

LCQ18: Promoting application of hydrogen energy

Following is a question by the Hon Chan Hak-kan and a written reply by the Secretary for Environment and Ecology, Mr Tse Chin-wan, in the Legislative Council today (December 11):

Question:

There are views pointing out that the completion of the first public hydrogen refuelling station in Hong Kong last month has provided the infrastructural support for Hong Kong to increase the application scenarios of hydrogen energy and the development of Hong Kong as a demonstration centre of hydrogen energy for the country. Regarding promoting the application of hydrogen energy, will the Government inform this Council:

(1) whether it will take the initiative to invite commercial organisations owning large fleets of vehicles (e.g. commercial organisations with a fleet size of 100 or more vehicles) to participate in trial programmes of hydrogen-powered passenger vehicles, so as to promote the wider application and practical use of hydrogen energy;

(2) whether it will take the initiative to invite cross-boundary cargo transportation companies to explore the feasibility of using hydrogen-powered goods vehicles for cross-boundary cargo transportation; if so, of the details; if not, the reasons for that;

(3) whether it has sought to understand the future plans of the two power companies regarding hybrid hydrogen power generation; whether it will require the two power companies to include a specific proportion of hydrogen co-firing power generation in all of their new gas-fired power plants in the future; if it will, of the details; if not, the reasons for that;

(4) whether it will launch trial schemes for the wide application of hydrogen energy in the transport and construction industries, such as the use of hydrogen battery-powered fork-lift trucks for cargo movement and the use of hydrogen-powered shifting machines (e.g. bulldozers, loaders, excavators and trucks) at construction sites;

(5) whether it has plans to step up the nurturing of relevant local talents in the hydrogen energy industry; if so, of the details; and

(6) whether it will strengthen co-operation with other Mainland cities in the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) in respect of the promotion of the application and practical use of hydrogen energy, so as to jointly promote the development of the hydrogen energy industry in GBA?

Reply:

President,

Hydrogen energy is a promising new energy source with a wide range of applications. The world is expediting the development of hydrogen economy and applications. Though the scarce land resources and dense population have rendered it difficult for Hong Kong to develop into a major manufacturing base for green energy, we can still promote green transformation by leveraging hydrogen energy in our pursuit of carbon neutrality. As an international city, Hong Kong can also serve as a demonstration platform for green and low-carbon technologies, and facilitate the export of technologies and products developed in the Mainland and Hong Kong. As an international financial centre, Hong Kong can even help provide green financing and professional services for the green transformation in different areas and regions. The Government promulgated the Strategy of Hydrogen Development in Hong Kong in June 2024, with a view to creating a local environment conducive to the development of hydrogen energy in a prudent and orderly manner.

To help Hong Kong capitalise on the environmental and economic opportunities brought about by the development of hydrogen energy, the Environment and Ecology Bureau set up the Inter-departmental Working Group on Using Hydrogen as Fuel (the Working Group) in 2022 to jointly formulate best practices, regulations and standards, etc, for the safe applications of hydrogen energy in the local context, and actively study the development and commercialisation pathways of various hydrogen energy technologies through promoting local trial projects on hydrogen energy, having regard to the development needs of Hong Kong. To date, the Working Group has successively given agreement-in-principle to a total of 18 applications of hydrogen energy trial projects.

In consultation with the Electrical and Mechanical Services Department (EMSD), my reply to the question raised by the Hon Chan Hak-kan is as follows:

(1), (2) and (4) The Working Group has been co-ordinating the work of various bureaux and departments in promoting the local application of hydrogen energy through trial projects. Trials on hydrogen fuel cell (HFC) heavy vehicles that have commenced or are under planning include a double-decker bus, street washing vehicles, refuse collection vehicles, coaches and minibuses for providing shuttle service to the construction site for workers, cross-boundary passenger buses and logistics vehicles, etc. The Working Group welcomes more fleets and cross-boundary logistics enterprises to carry out trials so as to collect more trial data and experience for evaluating the operational performance of HFC heavy vehicles as compared with that of conventional fuel-propelled vehicles in the local context. Larger logistics enterprises taking part in the relevant trials are likely to have an edge in resource allocation and experience sharing. The Chief Executive's 2024 Policy Address announced the earmarking of funds under the New Energy Transport Fund to launch the Subsidy Scheme for Trials of HFC Heavy Vehicles. We will announce the details of the acceptance of invitations under this scheme in due course.

