Policy Pulse
Issue 8

Strategies and edges of Hong Kong in hydrogen development

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Overview

Our country has all along been committed to making positive contributions to the global response to climate change. It has made it clear as early as 2020 that it would endeavour to achieve the peak of carbon emissions before 2030 and carbon neutrality before 2060 (collectively referred to as the "dual carbon" goals). To **align with our country's "dual carbon" goals**, the Hong Kong Special Administrative Region ("SAR") Government has set an interim target of cutting carbon emissions by half from the 2005 level before 2035 and **achieving carbon neutrality before 2050**.

Hydrogen energy is a **new energy source with significant decarbonization potential**. Its "zero-carbon emission" feature has been gaining traction internationally. By leveraging **the country's advantage as a hydrogen energy powerhouse**, Hong Kong can make use of hydrogen energy to **promote green transformation** towards carbon neutrality.

This issue of **Policy Pulse** gives a brief overview of the hydrogen development strategies in Hong Kong, the edges of promoting the hydrogen industry and the latest progress of improving relevant legislation by the Government. It also summarizes the relevant discussions of the Legislative Council ("LegCo").

Four major strategies for developing hydrogen energy

The SAR Government promulgated **the Strategy of Hydrogen Development in Hong Kong** ("the Hydrogen Strategy") in June 2024, setting out the **four major strategies** below to create an environment conducive to the development of hydrogen energy in Hong Kong in a prudent and orderly manner, so as to make early preparations for the wider application of hydrogen energy in the future:

1. Improving legislation

To amend the Gas Safety Ordinance (Cap. 51) to provide a legal basis for regulating the importation, manufacture, storage, transport, supply and use of hydrogen used as fuel.

2. Establishing standards

To establish comprehensive local standards and guidelines and **formulate the approach of green hydrogen standard certification**.

3. Aligning with the market

With **land transport as the primary application scenarios** for hydrogen energy, regional cooperation on technological studies will be strengthened. Supporting facilities will be built to facilitate local hydrogen development while working on capacity building on an ongoing basis.

4. Advancing with prudence

To launch, in a proactive and orderly manner, **demonstrations of** technological innovation and industrial **application** of hydrogen energy covering four key segments of **production, storage, transportation and utilization**, and to utilize more cost-effective **grey hydrogen for trial projects**. As the market gradually matures, to facilitate transition from grey hydrogen to blue and green hydrogen. Note 1

Note 1 The international community generally classifies hydrogen energy according to its production methods and extent of its environmental impact. It is typically divided into grey hydrogen, blue hydrogen and green hydrogen. Among them, only green hydrogen is produced by renewable energy, with zero-carbon emission throughout the process

Grasping advantages and making steady progress

China is the largest hydrogen producer in the world, with an annual production output of over 35 million tonnes. With its unique advantage of **enjoying strong support of the motherland and being closely connected to the world**, Hong Kong has very great potential to become a **demonstration base for the development of hydrogen energy in the country**, and facilitate the development of the hydrogen industry in the Belt and Road region and other overseas places.

- The **basic principles for the development of hydrogen industry in our country** (namely "innovation-driven development and self-reliance", "safety first and adoption of clean and low-carbon energy", "market-led with government guidance", and "prudent application led by demonstration") have provided very useful reference for Hong Kong. **Our country's solid foundation and strengths in the hydrogen industry also provide enormous opportunities for Hong Kong**.
- The SAR Government has formulated the Hydrogen Strategy, actively leveraging Hong Kong's **strengths in scientific research** and **technological innovation capabilities** to drive research and development in hydrogen energy in the science and technology sector.
- Hong Kong has established a **comprehensive set of laws and regulations** to regulate the importation, manufacture, storage, transport, supply and use of gas, providing a **sound legal basis** for regulating hydrogen used as fuel.
- Hydrogen constitutes approximately 50% of Hong Kong's town gas mix and the **gas supply pipeline network** covers the entire territory of Hong Kong. The relevant enterprise has over 160 years of **experience handling hydrogen** and mature technologies for hydrogen extraction and storage. Hydrogen can be **extracted from such pipelines** in Hong Kong or **imported from the Greater Bay Area**.
- As an international financial centre, Hong Kong can play **the role of a "super connector" and "super value-adder"** to **provide investment opportunities** for the hydrogen industry, and help enterprises with their green transformation by providing **green financing and professional services**.

