Progress Report

Motion Debate on "Formulating a Roadmap for a Low Carbon Economy"

Legislative Council Meeting on 26 November 2008

Purpose

At the Legislative Council meeting on 26 November 2008, the motion on "Formulating a roadmap for a low carbon economy" moved by the Hon Audrey EU Yuet-mee, as amended by Hon KAM Nai-wai, Hon CHAN Kam-lam and Hon CHAN Hak-kan, was carried. Wording of the motion is at **Annex**. This note updates Members on the follow-up actions taken in respect of the suggestions put forward by Members in the motion.

Strategies for Developing a Low Carbon Economy

2. Government attaches great importance to the need to take effective actions to cope with the impact of climate change and mitigate greenhouse gas (GHG) emissions. In his 2007/08 Policy Address, the Chief Executive (CE) outlined his vision to develop Hong Kong into a quality global metropolis with emphasis on sustainable, balanced, and diversified development. In his latest 2008/09 Policy Address, the CE further set out the policy objective of promoting a low carbon economy based on low energy consumption and low pollution to meet the challenge of climate change.

3. Electricity generation is the largest source of local GHG emissions, accounting for 62% of the total emissions. In terms of the end-uses, buildings consume 89% of the total electricity in Hong Kong. The focus of our strategies is therefore on the use of cleaner fuels and enhancing energy efficiency, especially in buildings. We are also pursuing a string of policy measures to cut GHG emission from other key emission sources such as the transport sector and landfills. Details of our strategy to combat climate change have been set out in our submissions to the Environmental Panel of the Legislative Council on 28 May 2007, 28 January 2008 and 13 January 2009 (Paper No. CB(1)1666/06-07(15), CB(1)647/07-08(18) and CB(1) 531/08-09(02)).

Setting Target for Energy Intensity Reduction

4. Along with other Asia-Pacific Economic Cooperation (APEC) economies, we have pledged to reduce our energy intensity of at least 25% by 2030 (with 2005 as the base year). Approximately 20 million tonnes of GHG could be avoided each year after 2030 as a result of achieving this target.

Making Reference to Overseas Examples

5. Climate change is a global challenge which calls for global actions. We are committed to working with the international community to combat climate change. Apart from our joint efforts with other APEC economies, we joined the C40 Cities Climate Leadership Group (C40) in October 2007 to share experience with other C40 cities in tackling climate change and reducing GHG emissions.

6. In addition, Government commenced an 18-month consultancy study on climate change in March 2008. The study will draw on the latest scientific information and data of a number of major international reports published recently with a view to assessing the impact of climate change on Hong Kong. It will also consider relevant developments on the Mainland and overseas, and make recommendations on strategies to further enhance our existing measures to mitigate GHG emissions and adapt to climate change.

Reducing Energy Usage and Energy Efficiency

Economic Incentives

7. To encourage members of the public to act on enhancing energy efficiency, the Environment and Conservation Fund (ECF) Committee approved on 30 December 2008 the Administration's proposal to reserve $450 million under the Fund to provide subsidies to eligible applicants to conduct energy-cum-carbon audits and energy efficiency improvement projects at buildings. We expect the schemes to be formally launched in the first quarter of this year.

8. The Government has also been providing other economic incentives to promote energy efficiency. Since 2008/09, the Government has provided 100% tax deduction for capital expenditure on environmental protection machinery in the first year. The depreciation period for environmental protection installations, which are

mainly ancillary to buildings, has also been reduced from 25 years to five years. These environmental protection installations include renewable energy installations as well as energy efficient building installations registered under the Hong Kong Energy Efficiency Registration Scheme for Buildings administered by the Electrical and Mechanical Services Department (EMSD).

9. Furthermore, the Government has been encouraging property owners to adopt energy-efficient technologies and devices through funding schemes administered by various housing organizations. For example, eligible property owners may apply for loans or subsidies under the Building Management and Maintenance Scheme of the Hong Kong Housing Society (HKHS) to carry out repairs and maintenance works relating to, *inter alia*, environmental protection (including energy saving device installations) in the common areas of their buildings. In addition, application for loans may be made under the Comprehensive Building Safety Improvement Loan Scheme of the Buildings Department when environmental and energy-efficient construction techniques, materials and devices are used in building safety maintenance and improvement works. Elderly owner-occupiers may also apply for subsidies under the Building Maintenance Grant Scheme for Elderly Owners of the HKHS as commissioned by the Administration.

10. To promote energy efficiency, under the new Scheme of Control Agreements signed with the two power companies in 2008, we have secured the agreement of the two power companies to set up loan funds totaling $37.5 million each year over a five-year period. Loans are provided to non-Government customers to implement energy saving initiatives identified in energy audits. The two companies have also agreed to set up an education fund totaling $7.5 million each year for energy efficiency and promotion activities.

