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Position Paper

The European Automotive
Council (EAC) of
the European Chamber of
Commerce in Hong Kong



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Introduction

The European Automotive Council (EAC) of the European Chamber of Commerce represents the European passenger car and commercial vehicle manufacturers in Hong Kong. The Council aims to bring forward proposals and be a partner to the Government of the Hong Kong Special Administrative Region of the People's Republic of China, (Hong Kong), working together towards a safer, greener, more efficient and more competitive automotive sector. Members of the Council are European vehicle manufacturers, their subsidiaries and/or representative offices.

This Position Paper expresses the common work and views of the members of the EAC and aims to lead to overall improvements in the target areas.

Abbreviations

| | |
|----------------------|------------------------------------------------------------------------------------------------------------------------------|
| ADAS | Advanced Driving Assistance Systems |
| AV | Autonomous Vehicles |
| C-ITS | Cooperative Intelligent Transport System |
| ECE | Economic Commission for Europe of the United Nations |
| ELS | Earn and Learn Scheme |
| ETSS | Engineering Training Subsidy Scheme |
| EU | European Union |
| EV | Electric Vehicle |
| Hong Kong | Hong Kong Special Administrative Region of the People's Republic of China |
| ITS | Intelligent Transport System |
| JTISs | Journey Time Indication Systems |
| Mainland China | People's Republic of China |
| PHEV | Plug-in hybrid electric vehicle |
| TD | Transport Department |
| PLB | Public Light Buses |
| Policy Address | The Chief Executive's 2017 Policy Address from the Hong Kong Special Administrative Region of the People's Republic of China |
| Smart City Blueprint | Report of Consultancy Study on Smart City Blueprint for Hong Kong |
| SMPs | Speed Map Panels |
| VPET | Vocational and Professional Education Training |
| VTC | Vocational Training Council |
| V2C | Vehicle-to-car |
| V2I | Vehicle-to-infrastructure |
| V2X | Vehicle-to-everything |
| WLABs | Waste Lead-Acid Batteries |
| WLTP | World Harmonised Light Vehicle Test Procedure |

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Executive Summary

The European Automotive Council (EAC) would like to submit the following recommendations for the attention of the Government of Hong Kong.

Sustainable mobility plays a key role in supporting Hong Kong's pursuit of cleaner air and carbon emissions reductions - in essence, higher quality of life for its citizens. In this regard, the EAC suggests further measures should be taken. First, as the transition to electric vehicles begins to gather pace, it is essential that the power supply is decarbonised at a much faster pace than is happening today. This process needs to be integrated within a long-term strategy for achieving greater sustainability of the total mobility system. Second, the upgrade of charging stations requires further incentives to enjoy the benefits of off-peak charging. In the meantime, the promotion of plug-in hybrid electric vehicles by utilising relevant incentives, can significantly contribute as a stepping stone towards electro-mobility whilst also addressing the issue of "Range Anxiety". Third, the Government's green agenda should include steps to reduce total emissions of the heavy commercial vehicle fleet through a holistic approach including increased efficiency, encouraging the use of alternative sustainable fuels and, when they become available, electric solutions as well as continuing the very successful scrapping of older vehicles. Fourth, due to the increasing number of electric vehicles (EVs) in Hong Kong, there is a need to improve the waste battery handling. Finally, the EAC strongly encourages the Hong Kong Government to review the parameters for the qualifying standards within its Environmentally Friendly Vehicle Scheme. The European Vehicle Manufacturers under EAC are strongly committed to bring a wide range of electric vehicles to the streets of Hong Kong focusing on passenger vehicles but also commercial vehicles in the years to come.

Public light buses (PLB) represent a category of vehicle in Hong Kong where the EAC can positively contribute. By allowing exemptions to the length restriction for the latest European minibuses complying with the Euro VI standard, the Government could introduce safer and more environmentally friendly minibuses to the Hong Kong PLB market.

The efficient utilization of heavy vehicles is an issue that requires the attention of the Government. Recent trends are for larger numbers of articles being transported with decreasing density and higher volumes. The EAC believes that allowing the circulation of larger trucks while reviewing the weight regulations for those trucks operating at their current legal weight limits will result in a reduction of trucks on the road, a reduction of fuel consumption per tonne.km, less traffic congestion and less air pollution.

Furthermore, the introduction of the latest advanced driver assistance systems (ADAS), is highly encouraged as it will greatly contribute to increased active as well as passive vehicle safety.

The ongoing shortage of manual labour is a clear signal that attracting talent in Hong Kong is a primary need. While the Vocational Education Training (VET) Programs demonstrate the Government's awareness of this issue, the EAC nonetheless suggests to raise the status of these workers, as well as to increase the labour market competitiveness by looking at other

national examples (e.g. Mainland China) while adopting best practices from the European vocational education systems (e.g. Germany).

The Hong Kong Transport Department has achieved significant improvements in terms of access to up-to-date vehicle registration data. However, to fully benefit from this service, the EAC suggests some further refinements.

