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Panel on Environmental Affairs

**Report of the Subcommittee to Study Issues Relating to
the Development of Electric Vehicles**

Purpose

This paper reports on the deliberations of the Subcommittee to Study Issues Relating to the Development of Electric Vehicles ("the Subcommittee") formed under the Panel on Environmental Affairs ("the Panel").

Background

2. Vehicle tailpipe emissions are the key roadside air pollution source. To improve roadside air quality, the Government has been promoting the replacement of conventional vehicles by electric vehicles ("EVs"), which do not have tailpipe emissions and are more energy efficient. Since commercial vehicles ("CVs") account for 95% of the vehicular emissions of respirable suspended particulates and nitrogen oxides, which are major air pollutants, CVs have all along been a major target of the Government's measures to improve roadside air quality. While the market starts to accept the use of the electric private cars ("e-PCs") in recent years due to rapid technological advancement, it takes time for further development of the technologies of electric commercial vehicles ("e-CVs") before their wider use.

3. The key measures currently adopted by the Administration for promoting the use of EVs, which can be broadly grouped into ones related to financial incentives/support and those related to charging infrastructure, are summarized as follows:

Financial incentives/support

- (a) waiving in full the first registration tax ("FRT") for e-CVs;

- (b) giving e-PCs FRT concession up to \$97,500 until 31 March 2021;
- (c) implementing the "One-for-One Replacement" Scheme from 28 February 2018 to 31 March 2021, under which purchasers of e-PCs who scrap and de-register their eligible old private car ("PCs") and then first register a new e-PC can enjoy a higher FRT concession of up to \$250,000;
- (d) giving enterprises which procure EVs full profits tax deduction for the capital expenditures on the vehicles in the first year of procurement;
- (e) keeping annual vehicle licence fees for e-PCs lower than those for conventional PCs¹;
- (f) subsidizing the franchised bus companies ("FBCs") to purchase 36 single-deck electric buses for trial;
- (g) earmarking \$80 million to launch a pilot scheme for electric public light buses ("e-PLBs") that subsidizes about 40 e-PLBs running on various routes for trial;
- (h) putting in place the \$300 million Pilot Green Transport Fund ("PGTF") in March 2011 to encourage the transport sector to try out green innovative transport technologies, including e-CVs;

Measures to strengthen charging infrastructure

- (i) granting Gross Floor Area ("GFA") concessions for installation of EV charging-enabling infrastructure in car parks of new private buildings;
- (j) allocating \$2 billion for a pilot scheme to subsidize the installation of EV charging-enabling infrastructure at existing private residential buildings;

¹ The annual vehicle licence fees for electric private cars range from about \$600 to \$1,100, contrasted to the range of \$3,815 to \$12,675 for conventional private cars.

- (k) allocating \$120 million to extend the public EV charging networks at government car parks²;
- (l) identifying sites for on-street parking spaces to install charging facilities; and
- (m) identifying suitable sites for setting up public quick charging stations in various districts of Hong Kong.

The Subcommittee

4. The Subcommittee was appointed by the Panel on 26 November 2018 to study issues relating to the development of electric vehicles. The terms of reference and membership of the Subcommittee are set out in **Appendices I and II** respectively.

5. Under the chairmanship of Hon CHAN Hak-kan, the Subcommittee has held a total of four meetings since the commencement of its work on 21 April 2020. It has invited the public and the 18 District Councils to give written views to the Subcommittee. A list of the organizations and individuals which/who have given views to the Subcommittee is in **Appendix III**.

6. To facilitate members' discussion, the Subcommittee has requested the Research Office of the Legislative Council Secretariat to study the policies and measures on promoting the use of EVs in neighbouring and overseas places.³

Deliberations of the Subcommittee

7. The Subcommittee has focused its work on the following areas:

- (a) policy direction and objectives on promoting the use of EVs;

² Over 1 000 additional public chargers are expected to be in place by 2022, bringing the total number of chargers to about 1 800.