11. Non-profit organisations may also apply to the Environment and Conservation Fund managed by the Environment Bureau for funding to carry out environmental and conservation projects, including those involving energy-saving devices and renewable energy.

Legislation and other Measures in Promoting Energy Conservation

12. Following enactment of the Energy Efficiency (Labelling of Products) Ordinance by the Legislative Council in April last year, we shall implement the Mandatory Energy Efficiency Labelling Scheme in November this year. The first phase of the scheme covers three types of products, namely, room air conditioners, refrigerating appliances and compact fluorescent lamps. To further facilitate members of the public in choosing energy-efficient products, preparation is being made to amend the Energy Efficiency (Labelling of Products) Ordinance for introducing the second phase of the scheme.

13. To reduce GHG emissions through enhancing building energy efficiency, the Administration is working on a legislative proposal, to be submitted to the Legislative Council in 2009, for mandatory implementation of the Building Energy Codes in new and existing buildings. The Administration will implement measures, including setting targets on various environmental aspects for new government buildings, to promote environmental protection and energy savings at government buildings. The Administrative will also take on board the state-of-the-art energy efficient designs and technologies through demonstration projects.

14. We envisage the future Kai Tak Development will generate substantial new demand for air-conditioning. To provide more energy-efficient air-conditioning services for the public, we plan to develop a district cooling system (DCS) in the area. The implementation of DCS, which is 35% and 20% more energy-efficient than air-cooled and water-cooled air-conditioning systems respectively, will achieve an annual saving in electricity consumption by 85 million kWh and a reduction of 59,500 tonnes of carbon emission. The Environmental Affairs Panel of the Legislative Council was consulted on this project on 15 December 2008, and has indicated support. The first phase of the DCS is tentatively scheduled for operation in 2013.

15. To further promote energy efficiency and conservation, the Administration is working on the commissioning of a consultancy study proposals to phase out incandescent light bulbs and replace them with more energy-efficient lighting products. The study will also look into the case for introducing statutory restriction on the sale of incandescent light bulbs. Furthermore, we are aware that energy

wastage caused by external lighting is an area of community concern in recent years. The Administration will conduct a consultancy study in this area, which will make reference to international experience to assess the feasibility of regulating external lighting by legislation.

Reducing Emission from Power Plants

16. Since 1997, it has been the Government's established policy to ban the construction of coal-fired power generation units in favour of cleaner gas-fired units. We also encourage power companies to increase the use of natural gas in power generation, as well as wider application of renewable energy (RE), including provision of financial incentives under the new Scheme of Control Agreements. The power companies will enjoy a higher rate of return (11%) for their investment in RE facilities; and they will also be offered a bonus in the range of 0.01 to 0.05 percentage point in permitted return, depending on the extent of RE usage in their electricity generation, as an incentive to develop RE.

Develop and Use of Renewable Energy

17. While developing large-scale renewable energy facilities is a major challenge for Hong Kong because of its topography constraints, we are exploring with different parties on all possibilities. For example, the Hong Kong Electric Co Ltd has been operating a wind turbine on Lamma Island since 2006. The two power companies are currently conducting studies on developing wind farms of commercial scale in Hong Kong. The Administration has jointly commenced with the Hong Kong & China Gas Co Ltd a project to recover and use methane gas from landfills as fuel, and both will continue to look for other opportunities to better utilize landfill gas. Waste-to-energy incineration with the use of state of the art technologies is also an area being actively studied.

18. To promote private developers to take steps to install RE facilities, the Administration launched the HK RE Net thematic website in 2007. The website introduces different types of RE technologies and the approaches to handle each technology, including technical outline and application considerations. It also highlights those technologies that are found to be applicable in Hong Kong, with successful cases and a list of equipment suppliers. The website should help improve

the understanding of the community on RE and encourage their wider use.

19. The CE has outlined in the 2008/09 Policy Address to work in collaboration with the Guangdong Provincial Government to jointly transform the Greater Pearl River Delta Region into a green and quality living area based on the principle of promoting environmental protection and sustainable development. A key area under this broad strategy is to explore cooperation on developing clean energy and optimising the fuel mix for power generation. The Memorandum of Understanding on the continuous supply of nuclear electricity and natural gas to Hong Kong provides a good basis for consideration of measures to jointly develop a reliable and cost-effective regional energy supply and distribution network.

20. At the local level, the Hong Kong Housing Authority (HKHA) is actively exploring the use of solar photovoltaic panels for electricity generation at public housing estates. There are plans to install solar photovoltaic panels on the roofs of three domestic blocks and some of the walkway covers in the Lam Tin Phases 7 and 8 redevelopment project. The project is expected to be completed in this year and will supplement the power supply for the communal facilities of the concerned housing estates. In addition, HKHA will also install solar photovoltaic system of similar scale in Phase 5 development of the public housing project next to the Eastern Harbour Crossing, which is expected to be ready for use by end 2010. The Administration is committed to promoting the use of renewable energy in public works projects. A technical circular was issued in 2005 requiring works departments to incorporate RE technologies in all works projects as far as practicable. So far, 79 renewable energy projects, including solar, wind and biogas installations, have been identified for implementation with a total estimated capacity of 3.4 MW.

