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28 September 2021

Hon Vincent CHENG, MH, JP,
Chairman of Panel on Environmental Affairs
Legislative Council Complex,
1 Legislative Council Road, Central
Hong Kong

Dear Chairman,

**Panel on Environmental Affairs
Follow-up Issues**

Further to the discussion on “Clean Air Plan for Hong Kong 2035” at the meeting of the Panel on Environmental Affairs on 19 July 2021, Hon Tony TSE raised follow-up questions to the Environment Bureau and the Environmental Protection Department in his letter to you on 20 July 2021. Our replies are enclosed in Annex.

Should you have any enquiries, please contact our Mr. Nelson IP on 2594 6460.

Yours sincerely,

(Dave HO)

for Director of Environmental Protection

Encl.

c.c. Hon Tony TSE (Email: info@tonytsewaichuen.com)

Follow-up questions on “Clean Air Plan for Hong Kong 2035”

Regarding the questions raised by Hon Tony TSE, our replies are as follows:

1. At the end of 2015, the Government set up a total of 3 franchised bus low emission zones (FBLEZs) in Causeway Bay, Central and Mong Kok respectively. Franchised bus companies (FBCs) were only allowed to deploy low emission buses (buses of Euro IV emission standards or better) to ply the routes in these FBLEZs. The Government has tightened the emission requirements of low emission buses in the 3 FBLEZs to Euro V emission standards from 31 December 2019. According to FBCs' information, nearly all (more than 99%) of the buses passing through the FBLEZs are low emission buses.

In the busy road sections of Central, Causeway Bay and Mong Kok, franchised buses can account for up to 40% of the traffic. Many of these buses also pass through different areas such as the entrances of the Cross-Harbour Tunnel. Setting up the 3 FBLEZs at the busy corridors by restricting the access to low emission buses could bring improvement to the roadside air quality not only within the FBLEZs, but also the districts that the low emission buses will ply.

In addition to setting up FBLEZs, the Government has been committed to implementing a series of vehicle emission control measures to continuously improve the roadside air quality in Hong Kong, including:

- to fully implement various measures under the "Hong Kong Roadmap on Popularisation of Electric Vehicles" (the Roadmap) to prepare for wider adoption of electric public transport and commercial vehicles.
- to follow closely the completion of the programme of phasing out about 80 000 pre-Euro IV diesel commercial vehicles in June 2020, the Government launched a new programme in October 2020 to phase out progressively about 40 000 Euro IV diesel commercial vehicles by end 2027.
- To deploy portable remote sensing equipment to identify petrol and liquefied petroleum gas vehicles with excessively emissions since 2014. Owners of vehicles with excessive emissions are required to repair their vehicles within a designated period to rectify the problem.

The average concentrations of major roadside air pollutants (including respirable suspended particulates, fine suspended particulates, nitrogen dioxide and sulphur dioxide) at Causeway Bay, Central and Mong Kok have dropped by 46%, 49%, 42% and 55% respectively from 2013 to 2020, reflecting that the air quality improvement measures implemented in recent years have borne fruit.

2&3. To improve roadside air quality and better protect public health, the Government has tightened the emission standards for the first registered vehicles continuously. Currently, the vehicle emission standards for first registered diesel bus were tightened to Euro VI. As at the end of 2020, over 85% of the licensed franchised buses are of Euro V emission standards or above. In addition, the Government plans to subsidise the franchised bus companies (FBCs) for a trial in 2022 to retrofit Euro V double-deck diesel buses with enhanced selective catalytic reduction systems, so as to reduce their nitrogen oxides emissions to a level comparable to Euro VI's. Subject to the outcome and resources required, we will discuss with the FBCs about the arrangements for retrofitting the systems onto other suitable bus models with a view to further reducing the emissions from diesel buses.

The Government has allocated \$180 million to fully subsidise the FBCs to purchase a total of 36 single-deck electric buses for conducting a trial to test their operational performance, reliability and economic feasibility in local conditions. The Government is also working with the FBCs to install new charging facilities at suitable bus termini and bus depots, so as to facilitate top-up charging for single-deck electric buses in daytime, and examine whether the mode of daytime charging can cope with the high operation frequency of bus service in Hong Kong. Moreover, in view of the recent development of the double-deck electric bus technology, the New Energy Transport Fund has approved the subsidy for the two FBCs and MTR Corporation Limited to purchase a total of 5 double-deck electric buses for trial which is expected to commence progressively in 2023.

The Government published the first Roadmap in March 2021, and the feedbacks are positive. Among others, the FBCs have announced their plans on the procurement of electric buses and installation of charging facilities in new bus depots, or are actively assessing the feasibility of using hydrogen fuel cell buses in Hong Kong. For example, after the Government's announcement of the Roadmap, the Kowloon Motor Bus Company Limited (KMB) announced its proposed phased approach to procure more single-deck and double-deck electric buses, with the aim of having a few hundred of electric buses in its fleet by 2025. KMB is also planning for a charging network covering various locations to support its electric fleets.

