

## The Submission of the Hong Kong Institution of Qualified Environmental Professionals to the Panel on Environmental Affairs of the Legislative Council of the HKSAR on Promoting the Use of Electric Vehicles

The Hong Kong Institution of Qualified Environmental Professionals (HKIQEP) considers that there is an urgent need for the Government to implement an aggressive and effective programme for promoting the speedy penetration of electric vehicles (EVs) and other green mobility-related technologies that are aligned with transitioning towards a carbon neutral future as soon as possible.

### 1. Why Hong Kong Should Pursue More Electrification of Transportation

- (i) Electric vehicles have very significant environmental benefits compared to existing fossil-fuel combustion technologies. At present, the transport sector, especially fossil-fuelled vehicles, accounts for about 18% of Hong Kong's total carbon emissions. Vehicles are also currently the major source of nitrogen oxides emissions and considered as the main culprit for the serious roadside air pollution in Hong Kong. Having virtually no tailpipe pollutant emissions, EVs offer an effective solution to improve our roadside air quality and, together with the use of renewable power sources, they could help achieve a net zero carbon road transport in Hong Kong.
- (ii) Electric vehicle technologies are proven and maturing. The risk of the relevant technologies not being physically or practically viable, no longer exist. The commercial viability of EV technologies has also been improving through time. According to the latest forecast from research company BloombergNEF (BNEF), battery prices have fallen by 87% between 2010 and 2019.
- (iii) Cities and countries around the world have already committed to phasing out petrol and diesel vehicles. Given that EV technologies are maturing and their commercial viability is becoming increasingly attractive, some advanced countries like the UK and EU countries that are trying to decarbonise their energy supply and ultimately their economies, have committed to phasing out petrol and diesel vehicles in 2030 or 2040. The HKIQEP believes that Hong Kong should join these international efforts to transform the transport sector, including ceasing the registration of non-net zero carbon vehicles in favour of electric vehicles (and other comparably greener vehicles) at a pace comparable to other advanced countries.
- (iv) Hong Kong started as a leader but other cities and countries are catching up. The Government's early efforts to promote the use of EVs including the offering of first registration tax concessions for EVs, allowing 100% profits tax deduction for acquiring EVs, providing subsidy for trials of EVs under the Pilot Green Transport Fund, granting concessions on gross

floor area for EV charging-enabling car parks in new buildings, enhancing the EV charging network, were all a good start, with Hong Kong having the highest number of Tesla vehicles in the world and accounting for about 6% of global sales of their Model S in 2016. However, since the deletion of the tax break for EVs in Hong Kong in 2017, the momentum has slowed to a pause – as at the end of October 2019, only 12,650 vehicles, or just about 2% of total private cars, are EVs. With the subsequent introduction of the other incentives outlined above, particularly to enable charging infrastructure, it is hoped that this would reignite the momentum. However, given that other countries have been moving ahead, Hong Kong is in danger of falling behind. According to the International Energy Agency (IEA), there has been more than a doubling of the number of EVs globally from around 2 million in 2016 to more than 5 million in 2018, with around 45% or 2.3 million electric cars on the road in 2018 being in China.

- (v) *Hong Kong can implement EVs efficiently and effectively and could be a new innovation hub for EV technology development and demonstration.* As a dense urban city, Hong Kong is one of the most suitable places for using EVs as most journeys are only a few tens of kilometers, making the driving range (and range anxiety) of EVs a non-issue. The HKIQEP encourages the Government to roll out a concrete and comprehensive and aggressive programme with a clear roadmap to transform the existing transportation to a net zero carbon one that would also have the co-benefit of roadside air quality improvement, as soon as possible. The HKIQEP believes that Government should consider, among others, incorporating the following elements in the programme and roadmap to ensure more speedy penetration of EVs (and other green vehicles).

