For discussion on
20 December 2006

LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Encouraging owners of Pre-Euro and Euro I diesel commercial vehicles to replace their vehicles by offering one-off grant

PURPOSE

This paper consults Members on a proposal to encourage the early replacement of pre-Euro and Euro I diesel commercial vehicles [Note 1] with Euro IV models by a time-limited one-off grant.

THE PROPOSAL

2. The Chief Executive announced in the Policy Address that we would encourage owners of old diesel commercial vehicles to replace their old vehicles by offering one-off grant.

3. Under the proposal –

(a) a one-off grant of the amount set out at **Annex A** will be provided to vehicle owners for scrapping their pre-Euro and Euro I diesel commercial vehicles and replacing them with new Euro IV commercial vehicles;

(b) the grant will be made available, upon the launching of the scheme, for 18 months for pre-Euro diesel commercial vehicles, except those pre-Euro vehicles over four tonnes of long-idling operational mode that have been retrofitted with emission reduction devices under the Government's incentive scheme [Note 2]; and three years for Euro I diesel

[Note 1] Pre-Euro vehicles were first-registered before 1 April 1995, whereas Euro I vehicles were first registered between 1 April 1995 and 31 March 1997 for buses and goods vehicles over 4 tonnes, and between 1 April 1995 and 30 September 1998 for other diesel commercial vehicles. For the purpose of this incentive scheme, "commercial vehicles" include light/medium/heavy goods vehicles, private/public light buses, and private/public non-franchised buses.

[Note 2] From June to December 2005, the Government implemented an incentive scheme offering a one-off grant for pre-Euro diesel vehicles over four tonnes of long-idling operational mode to install emission reduction devices. About 2 500 eligible vehicles had been retrofitted under this scheme.

commercial vehicles and those pre-Euro vehicles over four tonnes of long-idling operational mode that have been retrofitted with emission reduction devices under the Government's incentive scheme; and

(c) the grant will be pegged to the category to which the original vehicle or the replacement vehicle belongs, whichever is the less.

4. Subject to the funding approval by the Finance Committee (FC) of the Legislative Council, we aim to introduce the scheme from 1 April 2007.

JUSTIFICATIONS

5. Road vehicles are the second largest source of air pollution in Hong Kong, contributing to 25% and 27% of the territory-wide emissions of respirable suspended particulates (RSP) and nitrogen oxides (NOx) respectively. Of the vehicle fleet, diesel commercial vehicles are key contributors to air pollution, accounting for 90% and 80% of the total vehicular emission of RSP and NOx respectively. The emission data of all vehicles vis-à-vis diesel commercial vehicles are at **Annex B**. Compared with their actual numbers, pre-Euro and Euro I diesel commercial vehicles account for a disproportionately large share of emissions from the diesel commercial vehicle fleet –

Euro Grading	% of the diesel fleet	% contribution to RSP emission	% contribution to NOx emission
Pre-Euro	36	60	51
Euro I	17	18	15
Euro II, III and IV	47	22	34

6. Compared with their Euro IV counterparts, pre-Euro vehicles emit 30 times more RSP and two times more NOx whereas Euro I vehicles emit 15 times more RSP and 1.5 times more NOx. If all pre-Euro and Euro I diesel commercial vehicles are replaced by Euro IV models, the vehicular emissions of RSP and NOx will be reduced by 74% and 38% respectively. The territory-wide emissions of RSP and NOx will be reduced by 18% and 10% respectively. If the background air pollution level remains unchanged, the emission reduction will bring marked improvement to roadside air quality.

7. In the current fleet, many of the pre-Euro vehicles either exceed or are close to their normal service life (12 to 15 years). Their residual values could in theory be minimal. However, few owners will be willing to scrap them unless a financial incentive is given. Assuming that on average such vehicles can operate for one to two more years, it is proposed to set an incentive at 12%

of the average vehicle taxable value of the newly registered vehicles in the same class [Note 3]. The grant is comparable to the level of the First Registration Tax (15%) for medium and heavy goods vehicles.

8. Euro I vehicles are relatively younger and some of them are within their normal service life. We propose to provide owners with a grant at 18% of the vehicle taxable value of newly registered vehicles in the same class which is 50% higher than the proposed incentive level for pre-Euro vehicles. The grant serves to compensate the owners for their losses and to maintain the attractiveness of the scheme.

