

# **立法會**

## ***Legislative Council***

LC Paper No. CB(1)319/18-19(05)

Ref. : CB1/PL/EA

### **Panel on Environmental Affairs**

**Meeting on 19 December 2018**

#### **Updated background brief on measures to improve roadside air quality prepared by the Legislative Council Secretariat**

#### **Purpose**

This paper provides updated background information on measures to improve roadside air quality in Hong Kong. It also gives a brief account of the major views and concerns expressed by Members when related issues were discussed by relevant committees of the Legislative Council since the 2014-2015 legislative session.

#### **Background**

2. Vehicular tailpipe emissions are the key source of roadside air pollutants, which mainly include respirable suspended particulates ("RSP"), fine suspended particulates, nitrogen dioxide and sulphur dioxide. Owing to intensive use, commercial vehicles and franchised buses account for about 95% of the RSP and nitrogen oxides emissions of the local vehicle fleet. To improve roadside air quality, the Government has been implementing a host of measures to control vehicular emissions and encourage the adoption of green transport technologies. A summary of the key measures are set out in the ensuing paragraphs.

#### Ongoing and completed measures to improve roadside air quality

##### *Phasing out pre-Euro IV diesel commercial vehicles*

3. The Environmental Protection Department launched an incentive-cum-regulatory scheme in March 2014 to phase out by the end of 2019 some 82 000 pre-Euro IV diesel commercial vehicles ("DCVs") (accounting for about 60% of

the DCV fleet). Under the scheme, an ex-gratia payment of up to 33% of the average taxable values of new vehicles is offered to eligible vehicle owners for phasing out their pre-Euro IV DCVs.<sup>1</sup> To facilitate timely replacement of DCVs in the long run, the Government introduced a statutory cap of 15 years on the service life of DCVs that are first-registered on or after 1 February 2014.

#### *Retrofitting Euro II and Euro III franchised buses*

4. All Euro II and Euro III buses of franchised bus companies will be completely phased out by 2019 and 2026 respectively according to the franchises. Under a programme which lasted up to end 2017, the Government fully subsidized franchised bus companies that operated bus routes in urban areas to retrofit some 1 030 Euro II and Euro III buses with selective catalytic reduction devices to upgrade their emission performance before their retirement.

#### *Strengthened emission control of liquefied petroleum gas and petrol vehicles*

5. Since September 2014, the emission control of liquefied petroleum gas and petrol vehicles have been strengthened by deployment of roadside remote sensing equipment to screen out vehicles with excessive emissions. Vehicles caught will have to pass within 12 working days a dynamometer-based emission test to confirm rectification of the excessive emission problem. Failure to comply may lead to cancellation of the vehicle licence.

#### *Tightening the emission standards for newly registered vehicles*

6. The Government has been tightening vehicle emission standards with reference to international developments and the supply of compliant vehicles in Hong Kong. With the introduction of the Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017, the emission standards for newly registered vehicles (except diesel private cars, buses of design weight not more than 9 tonnes, light buses of design weight more than 3.5 tonnes, motor cycles and tricycles) are being tightened in phases since 1 July 2017. The emission standards for newly registered diesel private cars have been tightened to California LEV III since 1 October 2017 by virtue of the same regulation.

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<sup>1</sup> The ex-gratia payment application deadlines for four types of DCVs are as follows: (a) Pre-Euro: 31 December 2015; (b) Euro I: 31 December 2016; (c) Euro II: 31 December 2017; and (d) Euro III: 31 December 2019. As at the end of October 2018, some 65 600 pre-Euro IV DCVs (i.e. about 80% of the target vehicles) have been scrapped under the scheme.

*Promoting green transport technologies for commercial vehicles*

7. The first registration tax ("FRT") for electric commercial vehicles ("e-CVs") has been waived in full since 1994. Separately, a tax incentive scheme is in place for environment-friendly commercial vehicles, with FRT waiver ranging from 30% to 100% depending on vehicle class. Enterprises having procured environment-friendly vehicles are also allowed to have 100% profits tax deduction for capital expenditures on the vehicles in the first year of procurement.

8. The Pilot Green Transport Fund ("PGTF") was set up in March 2011 with \$300 million to encourage the trial of green and innovative transport technologies by subsidizing the capital cost of the relevant hardware. The public transport sectors (including taxis, public light buses, buses and ferries), charitable/non-profit making organizations providing transport services to their clients, and operators of goods vehicles (including special purpose vehicles) are eligible for subsidy.<sup>2</sup>

9. The Government has fully subsidized franchised bus companies to procure 36 single-deck electric buses (including 28 battery-electric buses and eight supercapacitor buses) for trial. 26 battery-electric buses and four supercapacitor buses have commenced the two-year trial. Most of the remaining electric buses are expected to be put into service progressively in 2019.

