FINANCING CHINA’S LOW CARBON GROWTH: HONG KONG
This excerpt contains the summary and the case study on Hong Kong extracted from *Financing China’s Low Carbon Growth*, The Climate Group’s fourth annual *China’s Clean Revolution* report. The original report was released in Chinese in late November 2011 and is available at www.theclimategroup.org.

*Financing China’s Low Carbon Growth* will be followed by a series of updates (in English and Chinese) throughout 2012. These will analyze and assess the developing financial infrastructure (including tax policy; venture capital and equity markets; bond markets; carbon trading; R&D investment) and policy design (for key technologies, sectors and levels of government) that will enable China to achieve its climate and energy targets for 2015 and 2020.

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Financing China’s Low Carbon Growth is the first comprehensive review of China’s strategy on financing its low carbon economy. The report explores:

- The fiscal and financial policies and instruments in place to meet China’s goals;
- The evolving role of Chinese financial institutions in supporting climate and energy goals;
- Opinions on the level of investment and the investment needed; and
- Current challenges and barriers to progress.

Our research is based on review of existing literature and our own interviews of 20 experts closely involved in Chinese policy development and tracking, including representatives from the Ministry of Finance, National Development and Reform Commission (NDRC), Tsinghua University, Chinese Academy of Sciences and Chinese Academy of Social Sciences. The main report also reviews a number of sectoral and regional case studies, including the role of Hong Kong as a financial and knowledge center.

CHINA’S POLICY FRAMEWORK FOR LOW CARBON FINANCE

The main elements of China’s low carbon financing are summarized in Figure 1. Amongst the experts interviewed, all of these elements were held to be equally important. While government finance has been instrumental in advancing renewable energy and energy efficiency, it has also been well leveraged by non-government entities. According to some estimates, the central government’s US$31 billion (RMB 200 billion) investment into energy conservation and emissions reduction during China’s 11th Five-Year Plan (2006-2010) was leveraged to generate a total investment of US$315 billion (RMB 2 trillion).²
Financing already appears to be coming from a diverse set of sources and is arguably becoming more sophisticated. Key indications of progress include the following:

- Central Government investment in the energy efficiency, renewable energy and environmental protection sectors has grown steadily from US$3.7 billion (RMB 24 billion) in 2007 to a projected US$16.8 billion (RMB 107 billion) in 2011 (Figure 2).

- In 2010, the venture capital (VC) sector completed 84 clean technology transactions totaling US$508 million (RMB 3.2 billion), more than doubling on the previous year and increasing annual investment by over 40%. Clean technology ranked second in VC finance amongst 23 industrial sectors.4,5

- Similarly for private equity, 2010 saw the clean technology industry ranked second in China by number of transactions (31 in total) and 10th by total investment at US$330 million (RMB 2.1 billion).5

- As of December 2010, the National Association of Financial Market Institutional Investors reported a release of funds exceeding US$157 billion (RMB 1 trillion) for 179 enterprises from China’s seven Strategic Emerging Industries3 including US$100 billion (RMB 640 billion) for new energy industry companies.6 Funds included the registered issuance of debt financing tools such as short-term financing bonds, medium-term notes and small and medium-size enterprise (SME) collective bills.

- As of August 2011, NDRC had certified three rounds of 1,734 energy service companies, an important third-party financing industry for energy efficiency projects.8

In July 2011, NDRC issued a measure4 seeking to ensure equal treatment of private enterprise in accessing public resources, and to encourage new business models. The measure also promotes the establishment of venture investment firms and industrial investment funds to direct private capital to the seven Strategic Emerging Industries. This step is especially important for SMEs in the low carbon industry value chain, which typically find it hard to access debt finance from commercial banks.

**FIGURE 2. REPORTED CENTRAL GOVERNMENT INVESTMENT IN ENERGY EFFICIENCY, RENEWABLE ENERGY AND ENVIRONMENTAL PROTECTION 2007-2011 (N.B. THE 2011 FIGURE IS PROJECTED BASED ON THE GOVERNMENT BUDGET)**

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**THE ROLE OF CHINESE FINANCIAL INSTITUTIONS**

Many Chinese banks are in the early stages of creating climate change policies and integrating these into their lending practices. The banking sector has for example been progressing ‘green credit’ for energy efficiency, renewable energy and the low carbon sub-sectors of the Strategic Emerging Industries (Figure 3). Loans outstanding to energy-saving and environmental protection projects in 2010 increased 18% on the previous year, the total value of loans made to the projects increased by 1.7% and the number of customers being provided loans rose by 11%.3 The development of ‘green credit’ at China’s commercial banks is in its infancy, having so far been driven by energy policy requirements and social responsibility considerations, and many initiatives are not yet profitable.
INVESTMENT REQUIRED TO MEET CHINA’S CLIMATE AND ENERGY GOALS

No clear consensus emerged amongst our group of experts on the total investment needed, or on whether the current commitment is sufficient to meet targets. Asked about China’s annual investment needs, half of our respondents estimated a requirement of US$80-240 billion (RMB 500 billion-1.5 trillion) during the 12th Five-Year Plan (2011-2015). Forty per cent put the annual demand at greater than US$315 billion (RMB 2 trillion) during the 13th Five-Year Plan (2016-2020, Figure 4). For comparison, Bloomberg New Energy Finance estimates that US$54.5 billion (RMB 346 billion) was invested into clean energy in China in 2010.14

Against the backdrop of China’s commitment to develop its Strategic Emerging Industries, most of our expert group however believes the short-term investment demand will be met for low carbon technologies, compared to a likely investment shortfall in energy efficiency and emissions reduction in traditional industries (Figure 5).

