

# Hong Kong's Participation in the Carbon Intensity Reduction Activities and Carbon Trading Pilots in the Pearl River Delta Region

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# About Civic Exchange

Civic Exchange is a Hong Kong-based non-profit public policy think tank that was established in October 2000. It is an independent organisation that has access to policy-makers, officials, businesses, media and NGOs - reaching across sectors and borders. Civic Exchange has solid research experience in areas such as air quality, energy, urban planning, climate change, conservation, water, governance, political development, equal opportunities, poverty and gender. For more information about Civic Exchange, visit [www.civic-exchange.org](http://www.civic-exchange.org).

# About Energy Environment Solutions

Energy Environment Solutions (EESO) is a Hong Kong-based consulting firm that has in-depth knowledge and experience with greenhouse gas (GHG) trading issues in regions around the world, including Europe and Asia. Founded in 2011, EESO has worked with companies in the power generation, oil & gas, mining, aviation, legal and financial sectors.

# About the Authors

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David Lunsford is the founder Energy Environment Solutions. For several years he worked as International Policy Director for the International Emissions Trading Association (IETA) in Geneva, where he interacted with governments and the private sector on varying levels, encouraging climate change strategies that make sense for business and policymakers alike. In his current role, he provides solutions for governments and companies designing sustainable growth plans that include emission reduction targets. He has several years of experience in the capital markets, including as an investment analyst, and possesses an MBA focusing on International Organizations from the University of Geneva.

# Preface & Acknowledgements

Civic Exchange has had a longstanding commitment to climate change issues and we are delighted to have an opportunity to collaborate with Energy Environment Solutions to conduct an important piece of research on carbon intensity in the Pearl River Delta region.

In order to gather insights relevant to study Hong Kong's participation in the carbon intensity reduction activities and carbon trading pilots in the Pearl River Delta region, David Lunsford conducted interviews throughout February and early March 2012. Interviews took place in Shenzhen, Hong Kong and Guangzhou. Christine Loh and David Lunsford analysed existing policies, considered the interviews and co-authored the report.

The authors wish to thank the British Foreign & Commonwealth Office for taking an interest in the issue and funding the research, and also the many interviewees both in Hong Kong and on the mainland for providing their views. We also wish to thank Michelle Wong of Civic Exchange for the design of the report.

Christine Loh and David Lunsford  
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# Executive Summary

## HIGHLIGHTS

- China is making progress with carbon emission trading experimentation in seven pilot zones. The Pearl River Delta (PRD) region is featured prominently amongst the pilot emission trading zones, with Guangdong province and Shenzhen SEZ currently establishing emissions trading schemes. Hong Kong could play a vital role in the development of emissions trading within the PRD by leveraging its strong professional expertise in the legal, technical and financial services sectors, in particular contributing to market liquidity and transparency.
- The mainland authorities are eager for Hong Kong to engage more deeply in carbon intensity reduction issues. Building on existing regional policy dialogue platforms, Hong Kong can become more active in the development and deployment of a regional carbon intensity reduction plan that includes a regional emissions trading scheme (ETS).
- While other financial hubs such as Shenzhen and Singapore are developing rapidly and defining their role in emissions trading, without prioritisation within the HKSAR Government there will continue to be no policy action and Hong Kong's position as a leading financial centre may be jeopardised going forward.

Since the international climate change conference in Copenhagen in 2009 (COP15), there have been increasingly clear signals of the Chinese Government's intent to encourage and support the research, design and experimentation of a functional carbon emission trading system in China. In October 2010, outlining the blueprint for its economic and social development in the 12<sup>th</sup> Five Year Plan (12FYP), Beijing announced its ambition to establish a national carbon trading system by 2016, and high-level officials have begun talking broadly about this issue ever since. In November 2011, China's policy-setting National Development and Reform Commission (NDRC) approved pilot carbon trading to be developed in the cities of Beijing, Chongqing, Shanghai, Shenzhen, and Tianjin and in Guangdong Province and Hubei Province during the 12FYP. As all indications show, China is rapidly moving on with carbon emission trading experimentation.

The Pearl River Delta (PRD) region is featured prominently amongst the pilot emission trading zones in China. The Province of Guangdong and the Shenzhen Special Economic Zone are slated to start piloting emissions trading by 2014. These mainland governments are quickly moving forward with a swathe of low-carbon policies and measures that aim to reduce carbon and energy intensity significantly during the 12FYP (2011-2015). On the other hand, Hong Kong's Climate Change Strategy and Action Agenda Consultation Document of 2010 proposed a carbon intensity reduction target that relies on the increased importation of electricity generated by nuclear power and natural gas and a decrease in power from coal thermal-fired generation in order to achieve its stated objectives. The pricing of greenhouse gases (GHGs) or use of emissions trading is not currently under consideration in Hong Kong.

Nevertheless, Hong Kong could play a vital role in the development of emissions trading within the PRD. Hong Kong companies' expertise in the legal, technical and financial services sectors could be leveraged to enhance the current emissions trading progress in

Guangdong and Shenzhen. In order to engage effectively, the HKSAR Government would first need to give emissions trading policy high priority, which could thereafter bolster the emissions trading business sector in Hong Kong. Without prioritising emissions trading as an important opportunity for Hong Kong, there will continue to be no policy action and little private sector attention.

The mainland governments are eager for Hong Kong to engage in these subject matters. As the Hong Kong, Shenzhen and Guangdong governments already cooperate on a broad range of regional environmental initiatives, emissions trading could sensibly become another stream of collaboration. The HKSAR Government can be more active in the development and deployment of a regional carbon intensity reduction plan that includes emissions trading. Other regional financial hubs/counterparts (Singapore, Shenzhen, Shanghai, etc.) are currently developing rapidly and attracting businesses in the low carbon field, where Hong Kong could strategically fall behind.

This report recommends several avenues for the HKSAR Government, Hong Kong Productivity Council (HKPC) and private sector entities such as Hong Kong Exchanges and Clearing Limited (HKEx) and Hong Kong Mercantile Exchange (HKMEx) to engage in the pilot ETS being developed in Guangdong and Shenzhen. Integrating these organizations into pilot ETS across the PRD could accelerate the achievement of common policy objectives and assist the successful implementation of pilot ETS. Key recommendations (see Chapter 6 Policy Recommendations for details) include:

**For HKSAR Government:**

- Prioritise Hong Kong's role in helping to create a regional emission trading scheme
- Combine air pollution and carbon reduction to increase co-benefits
- Explore how the Cleaner Production Partnership Programme (CPPP) can be used
- Define a longer-term role in environmental and climate finance
- Host a multi-stakeholder forum in Hong Kong or South China
- Endeavor to promote the CDM in the Greater PRD region

**For HKPC:**

- Propose to the in-coming HKSAR Government how CPPP can be designed to advance emissions trading pilots in the PRD and work with relevant stakeholders in Shenzhen, Guangdong and Hong Kong to develop regional trading

**For HKEx and HKMEx:**

- Consider a 'China Focus' in emissions trading strategy and explore feasibility of developing emission-related products
- Improve listing requirements for environmental, social and governance elements
- Engage with mainland counter parties on emission trading

If the authorities in Hong Kong, Shenzhen and Guangdong wish to explore cooperation on emissions trading, they could integrate the theme into an existing regional dialogue platform or it may be useful for them to consider whether there is a need for a new PRD-wide Low Carbon Plan, where each side could streamline their environmental objectives and articulate their roles towards drawing-up a plan and designing market rules. By showing explicit and high-level cooperation, the governments could create a supportive investment environment for commercial parties to contribute ideas, invest and participate in the joint prevention of catastrophic climate change.

# Introduction

In dealing with the climate change challenge, China has responded with an impressive package of climate policy since 2006 under the context of sustainable development, energy efficiency and energy security.

**China pledged to reduce carbon emission by 40% to 45% per unit of GDP by 2020**

In 2007, China was the first among developing countries to issue its National Climate Change Program; and in 2008, the State Council published a White Paper on Action and Strategy on Climate Change. In 2009, China pledged to reduce 40% to 45% per Gross Domestic Product (GDP) unit of carbon emission by 2020 (using 2005 as the base) prior to COP15 in Copenhagen. Accordingly, a compulsory target on carbon intensity has been included in the current 12<sup>th</sup> Five Year Plan (2011-2015) (12FYP) to reduce the carbon intensity by 17% by 2015 (using 2010 as the base).<sup>1</sup> China's international commitment and its own national targets, while voluntary and driven by national interest, are ambitious. Achieving the reduction targets will be a daunting task. To reach the 40% to 45% carbon intensity reduction by 2020 would require emission reductions of 8 billion tons of carbon dioxide equivalent (tCO<sub>2</sub>e) over the next 10 years.<sup>2</sup>

**China came very close to achieving the 20% energy intensity of GDP reduction target in the 11FYP**

Reversing the rapidly growing trend in carbon intensity is essential, which requires not only improving the country's energy efficiency but also transforming the Chinese energy system from "brown" to "green" energy sources. During the 11<sup>th</sup> FYP (2006-2010) (11FYP), China managed to come very close in achieving the 20% energy intensity of GDP reduction target,<sup>3</sup> but it came with tremendous challenge and a high price.

