

**For Discussion on  
27 October 2014**

**LEGISLATIVE COUNCIL  
PANEL ON ENVIRONMENTAL AFFAIRS**

**Emission Control for Non-road Mobile Machinery**

**PURPOSE**

This paper updates Members on our progress in making a subsidiary regulation (the Regulation) under the Air Pollution Control Ordinance (Cap. 311) to control the air pollutant emissions of non-road mobile machinery (NRMMs).

**BACKGROUND**

2. NRMMs include a wide range of mobile or transportable machines or vehicles powered by internal combustion engines used primarily off-road. In 2012, NRMMs accounted for about 6% and 8% of the local emissions of nitrogen oxides (NO<sub>x</sub>) and respirable suspended particulates (“RSP”) respectively.

3. To improve air quality and protect public health, the Environmental Protection Department (EPD) plans to bring NRMMs under emission control in line with environmentally advanced countries. We plan to control emissions of NRMMs by regulating their sale, lease and supply such that all NRMMs to be sold or leased for use in Hong Kong should comply with prescribed emission standards as promulgated under the Regulation and should be properly labelled. For the NRMM in use, their emission standards are predominantly at European Union Stage I level. For NRMM complying with the proposed statutory emission standards stated in paragraph 5a below (i.e. European Union Stage III A), they will emit about 60% less

for both NO<sub>x</sub> and RSP.. Residential areas close to container terminals and construction sites will also less likely be affected by environmental nuisances caused by the operation of NRMMS.

4. In 2011, we conducted a thorough stakeholders' consultation involving manufacturers and suppliers of NRMMS, the construction industry, operators of container terminals, operators of airport ground services and holders of specified process licences of the proposed regulatory regime for NRMMS. They supported the proposal in general. Subsequently, we consulted the Advisory Council of Environment (ACE) and this Panel in January 2012 and February 2012 respectively on the proposal. The relevant Panel paper is at Annex. With the support from the ACE and the Panel, we started drafting the effecting legislation for the proposal.

## **THE LEGISLATIVE PROPOSAL**

5. The Regulation will include the following key elements –
- (a) starting from a specified date (tentatively 1 April 2015), all NRMMS (including regulated machines and non-road vehicles) to be sold or leased for local use will have to meet specified emission standards promulgated under the Regulation. The specified standards for regulated machines are set at European Union Stage IIIA level (emission standards of the United States or Japan of equivalent stringency will also be accepted), while those for non-road vehicles are the same as the prevailing statutory emission standards for vehicles seeking first registration (currently at Euro V emission standards), which are stipulated in the Air Pollution Control (Vehicle Design) (Emissions) Regulation (Cap. 311J);
  - (b) existing NRMMS which are already in use before the Regulation takes effect will be exempted from the emission compliance requirements. A grace period of six months will be allowed for their owners to apply

for exemption for the equipment concerned;

- (c) when approving an NRMM to be brought to Hong Kong after the commencement of the Regulation or approving an exemption application for an existing NRMM, EPD, as the Authority under the Air Pollution Control Ordinance, may impose conditions on the approval or exemption given to the NRMMs;
- (d) an NRMM owner will have to properly affix a label prescribed by EPD on his approved NRMM or exempted NRMM;
- (e) only approved or exempted NRMMs with proper labels shall be used in specified activities such as the airport, port facilities, construction sites, designated waste disposal facilities and specified processes stipulated in Schedule 1 of the Air Pollution Control Ordinance. These specified activities are the major users of NRMMs accounting for over 90% of the non-road emissions; and
- (f) any material modification of the approved or exempted NRMMs must be approved by EPD.

6. The Regulation will not apply to NRMMs that are not for local use such as goods in transit, transshipment goods, solely for export or re-export. Since the control is machine-based, the Regulation is not applicable to stand-alone engines which may serve as replacement parts of NRMMs. In addition, the Regulation will not be applicable to vehicles licensed under the Road Traffic (Registration and Licensing of Vehicles) Regulations (Cap. 374 sub. Leg. E) because they fall within the ambit of the Air Pollution Control (Vehicle Design Standards) (Emissions) Regulations (Cap. 311J). In line with international practices, the Regulation will not apply to NRMMs solely for military use.

7. Any person contravening the sale or lease control requirements, the use

control requirements, or failing to comply with the conditions imposed on the approved or exempted NRMMs will commit an offence and be liable on conviction to a fine of \$200,000 and to imprisonment for 6 months. Any person contravening the labelling requirements will commit an offence and be liable on conviction to a fine at level 5 and to imprisonment for 3 months. The Regulation will exclude the driver or manual operator of an NRMM if he is not responsible for the use of the NRMM but is merely employed by the person who brings in or hire the NRMM for use.