FIGURE 3. GROWTH IN LENDING FROM CHINESE BANKS TO ENERGY EFFICIENCY AND ENVIRONMENTAL PROTECTION PROJECTS (2004 - 2010)

FIGURE 4. SURVEY RESULTS: ESTIMATED ANNUAL INVESTMENT NEEDS TO MEET CLIMATE AND ENERGY TARGETS IN 2015 & 2020

How much additional investment is needed for China to achieve its climate and energy policy targets in 2015 and 2020? (trillion RMB)

Based on recent investment trends, will China meet the investment level needed to achieve its climate and energy policy targets in 2015 and 2020?
Based on current investment trends, will the level of investment needed to achieve each industry’s development target for 2015 be met?

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**CHALLENGES & RECOMMENDATIONS**

Based on our research and interviews, we believe China faces a number of broad challenges to successful financing of its energy and climate targets, as described in this section.

- The current national investment strategy focuses on funding the manufacture of clean technologies and deploying them at scale, but has yet to prioritize financing of technological innovation, capacity building or low carbon services that will be increasingly necessary to meet climate and energy goals.
  
  **Recommendation:** Improve the national investment strategy to prioritize these areas.

- It is unclear how effective China’s investments into energy efficiency and renewable energy have been, including the extent to which these investments also meet wider economic goals and carbon targets.
  
  **Recommendation:** Improve the assessment of investments and their impact on wider policy objectives.

- China has not yet established clear and enforceable policies and standards for provision of green credit by banks, or the associated regulatory system to ensure green credit policies achieve the desired effect.
  
  **Recommendation:** The China Bank Regulation Commission should accelerate the establishment of policies, standards and systems to address this gap.

- Whilst China is slowly adjusting its tax regime to encourage low carbon industries and energy efficiency, its energy prices are often too low to encourage efficiency measures.
  
  **Recommendation:** The government should continue to adjust the scope and level of taxation in these areas.

- The government is yet to fully coordinate its wider financial strategy with its low carbon policies, or to coordinate its approach across Ministries, the State Council’s policy targets and provincial and municipal government plans.
  
  **Recommendation:** Further prioritize and direct government funding, concentrating support on areas with the largest public benefit and a long-term cost savings (e.g. energy efficiency retrofits and basic technology R&D). Establish coordinated financial planning on carbon objectives across the government.

- China’s banking sector participation in financing the low carbon economy is still emerging.
  
  **Recommendation:** Increase bank participation in building the low carbon economy. Mechanisms could include establishment of loss-sharing partnerships between banks and local governments to provide energy efficiency loans to industry, and efforts to integrate green credit with other financial products.
FINANCING CHINA’S LOW CARBON GROWTH: HONG KONG

INTRODUCTION

Hong Kong has been the growth engine for southern China over the past 30 years. Manufacturing industries in Hong Kong thrived until the 1980s and 1990s, when they moved across the border to China, in particular the Pearl River Delta (PRD) region which, due to its advantage at the doorstep of China, provided low operating costs and attractive investment incentives in the Special Economic Zones. Along with the capital investments into the region have also come new technologies, skilled labor and experienced management staff. Since then, southern China has grown into the manufacturing base for the world, and the economic development has spread to the northern and western part of China.

To steer the country towards a low carbon path, China needs a sustained growth of cleantech sectors to provide clean energy and solutions to the climate challenge. The presence of a supportive business environment, injection of capital, availability of human resources and know-how are all indispensable for those low carbon industries to flourish.

Hong Kong, as the most financially and socially open city in China, could play a significant part in advancing China’s green growth. In particular, Hong Kong has been involved in the development of low carbon industries such as electric vehicles, LED lighting, energy efficiency solutions, and renewable energy in China. In this chapter, we analyze Hong Kong’s leveraging role in four aspects, in terms of channeling capital flow, being a gateway for foreign companies entering China, serving as a platform for Chinese companies seeking access to international markets and investors, and providing the necessary supporting services and expertise.

In addition to desktop research, we also interviewed representatives from financial institutes involved in cleantech investments to obtain insights from a financier’s perspective. (please refer to the Appendix for a list of interviewees).

FACILITATION OF CAPITAL FLOW

Capital is central to the world’s low carbon transition. To restrict global warming to 2°C, the World Economic Forum and Bloomberg New Energy Finance estimate that clean energy investment must rise to US$500 billion a year by 2020. HSBC predicts that a switch to a low carbon economy will see a US$10 trillion growth in cumulative capital investments between 2010 and 2020.

The private sector is vital in providing the capital to address climate change. The United Nations Framework Convention on Climate Change estimates that 80% of the need will be met by businesses and consumers, while the International Energy Agency also estimates that 40% of the additional investment needed in 2020 will come from businesses, 40% from households, and the remaining 20% from governments.

FUND AND ASSET MANAGEMENT

Hong Kong is one of the major fund management hubs in Asia, with over 800 asset management firms based in the city. In 2010, the fund management business in Hong Kong reached a record high of US$1.294 billion, representing an 18.6% increase from 2009. Of the total US$1.281 billion in non-real estate investment trusts (non-REIT) fund management business, 66% was sourced from non-Hong Kong investors, highlighting Hong Kong’s position in attracting foreign capital.