**China's approach to controlling GHG emissions**

By far, China's approach to controlling greenhouse gas (GHG) emissions has been based on a direct regulatory (command and control) system and mainly through administrative and political measures. Energy intensity targets have been set at the national, provincial and large-company level. Reductions in energy intensity have largely been achieved by enforced closure of inefficient power plants and factories. Economic tools (resource taxes, tax breaks, and channelling of subsidies and investment) have played a lesser role.<sup>4</sup>

**Lessons learned during the 11FYP**

The lessons learned during the 11FYP were the inadequacy and cost-inefficiency of heavy reliance on administrative and political measures. For instance, to achieve the above-mentioned targets, "black-outs/complete power cuts" of industries and certain cities were not uncommon at the end of 2010. A number of provinces were forced to shut down large swathes of industrial capacity as part of last-ditch efforts to meet the 2006-2010 energy intensity targets<sup>5</sup> although it showed the seriousness of Chinese officials to achieve them.

**The encounters of the 11FYP have motivated the government to explore "market mechanisms" going forward**

The difficulties encountered and lessons learned during the 11FYP therefore provide a strong motivation for the Chinese Government to use administrative as well as market means to avoid a repetition of past experiences. An example of an administrative approach is for the government to push provinces to adopt tight implementation timetables early on in the 12FYP, while "market mechanisms" include tax as well as emissions trading.

### Putting a price on carbon through a market mechanism

Market-based instruments are now seen as important policy tools that could ensure China meets its energy and carbon intensity targets – both domestic and international. Carbon trading is also seen as a major market-based instrument. Putting a price on carbon could drive businesses to use energy more wisely and increase energy efficiency and renewable energy supply, both leading to carbon intensity reduction.

### The NDRC has recently approved for seven jurisdictions to pilot carbon trading during the 12 FYP

Since COP15 in 2009, there have been increasingly clear signals of the Chinese Government's intent to encourage and support the research, design and experimentation of a functional carbon emission trading system in China. In October 2010, outlining the blueprint for its economic and social development in the 12FYP, Beijing announced its ambition to establish a national carbon trading system by 2016, and high-level officials have begun talking broadly about this issue ever since. In November 2011, China's policy-setting National Development and Reform Commission (NDRC)<sup>6</sup> approved pilot carbon trading to be developed in the cities of Beijing, Chongqing, Shanghai, Shenzhen, and Tianjin and in Guangdong Province and Hubei Province during the 12FYP. As all indications show, China is rapidly moving on with carbon emission trading experimentation.

### Hong Kong will use regulatory measures to reduce carbon intensity

In 2009, Guangdong and the Shenzhen Special Economic Zone were identified to develop a "low carbon economy" and both will pilot emissions trading as a key element of their carbon intensity reduction strategies. The Hong Kong Special Administrative Region Government (HKSAR Government) proposed its own climate change strategy in 2009, which contains a target to reduce carbon intensity per unit of GDP by 50% to 60% in 2020 when compared with 2005 levels, which exceeds China's national target of 40% to 45%.

## 1.1 Structure of Report

This report was undertaken to gain a better understanding of the scenario for a regional pilot emissions trading scheme (ETS) to emerge in the Pearl River Delta (PRD), as well as examine the role that Hong Kong might play in the achievement of carbon intensity targets across South China. The report is the result of interviews conducted in Hong Kong, Shenzhen and Guangzhou as well as analysis of existing literature, news reports, government documents, and the authors' experience.

The report contains three main sections, a conclusion and a set of policy recommendations that are pertinent to Hong Kong. The first section sets out the overall carbon intensity reduction plans either underway or currently being developed in Hong Kong, Shenzhen and Guangdong. The second section provides an account of the connectivity between the three PRD jurisdictions. The third section outlines the existing structures where the three governments can cooperate to achieve low-carbon outcomes. The conclusion provides observations of challenges and opportunities, and finally, the last part of the report sets out specific recommendations.



## Current Carbon Intensity Plans

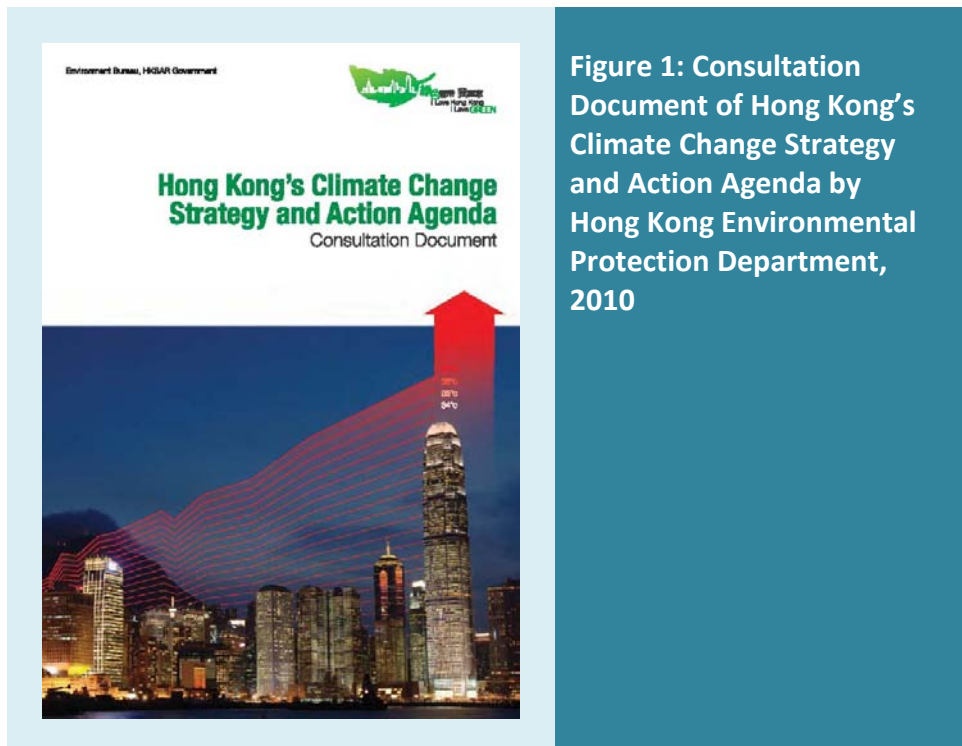
Hong Kong, Shenzhen and Guangdong all have set carbon intensity targets to meet by 2015-2020. Hong Kong is the most ambitious as its target exceeds the China's national target. It makes sense for Hong Kong to establish a higher target as it is the most developed area in China.

### 2.1 Hong Kong

**Hong Kong proposed to reduce carbon intensity in 2020 by 50% to 60%**

In the last quarter of 2010, the HKSAR Government issued the Climate Change Strategy and Action Agenda Consultation Document, where it proposed a target of reducing Hong Kong's carbon intensity in 2020 by 50% to 60% compared to the 2005 level.<sup>7</sup> It also set out a series of possible power supply-side options and demand-side measures to help achieve this target.

The two major contributors of GHG in Hong Kong are power generation and the transport sector. Electricity generation is the largest source of local GHG emissions, accounting for about 67% of the total in 2008, while the transport sector accounted for 18% of the total.



**Figure 1: Consultation Document of Hong Kong's Climate Change Strategy and Action Agenda by Hong Kong Environmental Protection Department, 2010**

**The key strategy in the proposal is to significantly decrease reliance on coal fired power**

In terms of carbon mitigation, the key strategy in the proposal is to significantly decrease the current reliance on coal fired power, Hong Kong's greatest source of CO<sub>2</sub>. Under the proposal, coal would decrease from 54% of the fuel mix today to about 6% in 2020, and be eliminated by 2030. Coal would be replaced by natural gas (rising from 23% today to 40% by 2020) and nuclear electricity imported from Guangdong<sup>8</sup> (rising from 23% today to 50% by 2020). Four initiatives have been proposed for reducing Hong Kong's carbon intensity and charting its path to going low-carbon including:

1. Maximizing energy efficiency,
2. Greening road transport, such as promoting electric vehicles,
3. Turning waste into energy, and
4. Revamping the fuel mix for electricity generation.

For renewable energy, the HKSAR Government proposed to push forward with wind energy and for its share to increase from 1%-2% to approximately 3%-4% of the fuel mix by 2020.

**Increase wind energy from 1%-2% to approximately 3%-4% of the fuel mix by 2020**

The Fukushima nuclear accident in March 2011, however, triggered a pause in the HKSAR Government's consideration of its climate change proposal, as China embarked on safety reviews of its existing nuclear plants, as well as those under construction (half of which are in Guangdong). Moreover, as Beijing was reviewing the pace and direction of its nuclear expansion plan, Hong Kong would need to wait to see the outcome before considering the viability of its proposal, especially in light of possible public concerns about nuclear energy. Hong Kong officials have not come to a decision on how to go forward, and they are monitoring international debate on nuclear energy. Beijing is expected to release China's nuclear safety report and nuclear expansion plan in the near future, and Hong Kong is unlikely to take a final decision until the mainland position is clarified. China's nuclear expansion plans are expected to move ahead as previously planned with slight modifications.

**Hong Kong would not meet its carbon intensity target in 2020 if it does not increase nuclear electricity importation from Guangdong**

Hong Kong would not meet its carbon intensity target in 2020 even if it decreased coal use as proposed, kept nuclear import at the same level as today (23%), added wind power as planned, and made up the difference by importing much more natural gas. Whether Hong Kong could increase natural gas supply by a large margin and whether Hong Kong would be prepared to keep a higher level of coal usage are issues that will have to be discussed should it wish not to increase nuclear electricity import.<sup>9</sup> From Guangdong's perspective, if Hong Kong chooses not to import more nuclear electricity as the province's nuclear capacity increases, Guangdong can easily absorb the electricity for its own use. Thus, Hong Kong will need to make up its mind on how to move ahead. If it chooses to increase nuclear import, the government will have to explain its decision to the public within the context of China's national policy on nuclear energy, as well as how nuclear governance and safety can be improved. It may be that another public consultation exercise would be necessary.

