

**For discussion on  
23 June 2014**

**LEGISLATIVE COUNCIL  
PANEL ON ENVIRONMENTAL AFFAIRS**

**Strengthened Emission Control of  
Petrol and Liquefied Petroleum Gas Vehicles**

**PURPOSE**

This paper updates Members on the progress of our preparatory work to strengthen the emission control of petrol and liquefied petroleum gas (LPG) vehicles <sup>[1]</sup>.

**EMISSION CONTROL OF PETROL/ LPG VEHICLES**

2. Poorly maintained petrol and LPG vehicles could emit nitrogen oxides (NO<sub>x</sub>) and hydrocarbons (HC) up to ten times of their normal levels, thereby aggravating roadside air pollution. The excessive emission problem is particularly serious amongst LPG taxis and light buses because many of their catalytic converters, a key emission control device, have already been worn-out under intense use but without timely replacement. According to a survey conducted by the Environmental Protection Department (EPD) in 2011, some 80% and 45% of LPG taxis and light buses were found respectively having excessive emission problems.

3. To protect public health, this Panel supported in its meeting on 27 February 2012 the proposal to strengthen the emission control of petrol and LPG vehicles with the use of remote sensing equipment and chassis dynamometers for emission testing. A one-off subsidy programme to support the replacement of catalytic converters and oxygen sensors of petrol and LPG taxis and light buses was also planned. We had also briefed Members that the strengthened control programme would be put in place after the one-off replacement programme was completed.

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<sup>1</sup> These vehicles include private cars, taxis, light buses and light goods vans running on petrol or LPG.

## *Replacement of Catalytic Converters and Oxygen Sensors*

4. The one-off replacement programme of catalytic converters and oxygen sensors for LPG and petrol taxis and light buses was launched in August 2013 and completed in April 2014<sup>[2]</sup>. Altogether, 13 942 taxis and 2 881 light buses took part in the scheme and the overall participation rate was close to 80%. Those vehicles that have not participated in the replacement programme are largely newer vehicles, whose catalytic converters and oxygen sensors are in a better condition.

## *Strengthened Emission Control*

5. With the completion of the replacement programme on catalytic converters and oxygen sensors, we now plan to launch the strengthened emission control programme of petrol and LPG vehicles on **1 September 2014**. Specifically, EPD will set up mobile remote sensing equipment at roadsides to measure tailpipe emissions of the vehicles without stopping them. In the first year of implementation, remote sensing equipment will be set up at up to three locations concurrently for emission checking. Subject to the operational experience of the first year, we will consider increasing the number of check points to up to five.

6. In line with the Smoky Vehicle Control Programme that targets at mainly diesel vehicles, we will issue Emission Testing Notices (ETN) to owners of vehicles which are found to be emitting excessively as revealed by the roadside remote sensing equipment. The ETNs will require the vehicles concerned to be repaired and to pass an emission test<sup>[3]</sup> done with the aid of a chassis dynamometer at a designated vehicle emission testing centre (DVETC) within 12 working days. As compared with the current idling emission test<sup>[4]</sup> being conducted during the vehicle annual examination of the Transport Department (TD), the dynamometer-based emission test can also check the emission of NO<sub>x</sub>, which is a key air pollutant for roadside air pollution. Owners who fail to comply with the

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<sup>2</sup> A small number of light buses, whose owners missed the initial booking and made use the supplementary booking afterwards for the replacement. The deadline for the replacement for these vehicles was 15 July 2014.

<sup>3</sup> The vehicle emission standards include limits for carbon monoxide, hydrocarbons and nitrogen oxides, which are set at two times of the respective Vehicle Design Standard. The emission limits have been set out in a Code of Practice issued by the Commissioner of Transport pursuant to Part VIIIa of the Road Traffic Ordinance (Cap. 374).

<sup>4</sup> High level of NO<sub>x</sub> is emitted from a vehicle mainly when it is being driven but not idling. An idling emission test checks the emissions of a vehicle while it is idling and thus cannot check whether the NO<sub>x</sub> emission is excessive.

requirement of the ETN will have their vehicle licences cancelled. Details of the DVETC are at **Annex**.

