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**Subcommittee on Air Pollution Control (Vehicle Design Standards)
(Emission) (Amendment) Regulation 2017**

Background brief

Purpose

This paper provides updated background information on the Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 ("Amendment Regulation"), and summarizes the major views and concerns expressed by Members when issues related to tightening of the emission standards of newly registered vehicles were discussed by the relevant committees of the Legislative Council ("LegCo").

Background

Emission control on motor vehicles in Hong Kong

2. To improve roadside air quality, the Administration has been tightening motor vehicle fuel and emission standards with reference to international developments and when the relevant compliant motor fuels and vehicles can be made available to Hong Kong. Tightening of vehicle emission standards is effected by amending the Air Pollution Control (Vehicle Design Standards) (Emission) Regulations (Cap. 311J) ("the Regulations").¹ The Regulations provide, among other matters, that motor vehicles in Hong Kong must be so constructed that the emissions from them conform to the emission standards specified in the various schedules to the Regulations.

¹ The Regulations are made by the Secretary for the Environment under section 43(1)(rg) of the Air Pollution Control Ordinance (Cap. 311).

Current emission standards for newly registered motor vehicles

3. In Hong Kong, the vehicle emission standards have been tightened to Euro V for newly registered motor vehicles (except diesel private cars) in phases from 2012, and Euro III for motor cycles and tricycles from January 2007. As diesel private cars generally emit more pollutants than petrol cars, the Administration has adopted a more stringent vehicle emission standard, i.e. the emission standard of California, for these vehicles since 1998, and California LEV II has been in force in Hong Kong since January 2006. Currently, diesel private cars are allowed first registration even though they do not meet the California LEV II standard because they can comply with the prevailing statutory European Union ("EU") emission standards for petrol private cars as certified by the relevant laboratory test.

International developments in vehicle emission standards

4. EU has tightened its emission standards to Euro VI for newly registered heavy duty vehicles (i.e. vehicles with design weight over 3.5 tonnes) from December 2013, light duty vehicles (passenger cars) from September 2015, and light duty vehicles (goods vehicles) from September 2016. For motor cycles and tricycles, EU has implemented Euro IV emission standards from January 2017. California has also tightened its vehicle emission standards to LEV III since 2015.

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5. The Amendment Regulation was published in the Gazette on 17 February 2017 and tabled before LegCo on 22 February 2017 for negative vetting. It seeks to implement in phases Euro VI emission standards in Hong Kong for newly registered vehicles (except diesel private cars, buses of design weight not more than 9 tonnes, light buses of design weight more than 3.5 tonnes, motor cycles and tricycles); and to tighten the emission standards for newly registered diesel private cars from California LEV II to LEV III, starting from 1 July 2017. The detailed implementation schedule is given in **Appendix I**.

Major views and concerns expressed by Members

6. The Administration briefed the Panel on Environmental Affairs ("EA Panel") on the proposal to tighten the emission standards of newly registered motor vehicles at the meetings on 27 November 2015 and

19 December 2016. EA Panel further received public views on the proposal at the meeting on 24 February 2017. Related issues were brought up during examination of the Estimates of Expenditure 2016-2017 and the briefing on the relevant initiatives in the 2017 Policy Address. The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

Benefits of the revised proposal

7. Members enquired about the estimated quantifiable benefits in terms of improvement of air quality to be brought about by tightening the emission standards of newly registered vehicles. The Administration advised that as a result of the overall measures in improving roadside air quality, which included the tightening of vehicle emission standards, the roadside concentration of nitrogen oxides ("NO_x") had been reduced by around 20% in the past five years. However, it was not practicable to quantify the contribution of a particular measure to roadside air quality improvement.

Implementation schedule and supply of compliant vehicles

8. Some Members considered that the Administration should wait until there had been sufficient supply of the relevant models of compliant vehicles in the market before tightening the emission standards of newly registered vehicles. In particular, the Administration should ensure that Japanese models, which were generally cheaper, were available so as to minimize the financial burden on small transport services operators. Some other Members, however, opined that major vehicle suppliers might not be able to make business plans and introduce models of compliant vehicles prematurely before the commencement dates for the new emission standards had been confirmed. These Members suggested the Administration drive market supply earlier by procuring vehicles of Euro VI emission standards when replacing government vehicles.