## 2.2 Shenzhen

**Shenzhen's rapid urbanization has run up against natural resource constraints**

In less than 30 years, Shenzhen has developed from a small border town with a population of merely 20,000 into a prosperous modern city, which plays significant roles in the PRD and Southeast Asia. However, rapid urbanization runs up against natural resource constraints, power shortage, pollution, ecosystems degradation and increasing carbon emission.

**Shenzhen's carbon growth plan**

Shenzhen has put together a low carbon growth plan to embark on a new "green economy" path. In February 2012, the Shenzhen Development and Reform Commission (SZDRC) announced it would cut its carbon emissions for every unit of its GDP by 39% by 2015. The plan includes a low carbon

index system that is the first of its kind among Chinese cities. The index sets targets in nearly 20 facets of society, ranging from reduced emissions and increased forest coverage to higher input on low carbon technologies.<sup>10</sup>

**By the end of the 12FYP, more than half of the energy used in Shenzhen will be clean energy**

According to this index, the emerging low carbon industries will account for 40% of Shenzhen's GDP by 2015. Green buildings will account for 40% of new buildings by 2015, when there will be 100,000 "new-energy" cars. By the end of the 12FYP, more than half of the energy used in Shenzhen will be clean energy including natural gas, nuclear electricity, solar power and wind power. In addition, approximately 15% of the city's research and development budget will be spent on low carbon technologies by 2020. To monitor and verify the achievement of these goals, a complete system will be built to calculate and assess carbon emissions by 2020. The city will explore a carbon trading system and try to certify low-carbon products.<sup>11</sup> In order to reduce the carbon content of energy, Shenzhen is also developing nuclear and renewable energy sources, deploying carbon capture and storage, and increasing the amount of natural gas that it imports.

**China Shenzhen Emission Exchange's role in the Shenzhen pilot emissions trading scheme**

The China Shenzhen Emission Exchange (SZEE) is currently leading the design and implementation of the Shenzhen pilot emissions trading scheme (SZETS). The team at SZEE is in the process of gathering emissions data from emitters and large energy consumers in order to determine the coverage of the SZETS and eventually allocate reduction responsibilities. SZEE has not selected the particular sector(s) to be included in the pilot ETS yet. It has been examining emissions at glass manufacturing facilities, power plants, etc. Depending on the coverage of the SZETS, Hong Kong based investors could be exposed to the SZETS carbon price in the future. As with the other pilot carbon trading zones, Shenzhen should finalize the design of the ETS by the end of 2012. In 2014, the implementation of the SZETS should take place and piloting should begin.

**The exchange aims to build an emissions trading scheme that takes into account the best examples from other jurisdictions**

The SZEE aims to build an emissions trading scheme that takes into account the best examples from other jurisdictions where carbon is traded and integrates them into its own programme. The SZDRC and SZEE have visited several of the functioning carbon markets in the United States and Europe, gathering insights on how emissions trading works elsewhere. While this team started to pilot ETS development more recently than other pilot zones, the team is eager to launch the SZETS in 2013. Given that there is an experienced financial sector in Shenzhen, this could become one of the most liquid pilot carbon markets in China.

## 2.3 Guangdong Province

**Guangdong will reduce carbon intensity by 19.5% by the end of 2015 and around 45% by 2020**

Guangdong is China's biggest carbon emitting province at 500 million tonnes of CO<sub>2</sub>e per year. As noted above, it is one of seven places to pilot emissions trading during the 12FYP. Beijing has set a target for Guangdong to reduce the carbon intensity per unit of GDP by 19.5% by the end of 2015 and 45% by 2020, using 2005 as the base.<sup>12</sup> Guangdong will improve energy intensity by 18% from 2005 levels by the end of 2015 and is committed to increasing the share of non-fossil fuels to 20% of total energy consumption over the same period.<sup>13</sup>

**A team of specialists are designing and implementing Guangdong's pilot emissions trading scheme**

The Guangzhou Institute of Energy Conversion (GIEC) under the Chinese Academy of Sciences is currently leading the design and implementation of the province's pilot Emissions Trading Scheme (GDETS).<sup>14</sup> This Institute is also working in tight conjunction with the Guangdong Academy of Social Sciences (GDASS) and the Guangdong Province Development and Reform Commission (GDDRC). They are evaluating the consequences of setting up an ETS and/or imposing a carbon tax covering the petrochemical, power generation, ceramic and cement sectors. Specialist teams are undertaking the tasks of establishing a GHG emission inventory, monitoring system, registry and emissions trading platform.

**Cooperation with industry associations throughout 2011**

The GDETS design team held workshops with industry associations throughout 2011 in order to facilitate interaction with the private sector, although no companies have been directly involved in these discussions at this point.<sup>15</sup> GDASS is responsible for compiling the GHG emission inventories of industrial production in Guangdong.

**The pilot trading scheme is slated to begin in early 2014**

Allocation and trading is slated to begin in early 2014.<sup>16</sup> The team working on the GDETS has considered and evaluated the options of trading in carbon intensity or absolute emission levels. As absolute emission caps could impact growth in some sectors, Guangdong is likely to place an absolute cap only on sectors that do not expect significant near-term emissions growth. Otherwise, the GDDRC may select entities within a sector without including entire sectors to participate in the GDETS. Both of these methods are being assessed as options for permit allocation. Regulators indeed do not want to seriously hamper growth levels for the sake of meeting carbon intensity targets. Researchers at GDASS stated that placing a cap on the power generation sector is almost certain while additional sectors, such as petrochemical, ceramic and cement are also being considered.

**Carbon trading cooperation between municipalities and provinces**

The Guangzhou Exchange Services Group has been identified to host trading under the GDETS. The exchange is part of the main research group that is working on the registry outline and software design. This work is at a very early stage, though some observers expect technical specifications to be included that would allow for Certified Emission Reductions (CERs) from Clean Development Mechanism (CDM) projects in other Chinese regions to be traded on the exchange platform and stored within the registry. Inter-provincial trading (i.e. market linkage) is also a possibility but, as most of the pilot zones are designing ETS at a slower pace than Guangdong, discussions on how regional linkage might take place have not begun. Hubei may be a potential trading partner prior to a national trading

scheme being set up. However, ETS cooperation between municipalities and provinces would likely require the direction to be set by Beijing.

**Implementation of the scheme is confronted with challenges**

Some challenges currently confronting the design team involve GHG measurement and the allocation of reduction responsibility. While both matters have been dealt with in situations abroad, special consideration will be given to industrial conditions in Guangdong. The challenges related to GHG accounting, monitoring and allocation will depend significantly on the amount of collaboration that takes place between the ETS team and other government departments, which have been measuring and monitoring related targets for many years. For example, the Environmental Protection Bureau (EPB), who manages the nitrogen oxides (NOx) and sulphur oxides (SOx) trading programme, the Economic & Information Committee (EIC), who manages energy intensity goals, and the Guangdong Science & Technology Department (GSTD), who manages total energy consumption goals, could work together in order to get the GDETS off the ground in an expedient manner. The climate division, who manages the carbon intensity goal, is newer and has less resource than the aforementioned divisions. Strong inter-departmental cooperation would help to finalise the design of the GDETS within 2012 and for it to be presented to Beijing for approval, and for trading to start in 2014.

**Guangdong's current stage of emissions trading scheme development is advanced**

When viewed alongside the other pilot ETS zones in China, Guangdong's current stage is quite advanced. The provincial government has strong intent to become a model for a low carbon economy across China; and a well-designed ETS is a key pillar of their wider low carbon plan.<sup>17</sup> Guangdong officials have been evaluating the merits of emissions trading for some time and are keen to proceed. The GDDRC wants their ETS to become the model for a China national emissions trading scheme, which is expected to begin under the 13<sup>th</sup> Five Year Plan (2016-2020) (13FYP).<sup>18</sup>

# Strong but Disjointed Regional Connectivity

**Government-to-government cooperation within the PRD region was only truly possible after 1997**

Hong Kong, Shenzhen and Guangdong have many economic and social links because of their close proximity to each other. However, as Hong Kong was a British colony up until 1997, there were very limited government-to-government contacts over the years. It was not until the transfer of sovereignty agreement had been reached between China and Britain that a multitude of arrangements had to be negotiated and implemented to facilitate a smooth transition. Government-to-government cooperation within the region was only truly possible after 1997 although the private sector has had extensive investments and partnerships with business counterparts in Shenzhen, Guangdong and elsewhere in the mainland. Thus, there is substantial experience within the private sector in Hong Kong in dealing with the mainland. Post-1997, especially during the drafting of the 12FYP, there has been more government-to-government dialogue that evolved into a new vision for “greening” the PRD, where Hong Kong-Guangdong cooperation is raised to the level of a national policy goal.

This section describes some of the regional ties relating to energy supplies and development between Hong Kong and Guangdong, as well as attempts in recent years to promote cleaner production of Hong Kong-owned factories in the PRD, and policy engagements on developing the framework for developing a low-carbon, high quality living green region as part of China’s overall plan to green its economy.

## 3.1 Hong Kong

### 3.1.1 Hong Kong’s investments in PRD

**Hong Kong has been a significant growth engine for South China over the past 30 years**

Hong Kong has been a significant growth engine for South China over the past 30 years. The city’s flourishing manufacturing industries relocated to Shenzhen and elsewhere in China in the 1980s and 1990s to take advantage of land and labour availability there. Hong Kong companies played the biggest role in working with multinational buyers to create China’s export manufacturing sector. Guangdong, and in particular, the PRD, remains a key production hub in the world.