Owing to global investors’ eagerness, a significant portion of the said capital is funneled into China. Of the total US$877 billion non-REIT assets under management in 2010, 61% was managed in Hong Kong. Half of these assets, amounting to US$267 billion, were invested in Hong Kong and China, reflecting Hong Kong’s strategic role in directing investments to China. As Hong Kong develops into a dominant offshore RMB center and provides more associated financial products, its role is expected to be further strengthened.
Conversely, capital in China also sought investment opportunities in other markets through Hong Kong. The amount of Chinese assets managed in Hong Kong reached US$9.9 billion in 2010, with more than 50% invested in Hong Kong, around 25% invested in Asia Pacific, and the remaining invested in North America, Europe and other regions. The opening up of the Hong Kong exchange-traded fund market for Chinese investors is predicted to enhance Hong Kong’s function as an outlet for Chinese assets.

**FOREIGN DIRECT INVESTMENT**

Hong Kong’s contribution in facilitating capital flow is also demonstrated by its foreign direct investment (FDI) activities. In 2010, the city was the third largest global FDI recipient with US$69 billion of investments received, and the fourth largest FDI provider with US$76 billion directed to other economies.

The FDI activities of Hong Kong and China are closely linked. In 2009, about 50% of FDI invested in Hong Kong was received from China, while over 70% of FDI from Hong Kong was invested in China. At end of 2010, Hong Kong was China’s largest source of realized FDI, accounting for 43% of the national total with a cumulative value of US$456 billion, demonstrating Hong Kong’s vital position in facilitating capital flow into and out of China.

**PRIVATE EQUITY AND VENTURE CAPITAL INVESTMENT**

Private equity (PE) and venture capital (VC) have become an increasingly common capital source for Chinese enterprises. In 2010, US$13.4 billion were drawn to China-focused PE funds, representing a 106% increase from 2009 and 44% of the total funds committed to the whole Asia Pacific in the year. Total PE capital under management in China stood at US$57.4 billion at the end of 2010, with China accounting for 22% of total PE capital in Asia Pacific.

PE and VC are especially important for the newly emerged cleantech sectors, which may otherwise find it difficult to obtain traditional finance like bank loans due to lack of business track records and collateral. According to AVCJ Research, around US$3.8 billion were invested in cleantech and renewable energy sectors in China from 2008 to 2010, representing 7.4% of the total disclosed PE investments over the period. Dow Jones VentureSource also states that Chinese cleantech companies received US$410 million in venture financing in 2010, making China the third largest cleantech venture market after the US and Europe.

There is a sizeable presence of PE firms in Hong Kong, in fact it is the most popular location for regional head offices of PE funds, housing 45% of the Asian head offices for 47 funds. According to the AVCJ Research figures, the majority (81% in 2010 and 74% in 2009) of the PE investments in cleantech and renewable energy sectors in China were invested through Hong Kong-based firms, or Hong Kong offices of foreign PE firms, highlighting Hong Kong’s prominent position in channeling PE and VC capital into China.

Some of our interviewed stakeholders agreed that Hong Kong plays a strategic role in directing PE and VC investments into China’s cleantech sectors. For instance, Hong Kong has a low and simple tax regime, as reflected in the Forbes 2009 Tax Misery Index, which ranked Hong Kong as the third most tax-friendly economy. In addition, under the Arrangement for the Avoidance of Double Taxation on Income and Prevention of Fiscal Evasion between Mainland China and Hong Kong, withholding tax for dividends received by a Hong Kong business from investments in Mainland enterprises is reduced from 10% to 5%, if at least 25% of the capital of the Mainland enterprise is held by the Hong Kong business. This is seen by some foreign investors as an attractive incentive to invest in China through Hong Kong rather than other offshore entities.

On the other hand, some interviewed stakeholders predicted that Hong Kong is losing its competitive edge and anticipated a diminishing function for Hong Kong to channel PE and VC capital into China as the market in China gradually opens up and its business environment and services mature. It was noted that a growing number of foreign investors now work directly with local fund managers in China, who have a wider, deeper local connection network and a better understanding of the business environment in China.
GATEWAY FOR FOREIGN COMPANIES ENTERING CHINA

Although Hong Kong does not represent a vast market itself, many foreign companies choose this location as their base of regional operation. In 2010, Hong Kong was home to 1,285 regional headquarters and 2,353 regional offices.

Hong Kong was rated as the strongest economy in Asia, with a third-overall rank in the Financial Development Index 2010. In particular, Hong Kong outperforms China in all areas of institutional environment and business environment, as well as in some parameters of financial stability, financial markets and financial access, as illustrated in Table 1.

In terms of overall competitiveness, Hong Kong was ranked 11th out of 142 economies in the Global Competitiveness Index 2011, the third in Asia after Singapore (2nd) and Japan (9th), while China was ranked 26th. In general, Hong Kong offers a better business environment compared with China, in terms of institutions, infrastructure, goods market efficiency, financial market development, and technological readiness, as outlined in Table 2.