7. At present, all commercial vehicles and private cars of more than six years old need to go through the vehicle annual examination of TD. Due to the limitations of space and equipment, the current vehicle annual examination can only identify the excessive emission of smoke, HC and carbon monoxide (CO) but not NO<sub>x</sub>. With the launch of our new remote sensing surveillance programme, it is possible that vehicles which have passed TD's vehicle annual examination might still fail in the emission tests conducted by EPD.

8. TD will upgrade the idle emission test in its vehicle annual examination to the dynamometer-based emission test. EPD and TD are discussing with the privately-run Car Testing Centres (CTCs) <sup>[5]</sup> about the upgrading of the emission test. At present, there are 22 CTCs. Subject to the availability of the equipment and space for conducting the dynamometer emission test, some of the CTCs might be ready to include the new emission test in their vehicle annual examination in 2016 or 2017.

9. To monitor the emission level of NO<sub>x</sub>, vehicle owners should liaise with vehicle repair workshops for such testing on a regular basis and to make good of any defects. It is the responsibility of vehicle owners to ensure that the emission levels of their vehicles meet the prevailing requirements of TD and EPD.

### ***Publicity and Trade Engagement***

10. To prepare vehicle owners and the vehicle repair trade for the strengthened emission control programme, EPD started offering free dynamometer emission tests in May 2014. Tentatively, the offer will last up to the end of August 2014, to tie in with the introduction of the strengthened emission control programme on 1 September 2014. The free tests have been arranged firstly for private car owners because they are less familiar with the strengthened emission control programme. We will extend the offer to owners of taxis and light buses starting from this June. We have placed advertisements in newspapers and a car magazine for promoting the free test. Assistance has also been sought from car owners' clubs to disseminate the free emission test offer and the new emission control programme.

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<sup>5</sup> Under the existing vehicle annual examination arrangement, taxis and light buses are inspected at TD's vehicle examination centres whereas all private cars and light goods vans under 1.9 tonnes are inspected at privately run CTCs.

We will closely monitor the situation for stepping up the promotion of free emission tests.

11. We will also step up the publicity about the strengthened emission control programme in July 2014 by putting up posters on bus shelter panels, tramcars and public corridors; advertising through televisions and radios; and distributing leaflets at tunnel toll stations, car parks and counters of EPD, TD and District Offices. Public seminars will also be organized for taxi, light bus and other commercial vehicle operators as well as private car owners in August 2014.

12. In March this year, we organized a carnival in Tsim Sha Tsui to promote good vehicle maintenance as a means to reduce vehicles' emissions. The event was well received with about 2,000 people visiting the exhibition booths. We are in preparation to launch another carnival this August.

13. As for the vehicle repair trade, we have been supporting vehicle mechanics to adapt to the new initiative. With the help of vehicle repair associations including the Service Managers Association, Vehicle Repair Merchant Association and taxi repair trades, we have organized 15 demonstration sessions to garage mechanics since April 2013 on the dynamometer testing of petrol and LPG vehicles to help them understand the testing and repair requirements. We also published and distributed a guideline on the emission test to vehicle repair garages for reference by their vehicle mechanics in June 2014. In addition, we are also discussing with the Pro-Act Centre of the Vocation Training Council about organizing training courses for vehicle mechanics on the emission-related repairs for passing the dynamometer emission test.

## **ADVICE SOUGHT**

14. Members are invited to note the progress of implementing the strengthened emission control programme of petrol and LPG vehicles.

**Environment Bureau /Environment Protection Department  
June 2014**

### Designated Vehicle Emission Testing Centres for Petrol/LPG Vehicles

#### Petrol/LPG Vehicles Except Light Buses

Company	Address
Dah Chong Hong (Motor Service Centre) Ltd.	G/F, 20 Kai Cheung Road, Kowloon Bay, Kowloon
Environmental Technology Consultants Ltd.	G/F., No. 92 Sung Wong Toi Road, Tokwawan, Kowloon

#### Petrol/LPG Light Buses

Company	Address
Environmental Technology Consultants Ltd.	G/F., No. 92 Sung Wong Toi Road, Tokwawan, Kowloon