

**立法會**  
**Legislative Council**

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**Panel on Environmental Affairs**

**Meeting on 26 March 2018**

**Updated background brief on emission control for  
non-road mobile machinery  
prepared by the Legislative Council Secretariat**

**Purpose**

This paper provides updated background information on the emission control for non-road mobile machinery in Hong Kong. It also gives a brief account of the views and concerns expressed by Members when the relevant committees of the Legislative Council discussed related issues.

**Background**

2. Non-road mobile machinery ("NRMM") includes a wide range of mobile machines and vehicles powered by internal combustion engines used primarily off-road. In 2015, emissions from NRMM accounted for about 8% and 10% of local emissions of nitrogen oxides and respirable suspended particulates respectively. To improve air quality, the Administration introduced the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (Cap. 311Z) ("the Regulation") in 2015 to bring NRMM under emission control in line with environmentally-advanced countries.<sup>1</sup>

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<sup>1</sup> The Regulation was made by the Secretary for the Environment on 20 January 2015 under section 43 of the Air Pollution Control Ordinance (Cap. 311) and took effect from 1 June 2015. No subcommittee was formed by the Legislative Council to study the Regulation.

### Existing emission standards of non-road mobile machinery

3. The Regulation stipulated different sets of emission standards for regulated machines and non-road vehicles. Regulated machines refer to mobile machines or transportable industrial equipment (other than vehicles) that are powered by internal combustion engines with rated engine power output greater than 19 kW but not greater than 560 kW. Some examples of popular types of regulated machines are crawler cranes, excavators and air compressors. The current emission standards applicable to regulated machines are as follows:

(a) Compression-ignition engines, i.e. those running on diesel:

<b>Rated engine power output (P) in kW</b>	<b>Emission standards adopted</b>
37 $\leq P \leq$	EU Stage IIIA, US Tier 3 or Japan MoE standards*
19 < P < 37	EU Stage IIIA, US Tier 2 or Japan MoE standards*

(b) Positive-ignition engines, i.e. those running on petrol or liquefied petroleum gas:

<b>Rated engine power output (P) in kW</b>	<b>Emission standards adopted</b>
19 < P $\leq$ 560	US Tier 2 or Japan MoE standards*

\* Standards specified in Announcement No. 72 made by Japan Ministry of Environment in 2006

4. Non-road vehicles include private cars, goods vehicles, buses, light buses, motor cycles/tricycles and special purpose vehicles that are not licensed under the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374E), and are intended to be used exclusively in specified locations, such as the Restricted Area of the airport and construction sites. As the then prevailing statutory emission standards for road vehicles (i.e. those registered under Cap. 374E) were Euro V when the Regulation was made, Euro V emission standards have been adopted for non-road vehicles.

### Control of use, sale or lease of non-road mobile machinery

5. Under the Regulation, only NRMM approved by the air pollution control authority (i.e. the Director of Environmental Protection) ("the

Authority") as meeting the aforementioned emission standards or NRMM that is exempted is allowed to be used in specified activities (for regulated machines) or specified locations (for non-road vehicles).<sup>2</sup> Approved or exempted NRMM should bear proper labels.

6. The Regulation also requires that a regulated machine for use in Hong Kong must not be sold or leased unless it is approved by the Authority and properly labelled. According to the Administration, the sale and lease control is not applied to non-road vehicles because such vehicles are only used in specified locations while the use of approved or exempted non-road vehicles is already stipulated in the Regulation. Besides, regulating the sale or lease of non-road vehicles may capture road vehicles inadvertently (i.e. requiring them to bear approval labels as well) and cause unnecessary inconvenience to vehicle suppliers.

#### Implementation of new emission standards for road vehicles

7. Road vehicles are required to comply with the emission standards stipulated in the Air Pollution Control (Vehicle Design Standards) (Emission) Regulation (Cap. 311J). The emissions standards for newly registered road vehicles (except buses of design weight not more than 9 tonnes, light buses of design weight more than 3.5 tonnes, motor cycles and tricycles) are being tightened to Euro VI or California LEV III as applicable in phases since 1 July 2017.<sup>3</sup> Accordingly, the Administration intends to tighten the emission standards for specified non-road vehicles newly supplied to Hong Kong to Euro VI.

#### **Major views and concerns expressed by Members**

8. The Panel on Environmental Affairs ("EA Panel") and the Subcommittee on Improving Air Quality formed under the Panel discussed the Administration's proposal to control the emissions of NRMM at various

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<sup>2</sup> NRMM that was already in Hong Kong before 1 December 2015 is exempted from complying with the statutory emission standards. For new NRMM, it may be exempted from complying with the prescribed emission standards if the Authority is satisfied that there is a genuine need to use the relevant NRMM and there is no feasible alternative to conform to the standards.

<sup>3</sup> The tightening of emission standards is effected by the Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 which came into operation on 1 July 2017. For newly registered buses with design weight not more than 9 tonnes and light buses with design weight more than 3.5 tonnes, the Euro V emission standards are still applicable due to the inadequate supply of Euro VI models of such vehicles on the local market.

meetings since 2010. EA Panel also discussed and received public views on the proposal to tighten the emission standards of newly registered road vehicles at several meetings, and a subcommittee was formed to study the Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017. The major views and concerns expressed by Members on related issues are summarized in the ensuing paragraphs.

