LCQ1: Promoting development of hydrogen transport

Following is a question by the Hon Chan Siu-hung and a reply by the Acting Secretary for Environment and Ecology, Miss Diane Wong, in the Legislative Council today (May 24):

Question:

It is learnt that the first hydrogen fuel cell bus and the first hydrogen refuelling station in Hong Kong are expected to be put into operation this year. In this connection, will the Government inform this Council:

(1) given that the existing legislation does not allow hydrogen fuel cell vehicles to run on roads, whether the Government will expedite the establishment of a legal framework for the use of such vehicles, and improve the relevant laws and regulations, standards and technical guidelines; if so, of the legislative timetable; if not, how it promotes the development of hydrogen transport without the support of laws and regulations;

(2) whether the Government will expedite the exploration of the feasibility of installing hydrogen refuelling facilities at petrol filling stations or appropriate locations across the territory; if so, of the details; if not, the measures in place to enhance the supporting infrastructure facilities for hydrogen transport to expedite the promotion of the extensive use of hydrogen fuel cell vehicles in Hong Kong; and

(3) as this year's Budget has proposed earmarking $200 million under the New Energy Transport Fund for commencing trials of hydrogen fuel cell electric double-deck buses and heavy vehicles, whether the Government has assessed if the amount is adequate for promoting the development of hydrogen transport; if it is not adequate, whether it will consider deploying additional resources for establishing a dedicated fund to assist in promoting hydrogen transport, as well as researching and developing hydrogen fuel cell vehicles jointly with the Mainland cities of the Guangdong-Hong Kong-Macao Greater Bay Area, so as to accelerate the pace of decarbonisation of green transport in Hong Kong; if so, of the details; if not, the reasons for that?

Reply:

President,

To align with the national "dual carbon" targets, the Hong Kong Special Administrative Region (HKSAR) strives to achieve carbon neutrality before 2050 and reduce the total carbon emissions from the 2005 level by half before 2035. The HKSAR Government announced the Hong Kong Roadmap on Popularisation of Electric Vehicles, Clean Air Plan for Hong Kong 2035, and Hong Kong's

Climate Action Plan 2050 successively in March, June and October 2021. It is a global trend to promote development of new energy transport to reduce carbon emissions from the transport sector. The abovementioned blueprints and roadmap covered policy directions and future targets in various areas promoting the adoption of new energy transport technologies, so as to guide Hong Kong towards zero vehicular emissions before 2050.

The process of converting hydrogen energy into mechanical or electrical energy does not emit greenhouse gases or other air pollutants. If combined with the use of green hydrogen produced by renewable energy, it is possible to meet with the benchmark of emitting no greenhouse gas or other air pollutants from production to use. Further studies are required to explore ways to reduce the production and transportation costs of green hydrogen as well as the loss of energy in its production process. At present, hydrogen fuel cell (HFC) vehicles are still at an early stage of development, resources are mainly being invested in research and development, operational trials and supporting facilities worldwide.

The Chief Executive's 2022 Policy Address mentioned to progressively commence trials of HFC double-deckers and heavy vehicles in 2023, and formulate the long-term strategies for the application of hydrogen energy in road transport by 2025. To keep pace with the development trend of hydrogen fuel adoption, the HKSAR Government set up the Inter-departmental Working Group on Using Hydrogen as Fuel (the Working Group) in 2022, to coordinate preparation works of bureaux/departments for using hydrogen as fuel locally, with a view to encouraging local adoption of hydrogen energy. The Working Group comprises the Environment and Ecology Bureau, Transport and Logistics Bureau, Development Bureau, Security Bureau, Environmental Protection Department, Electrical and Mechanical Services Department (EMSD), Fire Services Department, Transport Department, Marine Department, Planning Department, Lands Department, Buildings Department and Architectural Services Department.

The first key task of the Working Group is to progressively commence the trials of HFC double-deckers and heavy vehicles in phases, taking local circumstances into account. The Working Group will review and assess applications of trial projects, and advise on aspects such as safety and planning, in order to aid the relevant trades to commence their trials early. Its tasks also include conducting risk assessments on hydrogen refilling stations, the arrangements of hydrogen supply, and HFC vehicles on road, as well as reviewing relevant regulations, standards and technical guidelines of different places for the formulation of an operational safety framework for the use of hydrogen fuel in the transport sector locally in the long run.