9. Light buses that run on liquefied petroleum gas (LPG) are more environment friendly than diesel models. Both electric and LPG light buses are available on the market. Making reference to an incentive scheme for electric/LPG light buses completed in end-2005, we propose that the owner of a pre-Euro or Euro I diesel light bus will be eligible for an incentive of $80,000 for replacement with an electric light bus, and an incentive of $60,000 for replacement with a Euro IV LPG light bus. On the other hand, since there are a number of light buses providing services along routes which are not close to LPG filling stations, these operators would prefer diesel replacement. Therefore, we propose to offer an incentive at the level of $40,000 to encourage them to replace their pre-Euro and Euro I diesel light buses with Euro IV diesel models. The different levels of incentives for electric, LPG and diesel light buses reflect their relative order of environmental benefits.

CONSULTATION

10. We have consulted the relevant transport trades about the proposal. They are all in support of the proposal with the additional suggestions as follows –

(a) the Government should not compel the retirement of pre-Euro and Euro I diesel commercial vehicles by legislation or other means;

(b) vehicle owners who have already scrapped their pre-Euro or Euro I diesel commercial vehicles and replaced them with Euro IV commercial vehicles before the commencement of the scheme should also be eligible for the grant;

(c) the grant should remain pegged to the category to which the original

[Note 3] Average vehicle taxable value during the period from 1 June 2005 to 31 May 2006 is taken as the reference period for computation.

vehicle belongs even if the replacement vehicle belongs to a category with a lower incentive level;

(d) some cross-boundary transport operators asked for the one-off grant to be doubled and the incentive period be extended to three and six years for pre-Euro and Euro I vehicles respectively;

(e) some transport trade members suggested that eligible vehicle owners should not be required to acquire replacements, and in other words, they should be given the grant solely for scrapping their vehicles; and

(f) some members of the non-franchised bus trade have suggested the vehicle manufacture date or the engine emission design standard be taken as a criterion for determining the eligibility for the grant. Their argument is that during the transition to a tighter emission standard, some vehicles that met the old standard might still be on sale after introducing a new standard because of stock clearance; and some vehicles that met the tighter standard entered the market earlier than the introduction. Thus, vehicle emission design standard should be adopted as a criterion.

11. We have also consulted vehicle suppliers including the Hong Kong Motor Traders Association (HKMTA), the Right Hand Drive Motors Association and authorised dealers who are not HKMTA members. They are all in support of the proposal.

12. We have carefully considered the views summarised in paragraph 10. Our response is set out below –

(a) the Government has no plans to make the retirement of pre-Euro and Euro I diesel commercial vehicles mandatory. Vehicle replacement can be a heavy financial burden to operators because of its substantial capital investment. If these vehicles are mandated to retire, those who cannot afford to replace their vehicles will be forced to go out of business;

(b) if approved by FC, the grant scheme will come into effect on 1 April 2007;

(c) pegging the amount of the grant to the category of the original vehicles irrespective of what replacement vehicles the owners purchase will enable the vehicle owners concerned to pocket part of the grant if Euro

IV commercial vehicles with a lower incentive level are acquired as replacements. This is not in conformity with the purpose of the grant scheme and the principle of public finance management;

(d) we do not consider that there is a good case to double the grant for cross-boundary diesel commercial vehicles. We also have reservation on the extension of the grant period because such extension will defeat the purpose of encouraging early replacement of these polluting vehicles with new Euro IV vehicles;

(e) we make the acquisition of Euro IV replacement diesel commercial vehicles a pre-requisite for the grant as the purpose of the proposed scheme is to help those who will stay in the business but not to provide extra cash for those winding up their business; and

(f) vehicles seeking first registration will have to observe the emission standards set out in the Air Pollution Control (Vehicle Design Standard) (Emissions) Regulations (Cap 311J). Thus, the first registration date is suitable for distinguishing vehicles first-registered under different emission requirements prevailing at the time of their first registration. Moreover, it is easy to be understood by vehicle owners, who can plan for the replacement of their pre-Euro and Euro I diesel commercial vehicles accordingly. The same approach is being used with success in mandating the installation of emission reduction devices in pre-Euro diesel vehicles.

FINANCIAL AND CIVIL SERVICE IMPLICATIONS

13. It is estimated that the proposed scheme will cost the Government some $ 3,176 million if all eligible vehicle owners take up the grant. The detailed calculations are set out at **Annex C**.

14. In addition, the Transport Department will deploy time-limited resources of about $3.53 million for administering the grant.

ADVICE SOUGHT

15. Members' views are sought on the proposal.

LPG/ELECTRIC PUBLIC LIGHT BUS GRANT SCHEME

16. The Government completed in 2005 a one-off grant scheme to encourage early replacement of diesel public light buses with LPG or electric light buses. As requested by Members at the meeting of 27 November 2006, information on the effectiveness of the scheme is set out at **Annex D**.

