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Internationalising China's Carbon Market:

The Role of Hong Kong as an International Financial Centre

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Executive summary

Executive summary

As corporates in Hong Kong actively work to mitigate climate risks, the carbon market is emerging as a key strategy. A notable milestone in this endeavour is the establishment of the Core Climate in 2022, an international carbon marketplace launched by the Hong Kong Exchanges and Clearing Limited (HKEX). This platform has laid a foundation for capturing regional carbon trading activity and supporting the global effort to manage climate challenges.

The Financial Services Development Council (FSDC) has been a keen advocate for these initiatives. In November 2024, the FSDC participated in the United Nations Climate Change Conference (COP29), highlighting how Hong Kong's financial services and its position as an international hub could drive a sustainable future. This participation underscored the FSDC's commitment to supporting Hong Kong's becoming a green and sustainable finance hub.

While we laud Hong Kong's progress in advancing the development of the carbon market, the untapped potential remains for Hong Kong to solidify its position as a clear go-to destination for carbon trading activities as the global voluntary carbon market (ex-China) is expected to grow from its current size of USD 723 million to USD 10 – 40 billion by 2030.[1] The Mainland market, which consists of the world's largest mandatory carbon market and a voluntary carbon market, is also gaining momentum. Mainland China's voluntary carbon market is expected to grow to RMB 73.5 billion (USD 10.3 billion) over the same period[2] and has the potential to become the largest globally by then.[3]

At COP 29, significant advancements were made to benefit the development of the global carbon market. Two standards for developing carbon projects and carbon removal projects under Article 6.4 of the Paris Agreement were officially adopted.[4] These developments will not only boost the demand for carbon credits but also support the development of an international carbon market that operates with integrity under United Nations supervision.

The rapid development of global carbon markets, especially in the voluntary segment, underscores both the urgency and the opportunity for Hong Kong to establish itself as a premier carbon trading hub and to enhance its overall ecosystem. This potential is enhanced by the city's strong links with Mainland China and its status as an international financial centre. Mainland China's carbon market is crucial in supporting the country's efforts to achieve its national decarbonisation goal, which aligns with its Nationally Determined Contributions (NDC) under the Paris Agreement.[5] Under the Paris Agreement, China aims to reach peak emissions by 2030 and achieve carbon neutrality by 2060, a target often referred to as the "3060 target".[6] To achieve this, the country requires an investment of RMB 139 trillion.[7] Despite the financing gap, the carbon market of Mainland China remains largely inaccessible to international investors.

Building on the foundation laid by a previous report published by the FSDC, "Road to Carbon Neutrality: Hong Kong's Role in Capturing the Rise of Carbon Market Opportunities",[8] it is time to explore how Hong Kong can lead the regional carbon market. This can be done by capitalising on the internationalisation of Mainland China's burgeoning carbon market, which aligns with the country's national strategy to build an effective, vibrant, and internationally influential carbon market. In addition to forming a Working Group to conduct a research study, the FSDC has also sought market insights through in-depth interviews with various carbon market experts and practitioners.

1 Climate Solutions and Simmons & Simmons. (2023, February 9). An introduction to carbon markets. Climate Solutions. https://img1.wsimg.com/blobby/go/76665bf9-5b22-49a8-8e5c-709d9eecc8d1/downloads/An%20introduction%20to%20carbon%20markets.pdf?ver=1710417376815

2 China Galaxy Securities. (2024, January 1). CCER 重啟，綠電、減碳市場迎新機遇. 東方財富網. https://pdf.dfcfw.com/pdf/H3_AP202401311619777055_1.pdf

3 Macro and Green Finance Lab. (2024, April 30). 自願碳市場：理想與現实. https://mgflab.nsd.pku.edu.cn/gddt/MGFgd/d09e231c0dfe4262b-0c027f99f2f00b7.htm

4 COP29 Presidency. (2023). COP29 opens in Baku with breakthrough on global carbon markets. Retrieved from https://cop29.az/en/media-hub/news/cop29-opens-in-baku-with-breakthrough-on-global-carbon-markets

5 NDC are each country's climate action plans under the Paris Agreement.

6 MEE (2022). Progress on the implementation of China's nationally determined contributions (2022). https://www.mee.gov.cn/ywgz/ydqhbh/qh-bhlf/202211/W020221111760730462299.pdf

7 China Development Research Foundation. (2023). ESG 助力"碳中和"目標理論框架與路徑探討. https://www.cdrf.org.cn/jjh/pdf/ESGzhulitanzhonghemubiao1.23-CDRF.pdf

8 FSDC. (2023, February). Road to Carbon Neutrality: Hong Kong's Role in Capturing the Rise of Carbon Market Opportunities. https://www.fsdc.org.hk/media/4plathbr/20230202-fsdc-carbon-paper-en.pdf

This study highlights the importance of internationalising Mainland China's carbon market, outlines the challenges faced in this process, highlights Hong Kong's pivotal role in overcoming these obstacles, and proposes policy recommendations for the Hong Kong SAR Government to consider.

The recommendations are:

1) Stimulating the market demand for carbon credits
2) Setting up a Carbon Connect to facilitate cross-boundary carbon trading
3) Establishing a non-governmental run carbon registry to enhance international recognition and governance of carbon credits
4) Providing legal certainty on carbon credits to stimulate carbon demand
5) Developing a vibrant carbon market ecosystem characterised by strong carbon-related professional services and supported by advanced technologies to facilitate carbon trading

These recommendations represent short- and medium-term measures designed to improve the liquidity and efficiency of the carbon market. By implementing these strategies and garnering industry support, Hong Kong can pave the way for further development of carbon-related financial products and activities.

Introduction

Introduction

In the global pursuit of sustainable development, the carbon market is a critical instrument that offers a pathway to reduce greenhouse gas emissions and foster a cleaner and greener future. Carbon markets also hold immense potential in transition finance as a mechanism for companies and countries to raise funds to transition to a more sustainable business or economy.

While global carbon markets play an essential role in decarbonisation, they face significant hurdles, such as credibility concerns, liquidity constraints, and market operational issues. Concerted initiatives are underway to strengthen these markets, including international initiatives to set standards for carbon credits and the adoption of advanced technologies in carbon trading. Hong Kong – known for its expertise in green finance, its ability to drive innovative clean technology development, and its unwavering support for carbon-conscious initiatives – is poised to play a role in regional carbon trading. For carbon trading to be effective, both the supply and demand for carbon credits are essential. While Hong Kong is already a relatively low-emission economy, its strategic proximity to Mainland China makes it an ideal market for carbon trading.

Mainland China, accountable for approximately one-third (11.9 billion tonnes) of global CO_2 emissions in 2021,[9] recognises the need for a robust carbon trading ecosystem to meet its climate goals, including peaking emissions by 2030 and achieving carbon neutrality by 2060. Initially launched in pilot cities and provinces, Mainland China's carbon market has made significant progress in recent years in terms of expansion and sophistication. Mainland China's national compliance market covering the power industry was set up in 2021. In September 2024, the Ministry of Ecology and Environment (MEE) called for public consultation on the inclusion of the steel, cement, and aluminium industries in the national compliance market[10] and it is expected that these three industries will be included soon. In early 2024, Mainland China also re-launched its voluntary carbon market, commonly known as China Certified Emission Reduction or CCER.

Similar to a number of other carbon markets globally, the development of China's carbon market faces various challenges. Key issues include a lack of financial characteristics resulting in limited liquidity, a predominance of compliance-driven carbon trading, limited participation from industries and market players, a lack of product innovation, poor integration with international markets, and domestic carbon prices that are substantially lower than those in developed economies.[11,12,13]

However, when all the major emitting industries are included, Mainland China's mandatory carbon market is expected to grow to over RMB 1,470 billion (USD 206 billion) by 2030.[14] Among other things, the internationalisation of the Mainland Chinese carbon market would help address some of the challenges highlighted above and serve an effective means for it to reach its full potential. For example, the inclusion of overseas participants, including market intermediaries, can help improve market liquidity, drive product innovation and potentially align carbon prices more closely with other markets. To achieve internationalisation, two key issues need to be addressed: gaining international recognition for the Mainland Chinese carbon market and providing a cross-boundary trading channel. With its market characteristics, Hong Kong is uniquely positioned to overcome these challenges, leveraging its "One country, Two systems" framework to enhance international recognition and facilitate cross-boundary trading. While facilitating the country in achieving its NDC, this also aligns with national priorities emphasised by President Xi Jinping, who has stressed the importance of an effective, vibrant, and internationally influential carbon market.[15]

9 International Energy Agency. (2022, March 8). Global CO2 emissions rebounded to their highest level in history in 2021. IEA. https://www.iea.org/news/global-co2-emissions-rebounded-to-their-highest-level-in-history-in-2021

10 Ministry of Ecology and Environment of the People's Republic of China (MEE). (2024, September 9). 關於公開徵求《全國碳排放權交易市場覆蓋水泥、鋼鐵、電解鋁行業工作方案（徵求意見稿）》意見的函. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202409/t20240909_1085452.html

11 Chinese Academy of Social Science. (2023, March 17). 碳交易市場金融屬性進一步彰顯. https://cass.cn/keyandongtai/baokanchuban/202303/t20230317_5608235.shtml

12 Ma, J., & Wu, M. (2024, March 14). CCER 市場與國際標準和市場接軌的必要性和路徑初探. Macro and Green Finance Lab. https://mgflab.nsd.pku.edu.cn/yjcg/gzlw/242d40c3fd0d4f3492aab6fb18cfcfaf.htm

13 Research Bureau of People's Bank of China. (2021). 推動我國碳金融市場加快發展. The People's Bank of China. https://www.pbc.gov.cn/redian-zhuanti/118742/4122386/4122510/4160609/2021011118301162039.pdf

14 China Galaxy Securities. (2024, January 1). CCER 重啟，綠電、減碳市場迎新機遇. 東方財富網. https://pdf.dfcfw.com/pdf/H3_AP202401311619777055_1.pdf

15 MEE. (2024, July). 全國碳市場發展報告 (2024). https://www.mee.gov.cn/ywdt/xwfb/202407/W020240722528848347594.pdf

The FSDC has been a keen advocate of Hong Kong's journey as a green and sustainable finance hub and beyond. With the release of its paper in February 2023, titled "Road to Carbon Neutrality: Hong Kong's Role in Capture the Rise of Carbon Market Opportunities", the FSDC put forward key considerations aimed at fostering a conducive ecosystem in Hong Kong for the establishment of one or more world-class carbon exchanges. Admist the rapid development of the global carbon arena, the FSDC, through this paper, re-examines Hong Kong's role in supporting the internationalisation of the world's largest carbon market and hopes to consolidate its position as a pivotal regional hub for carbon trading.

