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**Panel on Environmental Affairs**

**Subcommittee on Improving Air Quality**

**Meeting on 28 January 2011**

**Updated background brief on the  
Pearl River Delta Regional Air Quality Management Plan  
(Position as at 24 January 2011)**

**Purpose**

This paper sets out the Pearl River Delta Regional Air Quality Management Plan, and gives a brief account of the views and concerns expressed by the Panel on Environmental Affairs (the Panel) and its Subcommittee on Improving Air Quality (the Subcommittee).

**Introduction**

2. Air quality in Hong Kong is typical of any large modern city. High concentrations of particulates and nitrogen oxides (NO<sub>x</sub>) in the urban areas are the most pressing problems, causing a nuisance and constituting a health concern. The problems are compounded by a combination of factors, including high population density, high-rise buildings that hinder or prevent circulation of air at street level, and a high concentration of vehicles, especially diesel vehicles, at urban roadside, as well as ambient air pollution in the Pearl River Delta (PRD) Region.

**Pearl River Delta Regional Air Quality Management Plan**

3. To improve the air quality of the whole PRD Region, the Environmental Protection Department and the Environmental Protection Bureau of Guangdong conducted a joint study on regional air quality during 1999-2002. The aim of

the study is to analyze the relative significance of different industrial and commercial sources of pollution and their direct and indirect impacts on regional air quality so that air pollution measures can be prioritized accordingly. According to the findings of the study, the economy, population, electricity demand and vehicle mileage in the PRD Region will grow by 150%, 20%, 130% and 180% respectively from 1997 to 2010. In terms of total emissions, Hong Kong accounts for about 5% to 20% of regional air pollution while the PRD Economic Zone of the Mainland accounts for 80% to 95%. Given the continuous economic growth of the PRD Region, the extensive pollution in the region cannot be mitigated effectively with the existing improvement measures implemented by the two governments. To this end, the Hong Kong Special Administrative Region Government (HKSARG) and the Guangdong Provincial Government (GPG) reached a consensus in April 2002 to reduce by 2010, on a best endeavour basis, the regional emissions of sulphur dioxide (SO<sub>2</sub>), NO<sub>x</sub>, respirable suspended particulates (RSP) and volatile organic compounds (VOC) by 40%, 20%, 55% and 55% respectively, using 1997 as the base year. In December 2003, the two governments jointly drew up the Pearl River Delta Regional Air Quality Management Plan (the Management Plan) with a view to meeting the emission reduction targets. The Pearl River Delta Air Quality Management and Monitoring Special Panel (Special Panel) was also set up under the Hong Kong/Guangdong Joint Working Group on Sustainable Development and Environmental Protection to follow up on the tasks under the Management Plan.

### **Progress of emission reduction**

4. Details of the emission levels of all the four major pollutants as at the end of December 2010 are as follows –

	<b>Emission Level in 1997 (Tonnes)</b>	<b>Change in Emission Level during 1997-2008<sup>1</sup></b>	<b>Emission Reduction Target for 2010</b>
SO <sub>2</sub>	66 200	-13%	-40%
NO <sub>x</sub>	124 000	-29%	-20%
RSP	11 500	-54%	-55%
VOC	68 800	-50%	-55%

The Administration expects that the SO<sub>2</sub> emissions from the power sector will continue to drop in the run up to 2010 as the two local power companies are on

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<sup>1</sup> The percentage changes in emission levels between 1997 and 2008 are preliminary figures.

track for retrofitting their coal-fired power generation units with flue gas desulphurization (FGD) facilities in stages.

5. Details of the latest progress of the emission reduction measures implemented by both HKSARG and GPG under the Management Plan are set out in Annexes A to E to LC Paper No. CB(1) 750/09-10(01), which are hyperlinked below for ease of reference.

### **Deliberations by the Panel and the Subcommittee**

6. The Panel has been closely monitoring the progress in mitigating regional air pollution. Panel members consider that the problem cannot be resolved by HKSARG alone since the air quality of Hong Kong is increasingly affected by the rapid economic and industrial development in the PRD Region. They are also not optimistic that the emission reduction targets can be met because many industrial activities in the Mainland do not abide by the environmental laws. As such, members consider it necessary for the Special Panel to discharge its duty to follow up on the tasks under the Management Plan. The Administration should also explain to the public the bases upon which the emission reductions targets were arrived at and the means to achieve these targets. More scientific methods, such as satellite mapping and remote sensing, should be used to forecast pollution and to trace the pollution sources more accurately to enhance control. To keep track of the progress of achievement of the 2010 emission reduction targets, the Administration has been requested to provide biannual reports to the Panel on the progress of meeting the 2010 emission reduction targets since September 2005. The subject matter has been taken up by the Subcommittee since its formation in December 2008.

7. In January 2008, the Panel received a briefing on the Mid-term Review of the Management Plan, which revealed that the economy, population, electricity consumption and vehicle mileage in the PRD Economic Zone would increase by 509%, 56%, 158% and 319% respectively in 2010 as compared to the 1997 levels, far exceeding the assumptions in 2002. While the findings suggested that Hong Kong was on track to achieve the 2010 emission reduction targets, there was a need for the Guangdong side to introduce additional measures to meet the targets.