Grid Access and Grid Connection Arrangements

21. In accordance with the new Scheme of Control Agreements, the two power companies have drawn up standardised grid connection arrangement for providing back up power supply to customers with embedded renewable generation[1] in Hong

[1] "Embedded renewable energy systems" refer to those renewable energy facilities installed/set up as part of the building, e.g. wind turbines on rooftop, photovoltaic panels on building facade, etc.

Kong. The power companies will promote this arrangement to further encourage application of renewable energy. As regards electricity trading between the power companies and their customers, the power companies may look into the merit of each case, e.g. the level of power in excess from the embedded renewables, and consider trading based on reasonable terms under the new Scheme of Control Agreements. The operation of such facilities should nonetheless meet the requirements of relevant regulations.

22. As regards Members' suggestion to open up grid access, the Administration is committed to making preparation for the opening up of our electricity market, including formulation of a new market mechanism and the associated regulatory framework in this regulatory period (i.e. 2008 to 2018). Opening up the electricity market entails resolution of a substantial number of legal issues, as well as significant changes in the associate/regulatory arrangements and organisational structure. The Administration is therefore taking action to engage consultants to take forward a study on planning Hong Kong's future electricity market. We will consult the Legislative Council and public when more concrete proposals are available. We aim to make all necessary preparation during the current regulatory period such that competition can be introduced expeditiously when the requisite market conditions are present.

Emission Caps

23. In respect of the suggestion to include carbon dioxide emitted from thermal power plants into regulatory control, the Administration had detailed discussions with the Legislative Council in the context of the scrutiny of the Air Pollution Control (Amendment) Bill 2008 in early 2008. In deciding on the types of air pollutant emission from power plants that are to be placed under control, and their respective emissions caps, the availability of mature and practicable emissions reduction technologies is an important consideration. At present, there is no mature and commercially viable technology in the world that could reduce, capture and store the GHG discharged from the burning of fossil fuels. Therefore, GHG emissions from local power generation can only be substantially reduced by changing the fuel mix, e.g. substantial reduction in coal burning, increase in the use of natural gas or switching to nuclear energy. However, to change the fuel mix for power generation would unavoidably involve important and complicated issues such as future

development of local power sector, security of energy supply and electricity tariff. It requires wider discussion by the community and more in-depth studies. We therefore consider premature to stipulate regulatory emission cap on GHG for the two power companies at this stage.

"Green Hong Kong • Carbon Audit" Campaign

24. As noted above, reducing electricity consumption and carbon footprint from building operations is instrumental in bringing down our GHG emissions. To facilitate the users and managers of buildings to calculate the amount of GHG emitted as a result of the operation of their buildings and to explore rooms for improvement, the Administration launched on 24 July 2008 a set of carbon audit guidelines for buildings in Hong Kong. We also embarked upon a "Green Hong Kong • Carbon Audit" campaign to encourage different sectors of the community to participate. So far, some 40 organizations from different sectors have taken the lead to become the "Carbon Audit • Green Partners". The two power companies have also joined the campaign and signed up the Carbon Reduction Charter. The power companies are looking into Members' suggestion to include corresponding carbon emissions level in users' electricity bills.

Reducing Emissions from Transportation

25. The land transport sector, contributing about 16% of the total GHG emissions, is the second largest emission source in Hong Kong. We have set in train a series of measures to make our transportation system more environmentally friendly, e.g. expanding the coverage of the public transport network, especially railway network. On Members' proposal to set up "low emission zones" the Administration has commenced a study to look into its feasibility. The study will explore the setting up of pilot "low emission zone(s)" at one or more busy corridors with a view to restricting franchised buses with higher exhaust emissions from entering the zone(s); and their effectiveness will be evaluated. We expect that the study will be completed in 2009.

26. On the suggestion to set up a databank on vehicle energy efficiency, the EMSD has been compiling the Hong Kong Energy End-use Data, which covers energy uses data on Hong Kong's transportation sector, since 1997. The database

contains information on energy consumption and its patterns. It is updated annually. In addition, the EMSD has developed a set of benchmark tools for calculation of vehicle fuel consumption. Members of the public may make use of the tools to compare the fuel consumption of vehicles of comparable type, and set energy consumption target as well as develop measures to save energy.