9. The Administration explained that it would be practicable to implement a more stringent emission standard for a particular class of vehicles when vehicle suppliers which in aggregate accounted for about 70% to 80% of the local market share would be able to put on the market compliant vehicles, including major brands of that class of vehicles. In this regard, the Administration had consulted the vehicle suppliers and taken into account the local supply situation of the relevant classes of Euro VI vehicles in the coming years when drawing up the implementation schedule. During the consultation, all major vehicle suppliers had indicated that they would be able to put on the local market Euro VI private cars and taxis, starting from September 2016 and Euro VI commercial vehicles (except bus with design weight not more than 9 tonnes and light bus with design weight more than 3.5 tonnes, which were not affected by the Amendment Regulation) starting from January 2017. To

address concerns expressed by the transport trades, the Administration had deferred the commencement date of the Euro VI emission standards for goods vehicles and non-franchised buses by one year from 1 January 2017 to 1 January 2018. The deferred commencement timetable would make vehicle supply unlikely a problem. The Administration also stressed that it was existing policy to give priority to environment-friendly vehicles with low emission standards when replacing government vehicles, having regard to market supply, operational needs and availability of resources.

10. Some Members did not subscribe to the Administration's explanation and maintained that the emission standards of newly registered vehicles should not be tightened based on mere assumption or assessment that the relevant models of compliant vehicles would be available in the market. In this connection, EA Panel passed two motions at its meeting on 24 February 2017 urging the Administration to:

- (a) postpone the commencement dates for tightening the emission standards of private cars and taxis from 1 July 2017 to 1 January 2018; and
- (b) finalize the commencement dates of the new emission standards for buses and goods vehicles when sufficient choices of brands (including Japanese or Chinese ones) were available in the market; and relevant technologies (including softwares for emission testing) adopted by vehicle manufacturers were made public.

Emission standards of diesel private cars

11. Members noted that while the Administration would tighten the emission standards of newly registered diesel private cars to California LEV III, it would, unlike the current policy, no longer accept new registration of diesel private cars meeting Euro VI petrol car standards. Members sought justifications for this policy change.

12. The Administration advised that evidence had emerged that diesel private cars emitted much more NO_x on road than during testing in an emission certification laboratory. At the same time, the number of registered diesel private cars in Hong Kong tripled in about seven years from 2 066 in December 2009 to 7 278 in November 2016, much faster than the 35% growth of petrol private cars. If the growth of diesel private cars was unchecked, they would continue to grow quickly, thereby posing a significant risk to the local roadside air quality. It was therefore appropriate not to accept diesel private cars meeting Euro VI petrol car standards when tightening the emission standards. This change should not be perceived as having undermined vehicle

choices to the public given the prevailing policy was to encourage the public to use mass transport and not to purchase vehicles unless they had genuine driving needs. Looking abroad, the Administration pointed out that Paris, Madrid and Athens had adopted even more aggressive policies to tackle air pollution by having committed to remove all diesel vehicles from their cities by 2025.

Support for the vehicle maintenance trade

13. Members relayed the concern of the vehicle maintenance trade about the skills gap of vehicle mechanics for Euro VI vehicles. They considered that the Administration should step up its support to the trade to tie in with the tightening of statutory vehicle emission standards, and ensure sufficient local supplies of competent vehicle mechanics as well as spare parts for Euro VI vehicles. While it was a requirement of Euro VI emission standards for vehicle manufacturers concerned to make available vehicle maintenance information to the public at a reasonable cost, Members stressed that the requirement should include opening up the relevant softwares related to the on-board diagnostic systems of Euro VI vehicles, and not merely providing the vehicle repair manuals.

14. The Administration explained that vehicle mechanics should be familiar with the emission control technologies to be used in Euro VI diesel vehicles (such as exhaust gas recirculation, selective catalytic reduction and diesel particulate filter) as those technologies had already been used in Euro IV and V diesel vehicles. To help vehicle mechanics keep abreast of the latest skills in maintaining diesel vehicles, the Vocational Training Council ("VTC") had been offering regular training courses since 2012 when Euro V became the statutory emission standards for vehicles newly registered in Hong Kong. The Environmental Protection Department ("EPD") had been organizing seminars in collaboration with VTC, vehicle manufacturers, industry organizations and other bodies to disseminate the latest vehicle maintenance information.

Testing of vehicle emission performance

15. Members enquired whether the standards of emission tests for vehicles undergoing annual examination and those caught emitting excessively on road would be aligned to enhance enforcement of the statutory emission standards. They considered that the Transport Department ("TD") should incorporate NO_x emission test in the annual vehicle examination.

16. The Administration responded that EPD had been following up with TD the alignment of emission test standards. To incorporate the NO_x emission test in the annual vehicle examination would require more car testing centres to be set up for administering the vehicle examination. Furthermore, in the course of

reviewing the Air Quality Objectives, the Administration had received views from some stakeholders that it might not be cost-effective to require all registered vehicles to undergo NO_x emission test in TD's annual vehicle examination because only a small number of vehicles had excessive NO_x emissions. In the meantime, the Administration would continue to implement specific measures (such as adoption of roadside remote sensors to test vehicle emissions) targeting at gross-emitting vehicles.