The significance of internationalising Mainland China's carbon market

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Overview of the Mainland Chinese carbon market

Mainland China's carbon market consists of the National Emissions Trading System (ETS, also known as the mandatory carbon market) and a voluntary carbon market. Mainland China has the world's largest mandatory carbon market, or ETS, covering 5 billion tonnes of carbon dioxide emissions.[16] The National ETS trades verified emissions, China Emission Allowances (CEA), on a dedicated platform managed by the Shanghai Environment and Energy Exchange and other regional ETSs. The National ETS was launched for trading in July 2021, with a focus on the power generation sector. The mandatory carbon market is expected to cover the steel, cement and aluminium sectors in the near future,[17] and all eight regulated sectors[18] are expected to be covered by 2030.[19] Against this background, the market size of the mandatory carbon market could grow to RMB 1,470 billion (USD 206 billion) and the voluntary carbon market could grow to RMB 73.5 billion (USD 10.3 billion) by 2030.[20]

Figure 1. Mainland China's carbon market

	Mainland China's mandatory market[21]	Mainland China's voluntary market	International mandatory market (ex-China)[22]	International voluntary market (ex-China)[23]
2023				
Transaction value	RMB 14.44 billion (USD 2.02 billion)	n/a	USD 949 billion	USD 723 million
Volume traded	212 million tonnes	n/a	12.5 billion tonnes	110.8 million tonnes
Average price	~RMB 79.42 (USD 11.13)	~RMB 60 (USD 8.41)[24]	~USD 64	~USD 6.53
2030				
Market size	RMB 1,470 billion (USD 206 billion)[25]	RMB 73.5 billion (USD 10.3 billion)[26]	n/a	USD 10 – 40 billion (2030)[27]
Market price	RMB 139[28] – 200[29] (USD 19.5 – 28.1)	RMB 150 (USD 21)[30]	n/a	USD 14 – 20[31]

16 International Institute of Green Finance at Central University of Finance and Economics. (2024, January 30). 2023中國碳市場年報. https://iigf.cufe.edu.cn/info/1013/8404.htm
17 MEE. (2024, September 9). 關於公開徵求《全國碳排放權交易市場覆蓋水泥、鋼鐵、電解鋁行業工作方案（徵求意見稿）》意見的函. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202409/t20240909_1085452.html
18 Eight major carbon-emitting sectors include including power generation, oil refining, chemicals, steel, building materials, non-ferrous metals, paper, and aviation
19 Center for Energy & Environment Policy Research, BIT. (2024, July 1). 中国碳市场建设成效与展望（2024）. https://ceep.bit.edu.cn/docs/2024-01/219593cdd56840468f1362cc09783feb.pdf
20 China Galaxy Securities. (2024, January 1). CCER 重啟，綠電、減碳市場迎新機遇. 東方財富網. https://pdf.dfcfw.com/pdf/H3_AP202401311619777055_1.pdf
21 International Institute of Green Finance at Central University of Finance and Economics. (2024, January 30). 2023中國碳市場年報. https://iigf.cufe.edu.cn/info/1013/8404.htm
22 Carbon Herald. (2024, February 14). LSEG: Global Carbon Market Value Reached Record $949B In 2023. https://carbonherald.com/lseg-global-carbon-market-value-reached-record-949b-in-2023/
23 Ecosystem Marketplace. (2024). 2024 State of the Voluntary Carbon Market. https://3298623.fs1.hubspotusercontent-na1.net/hubfs/3298623/SOVCM%202024/State_of_the_Voluntary_Carbon_Markets_20240529%201.pdf
24 Center for Energy & Environment Policy Research, BIT. (2024, July 1). 中国碳市场建设成效与展望（2024）. https://ceep.bit.edu.cn/docs/2024-01/219593cdd56840468f1362cc09783feb.pdf
25 China Galaxy Securities. (2024, January 1). CCER 重启，绿电、减碳市场迎新机遇. 東方財富網. https://pdf.dfcfw.com/pdf/H3_AP202401311619777055_1.pdf
26 Ibid
27 Climate Solutions and Simmons & Simmons. (2023, February 9). An introduction to carbon markets. Climate Solutions. https://img1.wsimg.com/blobby/go/76665bf9-5b22-49a8-8e5c-709d9eecc8d1/downloads/An%20introduction%20to%20carbon%20markets.pdf?ver=1710417376815
28 China Galaxy Securities. (2024, January 1). CCER 重启，绿电、减碳市场迎新机遇. 東方財富網. https://pdf.dfcfw.com/pdf/H3_AP202401311619777055_1.pdf
29 Center for Energy & Environment Policy Research, BIT. (2024, July 1). 中国碳市场建设成效与展望（2024）. https://ceep.bit.edu.cn/docs/2024-01/219593cdd56840468f1362cc09783feb.pdf
30 Ibid
31 Bloomberg New Energy Finance. (2024, February 6). Carbon credits face biggest test yet, could reach $238/Ton in 2050, according to Bloomberg New Energy Finance report. https://about.bnef.com/blog/carbon-credits-face-biggest-test-yet-could-reach-238-ton-in-2050-according-to-bloombergnef-report/

The trading volume and prices of carbon credits on the Mainland have been rising steadily in recent times. As of 15 July 2024, the total cumulative transactions (from 16 July 2021) in the national carbon market reached 460 million tonnes of carbon emission quotas, with a total trading volume of RMB 27 billion (USD 3.78 billion).[32] In 2023 alone, the transaction volume was 212 million tonnes of carbon emission quotas, with a trading volume of RMB 14.44 billion (USD 2.02 billion).[33] Carbon prices have also been on an upward trend, rising from around RMB 40 in 2021 to around RMB 90 in 2024, an increase of about 87%.[34]

As for the voluntary market, Mainland China resumed the CCER scheme in early 2024 after a suspension in 2017. Between 2015[35] and 15 July 2024, the cumulative trading volume of CCER was 472 million tonnes of carbon dioxide equivalent, with a cumulative trading value of RMB 7.092 billion.[36] The market price of CCER rose from around RMB 10 / tonne in 2020 to RMB 77.93 / tonne in July 2024.[37]

Currently, only domestic companies can trade in CCERs. Although not designed as a perfect substitute for emission quotas, regulated entities can use CCERs to offset up to 5% of their annual emissions. CCER currently covers six methodologies: forestation, mangrove cultivation, solar thermal power and grid-connected offshore wind power projects, as well as projects using coal mine gas and adopting energy-efficient street lighting in highway tunnels. Carbon-related professional service providers recognised that the existing methodologies were insufficient to generate the volume of carbon credits required.[38] These methodologies can generate between 15 and 25 million tonnes of carbon credits, which is insufficient against the backdrop of demand from the regulated power industry, which is estimated to require 250 million tonnes of carbon credits. This demand is expected to increase to 400 million tonnes if the mandatory markets include the steel, cement, and aluminium sectors.[39]

Recognising this demand and the importance of the carbon market as a critical instrument for decarbonisation on the Mainland, the central government and regulators have gradually introduced policy guidelines and measures to support the growth of mandatory and voluntary carbon markets. For instance, recent notable initiatives include the introduction of two new CCER methodologies in July 2024[40] and the inclusion of additional regulated entities into the national carbon market in September 2024.[41] In October 2024, the People's Bank of China, the MEE, the National Financial Regulatory Administration, and the China Securities Regulatory Commission jointly issued "Opinions on Leveraging Green Finance to Support the Beautiful China Initiative", which encourages financial institutions to participate in the development of the national carbon market and the enrichment of green financial products and services, among other things. These steps demonstrate the country's commitment to developing its carbon market.

32 21st Century Business Herald. (2024, July 21). 全國碳市場三周年：全國碳市場累計成交近270億元，鋼鐵、水泥、電解鋁行業即將納入. https://www.21jingji.com/article/20240721/herald/cae1240c01655d83125c2ccaa5276dd9.html

33 International Institute of Green Finance at Central University of Finance and Economics. (2024, January 30). 2023中國碳市場年報. https://iigf.cufe.edu.cn/info/1013/8404.htm

34 21st Century Business Herald. (2024, July 21). 全國碳市場三周年：全國碳市場累計成交近270億元，鋼鐵、水泥、電解鋁行業即將納入. https://www.21jingji.com/article/20240721/herald/cae1240c01655d83125c2ccaa5276dd9.html

35 Macro and Green Finance Lab. (2024, April 30). 自願碳市場：理想與現实. https://mgflab.nsd.pku.edu.cn/gddt/MGFgd/d09e231c0dfe4262b-0c027f99f2f00b7.htm

36 National Center for Climate Change Strategy and International Cooperation. (2024, July 26). 中國溫室氣體自願減排交易市場半年開戶4500餘家. http://www.ncsc.org.cn/xwdt/gnxw/202407/t20240726_1082715.shtml

37 Ibid

38 People's Daily Online. (2024, August 12). 我國CCER方法學擴容. http://paper.people.com.cn/zgnyb/html/2024-08/12/content_26075487.htm

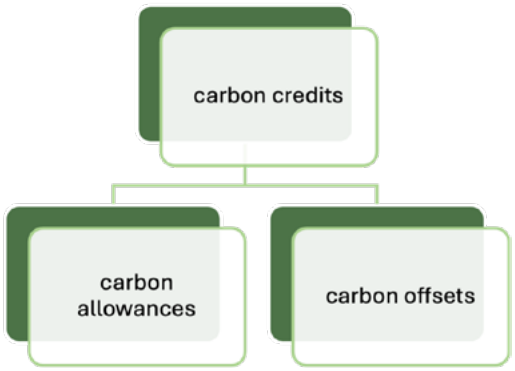
39 Ibid

40 MEE. (2024, July 30). 關於就《溫室氣體自願減排項目方法學 煤礦低濃度瓦斯和風排瓦斯利用》《溫室氣體自願減排項目方法學 公路隧道照明系統節能》公開徵求意見的函. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202407/t20240730_1082971.html

41 MEE. (2024, September 9). 關於公開徵求《全國碳排放權交易市場覆蓋水泥、鋼鐵、電解鋁行業工作方案（徵求意見稿）》意見的函. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk06/202409/t20240909_1085452.html

Figure 2. Carbon credits

The term "carbon credits" is often used interchangeably with "carbon offsets" and "carbon allowances", and in some cases, it refers to carbon allowances and offsets together.[42] In this report, "carbon credits" refers to both carbon allowances and carbon offsets. The term "carbon allowances" is used when discussing government-issued instruments that represent the right to emit carbon, or in other words, emission rights derived from legally binding markets.[43] Where the focus is on credits generated when a company actively removes, reduces, or avoids carbon from the atmosphere as part of its operations,[44] these will be referred to as "carbon offsets".



Source: CarbonCredits.com, Climate Solutions, Simmons & Simmons

Significance of an internationalised carbon market

Characteristics of an internationalised carbon market

Internationalisation of a carbon market means broadening its scope to include participants from multiple countries while aligning the market's mechanisms, rules, and standards with global best practices. Here are some characteristics of an internationalised carbon market:[45]

- **Diverse financial market product system:** In addition to spot trading of carbon credits, global best practices support the introduction of various carbon derivatives or financial products in secondary markets to provide functions such as hedging, price discovery, and risk management, which would benefit carbon market development.[46]

- **Cross-border trading:** Allowing carbon credits to be bought and sold across international borders. This not only increases liquidity in both mandatory and voluntary carbon markets but (in the case of voluntary carbon markets) also enables industries in different countries to find the most cost-effective ways to reduce emissions globally.

- **Alignment with international carbon pricing:** The market mechanisms, rules and standards of such a market enable the setting of effective carbon prices that are more aligned with the pricing of other carbon credits that are traded internationally.

42 Climate Solutions and Simmons & Simmons. (2023, February 9). An introduction to carbon markets. Climate Solutions. https://img1.wsimg.com/blobby/go/76665bf9-5b22-49a8-8e5c-709d9eecc8d1/downloads/An%20introduction%20to%20carbon%20markets.pdf?ver=1710417376815
43 CarbonWise. (2023, July 17). What Are Carbon Credits? Credits VS. Allowances. https://carbonwise.co/why-are-carbon-offsets-offsets-vs-allowances/
44 Carbon Credits.Com. The Ultimate Guide to Understanding Carbon Credits. https://carboncredits.com/the-ultimate-guide-to-understanding-carbon-credits/
45 People's Daily. (2021, July 26). 中國碳市場要加快"國際化"步伐. http://finance.people.com.cn/n1/2021/0726/c1004-32169518.html
46 International Organization of Securities Commissions. (2023). Compliance Carbon Markets - Final Report. https://www.iosco.org/library/pubdocs/pdf/IOSCOPD740.pdf

Significance of an internationalised carbon market for Mainland China

The internationalisation of Mainland China's carbon market has become a central topic among market participants, environmental experts, and policy advisors from both Mainland China and Hong Kong. [47,48,49] This highlights its importance not only as a financial and environmental strategy but also as a pivotal area for research and policy development. Internationalising its carbon market is crucial for Mainland China for several reasons:[50]

1. **Enhancing international recognition and influence of the Mainland's decarbonisation efforts:** Aligning Mainland China's carbon market standards with international market practices will increase its international recognition and influence, aligning with its ambition to play an active role in combating climate change. Such an increase in international recognition would also facilitate the creation of a mutually recognised regional or international voluntary carbon market with its major trading partners.
2. **Compliance with overseas trade regulations:** Given the Mainland's significant role in international trade, integrating the country's carbon market into the international carbon market is crucial as carbon border adjustment mechanisms have become a new trend. Taking the EU Carbon Border Adjustment Mechanism (EU CBAM) as an example, products exported to the EU must have paid their carbon costs in the home market in a manner recognised as equivalent before entry into the EU, or face a carbon adjustment fee. To avoid products exported from Mainland China paying double carbon costs, the recognition of Mainland China's carbon credits' equivalence for the purpose of the EU CBAM and other future carbon border adjustment mechanisms would be essential.
3. **Strengthening China's carbon market:** Making Mainland China's carbon credits available in the international market helps to develop and promote the country's carbon market. The internationalisation of the Mainland Chinese carbon market will increase foreign demand and provide financial support for carbon reduction projects in the Mainland. Increased foreign capital involvement will expand funding sources and gradually raise the price of Mainland Chinese carbon credits. This enhancement will support the development of additional carbon reduction projects, encourage breakthroughs in related green and low-carbon technologies, and promote the expansion of the country's green economy.

