

**Bills Committee on  
Air Pollution Control (Amendment) Bill 2008**

**List of Follow-up Actions Arising from  
the Discussion at the Meeting on 10 April 2008**

**Administration's Response**

**II. To advise the existing mechanism or agreements adopted by both the public and the private sectors in Hong Kong to control the emission of carbon dioxide (CO<sub>2</sub>).**

1. Hong Kong has been working closely with the international community to cope with and mitigate the impact of climate change. Alongside some other 20 member economies of the Asia-Pacific Economic Co-operation ("APEC"), Hong Kong adopted the APEC Leaders' Declaration on Climate Change, Energy Security and Clean Development ("the Declaration") announced at the APEC Leaders' Meeting held in Sydney in September 2007. The Declaration calls upon APEC economies to achieve a reduction in energy intensity of at least 25% by 2030 (with 2005 as the base year). To underscore our commitment, the Chief Executive has reaffirmed in the 2007-08 Policy Address that Hong Kong will endeavour to do our best to meet this required reduction in energy intensity.
2. Hong Kong also joined the C40 Large Cities Climate Leadership Group ("C40") in October 2007. London, New York, Tokyo, Beijing, and Shanghai are amongst the participating cities. We will work closely with the C40 cities to combat climate change.
3. On the home front, we have set in train a series of measures to mitigate greenhouse gas ("GHG") emissions. They include adopting cleaner fuels (e.g. natural gas) for power generation, encouraging greater use of renewable energy (e.g. wind and solar power), developing efficient and environment-friendly public transport system, utilising landfill gases as fuel, implementing an extensive tree planting programme, engaging members of our community to adopt a greener lifestyle and promoting energy conservation and efficiency at all

levels.

4. Other new measures in the pipeline include –
  - (i) taking into account the comments received during the public consultation on mandatory implementation of the Building Energy Codes, we will work out the details for taking forward the proposal;
  - (ii) rolling out a mandatory Energy Efficiency Labelling Scheme;
  - (iii) encouraging the power companies to implement more environment-friendly measures such as wider application of renewable energy under the new Scheme of Control Agreements;
  - (iv) promoting the use of biodiesel;
  - (v) conducting carbon audit for the Tamar Complex and launching an emission reduction campaign; and
  - (vi) conducting a new round of consultancy study to assess the likely impacts of climate change in Hong Kong and recommend further measures for enhancing our adaptation and mitigation strategy.
5. To strengthen coordination of efforts in tackling climate change amongst the relevant bureaux and departments, the Government has established an Inter-departmental Working Group on Climate Change under the lead of the Environmental Protection Department (“EPD”). It comprises representatives from five bureaux and 16 departments and is tasked to co-ordinate and promote actions to address climate change and reduce GHG emissions.
6. Regarding the private sector, we understand that some private companies are participating in carbon disclosure projects or carbon offsetting programmes. Some have pledged to reduce their carbon emission intensity.

**IV. To advise the scope, cost and expected completion date of the consultancy study on climate change.**

1. In March 2008, EPD appointed ERM-Hong Kong, Ltd. to conduct a "Study of

Climate Change in Hong Kong". The study will review and update the local inventories of GHG emissions and removals, project the future trends in GHG emissions under different scenarios, characterise the impacts of climate change in Hong Kong, recommend additional strategies and measures to further control GHG emissions and adapt to climate change, as well as evaluate the cost effectiveness of these measures.

2. The study is expected to take around 18 months to complete.

**V. To advise the measures which have been/will be taken by the Administration to promote public awareness on energy conservation.**