| TABLE 1. RANKING COMPARISON BETWEEN HONG KONG AND CHINA UNDER THE FINANCIAL DEVELOPMENT INDEX 2010 |
|---------------------------------------------------------------|-------------------|
| INDICATOR                                                   | HONG KONG | CHINA |
| OVERALL                                                      | 3         | 22    |
| FINANCIAL SECTOR LIBERALIZATION                              | 24        | 43    |
| CORPORATE GOVERNANCE                                         | 15        | 30    |
| LEGAL AND REGULATORY ISSUES                                  | 5         | 28    |
| CONTRACT ENFORCEMENT                                         | 2         | 23    |
| HUMAN CAPITAL                                                | 19        | 36    |
| TAXES                                                        | 2         | 24    |
| INFRASTRUCTURE                                               | 1         | 47    |
| COST OF DOING BUSINESS                                       | 14        | 34    |
| BANKING SYSTEM STABILITY                                     | 6         | 50    |
| FOREIGN EXCHANGE MARKETS                                     | 6         | 27    |
| COMMERCIAL FINANCIAL ACCESS                                  | 1         | 34    |

| TABLE 2. RANKING COMPARISON BETWEEN HONG KONG AND CHINA UNDER THE GLOBAL COMPETITIVENESS INDEX 2011 |
|---------------------------------------------------------------|-------------------|
| INDICATOR                                                   | HONG KONG | CHINA |
| AVAILABILITY OF FINANCIAL SERVICES                           | 8         | 60    |
| AFFORDABILITY OF FINANCIAL SERVICES                          | 4         | 41    |
| FINANCING THROUGH LOCAL EQUITY MARKET                        | 1         | 46    |
| EASE OF ACCESS TO LOANS                                      | 11        | 45    |
| VENTURE CAPITAL AVAILABILITY                                 | 5         | 22    |
| SOUNDNESS OF BANKS                                           | 10        | 64    |
| REGULATIONS OF SECURITIES EXCHANGES                          | 11        | 53    |
| LEGAL RIGHTS INDEX                                           | 1         | 60    |
| AVAILABILITY OF LATEST TECHNOLOGIES                         | 12        | 100   |
| FIRM-LEVEL TECHNOLOGY ABSORPTION                             | 15        | 61    |
| FDI AND TECHNOLOGY TRANSFER                                  | 7         | 80    |
The mature and friendly business environment, sound infrastructure, easy access to Chinese market, and established connections to international markets makes Hong Kong the perfect stepping stone for foreign companies seeking to enter China. For example, Cree, a leading LED industry player, selected Hong Kong rather than China and Japan for the company’s regional headquarters, based on the city’s world class infrastructure, open economy, light government regulation, efficient legal system, availability of venture capital, simple and low taxes, low trade barriers, straightforward customs procedures, and professional multilingual staff with regional and global knowledge and experience.34

Through bridging the Chinese and international market, Hong Kong contributes to the process of technology and expertise transfer into China, which are essential to nurturing a healthy growth of cleantech sectors in China. Specifically, Hong Kong could play a crucial role in channeling capital as well as low carbon technologies into China, as suggested by the rankings of financial market development and technological readiness of the two economies.

**“GOING-OUT” PLATFORM FOR CHINESE COMPANIES**

Apart from being an entry point for foreign companies getting into China, Hong Kong also connects Chinese enterprises with international markets and investors.

**EXPLORING INTERNATIONAL MARKETS**

Mr Christiaan Kaptein from Private Equity, Robeco Hong Kong saw Hong Kong as a first and natural stop for Chinese companies wishing to go abroad. Chinese companies tend to set up regional or international offices in Hong Kong before they go to Southeast Asia, Europe or North America, and Hong Kong will remain a very important platform for Chinese companies to test the water for the international market.

Mr Charles Yonts, Clean Tech Analyst of CLSA Research Limited opined that Hong Kong also plays a role in channeling Chinese capital to international cleantech projects. Currently Chinese cleantech companies have too much capacity for China itself, while in Europe and North America there is a high demand for clean energy projects but a lack of capital. The mismatch has created an incentive for top notch Chinese solar and wind power companies to enter the international market, but Chinese state-owned companies often experience push backs in these countries due to political concerns. In this respect, Chinese private cleantech companies entering international market through Hong Kong could gain a more international branding, thus reducing political resistance.

**ACCESSING INTERNATIONAL INVESTORS**

In order to secure access to further equity finance for continued growth, companies with successful track records often opt for going public. Initial public offering (IPO) is also one of the common ways for PE and VC investors to realize their return on investments after they have added maximum value to the company through re-financing or improving its performance. In 2010, Greater China’s IPO markets (including the exchanges of Hong Kong, Shanghai and Shenzhen) raised US$129.8 billion in 440 deals, accounting for 46% of global funds raised. Hong Kong was the global leader for fund-raising in 2010, with US$57.4 billion raised in 87 IPOs.35

As the only Chinese exchange fully open to foreign investors, Hong Kong has become the go-to market for China-based companies with international ambitions, partly due to its access to global funds and its flexibility in subsequent fund-raising activities. At the end of 2010, 592 Mainland enterprises were listed on the Hong Kong stock exchange, which constituted 57% of the US$2.702 billion market capitalization and 66% by annual turnover value.36 In the first half of 2011, 62% of Chinese IPOs were listed in China, 34% in Hong Kong and 4% in the US.37

The investor constitution also differentiates Hong Kong from the Shenzhen and Shanghai stock markets, which are dominated by local retail investors. In 2009/10 46% of the total market turnover on the Hong Kong stock exchange was contributed by overseas investors, a group that is comprised of over 90% institutional investors, while institutional investors as a whole made up 64% of Hong Kong’s market turnover.38 Mr Charles Yonts from CLSA Research Limited stated that from an international investor’s
view, the Hong Kong stock market is preferential to the Chinese markets, as disclosure is in English and the accounting standards are more readily understandable. Dr Sylvia Chan, Managing Director of Entropy Ventures also pointed out that there are still quite a few US and European funds that would not allow investments in companies listed in China. Dr K K Chan, Founder and CEO of Nature Elements Capital highlighted that the investor composition of the Hong Kong stock market makes it very attractive for Chinese cleantech companies as international and institutional investors are more experienced with and more interested in making cleantech investments.

