For Discussion on
24 January 2011

LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Trial of Hybrid Buses by Franchised Bus Companies

PURPOSE

This paper seeks Members' views on the proposal for funding the full cost of procuring six hybrid buses for trial by the franchised bus companies in Hong Kong.

BACKGROUND

2. Franchised buses are one of the major causes of roadside air pollution on busy corridors such as those in Causeway Bay, Central and Mong Kok. Reducing emissions from franchised buses by deploying cleaner buses to run along these corridors could bring about improvement to roadside air quality.

3. The Chief Executive announced in his Policy Address last October that the ultimate policy objective of the Government is to have zero emission buses running across the territory. When the current bus franchises expire in the coming few years, additional requirements will be imposed in the franchises for the bus companies to switch to zero emission buses or the most environmental-friendly buses when replacing existing ones, taking into account the feasibility and affordability for bus operators and passengers.

4. In terms of fuel consumption and other environmental performance, hybrid buses are superior to ordinary diesel buses. In view of market availability and technical developments, hybrid buses have the potential to replace diesel buses on a large scale within a short period. In many overseas cities such as New York and London, as well as in some Mainland

cities such as Shanghai and Shenzhen, hybrid buses are being used in the public transport sector. However, the operation mode of the buses in these cities is probably less intensive than that of Hong Kong, which is characterized by high operation frequency, hilly terrains and hot and humid summer that require intense air-conditioning capability. These stringent operational conditions will put hybrid buses, particularly their batteries, to very severe test.

5. To test the operational efficiency and performance of hybrid buses under Hong Kong conditions and to collect operational data, the Chief Executive proposed in his Policy Address to fund the full cost of procuring six hybrid buses for use by the franchised bus companies along busy corridors.

ENVIRONMENTAL BENEFITS

6. Unlike a conventional diesel bus, the operation of a hybrid bus is aided by a motor (via a battery pack) on top of a diesel engine, which is usually smaller than that of a conventional bus. The battery pack is charged during the operation of the bus. Additional charging can be made through brake regeneration (i.e. capturing the braking power for charging the batteries). Therefore, hybrid buses have a better fuel economy and emission performance than conventional diesel buses.

7. According to tests conducted by a major bus manufacturer, the environmental benefits of hybrid buses over conventional diesel buses are as follows –

(a) nitrogen oxides and particulates emissions reduced by about 40-50%; and

(b) carbon dioxide emission and fuel consumption reduced by about 30%.

PROPOSAL

8. We propose to fund the full cost of procuring six hybrid buses by the relevant franchised bus companies for trial along busy corridors to assess their operational efficiency and emission performance under the local operational conditions.

9. Amongst the franchised bus companies in Hong Kong, only the Kowloon Motor Bus Company (1933) Limited (KMB), Citybus Limited and New World First Bus Services Limited (Citybus/NWFB) operate routes that serve the busy corridors in Causeway Bay, Central and Mong Kok. The sizes of KMB and Citybus/NWFB bus fleets running in these corridors are roughly the same. We thus propose to allocate three hybrid buses each to KMB and Citybus/NWFB for trial.

10. The relevant franchised bus companies will be required to operate the hybrid buses along routes running through the three busy corridors at Causeway Bay, Central and Mong Kok. They will also be responsible for the recurrent costs arising from the operation of these buses. Given that the Government will fund the full cost of procuring the hybrid buses and that their number is small compared with the size of the franchised bus fleets, we do not expect the trial to have any implication on the bus fares.

11. The length of trial is proposed to be two years in order to have a comprehensive assessment of the operational efficiency and performance of the buses under local conditions. An interim review will be carried out one year after the start of the trial to provide a preliminary assessment of the performance of the hybrid buses. The relevant franchised bus companies will be required to continue to deploy the hybrid buses for providing franchised bus service until the end of their economical service life or until they reach the normal retirement age of 18 years. If the trial is successful, upon expiry of the current bus franchises, additional requirements will be imposed in the franchises for the bus companies to switch to zero emission buses or the most environmental-friendly buses when replacing existing ones, taking into account the feasibility and affordability for bus operators and passengers.

12. A task force, which comprises representatives from the relevant

franchised bus companies and government departments, including Transport Department and Environmental Protection Department, will be set up to monitor the trial.

FINANCIAL AND CIVIL SERVICE IMPLICATIONS

13. The workhorses of franchised buses in Hong Kong are three-axle double-deck buses. Based on information provided by a potential hybrid bus supplier, we estimate that a three-axle double-deck hybrid bus with full air-conditioning suitable for Hong Kong could cost about $5.5 million, subject to exchange rate fluctuations. A total cost of about $33 million will be required for procuring six such hybrid buses.

14. Subject to Member's support, we will seek the Finance Committee's approval for creating a commitment of $33 million for the proposed trial. Franchised bus companies plan to procure the hybrid buses in this year. With a delivery time of about 12 months for the buses, we envisage that the trial could commence in the second half of 2012.

15. Additional staff resources will be allocated to oversee the trial, evaluate the environmental performance of the hybrid buses and the trial results, and work with the franchised bus companies, bus manufacturers and relevant government departments, to take forward the trial. The additional manpower resources will be reflected in the 2011-12 Draft Estimates.

ADVICE SOUGHT

16. Members' views are sought on the proposal in paragraphs 8 to 15.

Environmental Protection Department
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