

# **立法會**

## ***Legislative Council***

LC Paper No. CB(1)47/2025(04)

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### **Panel on Environmental Affairs**

**Meeting on 20 January 2025**

### **Background brief on Strategy of Hydrogen Development in Hong Kong**

#### **Purpose**

This paper provides background information on the Strategy of Hydrogen Development in Hong Kong (“the Development Strategy”). It also gives a brief account of the major views and concerns expressed by Members when related issues were discussed by relevant committees of the Legislative Council (“LegCo”) in recent years.

#### **Background**

2. As a secondary carrier of energy, hydrogen energy possesses the “clean” trait of traditional renewable energy sources and has a wide range of applications. It can be used in transportation, heating as well as power generation and energy storage. Hydrogen energy has been gaining traction internationally for its potential to drive low-carbon and green transformation. In 2022, the Government set up the Inter-departmental Working Group on Using Hydrogen as Fuel (“the Working Group”) to coordinate preparation works of bureaux/departments for using hydrogen as fuel locally, with a view to encouraging local adoption of hydrogen energy.<sup>1</sup> The Working Group is also tasked to review applications for hydrogen fuel trial projects and advise on aspects such as safety and planning, so as to assist applicants in commencing the trials as early as possible.<sup>2</sup>

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<sup>1</sup> 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, Fire Services Department, Transport Department, Marine Department, Planning Department, Lands Department, Buildings Department and Architectural Services Department.

<sup>2</sup> As at May 2024, the Working Group had given agreement-in-principle to 14 applications of trial projects on hydrogen fuel cell double-deckers, refuse collection vehicles and street washing vehicles, hydrogen fuelled light rail vehicles, hydrogen refuelling facilities, hydrogen power generation at construction sites, etc.

3. The Government announced in June 2024 the Development Strategy,<sup>3</sup> setting out the four major strategies of improving legislations, establishing standards, aligning with the market, and advancing with prudence to create an environment conducive to the development of hydrogen energy in Hong Kong in an orderly manner. The Administration has commenced the preparatory work for the amendment of the Gas Safety Ordinance (Cap. 51), with a view to introducing an amendment bill into LegCo in 2025 to provide a legal basis for the regulation of the manufacture, storage, transport, supply and use of hydrogen used as fuel.<sup>4</sup> The Administration also plans to formulate the approach of green or low-carbon hydrogen standard certification suitable to the development in Hong Kong by 2027, and to this end, it has commenced the relevant consultancy study and consulted the key stakeholders.

4. Given that in Hong Kong, hydrogen energy is currently more applicable to land transport, the Administration will explore the introduction of more hydrogen fuel cell (“HFC”) vehicle models suitable for trial in Hong Kong, and study the feasibility of establishing hydrogen filling facilities in different districts, including converting existing petrol filling stations or liquefied petroleum gas (“LPG”) filling stations into integrated energy stations equipped with hydrogen filling and charging facilities. In addition, the Administration has also supported trial projects for HFC buses and heavy vehicles with the New Energy Transport Fund (“NET Fund”).

### **Major views and concerns expressed by Members**

5. Members’ major views and concerns are summarized in the ensuing paragraphs.

#### Hong Kong’s positioning in the hydrogen industry chain

6. Members were supportive of the overall direction of the Development Strategy, and considered that the relevant **strategies were pragmatic and comprehensive**. Members suggested that Hong Kong should **strategically position itself in the hydrogen industry chain** through: (a) leveraging its strengths as a “super connector” and a “super value-adder” to become a base for showcasing hydrogen energy development of the country and help relevant companies expand their related businesses overseas; (b) taking part in the research and development (“R&D”) of hydrogen technologies; (c) leveraging the strengths

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<sup>3</sup> [The Development Strategy](#) has been uploaded to the Environment and Ecology Bureau’s Carbon Neutrality and Sustainable Development website.

<sup>4</sup> The Administration conducted [trade consultation](#) from 20 February to 19 March 2024 in respect of the amendments to the Gas Safety Ordinance (Cap. 51).

of its financial services sector to attract investments in R&D of hydrogen technologies; and (d) cooperating with other cities in the Greater Bay Area, such as Foshan, in hydrogen energy development.

7. The Administration advised that it would endeavour to promote the development of Hong Kong into **a base for demonstration of development in hydrogen energy**, thereby promoting business opportunities in the “Belt and Road” region and other places around the world for relevant companies. As an international financial centre, Hong Kong was well positioned to provide green financing and professional services for hydrogen-related business and projects in different areas and regions. Given the limited land resources and renewable energy sources in Hong Kong, **it was imperative for Hong Kong to collaborate with other places, such as Greater Bay Area cities, in hydrogen energy development**. Such collaboration might include technological exchanges import of low-carbon or zero-carbon hydrogen, joint venture projects and alignment of standards.