**Hong Kong companies are already participating in China’s “green growth”**

The value of what Hong Kong can offer to China’s economic development remains substantial. This can be seen in many sectors, where Hong Kong’s systems in a range of professional services, such as law, finance and accounting, provide a solid foundation for business. In addition, its business-friendly environment with easy access to overseas expertise and technology are also useful. Hong Kong companies are already participating in China’s “green growth” – in particular, they are involved in low carbon innovations, such as electric vehicles, LED lighting, energy efficiency solutions, nuclear investments and renewable energy development.<sup>19</sup>

### 3.1.2 Cleaner Production Partnership Programme

**PRD stakeholders see the CPPP as a success**

The partially publicly-funded Hong Kong Productivity Council (HKPC) facilitates the Cleaner Production Partnership Programme (CPPP), a 5-year programme started in 2008-09 by the HKSAR Government to help Hong Kong-owned factories in Guangdong to make environmental improvements. The HKSAR Government injected HK\$93 million to create the CPPP. The HKPC was chosen as the facilitating arm of the programme because it has a long record of working with industries in Hong Kong and Guangdong. Since the programme began, HKPC has engaged with over 56,000 factories in the PRD and held 150 training sessions. Stakeholders see the CPPP as a success. The CPPP will soon come to an end, and whether it will continue will be decided in the following year by an incoming administration in Hong Kong. The CPPP is a strong example of the benefits to be gained by stakeholders through the involvement of Hong Kong players in regional efforts to become more carbon and energy efficient.

### 3.1.3 Investment in nuclear development

**Hong Kong imports 23% of its electricity consumed from nuclear plants in Guangdong**

Hong Kong imports 23% of its electricity consumed from nuclear plants in Guangdong. The Hong Kong-listed utility, CLP, was a 25% equity partner with the China Guangdong Nuclear Power Company (CGNPC) when they developed China's first commercial nuclear plant at Daya Bay, which is close to Hong Kong. Commercial financing for the development of the project was possible through a long-term contract for the plant to sell 70% of the electricity it generates to Hong Kong.

**Hong Kong started to import nuclear electricity from Daya Bay in 1994**

The development of nuclear energy at Daya Bay was a national level project and considered highly important in the history of China's energy development. Hong Kong started to import nuclear electricity from Daya Bay in 1994. The same level of supply is assured till 2034 under a memorandum of understanding (MOU) signed between the Central People's Government in Beijing and the HKSAR Government in August 2008. The commercial agreement on quantity and price is negotiated directly between CLP and CGNPC.

CLP and CNGPC agreed in 2011 to invest in the new Yangjiang nuclear power plant, where CLP 7% equity owner, pending regulatory approval. The location of the project is further away from Hong Kong and the electricity it generates will meet demand in Guangdong. The project is expected to be commissioned in phases between 2013 and 2017.



Figure 2: Guangdong Daya Bay Nuclear Power Station



Source: Daya Bay Nuclear Power Operations and Management Co. Ltd

### 3.1.4 Investment in natural gas infrastructure

#### Current contracts with natural gas supply for a further 20 years

Hong Kong's Black Point gas-fired electricity plant (also owned by CLP) is fuelled by natural gas from the Yacheng field in the South China Sea operated by the China National Offshore Oil Corporation (CNOOC). The Yacheng field has been in operation since the early 1990s but its reserve is depleting. The abovementioned MOU also provided for a continuation of natural gas supply to Hong Kong for a further 20 years, including a new source from China's Second West-East Natural Gas Pipeline. As with nuclear electricity, detail commercial negotiations are conducted directly between CLP and the supplying entities (CNOOC for offshore gas and PetroChina for piped gas).<sup>20</sup> Off-shore gas discussions are on-going, but piped-gas purchase has been agreed and supply will be piped via Shenzhen by the first quarter of 2013.<sup>21</sup>

While CLP also signed a framework agreement in 2009 with PetroChina and Shenzhen Gas to jointly develop an LNG terminal in Shenzhen as part of the project Second West-East Gas Pipeline project, a site has still to be found. The terminal will be operated and owned by PetroChina with 51% equity, and CLP and Shenzhen Gas each with 24.5% equity.<sup>22</sup>

#### The proposed fuel mix change to replace coal

As already noted, the proposed fuel mix change to replace coal with increased quantities of nuclear electricity and natural gas from mainland China is the crux of the HKSAR Government's climate change plan. Hong Kong's natural conditions for wind and solar power are unfavourable,<sup>23</sup> and the locations for the two potential off-shore wind power projects are the only sites available within Hong Kong's jurisdiction that are considered to make wind power commercially viable.



**Hong Kong's fuel mix change proposal is comparable to carbon offsetting**

This HKSAR Government's fuel mix change proposal is comparable to a method called carbon offsetting, which emerged under the Kyoto Protocol, whereby emission reduction projects are developed outside a particular jurisdiction and yet can be purchased and thereby counted towards the reduction obligations in another jurisdiction. Given Hong Kong's geographical limitations, its special position within China as a Special Administrative Region, and its ability to invest in power infrastructure, secure electricity and energy sources from the mainland, it can use the offsetting option.

## 3.2 Shenzhen

**Shenzhen is seen as a highly successful economic experiment**

Since Shenzhen became China's first Special Economic Zone in 1979, its economy has gone from strength to strength as an export manufacturing region. With a population of 300,000 in 1980, it has over 10 million people today,<sup>24</sup> and ranks first among cities in Guangdong in terms of industrial output. Not only that, it is the fourth most important economic performing city in China behind Beijing, Shanghai and Guangzhou (also in Guangdong and part of the PRD).<sup>25</sup> Shenzhen's population has largely come from elsewhere in China in search for work and economic opportunities. From a national perspective, Shenzhen is seen as a highly successful economic experiment, and it continues to play a front-running economic role, such as to transform low-value export manufacturing to high-value products.

**Shenzhen's success had much to do with its proximity to Hong Kong**

Shenzhen's success had much to do with its proximity to Hong Kong. From the 1980s, Hong Kong manufacturers were the first to relocate their factories across the border to Shenzhen to take advantage of cheap land and labour. To complement export production, Hong Kong investors created a full range of production and financial services, including building container terminals and logistics infrastructure in both places. While Shenzhen's annual container throughput exceeds that of Hong Kong's today, both are giant container ports ranking 3<sup>rd</sup> and 4<sup>th</sup> in the world with cross-ownership and management. Since reunification in 1997, cross-border transport infrastructure has been continuously improved and travel arrangements eased.

**Shenzhen and Hong Kong operate under 'one country, two systems' principle**

Despite their close economic relationship, Shenzhen and Hong Kong operate as two very different jurisdictions. Shenzhen is part of the mainland Chinese system, while Hong Kong continues to have its own administration, law and currency. This reflects the 'one country, two systems' principle for Hong Kong although there are various cooperation agreements to facilitate smooth travel and commercial activities. For example, in May 2007, the Shenzhen and Hong Kong authorities signed the 'Shenzhen/Hong Kong Innovation Circle' cooperation agreement to promote and enhance technology collaboration with a view to boosting innovation through strengthening technology exchange, encouraging research and sharing talents and resources.

## 3.3 Guangdong Province and PRD Development

**HK-Guangdong agreement on emission trading for SO<sub>2</sub>, NO<sub>x</sub> and RSP in 2007**

Most relevant to developing emissions trading, in 2007, the HKSAR Government and Guangdong agreed on an implementation framework for emission trading for sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>) and respirable suspended particulates (RSP). This was part of an overall plan for the two sides to cooperate on a voluntary basis to reduce SO<sub>2</sub>, NO<sub>x</sub>, and, RSP emission levels by 54%, 24% and 52%, respectively by 2010.<sup>26</sup> The emissions trading programme was intended as one of the tools to help reduce emissions. While both sides have used various means to reduce emissions, the emissions trading programme was never implemented.<sup>27</sup> The framework did not evolve into a trading system. Two related over-the-counter (OTC) trades took place between mainland China entities via the Southern United Assets and Equity Exchange Center in Guangzhou but were primarily for demonstration purposes.

**Since 2008, four policy documents on HK-Guangdong and HK-PRD relations and development have been published**

Future opportunities will likely come from a new push to promote more formal Hong Kong-Guangdong development into a low-carbon region. Since 2008, four policy documents relate to Hong Kong-Guangdong and Hong Kong-PRD relations and development have been published. Together, they represent a development vision for the PRD region, as well as establishing Hong Kong-Guangdong cooperation as a national policy.

### 3.3.1 The Outline of the Plan for the Reform and Development of the Pearl River Delta (2008-2020)

**The Outline Plan represents the mission the Central People's Government sees for the PRD**

This document, published in December 2008 by the policy-setting NDRC in Beijing represents the mission the Central People's Government sees for the PRD. The Outline Plan was put forward "for the reform and development of the Pearl River Delta with an eye to the broader national strategy and long-term development of the country, in order that the Pearl River Delta can add or create new advantages, reach a new level of development, and further play its leading and exemplary role for the whole country". The Outline Plan serves "as the program of action for the reform and development of today and a period to come and the basis for compiling relevant specialised plans in the Pearl River Delta".<sup>28</sup> Close cooperation with Hong Kong and Macao is explicitly stated. The contents of the plan include shifting from low-value manufacturing to higher-value production, upgrading technology, modernising infrastructure (which includes creating a clean energy system), coordinating urban and rural development, and protecting the environment.