### Tackling emissions from exempted non-road mobile machinery

9. Members generally supported controlling the emissions from NRMM. Some Members suggested that the Administration should also put in place measures to tackle emissions from NRMM that was exempted from complying with the emission standards under the Regulation ("exempted NRMM"), including:

- (a) introducing measures (such as tax concessions) to promote early replacement of exempted NRMM; and
- (b) retrofitting exempted NRMM with emission reduction devices such as diesel particle filters.

10. In response to Members' suggestions, the Administration advised that:

- (a) as the life spans and utilization rates of different types of NRMM varied greatly, it might not be feasible to implement a mandatory retirement scheme for NRMM. Nevertheless, the Administration would explore the feasibility of introducing tax concessions for NRMM models meeting the emission standards under the Regulation to promote their early adoption by the trade. The Development Bureau would also require its contractors to progressively use those NRMM models in large-scale public works projects; and
- (b) it might not be technically feasible to retrofit existing NRMM with emission reduction devices because their engine conditions might not allow the devices to function properly.

### Enforcement of the Regulation

11. Members enquired how the Administration would enforce the Regulation to ensure that NRMM would comply with the statutory emission standards. Some Members expressed concern that the serial numbers or engine numbers of NRMM might be removed, defaced or altered, making it difficult to monitor compliance.

12. The Administration advised that in accordance with the labelling requirements under the Regulation, particulars of approved or exempted NRMM (including machine trade names, models, serial numbers, engine models, etc.) should be printed on the approval/exemption labels. A digital photo of a unit of NRMM showing the machine's nomenclature plate and engine's information label should be submitted with its application for verification and record purposes. Any person contravening the labelling requirements would commit an offence and be liable on conviction to a fine and imprisonment.

### Vehicle supply and repair

13. During deliberation of the tightening of emission standards for road vehicles in the past, Members stressed that the Administration should ensure a ready supply of compliant vehicles and competent vehicle mechanics on the market.

14. The Administration explained that it would be practicable to implement more stringent emission standards 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. Likewise for non-road vehicles, it had been the Government's policy to adopt the same emission standards as those of road vehicles when compliant vehicles became a practicable option.

15. As regards training for vehicle mechanics, the Administration advised that it had conducted technical seminars in cooperation with the vehicle maintenance trade, vehicle manufacturers and the Vocational Training Council. The Administration also pointed out that as part of the requirements of the Euro VI emission standards, vehicle manufacturers were required to make available vehicle maintenance information though a cost might apply.

### **Council question**

16. Hon CHAN Hak-kan raised at the Council meeting of 3 February 2016 a question about the measures to reduce air pollution in Hong Kong, including the progress of the Administration's plan to control emissions from NRMM. The question and the Administration's reply are hyperlinked in the **Appendix**.

### **Recent development**

17. At the meeting on 26 March 2018, the Administration will brief EA Panel on the proposed timetable for implementing Euro VI emission standards for non-road vehicles (except light bus) newly supplied to Hong Kong.

### **Relevant papers**

18. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1  
Legislative Council Secretariat  
19 March 2018

## Emission control for non-road mobile machinery

## List of relevant papers

Date	Event	Paper
11 May 2010	Meeting of Subcommittee on Improving Air Quality	Administration's paper on "A Proposal to Control Emissions of Non-road Mobile Sources" (LC Paper No. <a href="#">CB(1)1824/09-10(01)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)2619/09-10</a> )
27 February 2012	Meeting of Panel on Environmental Affairs	Administration's paper on "Controlling emissions of non-road mobile sources" (LC Paper No. <a href="#">CB(1)1119/11-12(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)1493/11-12</a> )
27 October 2014	Meeting of Panel on Environmental Affairs	Administration's paper on "Emission control for non-road mobile machinery" (LC Paper No. <a href="#">CB(1)87/14-15(04)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)243/14-15</a> )
28 January 2015	The Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation was tabled at the Legislative Council	<a href="#">The Regulation</a>  Legislative Council Brief ( <a href="#">EP150/NV/7/6</a> )
27 November 2015	Meeting of Panel on Environmental Affairs	Administration's paper on "Proposals to Tighten Emission Standards of Newly Registered Vehicles" (LC Paper No. <a href="#">CB(1)180/15-16(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)495/15-16</a> )  Administration's follow-up paper (LC Paper No. <a href="#">CB(1)389/15-16(02)</a> )

Date	Event	Paper
19 December 2016	Meeting of Panel on Environmental Affairs	Administration's paper on "Proposals to Tighten Emission Standards of Newly Registered Vehicles" (LC Paper No. <a href="#">CB(1)295/16-17(06)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)504/16-17</a> )
22 February 2017	The Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017 was tabled at the Legislative Council	<a href="#">The Amendment Regulation</a>  Legislative Council Brief ( <a href="#">EP150/L1/3</a> )  Legal Service Division Report (LC Paper No. <a href="#">LS34/16-17</a> )
24 February 2017	Special meeting of Panel on Environmental Affairs	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. <a href="#">CB(1)571/16-17(02)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)882/16-17</a> )
March 2017	The Subcommittee on Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017	Report of the Subcommittee (LC Paper No. <a href="#">CB(1)751/16-17</a> )

**Hyperlink to relevant Council question:**

Date	Council Question
3 February 2016	<a href="#">Press release</a> on Council question (written) raised by Hon CHAN Hak-kan