

For information on
7 November 2000

Legislative Council
Panels on Environmental Affairs and Transport

Comprehensive Programme to Reduce Motor Vehicle Emissions

Progress Report

INTRODUCTION

This paper informs Members of the progress of the implementation of the Administration's comprehensive programme to reduce motor vehicle emissions.

BACKGROUND

2. The Administration announced a programme of measures to reduce motor vehicle emissions in the 1999 Policy Address. Further initiatives were announced in May 2000 to make the programme more comprehensive. The Administration has set a target of reducing the particulate and nitrogen oxides emissions from motor vehicles by 80% and 30% respectively by the end of 2005.

3. An inter-departmental Task Force chaired by the Secretary for the Environment and Food was set up in May 2000 to coordinate inter-departmental effort in implementing the programme and to examine further measures to reduce motor vehicle emissions.

PROGRESS

LPG Taxi Scheme

4. The Administration has been disbursing the one-off LPG taxi grant of \$40,000 for every diesel taxi that is replaced by an LPG one since August 2000.

Over 2,400 diesel taxis have been replaced up to end-October 2000.

5. With the opening of the five dedicated LPG filling stations, the refilling capacity now stands at 8,000 LPG taxis. A total of 12 LPG filling stations are in operation. We expect to see a sharper increase in the diesel-to-LPG taxi replacement rate in the coming months. We will be tendering out more sites for development as additional dedicated LPG filling stations. A number of existing petrol filling stations will be retrofitted with LPG facilities. Our target is to provide adequate LPG filling capacity for the entire taxi fleet of 18,000 by the end of 2001.

Phasing out Diesel Light Buses

6. We have commenced a trial of electric and LPG light buses since June 2000. 11 LPG light buses and five electric light buses are involved. They are being tried by experienced public light bus operators on existing routes.

7. A monitoring committee comprising members from relevant departments, vehicle suppliers, the light bus trade and experts in the field monitors the trial. The preliminary observations are—

- (a) no major operational problem has been encountered so far, although individual models may need further improvement in areas such as air conditioning system, engine size, suspension system, fuel tank, etc;
- (b) the need for charging facilities has restricted the operation of electric light buses to shorter or flatter routes only;
- (c) the operating cost, in terms of fuel or electricity consumption, of an LPG or electric light bus is comparable to that of a diesel one. However, the much lower auto-LPG price supplied at the dedicated LPG filling stations will make the fuel cost of an LPG light bus considerably lower than that of a diesel or electric light bus; and
- (d) some LPG light buses have to run dead mileage and wait longer for refilling since there are no convenient LPG filling facilities along their routes. The situation will improve gradually when more LPG filling facilities come into operation.

8. So far, the trial has been running smoothly. Upon the completion of the trial in early 2001, we will draw up a proposal on replacing diesel light buses with cleaner alternatives and will consult the trade and the Legislative Council.

Particulate Traps

9. In August 2000, we awarded contracts to two companies for installing particulate reduction devices on pre-Euro light diesel vehicles to reduce their particulate emissions. The available devices are particulate traps and diesel oxidation catalysts.

10. We are providing financial assistance of \$1,300 per device. For a vehicle opting for the particulate trap, the vehicle owner does not have to pay for the installation. As regards those opting for the more expensive oxidation catalysts, the vehicle owner will have to pay a balance of between \$2,700 and \$6,200 depending on the engine size of the vehicle and the catalyst model.

11. The installation programme started on 25 September 2000 and will finish on 17 October 2001. So far, about 1,000 vehicles have been installed with the particulate traps and 100 vehicles with diesel oxidation catalysts. We will continue to encourage pre-Euro light diesel vehicles to come forward to install the devices on their vehicles early. We plan to make it an additional annual roadworthiness test requirement that a pre-Euro diesel vehicle must have the device installed. We will consult the Legislative Council on the necessary legislative amendment in due course.

Diesel Catalysts

12. In collaboration with the Hong Kong Polytechnic University, we started a 12-month trial of diesel catalysts on pre-Euro heavy vehicles in February this year. The purpose is to gather the information required for us to draw up appropriate specifications for diesel catalysts that meet the need of such local vehicles. The trial is monitored by a monitoring committee comprising representatives from relevant Government departments, transport trades, Motor Traders Association and academics.

