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LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS

Progress of Measures to Improve Air Quality, Including Those Taken By The Two Power Companies to Meet The Government's Emission Reduction Targets by 2010

Purpose

This paper reports to Members the latest progress of measures to improve air quality, including those taken by the two power companies, to meet the Government's emissions reduction targets by 2010.

Background

2. To improve regional air quality, the Hong Kong SAR Government reached a consensus with the Guangdong Provincial Government in April 2002 to reduce, on a best endeavours basis, the emission of four major air pollutants, namely sulphur dioxide (SO_2), nitrogen oxides (NO_x), respirable suspended particulates (RSP) and volatile organic compounds (VOC) by 40%, 20%, 55% and 55% respectively in the region by 2010, using 1997 as the base year. Achieving these targets will not only enable Hong Kong to meet its air quality objectives but also significantly improve the air quality of the Pearl River Delta and relieve the regional smog problem.

3. On 29 September 2005, we informed Members of the progress of measures being pursued by both sides for meeting the 2010 emission reduction targets. At the meeting, Members requested the Administration to provide six-monthly reports on the progress of the 2010 emission reduction targets and measures taken by the two power companies to meet the emissions reduction targets.

Progress of Reducing Emissions In Hong Kong

4. To fully achieve the 2010 emission reduction targets, the following additional emissions reduction measures are being pursued –

(a) tightening the motor petrol standard to Euro IV with effect from 1 January 2005;

(b) requiring the installation of vapour recovery systems for vehicle refuelling at petrol filling stations from 31 March 2005;

(c) preparing for the introduction of Euro IV emission standards to newly registered vehicles in 2006;

(d) requiring the power companies to take measures to reduce emissions and increase the use of natural gas in electricity generation; and

(e) introducing a scheme to control VOC emissions from selected products.

5. Hong Kong has achieved good progress in reducing the total emissions of NO_x, RSP and VOC. For SO_2, however, much of the effort has been vitiated by the increase in emissions from the power plants. Details are presented in the table below–

Table: Progress in Achieving the 2010 Emissions Reduction Target

	Emission Level in 1997 (tonnes)	**Emission Level in 2004 (tonnes)**	**Changes in Emission Level during 1997-2004**	**Reduction Target for 2010**
SO_2	64,500	94,800	+47%	-40%
NO_x	110,000	92,500	-16%	-20%
RSP	11,200	8,040	-28%	-55%
VOC	54,400	41,900	-23%	-55%

6. Electricity generation remains the biggest source of air pollution in Hong Kong. It accounts for 92% of the SO_2 and half of the NO_x and RSP emissions. Therefore, to achieve the 2010 emissions reduction targets and sustained improvement in our air quality, the power companies must substantially reduce their emissions.

7. On 12 October 2005, in his Policy Address, the Chief Executive reiterated the Government's commitment to achieve the 2010 emissions reduction targets. We have asked the power companies to accelerate the timing of emissions reduction projects, increase the use of ultra-low sulphur coal and use natural gas for power generation as much as possible. In addition, the Environmental Protection Department (EPD) is progressively tightening the

emission caps upon the renewal of the power companies' Specified Process Licences (SPLs) issued under the Air Pollution Control Ordinance, to ensure that the 2010 emission reduction targets are achieved. A set of emission caps has already been imposed on the Castle Peak Power Station of China Light & Power (CLP) since 1 August 2005. As from 1 January 2006, emission caps have also been imposed onto Black Point Power Station similarly through renewal of the SPL.

8. The 2005 Policy Address has stated that in formulating the Scheme of Control Agreements (SCAs) between the Government and the two power companies which will expire in 2008, the Government will require the power companies to install effective emission reduction facilities to achieve emission reduction targets, as a precondition for licensing. In addition, the Government will explore options to avoid the costs of installing emission reduction facilities being passed onto consumers as far as possible.

