

THE REVIEW OF THE AIR QUALITY OBJECTIVES (AQOS)

STAKEHOLDERS' ENGAGEMENT MEETING – NON-ROAD MOBILE MACHINERY (NRMM)

Digest of Meeting

held on 6 July 2018 at 3:00p.m.

in Conference Room 4609, 46/F., Revenue Tower, 5 Gloucester Road, Wanchai

Present:

Environmental Protection Department (EPD)

Mr. Dave HO (Chairman)	Assistant Director of Environmental Protection (Air Policy)
Mr. Brian LAU	Principal Environmental Protection Officer (Air Policy)
Ms. Josephine HO	Senior Environmental Protection Officer (Air Policy) 1
Dr. Vanessa AU	Senior Environmental Protection Officer (Air Policy) 6
Dr. Danny YAU	Environmental Protection Officer (Air Policy) 61
Mr. Simon LAM	Environmental Protection Officer (Air Policy) 11

Development Bureau (DEVB)

Ms. Doris Yau	Assistant Secretary (Land Supply)1
---------------	------------------------------------

Stakeholder representatives

21 attendees including representatives from airport, trade associations, machines suppliers and container terminal operators.

Agenda Item 1 – A brief recap of the previous stakeholders meeting

EPD welcomed the stakeholders to the engagement meeting under the AQO review and briefed them the purpose of the meeting. EPD would like to seek views from the trades on further control measures to reduce the emission of non-road mobile machinery (NRMM) in Hong Kong for consideration in the AQO review.

2. EPD recapped discussions in the first stakeholder engagement meeting held on 25 August 2017 on two possible new measures to reduce emissions from NRMM and the key considerations for implementation.

Agenda Item 2 – Revisit the practicability of two possible air quality improvement measures

Measure NRMM-1: Revisit the feasibility of tightening emission standards of regulated machines newly supplied to Hong Kong

3. EPD briefed stakeholders about the latest emission standards implemented on regulated machines overseas. Given the fact the European Union and the United States had implemented tighter emission standards (Euro Stage IV) on regulated machines for quite some time, the government should seek to tighten the emission standards as far as practicable in line with the overseas development if there was adequate supply of the complying machines.

4. The stakeholders discussed on the availability of supply of regulated machines complying with EU Stage IV emission standards from the European and Japanese manufacturers, additional capital cost incurred on the machines, operation and maintenance of the machines and the emission control devices. Detailed comments are summarized at **Annex A**

5. After deliberations, the participants did not raise strong objection to the implementation of EU Stage IV emission standards on regulated machines newly supplied to Hong Kong. Nevertheless, some participants advised that the trade had procured a number of regulated machines complying with the prevailing Euro Stage IIIA standards (green label machines) in the last few years to fulfil the contractual requirements of government works projects, as stipulated in Development Bureau's Technical Circular (Works) No. 1/2015. They considered that machines complying with Stage IIIA standards should continue to be allowed for deployment in government work projects even if the emission standards of newly supplied regulated machines to Euro Stage IV be implemented in future.

6. The participants considered that the timeline for tightening the emission standards of newly supplied regulation machines had to be further deliberated having regard to the availability of supply, implications to the operation and maintenance of the emission control devices.

Measure NRMM-2: Revisit the feasibility of retrofitting approved regulated machines with diesel particulate filters (DPFs) to improve their emission performance and require them to be used in future government's new capital works contracts.

7. EPD gave an overview of overseas practices of retrofitting NRMM with DPFs in California, New York City; Switzerland, Germany and London; and similar local projects of installing DPFs on in-used generators and excavators.

8. Regarding the feasibility of retrofitting EU Stage IIIA regulated machines with DPF to further improve their emission performance, some stakeholders raised comments on the performance and compatibility of DPFs and other technical and operational issues. Detailed comments from stakeholders are summarized at **Annex A**.

9. EPD suggested and participants agreed to form a working group with representatives from the trades and government departments to study further the practicability of implementing the two possible new measures for NRMM.

Agenda Item 3 - Any other business and follow up actions

10. EPD explained that the engagement meeting was to collect views from relevant trades on the feasibility of implementation of new possible emission control measures to reduce emissions from NRMM. Before putting forward any proposed control measure, EPD would launch a full scale consultation with the relevant trades and stakeholders to seek their views and comments.