Finally, the EAC would like to draw the attention of the Hong Kong Government to the future trends of the automotive industry. First, opening up data access for the automotive industry is a key step that will not only provide a roadmap to the stakeholders seeking improvement on the future of mobility, but it will offer the opportunity for Hong Kong to be a leader in the connected vehicles market. Second, granting access to data for Intelligent Transport Systems is necessary in order to achieve the possibility to introduce connected vehicles in Hong Kong; real-time traffic information and on-street smart parking meters should be at the top of the agenda. Third, an improved vehicle-to-infrastructure communication by using in-vehicle displays represents a safe and environmentally friendly solution to improve the current traffic situation as well as to reduce air pollution. Fourth, owners of public car parks must be willing to share their information on parking vacancy with the government. Fifth, in order to provide the legal framework relating to autonomous vehicle pilots in Hong Kong, a review of the Traffic Ordinance (Cap. 374) is of primary importance. Solving these issues will help the government's agenda on making Hong Kong a "smart and liveable city".

1

Sustainable Mobility

The Hong Kong Environmental Protection Department's efforts to promote electric vehicles (EVs) have been successful, as demonstrated by the significant rise in the number of these vehicles: as at the end of October 2019, there are 13,066 EVs for road use, up from less than 100 in end 2010¹. Although electric vehicles do emit indirectly - with the carbon intensity of the fuel mix of electricity generation and power station emissions reducing their environmental friendliness - EVs are still strongly promoted by the Hong Kong Government. As affirmed in the Budget Speech 2018-19, the Government has extended the first registration tax (FRT) concessions for EVs until 31 March 2021². Furthermore, the introduction of the "one-for-one replacement" scheme will allow eligible private car owners who buy a new electric private car and scrap an eligible private car to enjoy a higher FRT concession. However, in order to avoid a possible misuse, the EAC recommends reviewing and implementing a mechanism in regard to a minimum holding period of the EV acquired under the respective scheme.

1.1. Long term decarbonisation

While any shift towards electric vehicles will contribute greatly towards improved air quality, a reduction in greenhouse gas emissions will only be of significance if the power generation is able to decarbonise. A plan to move power generation from fossil fuels to renewables therefore needs to be put in place to parallel the transition to electric vehicles.

1.2. Upgrades of charging stations

As at the end of September 2019, there are 2506 EV chargers for public use including 1006 medium chargers in Hong Kong, covering all 18 districts in various types of buildings³. However, they mainly serve as supplementary charging facilities and, for this reason, the EAC encourages further incentives in order to reach a move to home charging and smart meters to gain the benefits of off-peak charging. The EAC welcomes recent commitments of additional funds for improved charging facilities in Hong Kong.

1.3. Implementation of plug-in hybrid electric vehicle

The plug-in hybrid electric vehicle (PHEV) offers owners without guaranteed access to charging points the confidence the car will be available for use when needed. This is due to its additional conventional powertrain if battery charge is low and external charging is not possible. However, as long as electricity is available for free, or is cheaper than petrol, it is anticipated that PHEV owners will drive on electric power whenever they can. Latest PHEV passenger vehicles enable electric ranges up to 100 km under WLTP conditions, enabling fully electric commuting in an urban environment. PHEVs can therefore accelerate the change to EVs while the charging network is developed and the EAC therefore encourages the EPD to consider incentives to encourage the purchase of PHEVs. The usage of PHEVs within the transition to fully electric vehicles also helps to promote electric mobility and address the concerns mainly around the electric range (“Range Anxiety”).

1.4. Heavy commercial vehicles

While fully electric heavy-duty buses are starting to be seen in cities world-wide, heavy duty electric trucks are still in the development stage. We are in a transition phase and for commercial EVs to become part of the mainstream they are in need of a long-term, government led plan for the transport sector. In the meantime, there are alternative solutions to reduce carbon and other emissions from heavy vehicles, including alternative renewable fuels and hybrid drives. These solutions, however, have not so far been actively explored or encouraged in Hong Kong and the EAC proposes the Hong Kong Government to include such solutions in a road map towards a sustainable transport system.

1.5. Recycling and disposal of batteries

Waste Lead-Acid Batteries (WLABs) are classified as chemical waste and they are controlled under the Waste Disposal Ordinance (cap. 354) (WDO) and its subsidiary Waste Disposal (Chemical Waste) (General) Regulation (CWR). Hence, WLABs must be collected by licensed chemical waste collectors for delivery to licensed chemical waste treatment facilities for disposal. Currently, there are 4 licensed collectors of waste batteries from electric vehicles in Hong Kong⁴. Due to the increasing amount of EVs in Hong Kong, there will also be a significant increase in the need for waste battery handling, including the handling of different types of battery⁵.

1.6. Incentives for cleaner vehicles

The Environmentally Friendly Vehicle (EFV) Scheme introduced by the Government is intended to encourage vehicle purchasers to buy vehicles of outstanding environmental performance. While the intention is good, the criteria applied to receive any incentive must achieve the objective while being fair to all suppliers. The EFV Scheme has worked well when the compliance standards applied within this Scheme have been based on recognized international standards, for example by encouraging the purchase of Euro VI vehicles before that standard become mandatory. However, it is not considered to be acceptable to create a local standard that does not truly reflect the environmental performance when the vehicles are in operation. Furthermore, the lead-times for announcing changes to the EFV Scheme have been very short in an industry that has lead times of several months and even years.