9. In the Stage II "Consultation Paper on Future Development of the Electricity Market in Hong Kong" issued on 30 December 2005, we have proposed that the permitted rate of return on all fixed assets of the power companies be linked to their achievement of the emission caps stipulated in the SPLs, and reduced if they do not achieve the emission caps. As a corollary, financial incentives in the form of "bonus" returns will be provided to encourage the power companies to reduce their emissions to levels below those required in the SPLs.

10. We have also proposed that all capital expenditure for emission reduction facilities will be subject to the lowest rate of return. This approach retains the incentives for the power companies to invest in such facilities to help achieving the emissions reduction targets, while lessening the financial burden on consumers. Together with other issues contained in the consultation paper, the Economic Development and Labour Bureau is collecting views and comments on these proposals by 31 March 2006.

Progress of Emissions Reduction Measures by the Power Companies

CLP

11. CLP has been continuing their efforts to take forward their emission reduction strategy and has indicated that the timely completion of their Liquefied Natural Gas (LNG) receiving terminal will contribute favourably to achieving the 2010 emissions reduction targets. Progress of specific measures of CLP is summarized below –

(a) Retrofit Projects

CLP submitted their application for an environmental impact assessment (EIA) Study Brief for the retrofit of flue gas desulphurization (FGD) and selective catalytic reduction (SCR) in their Castle Peak Power Station on 28 September 2005. In response, EPD issued an EIA Study Brief on 31 October 2005 and is awaiting the submission of EIA Report by CLP. CLP has also awarded a contract to an engineering firm for front-end engineering work and commenced geotechnical and other survey work in November 2005 as well as started discussions with District Lands Office on land-related issues. In addition, CLP is continuing to pursue opportunities to improve the project schedule.

(b) Use of Clean Coal

CLP will reduce their emissions by increasing the use of Envirocoal with an ultra-low sulphur content of 0.1%. By 2007, Envirocoal will account for about one-third of CLP's coal portfolio and reduce the average sulphur content from the current level of 0.46% in 2004 to about 0.3%. This will enable the Castle Peak Power Station to cut SO_2 emissions by one third.

(c) LNG Receiving Terminal

CLP submitted an application for EIA Study Brief for their proposed LNG terminal in Hong Kong on 13 May 2005. In response, EPD issued an EIA Study Brief on 23 June 2005 and is awaiting the submission of an EIA Report from CLP. The project will involve the construction and operation of an LNG receiving terminal and its associated facilities at either the South Soko Island or Black Point in Tuen Mun. CLP is now briefing stakeholders on the project and the site options.

HEC

12. The Hong Kong Electric Company (HEC) has made the following major progress:

(a) Retrofit Projects

HEC has reviewed the FGD retrofit programme and advised that the commissioning date of the second FGD can be advanced by three

months to April 2010. HEC will continue to explore the possibilities of optimization and acceleration of the projects so that the environmental benefit can be fully realised by 2010.

HEC has submitted their application for an EIA Study Brief for the retrofit of Units 4 and 5 of Lamma Power Station on 21 September 2005 and the Study Brief was issued under the EIA Ordinance on 26 October 2005. Accordingly, an EIA Report was submitted on 23 December 2005. EPD is currently reviewing the application and will decide if the Report meets the requirements of the Study Brief and technical memorandum before 20 February 2006.

(b) Use of Natural Gas

The extension of Lamma Power Station of HEC has been granted an environmental permit for installation of six gas-fired units. The first gas-fired unit, L9, is scheduled for commissioning in 2006. Furthermore, an existing oil-fired peak lopping unit will be converted to gas-fired when natural gas is available in 2006.

Emissions Trading

13. Emissions trading is an effective market-based tool aiming to achieve the emissions reduction at a minimum cost while providing flexibility to the power companies in the selection of reduction strategies and management of reduction plans. The Government has proposed emissions trading as an optional measure for CLP and HEC to achieve their 2010 reduction targets.

