For discussion on 13 January 2009

LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

SUBCOMMITTEE ON IMPROVING AIR QUALITY

Government Efforts in Addressing Climate Change

PURPOSE

This paper provides an update on Government's latest initiatives and efforts in addressing climate change.

BACKGROUND

2. On 28 May 2007 and 28 January 2008, this Panel considered two submissions setting out Government's overall strategy and specific measures for combating climate change. The Legislative Council also conducted two motion debates on 28 November 2007 and 26 November 2008 on the subject. A summary of the measures being pursued by the Administration to reduce greenhouse gas (GHG) emissions is at **Annex**. In the 2007 Policy Address, the Chief Executive reaffirmed Government's commitment to achieving a reduction in energy intensity of at least 25% between 2005 and 2030, which is a target jointly agreed by the Asian Pacific Economic Cooperation (APEC) economies. A comprehensive consultancy study on climate change is being undertaken to assess its impact on Hong Kong and recommend suitable strategy to enhance further our existing adaptation and mitigation measures.

3. In the 2008 Policy Address, the Chief Executive further highlights the need to make early preparations to meet the challenge of climate change. He also sets out a string of new initiatives in support of Hong Kong's transition to low carbon economy.

NEW INITIATIVES

Cleaner Fuels for Electricity Generation

4. The burning of fossil fuels for electricity generation is the largest source of GHG emissions in Hong Kong. As burning natural gas emits

about 50% less of GHG as compared with coal, adjusting the fuel mix for electricity generation in favour of natural gas would go a long way in cutting the GHG emissions from the power sector in Hong Kong. We have since 1997 banned the construction of coal-fired power generation units in favour of cleaner gas-fired units. On 28 August 2008, the HKSAR Government and the National Energy Administration signed a Memorandum of Understanding (MOU) on the continuous supply of nuclear electricity and natural gas to Hong Kong in the next two decades. The MOU helps ensure a long-term and stable supply of clean energy to Hong Kong. At present, 28% of electricity generated in Hong Kong is from gas-fired units. The MOU provides a solid basis for us to explore ways to gradually increase the use of clean energy by, for example, increasing the proportion of natural gas for local electricity generation to 50%. As part of our review of the air quality objectives, we will consult the public on this and other measures to improve air quality.

Enhancing Building Energy Efficiency and Carbon Auditing

5. In terms of end-uses of electricity, buildings account for 89% of the total electricity consumed locally. Reducing electricity consumption from building operations is instrumental in bringing down our GHG emissions. The Administration completed in March 2008 a three-month public consultation on the proposed mandatory implementation of the Building Energy Codes. With public support received on the proposal, the Administration is making preparation for introducing the legislative proposal in 2009.

6. 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 organisations from different sectors have taken the lead to become the "Carbon Audit • Green Partners". They have undertaken to conduct carbon audits and initiate carbon reduction programmes for their buildings. The Administration will engage the business sector to conduct carbon audit for over 100 buildings in this year.

7. To encourage the public to take actions to enhance energy efficiency, the Administration proposes to reserve $450 million under the Environment and Conservation Fund (ECF) to provide subsidies to eligible applicants to conduct energy-cum-carbon audits and energy

efficiency improvement projects in buildings. The proposal was approved by the ECF Committee at its meeting on 30 December 2008.

8. The Administration will continue to promote environmental protection and energy conservation in government buildings. We will adopt a comprehensive target-based environmental performance framework for government buildings with a view to promoting green buildings in Hong Kong. Targets on various environmental aspects for new government buildings will be set. The Government has also identified Kai Tak Government Offices and an educational building under planning as energy efficiency demonstration projects to demonstrate the state-of-the-art energy efficient designs and technologies.

9. Furthermore, a working group comprising representatives from government departments, professional institutions, academia and electrical and mechanical contractors associations is being set up under the Buildings Department to review the scope of application of the Building (Energy Efficiency) Regulation and the overall thermal transfer value standard of buildings, with a view to improving the energy performance of buildings.

Mandatory Energy Efficiency Labelling Scheme

10. The Energy Efficiency (Labelling of Products) Ordinance was passed by the Legislative Council in April 2008 to implement the Mandatory Energy Efficiency Labelling Scheme. The first phase of the scheme covers three types of products, namely, room air conditioners, refrigerating appliances and compact fluorescent lamps. To further facilitate the public in choosing energy-efficient products, the Administration will make preparation for the amendments to the Energy Efficiency (Labelling of Products) Ordinance for the second phase of the scheme.