The MEE favours the development of the voluntary carbon market with a balanced approach between stability and progress.[51] This strategy includes expanding the range of acceptable methodologies to generate more carbon credits, establishing robust systems to monitor and ensure data quality, and strengthening international cooperation and exchange. In terms of international cooperation, the MEE plans to develop administrative measures for cross-border carbon trading, drawing on the market mechanism under Article 6 of the Paris Agreement and the International Aviation Carbon Offsetting and Reduction Scheme (CORSIA). It also aims to promote bilateral or multilateral cooperation on carbon trading, explore and expand the application scenarios for CCERs, and enhance the international recognition of CCERs.

47 Ma, J., & Wu, M. (2024, March 14). CCER 市場與國際標準和市場接軌的必要性和路徑初探. Macro and Green Finance Lab. https://mgflab.nsd.pku.edu.cn/yjcg/gzlw/242d40c3fd0d4f3492aab6fb18cfcfaf.htm

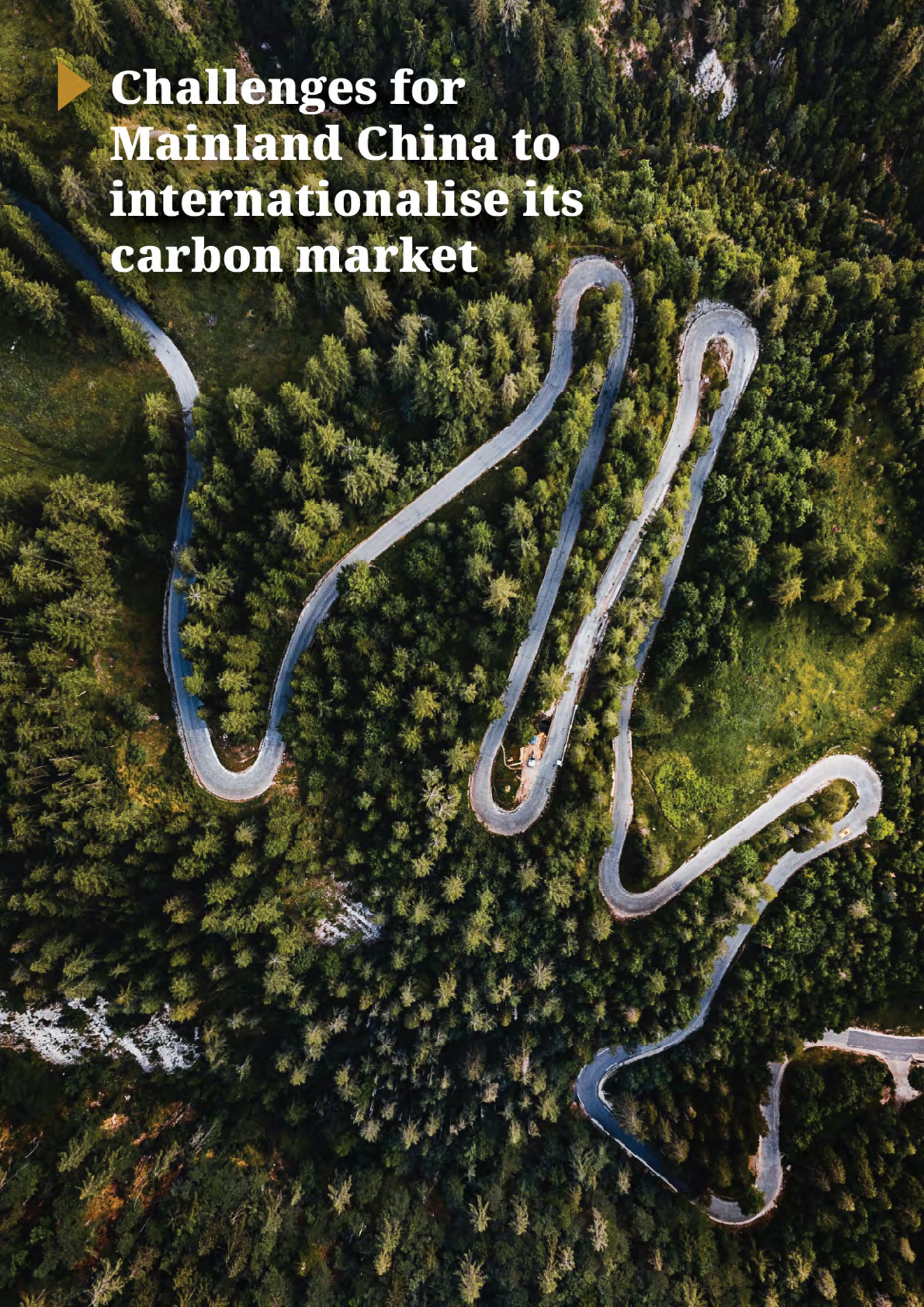
48 Macro and Green Finance Lab. (2024, April 30). 自願碳市場：理想與現实. https://mgflab.nsd.pku.edu.cn/gddt/MGFgd/d09e231c0dfe4262b-0c027f99f2f00b7.htm

49 Research Bureau of People's Bank of China. (2021). 推動我國碳金融市場加快發展. The People's Bank of China. https://www.pbc.gov.cn/redian-zhuanti/118742/4122386/4122510/4160609/2021011118301162039.pdf

50 Ma, J., & Wu, M. (2024, March 14). CCER 市場與國際標準和市場接軌的必要性和路徑初探. Macro and Green Finance Lab. https://mgflab.nsd.pku.edu.cn/yjcg/gzlw/242d40c3fd0d4f3492aab6fb18cfcfaf.htm

51 National Center for Climate Change Strategy and International Cooperation. (2024, July 24). 生態環境部應對氣候變化司副司長逯世澤：自願減排市場新專案和新減排量將進入申請登記的視窗期. http://www.ncsc.org.cn/xwdt/gnxw/202407/t20240724_1082419.shtml

Challenges for Mainland China to internationalise its carbon market



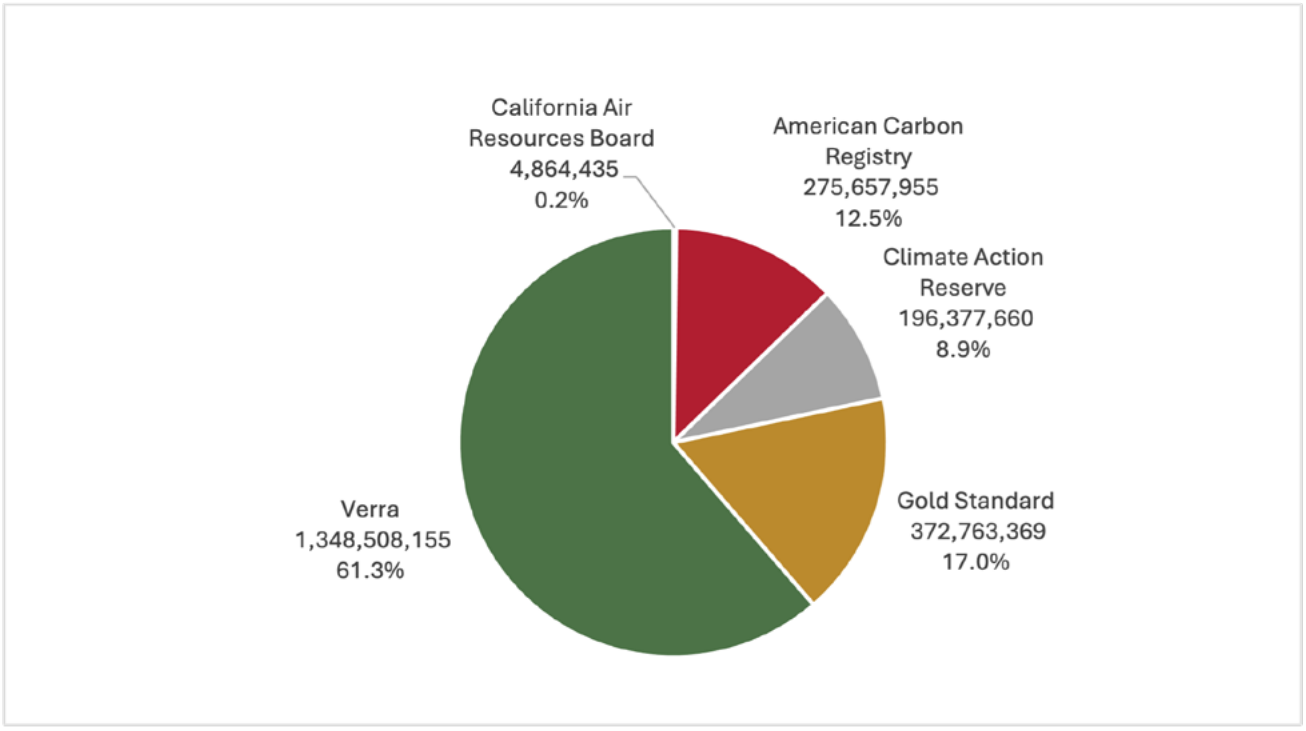
Challenges for Mainland China in internationalising its carbon market

In the short to medium term, Mainland China's voluntary carbon market, or the CCER market, shows promise for integration with global markets.[52] The potential scale of the CCER market could position it as a major player in the global voluntary carbon market. Thus, there is significant global interest in learning more about and potentially participating in Mainland China's CCER market. To harness and capitalise on the international interest in CCERs, it is essential to address the key challenges of low international recognition and the lack of a cross-boundary channel.[53]

Knowledge about CCERs

CCERs need to continue to build global confidence and market traction. Internationally, the longer history of more established standards such as Gold Standard and Verra, combined with their greater recognition built during the suspension of CCER issuance, have given these standards a competitive advantage. As a result, more companies have adopted these benchmarks and incorporated them into their carbon-offsetting strategies. Consequently, the use of CCERs as carbon offsets by international corporations with a business in Mainland China remains low compared to offsets issued by alternative standards. In terms of the current status of global standard adoption in the voluntary carbon market, Gold Standard and Verra accounted for 78.3% of the carbon credits issued by the five major voluntary offset project registries as of 31 October 2024.[54]

Figure 3. Carbon offsets issued by voluntary carbon offset project registries (October 2024)



Source: Richard & Rhoda Goldman School of Public Policy, University of California, Berkeley

52 Ma, J., & Wu, M. (2024, March 14). CCER 市場與國際標準和市場接軌的必要性和路徑初探. Macro and Green Finance Lab. https://mgflab.nsd.pku.edu.cn/yjcg/gzlw/242d40c3fd0d4f3492aab6fb18cfcfaf.htm

53 Ibid

54 University of California, Berkeley. Voluntary registry offsets database | Berkeley Carbon Trading Project. Goldman School of Public Policy. https://gspp.berkeley.edu/research-and-impact/centers/cepp/projects/berkeley-carbon-trading-project/offsets-database

The international recognition of carbon standards and the value of credits issued under those standards should show a positive relationship.[55] On average, CCERs are trading at around RMB 60[56] (USD 8.4) – RMB 100 (USD 14.1)[57], which is similar to other internationally traded voluntary carbon credits (such as Verra carbon offsets were trading at USD 6.8 on average in 2023 and Gold Standard carbon offsets were trading at USD 6.3 on average).[58] According to Ecosystem Marketplace, the average price of carbon credits in 2023 is USD 6.97.[59] However, since CCERs are not internationally traded, it is challenging to predict their potential market price globally.