### 3.3.2 Study on the Action Plan for the Bay Area of the Pearl River Estuary (2009)

From the Outline Plan to a study on how to develop the “Bay Area” into a “quality living” area

The Outline Plan noted above formed the foundation for the governments of Guangdong, Hong Kong and Macao to commission a special study on how to develop the “Bay Area” into a “quality living” area that is also favourable to economic development. The outcome of the Study is to put forward principles and directions that can serve as a reference by the three jurisdictions to follow when forming their own policies and plans. The Study brief includes how to safeguard ecosystems, develop green transportation, and establish low carbon approaches in development.<sup>29</sup> The Study started in April 2010 and is expected to be completed in 2012.



Figure 3: Public Consultation Digest for the Study on the Action Plan for the Bay Area of the Pearl River Estuary, 2011

Source: “Study on the Action Plan for the Bay Area of the Pearl River Estuary” website (<http://www.prdbay.com>)

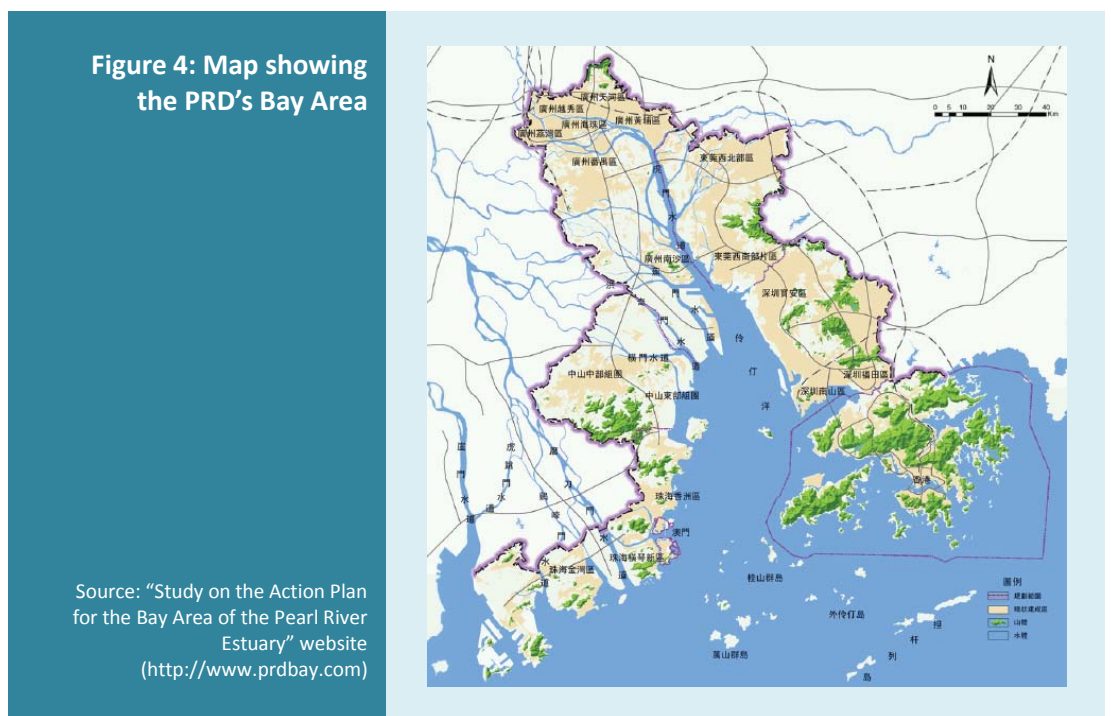


Figure 4: Map showing the PRD's Bay Area

Source: “Study on the Action Plan for the Bay Area of the Pearl River Estuary” website (<http://www.prdbay.com>)

### 3.3.3 The Framework Agreement on Hong Kong-Guangdong Cooperation (2010)

**A Framework Agreement to promote joint socio-economic development**

This was issued by the State Council of the Central People's Government in April 2010. It provides the political basis for Hong Kong-Guangdong cooperation to realise the stated national policy noted above. It provides the basis for closer cooperation between the two jurisdictions to promote joint socio-economic development to create a new economic zone. It envisages capitalising on Guangdong's competitiveness with Hong Kong's global business edge to upgrade production in the region. Specific policies include focusing on upgrading and restructuring Hong Kong-owned manufacturing enterprises, as well as building "a regional ecology and environmental protection regime" that is at the forefront of national standards.<sup>30</sup>

**Deepening cooperation in environmental protection and ecological conservation**

The Framework Agreement includes deepening cooperation in environmental protection and ecological conservation, the objective of which is to improve regional environmental quality. The key cooperation areas include tackling regional air pollution, enhancing cleaner production, promoting electric vehicle use, protecting marine water quality, developing the circular economy, and conserving ecosystems.<sup>31</sup>

### 3.3.4 Regional Cooperation Plan on Building a Quality Living Area, Consultation Document (2011)

**Figure 5: Consultation document for the Regional Cooperation Plan on Building a Quality Living Area, 2011**



Source: "Regional Cooperation Plan on Building a Quality Living Area" website (<http://www.gprd-qla.com>)

**Specific ideas of cooperation that impact the environment**

This Consultation Document also flows from the Outline Plan noted above. It reflects the policy “consensus” of “senior leaders in Guangdong, Hong Kong and Macao” to cooperate and realise China’s vision of creating “a quality living area” that covers the PRD, Hong Kong and Macao and for this region to become “an exemplar city cluster of green and quality living”.<sup>32</sup> The document contains specific ideas of cooperation in many areas that impact the environment, including regional planning and transportation, and is quite specific about air quality management that includes regional emissions monitoring and information sharing.

**Further development of the CDM to promote low carbon development**

Moreover, there is a specific section on promoting low carbon development that proposes that Guangdong, Hong Kong and Macao “should join hands in promoting low carbon development ... it should be possible to establish a low-carbon and circular economy in the region ... [and] be a forerunner in China’s quest for transforming its mode of economy development ... in addressing climate change”.<sup>33</sup> The section includes ideas on developing a low carbon development mechanism, enhancing cleaner production, developing green industries, developing and applying clean energy, developing clean energy supply and related infrastructure, and promoting further development of the Clean Development Mechanism (CDM)<sup>34</sup>. In a sub-section on establishing a low-carbon economy:

“ ... initial cooperation proposals include ... strengthening policy steer and incentives to promote low carbon trades and industries [and] actively exploring and facilitating the establishment of a carbon trading market and the associated standards, technical processes and trading mechanisms in the Greater PRD region; establishing a quality services platform with timely provision of information, reliable testing and analysis, certification and accreditation, as well as staff training services etc.”.<sup>35</sup>

# Low-carbon regional economy needs regional policy-setting

## 4.1 Hong Kong's Initial hesitation 'resolved'

In the early years of the HKSAR, there was considerable concern in Hong Kong about how to implement the 'one country, two systems' principle so that Hong Kong is part of 'one country' but continues to operate a separate system. A key question was whether and to what extent Hong Kong could or should be a part of the mainland's planning process. A dilemma was that while Hong Kong should retain its high degree of autonomy in domestic policy-making, it could be disadvantaged without having a voice and a position in a fast-changing China, especially with respect of regional development in Guangdong.

**PRD regional development could take place that enables Guangdong, Hong Kong and Macao to cooperate**

This issue may be said to be 'resolved' in the sense that the documents noted in Section C above show the trail of thinking and action about how regional development could take place that enables Guangdong, Hong Kong and Macao to cooperate. The evolution of thinking both in Beijing and Hong Kong culminated in the Outline Plan (2008-20) and reinforced via the Framework Agreement (2010), which dovetailed into the 12FYP, which has a dedicated chapter on Hong Kong and Macao for the first time in China's five-year plans. The chapter sets out (among other things) the Central People's Government's support for Hong Kong in three major areas:

- Enhancing Hong Kong's status as an international centre for financial services;
- Nurturing priority industries where Hong Kong enjoys advantages, including environmental industries;
- Deepening Guangdong-Hong Kong cooperation under the Framework Agreement;
- Establishing a financial cooperation zone in the Greater PRD region with Hong Kong's financial system taking the lead; and
- Supporting Guangdong to open up its services industries to Hong Kong on a pilot basis.<sup>36</sup>

## 4.2 HKSAR Government needs to focus on broad low-carbon policy development

**A policy dialogue platform for development of a low-carbon regional economy**

The above shows a policy dialogue platform for regional development of a low-carbon regional economy is already in place. The HKSAR Government can focus specifically to explore what role Hong Kong can play to develop a low-carbon economy and deploy the kinds of policies and measures that are indicative of a low-carbon zone. Pricing local and regional pollutants, such as carbon dioxide, are viewed as a key measure in developing a low-