The Delegation of the Panel on Environmental Affairs of LegCo visited the "Hydrogen Energy in Households" project at the Nanhai Hydrogen Center in Foshan in August 2023

Members' views

- LegCo Members have all along been concerned about the development of hydrogen energy in Hong Kong. As early as March 2023, a motion was passed at the LegCo meeting **advocating the Government to comprehensively promote the development of hydrogen industry in Hong Kong**. The LegCo Panel on Environmental Affairs also **visited hydrogen projects during its duty visit** to Mainland cities in the Greater Bay Area in August of the same year and **has been following up on hydrogen-related issues**.
- **Members suggest** that the Administration should:
  - capitalize on the strengths of Hong Kong's financial services industry to **attract capital investment in** Hong Kong's **hydrogen industry**, and at the same time **reserve relevant land for development**;
  - **take the lead in developing green industries** and make use of **new development areas as a springboard** to **bring in quality hydrogen industries** and assist the hydrogen industry in going global;
  - conduct surveys and studies and formulate **relevant policies on hydrogen pricing**. Consideration should also be given to **providing subsidies for the end use of hydrogen energy** (including carbon trading targets, tax concessions, etc.) **at the initial stage** to stimulate demand for hydrogen energy; and
  - promote **carbon index certification** and actively promote the **inclusion of hydrogen energy into Hong Kong's carbon emissions trading market**, and **different scenarios** (e.g. waste-to-energy facilities) should **be** flexibly **used as pilot hydrogen production sites** to expedite the application of hydrogen energy.

LegCo Relevant Paper

Safety first in regulating hydrogen energy

Establishing a regulatory framework

The SAR Government is actively establishing a **comprehensive and holistic legal framework** to regulate the use of hydrogen as fuel, with a view to creating an environment conducive to the local development of hydrogen energy and enhancing public confidence in hydrogen safety.

- The Bills Committee on **Gas Safety (Amendment) Bill 2025** formed by LegCo has completed its scrutiny work. The Bill seeks to introduce amendments to regulate hydrogen used or intended to be used as fuel, ensure the safe application of hydrogen fuel and help Hong Kong capitalize on the environmental and economic opportunities brought about by the development of hydrogen energy. The Administration will resume the Second Reading debate on the Bill at the Council meeting of 16 July 2025.

Transport: Primary application scenario for hydrogen energy in Hong Kong

LegCo Members' visit to the world's first tri-axle hydrogen double deck bus in Hong Kong

Transport is the second-largest contributor to greenhouse gas emissions (19%) in Hong Kong, only after electricity generation (63%).

Highlights of the amendments to the Gas Safety Ordinance

1. Bringing hydrogen used as fuel under regulation

- Hydrogen as fuel refers to any gas that is primarily hydrogen to be used or intended to be used as fuel for the propulsion of a vehicle or train; or the operation of machinery, etc.

2. Exercising law enforcement powers

- The Gas Authority is empowered to issue improvement notices and obtain information from an owner of a hydrogen installation or hydrogen conveyance vehicle, etc.

3. Implementation of some of the existing provisions

- To apply some of the existing requirements under the Gas Safety Ordinance to hydrogen as fuel, including formulating relevant codes of practice.

4. Ensuring flexibility in updating regulatory requirements

- To empower the Chief Executive in Council to make subsidiary legislation, subject to negative vetting, on the details of the regulation of hydrogen.

Members' views

- **Members consider** that **the legal framework** for regulating hydrogen energy **should be forward-looking** and **flexible**, which could accommodate future developments in hydrogen technology and applications, in particular, **providing appropriate room for the regulatory mechanism for cross-domain transport modes** (such as dual-use transport modes operating across land and sea or land and air).
- **Members advocate** the development of **green hydrogen production and the related certification system** as a **key direction** for future development, and suggest that the Administration should consider using islands without access to an electricity grid as pilot sites for hydrogen-powered electricity supply. Members are also concerned how the authorities will assist existing practitioners in the towngas and liquefied petroleum gas sectors in acquiring professional skills in hydrogen energy.

LegCo Relevant Paper

Flexibility in updating regulatory requirements

- In view of the rapid development of the hydrogen market and its technological advancement, the Administration has added provisions to the Gas Safety Ordinance to allow the introduction of new subsidiary legislation such that future regulatory requirements can be updated flexibly and in a timely manner in tandem with the latest market and technological development to keep abreast of the times. The Administration **intends to introduce subsidiary legislation in 2026 to cover** the **entire supply chain** of **hydrogen** as fuel, mainly regulating the seven areas listed on the right.