Indeed, Chinese cleantech companies with international ambitions frequently choose to list on an offshore stock exchange. In 2010, 6 out of the 20 pure-play cleantech Chinese IPOs were listed in Hong Kong, and 5 of them were listed in New York. The liquidity of the Hong Kong stock market makes it a major equity access point for Chinese cleantech companies, assisting them to become leaders in the sector. In 2010, Chinese companies dominated the list of top global cleantech IPOs (7 out of 10), with 4 IPOs in Hong Kong, 2 in Shenzhen and 1 in New York. These 4 IPOs in Hong Kong raised US$2.4 billion, representing 34% of the total funds raised by the top 10 cleantech IPOs. In terms of market capitalization, 4 of the global top 10 pure-play cleantech companies are China-based, with 3 of them being listed in Hong Kong.39

PROVISION OF SUPPORTING SERVICES AND EXPERTISE

The successful cultivation of low carbon sectors requires not just capital investments and technology exchange, but also a strong business infrastructure, availability of professional industries in accordance with international standards, such as legal, accounting, certification and intellectual property (IP) services, as well as expertise in general business development management. As one of the best structured economies, Hong Kong could help perfect the business environment in China through the provision of expertise in the above areas.

CORPORATE GOVERNANCE STANDARDS

Corporate governance issues of Chinese companies, especially proper accounting, are one of the key concerns for investors. Between March and July 2011, 30 US-listed Chinese firms have had their auditors resign and 20 have been delisted.40 The accounting scandals of these companies, many of whom were listed through reverse mergers41 (i.e. backdoor listings), alarmed international investors on the level of corporate governance of Chinese enterprises.

Hong Kong has long been perceived as having a higher corporate governance standard than China. For instance, Hong Kong registers 13 on the Corruption Perceptions Index 2010 published by Transparency International, while China is ranked 78 out of 178 economies.42 The recent change of accounting rules43 of the Hong Kong Stock Exchange caused anxiety amongst some international investors, who as a result would no longer be able to count on the comfort of having a Hong Kong auditor signing off financial statements and a local regulator to hold the auditors accountable. Some investors indicated they would as a result place a higher value on companies employing a Hong Kong-based accountant,44 denoting the good reputation of the local professional accounting industry.

In 2009, Hong Kong exported US$192 million of accounting, auditing, book-keeping and tax consulting services, with China being the biggest market.45 By further promoting the employment of local accounting services and specialists in China, Hong Kong could help raise the industry standard in China and increase investor trust levels in Chinese companies.

SUPPORTING INDUSTRIES

The transition to a decarbonized economy requires the backup by various supporting industries, such as financial services which address the capital needs, and professional services which assist the business operations and development of the low carbon sectors. Driven by both the rapid growth and economic restructuring in China, there is a keen demand for skilled labor with international market exposure in these industries.
According to an investor survey by Deloitte, 72% of respondents believe that there are human capital constraints hindering the development of PE investments in China. For instance, investors noted an insufficient supply of expertise in China, such as qualified investment professionals with deep operation experience, good quality CFOs, accountants with Big Four experience, internationally-exposed entrepreneurs, and professionals such as lawyers. Hong Kong could help fill this gap in human capital by facilitating the transfer of the needed expertise and experience into China. Since the 1990s, Hong Kong has transformed from a manufacturing-based to a service-based economy. In 2009, the value added of the financial services and professional services contributed over 15% (HK$235.6 billion) and 4% (HK$64.8 billion) to the GDP respectively, with the two sectors employing 11% of the total workforce in Hong Kong. Specifically, 63,300 people were involved in financial services provision such as stock brokerage, asset management, finance leasing, investment and holding companies; 46,500 were employed by the legal, accounting and auditing services sectors, while 63,000 were engaged in business services related to architecture and engineering, technical testing and analysis, scientific R&D, and management services.

Under the Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA), service suppliers from various industries such as accounting, legal, R&D, management consulting, patent and trade mark agencies, testing and analysis, and financial services (banking, insurance, securities and futures) from Hong Kong enjoy preferential access to the China market. The agreement has greatly lowered the entry barriers for these service industries, which are particularly relevant to building an enabling business environment for low carbon industries to flourish in China.

**MANAGEMENT EXPERTISE**

Cleantech innovations, like any other new technologies, have to cross a “valley of death” gap between the realm of R&D and commercially viable solutions that can survive in the market. Apart from development capital and technology transfer, general business management is no less vital to the successful commercialization of technologies and new ideas.

Our interviewed investors also pinpointed the importance and soaring demand of general business management skills in China’s cleantech sectors. For instance, governance is often considered to be one of the biggest weaknesses of China’s cleantech companies. Mr Sam Yi, Executive Director of Spring Capital noted that while some cleantech companies in China are strong in technology development, there is room for improvement in enhancing business risk management so as to attract more investments for further growth. Mr Christiaan Kaptein from Robeco Hong Kong Limited highlighted some of the business fundamentals needed for Chinese companies to grow, such as the set up of a proper risk management framework, governance structure and accounting system, the connections with potential clients and partners, and the introduction of technologies and best practices, which international PE investors could bring in.

Mr Plato Yip, Founding Managing Director of P&S Investment Management (HK) Limited remarked that Hong Kong’s abundant experienced workforce in business development and management could help fill these human capital gaps in China’s cleantech sectors, and assist these companies to improve operations and reach out to a broader base of customers and investors.