The Working Group has given agreements-in-principle to a first batch of three applications of trial projects, involving trials for setting up a hydrogen refuelling facility at a bus depot, one HFC double-decker and a hydrogen extraction facility at plant of the Hong Kong and China Gas Company. In addition, the Working Group is planning to test HFC heavy vehicles for refuse collection or street cleansing. We expect that the trial of the first HFC double-decker can be commenced within this year, and that of heavy

vehicles in next year.

In consultation with the Transport and Logistics Bureau and the EMSD, I would like to reply to the question raised by the Hon Chan Siu-hung as follows:

(1) There is heavy traffic on the roads in Hong Kong. Vehicles are often required to drive through tunnels or crowded places. This coupled with the dense urban settings, we have to be cautious in exploring the application of hydrogen fuel transport technologies to ensure public safety, particularly given that the technologies are still developing. The Government will make use of the interim standards used in the trials of HFC vehicles, as well as data and field experience gathered in the trials, to formulate an operational safety framework for the use of hydrogen fuel in the transport sector locally in the long run. This includes amending the current Gas Safety Ordinance (Cap. 51), which regulates liquefied petroleum gas vehicles, to cover hydrogen fuel, with a view to effectively regulating HFC vehicles, hydrogen fuel supply chain and the safety of HFC vehicle mechanics and repair workshops. In this process, the EMSD has appointed hydrogen fuel consultants to start specialised studies in end-November 2022. The consultants will tap into the views of various stakeholders to formulate technical guidelines related to hydrogen fuel systems, refilling stations and quantitative risk assessment. The consultants will also review the HFC vehicle trials, and explore the future regulatory frameworks for using hydrogen as fuel. The Government plans to appoint another consultant in the third quarter of 2023 to examine the details of legislative amendments and conduct a business impact assessment. Our target is to commence preparation work in 2024 and introduce the proposed legislative amendments to the Legislative Council in 2025.

(2) The Working Group is liaising closely with the applicants of the trial projects and other stakeholders to examine the feasibility of providing hydrogen refuelling facilities at different locations. This includes exploring transforming existing petrol filling stations to hydrogen refilling stations, or allowing the provision of different vehicle fuels in one station. The trial of the first hydrogen refilling station will commence this year together with the trial of HFC double-decker. Furthermore, development of new energy vehicles in the Mainland will to some extent affect Hong Kong's cross-boundary transport trade. Apart from HFC vehicles, we would not exclude the possibility to adopt other green technologies in the future, especially electric vehicles, of which the technologies are advancing rapidly. We have begun to explore ways to provide sufficient electricity charging and hydrogen refilling facilities in areas adjacent to boundary control points, with a view to supporting the future adoption of electric or HFC goods vehicles by the cross-boundary transport trade.

(3) To assist the transport trade to commence trials for hydrogen fuel transport technologies, the Government has earmarked $200 million under the New Energy Transport Fund for subsidising relevant costs of the trial projects. Such costs include the procurement, construction or renting of HFC vehicles, establishment of hydrogen refilling facilities, operating costs

(such as expenses on hydrogen fuel), etc. The funding earmarked is sufficient to subsidise trials for different types of vehicles, including double-deckers, heavy goods vehicles, heavy vehicles for refuse collection or street cleansing, etc.

The Government will take into account the experiences and research and development results of our country (including other cities in the Guangdong-Hong Kong-Macao Greater Bay Area) and other cities overseas, to consider how to adjust Hong Kong's pace in promoting adoption of HFC vehicles. We will also closely monitor the development of other new energy transport technologies, and keep pace with the global development, to work out a feasible strategy to promote green transport and carbon emission reduction in Hong Kong. Our targets by 2025 are to announce a roadmap for the promotion of electric public transport and commercial vehicles, as well as formulate the long-term strategies for the application of hydrogen energy in land transport, in order to help guide Hong Kong towards zero vehicular emissions before 2050.

Thank you, President.