of the same brand. The supplier has indicated earlier that its manufacturer will cease the production of LPG light buses at the end of 2020, and Euro VI diesel light buses under the same brand will be supplied by then to meet the local demand for light buses. Owing to technology advancement in emission reduction in recent years, Euro VI diesel light buses emit 80 per cent less NO<sub>x</sub> and 50 per cent less RSP than the current Euro V diesel counterparts and nearly 90 per cent less NO<sub>x</sub> and 50 per cent less RSP than the current Euro IV diesel counterparts.

My responses to the question raised by the Hon Chan Hak-kan are as follows:

(1) and (2) The Environmental Protection Department (EPD) introduced an incentive-cum-regulatory programme in March 2014 to progressively phase out about 82 000 Euro III and pre-Euro III diesel CVs by the end of 2019, which included diesel light buses. So far, the programme has been implemented effectively and is expected to be completed by the end of 2019 as scheduled. Also, diesel CVs registered for the first time on or after February 1, 2014 are subject to a statutory service life limit of 15 years to ensure their timely replacement. The EPD is planning to introduce the next incentive-cum-regulatory programme to progressively phase out some 40 000 Euro IV diesel CVs (including diesel light bus). The EPD is working out the implementation details (e.g. deadlines and ex-gratia payments) and will consult the trade in due course. As vehicular emission of LPG vehicles is generally lower than that of diesel vehicles, the Government currently has no plan to set the retirement age for LPG light buses and taxis.

Electric vehicles (EVs) have no tailpipe emissions. Therefore, replacing conventional vehicles, especially CVs, with EVs can help improve roadside air quality.

At present, there are only one electric taxi (e-taxi) model and two electric light bus (e-LB) models available in the local market. All are on trial under the Pilot Green Transport Fund (PGTF). Results of the existing trials have reflected that high production cost, limited service life and long charging time of batteries, etc. are the key constraints for electric CVs (e-CVs), including e-taxis and e-LBs, to become popular. Besides, all the three e-taxis previously on trial under the PGTF have been re-registered as private cars after the completion of the trial programme because taxis generally run almost nonstop for whole day and under normal operation are unable to spare four hours per day for charging. The e-LBs have also experienced similar problems. Even after a full charge for four hours, they can only be driven for a range lower than the daily mileage of a typical public light bus (PLB). Therefore, most of the existing e-taxis and e-LBs on trial are yet to be able to cope with the requirements of the local transport sectors in respect of the driving range and charging time of taxis and PLBs.

The EPD will continue to keep in view the development of e-taxis and e-LBs and encourage suppliers to bring into market more relevant types of vehicles and the transport sectors to make use of the PGTF to try them out.

In addition to the PGTF, the Government has been waiving the first registration tax (FRT) of e-CVs (including e-taxis and e-LBs) fully since 1994 until March 31, 2021. Also, starting from 2010, enterprises that procure EVs are allowed to claim full profit tax deduction for the capital expenditure of the vehicle in the first year of procurement. Both initiatives aim to encourage owners to purchase e-CVs, thereby promoting their development.

(3) On the feasibility of installing charging facilities for e-LBs at PLB termini and transport interchanges, the EPD has engaged a consultant in March this year to develop a set of technical specifications and requirements of electric PLBs (e-PLBs) and their charging facilities suitable for use in Hong Kong in order to help foster vehicle manufacturers to design and produce suitable e-PLBs and charging facilities for local use.

Furthermore, the Government is looking for suitable locations to set up public quick charging stations for electric private cars for trial. A quick charger (charger with a power output of at least 50 kilowatts) can provide 50 to 100 kilometres of driving range for electric private cars in 15 to 30 minutes. Should the trial of quick charging stations be successful and there be suitable e-taxi models meeting local operational needs, the Government will explore the feasibility of expanding the use of quick charging stations for e-taxis.