The latest Euro VI vehicles have, in any case, close to zero roadside emissions. Most of the pollution from vehicles is coming from pre Euro VI vehicles, so the introduction of a scrapping scheme to get older vehicles off the road was an excellent step taken by the Government. Considering the disproportionate impact of commercial vehicles on local air quality this is by far the most impactful short-term action that can be taken in Hong Kong to improve urban quality of life. The EAC therefore strongly supports the Government investing in scrapping older vehicles as well as incentivising the purchase of lower emission vehicles when suitable international standards can be applied, or if other methods can be found that more accurately and fairly compare the emissions of vehicles in operation.

1.7. Recommendations

The EAC would like to propose the following recommendations for the consideration of the Hong Kong Government:

- If the Hong Kong Government continues to support a policy encouraging the use of electric vehicles, then the purchase of plug-in hybrid electric vehicles (PHEVs) should also be encouraged as an accelerator towards electric mobility. Incentives given by the Environment-friendly Vehicle Scheme to purchase EVs should be extended to PHEVs.

- To establish a “roadmap” with emission reduction objectives, working through future power generation fuel mix, alternative vehicle fuels, vehicles types and infrastructure for the new alternatives (be they electric vehicles or others), with the overall goal to gain environmental benefits from EVs, PHEVs, alternative fuels and other technical solutions available today and coming in the future.
- To develop a long-term vehicular battery disposal and recycling strategy in order to avoid negative environmental impact when dealing with the batteries from electric vehicles.
- To continue the vehicle scrapping scheme to get older vehicles off the road.
- When establishing Qualifying Standards for the EFV Scheme, the use of international standards should be used when available otherwise other methods should be found that may be used to more accurately and fairly compare the emissions of vehicles in operation.
- Following an industry consultation on any change that may have an effect on the market, at least six months and preferably one year’s notice should be given before introducing changes or amending the EFV Scheme.

2 Public Light Buses

2.1. PLB minibus homologation

European vehicles meeting the Euro VI standards bring benefits in terms of safety and environmental friendliness. Through the reduced roadside emissions and the implementation of new assistance features that help to increase road safety, these vehicles are designed with road and passenger safety in mind. However, due to the current Road Traffic Ordinance established by the Hong Kong Transport Department, European minibuses are restricted to enter the Hong Kong public light bus (PLB) market.

The two main factors preventing the European PLB manufacturers’ market access are:

1. The maximum length of light buses, which is seven (7) meters in Hong Kong.
2. The Hong Kong Transport Department requires a rear emergency exit⁶, which might not be available on European vehicles complying with the UNECE regulation⁷.

As a consequence, the current fleet of Hong Kong PLBs can only comply with Euro V standards. This length restriction prevents the circulation of European vehicles that, by respecting the European standards, are larger in length due to the need to accommodate more components in the driveline while placing the engine in a forward location outside the passenger area.

This arrangement creates more space inside the vehicle and makes the front compartment an important cushion in case of frontal collision, thus reducing the harm to the vehicle's driver compared with the currently licensed PLBs, where the engine is placed within the passenger compartment.

Safety of PLBs in Hong Kong appears to be a key concern. According to the Hong Kong road safety statistics, in 2016 public light buses had a significant involvement rate in vehicle accidents with over 1,000 cases⁸. In this regard, the European automotive manufacturers could introduce suitable models whose features can extensively reduce the risk of accidents while improving the safety of public transport drivers and passengers (e.g. Anti-Skid Regulation, Electronic Brakeforce Distribution, Brake Assist, Cross Wind Assist, Lane Keeping Assist, Blind Spot Assist, Collision Prevention Assist, Electronic Stabilizer Program, multiple emergency exits, deformation zone, air bags, Traction Control System, Cruise Control, etc.).

We understand that the transport department is considering an amendment to the Road Traffic Construction and Maintenance of Vehicles Regulations (Cap. 374A) to extend the length requirement for public light buses to 7.5 metres. We welcome this consideration. However, to fully level the playing field in Hong Kong and reap the benefits of increased competition in the supply of PLBs (in terms of technical capabilities, environmental performance, etc), we encourage the transport department to also consider doing away with the requirement of a rear emergency exit, as long as emergency exit capabilities can be provided in alternative manners as in the case with European light buses that utilize roof hatches and emergency window hammers. The sole extension of the length limitation to 7.5 metres would still not be sufficient for European light bus to accommodate 19 passengers if the requirement for rear emergency door remains and therefore would not be able to provide products in this segment. We moreover encourage the transport department to act within the originally foreseen time frame, i.e. the 2019/20 legislative year.

