

**For discussion on
15 May 2013**

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

Retirement of Pre-Euro IV Diesel Commercial Vehicles

PURPOSE

This paper seeks Members' views on the proposal to phase out pre-Euro IV diesel commercial vehicles through an incentive-cum-regulatory approach and to limit the service life of newly registered diesel commercial vehicles at 15 years as proposed in the 2013 Policy Address.

BACKGROUND

2. As at end December 2012, there were some 129,000 diesel commercial vehicles (excluding franchised buses)¹ in Hong Kong. In 2011, they accounted for 90% of respirable suspended particulates (RSP) and 50% of nitrogen oxides (NOx) emissions from all vehicles and posed a direct health threat to the public. A profile of the registered diesel commercial vehicles is at **Annex A** and the emission levels from these vehicles are at **Annex B**. In June 2012, the International Agency for Research on Cancer (IARC) of World Health Organization (WHO) declared diesel engine exhaust as carcinogenic to humans. To address the health risks, we need to retire as soon as practicable the heavily polluting ones in the diesel commercial fleet.

3. Despite the general improvement of the air quality at the ambient level after the introduction of a series of air quality improvement

¹ Among the 129,000 diesel commercial vehicles, 122,000 are with valid vehicle licences.

measures, the roadside air pollution has worsened. Between 2006 and 2012, the roadside nitrogen dioxide (NO₂) level increased by 24%, resulting in the number of days with air pollution index exceeding 100 (i.e. reaching very high level) at the roadsides rising from 57 days to 145 days.

4. Among the 129,000 diesel commercial vehicles, about 86,000 or two-third are pre-Euro IV diesel commercial vehicles. These vehicles together emit about 90% of RSP and 80% of NO_x from all diesel commercial vehicles. To expedite the phasing out of heavily polluting diesel commercial vehicles, the Government launched two voluntary incentive schemes – one in 2007 for pre-Euro and Euro I diesel commercial vehicles with a take-up rate of about 30% and the other in 2010 for Euro II ones with a take up rate of 18% as at end-March 2013. The incentive scheme for Euro II diesel commercial vehicles will end on 30 June 2013.

5. The lukewarm response to the two voluntary incentive schemes underlines the need for more resolute actions to phase out heavily polluting diesel commercial vehicles. In the 2013 Policy Address, the Chief Executive proposed to phase out pre-Euro IV diesel commercial vehicles with greater financial incentives and put in place more stringent regulatory measures.

THE PROPOSAL

6. Under the proposal, the Government will –
- (a) offer an ex-gratia payment up to 30% of the taxable values of new vehicles to vehicle owners for phasing out their pre-Euro IV diesel commercial vehicles. Details of the proposed payment level are at **Annex C**. Unlike previous incentive schemes, ex-gratia payment will also be provided to vehicle owners who scrap their pre-Euro IV diesel commercial vehicles without replacement by new vehicles. The payment level will be inversely correlated with the age of the vehicle to be scrapped and will remain the same throughout the scheme period. This will give extra impetus for vehicle owners to take actions earlier;

- (b) stop the renewal of licences for pre-Euro IV diesel commercial vehicles with effect from specified dates. The proposed ban will be implemented in phases, with the banning of the most polluting pre-Euro and Euro I vehicles on 1 January 2016, and Euro II on 1 January 2017 and Euro III on 1 January 2019 respectively; and
- (c) set a statutory retirement age of 15 years for newly registered diesel commercial vehicles. This will provide a long term solution to the pollution problem caused by aged diesel commercial vehicles through a continued upgrading in the emission standard of the commercial vehicle fleet.

7. To take forward the above proposal, the Government has earmarked \$10 billion for the proposed ex-gratia payment to facilitate the early phasing out of heavily polluting diesel commercial vehicles with effect from specified dates. Subject to the positive feedback in the consultation with the transport trades and the support of Legislative Council (LegCo), our plan is to seek funding approval from the Finance Committee for the ex-gratia payment after the LegCo approves the legislative proposal for effecting the proposed ban on licence renewal.