Additionally, the acceptance of CCERs is hindered by scepticism regarding the effectiveness of carbon offsets in supporting decarbonisation, a challenge that many other internationally recognised standards also face. When comparing the prices of CCERs (and those of Verra and Gold Standard credits) to carbon allowances in mature mandatory markets such as the EU, there is a significant disparity, with the EU ETS trading at EUR 60 (USD 66.9)[60] – EUR 65 (USD 72.5)[61] and the EU carbon price is expected to reach EUR 194 (USD 216.4) in 2035.[62]

The disparity in international recognition between CCERs and their European counterparts implies a lack of widespread acceptance and validation of the quality and environmental impact of CCERs (and carbon offsets in general). The disparity in international recognition between carbon offsets and their European counterparts highlights a broader concern about the authenticity and effectiveness of voluntary market carbon offsets in reducing carbon emissions and combating climate change. To address these issues, there is a clear need to further internationalise, marketise, and financialise CCERs, thereby enhancing their global standing and acceptance.

Access for international investors

CCERs are available only to legal entities and other organisations registered within Mainland China, while retail investors and international investors based in offshore markets are not eligible to participate in the relevant trading activities.[63] The CCER market operates within a unified national market in Mainland China, where onshore registration and listing processes are well established. The National Center for Climate Change Strategy and International Cooperation (NCSC) manages the CCER registry, and the Beijing Green Exchange (CBGEX) acts as the CCER trading platform.[64] However, cross-boundary trading, listing, and registration mechanisms have not yet been defined, making it difficult for international investors to participate. At this stage, overseas participation in the CCER market is hampered by regulatory constraints, including restrictions on cross-border information flows, and a legal framework that operates differently from those in international markets, which may also pose some alignment difficulties.

The MEE has expressed interest in developing administrative measures to facilitate the cross-boundary trading of voluntary carbon credits.[65] The creation of an open trading environment is essential for the internationalisation of CCERs and, more broadly, for the opening of Mainland China's carbon market. This includes allowing the sale of CCERs and other carbon assets abroad and allowing the entry of foreign carbon

55 Ma, J., & Wu, M. (2024, March 14). CCER 市場與國際標準和市場接軌的必要性和路徑初探. Macro and Green Finance Lab. https://mgflab.nsd.pku.edu.cn/yjcg/gzlw/242d40c3fd0d4f3492aab6fb18cfcfaf.htm
56 China Economic Net. (2024, January 2026). CCER重啟完善碳交易體系 加速與國際市場接軌. National Carbon Market Information Network. https://www.cets.org.cn/hjywt/6226.jhtml
57 China Economic Net. (2024, April 29). 4月全國碳配額價格首次突破百元. http://www.ce.cn/macro/more/202404/29/t20240429_38987818.shtml
58 Ecosystem Marketplace. (2024). 2024 State of the Voluntary Carbon Market. https://3298623.fs1.hubspotusercontent-na1.net/hubfs/3298623/SOVCM%202024/State_of_the_Voluntary_Carbon_Markets_20240529%201.pdf
59 Ecosystem Marketplace. (2023). 2023 State of the Voluntary Carbon Market. https://3298623.fs1.hubspotusercontent-na1.net/hubfs/3298623/SOVCM%202023/2023-EcoMarketplace_SOVCM-Nov28_FINALrev-Mar2024.pdf
60 S&P Global Commodity Insights. (2024, March 11). China's compliance carbon market price hits record high of $11.74/mtCO2e. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/031124-chinas-compliance-carbon-market-price-hits-record-high-of-1174mtco2e
61 Bloomberg New Energy Finance. (2024). EU ETS Market Outlook 1H 2024: Prices Valley Before Rally. https://about.bnef.com/blog/eu-ets-market-outlook-1h-2024-prices-valley-before-rally/
62 Ibid
63 MEE. (2023, October 20). 溫室氣體自願減排交易管理辦法（試行）. https://www.mee.gov.cn/xxgk2018/xxgk/xxgk02/202310/t20231020_1043694.html
64 S&P Global Commodity Insights. (2024, January 22). China's national voluntary carbon market starts trading Jan 22. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/012224-chinas-national-voluntary-carbon-market-starts-trading-jan-22
65 National Center for Climate Change Strategy and International Cooperation. (2024, July 24). 生態環境部應對氣候變化司副司長逯世澤：自願減排市場新專案和新減排量將進入申請登記的視窗期. http://www.ncsc.org.cn/xwdt/gnxw/202407/t20240724_1082419.shtml

assets into the Mainland Chinese market. Introducing a group of international investors would not only improve the global perception of, and confidence in, Mainland China's carbon market, which has so far been seen as insular, but would also improve its operational dynamics.

The entry of multinational institutions and investors would introduce their trading practices into Mainland China, facilitating the gradual alignment of Mainland China's carbon market regulations, operational mechanisms, product innovation models, and third-party services with international recognition. These international participants would also increase the supply of foreign capital, thereby expanding the sources of finance. Such an expansion would help to maintain and possibly increase the price level of carbon credits, further supporting the development of additional emission reduction projects. Moreover, it would stimulate breakthroughs in green and low-carbon technologies, create a demonstrative effect and contribute to the expansion of Mainland China's green economy.

Hong Kong's unique roles in solving the challenges for Mainland China's carbon market

Hong Kong's unique role in solving the challenges for Mainland China's carbon market

While China's carbon market is the largest in the world by volume, its integration into the global carbon market is not without its challenges. Hong Kong, with its distinctive advantages, is uniquely positioned to enhance the credibility of CCERs and facilitate cross-boundary trading.

Technology and innovation centre

Blockchain and other advanced technologies are being used to address the credibility issues associated with carbon credits.[66] Technologies such as blockchain can provide secure, transparent, and efficient transaction mechanisms, reducing the likelihood of fraud and double-counting credits. The use of blockchain technology can provide solutions for transparency issues by providing a tamper-proof, decentralised ledger for recording transactions and tracking the origin of carbon credit origins. Hong Kong is a global centre for business, finance, and innovation, and the Hong Kong SAR Government has devoted significant resources to developing a vibrant innovation and technology ecosystem in Hong Kong.[67] These technologies could be critical in addressing issues of transparency and trust in the carbon trading market.

Hong Kong has been a pioneer in adopting blockchain technology for financial applications. According to the "Carbon Market Opportunities for Hong Kong - Preliminary Feasibility Assessment"[68] published by the Green and Sustainable Finance Cross-Agency Steering Group, the importance of blockchain in increasing the transparency of carbon market transactions is emphasised.

Leveraging the Hong Kong SAR Government's supportive policies on overall innovation and technology, the city is well-positioned to build a carbon trading platform that uses blockchain technology throughout the entire process—from standardisation and issuance to transaction settlement and offsetting. This comprehensive blockchain application ensures a transparent, secure, and efficient carbon trading environment.

While blockchain and other cutting-edge technologies offer the promise of bolstering the credibility of carbon credits through improved transparency, additional measures are essential to ensure credibility. These include aligning carbon credit methodologies with international best practices like the Integrity Council for the Voluntary Carbon Market (ICVCM)'s Core Carbon Principles (CCP)[69] and enhancing the robustness of the verification agency approval process. The MEE is actively addressing some of these concerns. Hong Kong, as a reputable international financial centre, could play a pivotal role in promoting CCERs that adhere to CCP standards to international investors, thereby complementing Mainland China's initiatives.

66 IMD. (2023, September 6). How blockchain can clean up the voluntary carbon market. https://www.imd.org/ibyimd/technology/how-blockchain-can-clean-up-the-voluntary-carbon-market/
67 Government of Hong Kong. (2024). The 2024-25 budget - Budget speech. https://www.budget.gov.hk/2024/eng/budget15.html
68 HK Green Finance Association. (2022, March 30). Carbon market opportunities for Hong Kong- Preliminary feasibility assessment. https://www.hkgreenfinance.org/research-report/carbon-market-opportunities-for-hong-kong-preliminary-feasibility-assessment/
69 ICVCM. Core Carbon Principles. https://icvcm.org/core-carbon-principles/

Figure 4. Hong Kong SAR Government's policies or documents on innovation and technology (not exhaustive)

Key documents	Relevant information
2024: Securities and Futures Commission (SFC)'s Strategic Priorities for 2024-2026[70]	Foster a responsible and secure fintech ecosystem with blockchain and Web 3 technologies underlying; drive growth by bridging the Mainland carbon markets with international investors.
2022: Carbon Market Opportunities for Hong Kong Preliminary Feasibility Assessment[71]	Blockchain technology could be leveraged to enhance the transparency of carbon market transactions (both trading and post-trade).
2022: Hong Kong Monetary Authority (HKMA) - Annual Report 2022[72]	To facilitate innovation in the financial services industry, the HKMA will step up its research into emerging technologies, such as federated learning and blockchain[73], and maintain close collaboration with its strategic partners and key stakeholders both locally and abroad.

Cross-boundary carbon data exchange

Efficient cross-boundary data flow is essential for verifying projects and monitoring carbon emissions and trading. To enhance transparency, Hong Kong can facilitate the cross-boundary sharing of carbon market data with international investors and users of carbon credits, while ensuring compliance with the strict data regulations of Mainland China.

Improved data availability can address international concerns about the accuracy and authenticity of Mainland China's carbon reporting, thereby fostering greater confidence in its carbon market. This increase in transparency and confidence could lead to closer integration of Mainland China's carbon markets with the global carbon market.

Within the Greater Bay Area (GBA), initiatives such as the use of standard contracts[74] have been put in place to simplify the cross-boundary data-sharing of personal information and compliance processes. The standard contracts are for cross-boundary transfer of personal information between Hong Kong and nine Mainland GBA cities. A similar approach or other facilitation measures could be adopted for the sharing of carbon-related data, such as emissions information, enabling local and international markets to exchange insights on carbon emissions and trading activities. This exchange would enrich the understanding of carbon markets in Mainland China and globally, as well as related policies, regulations, and market expectations.

It is important to note that the challenges associated with investing in carbon credits due to data limitations are not unique to Mainland China. According to a 2024 Nasdaq survey,[75] project verification issues are among the top concerns of respondents. These include poor data access (difficulty or high cost of accessing verification information), poor data consistency (lack of comparability between projects or markets), and poor data quality (reliability of information), all of which contribute to the difficulty of performing due diligence for investors and buyers.[76]

70 Securities and Futures Commission. (2024, January). SFC strategic priorities. https://www.sfc.hk/-/media/EN/files/COM/PDF/SFCStrategic-Priorities-EngJan-2024.pdf?rev=15103555c5654e78b919017211ead05d&hash=D95C8551E2D444C4DBD2037F3B694441

71 HK Green Finance Association. (2022, March). Carbon market opportunities for Hong Kong. https://www.hkgreenfinance.org/wp-content/uploads/2022/03/20220330e3a1.pdf

72 HKMA. (2022). Annual report 2022, https://www.hkma.gov.hk/media/eng/publication-and-research/annual-report/2022/AR2022_E.pdf

73 In 2024, the HKMA launched Project Ensemble to support the development of the tokenisation market in Hong Kong. At the heart of this initiative is the Ensemble Sandbox, a blockchain-integrated financial market infrastructure designed to facilitate the industry's exploration of various tokenisation use cases, including those related to carbon credits. Please refer to HKMA. (2024, August 28). HKMA launches Project Ensemble Sandbox to accelerate adoption of tokenisation. https://www.hkma.gov.hk/eng/news-and-media/press-releases/2024/08/20240828-3/

74 Digital Policy Office. (2023, December). Facilitating cross-boundary data flow within the Greater Bay Area. from https://www.digitalpolicy.gov.hk/en/our_work/digital_infrastructure/mainland/cross-boundary_data_flow/

75 The survey interviewed 135 decision-makers from global organisations, including project owners, intermediaries, financial investors, market operators, project financiers, and corporate end-users.