2.2. Recommendations

The EAC asks the Hong Kong Government to consider the following recommendations:

- To relax the length requirement for PLB homologation from 7m (max) to 8m (max) if the light bus comes with front box module design which is a critical safety feature.
- To accept safety windows and emergency roof hatches as legal emergency exits to replace rear emergency door which is not available for European light bus models.
- To exempt the two-motion door opening mechanism for emergency door because European light buses come with double doors.
- To accept European seat spacing requirement for European light buses homologation in order to keep the vehicle length within 7.5m for 19 seats.

3

Utilization of heavy commercial vehicles

The size and weight limits for commercial vehicles affect the productivity rate of trucks with repercussions on their environmental impact. According to the recent trend, the number of articles and products transported is increasing along with a decrease in density of the freight moved leading to a higher need for volume capacity. In order to address this need, the physical dimensions of trucks need to be increased up to technical and societal limits. Furthermore, many trucks that work to their load capacity (such as construction trucks) are being under-utilized in Hong Kong due to the local regulations limiting loading to less than the technical limits that reflect the European regulations.

The Hong Kong weight and dimension regulations that are out of step with European and global trends are thereby reducing the opportunities for the Hong Kong logistics industry to maximise efficiency while sometimes adding costs for special adaptations. There may also be missed opportunities to standardise with Mainland China to optimise some cross-border operations.

3.1. Alignment with EU weight regulations

In general, Hong Kong weight limits are some two tonnes less than Europe. Many trucks that work to their load capacity (such as construction trucks) are therefore being under-utilized in Hong Kong. With road friendly suspension, for example air suspension, reducing road damage, there are opportunities to review these regulations with the result of fewer trucks being needed on Hong Kong's roads.

| | Max. Length (HK/EU) | Max. Width (HK/EU) | Max. Height (HK/EU)* |
|------------------------------|------------------------|-----------------------|-------------------------|
| Light Bus | 7.0m / 12.0m | 2.3m / 2.55m | 3.0m / 4.0m |
| Single Deck Bus | 12.0m / 15.0m | 2.5m / 2.55m | 3.5m / 4.0m |
| Medium Goods | 11.0m / 12.0m | 2.5m / 2.55m | 4.6m / 4.0m |
| Heavy Goods (Rigid) | 11.0m / 12.0m | 2.5m / 2.55m | 4.6m / 4.0m |
| Heavy Goods (Articulated) | 16.0m / 16.5m | 2.5m / 2.55m | 4.6m / 4.0m |
| Trailer | n/a / 12.0m | n/a / 2.55m | n/a / 4.0m |

| | | | |
|------------|-------------|-------------|------------|
| Road Train | n/a / 18.75 | n/a / 2.55m | n/a / 4.0m |
|------------|-------------|-------------|------------|

Chart 1: Length Requirements in Hong Kong and EU

* 4.0m height restriction in Europe due to bridge heights. Not applicable in Hong Kong.

While straightforward increases in weights are desirable, the regulations specifying individual axle weights in an axle group combination also need to be reviewed. For example, the most common arrangement in a five axle truck is for two front steering axles and three rear axles, two of which are driven and one non-driven. With electronic air suspension, the loadings can be distributed for greatest safety by putting a higher load through each driven axle and a slightly lighter load through the non-driven axle. However, the current Hong Kong regulations are preventing this optimal technical solution.

3.2. Alignment with EU dimension regulations

In order to embrace the demand for greater volume capacity, the previous European regulation needed to be reviewed. In 2011 the European Commission decided to revise Directive 96/53/EC of July 1996, specifically with regard to the weight and dimensions of road vehicles⁹. The purpose was to improve energy efficiency and road safety.

In Hong Kong there are several dimensional regulations that are out of step with European and global trends. For example, the lengths of articulated trucks, the axle spacing on four-axle trucks, minor fittings (such as grab handles) being excluded from overall dimensions, equipment needed for advanced driver assistance systems (ADAS) being excluded from width dimensions¹⁰, the restrictive minibus dimensions and the anomaly that vehicle width is allowed up to 2.55m on franchised buses but not on non-franchised buses, coaches or trucks.

The European Parliament's Transportation Committee also suggested the Commission bring forward a delegation act on a proposal to further increase vehicle lengths. A full utilization of the load capacity, and therefore a larger truck, will reduce the fuel consumption per tonne.km, the number of trucks on the road and thereby reduce traffic congestion, air pollution, and the overall environmental impact.

3.3. Recommendations

The EAC would like to propose the following recommendations for the consideration of the Hong Kong Government:

- To review the current weight and length regulations in Hong Kong and align them, wherever possible, with the EU regulations, so as to allow a better utilization of trucks thereby reducing their number on the road while allowing the optimal and safest technical solutions.

- This review should include as a matter of urgency the exclusion of certain items from the overall length and width of vehicles, so as not to restrict the speedy introduction of advanced driver assistance systems (ADAS) which will contribute greatly to increased vehicle safety.
- To implement a pilot project in Hong Kong to test out heavier and longer vehicles that can carry two containers per vehicle on identified roads.

