

**Pearl River Delta Regional Air Quality Management Plan
Work Progress up to early 2006**

Enhanced Control Measures of the HKSARG

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Encourage the replacement of diesel light buses with cleaner fuel ones	Since 2002, the Government has offered incentives to public light bus owners to encourage replacement of diesel light buses with liquefied petroleum gas (LPG) or electric ones.	<p>The incentive scheme was introduced in August 2002 and completed by 31 December 2005.</p> <p>Up to end of May 2006, there were 2,409 public LPG light buses, 140 private LPG light buses and one electric light bus.</p> <p>Between January 2006 and end May 2006, around 70% of the newly registered public light buses were LPG models.</p>
Require the retrofitting of particulate removal devices on pre-Euro diesel vehicles	Since 2002, financial assistance has been provided for retrofitting pre-Euro heavy diesel vehicles with particulate removal devices.	<p>Financial assistance was provided in phases from December 2002 to December 2005 to retrofit catalytic converters to pre-Euro heavy diesel vehicles. All together, about 36,500 eligible vehicles were installed.</p> <p>Since April, pre-Euro heavy diesel vehicles (including franchised buses) are required to be installed with approved emission reduction devices except those required to operate their on-board equipment under long idling situations (including lorries with cranes mounted, concrete mixers, pressure tankers and gully emptiers). The HKSARG intends to extend the requirement to these remaining pre-Euro heavy diesel vehicles.</p>
Enhance the vapour recovery systems in petrol filling stations	Legislation requiring the recovery of petrol vapour emitted during vehicle refueling at petrol filling stations was introduced in 2003/04.	The Regulation came into effect on 31 March 2005.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Tighten motor fuel standards	Motor fuel standards will be tightened to Euro IV by 2005 (motor diesel standard has already been tightened to Euro IV since 2002).	Euro IV motor fuel standards came into effect on 1 January 2005.
Tighten tailpipe emission standards	To adopt Euro IV standards for tailpipe emissions from 2006.	Euro IV standards already introduced on 1 January 2006 for light –duty vehicles, and will be introduced on 1 October for heavy-duty vehicles.
	To be in line with EU in adopting Euro V standards for tailpipe emissions.	(New item included in December 2005) To be in line with EU to adopt Euro V standards for tailpipe emissions.
Reduce VOC emissions from the printing process, paints and consumer products	Phase I : To introduce legislation in 2004 or 2005 to require labeling of VOC-containing products.	During the public consultation held in September 2004 and subsequent discussions with stakeholders, members of the trade generally agreed to advance Phase II and impose direct limits on the VOC content of VOC products at an earlier date. Law drafting work is underway and we aim to table the legislation to LegCo in 2006. All VOC-containing products under control will be subject to the statutory limits in phases with effect from 2007 onwards.
	Phase II: To introduce legislation in phases to reduce the use of products with high VOC contents and to impose emission standards for the printing process.	

Measures	Implementation Programme	Progress (Up to 31.5.2006)
<p>Reduce emissions from power stations</p>	<p>Effective and flexible mechanisms (which may include emissions trading) will be set up to control the total emissions of SO₂, NO_x and RSP from power stations to achieve respective reduction targets by 2010.</p>	<p>The emissions reduction options set out in the financial plans of the two power companies were approved by the Government in June 2005. CLP Power Hong Kong Limited will provide desulphurization and de-NO_x systems for four of its coal-fired generating units each of 677MW. Hong Kong Electric Co. Ltd. will provide low-NO_x burners and desulphurization systems for two of its coal-fired generating units each of 350MW.</p> <p>In order to achieve the 2010 emissions reduction targets, the Government will gradually tighten up the total emissions caps upon the issue of Specified Process Licenses (SPLs) under the Air Pollution Control Ordinance. The two power companies are expected to consider options, including the speeding up the emissions reduction projects and participation in emissions trading etc., to achieve these targets.</p> <p>CLP have been increasing the use of ultra low sulphur coal and is seeking to increase natural gas supply through the development of liquefied natural gas facilities.</p> <p>HEC will commission its first natural gas generation unit of 300MW around July 2006. It also commissioned the first commercial scale wind turbine of 800kW in Hong Kong in February 2006.</p>