76 NASDAQ. (2024). Scaling carbon markets. https://nd.nasdaq.com/rs/303-QKM-463/images/Scaling-Carbon-Markets.pdf?version=2

Some initiatives, such as the Climate Action Data Trust, aggregate and harmonise all carbon credit data from project registries. This Singapore-based initiative, set up by the World Bank, the International Emissions Trading Association (IETA), and the Singapore government, aims to improve access to high-quality, consistent data. [77] At this stage, however, neither Hong Kong nor Mainland China appear to be represented in the Climate Action Data Trust.

Cross-boundary trading hub

International investors currently do not have access to CCERs. Mainland China's carbon market is still at a relatively early stage of development, and the government of Mainland China prefers a cautious and gradual approach to opening up, aiming to mitigate price volatility and address certain market uncertainties. Under the "One Country, Two Systems" framework, mutual market access schemes have been crucial in allowing the controlled testing and integration of Mainland China's financial markets with global financial systems, while ensuring stability and gradually increasing market access. Such arrangements not only facilitate prudent market expansion but also build confidence among international and domestic investors by providing a secure environment for cross-boundary investments. Furthermore, Hong Kong's use of common law in its legal system provides additional familiarity and reassurance to international investors, making it an attractive gateway to Mainland markets.

Mutual market access schemes initially focused on equities and have gradually expanded to include bonds, ETFs, and interest rate swaps. This expansion has been managed and has steadily increased the openness of Mainland China's financial markets. In addition, this interconnectivity has facilitated the alignment of Mainland China's capital markets with international financial markets. It has also enabled the synchronisation of operational mechanisms, regulatory frameworks, and trading practices with international standards, all at a manageable institutional cost. Given the success of these frameworks, there is potential to explore a similar approach for carbon markets, possibly through a new initiative tentatively called Carbon Connect. This initiative could enhance the interconnectivity between the carbon markets of Mainland China and Hong Kong.

77 Climate Action Data Trust. Registries. https://climateactiondata.org/registries/

Policy recommendations: Internationalising Mainland China's carbon market

Policy recommendations: Internationalising Mainland China's carbon market

China's carbon market is poised to play a pivotal role in global decarbonisation efforts, as it is currently accounts for one-third of global carbon emissions. However, the country's carbon market is not yet fully integrated with the international carbon market. The recent breakthrough at COP 29, which laid the groundwork for developing an UN-led global carbon market, provides a framework for Mainland China to align its carbon market with international standards. Hong Kong, with its strategic positioning and robust financial infrastructure, is ideally suited to facilitate this integration.

Building on the FSDC's 2023 paper "Road to Carbon Neutrality: Hong Kong's Role in Capturing the Rise of Carbon Market Opportunities", which advocated for Hong Kong to cultivate an inclusive and technologically advanced carbon market ecosystem,[78] this paper presents a series of recommendations to enhance Hong Kong's role in the internationalisation of the Mainland Chinese carbon market.

By stimulating demand for carbon credits, setting up a cross-boundary trading channel, establishing a carbon registry, providing greater legal certainty for carbon credits, and developing a vibrant carbon market ecosystem supported by advanced technologies, Hong Kong would be well equipped to support the internationalisation of Mainland China's carbon market. These steps would solidify its status as a regional carbon trading hub.

Figure 5. Key recommendations for enhancing Hong Kong's role in the internationalisation of the Mainland Chinese carbon market

Short-term	1. Stimulating the market demand for carbon credits
	2. Setting up a Carbon Connect to facilitate cross-boundary carbon trading
	3. Establishing a non-governmental run carbon registry to enhance international recognition and governance of carbon credits
Medium-term	4. Providing legal certainty on carbon credits to stimulate carbon demand
	5. Developing a vibrant carbon market ecosystem characterised by strong carbon-related professional services and supported by advanced technologies to facilitate carbon trading

78 FSDC. (2023, February). Road to Carbon Neutrality: Hong Kong's Role in Capturing the Rise of Carbon Market Opportunities. https://www.fsdc.org.hk/media/4plathbr/20230202-fsdc-carbon-paper-en.pdf

Recommendation 1: Stimulating the market demand for carbon credits

To enhance Hong Kong's role in supporting the internationalisation of Mainland China's carbon market, it is critical to stimulate market demand for carbon credits. This aligns with global efforts to curb emissions and positions Hong Kong as a leader in the carbon market sector. The Hong Kong SAR Government can implement various measures to encourage companies to purchase and retire carbon credits by drawing on some global and regional initiatives.

Some points of reference: global and regional initiatives to bolster demand for carbon credits

- **CORSIA – An industry benchmark:** Initiated by the International Civil Aviation Organization, the CORSIA is a global initiative designed to stabilise CO_2 emissions from the civil aviation industry at 2020 levels. In 2022, the sector accounted for 1.1% of global carbon emissions.[79] Although compliance is not mandatory until 2027, 126 states have signed up to participate in the first phase (2024 – 2026), covering 80% of annual aviation emissions.[80] Projections suggest that total demand in the first phase is likely to be between 60 and 160 million credits, while demand in the second phase (2027 – 2035) is expected to be between 1 and 2 billion credits.[81] Compared to the current scale of demand in the voluntary carbon market, where annual retirements have recently hovered around 200 million credits, CORSIA is likely to significantly increase demand in the voluntary carbon market, even at the lower end of the projected range.

- **Japan GX League:** [82] In 2022, Japan's Ministry of Economy, Trade, and Industry (METI) launched the GX League initiative to help achieve the country's carbon neutrality goals by 2050.[83] While participation in the GX League is voluntary, compliance with the rules and emissions reduction targets is mandatory for companies to remain in the league. Participants in the GX League are required to publicly disclose their own emissions reduction targets. If a participating company outperforms their emissions reduction targets, it can sell the excess amount through the GX League's carbon exchange. If a participating company fails to meet its reduction target, it must disclose the reasons for its failure and purchase carbon credits to cover the shortfall.

- **Tax deductibility of carbon credits:** The tax deductibility of carbon credits involves some complex issues, but in Australia, the purchase of carbon credits can be a tax-deductible expense item.[84] In general, the purchase of Australian carbon credit units (ACCUs) is tax-deductible, although the deduction is deferred until the ACCU is sold or surrendered. ACCUs are also not subject to the Goods and Services Tax.

- **United States' principles for voluntary carbon markets:** [85] On 28 May 2024, the US issued a Joint Statement of Policy and new Principles for Responsible Participation in Voluntary Carbon Markets (the US Principles). The US Principles outline the voluntary principles that US market participants should adhere to when engaging in the voluntary carbon market and provide guidance for US government agencies' engagement with the voluntary carbon market. It also affirms the value of carbon credits and the important role high-quality voluntary carbon markets play in addressing climate change. Recognising the potential of voluntary carbon markets to attract private investment for energy transformation, the US Government has set out the basic principles to ensure their proper development and growth to reach their full potential.

79 BeZero Carbon. (2024, January 31). Understanding CORSIA: Impacts on the VCM and demand dynamics. https://bezerocarbon.com/insights/corsia-impacts-on-the-vcm-and-demand-dynamics

80 International Civil Aviation Organization. (2023, October). CORSIA Newsletter. https://www.icao.int/environmental-protection/CORSIA/Documents/CORSIA_Newsletter_October_2023_for%20website.pdf

81 BeZero Carbon. (2024, January 31). Understanding CORSIA: Impacts on the VCM and demand dynamics. https://bezerocarbon.com/insights/corsia-impacts-on-the-vcm-and-demand-dynamics

82 Ministry of Economy, Trade and Industry (METI). (2024, March 24). From FY2024, 179 Companies Newly Participate in the GX League, Bringing the Total Number of Participants to 747. https://www.meti.go.jp/english/press/2024/0327_003.html

83 The GX League is a voluntary emissions reduction and trading system with voluntary participation from corporations in Japan.

84 Cloverly. (2023, December 20). Are carbon credits tax deductible? A brief guide to carbon credits and taxes. https://cloverly.com/are-carbon-credits-tax-deductible-a-brief-guide-to-carbon-credits-and-taxes/

85 The White House. (2024, May). Voluntary carbon markets joint policy statement and principles. https://www.whitehouse.gov/wp-content/uploads/2024/05/VCM-Joint-Policy-Statement-and-Principles.pdf

Potential measures to enhance demand for carbon credits

Demand for carbon credits underpins the healthy and sustainable development of a carbon market. Unlike other financial markets, the carbon market is policy-driven and benefits from a top-down approach, which can be enhanced by government involvement. The Hong Kong SAR Government can adopt various strategies to encourage companies to purchase and retire carbon credits by drawing inspiration from successful global and regional initiatives. For example,

- **Industry alliances and standards:** Hong Kong could promote industry-specific alliances, drawing inspiration from the impact of CORSIA on the aviation sector. The Hong Kong SAR Government can encourage commitments to voluntary carbon reduction targets by working with key industry sectors, which can start with the 4 key sectors identified by the "Hong Kong Taxonomy for Sustainable Finance", namely the power generation, transportation, construction, and water and waste management.[86] These alliances could also develop standardised practices and benchmarks for measuring and reporting emissions, which would help consistency, transparency, and mutual recognition of Greater Bay Area / international standards across different sectors.

- **Voluntary participation with incentives:** Following the structure of the Japan GX League, Hong Kong could establish a voluntary cap-and-trade system that requires participants to meet certain emissions reduction targets, with the option to trade excess credits or purchase deficits as needed. This system would encourage companies, especially those in high-emitting industries such as shipping and logistics, to proactively reduce their carbon footprint.

- **Tax incentives:** Mirroring Australia's approach, Hong Kong could make carbon credits tax deductible, providing a direct financial incentive for companies, preferably headquartered or operating in Hong Kong, to engage in carbon reduction activities. This move could stimulate the local carbon market and align financial benefits with environmental responsibility.

- **Carbon credit principles:** The Hong Kong SAR Government could issue policy papers or principles similar to the US model detailing the role of the carbon market in supporting decarbonisation efforts. This would help align market activities with global best practices and enhance market credibility.

- **Leverage Mainland China's mandatory carbon market:** As previously mentioned, entities covered by Mainland China's National ETS can use CCERs to offset up to 5% of their annual emissions, creating demand for carbon credits from the voluntary carbon market. To further increase the demand for carbon credits in Hong Kong, another strategy could involve permitting Hong Kong to sell carbon credits that meet the requirements of Mainland regulations to regulated entities.

86 HKMA. (2024, May). Hong Kong taxonomy for sustainable finance. Climate Bonds Initiative. https://www.hkma.gov.hk/media/chi/doc/key-information/guidelines-and-circular/2024/20240503c1.pdf

Recommendation 2: Setting up a Carbon Connect to facilitate cross-boundary carbon trading

Hong Kong should collaborate with relevant Mainland authorities to establish mutual market access schemes for cross-boundary trading, tentatively named Carbon Connect. This initiative would allow international investors to access the Mainland market and invest in CCER products, thereby enhancing the liquidity, visibility, and credibility of CCERs. Such trading would deepen their integration into the global carbon market and replicate the benefits of mutual market access schemes historically applied to bond and stock markets. Established coordination practices between different regulatory bodies in Mainland China, including engagement with the People's Bank of China and the State Administration of Foreign Exchange, suggest replicating existing connect schemes could facilitate a smoother implementation process.

Building consensus between Mainland China and Hong Kong

Carbon Connect would enable international investors to trade Mainland carbon assets without opening accounts within Mainland China, thereby respecting local data management requirements and increasing liquidity. This strategy would also encourage innovation in carbon financial products and stimulate capital flows within the carbon markets of both jurisdictions.