## **NEXT STEPS**

8. We plan to publish the Regulation in the Gazette and table it at the Legislative Council for negative vetting in early 2015. Subject to the approval of the Legislative Council, the Regulation will take effect on 1 April 2015.

**Environmental Protection Department**  
**October 2014**

For discussion  
February 2012

**LEGISLATIVE COUNCIL  
PANEL ON ENVIRONMENTAL AFFAIRS**

**Controlling Emissions from Non-road Mobile Sources**

**PURPOSE**

This paper briefs Members on the Administration's revised proposal to control the emissions of air pollutants from non-road mobile sources, and seeks Members' views on the proposed way forward.

**BACKGROUND**

2. We consulted the Subcommittee on Improving Air Quality of the Panel on Environmental Affairs in May 2010 on a proposal to control emissions from non-road mobile sources, which include a wide range of mobile or transportable machinery powered by internal combustion engines. The proposal put forth for consultation then essentially centered around a system of *import control* on non-road mobile machinery (NRMM) to ensure that newly imported NRMM meets certain emission standards before they can be placed on local market for sale.

3. The relevant trades were generally supportive of introducing emission control on NRMM. However, given that an estimated 90% of imported NRMMs were for re-export, they had concerns about requiring prior approval of all imports which would have major impact on the smooth operation of their businesses. In the light of the comments received, we have, without prejudice to the objective of putting in place an effective system to control emissions from NRMM, revised the proposal for further consultation with the stakeholders. The revised proposal put forth for consultation in June 2011 is at **Annex**.

## **REVISED PROPOSAL**

4. In gist, we propose to replace the control on *import* by control on the *sale, lease and supply of NRMMs for local use*. All NRMMs to be sold or leased for use in Hong Kong must be approved by the Environmental Protection Department (EPD) and properly labelled in future. Existing NRMMs in use before the introduction of the control regime will be exempt from the new requirements but they will also be required to be properly labelled for easy identification. Operators of specified activities, which include specified processes stipulated in Schedule 1 of the Air Pollution Control Ordinance (Cap. 311), airport, port facilities, construction sites and designated waste disposal facilities, will also have a duty to ensure that all NRMMs used in their operations are approved by EPD and affixed with an approval label prescribed by EPD).

5. NRMMs already in local use before the introduction of the proposed control regime will be exempted from meeting the new emission standards. They will bear exemption labels, in the same manner as approved NRMMs will bear approval labels, for identification.

6. The emission standards for each category of NRMMs remain the same as those set out in the original proposal, drawn up with reference to NRMM emission standards in the European Union, Japan and the United States.

## **CONSULTATION**

7. We conducted a new round of consultation from June to September 2011 on the revised proposal. The stakeholders, including manufacturers and suppliers of NRMMs, the construction industry, operators of container terminals, operators of airport ground services and holders of specified process licences, welcome our incorporation of their earlier views and comments and in general support the revised proposal. They are also supportive of joining efforts to build a shared database of approved NRMMs for the trades' reference. Some have made the following

suggestions -

- (a) creating, for easy identification, another type of approval labels for NRMMs granted *conditional approval*. These NRMMs may include those highly specialized equipment which do not meet the required emission standards;
- (b) providing special treatment for NRMMs deployed outside Hong Kong throughout the application period for exemption labels, either by allowing late applications or by accepting applications regardless of the physical location of the NRMM at the time; and
- (c) allowing road vehicles previously licensed under the Road Traffic Ordinance (RTO) (Cap. 374) to be approved for off-road application without obtaining licences under the RTO or proving their compliance with the proposed emission standards for NRMMs.

8. In response to (a), we have already included in the revised proposal a third type of labels for NRMMs granted conditional approval. For identification purpose, such labels will be in a different colour and bear a statement indicating that the NRMMs are conditionally approved.

9. We, however, consider it inappropriate to take on board the last two suggestions. For (b), extending the transitional exemption arrangement to NRMMs deployed outside Hong Kong during the application period could provide an avenue to bring in non-compliant NRMMs not in local use before the introduction of the proposed control regime. Also, while currently the road vehicles which operators use for their non-road applications are not required to fulfill any emission standards, adopting (c) would defeat the integrity of our proposal to tighten control on non-road emissions. We consider that vehicles which have been used on-road should still meet the emission standards set for vehicles newly entering the NRMM business, and they should be subject to the same labelling requirement as NRMMs. In the same vein, the proposed exemption for in-use NRMMs should be applied to those vehicles already in non-road application locally before the control regime takes effect. Lifting this requirement would make off-road applications a dumping

ground for old vehicles no longer road-worthy, thereby defeating our objective of reducing emissions from old vehicles.