³ See fact sheet FS01/19-20 issued on 10 June 2020.

- (b) affordability of e-PCs and tax incentives for their buyers;
- (c) charging infrastructure and networks;
- (d) promoting electric public transport; and
- (e) other support measures for EVs including disposal of used batteries, and training for repair and maintenance personnel.

Policy direction and objectives on promoting the use of electric vehicles

Roadmap on the popularization of electric vehicles

8. Members in general consider it imperative for the Administration to set a clear policy and adopt practicable measures with specific targets so as to motivate various stakeholders (e.g. the automotive sector and vehicle owners) to support the wider use of EVs, and to set a target year for phasing out conventional vehicles is necessary to guide policy measures on promoting the adoption of EVs. Members have suggested that to bolster business confidence in the local EV market and enhance transparency, the Administration should formulate a long-term action plan with specific targets covering various aspects, such as the FRT concessions for EVs, charging facilities, electric public transport, use of e-CVs, etc.

9. The Administration has advised that the Government is actively preparing to update the Clean Air Plan and formulate the roadmap on the popularization of EVs to, among other things, further examine the measures to improve air quality, as well as the policy objective and plan to promote the use of EVs, including the study on formulating the direction and roadmap to ban the sale of fuel-propelled vehicles. Based on the preliminary estimation, the relevant work will be completed in the first half of 2021. The Administration will take into account the views of relevant government departments and stakeholders in drawing up the details.

10. On the policy to promote the use of EVs, the Administration has advised that in recent years, e-PCs that are more technically mature with longer driving range have become gradually available in the market. Popularization of e-PCs requires mass supply of affordable models and sufficient infrastructural support. As the number of e-PCs gradually increases and their prices drop, the financial incentives to promote the use of EVs would be reduced. As regards e-CVs, more e-CVs models have become available for some local operators but the technologies are not yet

mature. The focus would be to develop technologies for e-CVs to adapt to the hilly terrain of Hong Kong, heavy air-conditioning demand in summer and long daily driving mileage. The Government has put in place PGTF to encourage the transport sector to try out green innovative transport technologies, and has completed a review on PGTF to enhance the detailed conditions of subsidy and extend its scope to cover more kinds of technologies to be subsidized for trial and use. Moreover, the Government would explore suitable financial assistance to support trials for different electric public transport vehicles including taxis, public light buses ("PLBs") and public buses when the relevant technologies become mature.

Government procurement policy and use of electric vehicles in government departments

11. Members consider that the Government should take the lead in promoting the use of EVs. Noting that only one Director of Bureau uses EV and a small percentage of vehicles in the government vehicle fleet are EVs (e.g. e-PCs constitute only about 9.2% of the government PCs fleet), members have enquired about the measures that the Government would take to promote the use of EVs with regard to its procurement policy.

12. The Administration has advised that senior government officials have been invited to use e-PCs in the past but due to very limited e-PC models available in the market that could meet the requirements, most of them are still using the conventional vehicles. As more e-PC models become available, senior government officials will be further invited to try out and use new e-PC models in due course. As regards the use of e-PCs in the government vehicle fleet, it was adopted a few years ago. However, due to unsatisfactory operational performance of some of the electric cars procured by some government departments in earlier years and the Audit Commission's recommendation⁴, some departments have been hesitant on the use of EVs. That said, in view of the improvement and technological advancement in the latest EV models, the Government will review the procurement policy with a view to further promoting the use of EVs in the government vehicle fleet.

⁴ Part 3 of Chapter 3 of the Audit Commission Report No. 71 on the accounts of the Government for the year ended 31 March 2018 pointed out that the Government should critically examine the availability of suitable environmental-friendly vehicles in the market that could fully meet the operational needs of the Hong Kong Police Force when the EVs were due for replacement.