ENVIRONMENTAL AND PUBLIC HEALTH IMPLICATIONS

8. Phasing out all pre-Euro IV diesel commercial vehicles will help improve roadside air quality and reduce the cancer risk associated with the exposure to diesel engine exhaust. Our assessment is as follows –

- (a) If the proposals as in paragraph 6 above are implemented, the emissions of RSP and NO_x from vehicles will be reduced by 80% and 30% respectively. The reduction would help PM₁₀ and PM_{2.5} levels at roadside meeting the respective proposed new Air Quality Objectives (AQO), which will take effect in 2014. It will lead to a reduction in the estimated number of premature deaths due to long-term exposure to these pollutants by around 14% per annum. The reduction of cancer risk due to exposure to diesel engine exhaust is estimated to be around 50% per annum; and

- (b) Upon the replacement of these vehicles by Euro V ones according to the proposed schedules, together with the implementation of other committed air quality improvement measures, the NO₂ concentrations will broadly meet the new AQO at the ambient level by 2020. At busy corridors, the NO₂ concentrations will be reduced by about 40%, and we will pursue additional measures to further improve roadside air quality.

CONSULTATION

9. We have consulted the relevant trades (including transport operators, vehicle vendors, vehicle body builders and vehicle scrapping agents) about the proposal. Their key concerns are on four areas, namely the level of ex-gratia payment, the phasing out timetable, the 15-year service life limit for diesel commercial vehicles newly registered after the commencement of the relevant legislation, and the transitional arrangement before the commencement of the new scheme.

Level of Ex-gratia Payment

10. The trades are unanimously seeking a higher level of ex-gratia payment. Some have suggested increasing the ex-gratia payment from 30% to 40% or even 50% for vehicles aged 10 or below, with a similar increase to be made to other vehicle age bands. Many of them also suggest abolishing the lower tier of ex-gratia payment, i.e. the payment level will only be linked with the age of the phased-out vehicles irrespective of whether a new replacement vehicle will be acquired. Some goods vehicle operators also suggest waiving the first registration tax of goods vehicles or reducing it to the same level as coaches or light buses.

11. Coach operators have suggested that the proposed ex-gratia payment should be linked to the vehicle class of the replacement vehicles. As an example, when replacing a large bus (over 30 passengers) with a small one (up to 30 passengers), the ex-gratia payment should be calculated in accordance with the payment level of the small replacement vehicle (which is the practice adopted in the incentive schemes for the

early replacement of pre-Euro/Euro I and Euro II diesel commercial vehicles). For the reverse case, the amount of ex-gratia payment should also be calculated based on the large replacement vehicle (which is contrary to the current practice).

Phasing-out Timetable

12. Regarding the phasing-out timetable, the major concern of vehicle owners is on the commencement date for non-vehicle licence renewal for Euro III vehicles that fall on 1 January 2019. By then, the youngest Euro III diesel commercial vehicle will only be about 13 years. Some have suggested postponing the commencement date by two years or more. They are also concerned about the capacity of the goods vehicle body building trade. Goods vehicle body builders suggest a minimum period of 24 months be allowed for phasing out pre-Euro II goods vehicles. They also consider it necessary to allow 24 months for phasing out Euro II and Euro III goods vehicles each.

15-Year Service Life Limit for Newly Registered Diesel Commercial Vehicles

13. The 15-year service limit for new diesel commercial vehicles is not a key focus of the transport trades because its effect would be felt only in a longer term. Some however have suggested extension of the service life limit from 15 years to 18 years.

Transitional Arrangements

14. Coach and light bus operators, vehicle vendors, and vehicle body builders urge for a seamless transition from the current voluntary Euro II scheme to the new scheme, which means commencing the new scheme right after the expiry of the current Euro II incentive scheme or providing retrospective arrangement for the eligible vehicles scrapped before the commencement of the proposal. Owing to operational needs, passenger-carrying vehicle operators will have to replace their old vehicles. They are now indecisive on the replacement, particularly for those who own Euro II vehicles that are being offered a voluntary incentive scheme. Vehicle vendors and vehicle body builders are now adversely affected because many commercial vehicle owners have put on

hold their vehicle replacement plan pending a final decision of the Government on the proposal.

Others

15. Some have suggested that the government should allow the option of upgrading or repowering existing engines of old vehicles instead of scrapping these vehicles. However, this view is only held by a small minority of the transport trades.

16. We consulted the Advisory Council on Environment and the Transport Advisory Committee on the proposal in March 2013. They both supported the proposal of phasing out pre-Euro IV diesel commercial vehicles through an incentive-cum-regulatory approach and setting a statutory retirement age of 15 years for newly registered diesel commercial vehicles. Members of the two committees agreed that the proposed scheme is critical for improving roadside air quality and reducing health risks to the public.