Measures	Implementation Programme	Progress (Up to 31.5.2006)
	Introduce caps on total emissions from power plants.	Emission caps have been included in the SPLs granted to CLP's Castle Peak Power Station and Black Point Power Station respectively on 1 August 2005 and 1 January 2006. Similar emission caps will be imposed on HEC in licensing their L9 and upon their main licence renewal. EPD will continue to impose emission caps on power plants upon licence renewals with a view to reducing emissions to the practical minimum and achieving the 2010 reduction targets.

**Pearl River Delta Regional Air Quality Management Plan
Work Progress up to early 2006**

Enhanced Control Measures of the Guangdong Provincial Government

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Use cleaner energy	To reduce gradually the energy consumption per 10000 Yuan GDP. To establish by 2010 a diversified energy production and supply system that is safe, stable, economical, efficient and clean.	<p>The 500KV grid for transmitting electricity from the western provinces was completed on schedule. The Guangdong Liquefied Natural Gas (LNG) Project is being constructed according to plan. The construction of a number of major electric power sources and clean energy programmes is being speeded up.</p> <p>To reduce reliance on more polluting fuel like coal and oil, Guangdong is developing two new natural gas projects apart from the Guangdong LNG Project –</p> <ul style="list-style-type: none">(a) CNOOC Zhuhai Natural Gas Pipeline Project, with a capacity of 1.19 million tonnes/year, utilizes natural gas from the South China Sea since February 2006; and(b) Zhuhai LNG Receiving Station Project, with a capacity of 3 million tonnes/year for Phase I, is expected to be commissioned partially by 2010. <p>Zhongshan Hengmen Power Plant and Zhuhai Hongwan Power Plant have been converted to use natural gas as fuel since February 2006.</p>

Measures	Implementation Programme	Progress (Up to 31.5.2006)
	<p>To construct natural gas trunk pipeline and the associated works. To complete Phase I in 2005 that will have a capacity of 3 million tonnes/year. In 2009, to complete Phase II that will increase the total capacity to 6 million tonnes/year and finish construction of a number of natural gas power plants.</p>	<p>The capacity of Guangdong LNG Project Phase I has been expanded from 3 million tonnes/year to 3.7 million tonnes/year. The total capacity for Phase II will be expanded to 7 million tonnes/year. The first shipment of LNG of Phase I arrived Dapeng receiving station on 26 May. It is expected to start supply of gas from mid-2006. Four new natural gas power plants at Daya Bay in Huizhou, Qianwan in Shenzhen, Shenzhen East and Zhujiang in Guangzhou are under construction with a total generating capacity of 4,650 MW. The generation units will be commissioned in phases starting later this year. Residents in Shenzhen, Guangzhou, Dongguan and Foshan can also use natural gas supplied through pipeline network.</p>
	<p>To improve by 2005 the 500KV dual circuit annular core transmission grid to ensure transmission of electricity from western provinces.</p>	<p>The 5 AC and 3 DC main transmission channels from western provinces have been completed.</p>
<p>Control the sulphur content of fuel</p>	<p>To control the use of high sulphur fuel (sulphur content of coal and fuel oil should be below 0.8% in the acid rain control zone by 2005).</p>	<p>Being implemented.</p> <p>By 2010, enterprises which have not installed desulphurization system would have their fuel sulphur content controlled at below 0.7% for coal and below 0.8% for fuel oil. Those not meeting the limits would need to use, sulphur fixing agents or sulphur removal agents.</p>