Environmental Protection Department
December 2006

Annex A

Incentive Levels

Incentive for goods vehicles

Goods vehicle	Designed Weight (W)	Pre-Euro	Euro I
Light goods vehicle (non-van type)	W ≦1.9 t	$17,000	$25,000
	1.9 t＜W≦5.5 t	$29,000	$43,000
Light goods vehicle (van type)	W≦1.9 t	$10,000	$14,000
	1.9t＜W≦5.5 t	$20,000	$30,000
Medium goods vehicle	5.5t＜W≦10 t	$34,000	$51,000
	10t＜W≦13 t	$41,000	$61,000
	13t＜W≦16 t	$52,000	$77,000
	16t＜W≦24 t	$65,000	$97,000
Heavy goods vehicle	24t＜W	$76,000	$113,000

Remark: ***For weight, the unit "t" means tonnes.***

Incentive for non-franchised public buses and private buses

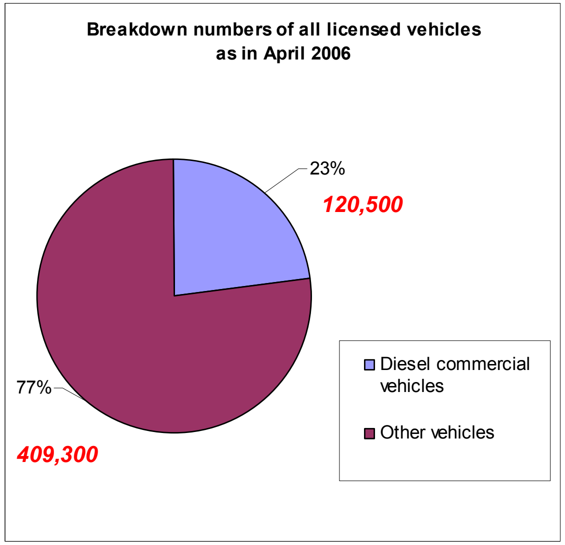
Non-franchised public buses and private buses	Pre-Euro	Euro I
17- 30 seats	$48,000	$73,000
31 seats and above	$115,000	$173,000

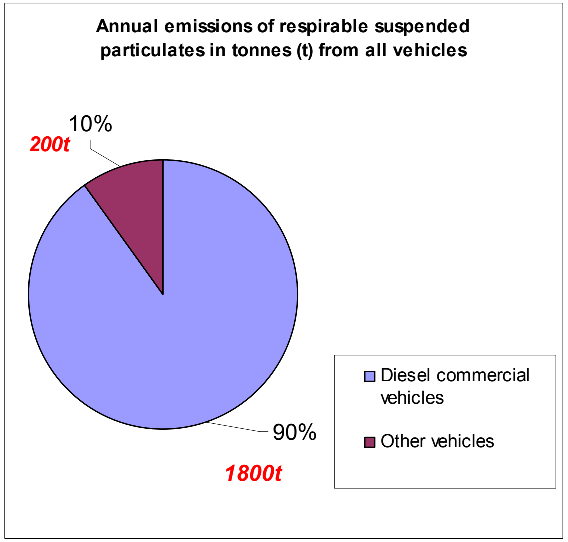
Incentive for public light buses and private light buses

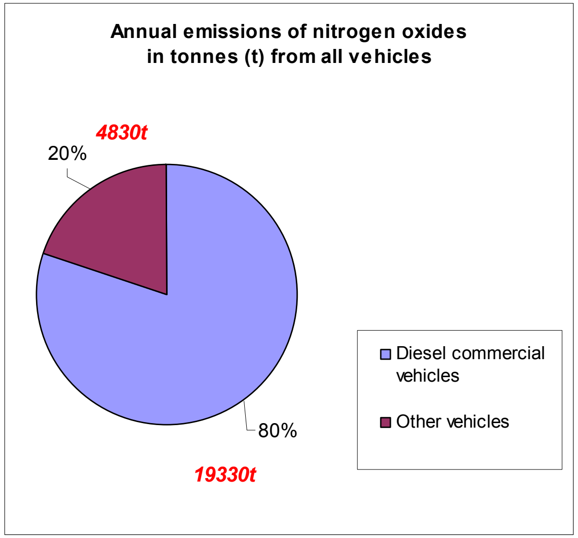
In-use old diesel light buses	Replacement (Include public and private light buses)		
	Electric Light bus	Euro IV LPG light bus	Euro IV Diesel light bus
Pre-Euro and Euro I	$80,000	$60,000	$40,000