4

Attract Talent in Hong Kong

4.1. Shortage of Manual Labour in Hong Kong

At the beginning of 2019, 16,961 workers were employed in the area of vehicle servicing sector and in the auto/parts retail sector in Hong Kong. The majority (60.7%) of employees in the vehicle servicing sector were at the craftsman level, summing up to 7,835 workers.¹¹. The large number of vehicles on road will continue to demand a skilled workforce for maintenance and repairing. In addition, the ageing population and declining birth rate of Hong Kong is inevitably leading to a further shortage of qualified manual labour in the vehicle sector. Therefore, as vehicles become more sophisticated and electrification increases there will be an increasing need for highly skilled and trained technicians.

According to the Automobile Training Board, graduates from the full-time Higher Diploma in Automotive Engineering program will cover 54% of the projected demand for technicians, whereas the projected demand of craftsman can be covered up to 76% by Diploma apprentice¹². Hence, there is an urgent need to attract more trainees to the programs, as the quality of service might otherwise decrease.

4.2. Attract talents to Manual Labour

The EAC supports the Hong Kong government's decision to continue with the Pilot Training and Support Scheme through the Vocational Training Council which, firstly introduced in the academic year 2014/15, has been reconfirmed in the 2018/19 budget release. With this Scheme, the Government aims at providing a more qualified "vocational and professional education and training" to attract the local youth to the vehicle maintenance industry¹³. In addition, the EAC also welcomes the paragraph "Importation of Labour" part of the 2017 Policy Address. The Hong Kong Government thus shows its commitment to make blue collar jobs more attractive as well as its availability to the "possibility of increasing imported labour on an appropriate limited scale"¹⁴. Similar to other blue-collar jobs, the chances and opportunities of becoming a mechanic need to be promoted among the public, especially among young staff members. Therefore, the EAC encourages the relevant policy bureaux and departments to recognize car manufacturers and mechanics as a relevant industry that is

facing a significant shortage of labour force. The members of the EAC could contribute to discussions on how to enhance training and attract new talents based on their experience in Europe.

4.3. Vocational Education Training (VET) Programs

The Earn and Learn Scheme (ELS), recommended by the Training Board, provides clear academic and career pathways. Within this Scheme, participants will be introduced to a program of on-the-job training and classroom learning. The ELS seems to be successful as registered apprentices in vehicle servicing trades increased over the past 2 years.

For in-service workers, the Training Board recommends the Engineering Training Subsidy Scheme (ETSS) to upgrade their knowledge and qualifications. From the Academic Year 2016/17, the ETSS provides tuition fee subsidy for 3 cohorts of students enrolled in designated professional part-time programs offered by the Vocational Training Council (VTC)¹⁵. However, as this is only available to a limited number of students, additional efforts are needed to promote the programs offered by the VTC.

Nevertheless, the Vocational and Professional Education Training (VPET) Programs for young professionals might pose an alternative to students who recently graduated from high school. Even though VPET Programs have a good reputation in Hong Kong, 34% of secondary school students would not consider pursuing them, and 28% of their parents would not advise their children to pursue this type of career¹⁶. Regarding the career prospect, only half of the secondary school students and 56% of their parents believe VPET Programs offer good career prospects¹⁷.

Taking these numbers into account, it is important to not only promote VPET Programs, but to also raise awareness about future career options. Therefore, the EAC welcomes Paragraph 124 and 125 of the 2017 Policy Address on the promotion and improvement of VPET Programs.

4.4. Education for manual labour in Germany

Among European countries, Germany offers an interesting example related to education for manual labour. In Germany, students can participate to a dual vocational training system that combines attending classes at a vocational school with receiving an on-the-job training at a company. This educational program is split into two parts and, currently, there are around 350 officially recognized training programs in Germany¹⁸. During the “dual system” apprenticeship, the apprentice spends two to three days per week working at a company where practical skills are passed on to the student. During the other days, the student goes to school to learn the relevant theoretical knowledge. Schools and companies are working together in order to align and ensure the best training for the apprentice. The advantage of this program is that students are paid during the years of apprenticeship while being exposed to opportunities of on-the-job training and work experience - hence the attractiveness of this program among young students.

4.5. Consideration to introduce Dual University programs

The EAC would like to encourage the Hong Kong government to considering launching and supporting higher education programs combining integrated academic studies and workplace training following examples from e.g. Germany¹⁹. The availability of highly educated young professionals, who would have had their first steps in the workplace already, is crucial not only to the automotive industry.

4.6. Recommendations

The EAC would like to propose the following recommendations for the consideration of the Hong Kong Government:

- The Hong Kong Government is encouraged to raise awareness of the importance of the vehicle maintenance labour force to the Hong Kong economy and to make efforts to raise the status of such workers.
- Hong Kong should adopt best practices from the German vocational education system - such as the dual-track VPET - to attract the local youth to the vehicle maintenance industry.
- To include vehicle maintenance professionals in the service sectors enjoying preferential treatment under the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA).

5 Vehicle registration data

5.1. Access to up-to-date vehicle registration data

The Transport Department have been very helpful in updating their systems to provide new vehicle registration data in a much more timely and usable format and the EAC thanks them for those improvements. The EAC asks if similar data could be provided on used vehicle registrations so a more accurate picture of the whole market can be available.