1. The Government is committed to promoting energy efficiency and conservation, and is taking the lead on this front. The Energy Efficiency Office was set up under the Electrical and Mechanical Services Department ("EMSD") in 1994 to spearhead and coordinate the Government's efforts. Key programmes to enhance the community's awareness and encourage the adoption of energy saving measures in recent years are summarised below.
2. The Government's housekeeping measures – Bureaux and departments have been implementing a wide range of energy saving projects and housekeeping measures on energy conservation, e.g. reducing and switching off unnecessary electrical appliances and lightings, promoting dressing down at workplace and raising the air-conditioned room temperature to 25.5°C during summer months, installing energy efficient lighting devices, replacing air-cooled air-conditioning systems with water-cooled air-conditioning systems, etc. With the concerted efforts of bureaux and departments, the total normalised electricity consumption of the Government in 2006-07 has reduced by around 7% as compared with 2002-03.
3. Mandatory Energy Efficiency Labelling Scheme – EMSD has been running a voluntary Energy Efficiency Labelling Scheme since 1995. To further encourage the use of energy-efficient products, we have introduced into the Legislative Council the Energy Efficiency (Labelling of Products) Bill with a view to setting up a mandatory labelling scheme. The Bills Committee has completed the examination of the Bill, and the resumption of Second Reading debate on the Bill is scheduled for 30 April 2008. The first phase of the

mandatory scheme will be rolled out after the enactment of the Bill, and we will also commence preparation for the second phase of the scheme.

4. Mandatory implementation of Building Energy Codes – Buildings account for 89% of the total electricity consumption of the territory. Therefore, enhancing energy efficiency of buildings can effectively reduce power consumption, bringing forth improvement in air quality and alleviating the adverse effects of global warming. The public consultation on a proposal to introduce mandatory implementation of the Building Energy Codes has just been completed in end March 2008. The proposal has garnered the general support of the public, trades and professional bodies in promoting energy efficiency of buildings. Taking into account the comments received, we will work out the details for taking forward the proposal.
5. New post-2008 Scheme of Control Agreements – The new Scheme of Control Agreements signed between the Government and each of the two power companies in early January 2008 have put in place provisions to encourage the power companies to implement energy efficiency and conservation measures.
6. We will assess the performance of the power companies based on the number of energy audits they perform for customers and the actual energy saved. A maximum award of 0.02 percentage point in permitted return will be given. Both power companies agree to set up a loan fund (CLP Power: \$25 million per annum; Hongkong Electric: \$12.5 million per annum) over a five-year period (amounting up to \$125 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. They also agree to set up an education fund (CLP Power: \$5 million per annum; Hongkong Electric: \$2.5 million per annum) for energy efficiency and promotion activities.
7. Public education – We have been conducting a wide range of public education programmes targeting schools at various levels, the private sector and the general public, through a wide range of channels and formats such as seminars, workshops, exhibitions and competitions.

**VIII. To advise how the Administration can ensure the consistency of emission standards in Hong Kong and the Pearl River Delta Region so that emissions trading between the two places can be carried out on a level playing field.**

1. Both the Hong Kong Special Administrative Region Government and Guangdong Provincial Government have imposed stringent emission standards on the thermal power plants in Hong Kong and the Pearl River Delta Economic Zone respectively. The relevant emission standards were provided to the Legislative Council Panel on Environmental Affairs on 28 March 2007 (**Annex 1**).
2. Under the “Emissions Trading Pilot Scheme for Thermal Power Plants in the Pearl River Delta Region” (“the Pilot Scheme”), power plants are allowed to participate in emissions trading on a project basis. Upon receipt of an application from power plants for emissions trading, the two governments will jointly determine the base emission targets of the power plants concerned for assessment of the emission credits to be achieved from the proposed emission reduction project. The eligibility criteria for power plants to participate in the Pilot Scheme and the principles for determining the base emission target are set out in the Implementation Framework of the Pilot Scheme, which was announced in January 2007 (**Annex 2**).

**IX. To advise whether the decision of the Appeal Board is final and not subject to judicial review under the existing legal system.**