11. A digest of meeting summarizing the discussions of the meeting will be provided to Members for comment. Same as the practice of the last engagement meeting, the digest of meeting and presentation material would then be uploaded to EPD's webpages on AQO Review for public reference.

12. The meeting was adjourned at 5:45 p.m.

Possible new air quality improvement	Comments from stakeholders
<p><i>Measure NRMM-1 : Revisit the feasibility of tightening emission standards of regulated machines newly supplied to Hong Kong</i></p>	<ul style="list-style-type: none"> • Both European and Japanese NRMM suppliers confirmed the availability of regulated machines complying with EU Stage IV emission standards or equivalent standards. They are either equipped with selective catalytic reduction (SCR) device or DPF to meet the more stringent nitrogen oxides (NO_x) or respirable suspended particulates (RSP) emission standards. A monitoring system was also equipped in the machines to monitor the performance of the emission control devices. A European NRMM supplier advised that some regulated machines complying with EU Stage V emission standards would also be available in 2019. • A supplier advised that a failure in the emission control device might render an EU Stage IV machine inoperable. For instance, a regulated machine frequently operating at idling modes may result in accumulation of carbon particulates in the DPF. A manual regeneration of the DPF would be required to remove the carbon particulates. • A participant advised that he had purchased an EU Stage IV machine for a trial some years ago. Because of the high maintenance cost of the emission control device, he had stopped using the machine. • Some suppliers advised that the price of a regulated machine complying with EU Stage IV emission standards could be about 20% more compared with an EU Stage IIIA model. The maintenance cost of the regulated machine would also be higher due to the servicing and replacement of emission control devices. • Some stakeholders encountered difficulties in repairing the engines of their Euro Stage IIIA regulated machines and requested suppliers to release technical information such that their

	<p>mechanics could carry out the necessary repair and maintenance work instead of relying on repair services from suppliers. Some stakeholders advised that many incumbent mechanics might not have the knowledge to carry out repair work on newly design engines and suggested that the government should liaise with CIC/ HKIC and suppliers to arrange seminars on maintenance techniques for local mechanics.</p> <ul style="list-style-type: none"> • Some of the participants considered that sufficient lead time for preparation by the trade, such as training of mechanics for repairing regulated machines, should be allowed before the government considered setting any timeline for tightening the emission standards for regulated machines.
<p>Conclusion:</p> <p>While there was not strong objection to the implementation of EU Stage IV emission standards on regulated machines newly supplied to Hong Kong, the timeline for implementation had to be further deliberated with the trade. There were concerns on the high maintenance costs of the emission control devices and repair services to support the operations of Euro Stage IV regulated machines. The Government will follow up these issues with the trade before considering this measure further.</p>	

Possible new air quality improvement measures	Comments from stakeholders
<p><i>Measure NRMM-2: Revisit the feasibility of retrofitting approved regulated machines with DPF to improve their emission performance and require them to be used in future government's new capital works contracts.</i></p>	<ul style="list-style-type: none"> • A participant advised that he had installed DPF into a regulated machine some years ago and noted that both the back pressure and emission of nitrogen oxides had increased. • EPD advised that some recent retrofits of DPF on a diesel generator and an excavator had been conducted locally. It would collect more information about the emission performance of the retrofitted machines. • Some participants mentioned that, owing to intermittent operation, the operating temperature of some machine types such as excavators and mobile cranes might not be high enough to burn away particulates trapped in the DPF. If a DPF was clogged with unburnt particulates, it had to be returned to manufacturers to burn off the particulates and the machine had to stop operation during the period. • EPD advised that DPF was a mature emission reduction device and the installation of DPF in construction machines was a common practice with good emission performance. While noting the intermittent operation patterns of some types of machines, generators and air compressors normally operated continuously and retrofitting these machines with DPF were more viable. There were a number of DPFs approved for installation at generators and air compressors overseas. EPD and the participants agreed that a trial could be conducted to test out the retrofit of DPF at generators and air compressors for local operations. Some of the participants agreed to participate in the trial.

Conclusion:

While noting that there could be operation and maintenance concerns on the installation of DPF on existing EU Stage IIIA regulated machines to improve their emissions of particulates, the participants agreed to participate in a trial to study the feasibility of retrofitting DPFs on air compressors and generators.