District Cooling System (DCS) at the Kai Tak Development

11. As the Kai Tak Development will generate substantial new demand for air-conditioning, we plan to implement a DCS, which is a central water-cooling system for providing more energy-efficient air-conditioning services for public and private non-domestic developments in the region. 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 first phase operation is tentatively scheduled to commence in 2013. This Panel was consulted and supported the proposed project on 15 December 2008.

Study on Phasing Out Incandescent Light Bulbs

12. Lighting accounts for about 17% of total electricity consumption in Hong Kong. We have been encouraging the use of more energy-efficient lighting such as compact fluorescent lamps. To further promote energy efficiency and conservation, the Administration will conduct a study on phasing out incandescent light bulbs and replacing 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.

LED Traffic Light

13. Since 2004, Transport Department has gradually installed LED traffic signals at about 150 junctions on a trial basis. In April 2008, the Legislative Council Finance Committee approved funding for replacement of all conventional traffic signal at 1,900 signalised junctions in Hong Kong with LED traffic signals by phases at about $140 million before end 2012. This initiative is expected to save electricity of some 7.6 million kWh and to prevent GHG emissions by 5,300 tonnes each year.

Energy Wastage of External Lighting

14. The issue of energy wastage of external lighting has drawn considerable concerns in recent years. The Administration will conduct a consultancy study on the relevant issue, and to draw international experience to assess the feasibility of regulating external lighting by legislation.

Better Utilization of Landfill Gas

15. Landfill gas recovered from both operating and restored landfills in Hong Kong is now being used to produce energy. With the completion of the facilities to transport landfill gas from the North East New Territories (NENT) Landfill to Towngas production plant in Tai Po this January, around 50% of the collected landfill gas is utilized either by on-site facilities or for off-site towngas production, and the remaining is generally flared for safety reasons. Full utilization of landfill gas

extracted from NENT Landfill and the restored Shuen Wan Landfill is generally achieved. We will continue to maximize the treatment and utilization of landfill gas from the remaining landfills.

Clean Development Mechanism (CDM) Projects

16. To facilitate the commissioning of CDM projects[1] in HKSAR, the Administration announced the Arrangements for the Implementation of CDM Projects in the Hong Kong Special Administrative Region (the "Implementation Arrangements") on 6 June 2008 following consultations with the National Development and Reform Commission. 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. All registered companies in Hong Kong are able to implement CDM projects in Hong Kong. These projects will help further reduce Hong Kong's GHG emissions. The "Certified Emission Reductions" (CERs) generated from the projects would also help Annex I parties to the United Nations Framework Convention on Climate Change to meet their national GHG emission targets under the Kyoto Protocol. The Hong Kong Exchange is now preparing the operational rules for trading futures contracts on CERs in Hong Kong by 2009.

Raising Community Awareness

17. The goal of combating climate change could be achieved only through the concerted efforts of the Government and different sectors of the community. To encourage and give due recognition to voluntary efforts by the community in combating climate change, the Administration is working on a scheme to extend the existing Hong Kong Awards for Environmental Excellence to recognise carbon reduction efforts by private enterprises.

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[1] CDM is a mechanism under which Annex I Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol can fulfill part of their greenhouse gases reduction obligations through cooperation with non-Annex I Parties on implementation of emission reduction projects. The core of the CDM is to allow Annex I Parties, in cooperation with non-Annex I Parties, to acquire Certified Emission Reductions (CERs) generated from emission reduction projects conducted in non-Annex I countries for the purpose of counting towards achievement of the concerned Annex I Parties' emission reduction targets. Non-Annex I Parties can in turn obtain the necessary technological and financial means to carry out emission reduction projects. Under the UNFCCC framework, CDM projects should be confined to those emissions reduction projects that are not financially or technically attractive, and could only be taken forward with the additional financial incentives provided by the CDM mechanism.