*Promoting the use of electric private cars*

10. FRT for electric private cars ("e-PCs") is waived up to \$97,500 at present.<sup>3</sup> In February 2018, the Government launched a "One-for-One Replacement" Scheme to allow private car owners who arrange to scrap and deregister their own eligible old private car (private car with an internal combustion engine or e-PC) and then first register a new e-PC to enjoy a higher FRT concession of up to \$250,000.

11. To facilitate the installation of charging facilities for e-PCs in private premises, granting of concessions on gross floor area ("GFA") for private car parks in new buildings have been tightened from April 2011 to encourage

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<sup>2</sup> As at the end of October 2018, PGTF has approved 135 trials with a total subsidy of about \$138 million.

<sup>3</sup> FRT for e-PCs was waived in full from April 1994 to 31 March 2017. Having considered various factors, such as the enhanced performance of e-PCs and the established public transport-oriented policy, the Government decided to cap the FRT concessions for e-PCs at \$97,500 since 1 April 2017.

developers to provide EV charging-enabling infrastructure.<sup>4</sup> The Hong Kong Planning Standards and Guidelines were amended in the same year to recommend 30% of private parking spaces in new buildings to be installed with charging facilities for e-PCs.

#### New measures to be introduced

12. It has been announced in the Chief Executive's 2018 Policy Address that the following new measures would be introduced to further improve roadside air quality:

- (a) phasing out Euro IV DCVs by the end of 2023;
- (b) trial of retrofitting Euro IV and Euro V franchised buses with enhanced selective catalytic reduction devices. Subject to satisfactory trial results, the Government intends to fully subsidize franchised bus companies to retrofit about 3 900 Euro IV and Euro V double-deck buses;
- (c) reviewing the scope of PGTF and exploring ways to further facilitate the wider use of green and innovative transport technologies by the transport sectors;
- (d) tightening the emission standards for newly registered motorcycles to Euro IV from 2020; and
- (e) promoting the wider use of new energy vehicles. As the first step, the Government may consider ceasing the first registration of diesel private cars subject to consultation with stakeholders.

#### **Major views and concerns expressed by Members**

13. The Panel on Environmental Affairs ("EA Panel") discussed measures to improve roadside air quality at various meetings. Relevant issues were also brought up at the meetings of the Subcommittee on Air Pollution Control

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<sup>4</sup> In the past, all car parks in private developments could be exempted from GFA calculations. In light of the recommendations of the Council for Sustainable Development on fostering a quality and sustainable built environment, the Government tightened the requirements in April 2011 so that only underground car parks provided with infrastructure for enabling EV charging facilities at each parking space can be fully exempted from GFA calculations.

(Vehicle Design Standards) (Emission) (Amendment) Regulation 2017.<sup>5</sup> The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

#### Adoption of green transport technologies by transport trades

14. Members expressed disappointment with the slow growth in the number of licensed e-CVs. They queried the effectiveness of PGTF in promoting the use of electric/hybrid vehicles by the transport trades, and urged the Administration to set a timetable for the replacement of conventional commercial vehicles by cleaner vehicles, such as e-CVs.

15. The Administration advised that adoption of e-CVs had been constrained by factors such as long charging time and low energy density of EV batteries, as well as limited choices of e-CV models on the market. Results of completed trials under PGTF had revealed that e-CVs were more likely to be practicable for replacing the diesel light goods vehicles ("LGVs") used by operators who required relatively lower daily mileage and payload. The Administration had therefore made electric LGVs a key focus of promotion of PGTF, and would keep in view the development of relevant technologies and explore other measures to promote the adoption of e-CVs by other transport operators (including transport businesses that had relatively higher daily mileage). It was also observed that the transport trades had less reservation about using hybrid commercial vehicles as these vehicles did not need external charging. Nevertheless, the actual fuel economy of a hybrid vehicle depended on the dominant drive mode and the usage of air conditioning.

16. As regards promoting the use of electric buses, the Administration advised that the operational efficiency of double-deck electric bus models currently available on the market still failed to meet local operational needs. As the vast majority of franchised buses in Hong Kong were double-deck buses, it was impracticable at this stage to set a target on the number of electric buses to be used in Hong Kong. Nevertheless, the Administration would aim to work out a plan and timetable for the promotion of electric buses when relevant technologies had become more mature.

#### Promoting the use of electric private cars

##### *First registration tax concessions*

17. Members held different views on whether the FRT concession for e-PCs

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<sup>5</sup> The Subcommittee was formed by the House Committee to scrutinize the legislative proposal to implement the Euro VI and California LEV III emission standards for certain classes of vehicles, as mentioned in paragraph 6 above.

should be capped. Some Members opined that buyers of "luxury e-PCs" should not be entitled to the FRT waiver, and the FRT concession cap would motivate suppliers to put on the market more e-PC models with competitive prices. Some other Members considered that the FRT concession cap would drive buyers to choose private cars running on fossil fuels and undermine other efforts to promote the use of EVs. While the "One-for-One Replacement" Scheme was launched in February 2018,<sup>6</sup> some Members considered that there was still an absence of a strong incentive for private car owners to switch to e-PCs.