Fee-charging policy for charging services

13. Another concern raised by members is the Government's long-term fee-charging policy for providing public charging services for EVs. Members opine that a simple fee-charging system such as a flat-rate fee would encourage EV owners to use the public charging services more frequently. Members have observed that an effective charging method to prevent EVs from occupying the parking spaces designated for providing charging services can either be a high fee being charged for every unit of time during which the EV still occupies the parking space after a full charge or limiting the time for charging to a fixed duration.

14. The Administration has advised that in the long run, the Government intends to charge fees for public EV charging services, but the level of fees to be charged would depend on a number of factors, including the type of chargers used. It would be necessary to impose fees on public chargers in order to encourage proper and efficient use of those facilities and the private sector to follow suit to provide charging services with charging fees. The Government would explore a suitable proposal for setting the appropriate fees in due course.

Affordability of electric private cars and tax incentives for their buyers

15. Members note that of the 14 661 e-PCs currently registered as at the end of May 2020, 10 076 or about 70% are priced at above \$500,000. Consumers face a limited number of choices of affordable e-PCs models compared with conventional PCs. Members consider that the appeal of e-PCs depends to a significant extent on the amount of tax concessions granted upon purchase. They consider that the reduction of the FRT concession for e-PCs from full exemption in the past to its being capped at \$97,500 since 1 April 2017 is counter-productive to promoting the use of e-PCs. These members have questioned the basis for setting the cap at \$97,500 and whether such policy is conducive to popularizing e-PCs, particularly those in medium to low price range, in the long run. Members consider that the amount of FRT concession is insufficient and should be adjusted upwards for greater effectiveness.

16. The Administration has explained that the Government's standing policy is to encourage the public to use public transport as far as possible. Members of the public who need to acquire PCs are encouraged to choose e-PCs. When drawing up the FRT concessions for e-PCs, the Government

considers that while refraining from promoting the overall growth of PCs causing traffic congestion and aggravating roadside air pollution, vehicle buyers could be aptly encouraged to go for EVs when purchasing PCs. Taking into account the above two factors, the technological development and market supply of EVs, as well as road traffic conditions and views of stakeholders, the Administration has decided to continue with the FRT concessions of up to \$97,500 for e-PCs from 28 February 2018 to 31 March 2021. For the same period, the Administration has introduced the "One-for-One Replacement" Scheme to allow eligible existing vehicle owners who buy a new e-PC and scrap their own eligible old PC to enjoy a higher FRT concession of up to \$250,000.

17. The Administration has advised that as e-PC technologies mature, there are more and more affordable e-PC models with higher driving range available in the local market, providing greater choice to the public. There are currently 12 brands that supply e-PCs in Hong Kong. Nine of them are offering a total of 19 e-PC models with taxable value not exceeding \$377,500, of which the FRT can be fully waived. As at the end of May 2020, a total of 3 613 e-PCs have completed first registration under the "One-for-One Replacement" Scheme since its launch on 28 February 2018, representing about 87% of all the first registered e-PCs in the same period. The number of e-PCs purchased under the Scheme that are priced at \$200,000 to \$400,000 is 2 802, which accounts for about 77% of all the first registered e-PCs under the Scheme, reflecting that the e-PCs purchased under the Scheme are mainly models at affordable prices.

18. Regarding members' concern that current registered e-PCs are mostly priced above \$500,000, the Administration has explained that those are e-PCs purchased in earlier years. Over 90% of these e-PCs were purchased in or before 2017 as there were not many e-PC models available in the market at that time and more people were willing to choose e-PCs with higher prices and better performance when the FRT for e-PCs were fully waived.

19. Considering that the "One-for-One Replacement" Scheme for FRT concession is an attractive incentive for e-PC buyers and noting that the Administration has been considering whether to extend the Scheme upon its expiry on 31 March 2021, members have relayed views of the public and car dealers that the Administration should announce as soon as possible its decision on extending the Scheme. This will facilitate car dealers to plan early for importing EVs and owners of conventional PCs to make decisions on whether to switch to e-PCs or not. The Administration has taken note of members' suggestion.