#### Legal framework

8. Members requested the Administration to expedite the establishment of **an overarching legal framework** that broadly covered the local use of **hydrogen fuel and other potential zero-carbon fuels** (such as ammonia and green methanol which were interchangeable with hydrogen); and drawing up the relevant legislative and implementation timeframes.

9. The Administration advised that it planned to **introduce an amendment bill in 2025** to include hydrogen fuel into the regulatory scope of the Gas Safety Ordinance. The Electrical and Mechanical Services Department (“EMSD”) had developed **safety guidelines** for hydrogen fuel system of vehicles and hydrogen refuelling stations, as well as **technical guidelines** for quantitative risk assessment of hydrogen refuelling stations by **benchmarking relevant regulations and standards in the Mainland and overseas** in the fields of hydrogen storage, transportation, refuelling, etc. EMSD had consulted the professional bodies, trade and stakeholders concerned in early 2024 to refine the guidelines and to prepare for **the incorporation of the Codes of Practice into the regulatory framework** in future. Before the legal framework was set up, the Working Group would continue to facilitate trial projects on hydrogen fuel technology on a case-by-case basis while ensuring proper safety or other requirements.

#### Establishing standards for hydrogen technologies

10. Members requested the Administration to elaborate on how it would plan for **the establishment of standards and certification systems for the hydrogen energy industry**, and ensure that they would align with the relevant requirements established by the country and international organizations.

11. The Administration advised that it would establish **comprehensive safety standards** covering various aspects involved in hydrogen technologies, including hydrogen supply, storage, transportation and application. EMSD had **signed a cooperation arrangement with the General Administration of Customs of the People's Republic of China** to jointly explore cooperation arrangements in areas such as quality testing of hydrogen and establishment of the Green Corridor for the transport of hydrogen fuel samples. EMSD had also **signed a cooperation arrangement with the State Administration for Market Regulation** covering, among others, the promotion of hydrogen development, carbon audit and alignment of standards. While there was currently no common approach to certify green hydrogen internationally, some countries and organizations (e.g. the International Organization for Standardization (ISO)) had established the relevant technical specifications. The Administration would closely monitor the development of hydrogen certification standards in the Mainland and overseas, with a view to **formulating the approach of hydrogen standard certification suitable to Hong Kong by 2027**.

#### Promoting local research on and application of hydrogen technologies

12. Members urged the Administration to **support local R&D of hydrogen technologies** and promote the wide application of hydrogen technologies after the completion of relevant trial projects. Some Members suggested that the Administration should consider **allocating land resources in new development areas** to support the development of hydrogen technologies, and **providing subsidies for the end use of hydrogen energy at the initial stage** to stimulate the growth of the market.

13. The Administration pointed out that **various existing funding schemes**, including notably the Green Tech Fund and the NET Fund, would continue to support R&D and trial projects relating to hydrogen technologies and their applications in various sectors. In addition to the aforementioned financial resources, the Administration would continue to facilitate the growth of the hydrogen energy market through **enabling trial projects on hydrogen applications**.

#### Development of hydrogen energy transportation

14. Members enquired about whether the Administration would consider **advocating the policy direction for commercial vehicles to switch to HFC vehicles**, including **examining the feasibility of promoting hydrogen buses** instead of focusing on promoting the adoption of electric buses. Members also suggested expeditiously **taking forward the construction of comprehensive energy service stations** in Hong Kong that offered “oil, gas, hydrogen, electricity and other services” under one roof (i.e. providing petrol refuelling, gas refilling, hydrogen refuelling, charging and facilitating service facilities), so as to promote

green transformation of public transport.

15. The Administration advised that **the scale and speed** of the future development of **hydrogen energy transportation would depend on** whether **they were** more **cost-effective** than other green and low-carbon technologies. The Administration was open to and would also continue to subsidize trials of HFC vehicles (including buses) through the NET Fund. It was the time now to first **wait for the trial results and market development before deciding** on whether it was suitable for CVs to switch to HFC vehicles on a large scale. The Administration also advised that:

- (a) the first public hydrogen refuelling station in Hong Kong was established by Sinopec (Hong Kong) Limited in Yuen Long, Au Tau;<sup>5</sup>
- (b) in the medium term, it aimed to establish hydrogen refuelling infrastructure facilities on the Hong Kong Island, in Kowloon and in the New Territories by 2027 or earlier, in order to support demonstration projects or trials on hydrogen energy transportation in more sectors; and
- (c) in the long term, it would study the feasibility of setting up integrated energy services stations in suitable locations, and had initially earmarked spaces in new strategic development areas, such as the Northern Metropolis, for the establishment of integrated energy services stations.