5.2. Recommendations

The EAC would like to suggest to the Transport Department of the Hong Kong Government:

- The inclusion of used vehicle registration data in the monthly reports.

6

Future trends of the automotive industry

6.1. Opening up data access for the automotive industry

Digitalization is becoming an integral part of our daily lives. In a digital era, to improve the safety, mobility and efficiency of driving, the EAC welcomes paragraph 77 of the Chief Executive's 2017 Policy Address. The paragraph "Open up government data" highlights the willingness of the Hong Kong Government, in the course of the Smart City development, to proactively open up datasets in various areas to facilitate technological research as well as the development of various industries²⁰. These efforts have been further demonstrated by the publication of the Smart City Blueprint in December 2017. Similar to the work conducted by the Intelligent Transport System (ITS) and Cooperative Intelligent Transport System (C-ITS) Deployment Platform in the European Union, a whole section of this Blueprint is dedicated to Smart Mobility. This provides a roadmap to the stakeholders examining possibilities and seeking improvement on the future of mobility.

Following the suggestion stated in the Report of Consultancy Study on Smart City Blueprint for Hong Kong (Smart City Blueprint), the EAC supports the access to more real-time traffic/road information based on Vehicle-to-everything communication technology (V2X)²¹. The Hong Kong Government should consider the development of a strategy for centralized information and allow car manufacturers to access the existing data. Therefore, the EAC also supports the development of an ITS strategic roadmap, which will serve as a framework for the ITS development and implementation in Hong Kong²²; such a holistic approach provides security and allows better planning for the manufacturers. As a result, Hong Kong could place itself as a leader in the connected vehicles market.

6.2. Access to data for Intelligent Transport System

The Hong Kong Government agreed on an important step by highlighting the need to collect additional data. Paragraph 82 in the 2017 Policy Address, emphasizing Smart Mobility and the development of the Intelligent Transport System, addresses several important aspects such as real-time traffic information, on-street parking meters, and ideas to provide timely traffic information to drivers. In the past years, the above-mentioned topics have been of special interest to the European car manufacturers. Especially, to name a couple of examples, the access and sharing of real-time traffic information and smart parking information. To achieve the possibility to introduce connected vehicles in Hong Kong, it is of great importance to allow vehicle manufacturers to access the data being collected. The EAC supports the development of smart traffic management pilots in Hong Kong.

6.3. Installation of traffic detectors, Speed Map Panels and Journey Time

In order to enhance traffic management by using Intersection Traffic Controllers (ITC), it is essential to receive information about real time traffic and parking space. In fact, these features would allow the drivers to adapt their journey to the traffic situation and update their navigation route accordingly. The Hong Kong Government has proved to be committed to upgrade its traffic management tools. First, as mentioned in paragraph 82 of the 2017 Policy Address, it is recommended to combine various existing transport mobile applications of the Transport Department into one platform²³ - this operation would lead to the creation of an All-in-one Transport Mobile Application, instead of having three mobile applications as it is at the moment. Secondly, with reference to the Smart City Blueprint, the Hong Kong Government is also committed to the installation of additional Journey Time Indication Systems (JTISs) and Speed Map Panels (SMPs), which will further increase the coverage that currently sums up to 80% of the strategic routes of Hong Kong²⁴.

The EAC welcomes these initiatives. However, there is room for improvement by providing commuters with the collected data and allowing them to better adapt to the traffic situation. In this regard, the update of Regulation 37 of the Road Traffic Regulations is necessary to allow an improved vehicle-to-infrastructure (V2I) communication by using in-vehicle displays. In-vehicle displays could, for example, be connected to the Internet, to the driver's smartphone and mobile applications, which would consequently allow the driver to receive automated notifications shared via a mobile application. Moreover, with in-vehicle displays, drivers are less likely to be distracted and induced to check current traffic information on their phone while driving. Significant potential can be seen in providing the driver with notification on less congested routes, but also in offering advice if other commuting transport systems might be a better choice. Finally, by broadening the drivers' options, these features can also have a positive impact on the air pollution in Hong Kong by reducing heavy traffic congestions.

6.4. Smart Parking

Drivers in Hong Kong do not only face congested roads but also the time-consuming search for a vacant parking place. This search, which obliges drivers to circle around an area while looking for a parking slot, results in an unnecessary and mostly avoidable contribution to air pollution and traffic congestion. In order to improve the parking situation, the EAC welcomes the installation of a new generation of on-parking meters, as announced in paragraph 82 of the 2017 Policy Address²⁵. These on-parking meters have new sensors integrated able to detect whether a parking spot is occupied, and, in addition, they accept payments through a variety of electronic means²⁶. However, to fully benefit from these new parking meters, owners of public car parks must be willing to share their information on parking vacancy with the government²⁷. The EAC also would like to highlight the disparity between public and private parking costs as a reason for unnecessary time spent searching for cheaper parking²⁸. By harmonizing public parking costs with private parking, higher utilization of available parking spaces could be achieved. Furthermore, so as to keep cars out of the city centre avoiding the need to park there, the EAC encourages the development of more "Park & Ride" facilities.