10. We have consulted the Advisory Council on the Environment in January 2012. The Council is supportive of the revised proposal.

### **WAY FORWARD**

11. After consulting the Panel, we shall take forward the legislative exercise necessary for implementing the control proposal, and aim to complete the exercise in the 2012-13 legislative session.

### **ADVICE SOUGHT**

12. Members are invited to offer views on the revised proposal as set out in paragraphs 4 to 6.

**Environment Bureau/Environmental Protection Department  
February 2012**



## **REVISED PROPOSAL**

### **TO CONTROL EMISSIONS OF NON-ROAD MOBILE SOURCES**

#### **INTRODUCTION**

This document outlines the Government's revised proposal for controlling emissions of air pollutants from non-road mobile sources in Hong Kong.

#### **BACKGROUND**

2. In May 2010, we put forth for stakeholder consultation a proposed scheme to control emissions from non-road mobile machinery (NRMM), including those used at the airport, container terminals, construction sites etc. Under the proposal, the import of NRMMs would require approval from the Environmental Protection Department (EPD) subject to compliance with emission standards similar to those adopted by the European Union (EU), the United States (US) and Japan. Likewise, local manufacturers would have to obtain approval before placing their NRMMs on the local market.

3. In general, the stakeholders supported the introduction of emissions control on NRMMs, but were concerned about the approval process given that an estimated 90% of imported NRMMs were for re-export. To require the same approval for all imports would mean a large amount of unnecessary administrative work. In addition, since NRMMs may have to be shipped to Hong Kong within a few days after the placement of purchase orders, the proposed import approval may cause undue delay in delivery.

#### **REVISED PROPOSAL**

##### **Overall Control Framework**

4. To address the concerns of the stakeholders without prejudice to the effectiveness of the proposed emissions control, we suggest replacing the control on *import* by control of the *sale, lease and supply of NRMMs for local*

*use*. In brief, all NRMMs (either new or second-hand) to be sold or leased for local use will have to meet the specified emission standards and approved by EPD. NRMMs approved by EPD for local use will be properly labelled. Existing NRMMs in use before the introduction of the control regime will be exempt from the new requirements. They will also be properly labelled for easy identification. We also propose to specify clearly which activities with the possible use of NRMMs (*specified activities*) would be subject to the proposed control. The proposed revised control framework is as follows-

- (a) **Emission Standards** – EPD will formulate a set of emission standards applicable to NRMMs (with the exception of road vehicles used in non-road applications) by making reference to those of the US, the EU and Japan. Road vehicles used in non-road applications will have to meet the same emission standards as vehicles registered for on-road use.
- (b) **Approval prior to sale, lease and supply for local use** – Suppliers are required to obtain EPD’s approval in respect of emission compliance before selling, leasing or supplying their NRMMs (either new or second-hand) for local use. Each piece of approved NRMM shall be affixed with an approval label for identification.
- (c) **Exemption for existing NRMMs** - Before the new requirement is in place, owners of NRMMs currently used in *specified activities* are required to notify EPD of details of the NRMMs. Duly notified existing NRMMs will not be subject to the new requirements and will be affixed with an exemption label for identification.
- (d) **Prohibition of the use of NRMMs without approval or exemption labels** – Upon the commencement of the proposed emissions control, only those NRMMs with approval or exemption labels are allowed to be used in specified activities detailed in paragraph 15 below.

5. The control requirements are machine-based such that the approval or exemption label issued will be specific to the NRMM but not the engine. As long as any replacement engine is of the same model as the engine reported to EPD for obtaining the label, the label remains valid for the NRMM. However, if the replacement engine is of a different model from the original, the owner

should make a fresh application for approval. The 'modified' NRMM cannot be used locally before EPD confirms its emission compliance. Stand-alone engines are not subject to the control requirements.

### **Scope of Control**

6. The proposed regime should cover NRMMs used locally in the specified activities, as well as all NRMMs sold, leased or supplied for use in Hong Kong, which are –

- (a) driven by engines running on diesel, petrol or LPG; and
- (b) within the following range of power output-  
**19kW < power output ≤ 560kW**

unless exemptions are applicable.

