

THE REVIEW OF THE AIR QUALITY OBJECTIVES (AQOS)

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

Digest of Meeting

held on 25 August 2017 at 2:30p.m.

in Conference Room, 33/F., Revenue Tower, 5 Gloucester Road, Wanchai

Present:

Environmental Protection Department (EPD)

Mr. Dave HO (Chairman)	Acting 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)

Mr. Alan C. W. WONG	Assistant Secretary (Land Supply)2
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Stakeholder representatives

14 attendees including representatives from trade associations, equipment and vehicle suppliers and container terminal operators.

AECOM Asia Co. Ltd (AECOM)

Mr. Marcus IP	Consultant's representative
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Agenda Item 1 – Background of the AQOs Review

EPD welcomed the stakeholders to the engagement meeting, and briefed them on the background of the AQOs review and the purpose of the meeting to seek their views on the possible new measures to reduce emissions from non-road mobile machinery (NRMM) for consideration in the AQO review.

2. **AECOM** gave presentation on the current control of emissions from NRMM in Hong Kong, the prevailing emission standards for NRMM adopted in the United States, the European Union (EU) and Japan, and briefly introduced the two possible new measures for further reducing emissions from NRMM and their key considerations for implementation.

Agenda Item 2 – Discussion on the practicability to further reduce emissions from regulated machines and non-road vehicles

Measure NRMM-1: Review the feasibility to further tighten the emission standards on regulated machines and non-road vehicles newly supplied to Hong Kong

3. The stakeholders raised comments on the emission standards for regulated machines and non-road vehicles, the availability of supply from the European and Japanese markets, additional capital and maintenance costs incurred.

4. Detailed comments from stakeholders and the conclusions after deliberations for measure NRMM-1 are summarized at **Annex**.

Measure NRMM-2: Explore the feasibility of retrofitting exempted regulated machines and non-road vehicles to improve their emission performance

5. The stakeholders considered that retrofitting existing NRMM with emission reduction device was not practicable for the following reasons:

- The installed emission reduction device may not be officially warranted by the NRMM manufacturer for their performance and compatibility with the NRMM;
- The emission reduction device essentially controls a single air pollutant at a time and the addition of the equipment may adversely affect the power and efficiency of the machinery, and increase the chance of mechanical failure;
- Mounting of the add-on devices may not be feasible for certain types of

machines; and

- Retrofitting with add-on devices involves substantial capital costs.

6. The trade representatives suggested that the Government should take the lead in improving the environmental performance of NRMM, and strengthen the communications between the trade and the relevant government bureau / departments to foster contribution to improving the environment.

7. **EPD** advised that before bringing forward any proposed control measures, **EPD** would consult the relevant trades on their views.

Agenda Item 3 - Any other business

8. A brief note summarizing the discussions of the meeting will be provided to Members for comment. It would then be uploaded to the EPD's AQO review webpage for public reference.

9. The meeting was adjourned at 4:00 p.m.

[Post-meeting note: representatives of the Airport Authority Hong Kong had expressed views on the practicability to further reduce emissions from NRMMs operating at the airport. Please refer to the digest of stakeholder engagement meeting for civil aviation held on 24 August 2017.]

Deliberation on Measure NRMM-1: Review the feasibility to further tighten the emission standards on regulated machines and non-road vehicles newly supplied to Hong Kong

Possible new air quality improvement measures	Comments from stakeholders
<p><i>Measure NRMM-1</i></p> <p><i>Review the feasibility to further tighten the emission standards on regulated machines and non-road vehicles newly supplied to Hong Kong</i></p>	<p><i>For regulated machines</i></p> <ul style="list-style-type: none"> • If the emission standards on regulated machines are to be tightened, it is more appropriate to consider EU Stage IV instead of EU Stage IIIB emission standard as the latter is only considered as a transitional emission standard. • Most types of regulated machines supplied from the European and Japanese markets could comply with EU Stage IV emission standard. They are equipped with selective catalytic reduction (SCR) device with monitoring system to control the emission of nitrogen oxides (NOx). • Air compressors and diesel generators complying with EU Stage IIIB or higher emission standards are currently not available from some Japanese manufacturers. Generators on rubber-tyred gantry (RTG) and mobile stackers in container terminals complying with EU Stage IV emission standard are currently not readily available in the market (including the Mainland China) due to the limited space to install the required emission reduction systems. • Some suppliers advised that the price of construction equipment complying with EU Stage IV emission standard could be higher. They may also involve higher maintenance cost compared with older models due to the servicing and replacement of advanced emission control components, despite that it may be more difficult to acquire service support and replacement parts for older models.

Possible new air quality improvement measures	Comments from stakeholders
	<ul style="list-style-type: none"> • Machines complying with EU Stage IV emission standard may occasionally stop operation as triggered by the emission monitoring system. Other factors such as the implications on the maintenance costs and the service life of the existing machines on the market are the key considerations on the measure. • The Government was suggested to encourage the use of electric construction machinery which have lower maintenance cost compared with those running on internal combustion engines and supply for certain types of machines (e.g. tunnel excavator) are readily available. • The Government was suggested to review the technical circular (Emissions Control of Non-road Mobile Machinery in Capital Works Contracts of Public Works) to explore the feasibility to include electricity-powered NRMM. • The Government was suggested to consider the provision of subsidy to the trade for phasing out the pre-EU Stage I regulated machines. EPD responded that provision of subsidy would not be considered as the concerned regulated machines might not be used exclusively in Hong Kong. <p><i>For non-road vehicles</i></p> <ul style="list-style-type: none"> • It is the Government's standing policy to adopt the same emission standards for road and non-road vehicles. In the view that the Euro VI emission standard has been implemented on road vehicles in phases since 1 July 2017, it was considered practicable to pursue the same emission standards on non-road vehicles. • The adoption of Euro VI emission standard on

Possible new air quality improvement measures	Comments from stakeholders
	<p>non-road private cars and goods vehicles was considered straightforward with sufficient supply.</p> <ul style="list-style-type: none"> • For some special vehicles whose chassis have not been type-approved in Hong Kong, the Government was suggested to consider accepting similar approval certifications issued by other countries.
<p><u>Conclusion:</u></p> <p>The trade has concerns on the higher maintenance costs on the use of regulated machines that can comply with a more stringent emission standard and the availability of certain types of machines from the Japanese and the Mainland market, the major sources of supply. The Government will further assess the availability of compliant machines and impact to the trade before pursuing this measure.</p> <p>For non-road vehicles, it is considered practicable to pursue the same emission standards on non-road vehicles as with on road vehicles. The Government will further consult the trade to pursue this measure.</p>	