Hydrogen energy, as a transportable and highly energy-efficient energy, is particularly suitable in areas such as mobile machinery, including vehicles used at construction sites. The construction industry in Hong Kong has already started to explore the feasibility of distributed electricity supply using hydrogen to replace traditional diesel generators to supply electricity to site offices and machinery at construction sites in remote areas without access to adequate electricity supply, including large-scale construction sites in new development areas. The Government continues to communicate with relevant industry stakeholders (such as the Construction Industry Council) to actively explore the potential for using hydrogen energy equipment in engineering projects and to test out various hydrogen application scenarios in Hong Kong. As at end of November this year, the Working Group has given agreement-in-principle to multiple applications involving the application of hydrogen as fuel at construction sites, including the trial of HFC forklift trucks and use of hydrogen power generation equipment to supply electricity to site offices and electrical machinery at construction sites.

(3) To align with the development of hydrogen in Hong Kong, CLP Power Hong Kong Limited (CLP) and Hongkong Electric Company Limited (HEC) are actively exploring the possibility of blending hydrogen with natural gas in electricity generation. CLP has stated that it is preparing for the long-term application of new energy in electricity generation and has signed a Memorandum of Understanding agreement with General Electric Company to jointly explore the feasibility of using hydrogen blended with natural gas for power generation at CLP's Black Point Power Station. Additionally, HEC has mentioned that it is exploring the application of hydrogen energy by blending it with natural gas for the gas-fired units, with the goal of gradually transitioning to 100 per cent green hydrogen fuel and achieving carbon neutrality in power generation.

(5) Capacity building is critical to the long-term development of the local hydrogen industry. The EMSD actively promotes the training of professionals in hydrogen energy technology, and is exploring with the Vocational Training Council (VTC) and hydrogen fuel system suppliers the organisation of relevant safety training courses for hydrogen fuel practitioners. With the EMSD's support, the VTC has signed memorandums of co-operation with the China Inspection Company, a standard and testing institution, and Shanghai REFIRE Group, manufacturers of hydrogen fuel system, on June 14 and 18 respectively. Leveraging the companies' expertise in hydrogen energy, this collaboration aims to cultivate more technical talents for Hong Kong's hydrogen energy industry.

(6) The EMSD has maintained close technical exchanges with the State Administration for Market Regulation (SAMR) and the General Administration of Customs of the People's Republic of China (GACC). In particular, the EMSD has jointly established with GACC the "Green Corridor" for the transport of hydrogen samples, and simplified customs clearance arrangements for hydrogen conveyance vehicles, in order to facilitate the transportation of hydrogen used as fuel from the Mainland to Hong Kong by cross-boundary hydrogen

conveyance vehicles. In addition, the EMSD has also maintained close communication with SAMR to ensure effective implementation of safety management and monitoring as well as quality control, and to actively promote exchanges and co-operation on manufacturing, storage, transport, application along the industry chain of hydrogen energy. The EMSD is exploring with SAMR on promoting the alignment of Hong Kong's and the Mainland's standards on safety monitoring and testing, with a view to formulating the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) standards, group standards and Guobiao, and even jointly participating in the formulation of international standards.

The Environmental Protection Department (EPD) and China Petroleum & Chemical Corporation (Sinopec Corp) signed the Memorandum of Understanding (MOU) on the Development and Application of Hydrogen Energy in Hong Kong on November 25. The MOU strengthens collaboration between both parties in promoting the development, demonstration of application, as well as capacity building for the hydrogen energy industry. The MOU covers technical exchanges and experience sharing in the hydrogen energy industry. Sinopec Corp will build a green hydrogen production facility for demonstration purposes at a restored landfill of the EPD. The hydrogen produced by the facility will serve the local market with a view to supporting wider applications of hydrogen and facilitating the development of hydrogen energy in Hong Kong. Sinopec Corp will also assist the Government of the Hong Kong Special Administrative Region (HKSAR) in promoting publicity and education about hydrogen energy, enabling the public to better understand global development trends in the safe use of hydrogen energy.

Our country has a solid foundation for the development of the hydrogen industry, and the Nanhai District of Foshan in GBA is one of the pioneering demonstration zones for hydrogen industry development in the Mainland. The Government will continue to be committed to promoting hydrogen development through regional collaboration, including actively following up on the co-ordination mechanisms between the HKSAR Government and the Guangdong Provincial Development and Reform Commission, as well as the provincial GBA Office. This can complement regional co-operation mechanisms on other issues including the Pearl River Delta Air Quality Management and Monitoring Special Panel under the Hong Kong-Guangdong Joint Working Group on Environmental Protection for taking forward the demonstration projects of new energy cross-boundary goods vehicles, as well as the EMSD's connections and collaborations with SAMR and GACC on the technical level.

Hong Kong will continue to leverage its distinctive advantages of enjoying strong support of the motherland and being closely connected to the world, and capitalise on its important role as a "super connector" and "super value-adder" between the country and the international community, with a view to creating opportunities for talent, financing and further development. We will strive to facilitate the export of the country's advanced green hydrogen technologies and products to gain international market recognition and bolster competitive advantages, complement the strengths of other regions in the GBA in helping our country go global and attract foreign investment, and integrate into the overall development of the country.