<u>Annex B</u>

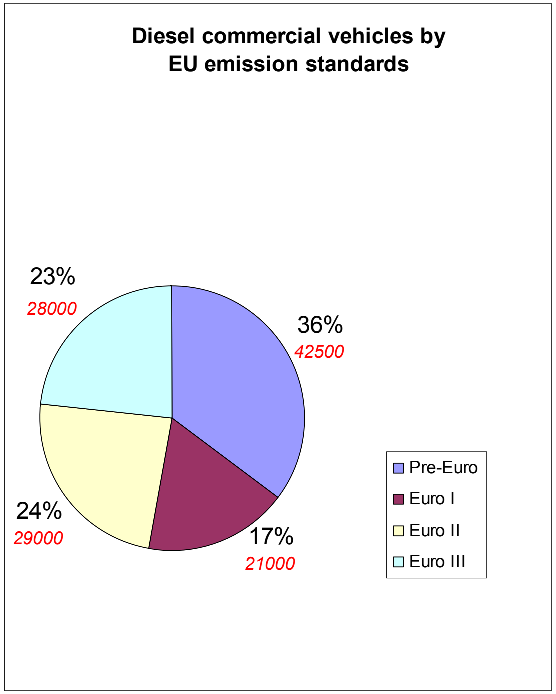
All licensed vehicle distribution by vehicle types and their emission contributions

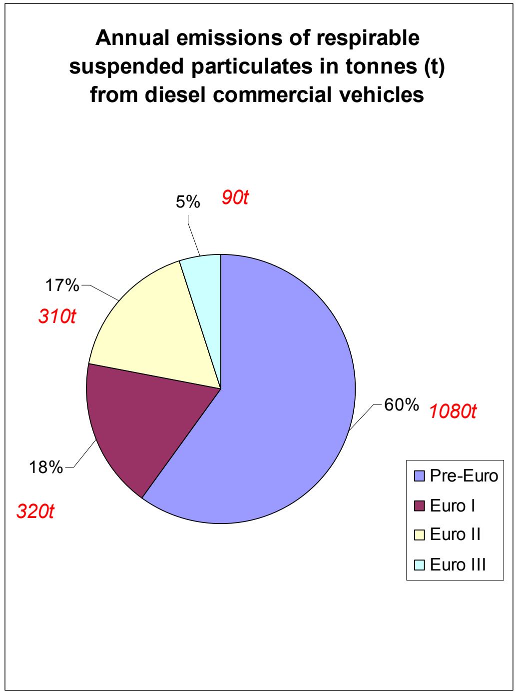


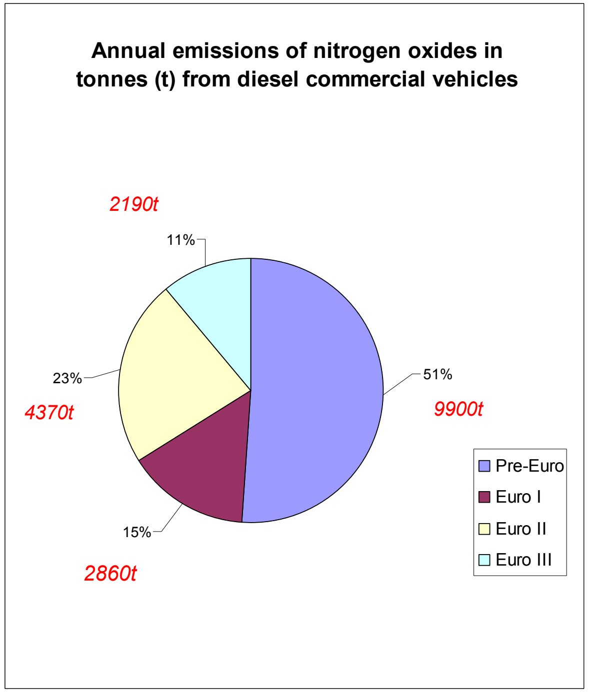




Diesel commercial vehicles by emission standards and their emission contributions







Annex C

Revenue Implication

Light Bus Total Incentive
105,000,000

Public and Private Light Bus (LPG Replacement)
Assuming 50% of the replacement vehicles are LPG models.

	Number	Incentive per	Total Incentive
	1,050	60,000	63,000,000
Subtotal	1,050		63,000,000

Public and Private Light Bus (Diesel Replacement)
Assuming 50% of the replacement vehicles are diesel models.

