

5th February, 2010

The Hon. John Tsang
Financial Secretary
5/F, Main Wing, Central Government Offices,
Lower Albert Road,
Central, Hong Kong.

Dear Financial Secretary

Civic Exchange Framework for Reviewing Options for Upgrading the Franchised bus Fleet

Thank you for consulting Civic Exchange on the 28th January to discuss the upcoming 2010-2011 budget. We would like to make one additional point to the ones we made at the meeting and in the letter we left behind.

Last year the Chief Secretary and the Secretary for the Environment announced that the government was willing to consider investing in accelerating the replacement of the most polluting franchised buses, but there has been no indication as to what form this investment might take. We have begun research on possible future development paths for the bus fleet, as we are encouraged by that government statement. We are just sorry that our work cannot be completed in time for this budget consultation but we want to alert you that it is being conducted.

Reasons for reviewing the development roadmap for the bus fleet

Civic Exchange has identified three principal drivers for reviewing the development roadmap of Hong Kong's bus fleet. These drivers are complimentary, and are supported by sound public health, bus service quality, climate change and financial justifications:

1. Growing public concern over the negative health impacts of air pollution

Public concern about the negative health impacts of emissions from roadside emissions, especially from diesel-powered buses, has increased during the current review of the air quality objectives and air management strategy. The Environmental Protection Department has noted that, at peak hours, buses contribute up to 40% of the pollutants in densely populated urban areas, and there is widespread concern in the medical community over a range of negative health effects caused directly by roadside pollution.

2. High carbon footprint of diesel buses

While the energy consumed by buildings accounts for the great majority of Hong Kong's carbon dioxide (CO₂) emissions, the transport sector is the next highest contributor. A number of alternative technologies have been shown to reduce CO₂ emissions, and implementing them in Hong Kong would make an important contribution to reducing our carbon footprint. There is both a long-term need and short-term political value in setting a clear path for reducing the carbon footprint of some of the heaviest users of Hong Kong's roads.

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3. *Rising costs of oil-based fuels*

Fuel currently comprises about 30% of the costs of the franchised bus companies. The likely steady rise of global oil prices will impose progressively greater pressure for bus fares to rise, so every new acquisition locks Hong Kong's bus fleet tighter into a pricing structure, over which they have little control, for the full 18-year life of the bus. Bus operators could either reduce or entirely remove this pressure by switching to a number of different technologies, and thereby establish a more flexible framework for managing fuel costs.

The impact on general livability of the districts in which buses operate is a broader consideration. This includes noise pollution and traffic congestion. Moreover, in view of the government's interest to promote electric vehicles (EVs) in public transport, there may well be a place for reconsidering trolley buses in the mix too.

Civic Exchange's review

Civic Exchange is currently preparing a framework for reviewing a range of technologies that could replace diesel as the default technology/energy source for the franchised bus fleet. This framework will focus on technologies that have been rolled out and proven effective in other cities. Some of the options include diesel/electric hybrid buses, electric trolley buses, and gas-powered buses, but will not cover technologies that are still some years from commercial viability such as hydrogen fuel cells.

We are aware that some of these options have been studied before, but believe that the growing demand for internalisation of public health and carbon costs has created a new environment for reviewing these technologies. Even under the "business as usual" scenario, bus operators are adopting progressively cleaner diesel-powered engines based on the Euro system. This approach will eventually lead to emissions reductions as older buses are retired and replaced with much cleaner Euro IV and Euro V class engines.¹

However, this has been a slow process because bus replacement has been delayed in order to maintain lower fares. But as the replacement of aging buses becomes essential it will become more difficult to strike a balance between publicly acceptable fares and an attractive rate of return for bus franchise operators. It will become doubly difficult as diesel costs rise.

A Framework for Comparative Evaluation

Civic Exchange's framework analyses cost and emission reductions for a range of technologies and objectives based on the considerations set out above. It will consider vehicle technology types (hybrid, gas and electric) and emission control technology options (filters/converters) and a cost benefit analysis that will compare emission levels with three cost factors common to all technologies:

¹ It is understood that around 400 of the most polluting buses will be replaced with Euro V buses during 2010.

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- Capital expenditure (infrastructure, new vehicles and emission control equipment);
- Maintenance costs; and
- Fuel (using a range of price points for diesel as a “floating baseline”).

The framework will also show the reduction in emissions in terms of dollars per tonne of pollutants and CO₂ reduced for each technology when compared against current levels. The model will also differentiate between the point of emission for the pollutants (at the roadside or from a power station, in the case of electric buses), as this is a key consideration in assessing the public health impact of toxic emissions.

We recognize that some of these alternative technologies will also require financing models that differ from the current regulatory framework, especially where capital costs are higher and operating costs are substantially lower. We believe that this will be an important consideration in securing the support of the bus operators for any switch in technology platform. Longer depreciation periods will serve as an effective tool to reduce the need for sharp fare increases that would be necessary to cover a higher level of capital investment within the current timeframe for depreciation.²

In addition to setting out the structure, Civic Exchange will, where possible, identify sources for the necessary data and information required to conduct the review. However, the proposed research will not include the review process itself. That would be a much larger research project that would require considerable time and resources.

No “Silver Bullet”

It may well be that none of the new technologies could fully replace the diesel-powered fleet. Hong Kong’s topography, road widths, concentrations of population and pollution all vary across the territory, and a range of solutions will probably be required. This approach will also relieve pressure to find a solution that must outperform diesel in terms of cost and performance in every situation.

For example, minimizing toxic emissions would be a priority in busy urban corridors, while on inter-city highways the most energy-efficient solution may take preference over a cleaner solution. In addition to location-specific solutions, we believe there is also scope to consider opportunities for single-deck buses to replace double-deckers, and even for considering the possibility of restoring the capacity of the tram fleet, which now carries far fewer passengers than it did formerly.

Yours sincerely,



Christine Loh
Chief Executive Officer

² We also note that extending the depreciation period and operating life of buses that are less polluting and less carbon intensive than diesel-powered buses, does not carry the same public health and environmental risks as extending the operating life of highly polluting diesel vehicles, as happens today under the “17 year rule”.