7. Existing NRMMs with notice duly given to EPD before the introduction of the control regime are exempted from the new emissions control requirements.

8. NRMMs not for local use (including NRMMs imported for re-export, locally manufactured NRMMs solely for export, in-use NRMMs traded for export or for disposal) are not subject to the emissions control requirements.

9. Vehicles registered for on-road application and hence already required to meet emission standards stipulated in the Air Pollution Control (Vehicle Design Standards) (Emission) Regulations (Cap. 311J) will need no further approval from EPD. Vehicles used in non-road applications only and not registered with the Transport Department are within the scope of the proposed NRMM control regime.

### **Emission Control Requirements**

10. The revised proposal adopts the same non-road emission standards of the EU, the US and Japan as originally proposed, which are recapitulated below.

*(A) Compression Ignition (CI) engines, i.e. those running on diesel*

<b>Machinery with engine power</b>	<b>Proposed standards adopted</b>
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<b>(P) in kW</b>	<b>(on considerations of similar stringency)</b>
$130 \leq P \leq 560$	EU Stage IIIA, US Tier 3 or Japan MoE Stage 2
$75 \leq P < 130$	EU Stage IIIA, US Tier 3 or Japan MoE Stage 2
$37 \leq P < 75$	EU Stage IIIA, US Tier 3 or Japan MoE Stage 2
$19 < P < 37$	EU Stage IIIA, US Tier 2 or Japan MoE Stage 2

***(B) Spark Ignition (SI) engines, i.e. those running on petrol or LPG***

<b>Machinery with engine power (P) in kW</b>	<b>Proposed standard adopted (on considerations of similar stringency)</b>
$19 < P \leq 560$	US Tier 2 or Japan MoE current standard

**Application for EPD's Approval**

11. Prior to selling, leasing or supplying non-exempted NRMMs (either new or second-hand) for local use, the supplier must apply for EPD's approval. The application shall include information of the supplier (such as name, contact, business registration, etc.), particulars of the NRMMs (trade name, model, serial number, etc.) and information of its engines (trade name, model, serial number, power output, etc.). Digital photos of the NRMMs (including machinery's nomenclature plate and engine's information label) should be submitted with the application. Supporting documents (such as copy of certificate of conformity obtained from US Environmental Protection Agency or the EU, certificate of compliance issued by manufacturers, etc.) should also be provided as proof of compliance with emission standards. EPD will issue approval upon satisfaction of emission compliance. NRMMs without EPD's approval, unless exempted, shall not be sold, leased or supplied for local use.

12. EPD may give *conditional approval* where conditions on the use or handling of the NRMM would be imposed. This is to cater for special applications, such as short-term application of special construction equipment not meeting the emission standards.

13. EPD will maintain a list of approved NRMMs for the trades' reference.

14. For the ease of identification, the approved NRMM shall be affixed with an approval label. A sample of the label is at **Appendix**.

## **Control of the Use of NRMMS in Specified Activities**

15. Non-approved NRMMS, except the exempted ones (mainly NRMMS already in use before the new requirement takes effect) shall not be used in specified activities, including -

(a) activities at any of the following locations:

- i. the airport;
- ii. port facilities including container terminal, river trade terminal and container backup facilities<sup>1</sup>;
- iii. construction sites; and
- iv. designated waste disposal facilities<sup>2</sup>;

and

(b) specified processes stipulated in Schedule 1 of the Air Pollution Control Ordinance (Cap. 311).

16. Operators engaging in the specified activities (airport ground service providers, terminal operators, contractors of construction works, license holders of specified processes, etc.) must ensure that the non-exempted NRMMS used for their activities (including those acquired from suppliers, imported by the user, or manufactured by the user) are approved by EPD following the legal requirements.

17. The above specified activities are the major users of NRMMS and currently account for over 90% of the non-road emissions.

## **Exemption for Existing NRMMS**

18. Existing NRMMS, which refer to those NRMMS already in use (including those in stock and on the market for sale or lease) before the proposed control requirements come into force, will be exempt from the emission compliance requirements.

19. Before the proposed control requirements come into force, a grace period will be allowed for NRMMS suppliers and operators of the specified activities to notify EPD of the presence of their existing NRMMS with identification particulars (trade name, model, serial number, engine make and

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<sup>1</sup> “**Container backup facilities**” means facilities essential to the handling of containers which do not require (but may have) a waterfront location and includes container yards, empty container storage and repair depots, container freight stations and container vehicle parks.