	Number	Incentive per	Total Incentive
	1,050	40,000	42,000,000
Subtotal	1,050		42,000,000

Light goods vehicle (Non-Vans)
708,217,000

Light Goods vehicles (Non Vans, weight ≦ 1.9 t)
Average taxable value 140,000

	Number	Incentive per	Total Incentive
pre-Euro	1	17,000	17,000
Euro I	-	25,000	-
Subtotal	1		17,000

Light Goods vehicles (Non Vans, 1.9< weight ≦ 5.5t)
Average taxable value 240,000

	Number	Incentive per	Total Incentive
pre-Euro	13,300	29,000	385,700,000
Euro I	7,500	43,000	322,500,000
Subtotal	20,800		708,200,000

Light goods vehicles (Vans)
560,500,000

Light Goods vehicles (Vans, weight ≦ 1.9 t)
Average taxable value 80,000

	Number	Incentive per	Total Incentive
pre-Euro	800	10,000	8,000,000
Euro I	-	14,000	-
Subtotal	800		8,000,000

Light Goods vehicles (Vans, 1.9< weight ≦ 5.5t)
Average taxable value 165,000

	Number	Incentive per	Total Incentive
pre-Euro	12,325	20,000	246,500,000
Euro I	10,200	30,000	306,000,000
Subtotal	22,525		552,500,000

Medium goods vehicles Total
1,392,400,000

Medium Goods vehicles (5.5 < weight ≦ 10t)

Average taxable value 284,000

	Number	Incentive per	Total Incentive
pre-Euro	2,200	34,000	74,800,000
Euro I	300	51,000	15,300,000
Subtotal	2,500		90,100,000

Medium Goods vehicles (10 < weight ≦ 13t)

Average taxable value 340,000

	Number	Incentive per	Total Incentive
pre-Euro	1,300	41,000	53,300,000
Euro I	400	61,000	24,400,000
Subtotal	1,700		77,700,000

Medium Goods vehicles (13 < weight ≦ 16t)

Average taxable value 430,000

	Number	Incentive per	Total Incentive
pre-Euro	11,700	52,000	608,400,000
Euro I	2,400	77,000	184,800,000
Subtotal	14,100		793,200,000

Medium Goods vehicles (16 < weight ≦ 24t)

Average taxable value 540,000

	Number	Incentive per	Total Incentive
pre-Euro	4,100	65,000	266,500,000
Euro I	1,700	97,000	164,900,000
Subtotal	5,800		431,400,000

Heavy goods vehicles Total
147,700,000

Heavy Goods vehicles (24 < weight)

Average taxable value 630,000

	Number	Incentive per	Total Incentive
pre-Euro	1,200	76,000	91,200,000
Euro I	500	113,000	56,500,000
Subtotal	1,700		147,700,000

Non-franchised public buses +
262,343,000

Non-Franchised Public Buses and Private Buses (17-30 seats)

Average taxable value 404,000

	Number	Incentive per	Total Incentive
pre-Euro	460	48,000	22,080,000
Euro I	460	73,000	33,580,000
Subtotal	920		55,660,000

Non-Franchised Public Buses and Private Buses (31 seats and above)

Average taxable value 960,000

	Number	Incentive per	Total Incentive
pre-Euro	675	115,000	77,625,000
Euro I	746	173,000	129,058,000
Subtotal	1,421		206,683,000

Grand Total **3,176,160,000**
(About 3.2 billion)

Summary

Vehicle profile			
Emission standard	**Number**	**%**	**Total Incentive**
pre-Euro	49,161	66%	1,886,622,000
Euro I	25,206	34%	1,289,538,000
Total	**74,367**		**3,176,160,000**

Annex D

Effectiveness of the one-off grant to encourage diesel public light bus owners to replace their vehicles with liquefied petroleum gas or electric light buses

The one-off grant scheme that the Government completed in 2005 for diesel public light buses was effective in encouraging their early replacement with liquefied petroleum gas (LPG) light buses.

2. Under the scheme, 2,370 diesel public light buses (i.e. about 55% of the public light bus fleet) were replaced by LPG light buses. The average age of these diesel public light buses at the time of replacement was 11.6 years. This is much shorter than the normal working lifespan of a public light bus, which is 14 years. Without the one-off grant, many of these old diesel light buses would still be in operation. In addition, many of these old diesel light buses would have been replaced by Euro III diesel light buses instead of LPG ones. Compared with LPG light buses, which emit virtually no particulates, Euro III diesel light buses emit a lot more respirable particulates and 100% more nitrogen oxides.

3. As at end October 2006, the LPG public light bus fleet has grown to 2,436 (i.e. 56% of the public light bus fleet). From January to October 2006, nearly 80% of the newly registered public light buses were LPG vehicles.

4. So far, no electric public light bus has been registered for use in Hong Kong. Electric public light buses have not been popular because the frequent charging of their batteries is a major operational constraint to public light bus operators.