

Panel on Environmental Affairs
Subcommittee on Improving Air Quality
Responses to the Follow-up Actions
Arising from the Discussion at the Meeting on 17 January 2012

- (1) **To advise the incentives/subsidies which the Administration has provided to dedicated liquefied petroleum gas (LPG) filling stations, and whether the service providers have fulfilled their obligations in relation to these incentives/subsidies.**

Starting from 2000, Government invited bidders through open tender of design-build-operate (i.e. DBO) contracts for setting up of dedicated LPG filling stations at twelve sites identified for this purpose. While no land premium was charged for these stations, the terms of the DBO contracts require the operators to set their LPG prices according to a formula that takes into account the prevailing international contract price of LPG of the preceding month and operating price that will be adjusted for inflation in February every year. Dedicated station operators have been complying with the contract requirements by submitting to EMSD each month for approval of the LPG ceiling prices of the following month that are set according to the pricing formula in the DBO contract, and observing the approved ceiling prices when setting the LPG prices of their dedicated filling stations. EMSD also publicizes the price adjustment by issuing press release, uploading the ceiling prices onto its website and posting the ceiling prices at conspicuous places of dedicated LPG filling stations to enable the public and the transport trade to monitor the auto-LPG prices.

- (2) **To advise whether there is cap on LPG supply for each dedicated LPG filling station.**

The DBO contracts of dedicated filling stations do not specify any cap on LPG supply.

- (3) **To advise the terms in the contract for dedicated LPG filling**

Station in relation to service provision, particularly those which can facilitate the Electrical and Mechanical Services Department (EMSD) to monitor the services of LPG filling stations, and the feasibility of introducing an additional requirement in the contract specifying the utility rate of LPG filling nozzles. In this connection, EMSD should conduct surveys on the utility rates of LPG filling nozzles at popular dedicated and non-dedicated LPG filling stations during rush hours over the next three months, and compare the findings with the information gathered from service providers for the past three months. To also advise whether EMSD can mandate the provision of information by service providers under the contract.

Under the DBO contracts, the dedicated LPG filling station operators are responsible for the design, construction, completion, operation and maintenance of dedicated LPG filling stations in a safe manner. Regarding the provision of LPG filling services, section 28.7(2) of the DBO contract stipulates that “the station shall be manned during all working hours (i.e. 24 hours a day) by a responsible manager and such operatives as may be necessary to ensure the safe and effective operation of the station in accordance with the contract”.

EMSD has been monitoring the operations of dedicated LPG filling stations through the following means-

- (a) request the operators to report to EMSD any breakdown of LPG facilities affecting the filling service so as to monitor the nozzle availability at individual stations on a monthly basis;
- (b) hold regular meetings with the operators to review their services and identify areas for improvement, where appropriate, such as measures to secure a high nozzle availability;
- (c) arrange meetings with the trade organizations to facilitate direct communication between them and the operators;

- (d) visit the stations to inspect nozzle and manpower conditions; and
- (e) remind the operators from time to time to ensure efficient operation, including good nozzle availability, and properly maintain their station facilities.

The operators are required to facilitate EMSD staff to inspect the stations and provide EMSD with operational records of their stations. According to the information collected from the operators and observations made during site visits, the operators have generally fulfilled their contractual obligations. EMSD will continue to monitor closely the performance of the operators.

There is no specific term in the contract of LPG dedicated filling stations stipulating the utilization rate of LPG filling nozzles, which in practice depends on patronage and is beyond the operators' control. It is thus more sensible to check the availability of nozzles and whether any nozzle unavailability is well justified. Under the contract, the operators should provide the operational records of their dedicated filling stations to EMSD for monitoring their services. In this regard, EMSD has been monitoring the nozzle availability and the overall average nozzle availability of the 12 stations was maintained at between 96 and 99% in 2011. According to the returns from five operators¹ of non-dedicated LPG filling stations, the availability rate of their LPG filling nozzles between October and December in 2011 was above 97.5%. The unavailability of LPG filling nozzles of all LPG filling stations was due to the maintenance and repair works of the nozzles.

We would conduct surveys on the availability of LPG filling nozzles at popular dedicated and non-dedicated LPG filling stations during rush hours over the next three months.

¹ There are six operators of non-dedicated LPG filling stations in Hong Kong. We have obtained the information from five operators. Shell Hong Kong Ltd has not provided us with its information.

- (4) To advise the EMSD's hotline through which the transport trades can lodge complaints against malpractices of dedicated LPG filling stations, particularly on shutting down of LPG filling nozzles, and the actions to be taken by EMSD upon receipt of complaints as well as the consequences of the service providers if the complaints are substantiated. To also provide statistics/details of past complaint cases.**

The transport trades can lodge complaints about the operation of dedicated LPG filling stations via the government hotline 1823 and EMSD's hotline 2333 3762. Both hotlines operate on a 24-hour basis.

In 2011, 12 complaint cases were received on nozzle outages at dedicated LPG filling stations. In response to these complaints, EMSD had followed up with the respective operators by requesting them to take necessary remedial actions and implement preventive measures as appropriate to avoid recurrence.