#### Winning public support for the application of hydrogen technologies

16. In view of public concern about the safety of the use of hydrogen, Members enquired about how the Administration would **gain public acceptance of the popularization of hydrogen**. The Administration responded that it would step up **publicity and education** on hydrogen as an emerging energy source. On the other hand, EMSD had engaged expert consultants to **study the risks involved in the use of tunnels by HFC vehicles** with reference to the relevant regulations in the Mainland and overseas countries, having regard to the design storage capacity, operating pressure and various safety devices of HFC vehicles. The outcome of the study showed that the risk of HFC vehicles using tunnels was comparable to that of LPG vehicles and other fossil fuel vehicles. The Administration would therefore recommend allowing HFC vehicles to travel in tunnels **if they comply with the relevant guidelines**. Meanwhile, similar to other vehicles carrying dangerous goods (i.e. fuel), vehicles conveying hydrogen should not be allowed to use tunnels, but might use the sea route instead.

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<sup>5</sup> The construction of the hydrogen refuelling station was completed on 26 November 2024.

## **Council questions**

17. Members raised questions related to hydrogen development at various Council meetings in recent years. The questions and the Administration's replies are hyperlinked in the [Appendix](#).

## **Relevant papers**

18. A list of relevant papers is set out in the [Appendix](#).

Council Business Divisions  
Legislative Council Secretariat  
16 January 2025

## Strategy of Hydrogen Development in Hong Kong

### List of relevant papers

| Committee   | Date of meeting  | Paper  |
|---|------------------|--|
| Panel on Environmental Affairs and Panel on Transport | 28 November 2022 | <a href="#">Agenda</a> Item II: Promoting the adoption of new energy transport<br><a href="#">Minutes</a>  |
|   | 16 December 2024 | <a href="#">Agenda</a> Item II: Green transformation roadmap of public buses and taxis<br><a href="#">Minutes</a>  |
| Panel on Environmental Affairs                        | 21 April 2023    | <a href="#">Agenda</a> Item III: Charging network in support of the popularization of electric vehicles in Hong Kong<br><a href="#">Minutes</a>  |
|   | 19 October 2023* | <a href="#">Report</a> of the duty visit to Mainland cities of the Greater Bay Area  |
|   | 15 December 2023 | <a href="#">Agenda</a> Item II: Conversion of petrol filling stations into quick charging stations<br><a href="#">Minutes</a>  |
|   | 24 June 2024     | <a href="#">Agenda</a> Item III: Strategy of Hydrogen Development in Hong Kong<br><a href="#">Minutes</a><br><a href="#">Follow-up paper</a>   |
| Finance Committee                                     | 13 April 2023    | <a href="#">Administration's written reply to Members' initial questions on the Estimates of Expenditure 2023-2024</a><br>(Reply serial numbers: EEB(E)118, 124, 125, 139, 146, 149, 153, 157, 165, 169, 175, 176, 177, 178 and 180) |
|   | 17 April 2024    | <a href="#">Administration's written replies to Members' initial questions on the Estimates of Expenditure 2024-2025</a><br>(Reply serial numbers: EEB(E)018, 032, 129, 158, 161, 162, 183, 185, 186, 196, 199, 202, 206 and 214)    |

\*date of issue of the paper

| <b>Government bureau</b>                      | <b>Document</b>  |
|---|--|
| Environment and Ecology Bureau                | <a href="#">The Strategy of Hydrogen Development in Hong Kong</a>                                |
| Electrical and Mechanical Services Department | <a href="#">Consultation Paper for Proposed Amendments to the Gas Safety Ordinance (Cap. 51)</a> |

| <b>Council meeting</b> | <b>Paper</b>  |
|------------------------|---|
| 26 April 2023          | <a href="#">Council question 15</a> : Hydrogen fuel cell electric vehicles                    |
| 24 May 2023            | <a href="#">Council question 1</a> : Promoting the development of hydrogen transport          |
| 13 December 2023       | <a href="#">Council question 4</a> : Development of hydrogen energy                           |
| 22 May 2024            | <a href="#">Council question 3</a> : New energy vehicles                                      |
| 19 June 2024           | <a href="#">Council question 11</a> : Promoting green transformation of public land transport |
| 11 December 2024       | <a href="#">Council question 18</a> : Promoting the application of hydrogen energy            |