To achieve carbon connectivity, it is crucial to align interests and build consensus between Mainland China and Hong Kong by establishing a win-win partnership, potentially in the form of joint ventures or partnerships, that leverages the competitive advantages of both markets. In this context, Hong Kong stakeholders such as the HKEX could play a pivotal role in working with relevant Mainland stakeholders, such as the CBGEX, to facilitate the initial opening up of the Hong Kong carbon market to international participation.

As one of the pioneering carbon exchanges on the Mainland and the national trading platform for CCERs, CBGEX brings extensive expertise and a deep understanding of the carbon market dynamics in Mainland China. Similarly, Hong Kong's advanced financial infrastructure, which includes efficient banking and sophisticated payment systems, would facilitate smooth and secure transactions. This setup would increase investment efficiency and reduce transaction costs, thereby making the carbon markets of both jurisdictions more attractive to international investors.

Another form of partnership that Hong Kong could consider is to design a Carbon Connect scheme to be carried out across the GBA region. As the pilot scheme matures, the programme could be expanded to include collaboration with other major platforms like the Beijing Green Exchange and the Shanghai Environment and Energy Exchange.

Navigating policy and technical challenges of enabling CCER trading through Hong Kong

Establishing a Carbon Connect framework would require regulatory adjustments from Mainland China and Hong Kong to ensure seamless, transparent, and efficient trading processes that meet international standards. To successfully integrate CCERs into the Hong Kong market, both policy and technical barriers need to be addressed:

1) Policy barriers

- **Impact on Mainland China's dual carbon strategy:** CCERs are a crucial component of China's carbon reduction efforts. Exporting these credits could affect the country's 3060 target (carbon peak and carbon neutrality targets). Therefore, cross-boundary trading of CCERs requires national coordination and strategic planning to align with broader environmental objectives.

2) Technical barriers

- **Determining supply for cross-boundary trade:** Determining the volume of CCERs available for cross-boundary trade requires careful consideration of domestic needs versus international demand. This balance is crucial to ensuring national carbon reduction targets are not undermined.

- **Supply channels:** Establish robust mechanisms for Hong Kong to offer CCERs to international investors. A Hong Kong-based carbon registry (please refer to Recommendation 3 for more details) using CCER standards would be needed to manage and supply CCERs, as well as to ensure data security for CCER projects.
- **Regulatory compatibility:** The rules and regulations governing CCERs in Mainland China and Hong Kong need to be compatible. This includes aligning certification processes, verification standards, and trading mechanisms to ensure seamless integration into Hong Kong's existing carbon market infrastructure.

Alternative approach: Facilitating CCER forward trading and enabling corresponding clearing services

While some market participants emphasise the importance of initially prioritising a spot market to boost liquidity and trading activities via the establishment of Carbon Connect, thereby supporting the development of a secondary market. Others advocate for the benefits of a forward market in terms of price discovery, risk management, and investment planning, consequently, it is recommended that the Hong Kong SAR Government support CCER forward trading. Given that spot and forward markets are not mutually exclusive, the Hong Kong SAR Government should evaluate which approach—or combination thereof—is most viable. This decision will hinge on market readiness and the need for regulatory frameworks, which will require collaboration with mainland counterparts.

Regulated electronic OTC markets have proven effective in the US and the EU for enhancing trading liquidity in emerging commodity asset classes, such as natural gas and carbon emissions.[87] For instance, the Intercontinental Exchange has introduced CORSIA-eligible futures for 36 months.[88] Such practices are also being adopted in other Asian markets.[89] A vibrant forward market will facilitate price discovery by providing clear price signals to both buyers and sellers, enabling them to gauge supply and demand better and manage their risks.[90] Establishing a vibrant secondary market could secure long-term investments in carbon removal technologies and nature-based solutions, while also improving pricing transparency.[91]

Forward contracts are crucial to supporting the development of the Mainland Chinese carbon market.[92] Hong Kong, with its more mature financial infrastructure, could facilitate CCER electronic OTC trading of forward contracts with durations of 12, 24, and 36 months. Furthermore, with increased CCER forward trading, Hong Kong could generate valuable empirical trading data and risk management experience. This information could be shared with Mainland stakeholders, such as the Guangzhou Futures Exchange, to support the launch of on-exchange CCER futures trading onshore in China.

To enable the trading of carbon forwards in Hong Kong, clearing facilities will be necessary and regulators will need to grant corresponding clearing licenses. Currently, under the OTC regulatory regime, the SFC enables the OTC derivatives trading for financial derivatives like interest rate swaps (IRS) and non-deliverable forward (NDF),[93] and granted clearing licenses to OTC Clear, CME Clear, and Japan Exchange Clear in 2016.[94] One suggestion could be that Hong Kong regulators build a "sandbox" for regulated OTC trading of carbon credits like CCER, akin to the Swap Execution Facility (SEF)[95] regulated by the US Commodity Futures Trading Commission (CFTC) in the US.

87 European Energy Exchange. (2024, October 10). EEX to introduce Irish Power Futures and extended expiries for selected power markets.. https://www.eex.com/en/newsroom/detail?tx_news_pi1%5Baction%5D=detail&tx_news_pi1%5Bcontroller%5D=News&tx_news_pi1%5Bnews%5D=12867&cHash=c1f1a1a71f2297e6be84506aa231a1f9

88 Intercontinental Exchange. CORSIA eligible emissions units (2024-2026) futures. https://www.ice.com/products/83046673/CORSIA-Eligible-Emissions-Units-2024-2026-Futures

89 Abaxx Technologies Inc. (2024, November 4). Mercuria and HNK Alpha execute first carbon futures block trades on Abaxx Commodity Futures Exchange and Clearinghouse. GlobeNewswire. https://www.globenewswire.com/news-release/2024/11/04/2974058/0/en/Mercuria-and-HNK-Alpha-Execute-First-Carbon-Futures-Block-Trades-on-Abaxx-Commodity-Futures-Exchange-and-Clearinghouse.html

90 Huang, J. (2022, April 22). Key to reduce emissions. China Daily. https://www.chinadaily.com.cn/a/202204/22/WS6261e98aa310fd2b29e58841.html

91 International Swaps and Derivatives Association. (2024, November 4). A clear plan for voluntary carbon trading. https://www.isda.org/2024/11/04/a-clear-plan-for-voluntary-carbon-trading/

92 Caixin (2024, November 9). 周小川：加大力度用好碳市場 發揮碳價激勵機制
Caixin. https://topics.caixin.com/2024-11-09/102255637.html

93 HKMA. (2018). Understanding foreign exchange derivatives using trade repository data: The non-deliverable forward market. https://www.hkma.gov.hk/media/eng/publication-and-research/quarterly-bulletin/qb201803/fa2.pdf

94 SFC. List of designated central counterparties for the purposes of mandatory clearing under Part IIIA of the securities and futures ordinance. https://www.sfc.hk/en/Regulatory-functions/Market/Approved-or-authorised-entities/List-of-Designated-Central-Counterparties

95 SEFs are swap trading facilities that operate under the regulatory oversight of the US CFTC.

Trading carbon credits from multiple sources

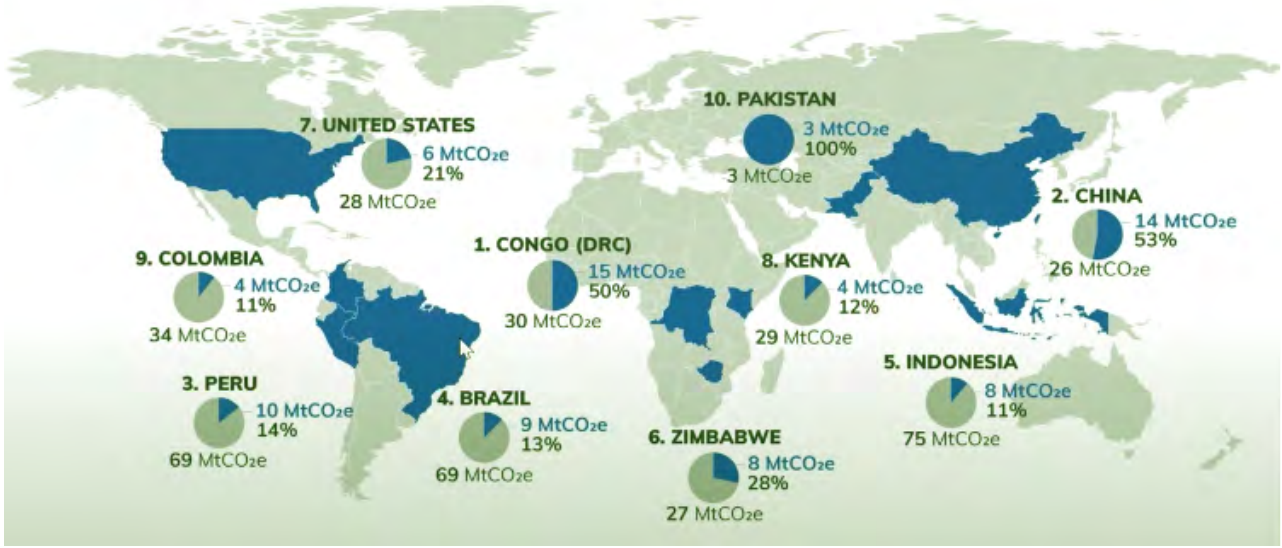
Carbon Connect should also provide Mainland investors and companies with access to carbon credits issued by other international standards and listed in Hong Kong. Facilitating the trading of carbon credits from various sources is essential to support Mainland China's carbon emissions target of reaching its peak by 2030 and achieving carbon neutrality by 2060. Between 2030 and 2060, enhanced connectivity between Mainland China and international markets will be crucial, as Mainland China will need to import carbon credits and secure funding to support its decarbonisation efforts.

It is worth noting that other platforms may offer similar opportunities. Thus, as suggested in previous recommendations, Hong Kong needs to address the demand for carbon credits and provide legal certainty (Please refer to Recommendations 1 and 4 for more details) to attract and retain traders. High-integrity carbon credits, together with carbon credits generated from Belt and Road and ASEAN-generated carbon credits, are credits worth targeting.

- **High-integrity carbon credits:** Hong Kong should leverage its strategic position to attract high-integrity carbon credits to be traded in the city. Hong Kong's heavy air traffic and its pivotal role in international aviation make it an ideal centre for trading CORSIA carbon credits. The ICVCM aims to enhance the integrity and transparency of the voluntary carbon market. Hong Kong can play an important role by adopting and promoting ICVCM standards and trading ICVCM-recognised carbon credits, thus ensuring the integrity and reliability of the carbon credits traded. In addition, as a maritime hub, Hong Kong could also facilitate the trading of high-integrity carbon credits for shipping companies who can, thus, meet the EU's carbon requirements. With the adoption of two standards for methodologies and greenhouse gas removals under Article 6.4, Hong Kong could also trade credits created under Article 6.4 (A6.4ERs) in the future. Trading high-integrity carbon credits will enhance the city's reputation as a trustworthy trading hub and attract global entities seeking credible carbon offsetting options.

- **Carbon credits from the Belt and Road and ASEAN:** Mainland China's strong trade and economic ties with ASEAN and the Belt and Road Initiative (BRI) markets offer further potential demand and supply for carbon credits. ASEAN has huge potential for generating carbon credits, given its rich biodiversity and abundance of renewable energy sources (hydro, solar, geothermal). It has been estimated that the offsets produced in Southeast Asia could stimulate USD 10 billion worth of economic activity annually by 2030.[96] Carbon market transactions from the BRI countries could reach USD 192.5 billion in 2025, USD 253.3 billion in 2030, and USD 335.2 billion in 2035.[97] As a leading financial centre, Hong Kong can play a key role in facilitating these transactions.