Pro-electric vehicles measures

20. Noting the pro-EV practices adopted by certain countries in terms of road use (e.g. priority road use or reduced tolls), members have enquired whether the Administration will consider implementing similar pro-EV measures on roads, tunnels and bridges. Members consider that in formulating these pro-EV measures, one should be mindful of the benefits brought about by the wider use of EVs in terms of improved air quality and reduced medical cost to society.

21. The Administration has advised that to promote the use of EVs, the Government has currently introduced a series of measures, including waiving in full the FRT for e-CVs, electric motor cycles and electric motor tricycles, as well as offering FRT concession and "One-for-One Replacement" Scheme for e-PCs. Moreover, the annual vehicle licence fees for e-PCs are far lower than those for conventional PCs, and the electricity tariffs incurred for running e-PCs are also less expensive than the fuel charges incurred for running conventional PCs. As regards tolls for tunnels and bridges, they are implemented based on traffic management considerations, with a view to adjusting the traffic flow and alleviating traffic congestion for the public's convenience. In line with the said principle, the Government currently has no plan to offer concessions in tolls for tunnels and bridges, or introduce specific traffic management measures for EVs.

Charging infrastructure and networks

22. Members consider expanding the public EV charging network a critical factor for successful EV adoption. The expansion of the EV charging network should include enhancing the infrastructure of car parks so that they will become EV charging enabled. The charging speed of public chargers should be much faster than that of home chargers for quicker top-up and improvement of the turnover rate as the number of charging spaces is limited.

Concessions on Gross Floor Area of new private buildings for charging-enabling infrastructure

23. The Administration has advised that the Government has tightened the requirements of GFA concessions since April 2011 so that only underground car parks in new private buildings provided with EV charging-enabling infrastructure (including provision of sufficient power supply, cabling and

conduits for all parking spaces, etc.) at each parking space can be fully exempted from the GFA calculations. The key objective of the policy is to enable owners of parking spaces to install chargers at their parking spaces and arrange for power connection according to their needs without any constraints in respect of power supply capacity of the buildings, or cabling and conduits of the car parks, etc.

24. For new developments approved from April 2011 to December 2019, over 80% of private parking spaces, involving about 540 car parks, have provided/will provide with EV charging-enabling infrastructure. Upon completion of these developments, about 65 000 parking spaces will be EV charging-enabling.

25. Considering that the GFA concession is in effect a huge benefit given to developers and noting that in some of the completed developments for which GFA concessions have been given, only charging-enabling infrastructure is installed but chargers are absent in the parking spaces, members consider that developers should be required to install chargers for parking spaces in developments granted with GFA concession. Members have also called on the Administration to review the effectiveness of the policy to see if any enhancements are needed as it was formulated in 2011.

26. The Administration has explained that as EV technology is developing fast, there has not yet been a mainstream standard charger that fits all EVs. Pre-installed chargers would become outdated in a few years' time and might not suit EV owners' preference. Hence, it would be more appropriate for an EV owner who uses the parking space to install the charger that best meets his needs at the time of installation. Moreover, to most EV owners, the cost of installing an EV charger is not high.

Charging-enabling infrastructure in car parks of existing private residential buildings

27. Being able to charge their e-PCs at home is crucial to many potential buyers of e-PCs. Members have enquired about the details of the \$2 billion pilot scheme to subsidize the installation of EV charging facilities in existing private residential buildings, including whether there would be a requirement on the type of chargers to be installed.

28. The Administration has advised that the \$2 billion pilot scheme aims to subsidize installation of EV charging-enabling infrastructure in the car parks of existing private residential buildings, which would facilitate owners

of individual parking spaces to install chargers according to their own needs in future. The details of the pilot scheme are being worked out. The Administration has advised that the infrastructure to be installed under the pilot scheme would support medium-speed charging at the parking spaces, as quick charging is not economical and requires high electrical load. Load management facilities may also be considered in some car parks to enable efficient distribution and management of the electrical load. The pilot scheme is still under planning and will be open for application in the second half of 2020.