27. To encourage the use of environment-friendly petrol private cars which help reduce greenhouse gas emissions and improve our roadside air quality, Government has reduced since April 2007 the First Registration Tax (FRT) of newly registered environment-friendly petrol private cars by 30%, subject to a cap of HK$50,000 per car. At present, there are 21 environment-friendly private car models available on local market, representing a 60% increase from the beginning of the scheme. As at end December 2008, we received about 6,786 applications, of which 6,763 were approved. This accounts for about 11% of the newly registered private cars since launching of the scheme in April 2007. We believe the financial concessions offered under the existing scheme have provided the necessary economic incentives in motivating vehicle buyers to switch to environment-friendly vehicles.

Cross-border Cooperation on Developing Carbon Trading Mechanism

28. In developing local and cross-boundary carbon trading mechanism, the EPD announced on 6 June 2008 the "Arrangements for the Implementation of Clean Development Mechanism (CDM) Projects in the Hong Kong Special Administrative Region" (the Implementation Arrangements). The Implementation Arrangements set out the specific process and procedures for Hong Kong companies to collaborate with foreign institutions to conduct CDM projects in Hong Kong. We believe promulgation of the Implementation Arrangements will facilitate development of CDM projects in Hong Kong, which will help further reduce Hong Kong's GHG emissions.

29. The Hong Kong Exchange is now preparing the operational rules to facilitate trading of Certified Emission Reductions futures contracts, which is planned for launching in Hong Kong by 2009.

City Greening

30. The Administration has been actively promoting territory-wide greening and will continue its efforts in this area. We planted around 1.2 million trees in 2008. More will be planted in the coming years. Apart from planting trees on flat land or slopes, plantation opportunities are being identified through new techniques, e.g. green roof projects and vertical greening. On Members' suggestion to greening public housing rooftops and walkway covers, the HKHA has commenced pilot schemes to install vertical green panels at lift towers and external walls in public housing estates (e.g. Eastern Harbour Crossing Sites Phases 3 and 4). The HKHA will closely monitor the effectiveness of the works and consider whether and how to further extend them to other estates.

Tightening Hong Kong Air Quality Objectives

31. The Administration has commissioned a consultancy study to review the Hong Kong Air Quality Objectives (AQOs). In the 2008/09 Policy Address, the CE has made it clear that the Administration will adopt air quality targets in stages with reference to the World Health Organization's guidelines. The review will also draw up the necessary emission control measures required for delivering the new AQOs. We expect that the review would complete by mid 2009. The public will be fully consulted on the recommendations of the review, including the pace for tightening the existing AQOs and taking forward the proposed control measures, before the Administration takes a final view on how the AQOs are to be updated.

Environment Bureau

January 2009

Annex

Motion on "Formulating a roadmap for a low carbon economy"

Carried by LegCo on 26 November 2008

"That the problem of global warming is aggravating, the Chief Executive has proposed in his Policy Address to build a low carbon economy, i.e. promoting the development of an economy based on low energy consumption and low pollution, yet he has failed to put forward a specific policy framework, strategies, proposed plans, targets and a timetable to set out the specific steps and measures to be taken for achieving a low carbon economy, this Council urges the Administrative to study the formulation of a timetable and a roadmap for a low carbon economy, including:

(a) setting interim and long-term targets for the reduction of total greenhouse gas emissions in Hong Kong;

(b) making reference to overseas examples and studying the formulation of strategies and legislation on climate change;

(c) providing economic incentives and formulating measures to encourage energy conservation by the public;

(d) expeditiously drawing up proposed plans for grid access;

(e) expeditiously formulating standardized arrangements for grid connection, allowing electricity trading between users and power companies, and encouraging the use of renewable energy power facilities by various sectors of the community;

(f) studying cooperating with Guangdong Province in developing wind farm projects to promote the use of renewable energy;

(g) greening or installing solar power facilities on the roofs of newly built public housing blocks and covered pedestrian walkways, and encouraging private developers to introduce related facilities;

(h) implementing the promotion of the first stage of 'low emission zones' in Hong Kong in 2010;

(i) setting up a data bank on energy efficiency of vehicles covering the data on greenhouse gas emissions; and

(j) tightening the current standards of the Air Quality Objectives to expeditiously align them with the World Health Organization Air Quality Guidelines, raising

them to the standards adopted by the European Union by 2012, and implementing the standards prescribed by the World Health Organization by 2015;

(k) considering bringing carbon dioxide emissions from local thermal power plants into the regulatory ambit;

(l) actively collaborating with the neighbouring regions, including formulating agreements and relevant legislation, as well as setting up a trading platform to develop a mechanism for local and cross-border carbon trading;

(m) discussing with power companies the inclusion of carbon emissions of users in their electricity bills, so as to assist users in conducting carbon audit; and

(n) raising the current tax concession rates and caps under the first registration tax concession scheme for environment-friendly vehicles to provide additional incentive for the public to switch to environment-friendly vehicles.