Council questions

17. At the Council meetings of 25 March 2015, 14 October 2015 and 17 February 2016, Hon CHAN Hak-kan, Hon Frederick FUNG and Hon Frankie YICK raised questions relating to vehicle emission control. Issues covered in the questions include provision of skills training for vehicle mechanics, review of the system for regulating vehicle emissions, and supporting measures to promote adoption of environment-friendly commercial vehicles in Hong Kong. The questions and the Administration's replies are hyperlinked in **Appendix II**.

Latest development

18. At the House Committee meeting on 24 February 2017, Members agreed to form a subcommittee to study the Amendment Regulation.

Relevant papers

19. A list of relevant papers is set out in **Appendix II**.

**Implementation schedule for tightening of emission standards
of newly registered vehicles**

The Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 requires –

- a) newly registered light duty vehicles with design weight not more than 3.5 tonnes to comply with Euro VI emission standards according to the following schedule:

Vehicle class	Commencement date	
	Euro 6b On Board Diagnostic ("OBD") Euro 6-1	Euro 6c OBD Euro 6-2
Private car (petrol) and taxi	1 July 2017	1 September 2019
Light bus and goods vehicle	1 January 2018	1 September 2020

- b) newly registered heavy duty vehicles with design weight more than 3.5 tonnes (except bus with design weight not more than 9 tonnes and light bus with design weight more than 3.5 tonnes) to comply with Euro VI emission standards according to the following schedule:

Vehicle class	Commencement date	
	Euro VI OBD Phase A/B	Euro VI OBD Phase C
Bus (design weight more than 9 tonnes) and goods vehicle	1 January 2018	1 April 2019

- c) newly registered diesel private cars to comply with California LEV III starting from 1 July 2017.
- d) newly registered bus with design weight not more than 9 tonnes and light bus with design weight more than 3.5 tonnes to continue to comply with Euro V emission standards due to the inadequate supply of Euro VI models in the local market.

In tightening the emission standards, the Administration will maintain the current practice of accepting Japan and United States standards that are not inferior to the Euro VI requirements.

[Source: Paragraph 19 of the Legislative Council Brief on Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 issued by the Environmental Protection Department in February 2017]

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List of relevant papers

Date	Event	Paper
27 November 2015	Meeting of the Panel on Environmental Affairs	Administration's paper on "Proposals to Tighten Emission Standards of Newly Registered Vehicles" (LC Paper No. CB(1)180/15-16(03)) Minutes of meeting (LC Paper No. CB(1)495/15-16) Administration's follow-up paper (LC Paper No. CB(1)389/15-16(02))
30 March 2016	Meeting of the Panel on Environmental Affairs	Administration's paper on "Interim Findings of the Trial of Hybrid Franchised Buses" (LC Paper No. CB(1)705/15-16(05)) Minutes of meeting (LC Paper No. CB(1)969/15-16)
6 April 2016	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2016-2017	Written question raised by a Member and the Administration's reply (Reply serial number: ENB337)
19 December 2016	Meeting of the Panel on Environmental Affairs	Administration's paper on "Proposals to Tighten Emission Standards of Newly Registered Vehicles" (LC Paper No. CB(1)295/16-17(06)) Administration's written response to issues arising from the meeting on 19 December 2016 regarding the proposal to tighten emission standards of newly registered vehicles (LC Paper No. CB(1)571/16-17(02)) Minutes of meeting (LC Paper No. CB(1)504/16-17)

Date	Event	Paper
23 January 2017	Meeting of the Panel on Environmental Affairs	Administration's paper on "2017 Policy Address – Policy Initiatives of Environment Bureau: Environmental Protection" (LC Paper No. CB(1)451/16-17(01))
22 February 2017	The Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 was tabled at the Legislative Council meeting	Legislative Council Brief issued by the Environmental Protection Department (EP150/L1/3) Legal Service Division Report (LC Paper No. LS34/16-17)
24 February 2017	Meeting of the Panel on Environmental Affairs	Updated background brief on tightening of emission standards of newly registered motor vehicles (LC Paper No. CB(1)563/16-17(01))

Hyperlinks to relevant Council Questions:

Date	Council Question
25 March 2015	Press release on Council question (written) raised by Hon CHAN Hak-kan
14 October 2015	Press release on Council question (written) raised by Hon Frederick FUNG
17 February 2016	Press release on Council question (written) raised by Hon Frankie YICK