14. To facilitate discussions on matters relating to setting up an emissions trading pilot scheme between power plants in Hong Kong and the PRD area, a Joint Task Force with members from CLP, HEC and EPD was formed in end 2005.

Cooperation with the Mainland

15. At the Sixth Meeting of the Hong Kong–Guangdong Joint Working Group on Sustainable Development and Environmental Protection (JWG) held on 20 December 2005, the two sides noted that there had been significant progress in implementing the Pearl River Delta (PRD) Regional Air Quality Management Plan (the Management Plan) during 2005.

16. Since 30 November 2005, the Regional Air Quality Monitoring Network jointly established under the Management Plan had been formally

commissioned and the PRD Regional Air Quality Index published on a daily basis. The enhanced control measures under the Management Plan were well on schedule. Moreover, the two sides exchanged ideas and know-how on air quality monitoring, air emissions inventory compilation, preventive measures on vehicles emissions and continuous emissions monitoring of stationary pollution sources.

17. The JWG have agreed to include additional measures in the Management Plan. They include introducing emission caps for the power plants in Hong Kong, tightening control over pollutant emissions from major pollution sources in the PRD, studying the feasibility of advancing the implementation of more stringent motor vehicle emission standards in Mainland cities, and stepping up regular inspection of in-use motor vehicles. The two governments will also strengthen exchanges and co-operation on continuous emissions monitoring of stationary pollution sources and enhance the reliability of the systems on both sides and the comparability of data. The progress of enhanced control measures of the HKSARG and the Guangdong Provincial Government is set out in **Annexes A and B** respectively.

18. In 2006, the major tasks under the Management Plan include the following –

(a) On combating air pollution from the power generation industry, Phase I construction of the liquefied natural gas (LNG) trunk pipeline in Guangdong Province will be completed in 2006 and a number of LNG power plants are expected to be commissioned in phases. This will substantially reduce the PRD's reliance on the more polluting fuel oil and coal. Moreover, existing oil-fired and coal-fired power plants in Guangdong Province will continue to install flue gas desulphurization systems;

(b) On controlling emissions from motor vehicles, the Guangdong Provincial Government will strive to advance the implementation of National III motor vehicle emission standards (on a par with Euro III ones) in PRD cities while Hong Kong will implement Euro IV motor vehicle emission standards in line with the EU in 2006;

(c) The data collected by the Regional Air Quality Monitoring Network will be analysed by the environmental protection authorities of the two governments. A regional air quality monitoring report will be submitted on a half-year basis, providing the public with more information on the air quality in the PRD;

(d) The environmental protection authorities of the two governments will continue to strengthen technical exchanges and joint studies, especially on continuous emissions monitoring of stationary pollution sources and commissioning studies on regional air pollution on a need basis; and

(e) Details of the Emission Trading Pilot Scheme for Thermal Power Plants in the PRD Region being jointly developed by the two sides are expected to be finalised by mid-2006. Subject to agreement of the two governments, details will be presented to the power plants in Hong Kong and Guangdong in the third quarter of 2006 so that prospective participants can identify their trading partners and draw up emission trading agreements.

A summary of the 2006 Action Plan is in **Annex C**.

Education and Public Participation

19. Education and public participation are very important for the successful control of air pollution. On this, some of the recent programmes are highlighted below –

(a) The Government will continue to appeal to drivers to exercise self-discipline by switching off idling engines through promotional and educational activities. The Government Logistics Department has already issued a circular reminding all government drivers to switch off engines while waiting;
(b) The voluntary initiative of "Clean Air Charter" by the business community will contribute usefully to Hong Kong's clean air efforts by reducing energy consumption. Recently, the Federation of Hong Kong Industries has also launched the One Factory-One Year-One Environmental Project campaign to promote cleaner production;
(c) The Government has been actively promoting energy saving to the public by raising the air-conditioned room temperate from 22.5 °C to 25.5 °C. As undertaken in the Policy Address, the Government will set an example by cutting its electricity consumption at office buildings by 1.5% annually.

Environmental Protection Department
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