6.5. Driver assistance and safety features

According to the Smart City Blueprint, the use of autonomous vehicles (AV) pilots might start in 2021-2025, and in 2026-2030+ AVs are expected to be seen on the road²⁹. However, prior to pilot testing AVs on public roads, the next step is to strengthen and to ease out the use of driving assistance and safety features in vehicles. Advanced driving assistance systems (ADAS) can be understood as “vehicle-based intelligent safety systems which could improve road safety in terms of crash avoidance, crash severity mitigation and protection, and automatic post-crash notification of collision; or indeed integrated in-vehicle or infrastructure based systems which contribute to some or all of these crash phases”³⁰. Examples of in-vehicle technologies used in Europe are Blind Spot Monitoring, Lane Departure Warning, Active Steering, Obstacle and Collision Warning, Brake Assist or eCall.

Hong Kong’s Traffic Ordinance (Cap. 374, Part 7) does not currently provide the legal framework needed by car manufacturers to make the best use of the aforementioned features³¹. The Smart City Blueprint recommends the review of the Road Traffic Ordinance, Cap. 374, to be conducted in 2021-2025. However, the significant results of these features on Hong Kong’s road safety make the EAC believe in the necessity to move the review to an earlier time period³². In the meantime, relevant exemptions should be granted to enable a wider range of ADAS features as soon as possible.

6.6. Electronic Road Pricing

Road space is a finite resource in Hong Kong and increasing vehicle traffic³³ - especially in central areas - is severely impacting the throughput of people and goods. This is not a situation that is sustainable for the future. The EAC strongly supports the Government’s proposed Electronic Road Pricing Pilot Scheme for the Central District. By assigning the actual cost of driving in highly congested areas, according to the user-pays principle, traffic congestion and road-side emissions can be eased and motorists, goods transporters, pedestrians, and public transport users all benefit.

6.7. Recommendations

The EAC would like to propose the following recommendations for the consideration of the Hong Kong Government:

On-board Visual Displays

- To update regulation 37 of the Road Traffic Regulations, as well as the Legislative Regulation and Guidelines over the Installation of Visual Display Unit (TV Screen) in a Vehicle to allow modern in-car displays.
- To adopt the European Commission recommendations on safe and efficient in-vehicle information and communication systems (Update of the European Statement of Principles on HMI (2008/653/EC))

Connectivity

- To adopt Cooperative Intelligent Transport Systems (C-ITS), 'Release 1 specifications' developed by the European Committee for Standardization (CEN) and the European Telecommunications Standards Institute (ETSI).

Autonomous Drive Features

- To follow the progress in the ECE and EU regulations and revise the Hong Kong Road Traffic Ordinance (Cap. 374, Part 7) in a timely fashion to reflect the latest developments.

Parking

- Align private and public parking prices while developing more Park & Ride facilities.

Electronic Road Pricing

- To proceed with the pilot test of ERP.

References

The Government of the Hong Kong Special Administrative Region, Environmental Protection Department. Promotion of Electric Vehicles in Hong Kong

http://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/promotion_ev.html (accessed December 6, 2019)

² The Government of the Hong Kong Special Administrative Region. The 2018-19 Budget, 169-170

https://www.budget.gov.hk/2018/eng/pdf/e_budget_speech_2018-19.pdf

³ The Government of the Hong Kong Special Administrative Region, Environmental Protection Department. Promotion of Electric Vehicles in Hong Kong

https://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/promotion_ev.html (Accessed October 30, 2019)

⁴ Environmental Protection Department of Hong Kong

<https://cd.epic.epd.gov.hk/EPICDI/chemicalwaste/download/search/> (accessed October 30, 2019)

⁵ The Government of the Hong Kong Special Administrative Region, Press Release. LCQ16: Handling of waste car batteries

<http://www.info.gov.hk/gia/general/201106/22/P201106220215.htm> (accessed February 23, 2018)

⁶ The Government of the Hong Kong Special Administrative Region, Transport Department. Road Traffic (Construction and Maintenance of Vehicles) Regulations. Cap. 374A, Schedule 12, Part I, art. 58-61

https://www.elegislation.gov.hk/hk/cap374A!en@2015-02-06T00:00:00?SEARCH_WITHIN_CAP_TXT=emergency%20exit (accessed February 22, 2018)

⁷ United Nations European Commission for Europe (UNECE). Addendum 106: Regulation No. 107. Annex I-Part I-Appendix 1 art.5.7, Annex I-Part I-Appendix 2 art.5.6

https://www.unece.org/fileadmin/DAM/trans/main/wp29/wp29regs/2015/R107r6e_01.pdf (accessed February 23, 2018)

⁸ The Government of the Hong Kong Special Administrative Region, Transport Department. Vehicle Involvements in Accidents by Class

The Government of the Hong Kong Special Administrative Region, Transport Department. Vehicle Involvements in Accidents by Class. http://www.td.gov.hk/filemanager/en/content_4849/table72.pdf (accessed February 23, 2018)