29. Members consider that the Administration should expedite the launch of the pilot scheme by identifying difficulties, if any, faced by property management companies in getting owners' consent to install EV charging-enabling infrastructure, and formulate measures to assist them.

Enhancing public charging network

30. Members have sought details on the \$120 million allocated in 2019 for extending the public EV charging networks at government car parks in the coming three years and whether there is a requirement for the minimum number of car parking spaces with charging facilities in government car parks. Members have also enquired about the measures, if any, taken to install additional quick chargers in government car parks to accelerate the turnover of car parking spaces with charging facilities for use by more EV drivers.

31. The Administration has advised that there is no requirement on the minimum number of car parking spaces with charging facilities in existing government car parks. But the target is to increase the number of car parking spaces with charging facilities to about 30% of the total number of car parking spaces in the existing government car parks. A total of 857 government public chargers are currently provided at government car parks. Over 1 000 additional public chargers will be in place by 2022, bringing the total number of chargers to about 1 800. About 170 medium chargers have been installed in the first year, and about 570 and 460 medium chargers will be installed in 2020-2021 and 2021-2022 respectively. The main difficulties for installing quick chargers at existing government buildings are the high costs, and the accommodation of switchboards and additional transformer rooms to support the high electrical load required, which in turn means a large amount of space is necessary. The Administration has further advised that as the public charging network only serves to provide top-up charging in case of occasional needs while on the road, medium chargers can therefore serve the purpose.

Charging facilities in car parks under the Housing Authority

32. Some members have observed that only a very small percentage of parking spaces in car parks owned/managed by the Hong Kong Housing Authority ("HA") are equipped with EV charging facilities, and the majority of such charging facilities only support standard charging. Members have enquired about the measures to be taken to enable HA to improve the public charging facilities at the car parks of public housing developments, and whether the Government will consider installing medium chargers at car parks of newly built public housing developments.

33. The Administration has advised that to support the Government policy of promoting the wider use of EVs in Hong Kong, HA will continue to follow the requirement of the Hong Kong Planning Standards and Guidelines and provide EV charging facilities for 30% of the indoor private car parking spaces in new public housing developments. EV charging-enabling infrastructure⁵ will be installed for the remaining 70% indoor private car parking spaces. For existing car parks, HA has already provided EV charging facilities (including standard, medium and quick chargers) in some hourly parking spaces, and will provide, on demand and where technically feasible, standard charging facilities for some monthly parking spaces. Since mid-2019, to further support the Government initiatives of promoting the use of EVs, HA has conducted a feasibility study on the addition of medium chargers at some hourly parking spaces where electricity loading of existing car parks permits. To ensure optimum use of resources, HA will consider gradually increasing the number of medium chargers according to the utilisation of these chargers.

Charging spaces being occupied by non-electric vehicles

34. Members have raised concerns about parking spaces installed with EV chargers in car parks being occupied by non-EVs and asked whether the Administration will introduce legislation or other measures to prohibit this phenomenon.

35. The Administration has advised that given that e-PCs currently account for only about 2% of the total number of registered PCs, and that charging facilities furnished at government car parks are supplementary in

⁵ The infrastructure includes electricity distribution boards, cables, conduit and trunking, as well as reservation of spaces for future installation of EV chargers.

nature, parking spaces with charging facilities will not be designated for the exclusive use of EVs on the principle of taking full advantage of parking space resources and according equal treatment to users of EVs and non-EVs. Nevertheless, having regard to the utilisation of government car parks, the contractors engaged by the Transport Department ("TD") or the Government Property Agency ("GPA") will reserve parking spaces with charging facilities for priority EV charging by arranging for traffic cones to be placed and notices to be displayed at such spaces whenever practicable during non-peak hours. In addition, the Government plans to install new public chargers (all are medium chargers) at car parks under the management of TD and GPA which are open for public use. The new chargers will be located at higher floors and less convenient locations of the car parks as far as possible to increase the chance of using them by EVs.