Amendments to the Dangerous Goods Ordinance

- The amended Gas Safety Ordinance will regulate the safety use of hydrogen as fuel. Other forms of hydrogen will continue to be regulated as dangerous goods under the Dangerous Goods Ordinance (Cap. 295).
- To avoid double regulation, **the Dangerous Goods Ordinance** has been amended under the Gas Safety (Amendment) Bill 2025 **to exempt hydrogen as fuel from its regulation**.

Seven areas proposed to be covered by the new subsidiary legislation

1. **Quality of hydrogen supply**
2. **Registration of companies engaging in the business of importation, manufacture or supply of hydrogen**
3. **Construction and use of hydrogen installations**
4. **Type approval of hydrogen container**
5. **Use of hydrogen system**
6. **Permit for hydrogen conveyance vehicle**
7. **Registration of hydrogen vehicle mechanics**

LegCo Members' visit to the first hydrogen refuelling station

Members' views

- Although the International Organization for Standardization ("ISO") has established a standard for carbon emission calculation, there is no uniform and internationally recognized certification system for hydrogen energy. **Members urged** the authorities to **speed up the development of a set of internationally recognized hydrogen certification standards**, so as to assist the Greater Bay Area and even the entire hydrogen industry in the country to **enter the international market**.
- **Members suggest** that the Administration should **set specific short-term targets for the application of hydrogen**, including the number of registered hydrogen fuel cell vehicles and hydrogen filling stations. The authorities may take the initiative to **invite commercial organizations owning large fleets of vehicles to participate in trial programmes of hydrogen-powered passenger vehicles**, so as to promote the wider application and practical use of hydrogen energy. Consideration can also be given to requiring the 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.

LegCo Relevant Paper

Prudence application led by demonstration

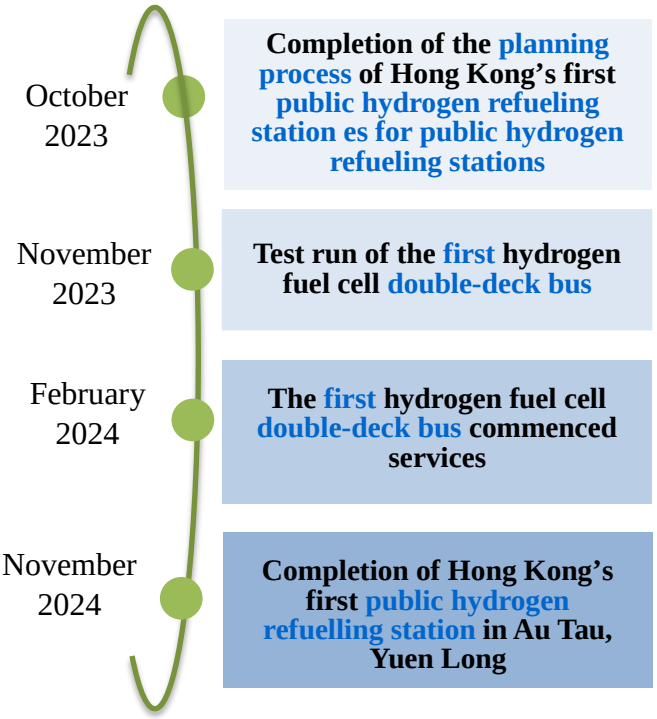
In line with the development trend of hydrogen fuel, the Government has adopted a number of measures to support research and innovation in hydrogen energy technology, **establishing Hong Kong as a demonstration base of hydrogen energy technology**.

- In promoting research and innovation, the **government funding schemes** that cover the research and development of hydrogen energy technology include:

	Related areas
New Energy Transport Fund	Launches the Subsidy Scheme for Trials of **Hydrogen Fuel** Cell **Heavy Vehicles**
Green Tech Fund	Encourages and **supports projects with greater prospect of realization and commercialization** of decarbonization and **green technologies** (including hydrogen energy-related projects)
Construction Innovation and Technology Fund	Subsidizes and drives a wider adoption of innovative technologies (including applications of hydrogen energy) in the construction industry to **improve** the performance of **the construction process**

- In 2022, the Government set up the **Inter-departmental Working Group on Using Hydrogen as Fuel** to coordinate the efforts of various policy bureaux in promoting the local use of hydrogen energy and regularly review the implementation progress of the Hydrogen Strategy.