Owing to physical proximity, and closely linked language and culture, the Hong Kong workforce is in general well adapted to the living and working environment in China. However, the much higher tax rate in China can be prohibitive for talents considering relocation to China. By offering taxation incentives, China may be able to attract an increased number of competent business practitioners joining the cleantech sectors.
THE WAY FORWARD

Under its 12th Five-Year Plan, China plans to foster the growth of low carbon industries and boost the local deployment of clean technologies. Specifically in Guangdong, 7 out of the 11 strategic emerging industries announced are cleantech-related (LED lighting, electric vehicles, solar photovoltaic, nuclear power equipment, wind power, new materials, and energy efficiency / environmental protection), creating new opportunities in the region.

Hong Kong has already been playing a prominent role in fostering the growth of cleantech sectors in China, albeit in most cases unintentionally, through channeling capital, enhancing exchange between the Chinese and international markets, and providing necessary supporting services and expertise in business development. Nonetheless, in order to stay competitive and revamp its growth potential, Hong Kong needs to reposition itself and proactively identify strategic roles in accelerating China’s clean industrial revolution. In particular, as the city aspires to remain a global financial hub and become a knowledge economy, Hong Kong could focus on guiding investment flows into climate-friendly businesses and cultivating cleantech innovation.

LOW CARBON FOREIGN DIRECT INVESTMENT

FDI is one of the potential capital sources for low carbon industries. The United Nations Conference on Trade and Development (UNCTAD) estimates that in 2009 low carbon FDI flows into renewables, recycling and low carbon technology manufacturing amounted to US$90 billion.49 As a major FDI source and recipient, Hong Kong could help drive the world’s clean revolution by encouraging such investments in low carbon industries.

Indeed, a number of economies are trying to attract low carbon FDI through various means, as illustrated by UNCTAD’s recent survey of investment promotion agencies (IPAs)50 (The IPA of Hong Kong is Invest Hong Kong under the Commerce and Economic Development Bureau). Over half of the respondents indicated that climate change adaptation and mitigation have an impact on their policies and resulted in concrete action to attract low carbon investments. Nonetheless, only 17% of them have a supporting policy or strategy in place, highlighting a gap between the intent and action in attracting such investments.

The survey also identified barriers and incentives for attracting low carbon FDI, which provided some insights for policy makers. In fact, the lack of a facilitating regulatory framework was seen as the major barrier to making low carbon investments, underscoring the enabling effect of supporting policies. The creation of a market for renewable energy, for example through tax incentives, feed-in tariff or the opening up of electricity networks, was ranked as the most effective policy. Technology transfer, linkages with domestic investors, and regulatory standards on emissions or product performance were also considered important measures.

According to UNCTAD, one of the ways to facilitate the entry and establishment of low carbon foreign investors is to set up cleantech parks, which accommodate businesses involved in research, innovation and commercialization of renewable energies and technologies aiming to increase the utilization efficiency of energy, materials or resources.52 In Hong Kong, this function is partly served by the Hong Kong Science Park, which aims to nurture technological innovation and growth locally by providing the needed facilities and services to specific sectors such as electronics, IT and telecommunications, precision engineering, biotechnology, and green technology.

Currently, of the 210 companies at the Hong Kong Science Park, 11% are from the green technology sector, and 42% are foreign investments.52 With its Phase III development which focuses on energy management, green technologies and renewable energies to commence from 2013 to 2016, the Science Park could help further introduce foreign cleantech companies into Hong Kong. However, in order to fully realize the potential of the Science Park in attracting low carbon FDI, Hong Kong needs to be more proactive and provide specific incentives for such investments, instead of relying on the traditional laissez-faire approach.
CLIMATE RISKS DISCLOSURE BY LISTED COMPANIES

To assure the shift to a low carbon economy, the world needs not only new investments into low carbon industries, but also a cutback on capital flow into carbon intensive industries, like the fossil fuel sectors. Research by the Potsdam Institute calculates that to reduce the chance of exceeding 2°C warming to 20%, the world could only emit an additional 565Gt carbon dioxide between now and 2050. On the other hand, the total carbon dioxide potential of known fossil fuel reserves comes to 2,795Gt, meaning governments and global markets are currently treating reserves equivalent to nearly 5 times the carbon budget for the next 40 years as assets. As of February 2011, the top 100 coal and top 100 oil & gas companies have a combined value of US$7.42 trillion, and the stock exchanges of London, Sao Paulo, Moscow, Australia and Toronto are all estimated to have 20-30% of their market capitalization connected to fossil fuels.

While the world moves forward to tackle climate change and put a price on carbon, the carbon reserves linked to market capitalization presents a risk for global investments. Although Hong Kong is currently less exposed to such risk with less than 10% market capitalization linked to fossil fuel extraction, it could help shape the international investment ecosystem through enhancing listed companies’ disclosure on climate risks, for example through mandating or encouraging listed companies to report on their fossil fuel reserves and the potential carbon emissions, using consistent accounting guidelines.

Such disclosure measures could enable investors to evaluate the real risks of their portfolio companies, and to increase the resilience of the stock market to a “carbon bubble” – that the markets currently assume carbon emissions could go up indefinitely while governments have acknowledged the opposite and would eventually limit or price such emissions. The disclosure guidelines would also help both the private sector and investors to integrate climate factors into their investment decisions, a move that would indirectly increase differentiation of climate-friendly businesses and promote investments into these companies.

