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**Panel on Environmental Affairs and
Panel on Transport**

Joint meeting on 15 January 2002

**Background brief on
Retrofitting of particulate reduction devices on pre-Euro diesel vehicles**

Background

The ambient levels of respirable suspended particulates (RSP) in Hong Kong are a concern for public health. The high levels of RSP cause respiratory illness, increase morbidity and mortality as well as aggravate lung diseases such as asthma, bronchitis and emphysema. Emissions from diesel vehicles are a major source of RSP and there is growing evidence linking lung cancer with exposure to diesel particulates. In the urban area, emissions from diesel vehicles account for about half of the airborne RSP and 60% of the nitrogen dioxide in the ambient environment. The reduction of emissions from diesel vehicles is therefore vital to the prevention and abatement of air pollution in Hong Kong. In his 1999 Policy Address, the Chief Executive announced a number of new measures to reduce the total RSP emission from vehicles by 60% and 80% by end of 2003 and 2005 respectively.

Retrofitting of particulate reduction devices on pre-Euro diesel light vehicles

2. On the subject of air quality improvement plans relating to transport, the Environmental Affairs and the Transport Panels have held seven joint meetings in the last two years to monitor the progress of control of vehicle emissions. Among the various improvement initiatives is the provision of free installation of particulate traps or diesel catalytic converters (depending on the vehicle weight) to all pre-Euro goods vehicles of weight between four to five-and-a-half tonnes and to make this a requirement for all pre-Euro light duty vehicles. The trial scheme conducted on the use of the diesel particulate trap indicates that the particulate trap could reduce at least 20% particulate emission from the fleet of pre-Euro diesel light vehicles. Retrofitting all pre-Euro diesel light vehicles (including all pre-Euro taxis and light buses before they are switched to cleaner fuels) could help reduce about 6% of the total particulate emissions from the vehicle fleet.

3. In May 2000, the Finance Committee approved a commitment of \$50,880,000 for providing a one-off grant to assist owners of pre-Euro diesel light vehicles of up to four tonnes to retrofit their vehicles with particulate reduction devices. The installation programme started on 25 September 2000 and finished on 17 October 2001. Under the programme, financial assistance of \$1,300 was provided for each device. Vehicle owners who opted for the particulate trap did not have to pay for the installation. Those who opted for the more expensive oxidation catalyst had to pay a balance of between \$2,700 and \$6,200 depending on the engine size of the vehicle and the catalyst model.

4. During the consultation on the retrofitting scheme and also at the Finance Committee meeting, Members expressed concern on the serviceable life span of particulate traps, the availability of practicable support services such as trap replacement and cleaning as well as the ways to dispose the effluent after trap cleaning. They also opined that apart from particulate traps, the Administration should explore other devices such as magnets and additives to deal with the emission problem of diesel vehicles. The Administration's response given to Members at that time was that authorized contractors for the installation of particulate traps would be required to provide a warranty period during which faulty traps would be replaced free of charge. They also had to provide cleaning facilities either at their own workshops or in collaboration with filling stations. Cleaning could also be done by soaking the trap in a container of water mixed with a small amount of detergent. As regards the effluent after trap cleaning, one of the methods developed from the trial was by way of a sand bed through which the effluent would be filtered and treated to a level suitable for disposal into foul sewers.

5. At the joint meeting on 7 November 2000, members noted with concern that only about 1 000 out of 42 000 pre-Euro diesel light vehicles in Hong Kong had been installed with the particulate traps since the commencement of the installation programme. Some members opined that the reluctance of owners in retrofitting their diesel vehicles with particulate traps was attributed to the inconvenience caused by regular cleaning of traps. To this end, the Administration should consider increasing the amount of one-off grant so that owners could opt for the more expensive oxidation catalysts, thereby expediting the progress of installation programme. According to the Administration, both the particulate trap and oxidation catalyst were effective in terms of reducing particulate emissions. The only difference was that the particulate traps would have to be cleaned regularly and the catalysts were maintenance-free. As vehicle owners could choose between the two options, it might not be justified to increase the one-off grant for the installation of diesel oxidation catalysts. At the joint meeting on 4 July 2001, it was reported that about 14 200 diesel light vehicles had been installed with particulate traps and catalysts. Legislation would be introduced to make the installation a mandatory requirement.

Trial scheme on the use of diesel catalysts

6. The Administration conducted a 12-month trial of diesel catalysts on pre-Euro heavy vehicles in February 2000 in collaboration with the Hong Kong Polytechnic University. The trial was monitored by a monitoring committee comprising representatives from relevant government departments, transport trades, Motor Traders Association and academics. The purpose of the trial was to gather the information required for the Administration to draw up appropriate specifications for diesel catalysts that meet the need of these local vehicles. According to the Administration, suitable catalytic converters had been identified for most pre-Euro heavy diesel vehicles. However, more testing was required for new types of vehicles for which the suitability of certain models of catalytic converters had yet to be ascertained. Subject to the trial results, the Administration would draw up a programme to provide owners of pre-Euro heavy vehicles with financial assistance to install approved types of catalytic converters on their vehicles.

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