13. The trial, that involves the participation of 56 vehicles, is due for completion early next year. Suitable catalytic converters have been identified for most pre-Euro heavy diesel vehicles. However, more testing is required for

a few types of vehicle for which the suitability of certain models of catalytic converters have yet to be ascertained.

14. Subject to the trial results, we will 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 next year.

Enforcement against Smoky Vehicles

15. The resolution to increase the fixed penalty on smoky vehicles to \$1,000 was passed by the Legislative Council at its meeting on 31 May 2000. We have made a commencement notice to appoint 1 December 2000 as the effective date of the new fixed penalty level.

16. In September 1999, we introduced the advanced smoke test with the aid of a chassis dynamometer for vehicles below 5.5 tonnes. In the first 12 months of its introduction, the proportion of vehicles spotted to be repeatedly emitting excessive smoke reduced roughly by half. Compared with 1999, the average number of smoky vehicles observed in the first 10 months in 2000 reduced by 15%.

17. We aim to extend the smoke test with chassis dynamometer to heavy vehicles over 5.5 tonnes around the end of this year. We will discuss with the transport trade before its formal introduction. Same as for the introduction of the test for light vehicles, we will work with the trade to help them understand better how the new test will operate.

18. Operators of vehicle emission testing centres will incur addition capital cost and higher operating cost as a result of the introduction of the chassis dynamometer tests. The Service Managers Association, who represents the operators of the vehicle emission testing centres, has raised concern with the Administration. We will conduct a review on the appropriateness of maintaining the current testing fee level of \$310. Any proposal to revise the fee will require the approval of the Legislative Council through a negative vetting process.

Promoting Proper Maintenance and Eco-driving Technique

19. The Vocational Training Council has started since March 2000 a dedicated course for in-service vehicle mechanics to enhance their knowledge in

diagnosing and repairing smoky diesel vehicles. The course covers the advanced smoke test on a chassis dynamometer. So far, the Council has held 15 courses and trained 180 in-service mechanics. It will hold five more courses this year. The Council is able to provide training for 2,000 in-service mechanics a year.

20. In order to raise the standard of service of the vehicle maintenance trade, the Working Group on Vehicle Maintenance Services, comprising representatives from the trade, government departments and professional bodies, was set up in this January to look at issues such as provision of training to vehicle mechanics, availability of technical data to the vehicle maintenance trade, feasibility of implementing a licensing system for vehicle mechanics, etc. The Working Group aims to put forward recommendations for the Administration's consideration early next year.

21. The Environmental Protection Department (EPD) has organised six seminars on eco-driving for drivers to promote good driving and maintenance habits since the end of 1999. The seminars are well received. The Department is planning to organise 2 to 3 more seminars in the first half of 2001. More seminars will be held subject to demand.

22. In June 2000, the EPD launched a 3-month campaign to increase the awareness of vehicle owners on the need of proper vehicle maintenance by providing free chassis dynamometer smoke emission tests. Altogether 55 vehicles made use of the arrangement.

Emission Requirements for Newly Registered Vehicles and Motor Diesel

23. We will apply Euro III emission standards to newly registered vehicles of gross weight not exceeding 3.5 tonnes from 1 January 2001, in parallel with the European Union. The legal limit of sulphur content in motor diesel will be tightened to 0.035% at the same time. A vehicle meeting Euro III standard will emit about 38% less particulates and 20% less hydrocarbon and nitrogen oxides than its equivalent Euro II model, and 88% less particulates and 62% less hydrocarbon and nitrogen oxides than pre-Euro models.

Ultra-low Sulphur Diesel (ULSD)

24. The sulphur content of ULSD is not more than 0.005%. Its application can reduce the emissions from a diesel vehicle of particulates from

10 to 30% and of nitrogen oxides about 5%. It can reduce smoke too. To encourage its use by motor vehicles, the Administration is imposing a concessionary fuel duty on ULSD. The new fuel is now widely available at all petrol filling stations.