The Hong Kong Exchanges and Clearing Limited (HKEx) had released a draft ESG (environmental, social and governance) Reporting Guide and organized a series of seminars and workshops for listed companies in mid-2011. HKEx plans to consult the public on the draft ESG Reporting Guide in late 2011, with the long-term vision to upgrade the reporting requirements to “comply or explain”, similar to the arrangement for the Code on Corporate Governance Practices. Although the draft guide includes information on greenhouse gas emissions, currently there is no guidance on the disclosure of carbon reserves in the company’s assets and the associated projected emissions. The drafting and revision process of the ESG Guide provides a good chance to include the disclosure of carbon-borne assets, which is pertinent to investors for assessing long-term business risks.

Currently the Hang Seng Corporate Sustainability Index series, launched in July 2010 in response to rising international interest, is the only benchmarking tool for Hong Kong stock market players wishing to take sustainability performance into investment decisions. The Indexes provide a basis for the promotion and development of socially responsible investment products, thus linking financial prospects with good corporate citizenship. In 2011, constituents of the Hang Seng Corporate Sustainability Indexes outperformed their non-index peers by an average of 15% on all key ESG parameters assessed by RepuTex. The promotion of ESG reporting amongst listed companies in Hong Kong could further broaden the options for investors concerned about climate change and the associated investment risks.

CARBON TRADING AND INTELLECTUAL PROPERTY INDUSTRIES

Hong Kong’s financial infrastructure and expertise make it an ideal hub for managing the capital needed to fuel the low carbon economy in China. HKEx has been exploring possible long-term business opportunities in carbon emission trading in Hong Kong since 2007, but the consultation process in 2009 concluded there was no imminent need for a certified emission reduction (CER) futures market in Hong Kong, due to the lack of secondary markets for CERs, and the lack of knowledge and experience of the local investing community and practitioners.
A number of our interviewed stakeholders saw emissions and carbon trading a missed opportunity for Hong Kong to hold a stronger and more active position in low carbon financing. Ms Alexandra Tracy, Chairman of the Association for Sustainable & Responsible Investment in Asia pointed out that at the moment China does not have the infrastructure for effective carbon trading yet, and Hong Kong should have played a part as it has the expertise for developing a carbon exchange platform. Mr Wai-Shin Chan, Director of Climate Change Strategy, Asia-Pacific, for Global Research at HSBC believed that Hong Kong’s strategic location within the PRD region presents a great opportunity for the city to participate in pilot testing carbon trading and emissions caps in China, if closer collaboration between the governments across the border could be achieved. Dr K K Chan from Nature Elements Capital suggested that while Hong Kong may not be involved as a carbon trading platform, it could also contribute to the roll-out of regional carbon trading schemes by providing associated services such as carbon management, certification, verification and auditing.

On the other hand, as the low carbon sectors expand, which will involve a considerable input of technology innovation, there will be a booming demand for IP services. Currently these services are not well developed in China, leaving a niche market for Hong Kong to explore. Riding on its acclaimed legal system and professional services, Hong Kong could lead the way in developing related services such as the management, valuation, insurance, investment, trade and exchange platform for patent products. To achieve this, joint efforts are needed from both the government and related industries to warrant timely update of relevant regulations, sufficient training for local practitioners, and continual exchanges on international best practices.

CLEANTECH INNOVATION

Clean technologies provide tools for the world to maintain economic and social prosperity while curbing carbon emissions. Apart from capital and management expertise, a sustained growth of the cleantech sectors requires constant innovation and R&D. Though Hong Kong has a strong base of supporting professionals and services, it lags behind China and other developed countries in terms of cleantech expertise. Dr Sylvia Chan from Entropy Ventures remarked that since there are a limited number of cleantech projects locally, Hong Kong professionals rely heavily on projects in China for gaining the relevant knowledge and experience. Mr Joseph Jacobelli, Global Co-Head of Cleantech and Head of Utilities, Asia-Pacific, for Global Research at HSBC explained that there is a strong need for clear and long-term energy-related government policies in Hong Kong to facilitate the development of cleantech sectors locally as well as investments in sectors such as electric vehicle infrastructure, distributed renewable energy and the like. In particular, the education system in Hong Kong is not catching up with the cleantech wave, making Hong Kong fall behind the global trend. Such energy-related government policies compare poorly versus policies found in neighboring regions such as China, the Philippines, Taiwan and Thailand.

As noted by Mr Charles Yonts from CLSA Research Limited, since the financial crisis, there has been an increasing trend for small cleantech patent holders to ramp up production capacity and commercialize their technologies in China, because that is where the demand and capital are. However, while bringing new technologies to China, these foreign companies still have little faith in the country’s IP protection. On the other hand, the oversupply of wind and solar power equipments is driving Chinese companies to increase their R&D input to maintain market differentiation.

Riding on these opportunities, Hong Kong should further enhance its technology innovation capacity both in the commercial sector and education institutes, so as to transform into a competitive knowledge economy which complements the manufacturing base of low carbon technologies in China. DuPont’s establishment of Thin Film Photovoltaic R&D Center in Hong Kong, along with the setup of solar products manufacturing facilities in Shenzhen in 2009 illustrates such potential synergy between Hong Kong and China.

With its established IP framework and higher education system, Hong Kong could develop into an R&D base of clean technologies to nurture more home-grown specialists. Hong Kong’s universities are in fact ranked among the top in Asia, but the city’s input for R&D is comparatively low. Currently, Hong Kong’s research funding only amounts to 0.8% of the city’s GDP, a lower rate than China (about 1.5%)
and the US and Japan (more than 2%). A further opportunity for Hong Kong to align with international best practices is the Intellectual Property Department’s on-going review of its 14-year-old local patent system. A user-friendly and cost effective patent process is essential for encouraging investments in local innovation.