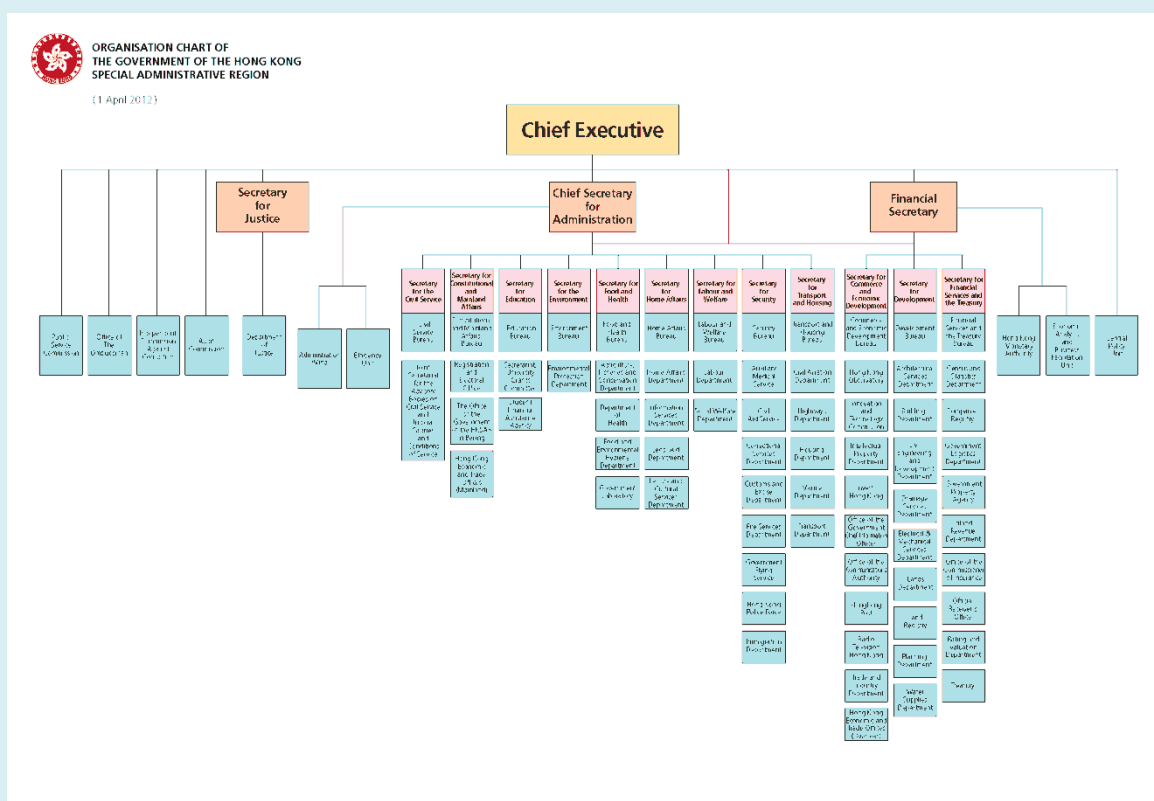


carbon economy and emissions trading is a policy tool that helps a jurisdiction achieve emission reduction targets at the lowest economic cost to a society.

The HKSAR policy mind-set is focussed on developing traditional financial products rather than emissions markets

The HKSAR policy mind-set is focussed on developing traditional financial products rather than emissions markets.<sup>37</sup> Thus, there has been insufficient coordination within the HKSAR Government to join-up the respective policy bureaux with responsibility for the environment (which includes energy), development (which includes planning, land and works), transport and housing, commerce and economic development and financial services so that they all work towards creating a low-carbon economy.

Figure 6: Organisation Chart of the HKSAR Government



Source: Hong Kong Government Website (<http://www.gov.hk/en/about/govdirectory/govchart>)

The Climate Change Strategy and Action Plan of 2010 did not set out to develop a low-carbon economy and didn't broach the subject of GHG pricing

As a result, the Climate Change Strategy and Action Plan 2010, issued by the Environment Bureau, did not set out to be as inclusive as it could be on developing a low-carbon economy. While it led an Inter-departmental Working Group on Climate Change, the terms of reference of the working group was not wide enough to cover the development of carbon trading and markets.<sup>38</sup> At present, there is no one within the HKSAR Government who is focussing on developing policies on emissions trading. However, this lack of focus and coordination can be corrected should the new incoming administration wish to take a wider view of Hong Kong's role in developing emissions markets. As mentioned above, developing emissions markets would allow Hong Kong, possibly in conjunction with other jurisdictions in the Pearl River Delta, to ensure that emission reduction targets are being achieved at lowest possible cost to the society.

**CPPP has received high recognition in Guangdong and Shenzhen**

The government-funded CPPP has received high recognition in Guangdong and Shenzhen. With further funding, it may be scaled-up to perform new and innovative roles as part of developing a regional low-carbon economy but this is a decision that the new incoming administration has to explore in the coming months.

### **4.3 Key stakeholders in Hong Kong need to be prepared**

**HKEx and HKMEX could play a role in the development of a low-carbon economy**

In this regard, the two exchanges in Hong Kong may play a more active role in providing a platform for clean technology projects, traded low carbon investment funds, green bonds, or bundled emission reduction projects. The Hong Kong Exchanges and Clearing Limited (HKEx) commissioned a study in 2008 on whether it should develop emissions trading and decided not to go ahead. While the Hong Kong Mercantile Exchange (HKMEX) has personnel with expertise in carbon trading, as a brand new commodities exchange which only started trading a limited range of products in 2011, it is currently focussed on developing traditional products and getting them off the ground.

HKEx is one of the world's major bourses and a listed company, while HKMEX is a new private business. HKEx did not move ahead with establishing an emissions trading business because of lack of market interest when it consulted market participants in 2009. Neither of them are spending the time that SZEE and the Guangdong authorities are spending on developing ETS.

### **4.4 Shenzhen is keen to engage with Hong Kong**

**The 'Shenzhen/Hong Kong Innovation Circle' may be a suitable platform for discussing emissions trading**

Hong Kong and Shenzhen has developed a close partnership under the principles of 'complementarity, coordinated development and mutual benefits'. Both sides have agreed to pursue further cooperation with a forward-looking vision, leveraging the Mainland's support on Hong Kong-Shenzhen co-operation as stipulated in the 12FYP, and proactively implementing policies related to the Hong Kong-Shenzhen connection. Cooperation on new and innovative low-carbon policies would add a noteworthy new dimension to the current ventures in financial services, trade, industries, cross-boundary infrastructure and livelihood issues, etc.<sup>39</sup> The 'Shenzhen/Hong Kong Innovation Circle' may be a suitable platform for discussing emissions trading but, more importantly, it could also provide the technology tools necessary for companies in the region to comply with emission reduction targets as they become more challenging over time. Technologies developed under this initiative could be immediately applied to PRD offsetting methodologies, so that financing, demonstration and commercialization challenges can be initially overcome within the region.



**Hong Kong and Shenzhen could structure a carbon intensity reduction programme that complements both sides**

The SZDRC has already approached the HKSAR Government about cooperating on low-carbon development. As both economies have a strong financial sector and relatively little heavy industry, Hong Kong and Shenzhen could ostensibly structure a carbon intensity reduction programme that complements both sides. The governments have ascribed to people-based cooperation initiatives to improve the quality of life for people of both places in the coming year. Collaboration on low carbon growth, investment and policy would fit appropriately under that headline.

**The Shenzhen exchange is eager to work with Hong Kong for piloting carbon trading in the region**

The SZEE has also approached the HKPC on working together to design the SZETS. The SZEE is also eager to work with either the HKEx or HKMEx on developing a suitable platform for piloting carbon trading in the region. Shenzhen recognizes the relative strengths of the Hong Kong financial and services sectors and is positive about Hong Kong's potential engagement. While there is unambiguous interest on the part of Shenzhen to work together with the right parties in Hong Kong on piloting a carbon market, the fact is HKEx and HKMEx are not currently focussed on developing emissions trading capabilities.

## **4.5 Dialogue platform with Guangdong also exists**

**The Hong Kong and Guangdong governments assembled a low carbon technology and climate change working group**

As outlined earlier in the report, Hong Kong and Guangdong have been instrumental to each other's mutual prosperity since the 1980s. The two governments mapped out a Work Plan in January 2012 for the year to strengthen Hong Kong-Guangdong co-operation set out in the 12FYP. The Work Plan includes 86 specific action items, one of which is 'co-operation on environmental protection',<sup>40</sup> which opens the door to the two sides to work together on climate change and carbon intensity issues, including emissions trading. The governments recently assembled a low carbon technology and climate change working group as part of their regional cooperation plan, which is positive. The issue is the HKSAR Government is not yet focussing on emissions trading, nor closely monitoring related developments in other countries, and neither are HKEx and HKMEx. The HKSAR Government has taken a passive approach to the evolving carbon trading field while nearby cities, such as Beijing and Singapore, are staking claims as Asia's hubs for the industry. The Singaporean Government has openly stated its interest to become a low-carbon regional hub. As a result, it has attracted companies in the carbon market and clean technology sectors through offering tax incentives and discounted office space. Hong Kong could also explore how it may attract businesses in the low-carbon sector to set up shop in HKSAR.

## Conclusions

**The HKSAR Government has not been a part of the 5-year planning cycles**

On the mainland, government officials, government-funded research institutes (of which there are many) and exchanges are part of the five-year planning process and their work follows stated national and local plans, whereas the HKSAR Government has not been a part of the five-year planning cycles, local research bodies decide what they wish to do, and the exchanges are commercial entities that plan their business independently.

**Hong Kong-Shenzhen-Guangdong partnership for effective pilot emissions trading schemes across the PRD**

The ‘two systems’ are separate and to be respected but it is nevertheless still possible for cooperation where Hong Kong is enthusiastic. If Hong Kong, Shenzhen and Guangdong could work as a region to pilot emissions trading schemes across the PRD, it may hasten the achievement of common policy objectives and assist the successful implementation of pilot ETS. While those responsible on the mainland have been focusing on ‘cap’ related elements thus far (e.g. GHG measurement, sector selection, cap allocation, etc.), the participation of Hong Kong entities could bolster the ‘trade’ element. In other words, allowing Hong Kong entities to participate in ETS in South China could help create demand for emission reductions and incentivize trading, which ultimately would lead to sufficient market liquidity and a transparent price for carbon. The challenge is to find an appropriate way for practical cooperation, since the necessary dialogue platforms are already there.