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Reduce emissions from coal-fired and oil-fired power stations	To phase out small-scale thermal power generating units. Power plants with a capacity above 300MW to account for over 70% of the total installed capacity in the region in 2005, which is 35% higher than that in 2000.	All small thermal power generating units with capacities equal or below 50MW to be phased out by end 2007. About 240 generating units with a total capacity of approximately 2,500 MW are involved.
	To install flue gas desulphurization systems at the power plants in Shajiao, Huangpu, Taishan and Zhuhai by 2005.	Flue gas desulphurization systems installed at Shajiao Power Plant A (Unit 5), Shajiao Power Plant C (Unit 3), Shenzhen Xibu Power Plant (Units 4 to 6), Guangzhou Hengyun Power Plant, Guangzhou Ruiming Power Plant, Guangzhou Power Plant, two boilers at Yuancun Thermal Power Plant, Guangzhou Papermaking self-use thermal plant, Taishan Power Plant (Units 1 and 2), Jiangmen Xinhui Shuangshui Power Plant and Guangzhou Huangpu Power Plant (Units 5 and 6). Flue gas desulphurization systems are being retrofitted to all other generation units.
	To require all oil-fired and coal-fired generation units of capacity above 125MW to be equipped with flue gas desulphurization systems by 2007.	
	(New item included in December 2005) To require all coal-fired and oil-fired power plants to adopt low-NO _x combustion technologies in case of alteration or expansion.	Power plants under alteration or expansion are already required to install desulphurization equipment and on-line continuous emissions monitoring system. Low-NO _x combustion technologies will be implemented at all units.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Control emissions from industrial boilers and industrial processes	To phase out coal-fired boilers with a capacity of less than 2 tonnes/hour in the urban areas of cities. By 2005, to stop using such coal-fired boilers in build-up areas of key cities. To require all large and medium-size industrial boilers to install desulphurization systems or adopt clean combustion technologies to reduce emissions.	The operation of coal-fired boilers of less than 2 tonnes/hour has been largely phased out in the urban areas of cities in the region.
	To continue phasing out various production technologies and installations that have caused serious pollution by emitting sulphur dioxide, smoke and particulates.	Programmes to phase out high energy consuming and highly polluting cement plants and vertical kilns are being implemented. The relocation project of Guangzhou Cement Plant, completed by end 2005, was estimated to reduce particulate emissions in the Region by 3,000 tonnes/year.
	(New item included in December 2005) To actively study the technologies for controlling emission of nitrogen oxides from stationary sources such as power plant boilers, industrial boilers and restaurant boiling water furnaces.	Preparatory work is being conducted.
Reduce the emission of VOC from paints	To replace by 2003 paints using VOCs with xylene as solvents.	Work completed.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
Reduce tailpipe emissions from motor vehicles	To commence the construction of a regional rapid light-rail system by 2005. To construct expressways in major cities, such as the district expressway in Southern Guangzhou and the Shenzhen-Shenping Express Trunk Road.	Phase I of Shenzhen-Shenping Express was completed in 2005. The whole expressway is expected to be commissioned in 2006. Rail system between Guangzhou and Zhuhai started construction in December 2005. The system, 144km in length with a maximum speed of 200km/hr, is expected to be completed by 2009.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
	<p>To develop green transport by implementing clean vehicle action programmes in major cities of the region. To encourage the use of clean fuels, develop electric vehicles and actively promote the use of advanced clean fuel motor vehicles.</p>	<p><u>Shenzhen</u></p> <ul style="list-style-type: none"> • Formulated the “Medium to Long Term Planning for the Development of Clean Vehicles in Shenzhen”. Drew up and implemented the 2003-2008 general work programme for the use of clean fuel in public transport vehicles. All in-use public buses will be replaced by National III vehicles by end 2006 in advance of the schedule. • All public transport vehicles must use diesel with sulphur content of less than 500 ppm. Introduction of motor diesel supply with sulphur content of less than 500 ppm. • Preparations for promoting installation of vapour recovery systems at petrol filling stations, petrol tanker trucks and storage tanks are being pursued. Work plan will be formulated for implementation in phases at selected locations from end 2006. <p><u>Guangzhou</u></p> <ul style="list-style-type: none"> • Motorcycles are prohibited from using certain road sections in the urban areas and will be banned in the urban districts from 1 January 2007. • Introduction of motor diesel with sulphur content of less than 500ppm. • Active promotion of LPG public transport and taxis. By end 2005, all modification and replacement programmes had been completed for state-owned public transport companies. By end 2006, all public buses and taxis are expected to use LPG. By February 2006, there were over 5,800 LPG public transport vehicles and more than 10,000 LPG taxis.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
	<p>To require all new motor vehicles to fully meet emission standards. To step up annual inspection and on-road spot checks of in-use vehicles. To strengthen the control of in-use vehicles to ensure that over 90% of motor vehicles in the cities within the region will meet tailpipe emission standards by 2005.</p>	<p>National II emission standards have already been adopted since 1 July 2005. Striving to adopt National III standards by end 2006.</p> <p><u>Shenzhen</u></p> <ul style="list-style-type: none"> • All newly registered public transport vehicles are already required to comply with the National III emission standards. • To establish reporting and joint investigation system for smoky vehicles. 30,000 roadside inspections would be carried out by end 2006. • To implement motor vehicles inspection / maintenance system. • Adopted a labeling system on the environmental categorization of motor vehicles. <p><u>Guangzhou</u></p> <ul style="list-style-type: none"> • To implement in-use vehicles emission standards and to introduce cycle test for motor vehicles in phases by 2007. • To establish a database for motor vehicles emissions control management for strengthening controls on motor vehicle testing industry. • To improve the measures on roadside inspection and random check of vehicles with excessive emissions. • To establish labeling system on the environmental categorization of motor vehicles. • To implement phase out programme for highly polluting motor vehicles.