Figure 6. Global coverage of carbon credits



Source: Climate Focus

96 Bain & Company. (August 04, 2021). Southeast Asia's Carbon Markets: A Critical Piece of the Climate Puzzle. https://www.bain.com/insights/southeast-asias-carbon-markets-a-critical-piece-of-the-climate-puzzle/

97 Environmental Defense Fund. (2021). Analysing the Significance and Feasibility of Establishing Carbon Markets in Major Countries and Regions Along the "Belt and Road". https://www.cet.net.cn/uploads/soft/220223/1_23142754.pdf

Recommendation 3: Establishing a non-governmental run carbon registry to enhance international recognition and governance of carbon credits

Establishing a carbon registry in Hong Kong is a strategic move to enhance the international recognition and governance of carbon credits. Carbon registries are crucial entities at the top of the carbon market value chain, serving as the authoritative systems that manage the issuance, recording, and tracking of carbon credit transactions. These registries ensure that carbon credits are uniquely accounted for, preventing double counting and enabling transparent transactions within the market. According to the Nasdaq survey, two-thirds of respondents (66%) see registries as the most important facilitator for improving markets and leading change.[98]

The importance of a non-governmental run carbon registry and key considerations

Currently, CCERs are registered with the NCSC, an institution operating under the MEE. While this governmental framework is effective for national purposes, internationally recognised carbon credits are typically registered with non-governmental organisations (NGOs). This trend is increasingly visible as registries initially managed by governmental bodies begin transitioning to non-governmental management. For example, the Australian Carbon Credit Units (ACCUs), operated by the independent statutory body Clean Energy Regulator, is now transitioning the operation of its carbon registry to an environmental tech company, Trovio Group.[99]

To support CCERs gaining international recognition, the market believes alternative registries hosted by non-governmental and reputable organisations could also provide such services. This approach could improve governance perceptions and better align with global practices. The registration of CCERs in a Hong Kong-based registry will enhance its visibility and credibility in the international market, assuming these CCERs would be tradable by overseas participants after the Carbon Connect is established in Hong Kong (Please refer to Recommendation 2 for more details about the Carbon Connect).

The Hong Kong SAR Government should encourage the establishment of a carbon registry that adopts the CCER methodology. As it matures, such a registry should adopt other methodologies applicable to emerging economies. This approach is strategic as Mainland China, like some other manufacturing-intensive emerging economies, is poised to become a significant importer of carbon credits, presenting significant opportunities for Hong Kong.[100] In particular, project developers involved in the Belt and Road initiatives are interested in selling carbon credits to Mainland China. A Hong Kong-based carbon registry could become an important platform by attracting carbon projects from these markets, utilising CCER methodologies and other standards relevant to Mainland China, including standards adopting ICVCM's CCP and Article 6.4 of the Paris Agreement. This would support Hong Kong as a hub to "import" high-quality carbon credits and help enhance the ecosystem of Mainland China's voluntary carbon market.

Once the Carbon Connect is established with both Northbound and Southbound connections operational, carbon credits issued by offshore developers in Belt and Road countries could be registered at the Hong Kong registry using the CCER or other recognised standards. Subsequently, these carbon credits can be traded to onshore participants through the Carbon Connect platform.[101] This streamlined process eliminates the need for offshore project developers to establish accounts in Mainland China for their carbon credits. Hong Kong can assist in conducting due diligence on offshore projects and facilitate CCER accreditation paperwork. Furthermore, any proceeds from the sale of carbon credits can be received in Hong Kong, simplifying complex remittance procedures. Simultaneously, Mainland China would benefit from an increased supply of carbon offsets to meet the anticipated surge in demand, as mentioned earlier.

To increase the attractiveness of such a registry to project developers, Hong Kong could permit or encourage dual registration, allowing projects to be registered in both Hong Kong and Mainland China. Blockchain

98 NASDAQ. (2024). Scaling carbon markets. https://nd.nasdaq.com/rs/303-QKM-463/images/Scaling-Carbon-Markets.pdf?version=2
99 Clean Energy Regulator. (2024, October 30). Australian Carbon Exchange reaches a major milestone. Australian Government. https://cer.gov.au/news-and-media/media/2023/december/australian-carbon-exchange-reaches-major-milestone
100 China Environment News. (2024, September 18). 碳交易如何實現溫室氣體減排？ https://www.cenews.com.cn/news.html?aid=1164048
101 If alternative standards are used, additional certification may be needed if the credits are intended for offsetting under the Mainland Chinese ETS market.

technology could be instrumental in preventing double sales and counting. Dual registration will result in additional costs for developers. The Hong Kong SAR Government should consider implementing incentives or streamlining processes to mitigate these burdens and facilitate participation. Alternatively, such a registry could be a sub-registry under NCSC, at least for the trading of CCERs, so that dual registration is not necessary.

Facilitating the development of carbon credit standards conversion in the longer term

With a carbon registry that adopts methodologies from the CCERs and other international standards coupled with a system like Carbon Connect to facilitate trading from various sources, Hong Kong could potentially harmonise the different standards used for carbon credits. This harmonisation would streamline carbon credit trading and enhance market liquidity.

Currently, the global carbon market is characterised by multiple standards, with many emerging carbon markets developing their own, which can lead to further fragmentation. Different certification standards have different protocols for assessing project quality. Taking agriculture as an example, the protocols for accessing project quality differ significantly between the Climate Action Reserve, the Gold Standard and Verra. While these three standards share similar criteria for additionality, their approaches to assessing leakage and permanence diverge.[102,103]

This fragmentation complicates the process of trading a carbon credit issued under one standard for a credit under another. According to the 2024 Nasdaq survey, the average participant in the voluntary carbon market faces between six and eight registries.[104]

Figure 7. Protocols for project quality across standards for agriculture

	Climate Action Reserve	Gold Standard	Verra
Additionality	Nearly identical		
Leakage	Depends on project	Only defined for each methodology	Quantify all significant leakage
Permanence	2-component approach	5 backstops	3-component approach

Source: BCG

Harmonising carbon standards through a market-driven carbon credit standard conversion system could simplify these transactions. The concept of a carbon credit standard conversion system can draw inspiration from the bond market, where the credit assessment of the diverse range of bonds issued by different issuers is harmonised. Provided there are credible assessors of carbon credit standards in different markets, this approach could be adapted to facilitate the trading of various carbon credits issued under different standards, driven by market forces of demand and supply.

A carbon credit standard conversion system necessitates collaboration with various international market participants, including credit rating agencies and other carbon markets. In this regard, Hong Kong could utilise its existing carbon market-related working groups, such as the Green and Sustainable Finance Cross-Agency Steering Group[105] and the Hong Kong International Carbon Market Council to enhance its collaboration with the international carbon community.[106] To further these efforts, Hong Kong could consider expanding the membership or partnerships of these organisations to include members from other carbon markets. This expansion would facilitate the establishment of a common framework for carbon credit standard conversion systems.

102 BCG
103 Climate Action Reserve assesses leakage variably depending on the project; Gold Standard defines methodologies for each type of project, whereas Verra quantifies all significant leakages. Climate Action Reserve employs a two-component approach; Verra uses a three-component approach; and Gold Standard implements five protective backstops.
104 NASDAQ. (2024). Scaling carbon markets. https://nd.nasdaq.com/rs/303-QKM-463/images/Scaling-Carbon-Markets.pdf?version=2
105 The Green and Sustainable Finance Cross-Agency Steering Group coordinates the management of climate and environmental risks to the financial sector, accelerates the growth of green and sustainable finance in Hong Kong, and supports the government's climate strategies.
106 The Hong Kong International Carbon Market Council aims to collaborate with leading corporates and financial institutions to develop an international carbon market, leveraging Hong Kong's status as a leading global financial centre and contributing to global carbon neutrality goals in Hong Kong, Mainland China, Asia, and beyond.

Initially stage, it may be challenging to implement carbon credit standards across the global market. Hong Kong could start by focusing on Mainland China's trading partners, many of whom are in the process of establishing their standards. Hong Kong could negotiate with ASEAN countries and others to establish a conversion framework, including common criteria for carbon credit valuation, carbon credit categorisation, and regulatory oversight.

The rating can be based on common criteria for high-quality carbon credits, such as project permanence, additionality, verifiability, and environmental integrity.[107] Carbon credits could be categorised based on their profiles, such as project type (e.g., forestry, renewable, industrial), geographical location, standards under which they were generated (e.g., CCER, Verra, and Gold Standard), and issuers (e.g., governments, international organisations, and private companies). In terms of regulatory oversight, Hong Kong could also establish cooperative mechanisms among the regulators of all participating markets to ensure transparency and compliance in the conversion process.

By developing a common framework at the regional level, the jurisdictions involved could encourage various rating agencies to adopt the common criteria for rating carbon credits. Facilitating a standard conversion for carbon credits, especially for CCERs and other less internationally recognised carbon credits, would help these credits gain international recognition and address the challenges posed by mechanisms such as the carbon border adjustment mechanisms, such as the EU CBAM.

107 International Carbon Value Comparison Market. Core carbon principles. https://icvcm.org/core-carbon-principles/ https://icvcm.org/core-carbon-principles/

Recommendation 4: Providing legal certainty on carbon credits to stimulate carbon demand

To enhance Hong Kong's appeal as a hub for the registration and trading of carbon credits, it is imperative to provide certainty as to their legal nature under Hong Kong law. Providing clarity on the legal nature of carbon credits is critical for several reasons:

- It helps market participants understand their rights and responsibilities in voluntary carbon markets and manage risks more effectively.
- It provides a basis for legislators and regulators to develop appropriate laws, regulations, policies and guidelines, including those related to the tax and accounting treatment of carbon credits.
- It contributes to a more stable and predictable business environment in the voluntary carbon market.
- It helps attract investment into the underlying carbon projects from which these credits are issued.[108]

The legal characterisation of carbon credits in various jurisdictions

Internationally, the approach to defining the legal nature of carbon credits varies significantly.[109, 110,111] In common law jurisdictions such as Hong Kong, England, and Wales voluntary carbon credits are likely to be considered as a form of intangible property under existing case law. Still, until an authoritative statement is made, some perceived uncertainty remains. In Europe, EU legislation does not currently specify how voluntary carbon credits should be treated under private law in the member states, and the legal characterisation varies from state to state. In the United States, whether voluntary carbon credits constitute property depends on the specific state laws as there is no overarching federal regulation addressing the legal nature of voluntary carbon credits, but from a regulatory perspective, voluntary carbon credits are likely classified as a commodity for the Commodity Exchange Act.

While there are global initiatives to provide greater clarity on the legal nature of voluntary carbon credits, such as the ongoing efforts of the United Nations Commission on International Trade Law (UNCITRAL) / International Institute for the Unification of Private Law (UNIDROIT), it will take time for a global consensus to develop. In the meantime, Hong Kong could position itself as a more attractive jurisdiction for the establishment of carbon registries and the facilitation of financing transactions involving carbon credits by providing certainty as to the legal nature of carbon credits under Hong Kong law.

Continuous review of the law is essential to ensure it keeps pace with new market developments and trends. In the UK, for instance, the UK Jurisdiction Taskforce (UKJT) was established to provide market confidence and a degree of legal certainty to promote the choice of English law in the context of emerging technologies. The UKJT has published at least three statements on the legal status of digital assets under English insolvency law.[112]

In Hong Kong, the Law Reform Commission was established in 1980 as an independent body to review the laws of Hong Kong. It proposes reforms to make the law more effective, accessible, and responsive to the needs of the community.[113] To enhance the legal framework surrounding carbon credits, the Law Reform Commission could consider stating to provide market guidance and clarify the legal status of carbon credits. Such a statement would align Hong Kong with global efforts and promote confidence and stability in the carbon market. Hong Kong should also take into account Mainland China's legal treatment of carbon credits

108 GenZero. (2024, March). The legal character of voluntary carbon credits. https://genzero.co/wp-content/uploads/2024/03/The-Legal-Character-of-Voluntary-Carbon-Credits-report.pdf
109 International Institute for the Unification of Private Law. (2024). Legal nature of voluntary carbon credits with Annexe 1. https://www.unidroit.org/wp-content/uploads/2024/04/C.D.-103-11-Legal-nature-of-Voluntary-Carbon-Credits-with-Annexe-1.pdf
110 International Swaps and Derivatives Association. (2021, December). Legal implications of voluntary carbon credits. https://www.isda.org/a/38ngE/Legal-Implications-of-Voluntary-Carbon-Credits.pdf
111 International Swaps and Derivatives Association (2022, November). Legal nature of voluntary carbon credits: France, Japan, and Singapore. https://www.isda.org/a/PlcgE/Legal-Nature-of-Voluntary-Carbon-Credits-France-Japan-and-Singapore.pdf
112 Taylor Wessing. (2024, May). UK Jurisdiction Taskforce publishes its third legal statement on digital assets and English insolvency law. https://www.taylorwessing.com/en/insights-and-events/insights/2024/05/riu-legal-statement-on-digital-assets-and-english-insolvency-law
113 Hong Kong Law Reform Commission. Mission. https://www.hkreform.gov.hk/en/about/mission.htm

when such discussion takes place in Mainland China if and as Hong Kong aims to connect the carbon market of Mainland China with the global market.