**There are practical examples of cooperation that can guide Hong Kong, Shenzhen and Guangdong to work together on emissions trading**

There are practical examples of cooperation that can guide Hong Kong, Shenzhen and Guangdong to work together on emissions trading. The collaboration between Hong Kong and Guangdong on air quality management shows longer-term, closer collaboration is possible. In December 2003, Hong Kong and Guangdong jointly drew up the PRD Regional Air Quality Management Plan with a view to meeting specific emission reduction targets. The PRD Air Quality Management and Monitoring Special Panel was then set-up under the Hong Kong-Guangdong Joint Working Group on Sustainable Development and Environmental Protection (JWG) to follow up on the tasks under the Management Plan. The PRD Regional Air Quality Monitoring Network established under the Management Plan provides comprehensive air emissions data.<sup>41</sup> It may be possible for carbon emissions to be added to the monitoring network, as well as for Hong Kong, Shenzhen and Guangdong to cooperate similarly on emissions trading for air pollutants, as well as carbon dioxide.

**The emissions trading sector in the PRD would strengthen if Hong Kong were to express interest in this subject**

The question is the degree of Hong Kong’s enthusiasm. In another example, where Hong Kong is highly enthusiastic, Hong Kong can be energetic and influential. This can be seen from the HKSAR Government’s interest in developing Hong Kong as an offshore centre for RMB business. Financial affairs are familiar to Hong Kong officials and its financial sector’s stakeholders and thus there is strong dialogue and cooperation between the appropriate mainland and Hong Kong bodies. This is however not the case with emissions trading. HKSAR officials and key stakeholders in the business sector may wish to consider the long-term business opportunity for Hong Kong in this regard. The European Union Emissions Trading

Scheme (EU ETS) has created a unique job sector of its own, employing professionals in technical, financial and legal fields and Hong Kong already hosts a handful of emission trading professionals as a result of the EU ETS. This sector would certainly strengthen if Hong Kong were to express interest in this subject.

**Leading roles of senior Hong Kong officials on emissions trading**

As the HKSAR Government has not prioritised emissions trading, there are no officials working on it currently. Thus, the HKSAR Government would first need to give emissions trading policy high priority, and ensure it has the expertise to explore emissions trading with their counterparts in Shenzhen and Guangdong. The HKSAR Government is used to bringing on board external expertise where it lacks internal capability, but if senior officials do not prioritise emissions trading as an important opportunity for Hong Kong, there will continue to be no policy action. The risk the HKSAR Government runs is that their Shenzhen and Guangdong counterparts will continue to develop pilot emissions trading schemes without Hong Kong in-put, which may jeopardise Hong Kong's position going forward as a leading financial centre.

**Hong Kong exchanges already have a strong interest in supporting China's economic development**

As for the two exchanges in Hong Kong, they clearly already have strong interest in supporting China's economic development. HKEx provides a major fundraising platform for mainland companies, and HKMEX's ambition is to enable the setting of commodities prices in an Asian time zone, which is useful for Chinese commodities traders. HKEx had considered emissions trading in 2008-2009 but the lack of market enthusiasm resulted in a decision not to move ahead. Nevertheless, HKEx has shown positive signs in supporting sustainability, such as through its own annual CSR reporting;<sup>42</sup> and in proposing a set of Environmental, Social and Governance Reporting Guidelines for issuers listed in Hong Kong in December 2011.<sup>43</sup>

**HKEx and HKMEX might consider their positions on emissions trading**

HKEx may wish to reconsider the matter as China is now implementing pilot programmes, and HKMEX may also wish to consider its position. For example, might they be able to host products developed by Shenzhen and Guangdong, and whether HKEx may require listed companies to publish comprehensive environmental reports with emissions data and reduction plans? Both should note that since 2009, Australia and New Zealand have started implementing carbon markets. South Korea is currently legislating emissions trading policy and Japan is expected to release its strategy for achieving 2020 reduction goals by the end of 2012.

**The CPPP may be scaled-up and used as a gateway for Hong Kong companies to participate in a future PRD emissions trading scheme**

As for other bodies in Hong Kong, the HKPC may also be able to play a useful role on the back of its CPPP because it has wide contacts with many factories throughout Hong Kong and the PRD and the scheme is well-regarded in Shenzhen and Guangdong. HKPC also has strong relations with Hong Kong's manufacturing federation and associations and these too may have a role to play if a plan can be developed to engage them. The CPPP may be scaled-up and used as a gateway for Hong Kong companies to participate in a future PRD emissions trading scheme. A properly designed pilot ETS in the region could also provide a long-term source of financing for HKPC's companies participating in the CPPP. The Partnership has the principle backing of the Shenzhen and Guangdong governments.

**Hong Kong, Shenzhen and Guangdong can also explore how they can promote the CDM in the Greater PRD region**

Another area where Hong Kong, Shenzhen and Guangdong can cooperate is to explore how they can promote the CDM in the Greater PRD region. One of the outcomes of the international climate change negotiation in 2011 (COP17) is for a CDM policy dialogue to be held in 2012. The dialogue aims to take stock of the lessons learned implementing the CDM and recommend how to position the mechanism going forward.<sup>44</sup> As China has hosted more CDM projects than any other country, insights from Chinese CDM project stakeholders will be valuable in this procedure. The China discussion could take place in South China this year.

**It may be useful to consider the need for a new PRD-wide Low Carbon Plan**

Finally, if the authorities in Hong Kong, Shenzhen and Guangdong wish to explore cooperation on emissions trading, it may be useful for them to consider whether there is a need for a new PRD-wide Low Carbon Plan, where each side could streamline their environmental objectives and articulate their roles towards drawing-up a plan and designing the market rules. By showing explicit and high-level cooperation, the governments could create a supportive investment environment for the commercial parties to contribute ideas, invest and participate.

# Policy Recommendations

Based on the above analysis, the following recommendations are applicable for the HKSAR Government, HKPC, HKEx and HKMEx:

## 6.1 HKSAR Government

### 6.1.1 Prepare a response to the Climate Change Strategy and Action Plan

In preparing its response to the public consultation (which has yet to be done), the current HKSAR administration can use the opportunity to articulate its interest to work with Shenzhen and Guangdong to develop a regional ETS before it steps down from office on 30 June 2012.

### 6.1.2 Prioritise Hong Kong's role in helping to create a regional ETS

At the Chief Secretary and Financial Secretary level, the next HKSAR Government can coordinate and ensure emissions trading is considered widely within the relevant policy bureaux (see Appendix for the post-1 July reorganised administrative structure); obtain expertise where needed; and add the subject within the most appropriate dialogue platform (e.g. the Framework Agreement with Guangdong).

### 6.1.3 Combine air pollution and carbon reduction to increase co-benefits

Hong Kong's next government can merge various air quality management, low-carbon economy and green quality living plans to create a cohesive blueprint that can dovetail with aspects of Shenzhen's and Guangdong's plans so as to maximise co-benefits in emissions reduction.

### 6.1.4 Explore how CPPP can be used

As there will be a review of the CPPP operated by HKPC, the incoming HKSAR Government can work with HKPC to see if a regional emissions trading plan can be developed using HK-owned businesses as a base, which can benefit Hong Kong in dealing with sustainability issues over the long term, its businesses, as well as Shenzhen and Guangdong to achieve their emissions reduction targets.

### **6.1.5 Define a long-term role for Hong Kong in environmental and climate finance<sup>45</sup>**

The new HKSAR Government can include developing environmental and climate finance as one of the objectives of an updated Climate Change Strategy and Action Agenda, which can include exploring whether there may be a role for Hong Kong with respect to the Green Climate Fund.<sup>46</sup>

### **6.1.6 Host a multi-stakeholder forum in Hong Kong or South China**

The new HKSAR Government can propose under the Framework Agreement to Guangdong to jointly host a multi-stakeholder forum to include officials and other interested parties to explore market means to achieve emissions reduction.<sup>47</sup>

## **6.2 Hong Kong Productivity Council**

### **6.2.1 Consider how CPPP can be used**

The NDRC will release its own voluntary carbon-offsetting standard, known as the “National GHG Emissions Voluntary Exchange Management Rules”, before the end of 2012. This standard will set the benchmark for making domestic emissions reductions in certain sectors in China. HKPC can consider how CPPP can be designed to link the emissions reduction efforts of Hong Kong-owned factories in the PRD to emissions trading, and work with the relevant exchanges in Shenzhen, Guangdong and Hong Kong to develop regional trading.

### **6.2.2 Prepare proposal for new in-coming HKSAR Government**

HKPC can prepare the plan noted above with new roles, proposing how it could be done to the new in-coming HKSAR Government on 1 July 2012, including the financial support it needs to develop regional emissions trading.

## **6.3 Hong Kong Exchanges and Clearing Limited**

### **6.3.1 Consider a ‘China Focus’ in reconsidering an emissions trading strategy**

At relatively low cost, HKEx can monitor and track China’s ETS development in trading air pollutants and GHG, seek to understand Hong Kong’s existing air pollution management plans and outcomes, and engage relevant parties in Shenzhen and Guangdong and elsewhere that are charged to pilot emissions trading by 2014 with a view of hosting products to support the mainland exchanges.

### **6.3.2 Build an environmental focus upon existing business**

Enlarge its current efforts to encourage issuers to improve environmental, social and governance reporting to include attracting new “green” IPOs of companies that are participating or likely to participate in the future, such as companies in energy and environmental technology.<sup>48</sup> Other products, such as exchange-traded funds associated with emission-related products<sup>49</sup> and exchange-traded “green” indices<sup>50</sup> may be viable in the longer-term future.

## **6.4 Hong Kong Mercantile Exchange**

### **6.4.1 Consider a ‘China Focus’ in emissions trading that complements existing strategy**

HKMEx’s mission is to provide a platform for market participants to trade commodities in the Asia-Pacific time zone; building on Hong Kong’s business structure and proximity to China, which is the largest producer and consumer of many commodities. It may consider adding emissions trading as part of its business.