18. The Administration advised that its standing policy was to encourage the public to use public transport as far as possible. While FRT would continue to be a means of controlling the overall growth of private cars to avoid causing traffic congestion and aggravating roadside air pollution, FRT concessions could be offered to aptly encourage vehicle buyers to go for EVs when purchasing private cars. Taking due account of these two factors, the technological development and market situation of EVs, as well as road traffic conditions and views of stakeholders, the Administration decided to continue with the FRT concessions of up to \$97,500 for e-PCs from February 2018 to March 2021. With the implementation of the "One-for-One Replacement" Scheme, the Administration believed that there were suitable financial incentives for eligible existing private car owners to purchase e-PCs when replacing their cars.

#### *Development of charging facilities*

19. Members called on the Administration to further facilitate the installation of EV charging facilities on private premises and expand the public EV charging network expeditiously. Specifically, the Administration was requested to consider:

- (a) mandating that a specified percentage of parking spaces in all newly-constructed commercial and residential buildings must be equipped with EV charging facilities;
- (b) providing incentives and technical support to encourage owners of existing buildings to install relevant facilities; and
- (c) installing EV chargers at on-street parking meters and/or smart lampposts.

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<sup>6</sup> At the meetings of EA Panel held on 27 February and 30 October 2017, EA Panel passed two motions requesting the Administration to grant full FRT exemption for e-PCs or raise the relevant concession cap, and offer financial concessions for "one-for-one replacement" to encourage private car owners to switch to e-PCs and promote the long-term development of the EV market.

20. The Administration responded that the policy direction was that the daily charging of e-PCs should be performed with charging facilities at e-PC owners' homes or workplaces or other suitable places (including charging facilities provided by e-PC suppliers). Therefore, the Administration's priority was to facilitate and encourage the installation of charging facilities on private premises when planning for the development of EV charging facilities. The Environment Bureau was conducting a review of EV-related policies and measures in collaboration with other relevant bureaux/departments. The review covered, among other things, measures to facilitate the installation of EV charging facilities.

21. At its meeting on 26 November 2018, EA Panel agreed to set up a subcommittee to review and study Hong Kong's policies on EVs, including policy implementation, target setting, support measures and other related matters.<sup>7</sup>

#### Phasing out conventional private cars

22. Members welcomed the proposal of ceasing the first registration of diesel private cars. They requested the Administration to set a timetable and relevant targets for phasing out conventional private cars.

23. The Administration advised that its long-term goal was to replace fuel-engine vehicles with new energy vehicles, including EVs, to improve roadside air quality. In considering whether a target year should be set for phasing out petrol or diesel vehicles completely and if phased targets should be set for the promotion of EVs, the Administration had to carefully examine the supply and the technological development of new energy vehicles both overseas and in the Mainland. The Administration was collating relevant information to explore the availability of new energy vehicles suitable for use in Hong Kong, with a view to formulating the development strategy in this regard.

#### **Council motion and questions**

24. A motion on "Promoting the popularization of electric vehicles" moved by Hon Frankie YICK and as amended by Hon Kenneth LEUNG, Hon Charles Peter MOK, Ir Dr Hon LO Wai-kwok, Hon YUNG Hoi-yan, Hon CHAN Hak-kan and Hon Tanya CHAN was passed at the Council meeting of 11 April 2018. Moreover, in the Sixth Legislative Council, several Members raised questions relating to the improvement of roadside air quality at a number

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<sup>7</sup> The subcommittee is awaiting activation according to the order of subcommittees on policy issues on the waiting list in the Sixth Legislative Council.

of Council meetings. The hyperlinks to the wording of the motion and the progress report provided by the Administration, as well as the Council questions and the Administration's replies, are provided in the **Appendix**.

### **Latest development**

25. The Administration will brief EA Panel on the progress of improving roadside air quality and the proposed plan for controlling emissions from vehicles at the meeting on 19 December 2018.