8. When the ninth progress report was discussed at the Subcommittee in January 2010, members questioned how the 2010 emission reduction targets could be achieved given that the emission level of SO<sub>2</sub> was way behind schedule. They also enquired about the consequences in the event of failure to achieve the reduction targets. According to the Administration, it was confident that the 2010 emission reduction targets could be fully achieved since the emissions of NO<sub>x</sub>, RSP and VOC had been reduced to an extent close to or

even exceeding the reduction targets. Since the power sector was the major emission source accounting for nearly 90% of the local emissions, the Administration had imposed stringent emission caps in the specified licences of the power plants in order to achieve the 2010 emission reduction target for SO<sub>2</sub>. From 2010, the total SO<sub>2</sub> emissions of the power generation sector would not exceed 25 120 tonnes a year. Should any power company breach the respective emission cap, it would be liable to a fine of \$30,000 for each tonne of excessive emission upon first conviction, and a fine of \$60,000 for each tonne of excessive emission on a second or subsequent conviction as well as imprisonment for six months. Moreover, the power company's rate of return could be reduced by 0.2 or 0.4 percentage points for emitting more pollutants than permitted under the Scheme of Control Agreement. In this connection, the two power companies had been undertaking SO<sub>2</sub> abatement measures to fulfill the statutory emission requirements. The CLP Power Company Limited was retrofitting its four coal-fired generating units with FGD facilities, two of which would be completed in 2010 with the rest in 2011. On the other hand, The Hongkong Electric Company Limited had been retrofitting three more coal-fired generating units with FGD facilities, one of which was completed and had been in operation since July 2009 with the remaining retrofit to be completed in mid-2010. Both power companies would also increase the use of natural gas for power generation with a view to meeting the SO<sub>2</sub> emission cap in 2010.

### **Latest development**

9. The Administration proposes to brief members on the latest progress of measures under the Management Plan at the Subcommittee meeting on 28 January 2011.

### **Relevant papers**

Information papers provided by the Administration for the Environmental Affairs Panel meeting on 29 September 2005

<http://www.legco.gov.hk/yr04-05/english/panels/ea/papers/ea0929cb1-2253-1-e.pdf>

<http://www.legco.gov.hk/yr04-05/english/panels/ea/papers/ea0929cb1-2304-7-e.pdf>

Information papers provided by the Administration for the Environmental Affairs Panel meeting on 23 January 2006

<http://www.legco.gov.hk/yr05-06/english/panels/ea/papers/ea0123cb1-725-4-e.pdf>

<http://www.legco.gov.hk/yr05-06/english/panels/ea/papers/ea0123cb1-2142-1-e.pdf>

Information papers provided by the Administration for the Environmental Affairs  
Panel meeting on 27 November 2006

<http://www.legco.gov.hk/yr06-07/english/panels/ea/papers/ea1127cb1-331-12-e.pdf>

Information papers provided by the Administration for the Environmental Affairs  
Panel meeting on 22 January 2007

<http://www.legco.gov.hk/yr06-07/english/panels/ea/papers/ea0122cb1-742-13-e.pdf>

Information papers provided by the Administration for the Environmental Affairs  
Panel special meeting on 28 March 2007

<http://www.legco.gov.hk/yr06-07/english/panels/ea/papers/ea0328cb1-1201-9-e.pdf>

Information papers provided by the Administration for the Environmental Affairs  
Panel meeting on 28 January 2008

<http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0128cb1-647-15-e.pdf>

Information papers on progress of measures to improve air quality provided by  
the Administration

<http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/eacb1-2176-1-e.pdf>

Information papers provided by the Administration for the Subcommittee on  
Improving Air Quality meeting on 13 January 2009

[http://www.legco.gov.hk/yr08-09/english/panels/ea/ea\\_iaq/papers/ea\\_iaq0113cb1-531-1-e.pdf](http://www.legco.gov.hk/yr08-09/english/panels/ea/ea_iaq/papers/ea_iaq0113cb1-531-1-e.pdf)

Information papers on progress of measures under Pearl River Delta Regional  
Air Quality Management Plan to achieve 2010 emission reduction targets  
provided by the Administration

<http://www.legco.gov.hk/yr08-09/english/panels/ea/papers/eacb1-2437-1-e.pdf>

Information papers provided by the Administration for the Subcommittee on  
Improving Air Quality meeting on 4 January 2010

[http://www.legco.gov.hk/yr09-10/english/panels/ea/ea\\_iaq/papers/ea\\_iaq0104cb1-750-1-e.pdf](http://www.legco.gov.hk/yr09-10/english/panels/ea/ea_iaq/papers/ea_iaq0104cb1-750-1-e.pdf)

Information papers on progress of measures under Pearl River Delta Regional  
Air Quality Management Plan to achieve 2010 emission reduction targets  
provided by the Administration

<http://www.legco.gov.hk/yr09-10/english/panels/ea/papers/eacb1-2690-1-e.pdf>