### **6.4.2 Open dialogue with mainland parties on emissions trading**

At relatively low cost, HKMEx can monitor and track China’s ETS development in trading air pollutants and GHG, seek to understand Hong Kong’s existing air pollution management plans and outcomes, and engage relevant parties in Shenzhen and Guangdong and elsewhere that are charged to pilot emissions trading by 2014 with a view of hosting products to support the mainland exchanges.



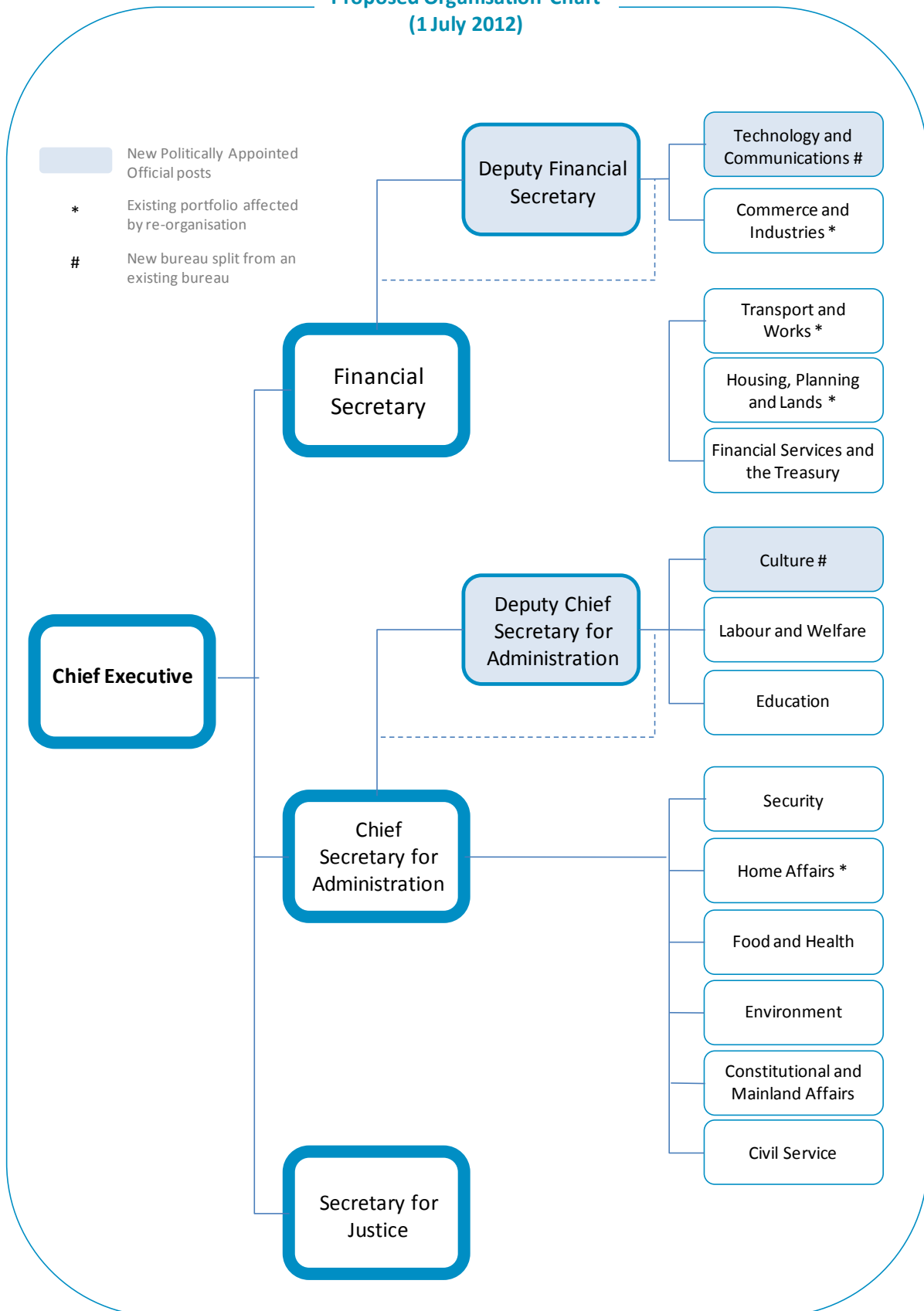
1. The energy intensity target for the 12FYP is 16% reduction between 2010 and 2015.
2. Sandra Greiner and Karla Lieberg, "Carbon Trading in the Chinese Building Sector", *Greenhouse Gas Market Report 2011*, 26.
3. During the 11 Five Year Plan, China reduced energy intensity of GDP by 19.1%. The average energy consumption growth rate was 6.6%, while the average GDP growth rate was 11.2%. This energy intensity reduction has avoided about 1.4 billion tonnes emission of CO<sub>2</sub>-equivalent (GtCO<sub>2</sub>e). Energy Research Institute, National Development and Reform Commission, China, "Achieving 1.4 Billion Tons of CO<sub>2</sub> Reductions", 1.
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  34. The CDM is a process created under the Kyoto Protocol that allows developed countries listed in Annex 1 of the Protocol to invest in projects that reduce GHG emissions in developing countries and have those reductions count toward their emission reduction targets.
  35. Ibid, pp. 34-35.
  36. HKSAR Government, Press Release, "Chapter on national Five Year Plan dedicated to Hong Kong and Macao", 16 March 2011, <http://www.info.gov.hk/gia/general/201102//16/P201103160315.htm>.
  37. This mind set can be seen from the speech of Chief Executive, Donald Tsang, on the 12FYP where no mention was made on the low-carbon economy and emphasis given to offshore RMB business and traditional trade-related services, HKSAR Government, Press Release, "CE's speech at National 12th National Five-Year Plan Forum", 17 August 2011, <http://www.info.gov.hk/gia/general/201108/17/P201108170270.htm>.
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  42. HKEx's annual CSR reports are available on their website.
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  45. Climate Finance is capital made available to advance action on low-carbon, climate-resilient development activities. Current sources for climate finance include carbon market revenues and carbon-related mechanisms, general tax revenues, voluntary and philanthropic contributions, and capital markets.
  46. At COP16 in 2010, developed countries committed to jointly mobilize US\$100 billion/per year, starting in 2020, for developing countries to implement mitigation actions. Funding is envisaged to move through a new Green Climate Fund. See UNFCCC Decision FCCC/CP/2010/7/Add.1, available at: <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf> (last accessed 21 March 2012), point 98, page 17. See also "Climate Change Finance – Hong Kong can host the Green Climate Fund's Office", Civic Exchange, 12 January 2012, <http://www.civic-exchange.org/wp-content/uploads/2012/01/120112ClimateGreenFund.pdf>. This idea has been raised with the current Secretary for the Environment and Financial Secretary.
  47. This may incorporate the possibility of a CDM dialogue taking place in South China, raised by Wu Changhua, see footnote 51.
  48. While HKEx's revenues are insensitive to the nature of the business of a listed entity, HKEx may still wish to promote 'green' IPOs as a part of its CSR strategy because the growing need of environmental solutions for China may well see increasing profits in the medium term, and more listings in this area helps Hong Kong to gain competency in a new specialised sector.
  49. As environmental markets grow and products increases, so does the appeal of using ETF to allow investors to gain diversified exposure to such markets. By investing in an ETF, investors could avoid risk of investing in either a single instrument (such as Certified Emissions Reduction –CERs – a Kyoto Protocol unit equal to 1 metric ton of CO<sub>2</sub>e issued for emissions reduction from CDM projects) or a single company or market.
  50. Index-linked products are appealing because of their low cost for investors because they provide an average return from a basket of underlying assets, which can be drawn from across the spectrum of green and emissions-related sectors.

# Appendix

**Proposed Organisation Chart  
(1 July 2012)**



# Glossary

CAS	Chinese Academy of Sciences
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CGNPC	China Guangdong Nuclear Power Company
CNOOC	China National Offshore Oil Corporation
CO <sub>2</sub>	Carbon Dioxide
COP15	Copenhagen 2009 UN Climate Change Conference
COP17	Durban 2011 UN Climate Change Conference
CPPP	Cleaner Production Partnership Programme
EIC	Economic & Information Committee
EPB	Environmental Protection Bureau
ETS	Emissions Trading Scheme
EU ETS	European Union Emissions Trading Scheme
FYP	Five-Year Plan
GDASS	Guangdong Academy of Social Sciences
GDDRC	Guangdong Province Development and Reform Commission
GDETS	Guangdong Emissions Trading Scheme
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIEC	Guangzhou Institute of Energy Conversion
GSTD	Guangdong Science & Technology Department
HKEx	Hong Kong Exchanges and Clearing Limited
HKMEx	Hong Kong Mercantile Exchange
HKPC	Hong Kong Productivity Council
HKSAR	Hong Kong Special Administrative Region Government
JWG	Hong Kong-Guangdong Joint Working Group on Sustainable Development and Environmental Protection
MOU	Memorandum of Understanding
NDRC	National Development and Reform Commission
NO <sub>x</sub>	Nitrogen Oxide
OTC	Over-the-Counter
PRC	People's Republic of China
PRD	Pearl River Delta
RSP	Respirable Suspended Particulates
SEE	China Shenzhen Emission Exchange
SEZ	Special Economic Zone
SO <sub>2</sub>	Sulphur Dioxide
SZDRC	Shenzhen Development and Reform Commission
SZETS	Shenzhen Emissions Trading Scheme
tCO <sub>2</sub> e	Tons of carbon dioxide equivalent
UNFCCC	United Nations Framework Convention on Climate Change

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