Figure 8. The legal treatment of carbon credits in various sample jurisdictions

Jurisdictions	Position on the legal character of voluntary carbon credits
Australia	Australian carbon credit units (ACCUs) are construed as personal property; other types of carbon credits are likely to be a form of intangible property, but pending authoritative pronouncement
England and Wales	Likely a form of intangible property but pending authoritative pronouncement
France	Likely intangible property
Germany	Uncertain pending authoritative pronouncement
Hong Kong	Likely a form of intangible property but pending authoritative pronouncement.
Japan	Uncertain pending authoritative pronouncement
USA	No federal law addressing the legal nature of voluntary carbon credits, but they are likely a commodity under the Commodity Exchange Act

Source: Ben McQuhae[114], King & Wood Mallesons[115], Gen Zero, Allen & Gledhill[116]

The legal status and regulation of carbon credits

It is important to note that questions around the legal status of carbon credits cannot be separated from the questions of how and by whom the carbon market should be effectively regulated. For instance, some clarity on the treatment of voluntary carbon credits would have implications for, among other things, their valuation and accounting treatment.[117]

Currently, given the market-driven nature of the carbon credit industry, few jurisdictions have implemented regulations for voluntary carbon markets. In this context, Hong Kong can align itself with global norms that advocate minimal regulation, thereby maintaining a business-friendly environment that encourages market innovation. However, to maintain market integrity and protect investors, Hong Kong should work with industry experts to develop practical guidelines that can effectively guide market participants. In addition, Hong Kong should remain adaptable to the international regulatory landscape for carbon markets and be prepared to adjust its policies as necessary to align with global practices and bridge the Mainland market.

114 Ben McQuhae & Co. (2023, March 15). The legal nature of carbon credits. https://bmcquhae.com/en/2023/03/15/the-legal-nature-of-carbon-credits/

115 King & Wood Mallesons. (2024, April 26). The international bid for legal certainty on carbon credits: taking China's example to the UN. https://www.kwm.com/global/en/insights/latest-thinking/the-international-bid-for-legal-certainty-on-carbon-credits-taking-chinas-example-to-the-un.html

116 Allen & Gledhill. (March 2024). The legal character of voluntary carbon credits: a way forward. https://www.allenandgledhill.com/media/12891/the-legal-character-of-voluntary-carbon-credits_a-way-forward.pdf

117 There are no international standards on the accounting treatments of carbon credits. However, some accounting firms have suggested that if carbon credits are to be retired, they should be accounted for as an expense as the credit is "consumed". In contrast, if the carbon credits are held by a company to be traded or sold, then they should be accounted for as an asset (which in turn supports the view of voluntary carbon credits as a kind of intangible property). Please see KPMG (2023, July 12). What might a company that purchases carbon credits voluntarily need to consider? KPMG. https://kpmg.com/xx/en/our-insights/ifrg/2024/climatechange-ias2-voluntary-carbon-credits.html

Recommendation 5: Developing a vibrant carbon market ecosystem characterised by strong carbon-related professional services and supported by advanced technologies to support carbon trading

To support the success of the Carbon Connect and ensure the sustainable growth of its carbon market, the Hong Kong SAR Government should actively cultivate a robust carbon ecosystem by facilitating cross-border carbon data flow. This ecosystem should be characterised by strong carbon-related professional services and supported by advanced technologies, such as blockchain. This strategic initiative will enhance market diversity and transparency, paving the way for Hong Kong to become a leader in the global carbon trading landscape.

The role of carbon-related professional services

On the mandatory side, legal and regulatory advice and compliance services could help businesses navigate the complexities of carbon cap-and-trade systems and carbon border adjustment mechanisms. In the voluntary market, third-party ancillary service providers could play the same role in facilitating the decarbonisation of businesses and the procurement of high-integrity carbon credits to offset some of their carbon emissions and meet their committed carbon neutrality targets.

Figure 9. Opportunities for carbon-related services in the mandatory and voluntary carbon markets

Mandatory carbon markets	Voluntary carbon markets
Mandatory carbon markets are undergoing significant expansion and regulatory change, particularly in the European Union. The inclusion of the shipping industry in the EU ETS and the implementation of the EU CBAM highlight opportunities for third-party ancillary service providers. For the EU ETS, service providers verify the emissions data reported by regulated entities, such as power plants, to ensure the accuracy and compliance of the reported emissions. They also verify that companies surrender the required number of allowances to cover their emissions, thereby maintaining the integrity of the trading system. Moreover, they assess and confirm the legitimacy and effectiveness of emission reduction projects companies use to offset their carbon emissions under the EU ETS. Starting with a transitional phase running until the end of 2025 for EU CBAM, service providers will have to verify the carbon intensity of imported goods subject to the EU CBAM, ensure the accuracy of carbon data provided by exporters, and confirm that the exported goods comply with EU CBAM requirements.	Voluntary carbon markets are also seeing more sectors with ambitious carbon neutrality goals, such as the building industry. The World Green Building Council advocates that all buildings should achieve net-zero embodied carbon by 2050.[118] In addition to energy efficiency and renewable energy, the use of carbon credits to compensate for residual emissions, particularly for net-zero embodied carbon, is an integral part of achieving this goal. To meet these targets, buildings increasingly rely on high-integrity carbon credits to offset residual emissions to meet these requirements and stakeholders' expectations. Hong Kong could position itself as a key player in addressing the carbon trading needs of the global building sector.

118 World Green Building Council. Advancing Net Zero Whole Life Carbon. https://worldgbc.org/advancing-net-zero/advancing-net-zero-whole-life-carbon/

The role of advanced technologies

Technology is a powerful means to reduce or eliminate the risk of greenwashing. The use of technology can address four broad issues: trust and transparency, market efficiency and fairness, investor and consumer protection, and support for regulatory monitoring. These technologies are blockchain, the Internet of Things (IoT), big data, artificial intelligence (AI), verifiable credentials, and satellite remote sensing technology.

This technological integration helps ensure the healthy functioning of the market, protects investor interests and maintains market credibility. By incorporating technology, it is possible to regulate behaviour in the voluntary carbon market, while at the same time boosting public awareness and media scrutiny, thus promoting the comprehensive development of carbon market policies.

Facilitating cross-boundary carbon data flows

Cross-boundary data flow is critical to fostering a dynamic ecosystem. The Hong Kong SAR Government could collaborate with relevant Mainland and Hong Kong stakeholders —including businesses, educational institutions, and other parties—to enhance the flow of carbon data. This collaborative approach will streamline efforts and ensure the successful implementation of policies that support the growth of the carbon market.

The carbon market requires a lot of data that may be considered sensitive to businesses. For example, activities such as carbon project registration and cross-boundary carbon trading require the management of a significant amount of data, including sensitive information. Data collection will involve cross-boundary data flows, requiring robust security measures to ensure the safety of the data in transit. Simultaneously, there is a critical need to ensure data credibility to build trust within the international community. This trust will be anchored in multiple dimensions, including confidence in the hosting jurisdiction's legal system, regulatory framework, and the technologies deployed.

Given Hong Kong's unique position under the "One country, Two systems" framework, it could effectively leverage this arrangement to facilitate cross-boundary carbon data flows between Mainland China and Hong Kong. Moreover, Hong Kong's international reputation could play a vital role in enhancing the credibility of the data on a global scale, further cementing its position as a trusted hub for carbon trading. This approach aligns with the FSDC's earlier policy recommendations in the paper "Connecting Data: Establishing Hong Kong as a Cross-Boundary Financial Data Hub", which made similar recommendations to enhance data connectivity between Mainland China and Hong Kong.[119]

The general facilitation measures, such as standard contracts mentioned before, cover the cross-boundary transfer of personal information. For non-personal data related to specific sectors, the prevailing approach is for the relevant bureaux or regulatory bodies in Hong Kong to develop proposals for cross-boundary data flow and discuss them with corresponding Mainland authorities.[120] Therefore, Hong Kong could collaborate with the relevant Mainland authorities to streamline the cross-boundary transfer of carbon-related data, enhancing cooperation on environmental data management and climate action initiatives.

Through closer collaboration with Mainland regulators, the proposed Hong Kong-based registry can be empowered to collect data from Mainland projects. With greater transparency and traceability of data, multinational corporations can confidently purchase and retire these carbon assets to meet their carbon-neutral goals domestically and meet supply-chain greening requirements.

119 FSDC. (2022, December 9). Connecting data: Establishing Hong Kong as a cross-boundary financial data hub. FSDC. https://www.fsdc.org.hk/en/insights/connecting-data-establishing-hong-kong-as-a-cross-boundary-financial-data-hub

120 Based on discussions with relevant stakeholders from Mainland and Hong Kong.

Conclusion

Conclusion

The carbon market plays a crucial role in the global push towards decarbonisation, with the Mainland emerging as a major participant. This report emphasises the need to internationalise China's carbon market to strengthen the global carbon market framework. It highlights the challenges faced in achieving international scale, identifies areas where Hong Kong's expertise could be instrumental, and offers corresponding policy recommendations.

For Hong Kong to make an effective contribution, it needs to take action in several key aspects, i.e., stimulating the market demand for carbon credits, setting up a Carbon Connect with the alignment of interest from key Mainland stakeholders, establishing an NGO-run carbon registry, providing legal certainty on carbon credits, and developing a vibrant market ecosystem supported by a range of carbon-related professional services and advanced technologies. Such enhancements will solidify Hong Kong's status as Asia's leading green finance hub. More importantly, with an enhanced carbon market system, Hong Kong will play a vital role in the global pursuit of net-zero emissions, a goal that requires the involvement and cooperation of all stakeholders. By fostering a vibrant and resilient carbon market ecosystem, Hong Kong can catalyse innovation, attract investment, and forge partnerships across borders. This will enhance the city's economic competitiveness and underscore its commitment to environmental stewardship on the world stage.

In conclusion, the immediate priorities should focus on stimulating demand and establishing a carbon registry. At the same time, the medium to long-term strategies should include providing legal certainty, establishing Carbon Connect, and cultivating a vibrant carbon market ecosystem. These strategies will involve multiple stakeholders and require careful consideration.

We recognise that the development of a vibrant carbon market will require additional components such as financial products and risk management tools. It is equally important for the Hong Kong SAR Government to support and nurture the talent necessary for a thriving carbon ecosystem. However, these recommendations are a starting point to enhance liquidity and efficiency in the market so that demand and innovation for carbon-related financial products could develop and flourish. For example, Mainland market participants have demonstrated a strong interest in accessing a more robust derivatives market for risk management, and Hong Kong is well positioned to meet the need with its mature financial infrastructure. As the carbon market matures, Hong Kong could develop a carbon futures market offering forwards, futures, options, and swaps.

We are optimistic about the role that Hong Kong can play in carbon trading. With the implementation of the recommendations set out in this paper and the support of the industry, these concerted efforts will lay the groundwork for a comprehensive and effective carbon market in Hong Kong.

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Financial Services Development Council

About the FSDC

The FSDC was established in 2013 by the Hong Kong Special Administrative Region Government as a high-level, cross-sectoral advisory body to engage the industry in formulating proposals to promote the further development of the financial services industry of Hong Kong and to map out the strategic direction for the development.

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