Measures	Implementation Programme	Progress (Up to 31.5.2006)
	<p>(New item included in December 2005)</p> <p>To study the feasibility of advancing the implementation of the National IV emission standards for light-duty vehicles by 2010.</p> <p>To study the feasibility of advancing the implementation of the National V emission standards for heavy-duty vehicles by 2010.</p> <p>To strengthen management on regular inspections of in-use motor vehicles to make sure that the required environmental performance is met.</p>	<p>Preparatory work is being conducted.</p>

**Pearl River Delta Air Quality Management and Monitoring Special Panel
Summary of 2006 Action Plan**

Assess the Progress of the Management Plan

- Conduct at least 2 site inspections to assess the progress of implementing various measures in the Management Plan.
- Review the progress and effectiveness of the Management Plan and recommend additional measures.

Regional Air Quality Monitoring Network

- Publish on a daily basis the Regional Air Quality Index to the public.
- Submit the Monitoring Report on the PRD Regional Air Quality Monitoring Network and the Report on the Operation of the Regional Air Quality Monitoring Network in April and October 2006.
- Carry out thematic studies by making use of the data collected by the Regional Air Quality Monitoring Network, where necessary.
- Recommend and commence thematic research projects.

Regional Emissions Inventory

- Complete the 2003 PRD Regional Emissions Inventory in the first quarter.
- Complete the review and amendment of the 1997 Emissions Inventory.
- Evaluate the trend of regional emissions with reference to the audit results and draw up corresponding strategies and follow-up actions.

Enhance Technical Exchanges and Training of Personnel

- The scope of technical exchanges includes –
 - Operation of the regional monitoring network and compilation of emissions inventories;
 - Studying the feasibility of adopting National IV/V motor vehicle emission standards in the PRD Economic Zone in 2010;
 - In-use vehicles emissions inspection technologies and management;
 - Continuous emissions monitoring systems for stationary pollution sources;
 - Flue gas de-NO_x technology for thermal power plants; and
 - Emissions reduction technology for industrial pollution sources.

Emission Trading Pilot Scheme for Thermal Power Plants in the PRD Region (the “Pilot Scheme”)

- Report the study findings on the implementation details to both governments by mid-2006.
- As agreed by the two governments, details of the Pilot Scheme will be presented to the power plants in Guangdong and Hong Kong in the third quarter of 2006 so that prospective participants can identify trading partners and draw up emissions trading agreements.