- The Working Group has **initiated trial projects** to prepare for the future wider application of hydrogen energy in Hong Kong. As at May 2025, **26** applications for hydrogen energy **trial projects** have been reviewed and **approved in principle.** Some of these projects have been launched or completed.



- Other trial projects include, among others, the Food and Environmental Hygiene Department's trial of **hydrogen fuel cell street washing vehicles** and the MTR Corporation Limited's trial of a **hydrogen fuelled light rail vehicle** as a non-revenue train.

Members' views

- **Members agree** that technological research and development as well as on-site trials play a pivotal role in the development of local hydrogen application. They also **stress** that the Administration should **consider** in a **holistic manner** how to develop the local hydrogen energy industry **in line with the needs of the Greater Bay Area** and actively **examine** the feasibility of **pilot projects for wider implementation**.

- **Members point out** that the current hydrogen energy technology pilot projects lack the hydrogen production component of the hydrogen industry chain. They **urge** the authorities to **actively research and develop local hydrogen production technology** (including larger-scale hydrogen production systems) to **address environmental and technical constraint.** This would enable Hong Kong to produce green hydrogen, **aligning with** the policy direction of **promoting green hydrogen certification and fostering green finance**.

LegCo
Relevant paper

Application of hydrogen energy and capacity building

Hydrogen energy is an integral component of the country's future energy system. A key priority in advancing hydrogen energy development worldwide is cultivating professionals with the specialized knowledge and skills to ensure the safe application of hydrogen energy technology. The SAR Government is **actively promoting talent training, technological exchange and application** in relevant scientific and technological fields, including:

Talent Training

Vocational Training Council

- Signed memoranda of cooperation with a **standard and testing institution**, China Inspection Company Limited and a **hydrogen fuel producer**, Shanghai REFIRE Group, respectively in June 2024, to promote the training of talents in the hydrogen energy industry.
- Prepares to launch a series of **training courses for hydrogen fuel practitioners**:
  - Certificate in Safety Awareness for Hydrogen Fuel Application (to be launched in mid-2025)
  - Course for registered hydrogen vehicle mechanics (to be launched in 2025)
  - Training course for "competent persons" Note 2 (to be launched in 2026)

Note 2: Refers to the persons who provide professional services for the construction, installation, operation and maintenance of hydrogen installations

Technological exchange and application

Electrical and Mechanical Services Department (November and December 2024)

Annual meeting with the General Administration of Customs of the People's Republic of China ("GACC"):

- **GACC** fully supports the **establishment** of the **"Green Corridor"** to facilitate the transport of hydrogen samples to the Mainland for hydrogen quality testing and certification, as well as **simplifying customs clearance arrangements for hydrogen conveyance vehicles**.

Signed the Memorandum of Cooperation with the **State Administration of Market Regulation**:

- Establishes a platform to accelerate hydrogen energy development, including through **coordinated alignment with national and international hydrogen standards**, to connect Mainland applications with those around the world.

Environmental Protection Department (November 2024)

Signed the Memorandum of Cooperation with China Petroleum & Chemical Corporation:

- strengthens **cooperation** in areas such as **promoting the development of the hydrogen energy industry, and its applications and demonstrations, as well as capacity building**.

Hong Kong-Guangdong Joint Working Group on Environmental Protection and Combating Climate Change (2025)

The **2025 work plan** of the Pearl River Delta Air Quality Management and Monitoring Special Panel under the Hong Kong-Guangdong Joint Working Group on Environmental Protection and Combating climate Change:

- covers the demonstration projects of **cross-boundary delivery vehicles transiting into hydrogen fuel cell vehicle**.

Members' views

- **Members urge** the Administration to discuss **with other cities in the Greater Bay Area** on **the joint research, development and promotion of hydrogen energy industry development projects** to help the country to **"go global and attract foreign investment"** and export advanced green hydrogen technology and products.
- **Members support** the authorities in further promoting **exchanges and cooperation between the two places across the entire hydrogen energy industrial chain, including production, storage, transportation and use**. They also support the **alignment of the safety monitoring and quality testing standards** in Hong Kong and the Mainland, with a view to establishing the Greater Bay Area standards, group standards and Guobiao, and even jointly participating in the formulation of international standards.

LegCo
Relevant paper

Legislative Council Secretariat

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Panel on Environmental Affairs