17. The green groups in general welcome the government's proposed incentive-cum-regulatory approach to get the polluting diesel commercial vehicles off the road as early as practicable, as this would be far more certain and effective than just providing financial incentives for vehicle replacement on a voluntary basis as in the past. However, some have also urged the government to spend public money prudently as a very large sum of ex-gratia payment is proposed. A reasonable but short deadline must be set to complete the replacement exercise as soon as practicable so as to bring most benefits to society. They support the principle that more financial support should be given to those owners who are willing to replace their aging vehicles earlier.

18. The medical professionals also welcome the proposal which demonstrates Government's commitment to improving air quality and protecting public health by reducing emissions at source and reducing people's exposure to toxic air pollutants at roadsides.

ADVICE SOUGHT

19. Members' views are sought on the proposal outlined in paragraph 6 above.

Environmental Protection Department
May 2013

Annex A

Profile of Registered Diesel Commercial Vehicles (as at end of December 2012)

Engine Standard (Years of service)	Light Goods Vehicles		Medium Goods Vehicles (5.5<gvw<=24 T)		Heavy Goods Vehicles (gvw>24 T)		Non-franchised Bus		Public Light Bus (diesel)		Private Light Bus (diesel)		All Diesel Commercial Vehicles	
	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>	<i>No. of vehicles</i>	<i>% of total</i>
Pre-Euro (18+ years)	10,625	8.2%	7,629	5.9%	678	0.5%	192	0.1%	15	0.0%	329	0.3%	19,468	15.0%
Euro II (15-18 years)	9,643	7.4%	2,509	1.9%	316	0.2%	140	0.1%	315	0.2%	371	0.3%	13,294	10.3%
Euro II (12-15 years)	12,681	9.8%	6,645	5.1%	882	0.7%	1,013	0.8%	540	0.4%	375	0.3%	22,136	17.1%
Euro III (7-12 years)	17,608	13.6%	9,670	7.5%	516	0.4%	2,687	2.1%	389	0.3%	156	0.1%	31,026	24.0%
Euro IV or above (0-7 years)	24,335	18.8%	12,817	9.9%	1,954	1.5%	3,580	2.8%	218	0.2%	634	0.5%	43,538	33.6%
Total	74,892	57.8%	39,270	30.3%	4,346	3.4%	7,612	5.9%	1,477	1.1%	1,865	1.4%	129,462	100%

Emissions from diesel commercial vehicles

The following table shows the emissions from the 122 000 licensed diesel commercial vehicles. The emissions of RSP and NO_x of pre-Euro IV vehicles are 5 to 34 times and 2.5 to 4.5 times as much as those of Euro V vehicles respectively.

Euro Grading	No. of licenced vehicles	Years of Service (by end-2012)	% of the diesel fleet	% contribution to the overall vehicular RSP emission	% contribution to the overall vehicular NO _x emission	% contribution to the overall vehicular NO ₂ emission
Pre-Euro	16 000	Over 18	13%	41%	9%	6%
Euro I	12 000	15-18	10%	15%	5%	4%
Euro II	21 000	12-15	17%	18%	14%	10%
Euro III	30 000	7-12	25%	12%	14%	8%
Euro IV and V	43 000	Less than 7	35%	6%	9%	12%

**“Carrot and Stick” Approach to Phase Out
Pre-Euro IV Diesel Commercial Vehicles**

Proposed Ex-gratia Payment for Owners

	Age of Scrapped vehicles and Ex-gratia Payment Level				
	18 years or above	16 years - below 18 years	13 years - below 16 years	10 years - below 13 years	Below 10 years
Those who do not seek replacement by newly registered vehicles	10%	12%	14%	16%	18%
Those who replace them with newly registered vehicles of the same class	18%	21%	24%	27%	30%

**Proposed Timetable for Non-renewal of Licences for
Pre-Euro IV Diesel Commercial Vehicles**

	Pre-Euro II	Euro II	Euro III
Date after which the vehicle licence will not be renewed	1 Jan 2016	1 Jan 2017	1 Jan 2019
Range of age of the vehicles by the proposed date of non-renewal of vehicle licence	Nearly over 18 years	16 to 19 years	13 to 18 years