Most nozzle outages were due to maintenance and repair works of station equipment and complaints could be avoided if the customers were timely informed of the nozzle outage. Apart from urging the operators to resume the operation of affected nozzles as speedily as possible, EMSD has advised the operators to inform the relevant transport trades in advance of any service interruption through various communication channels and to avoid carrying out any planned maintenance and repair works during peak hours to minimize inconvenience to the trade. To improve nozzle availability, EMSD has also reminded the operators to adopt a preventive approach by strengthening plant replacement and undertaking maintenance work in non-peak hours.

If an operator is found to be not complying with the contractual requirements of his LPG dedicated filling station, EMSD can issue a warning letter to him. In case the operator has persistently failed to improve his services despite receipt of the warning letters, Government may consider terminating the operator's contract.

EMSD has written to the dedicated station operators on several occasions in response to complaints from the transport trade mainly received in 2005-06 about the unavailability of LPG nozzles in the dedicated LPG filling stations. Subsequently, the operators had made efforts to improve the availability of LPG nozzles in the dedicated stations.

- (5) To advise whether the Administration has further plans to increase the number of LPG nozzles in the Hong Kong Island to facilitate an even distribution of LPG nozzles across the territory.**

In the recent search for additional suitable sites to provide LPG-cum-petrol refilling services, we have identified two potential sites on Hong Kong Island. These two sites could be made available for setting up petrol-cum-LPG stations subject to the completion of requisite procedures and arrangements. We have also recommended the strengthening of the existing policy by stipulating in the tender conditions of petrol-cum-LPG filling stations, both in respect of existing petrol filling stations that do not have LPG filling facilities and existing petrol-cum-LPG filling stations upon expiry of their current land leases, a minimum requirement for LPG filling facilities at 25% of the nozzles, subject to fulfillment of the necessary safety requirements. These two proposals could further increase the number of LPG filling nozzles on Hong Kong Island.

- (6) To advise the feasibility of applying a uniform LPG price across the board for both dedicated and non-dedicated LPG filling stations.**

As a market economy, we consider it advisable to allow non-dedicated LPG filling stations to set their LPG prices on full commercial principles as in the case of petrol and diesel. In practice, the LPG prices of dedicated stations would have a leading effect on the LPG price of the local market as the operators of

non-dedicated stations have to take into account the LPG prices of dedicated stations when setting their own LPG prices in order to compete for business.

- (7) **To provide a paper comparing all the relevant information on the emission performance between LPG and Euro V/VI vehicles.**

The Paper is at the Annex.

**Environmental Protection Department
February 2012**

The Emission Performance of LPG and Euro V/ VI Diesel Vehicles

Roadside air pollution in Hong Kong is caused by respirable suspended particulates (RSP) and nitrogen oxides (NO_x). Diesel vehicles are notorious for their RSP and NO_x emissions. The significant technological advancement in diesel emission control in recent years has enabled diesel vehicles to catch up with petrol and LPG vehicles in respect of RSP emissions. However, in general, newer diesel vehicles still emit a lot more nitrogen oxides than petrol and LPG vehicles.

One of the considerations of the European Union (EU) in setting their emission standard is the capability of the latest emission control technology. Recognizing the weaker NO_x emission control performance of diesel vehicles, EU allows diesel vehicles to emit two times more NO_x than petrol/LPG vehicles when setting the Euro V standards (i.e., the prevailing standards) and about 20% more when setting the Euro VI standards (which will be introduced in EU by 2015). Details of the emission limits (upper) are set out in the table below

Table 1. The NO_x and RSP emission limits (maximum) in the Euro V and VI emission standards for petrol/LPG and diesel vehicles.

		Nitrogen Oxides	Particulate Matter
		(mg/km)	(mg/km)
Euro V	LPG/Petrol	60	5*
	Diesel	180	5
Euro VI	LPG/Petrol	60	5*
	Diesel	80	5

*The emission standard only applied to petrol/LPG vehicles with direct injection engines only. For petrol/LPG vehicles that are not equipped with direct injection engines, their RSP emissions are so low that EU considers it unnecessary to set the limits.

In fact, the actual emissions of petrol/ LPG vehicles can be much lower than the emission standards. According to a vehicle emission database of

the United Kingdom (UK) (<http://carfueldata.direct.gov.uk>), Euro V diesel vehicles emit on average five times more NO_x than petrol/ LPG vehicles. As the emission performance of LPG vehicles is compatible to petrol vehicles, LPG and petrol vehicles are categorized in the same class in the aforesaid comparison against diesel vehicles. Making reference to the database, we have summarized the average performance of Euro V diesel vehicles and petrol/ LPG vehicles in the table below -

Table 2. Average emission performances between Euro V petrol/ LPG and diesel cars (based on a vehicle emission database of UK).

	A Vehicle Emission Database of UK	
	Petrol/ LPG cars	Diesel cars
Number of Euro V models	824	719
Average NO_x emission (g/ km)	0.028	0.149