1. A decision of the Appeal Board is amenable to judicial review.

**Environment Bureau/Environmental Protection Department  
April 2008**

**Emission Requirements for Power Plants in  
Hong Kong and Pearl River Delta Economic Zone**

Pollutant	Unit Type	Permitted Pollutant Emission Limits				
		PRD Economic Zone			HKSAR (2007)	
		Phase <sup>#</sup>	Year 2007 concentration (mg/m <sup>3</sup> ) <sup>@</sup>	Year 2010 concentration (mg/m <sup>3</sup> ) <sup>@</sup>	concentration (mg/m <sup>3</sup> ) <sup>@</sup>	cap (tonnes/yr)
Sulphur Dioxide	Coal-fired	Phase I	2,100	1,200	191 <sup>(4)</sup> -2,100	73,500
		Phase II	2,100 1,200 <sup>(3)</sup>	400 1,200 <sup>(3)</sup>		
		Phase III	400	400		
	Oil-fired	Phase I	2,100	1,200	110-290	
		Phase II	2,100 1,200 <sup>(3)</sup>	400 1,200 <sup>(3)</sup>		
		Phase III	400	400		
Gas-fired	-	No national standard for the time being, but the actual level should be low	No national standard for the time being, but the actual level should be low	5-10		
Nitrogen Oxides	Coal-fired	Phase I	1,100-1,500	1,100-1,500	411 <sup>(5)</sup> -1,500	47,400
		Phase II	650-1,300	650-1,300		
		Phase III	450-1,100	450-1,100		
	Oil-fired	Phase I	650	650	150-185	
		Phase II	400	400		
		Phase III	200	200		
Gas-fired	Phase III	Oil-fired: 150 Gas-fired:80	Oil-fired:150 Gas-fired:80	Gas-fired: 90		
Particulates	Coal-fired	Phase I	300 <sup>(1)</sup> 600 <sup>(2)</sup>	200	50-125	2,230
		Phase II	200 <sup>(1)</sup> 500 <sup>(2)</sup>	50 100 <sup>(3)</sup>		
		Phase III	50 100 <sup>(3)</sup>	50 100 <sup>(3)</sup>		
	Oil-fired	Phase I	200	100	10-12	
		Phase II	100	50		
		Phase III	50	50		

	Gas-fired		No national standard for the time being, but the actual level should be low	No national standard for the time being, but the actual level should be low	5	
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- i) For generating units completed for operation before 1 January 1997 or projects involving newly-built thermal power plants, extension or alteration of the thermal power plants with the environmental impact assessment report (“EIA report”) approved before 1 January 1997, Phase I Target will be adopted.
  - ii) For projects involving newly-built thermal power plants, extension or alteration of the thermal power plant with the EIA report approved between 1 January 1997 and 31 December 2003, if construction work has not yet commenced on 1 January 2004 and one year has elapsed after the date of approval, Phase III Target will be adopted. For other projects, Phase II Target will be adopted.
  - iii) For projects involving newly-built thermal power plants, extension or alteration of thermal power plants with the EIA report approved after 1 January 2004, Phase III Target will be adopted.

@- Reference conditions: 273 K (temperature) and 101 kPa (pressure)

- (1)- Generating units which is installed in developed and planned districts at county-level cities or above shall comply with this standard.
- (2)- Generating units which is installed outside developed and planned districts at county-level cities or above shall comply with this standard.
- (3)- Units with desulphurization system of which the EIA report has been approved before 1 January 2004 need to implement this standard.
- (4)- Removal efficiency of desulphurization system should be at or above 90%.
- (5)- Removal efficiency of low nitrogen oxides burner should be at or above 60%.

**Eligibility Criteria for Power Plants in Pearl River Delta Region  
to Participate in Pilot Scheme**

The Guangdong Provincial Government and the Hong Kong Special Administration Region (“HKSAR”) Government will allow power plants/power companies meeting the following criteria to participate in the “Emissions Trading Pilot Scheme for Thermal Power Plants in the Pearl River Delta Region” (“the Pilot Scheme”) –

1. Power plants/power companies with generating units in the Pearl River Delta (“PRD”) Region\* using coal, oil or natural gas as the principal fuel may participate in the Pilot Scheme.
2. The power plants/power companies should have at least one single generating unit with capacity at or above 100 MW and are already in compliance with the environmental requirements stipulated in local laws and regulations (including the emission permit, emission performance stipulated in the power plant licence<sup>#</sup> under the local environmental laws and regulations, and the statutory environmental assessment process). The generating units concerned should also have a plan to install or have already installed emission reduction facilities committed before the end of 2005.
3. Generating units involved should have met or will meet the emission monitoring requirements set down in the Pilot Scheme.

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\* The PRD Region includes HKSAR and the PRD Economic Zone in the Guangdong Province.

<sup>#</sup> “Power plant licence” refers to the Specified Process Licence issued to power plants under the Air Pollution Control Ordinance of Hong Kong.