## **2. What Can Hong Kong Do to Accelerate the Adoption of Electric Vehicles**

- (i) *More incentives to be provided to enhance penetration rate*

In addition to the existing incentive programmes, such as the "One-for-One Replacement" Scheme (Replacement Scheme) introduced in 28 February 2018 to incentivise owners of private cars to opt for EVs, the HKIQEP considers that further enhancement of the incentives should be provided to help expedite the phasing in of EVs (and other green vehicles), including:

- (a) Imposing carbon and air pollution taxes on petrol and diesel vehicles;
- (b) Requiring the reservation of sufficient parking spaces, both at roadside and carparks, exclusively for EVs (and other green vehicles); and
- (c) Providing one-off subsidy to taxi operators to require phasing out of existing taxis in favour of electric ones (and other green vehicles).

- (ii) *Better infrastructure to facilitate a smooth transition*

While the HKIQEP welcomes the Government's Electric Vehicle Charging-Enabling Infrastructure Pilot Subsidy Scheme announced on 15 October 2019, it is considered that more proactive measures need to be taken to expand and enhance the EV charging infrastructure to

enable a rapid transition to EVs (and other green vehicles). Among others, the Government should consider making regulations to require all public and private car parks to install or retrofit charging facilities within a reasonable time frame. Provision of EV charging facilities in suitable on-street parking spaces as well as petrol filling stations should be introduced as soon as possible.

(iii) *Adopting a unified EV charging standard within local and neighbouring regions*

At present, there are different EV charging standards being adopted by different countries and economies, e.g., the International Electrotechnical Commission's Standards which is mainly adopted by Europe, the Society of Automotive Engineers standards by North America and Japan and the Chinese National Standard by the Mainland. The HKIQEP considers that the Government should determine urgently how to adopt a unified EV charging standard together with our neighbouring regions in the Greater Bay Area.

(iv) *Accelerating the application of electric buses/coaches*

Although the Government has fully subsidised franchised bus companies to procure 36 single-deck electric buses (28 battery-electric buses and eight supercapacitor buses), there is no definite action plan or roadmap for an extensive application of electric buses and coaches in Hong Kong. The HKIQEP considers that the Government should accelerate the trial and testing of the commercially available models and ensure speedy and extensive application within the territory. A one-off subsidy programme may be considered to encourage early replacement of the coaches and non-franchised buses by electric models (and other green vehicles).

To ensure the electric buses are suitable for meeting Hong Kong's special needs, e.g., the need for double-deck electric buses with air-conditioning for running in hilly topography, the HKIQEP urges the Government to actively work with the local research institutions and franchised bus companies to develop our own new models as soon as possible.

(v) *Securing adequate repairing and maintenance services*

Same as other vehicle models, EVs (and other green vehicles) need regular maintenance and services to ensure smooth operations and best performance on both roadworthiness and environmental aspects. There is a need for the Government to work closely with the vehicle suppliers, the Vocational Training Centre, and the vehicle repair and maintenance industry to develop an adequate training and development programme on vehicle repair and service operators.

(vi) *Addressing the related environmental concerns properly and holistically*

EVs will not be fully sustainable unless the electricity for recharging is supplied by clean and renewable sources. In addition, EVs require the use of lithium batteries and when used batteries are disposed of, the electrodes and electrolyte may undergo hydrolysis and oxidation in

reactions with other substances to create land and water pollution. The HKIQEP considers that the Government should seek cooperation with the Greater Bay Area cities as soon as possible to consider joint exploitation of renewable resources, in particular, offshore wind power, in the nearby coastal region of Guangdong. The Government should also expand the resources recycling centres to ensure that the spent batteries and other EV wastes are duly collected, treated, recycled and re-used for protecting the environment. The Government should begin to plan for the increasing trend towards a more circular economy and consider how to encourage the design of batteries such that they can lend themselves more easily to reuse and recycling.

In addition to the use of electric vehicles (and other greener vehicles), the HKIQEP considers that the Government should also review and strengthen urgently the environmental protection aspects of its transport policy for delivering a sustainable and livable city. Among others, the Government should ensure more effective traffic management, including managing private car growth, road pricing and other effective means to reduce the overall level of vehicle transportation activity. There is also a need for a more speedy and proactive shift to green and net-zero carbon transport through measures including enhancing mass and public transport, providing good network and infrastructure to facilitate safe cycling and walking.