<sup>2</sup> “**Designated waste disposal facility**” means any designated waste disposal facility as defined in section 2 of the Waste Disposal (Designated Waste Disposal Facility) Regulation, Cap. 354L.

model). EPD will keep a record of such NRMMS and require these NRMMS to be affixed with exemption labels at conspicuous positions of the NRMMS for ease of identification. Duly notified existing NRMMS will not be subject to the new emissions control requirements.

20. EPD will standardise the format of the labels for the suppliers or operators to print and display the labels for their NRMMS. For ease of identification, the approval label and the exemption label will be in different colours. Samples of the labels and its requirements are given at **Appendix**.

21. Other users not engaging in specified activities are not required to notify EPD of their existing NRMMS, if these NRMMS are solely used in those activities not specified in the new Regulation.

### **Offence, Penalty and Enforcement**

22. In alignment with other similar offences under the Air Pollution Control Ordinance, the proposed penalty schedule is as follows-

<b>Offence</b>	<b>Maximum Penalty</b>
Selling, leasing or supplying a non-exempted NRMM for local use without a valid approval issued by EPD	\$200,000 and 6 months' imprisonment
Using a non-exempted NRMM for a specified activity without a valid approval issued by EPD	\$200,000 and 6 months' imprisonment
Violating the conditions imposed in an approval	\$200,000 and 6 months' imprisonment
Not affixing an approved NRMM with an approval label according to the labelling requirements specified by EPD	\$50,000 and 3 months' imprisonment
For an existing NRMM possessing EPD's exemption, not affixing an exemption label according to the labelling requirements specified by EPD	\$50,000 and 3 months' imprisonment
Provision of false or incorrect information for	\$50,000 and 3 months'

acquisition of the approval or exemption label, or displaying an approval or exemption label which is false or misleading	imprisonment
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23. EPD will inspect the premises of NRMM suppliers and users to ascertain the notification given for their existing NRMMs. Upon the completion of the labelling of the existing NRMMs, EPD will inspect relevant premises as routine enforcement work to ascertain compliance with the new requirements.

## **ENVIRONMENTAL BENEFITS**

24. Emissions from NRMMs account for about 7% (6,800 tonnes) and 11% (600 tonnes) of the local emissions of nitrogen oxides (NO<sub>x</sub>) and respirable suspended particulates (RSP) respectively. If all NRMMs in local use are replaced with ones meeting the proposed emission standards, local emissions of NO<sub>x</sub> and RSP can be reduced by 4.7% (4,500 tonnes) and 9% (500 tonnes) respectively. The environmental nuisance generated at container terminals and construction sites near the urban centres will be reduced.

## **WAY FORWARD**

25. Subject to the views of stakeholders on the revised proposal, our plan is to finalise the proposal and initiate the necessary legislative procedures within 2011.

## **VIEWS SOUGHT**

26. We would like to invite views and comments on the above proposal. Please send us your views and comments on or before 20 July 2011:

By mail:                    Air Policy Group  
Environmental Protection Department  
33/F, Revenue Tower  
5 Gloucester Road  
Wan Chai, Hong Kong

By facsimile: 2838 2155

or

By email: [NonRoadConsult@epd.gov.hk](mailto:NonRoadConsult@epd.gov.hk)

**Environment Bureau/Environmental Protection Department  
June 2011**



**Sample of Approval Label and Exemption Label**

**機械種類 Machine Type :**

**商標及型號 Trade Name & Model :**

**序號 Serial Number :**

**EPD-A-12Z45-20X1**

根據《XXXXX 規例》(第 XXX 章) 通過核准

Approval granted under XXXXX Regulation (Cap. XXX)

**(Approval label will be printed with green background colour)**

**機械種類 Machine Type :**

**商標及型號 Trade Name & Model :**

**序號 Serial Number :**

**EPD-E-W23T5-2Y11**

根據《XXXXX 規例》(第 XXX 章) 獲得豁免

Exemption granted under XXXXX Regulation (Cap. XXX)

**(Exemption label will be printed with yellow background colour)**

The labels shall be:

- i. produced and affixed on the NRMMs in the format (including size and colour) as specified by EPD;
- ii. printed with the reference of approval or exemption assigned by EPD on the NRMMs;
- iii. affixed to conspicuous place of the NRMMs; and

- iv. properly maintained to make it clear and legible whenever the NRMMs are in sale, lease or supply for local use and put to use for the specified activities.