25. ULSD has a very positive effect on preventing a vehicle from emitting excessive smoke. In the past three months after its introduction, the number of smoky taxis, light good vehicles and light buses spotted have been reduced by 32%, 16% and 49% respectively, as compared with the same period of last year.

Biodiesel

26. EPD will be launching a trial on the use of biodiesel in local vehicles. The trial, which will last for six months initially, will test both the emissions and the roadworthiness of using the fuel in local vehicles. The Department is inviting relevant parties including representatives from government departments, transport trade, Motor Traders Association and academics to set up a monitor committee to oversee the trial.

Enhanced Hydrocarbon Recovery System

27. By April 1999, the all petrol filling stations have already been fitted with recovery devices to capture prevent any fugitive hydrocarbon emissions during the replenishment of their petrol storage tanks. We are exploring with the oil companies the feasibility of recovering the petrol vapour during vehicle refilling too. Our plan is to put forward a proposal in 2001.

Strengthened Enforcement on Illegal fuel

28. The Dutiable Commodities (Amendment) Bill 2000 will be introduced into the Legislative Council on 8 November seeking to add a presumption to the effect that light diesel oil found in the fuel tank of a motor vehicle with a sulphur content in excess of the maximum sulphur content (at present 0.05%) prescribed under the Air Pollution Control (Motor Vehicle Fuel) Regulations is presumed to be dutiable. The presumption is primarily targeted at the use of illicit fuel, in particular, the use of detreated oil and duty-not-paid oil smuggled into Hong Kong from other places. These two kinds of fuel are no different through spot checks at roadblocks. However, they can be distinguished from duty-paid diesel by their higher sulphur content. The current Air Pollution Control (Motor Vehicle Fuel) Regulations prohibit the supply for vehicular use of light diesel oil with sulphur content higher than 0.05% by weight and only

light diesel oil with sulphur content at or below 0.05% is available from legitimate sources. Any such oil with a sulphur content above 0.05% is therefore very likely to be detreated oil or duty-not-paid light diesel oil. Even where it can be proved that vehicular diesel oil has excessive sulphur content, C&ED is still required under the existing Ordinance to prove that the oil in question is duty-not-paid before it can proceed to prosecute those involved. The presumption will enhance the enforcement capability of C&ED.

Emission Check for Petrol and LPG Vehicles

29. Better maintenance significantly reduces vehicle emissions. Although petrol vehicles and LPG vehicles are cleaner than diesels, they still need good maintenance to keep their emissions low. From this month, an emission check will be included in the roadworthiness inspection, with the inspection fee remains unchanged, for the licence renewal of petrol vehicles and LPG vehicles.

Restricting Entry of Certain Vehicles to Traffic and Pedestrian-busy Districts on High Air Pollution Index (API) Days

30. We have studied the feasibility of restricting entry of certain types of vehicles such as goods vehicles from entering traffic and pedestrian-busy districts when the API in the district concerned is very high and have also consulted the District Councils. District Council members are of the view that such a measure would be difficult to apply in practice. It is because API varies from district to district and is not stable. As such, it would cause drivers and members of the public a lot of confusion. It would be very difficult to communicate effectively to the public on when the restrictions would apply and when they would be lifted. It would also be difficult to delineate the restriction zones. We agree with them that implementing such contingency measures would be a non-starter.

Control of Idling Engines

31. The Task Force has completed the consultation with the District Councils on the control of idling engines. The District Councils in general agreed that there should be control over idling engines but considered that exemptions should be given to public transport and those vehicles which need to keep their engine running for operational reasons. The Task Force is presently consulting the transport trades on the matter, and upon completion of the consultation, will draw up a proposal for consultation with the Legislative Council and other relevant parties.

WAY FORWARD

32. The Task Force to Improve Air Quality will be looking at the following initiatives in the coming months–

- (a) Phasing out other diesel vehicles where practicable;
- (b) Restricting amount of fuel carried by cross-boundary vehicles;
- (c) Incentives for introduction of cleaner fuel vehicles;
- (d) Disincentives to maintain older and more polluting vehicles; and
- (e) Cleaner fuel for non-motor vehicle diesel users.

Environment and Food Bureau

November 2000