ADVICE SOUGHT

18. Members are invited to note the contents of this paper for information.

Environmental Protection Department
January 2009

Annex

Summary of existing GHG reduction measures in Hong Kong

Categories	Control Measures
Overall Target	To achieve a reduction in energy intensity of at least 25% between 2005 and 2030.
Electricity Generation	To allow only the construction of gas-fired power generating units since 1997.
	To encourage power companies to maximize the use of natural gas for power generation
	To utilize landfill gas as fuel, including its use in production of towngas.
Renewable Energy	To have 1-2% of the local power needs met by renewable energies by 2012.
	To actively promote wider application of renewable energy by collaborating with the two power companies and provide necessary incentives under the new Scheme of Control Agreements (SCAs), such as a higher rate of return for their investment in renewable energy facilities (11%), and a bonus in the range of 0.01 to 0.05 percentage point in permitted return depending on the extent of renewable energy usage in their electricity generation.
	To continue the on-going efforts to promote the use of renewable energy in public works projects. A number of pilot projects have been implemented.
	To facilitate connection of customer with embedded renewable generation to power grid.
Demand Side Management	To encourage power companies to implement demand side management to promote energy efficiency and conservation.
	To provide in the new SCAs a maximum award of 0.02 percentage point in the permitted return depending on their performance on the number of energy audits performed for customers and the actual energy saved.
	To set up a loan fund by the two power companies under the new SCAs over a five-year period (amounting up to $125

Categories	Control Measures
	million and $62.5 million in total) to provide loans to non-Government customers to implement energy saving initiatives identified in energy audits to promote energy efficiency.
Energy Efficiency and Conservation	To implement the voluntary Energy Efficiency Labelling Scheme for household and office appliances and equipment, as well as for vehicles since 1995.
	To implement the mandatory Energy Efficiency Labelling Scheme since May 2008. The initial phase of the scheme covers room air conditioners, refrigerating appliances and compact fluorescent lamps.
	To set up an education fund by the two power companies under the new SCAs for energy efficiency and promotion activities.
	To actively promote the use of water-cooled air-conditioning systems. A Code of Practice for Water-cooled Air Conditioning System was published in July 2006, covering guidelines for cooling tower design, installation, testing, commissioning, operation and maintenance.
	To implement energy saving programmes in Government through various measures e.g. conducting energy audits and re-audits at Government venues, maintaining air-conditioned room temperature of government offices at 25.5ºC in summer months.
	To encourage the public and business sector to save energy, through, for example, minimise the use of air-conditioners, set air-conditioned room temperature at 25.5°C and maintain air-conditioners in good working condition to reduce power consumption.
	To support the Clean Air Charter initiative led by the business sector.
Building Energy Efficiency	To implement the voluntary Energy Efficiency Registration Scheme for Buildings introduced since 1998 to promote the application of the Building Energy Codes covering lighting, air conditioning, electrical and lift & escalator installations.
	To require all new Government buildings and retrofit

Categories	**Control Measures**
	projects to fully comply with the Building Energy Codes.
	To require all works departments to apply energy efficient features in new Government buildings and retrofit projects where feasible. Guidelines are provided to bureaux and departments in adopting energy efficient measures in their operations.
Land Transport	To continue to extend the coverage of the public transport system, in particular the railway network.
	To promote use of cleaner vehicles under the "Tax Incentives Scheme for Environment-friendly Petrol Private Cars", i.e. reducing the First Registration Tax by 30%, subject to a cap of HK$50,000 per car.
	To encourage early replacement of diesel taxis and light buses with liquefied petroleum gas (LPG) ones by providing financial incentives.
	To promote the use of biodiesel as motor vehicle fuel.
Landfill Gas Utilization	To maximise utilisation of landfill gas from all 3 operating and 13 closed restored landfills as fuel substitutes.
Greening	To carry out tree plantation programmes.
	To implement green roof projects for new Government buildings as far as practicable. To explore further plantation opportunities like retrofitting green roofs to existing Government buildings and installing vertical green panels.
Research and Studies	To continue and support scientific research related to climate change.
Public Awareness and Education	To raise public awareness and enhance the community's understanding of climate change and the important role that individuals could play in tackling the problem through lifestyle and behavioural changes, notably in respect of energy conservation. e.g. through organizing "I love Hong Kong I love Green" campaign, "Hong Kong Energy Efficiency Award", production and distribution of an educational package on climate change to schools; and organizing thematic talks and seminars, etc.
International Cooperation	To join C40 Cities Climate Leadership Group to work closely with other participating cities on combating climate

Categories	**Control Measures**
	change.
Institutional Arrangement	To strengthen co-ordination of efforts in tackling climate change amongst the relevant bureaux and departments through the Inter-departmental Working Group on Climate Change.