The Roadmap has set the overall policy direction of the Government to promote the use of electric vehicles in the future. The Government will take forward the measures under the Roadmap in full speed. Considering the rapidly evolving electric vehicle technologies, we will conduct periodic review of the Roadmap roughly every five years to keep pace with the development in the Mainland and overseas, and review the policies and measures of the Roadmap, so as to help attain the target of carbon neutrality in Hong Kong before 2050. For franchised buses, the Government will review the trial findings, application and operation performance of the double-deck electric buses in the next few years, in order to formulate a concrete way forward and timetable around 2025.

4. As the Government has not mandated the types of energy/fuel used by light buses, light bus owners may, based on their operational needs, choose liquefied petroleum gas (LPG), diesel or electric vehicles. Nearly 80% of registered public light buses were fuelled by LPG and the remaining by diesel. Due to commercial considerations, the sole manufacturer supplying LPG light buses to the local market ceased the production of LPG light buses in the end of last year.

As mentioned above, the Government has tightened the emission standards for first registered diesel light buses to Euro VI. Owing to technology advancement in emission reduction in recent years, Euro VI diesel light buses emit 80% less nitrogen oxides and 50% less respirable suspended particulates than their Euro V diesel counterparts and even more as compared with their old Euro IV diesel counterparts. Besides, while the emissions from LPG light buses which have been used for years will increase with time, when the existing old light buses switch to Euro VI diesel light buses in the future, their overall emission performance will not deteriorate. Subsequent to the completion of the programme of phasing out about 80 000 pre-Euro IV diesel commercial vehicles (including public light buses) in June 2020, the Government launched a new programme in October 2020 to phase out progressively about 40 000 Euro IV diesel commercial vehicles by end 2027. The phasing out programme will help reduce emissions from the diesel public light bus fleet.

Regarding maintenance and safety of LPG light buses, the fuel systems of LPG light buses are designed by vehicle manufacturers in accordance with relevant international standards. The vehicle fuel tanks of LPG light buses must be of a type approved by the Electrical & Mechanical Services Department (EMSD). During the approval process, it has been ensured that the fuel systems of the vehicles are suitable for safe use in Hong Kong. In addition, the owner of a LPG fuel tank is required to arrange for his LPG fuel tank to be tested and examined at least once every 5 years so as to ensure that it can be continued to be used safely. Moreover, the EMSD has been promoting to the trade the importance of safe use of LPG fuel systems, and requires the trade to conduct regular inspection and maintenance in accordance with the guidelines provided by vehicle manufacturers, with a view to ensuring the proper operation of LPG vehicles. Since the implementation of the LPG vehicle scheme, a very good safety record has been maintained. On the other hand, the Government will continue to deploy roadside remote sensing equipment to identify LPG light buses that emit excessively and requiring their owners to rectify the problem accordingly.

5. The Government has all along been controlling the sulphur content of marine fuel to reduce air pollutant emissions from vessels. Since 1 April 2014, the Government has imposed a statutory cap of 0.05% on the sulphur content of locally supplied marine light diesel (MLD), which mainly affects local and cross-boundary vessels. For ocean-going vessels (OGVs), OGVs are required to switch to fuel with sulphur content not exceeding 0.5% (i.e. low sulphur fuel) while at berth since 1 July 2015. Starting from 1 January 2019, the Government extended the relevant control to all vessels (including OGVs) to use compliant fuel (including low sulphur fuel or liquefied natural gas) within Hong Kong waters, irrespective of whether they are sailing or berthing, which ties in

with the implementation of Marine Emission Control Area in the waters of the Pearl River Delta region.

To further reduce air pollutant emissions from vessels, the Government will explore further tightening the sulphur content limit of MLD from the prevailing level of 0.05% to 0.001%. Having regard to the impact of the COVID-19 pandemic on global economy, which also seriously affects the marine trade, the Environmental Protection Department (EPD) will closely monitor the epidemic development and economic conditions, maintain dialogue with the marine trade and take forward the proposed measure at an appropriate juncture.

As regards enforcement, in accordance with international practices, EPD conducts sample checks on bunker delivery notes and fuel usage records of OGVs, and when necessary, conducts surprise inspection to OGVs and collects fuel samples for analysing their sulphur content, with a view to ensuring that OGVs use compliant fuel within Hong Kong waters and we take enforcement actions against OGVs in violation of the statutory requirements. In addition, EPD deploys a drone-based air pollutant sniffing system to monitor real-time air pollutant emissions from OGVs and analyse the sulphur content of fuel used to help detect non-compliant OGVs.

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