⁹ Council of the European Union. Directive 96/53/EC

<http://eur-lex.europa.eu/legal-content/IT/TXT/?uri=celex%3A31996L0053> (accessed November 20, 2017)

¹⁰ Council of the European Union. Directive 1230/2012

<https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:353:0031:0079:EN:PDF> (accessed November 4, 2019)

¹¹ Automobile Training Board, Vocational Training Council. 2019 Manpower Survey Report Automobile Industry, p. 2
[http://www.vtc.edu.hk/uploads/files/publications/automobile_training_board/en/2019%20Manpower%20Survey%20Report%20of%20Automobile%20Industry%20\(26%20Sep%202019\).pdf](http://www.vtc.edu.hk/uploads/files/publications/automobile_training_board/en/2019%20Manpower%20Survey%20Report%20of%20Automobile%20Industry%20(26%20Sep%202019).pdf) (accessed December 6, 2019)

¹² Automobile Training Board, Vocational Training Council. 2016 Manpower Survey Report Automobile Industry, p. 1
http://www.vtc.edu.hk/uploads/files/publications/automobile_training_board/en/ (accessed November 20, 2017)

¹³ The Government of the Hong Kong Special Administrative Region. The 2018-19 Budget, 127
https://www.budget.gov.hk/2018/eng/pdf/e_budget_speech_2018-19.pdf (accessed March 24, 2018)

¹⁴ The Government of the Hong Kong Special Administrative Region. The Chief Executive's 2017 Policy Address
Available at: <https://www.policyaddress.gov.hk/2017/eng/pdf/PA2017.pdf> (accessed February 12, 2018)

¹⁵ Automobile Training Board, Vocational Training Council. 2016 Manpower Survey Report Automobile Industry, p. 5
http://www.vtc.edu.hk/uploads/files/publications/automobile_training_board/en/ (accessed November 20, 2017)

¹⁶ The Government of the Hong Kong Special Administrative Region. Report of the Task Force on Promotion of Vocational Education, p. 70
[http://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/Report%20of%20the%20Task%20Force%20on%20Promotion%20of%20Vocational%20Education%20\(ENG\).pdf](http://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/Report%20of%20the%20Task%20Force%20on%20Promotion%20of%20Vocational%20Education%20(ENG).pdf). (accessed November 23, 2017)

¹⁷ The Government of the Hong Kong Special Administrative Region. Report of the Task Force on Promotion of Vocational Education, p. 70
[http://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/Report%20of%20the%20Task%20Force%20on%20Promotion%20of%20Vocational%20Education%20\(ENG\).pdf](http://www.edb.gov.hk/attachment/en/edu-system/other-edu-training/vocational-other-edu-program/Report%20of%20the%20Task%20Force%20on%20Promotion%20of%20Vocational%20Education%20(ENG).pdf). (accessed November 23, 2017).

¹⁸ Make it in Germany. Vocational training in Germany - how does it work?
<http://www.make-it-in-germany.com/en/for-qualified-professionals/training-learning/training/vocational-training-in-germany-how-does-it-work> (accessed November 23, 2017)

¹⁹ Baden-Wuerttemberg Cooperative State University
<https://www.dhbw.de/english/home.html>

²⁰ The Government of the Hong Kong Special Administrative Region. The Chief Executive's 2017 Policy Address
Available at: <https://www.policyaddress.gov.hk/2017/eng/pdf/PA2017.pdf> (accessed October 11, 2017).

²¹ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.28
<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²² PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.29
<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²³ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.29
<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²⁴ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.24

<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²⁵ The Government of the Hong Kong Special Administrative Region. The Chief Executive's 2017 Policy Address.

Available at: <https://www.policyaddress.gov.hk/2017/eng/pdf/PA2017.pdf> (accessed October 11, 2017)

²⁶ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.39

<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²⁷ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.26

<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

²⁸ Position Paper by civic exchange

https://civic-exchange.org/wp-content/uploads/2019/05/Civic-Exchange_ERP_Position_Eng.pdf

²⁹ PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.28-29

<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

³⁰ European Commission. Advanced driver assistance systems 2016, p. 7

https://ec.europa.eu/transport/road_safety/sites/roadsafety/files/ersosynthesis2016-adas15_en.pdf (accessed November 22, 2017).

³¹ The Government of the Hong Kong Special Administrative Region, Transport Department. Road Traffic (Construction and Maintenance of Vehicles) Regulations. Cap. 374A, Schedule 12, Part I, art. 58-61

<https://www.elegislation.gov.hk/hk/cap374A1en@2015-02>

06T00:00:00?SEARCH_WITHIN_CAP_TXT=emergency%20exit (accessed November 13, 2017)

³² PwC. Report of Consultancy Study on Smart City Blueprint for Hong Kong, p.28-29

<https://www.smartcity.gov.hk/report/>. (accessed November 9, 2017).

³³ Discussion Document Traffic and Transport Committee of the Central and Western District Council, Document No. 33/2019