## **Participation of PRD Power Plants in the Pilot Scheme**

### **Principles for Determining Base Emission Target**

In examining the application of a PRD power plant submitted under the Pilot Scheme, the respective governments of the trading parties would determine the base emission target of the power plant by considering factors in the following order of priority –

1. The annual emission cap allocated by the local government under the principle of total emission control.
2. The annual emission cap specified in the power plant licence<sup>#</sup> or emission permit.
3. Where the annual emission cap for a power plant in the PRD Economic Zone of the Guangdong Province is estimated by means of the Generation Performance Standard (“GPS”), the calculation will be as follows –
  - a. Select the appropriate GPS set out in **Tables 1 to 3** according to the specific condition of the respective generating unit –
    - i. For generating units completed for operation before 1 January 1997 or projects involving newly-built thermal power plants, extension or alteration of the thermal power plants with the environmental impact assessment report (“EIA report”) approved before 1 January 1997, Phase I Target will be adopted.
    - ii. For projects involving newly-built thermal power plants, extension or alteration of the thermal power plant with the EIA report approved between 1 January 1997 and 31 December 2003, if construction work has not yet commenced on 1 January 2004 and one year has elapsed after the date of approval, Phase III Target will be adopted. For other projects, Phase II Target will be adopted.

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<sup>#</sup> “Power plant licence” refers to the Specified Process Licence issued to power plants under the Air Pollution Control Ordinance of Hong Kong.

- iii. For projects involving newly-built thermal power plants, extension or alteration of thermal power plants with the EIA report approved after 1 January 2004, Phase III Target will be adopted.
  
- b. To obtain the air pollutant emission target of a generating unit, multiply the installation capacity of the unit by the actual operating hours and further by GPS. The respirable suspended particulates emission target is determined by converting the emission target for particulate matters using the “total emission calculation method”.
  
- c. The sum of emission targets of all generating units included in the emission reduction plan will give the base emission target of the power plant under that particular emission reduction plan.

**Table 1: GPS for Calculating Total Sulphur Dioxide Emission of Thermal Power Generating Unit**

Phase	Principal Fuel	Generation Performance Standard G (g/kWh)			
		Year 2008-2009	Year 2010-2014	Year 2015-2019	Year 2020 and after
Phase I	Coal	5.5	4.5	3.5	2.0
	Fuel Oil	4.7	3.8	3.0	1.7
Phase II	Coal	4.0	1.6	1.6	1.6
	Fuel Oil	3.4	1.4	1.4	1.4
Phase III	Coal	0.7			
	Fuel Oil	0.6			

**Table 2: GPS for Calculating Total Nitrogen Oxides Emission of Thermal Power Generating Unit**

Phase	Principal Fuel		Generation Performance Standard G (g/kWh)	
			Year 2008 -2019	Year 2020 and after
Phase I	Coal	$V_{daf} < 10\%$	3.9	2.5
		$V_{daf} \geq 10\%$	2.9	1.8
	Fuel Oil		1.5	0.9
Phase II	Coal	$V_{daf} < 10\%$	2.5	
		$V_{daf} \geq 10\%$	1.2	
	Fuel Oil		0.6	
Phase III	Coal	$V_{daf} < 10\%$	1.9	
		$10\% \leq V_{daf} \leq 20\%$	1.1	
		$V_{daf} > 20\%$	0.8	
	Fuel Oil		0.3	

Note:  $V_{daf}$  – Volatile Matter (dry ash-free basis)

**Table 3: GPS for Calculating Particulate Matters Emission of Thermal Power Generating Unit**

Phase	Principal Fuel	Generation Performance Standard G (g/kWh)			
		Year 2008-2009	Year 2010-2014	Year 2015-2019	Year 2020 and after
Phase I	Coal	0.79	0.75	0.58	0.33
	Fuel Oil	0.45	0.32	0.25	0.14
Phase II	Coal	0.38	0.20	0.20	0.20
	Fuel Oil	0.16	0.16	0.16	0.14
Phase III	Coal	0.09			
	Fuel Oil	0.08			

- The annual emission cap or total emission control levels specified in the statutory EIA report.