On-street parking spaces with charging facilities and public quick charging stations

36. Noting that the Government has commissioned a consultant in October 2019 to look for suitable sites for setting up quick charging stations in various districts of Hong Kong, members have examined the progress of installing charging facilities for on-street parking spaces, the total number of on-street parking spaces at the preliminarily identified possible sites, the period for which the feasibility study on such installation would take, and the criteria for evaluating the feasibility of such installation.

37. The Administration has advised that provision of on-street parking spaces mainly caters for short-term parking needs, and such spaces are usually installed with parking meters to accelerate the turnover of parking spaces for use by more drivers. Taking into account relevant considerations including the power supply and space constraints, potential impact on nearby traffic, as well as other drivers' parking needs, the Administration has to look for suitable on-street parking spaces to install charging facilities. It has preliminarily identified around 10 possible sites for such installation and is assessing the feasibility in detail. When these sites are confirmed to be suitable for installing on-street charging facilities, the Administration will consider commencing a pilot scheme for charging facilities installation. The type of chargers intended to be installed would be medium chargers, as the cost for installing quick chargers would be much more expensive and high electrical load would be required. In some locations, an extra transformer may need to be built nearby to support the electrical load. The Administration has further advised that it has been trying out 11 outdoor chargers at different government outdoor car parks for over a year. The

results reveal that they are not affected by weather conditions, and remain safe even under rainy weather.

Promoting electric public transport

Electric buses

38. Members have sought for an update on the trial scheme on electric buses in Hong Kong, including the progress and performance findings of the trial scheme, the routes plied by the electric buses under the scheme, and the interim target, if any, set by the Administration on the use of electric buses in Hong Kong.

39. The Administration has explained that the design and application of electric franchised buses in Hong Kong encounter more challenges than other places, including the need to cope with Hong Kong's hilly topography, the low efficiency of the batteries, and the lack of land and space for providing charging facilities. It would continue to monitor the performance of single-deck electric buses under the trial scheme and to liaise with FBCs and bus manufacturers for designing suitable bus models for use in Hong Kong.

40. On the trial scheme on 36 single-deck electric buses (including 28 battery-electric buses and eight supercapacitor buses), the Administration has advised that it is carrying out in stages, and all the FBCs⁶ take part in it. 14 electric buses of Citybus Limited, New World First Bus Services Limited and Kowloon Motor Bus Company (1933) Limited ("KMB") have completed the trial, 17 buses of KMB and Long Win Bus Company Limited and two buses of New Lantao Bus Company (1973) Limited have commenced operation and the remaining three buses are about to commence operation. Teething problems have been identified and resolved under the scheme.

41. As regards the driving performance of battery-electric buses, the Administration has advised that it is similar to that of diesel fuel buses, but the overall average daily driving range of better performed battery-electric buses during the trial is only about 190 kilometres ("km"). Under high ambient temperature demanding high loading of air-conditioning system, the driving range drops to about 150 km, which cannot meet the normal daily requirement of most of the single-deck buses of 200 to 300 km. The

⁶ The FBCs are Citybus Limited, New World First Bus Services Limited, Kowloon Motor Bus Company (1933) Limited, Long Win Bus Company Limited and New Lantao Bus Company (1973) Limited.

Administration is considering the arrangement of top-up charging for the single-deck buses in daytime to meet the needs as similar arrangement is currently adopted in Shenzhen. In addition, supercapacitor single-deck buses with lower driving range but quick charging are also being tested under the trial scheme to see if they could be used in the local operating environment.