Increased R&D capacity could also help maintain the overall competitiveness of Hong Kong. In the Urban Competitiveness Index 2011 published by the Chinese Academy of Social Sciences, though Hong Kong was ranked as the most competitive city for the sixth consecutive year, it was ranked as 288th amongst 294 cities in China in terms of growth potential. In particular, Hong Kong was ranked 26th in scientific technology competitiveness, after Beijing, Shanghai, Shenzhen and Guangzhou. This is also signaled by the fact that China-based inventors have shifted from Hong Kong (64% of combined patent applications from Hong Kong and China in 1997) to China (81% of combined patent applications in 2008).

CONCLUDING REMARKS

After three decades of unparalleled economic growth in the Greater PRD region, Hong Kong has been confronted by the combined challenge of global financial recession and dealing with climate change. The sheer scale of growth in the region will require energy resources that outstrip available conventional sources. Hong Kong, as a well developed economy, can take a more proactive role in addressing climate change issues, and become a model for other Chinese cities by developing and marketing green technology solutions.
END NOTES

1. Interviews were conducted on an anonymous basis with twenty experts on financing low carbon growth in China. Interviewees were drawn from venture capital and private equity investors (7), government (5), banks (4), academia (3) and independents (1).

2. All currency conversions were calculated on November 1, 2011 conversion rates.


4. The 23 industries including the internet, cleantech, bio/healthcare, electronic and opto-electronics equipment, machinery manufacturing, IT, telecommunications and value-added services, chemical raw materials and processing, food and drinks, agriculture/forestry/animal husbandry/fishing, energy and mineral, entertainment and media, construction/engineering, chain retail, automobiles, semiconductor, finance, textiles and clothing, education and training, radio, television and digital television, logistics, real estate, and others.


7. The majority of the Strategic Emerging Industries prioritized for development on China’s 12th Five-Year Plan are associated with low carbon technology and environmental protection. For a summary of these industries please refer to our report Delivering Low Carbon Growth available at www.theclimatetrendgroup.org/publications/2011/07/delivering-low-carbon-growth-a-guide-to-chinas-12th-five-year-plan


10. Measure on encouraging and instructing private enterprises to develop Strategic Emerging Industries (国务院关于加快培育和发展战略性新兴产业的决定) 2010


15. ES&EP: Energy Saving and Environmental Protection

16. For the discussion purpose in this chapter, unless specified, the term ‘Hong Kong’ refers to the Hong Kong Special Administrative Region of China, while ‘China’ refers to the Mainland China.


20. Foreign direct investment (FDI) is the movement of capital across national frontiers in a manner that grants the investor control over the acquired asset, which is defined as owning 10% or greater of the ordinary shares of an incorporated firm, having 10% or more of the voting power for an unincorporated firm or development of a greenfield branch plant that is a permanent establishment of the originating firm.


24. Private equity (PE) is an asset class consisting of equity securities in operating companies that are not publicly traded on a stock exchange.

25. Venture capital (VC) is a type of PE investment made typically in less mature companies, for the launch, early development, or expansion of a business.


30. A regional headquarters is an office that has managerial control over offices in the region (i.e. Hong Kong plus one or more other places) on behalf of its parent company located outside Hong Kong.

31. A regional office is an office that coordinates offices and/or operations in the region (i.e. Hong Kong plus one or more other places) on behalf of its parent company located outside Hong Kong.
41. Reverse merger, also known as reverse IPO or reverse takeover, is the acquisition of a public company by a private company so that the private company can go public without undergoing the due diligence process of an IPO.
43. Since December 2010, China-based companies listed in Hong Kong are allowed to use Chinese accounting standards and employ auditors based in China to sign off on their books.
48. The Mainland and Hong Kong Closer Economic Partnership Arrangement (CEPA) covers trade in goods and services, mutual recognition of professional qualification, as well as trade and investment facilitation, and allows Hong Kong businesses to gain preferential access to the Mainland market ahead of the WTO liberalization schedule.
55. Certified Emission Reductions (CERs) are carbon credits generated by emission reductions achieved through projects certified under the Clean Development Mechanism. CERs are often used by companies or the private sector to comply with their mandatory or voluntary emission reduction targets.
57. South China Morning Post. 6 July 2011. HK Universities Fear Losing Their Life at the Top. interests.scmp.com/education/articles/hk-universities-fear-losing-their-life-top
APPENDIX

The Climate Group would like to thank the following stakeholders for providing insights to this report (in alphabetical order of company name):

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Mr Charles Yonts, Head of Sustainable Research, CLSA Research Limited
Dr Sylvia Chan, Managing Director, Entropy Ventures
Mr Wai-Shin Chan, Director, Climate Change Strategy, Asia-Pacific, Global Research, HSBC
Mr Giuseppe (Joseph) Jacobelli, Global Co-Head of Cleantech and Head of Utilities, Asia-Pacific, Global Research, HSBC
Dr K K Chan, Founder and CEO, Nature Elements Capital
Mr Plato Yip, Founding Managing Director, P&S Investment Management (HK) Limited
Mr Andrew Musters, Global Head of Private Equity, Robeco & SAM
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Contact us:
T: +852 2836 5703
F: +852 2836 5707
UNIT B, 21ST FLOOR, CNT TOWER
338 HENNESSY ROAD
WANCHAI, HONG KONG
WWW.THECLIMATEGROUP.ORG
WWW.THECLIMATEGROUP.ORG.CN