### **Relevant papers**

26. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1  
Legislative Council Secretariat  
17 December 2018

## Measures to improve roadside air quality

## List of relevant papers

Date	Event	Paper
23 March 2015	Meeting of the Panel on Environmental Affairs ("EA Panel")	Administration's paper on "Progress of setting up of Low Emission Zones" (LC Paper No. <a href="#">CB(1)652/14-15(04)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)847/14-15</a> )
27 April 2015	EA Panel meeting	Administration's paper on "Progress of air quality improvement measures" (LC Paper No. <a href="#">CB(1)763/14-15(03)</a> )  Minutes (LC Paper No. <a href="#">CB(1)979/14-15</a> )
21 July 2015	EA Panel meeting	Administration's paper on "Progress report on the Pilot Green Transport Fund" (LC Paper No. <a href="#">CB(1)1113/14-15(01)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)1270/14-15</a> )
26 October 2015	EA Panel meeting	Administration's paper on "Progress of phasing out pre-Euro IV diesel commercial vehicles" (LC Paper No. <a href="#">CB(1)37/15-16(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)247/15-16</a> )
30 March 2016	EA Panel meeting	Administration's paper on "Interim Findings of the Trial of Hybrid Franchised Buses" (LC Paper No. <a href="#">CB(1)705/15-16(05)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)969/15-16</a> )

Date	Event	Paper
19 December 2016	EA Panel meeting	<p>Administration's paper on "Proposals to Tighten Emission Standards for Newly Registered Vehicles" (LC Paper No. <a href="#">CB(1)295/16-17(06)</a>)</p> <p>Minutes of meeting (LC Paper No. <a href="#">CB(1)504/16-17</a>)</p>
24 February 2017	Special meeting of EA Panel	<p>Minutes of meeting (LC Paper No. <a href="#">CB(1)882/16-17</a>)</p>
27 February 2017	EA Panel meeting	<p>Administration's paper on "Promoting the Use of Electric Vehicles" (LC Paper No. <a href="#">CB(1)574/16-17(04)</a>)</p> <p>Minutes of meeting (LC Paper No. <a href="#">CB(1)783/16-17</a>)</p>
March 2017	Subcommittee on Air Pollution Control (Vehicle Design Standards) (Emission) (Amendment) Regulation 2017	<p>Legislative Council Brief (<a href="#">EP150/L1/3</a>)</p> <p>Legal Service Division Report (LC Paper No. <a href="#">LS34/16-17</a>)</p> <p>Report of the Subcommittee (LC Paper No. <a href="#">CB(1)751/16-17</a>)</p>
22 May 2017	EA Panel meeting	<p>Administration's paper on "Improvement of roadside air quality" (LC Paper No. <a href="#">CB(1)949/16-17(03)</a>)</p> <p>Minutes of meeting (LC Paper No. <a href="#">CB(1)1369/16-17</a>)</p> <p>Administration's follow-up paper (LC Paper No. <a href="#">CB(1)1375/16-17(02)</a>)</p>

Date	Event	Paper
26 February 2018	EA Panel meeting	Administration's paper on "Promoting the Use of Electric Vehicles" (LC Paper No. <a href="#">CB(1)602/17-18(03)</a> )  Minutes of meeting (LC Paper No. <a href="#">CB(1)742/17-18</a> )  Administration's follow-up paper (LC Paper No. <a href="#">CB(1)1039/17-18(02)</a> )
22 October 2018	Policy briefing for EA Panel	Administration's paper on "2018 Policy Address – Policy initiatives of Environment Bureau: Environmental protection" (LC Paper No. <a href="#">CB(1)10/18-19(01)</a> )

#### Hyperlink to relevant Council motion:

Meeting date	Motion
11 April 2018	<a href="#">Motion on "Promoting the popularization of electric vehicles" moved by Hon Frankie YICK and as amended by Hon Kenneth LEUNG, Hon Charles Peter MOK, Ir Dr Hon LO Wai-kwok, Hon YUNG Hoi-yan, Hon CHAN Hak-kan and Hon Tanya CHAN</a>  <a href="#">Progress report provided by the Administration</a>

#### Hyperlinks to relevant Council Questions:

Date	Council Question
16 November 2016	<a href="#">Press release</a> on Council question (written) raised by Hon Jimmy NG
14 December 2016	<a href="#">Press release</a> on Council question (oral) raised by Hon Frankie YICK

Date	Council Question
15 February 2017	<a href="#">Press release</a> on Council question (written) raised by Hon Kenneth LEUNG  <a href="#">Press release</a> on Council question (written) raised by Hon Dennis KWOK
31 May 2017	<a href="#">Press release</a> on Council question (written) raised by Hon HUI Chi-fung
25 October 2017	<a href="#">Press release</a> on Council question (written) raised by Hon CHAN Hak-kan
13 December 2017	<a href="#">Press release</a> on Council question (oral) raised by Hon CHAN Hak-kan
31 January 2018	<a href="#">Press release</a> on Council question (oral) raised by Hon Kenneth LEUNG
7 February 2018	<a href="#">Press release</a> on Council question (oral) raised by Hon Charles Peter MOK
28 February 2018	<a href="#">Press release</a> on Council question (written) raised by Hon Dennis KWOK
24 October 2018	<a href="#">Press release</a> on Council question (written) raised by Hon Tanya CHAN