42. The Subcommittee notes that about 95% of the franchised buses in Hong Kong are double-deckers and the remaining are single-deckers. The single-deck electric buses of the FBCs under the trial scheme will continue to run after the scheme. The technology of double-deck electric buses is still evolving with the most advanced technology being developed in the Mainland. As such, the Administration finds it pre-mature to set any target for the use of electric buses in Hong Kong at this stage.

Electric public light buses

43. On the \$80 million earmarked by the Government to launch a pilot scheme for e-PLBs, members have urged the Administration to implement the pilot scheme expeditiously and enquired about the timetable and difficulties for changing all green PLBs to e-PLBs after launching the pilot scheme.

44. The Administration has advised that in view of the shortage of land supply in Hong Kong, it would not be possible to find enormous land and space to install charging facilities for public transport vehicles. However, rapid improvement and development in EV batteries and charging technologies would help overcome some of the problems. The Administration has further pointed out that with significant development in EV batteries and charging technologies in future, it would invite EV manufacturers to design suitable e-PLBs and electric bus models meeting local conditions and modus operandi.

45. As regards PLBs, the Administration has advised that each of them runs about 200 km or more on a daily basis. Since not all PLBs would be parked at the termini overnight to get charged, they need to have quick charging opportunities a few times in daytime and each for about 10 minutes to support their total daily mileage. As PLBs are almost unique to Hong Kong, the Government engaged a consultant in March 2019 to study and map out the specifications and requirements of local e-PLBs and the associated charging facilities that suited Hong Kong's operating environment. The study is about to complete, and generally positive feedbacks are received from the PLB trade, PLBs manufacturers and charging service providers which

have been consulted. The next step would be to identify suitable PLB routes for trial under the pilot scheme and gauge the trade's intention to join the pilot e-PLB scheme. The Government has planned to engage about 40 e-PLBs running on various routes for a trial of about 12 months.

Electric taxis

46. Members note that technologies on e-PCs have become quite mature and some members of the taxi trade have shown interest in trying electric taxis. The successful reintroduction of electric taxis into Hong Kong would hinge, among other factors, on the availability of charging facilities that could meet the taxi trade's operational needs. Members have sought information on how the Administration would facilitate the installation of such charging facilities. Citing the incentive schemes in 2000 and 2002 respectively to push the transport trade to replace diesel taxis and diesel light buses with liquefied petroleum gas ones, members have enquired about the Administration's plan, if any, to replace all fuel-propelled taxis by electric taxis.

47. According to the Administration, under the general operational mode, taxis are being operated daily for more than 20 hours and over 500 km in mileage. Suitable electric taxis models and the establishment of a quick charging network for drivers to charge in time are both required for the use of electric taxis in Hong Kong. The Government commissioned a consultant in October 2019 to look for suitable sites for setting up quick charging stations in various districts of Hong Kong, and will continue to encourage suppliers to introduce more electric taxi models that suit local use. Some taxi operators are also looking for electric taxi models that suit the operation needs of the market, in preparation for the trial of electric taxis in the future. Given the time needed to identify suitable electric taxi models and come up with a comprehensive charging network, the Administration does not have any concrete timetable to replace fuel-propelled taxis by electric taxis.

Disposal of waste electric vehicle batteries

48. Members have studied the latest progress of the Government's work on the recycling and disposal of waste EV batteries and enquired about the need for local battery recycling facilities, given that the number of waste EV batteries in the coming few years will rise as EVs become increasingly popular.

49. The Administration has advised that waste EV batteries have to be properly handled under the Waste Disposal Ordinance (Cap. 354) and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354C). Most EV manufacturers or agents have currently engaged licensed collectors to collect the waste batteries of their brands' EVs. After proper preliminary treatment (e.g. sorting, discharging and insulating) and packaging, these waste EV batteries are exported to appropriate treatment facilities in Japan, Korea or Belgium for recycling. Although the age of most EVs in Hong Kong remains young and the number of retired EV batteries remains small at this stage, as EVs will become more popular in future, the Environmental Protection Department ("EPD") is embarking on a study on how to promote recycling of new energy vehicles batteries. Apart from analysing overseas experiences, EPD has been maintaining close liaison with the trade and EV suppliers to explore solutions that are applicable to local situation, so as to enhance environmental protection. The Administration considers that the number of waste EV batteries in the coming few years may not constitute a sufficiently large market demand to support the setting up of a local battery recycling facility.

Training of repair and maintenance personnel for electric vehicles

50. Members have examined the training currently available to the repair and maintenance personnel for EVs. Members consider it important that the Administration has long-term plans for developing career paths for practitioners in the EV maintenance sector.

51. The Administration has advised that the Vocational Training Council ("VTC") currently offers a number of in-service training programmes and two full-time programmes related to automobile maintenance, including the Higher Diploma in Automotive Engineering and Diploma of Vocational Education (Automotive Technology). The two full-time programmes are expected to provide more than 260 training places in total in the 2020/21 academic year. VTC has embedded professional knowledge relevant to EV in the pre-employment programmes relevant to the automobile industry at various levels, such as design, operational modes, safety standards, and maintenance skills. VTC will suitably update the relevant programme curricula having regard to the development of EV-related technology and industry demands. The Administration will continue to collaborate with VTC and relevant stakeholders to encourage EV suppliers and maintenance sector to share relevant information on the maintenance of EV, with a view to strengthening related training.

Recommendations

52. In the course of its deliberations, the Subcommittee has recommended that the Administration should –

- (a) set targets for promoting the use of EVs (see paragraph 8 above);
- (b) make the incentive of FRT concession more effective by raising its amount (paragraph 15 above);
- (c) announce the extension of the "One-for-One Replacement" Scheme as soon as possible (paragraph 19 above);
- (d) review the requirements for granting GFA concessions for charging-enabling infrastructure (paragraph 25 above); and
- (e) expedite the launch of the pilot scheme to subsidize installation of charging-enabling infrastructure in private residential buildings (paragraph 29 above).

Advice sought

53. Members of the Panel are invited to note the work of the Subcommittee.

Council Business Division 1
Legislative Council Secretariat
17 July 2020

Panel on Environmental Affairs

**Subcommittee to Study Issues Relating to
the Development of Electric Vehicles**

Terms of reference

To review and study Hong Kong's policies on electric vehicles, including policy implementation, target setting, support measures and other related matters.

Panel on Environmental Affairs

**Subcommittee to Study Issues Relating to
the Development of Electric Vehicles**

Membership List

Chairman Hon CHAN Hak-kan, BBS, JP

Members Hon Frankie YICK Chi-ming, SBS, JP
Hon Kenneth LEUNG
Hon Elizabeth QUAT, BBS, JP
Ir Dr Hon LO Wai-kwok, SBS, MH, JP
Dr Hon Junius HO Kwan-yiu, JP
Hon SHIU Ka-fai, JP
Hon Tanya CHAN
Hon HUI Chi-fung

(Total : 9 members)

Clerk Mr Derek LO

Legal Adviser Mr Cliff IP

Panel on Environmental Affairs

**Subcommittee to Study Issues Relating to
the Development of Electric Vehicles**

**List of organizations/individuals which/who have given views
to the Subcommittee**

1. A member of the public
2. Clean Air Network
3. Dr Jonn AXSEN
4. EV Policy Study Group
5. Greenpeace
6. Hong Kong New Emerging Technology Education Association
7. Hong Kong Professionals and Senior Executives Association
8. Liberal Party
9. Miss WONG Pit-man, Kwai Tsing District Councillor
10. Mr Alex KC SIU
11. Mr Joshua FUNG Man-tao, Kowloon City District Councillor
12. Mr Leslie CHAN Ka-long, Yau Tsim Mong District Councillor
13. Mr LEUNG Pak-ho
14. Public Transport Research Team
15. The Hong Kong Institution of Engineers