Table 1

Pearl River Delta Regional Air Quality Management Plan Enhanced Control Measures of the HKSAR

Measures	Implementation Programme	Progress (Up to 30.11.2006)
Encourage the replacement of diesel light buses	Since 2002, the Government has offered incentives to diesel light	The incentive scheme was introduced in August 2002 and completed by 31 December 2005.
with ones using clean fuel (already commenced)	bus owners to encourage replacement of diesel light buses with liquefied petroleum gas (LPG) or electric ones.	Up to end of October 2006, there were a total of 2 436 public LPG light buses, 151 private LPG light buses and one electric light bus. Between January 2006 and the end of October 2006, around 80% of the newly registered public light buses were LPG models.
Require the retrofitting of particulate removal devices on pre-Euro diesel vehicles (already	Since 2002, financial assistance has been provided for retrofitting pre-Euro heavy diesel vehicles with particulate removal devices.	Financial assistance was provided in phases from December 2002 to December 2005 to retrofit pre-Euro heavy diesel vehicles with catalytic converters. All together, about 36 500 eligible vehicles were installed with catalytic converters.
commenced)		Since April 2006, all pre-Euro heavy diesel vehicles (including franchised buses), except long-idling ones were required to be installed with approved emission reduction devices.
		Legislative amendments will be introduced to require emission reduction devices to be installed on pre-Euro heavy diesel vehicles under long idling situations (including lorries with cranes mounted, concrete mixers, pressure tankers and gully emptiers) with effect from April 2007.
Encourage vehicle owners to replace pre-Euro and Euro I commercial diesel vehicles with Euro IV models	(New item included in December 2006) A financial incentive scheme will be introduced in the second quarter of 2007	Preparation work underway

Measures	Implementation Programme	Progress (Up to 30.11.2006)
Encourage members of the public to use environmentally friendly private vehicles	(New item included in December 2006) With effect from 1 April 2007, a 30% reduction in the First Registration Tax will be offered, subject to a cap of \$50,000 per vehicle	Preparation work underway
Enhance the vapour recovery systems in petrol filling stations	To introduce legislation requiring the recovery of petrol vapour emitted during vehicle refueling at petrol filling stations was in 2003/04.	The Regulation came into effect on 31 March 2005.
Tighten motor fuel standard	Motor fuel standard will be tightened to Euro IV standard by 2005 (motor diesel standard has already been tightened to Euro IV standard since 2002).	Euro IV petrol standard came into effect on 1 January 2005.
Tighten tailpipe emission standard	To adopt Euro IV standard for tailpipe emissions from 2006.	Euro IV tailpipe emission standard was introduced on 1 January and 1 October2006 respectively for light-duty vehicles not exceeding 2.5 tonnes and heavy-duty vehicles exceeding 3.5 tonnes.
	(New item included in December 2005) To be in line with EU in adopting Euro V motor vehicles standard for tailpipe emissions.	Planned to be in line with EU to adopt Euro V standard for tailpipe emissions.
Reduce VOC emissions from the printing process, paints	To introduce legislation in 2004 or 2005 to require labeling of VOC content in VOC products.	During the public consultation held in September 2004 and subsequent discussions with stakeholders, members of the trade generally agreed to advance Phase II measures and impose limits and technical requirements

Measures	Implementation Programme	Progress (Up to 30.11.2006)
and consumer products	Legislation will then be introduced in phases to reduce the use of products with high VOC contents and to impose emission standards for the printing process.	on the VOC content of VOC products at an earlier date. The Government tabled the legislation at LegCo in November 2006, which started the enactment of the regulation on controlling VOC-containing products. It is expected that all VOC-containing products under control will be subject to the statutory limits in phases with effect from April 2007 onwards. Emission control devices must be properly installed on lithographic heatset printing machines starting from 1 January 2009, to meet the new legislative requirements.
Reduce emissions from power stations	Effective and flexible mechanisms (which may include emissions trading) will be set up to control the total emissions of SO ₂ , NOx and RSP from power stations to achieve respective reduction targets by 2010.	The Government approved the emissions reduction options set out in the financial plans of the two power companies in June 2005. CLP Power Hong Kong Limited will provide desulphurization and de-NOx systems for four of its coal-fired generating units each of 677MW. Hong Kong Electric Co. Ltd. will provide low-NOx burners and desulphurization systems for two of its coal-fired generating units each of 350MW. CLP has been increasing the use of ultra low sulphur coal and is seeking to increase natural gas supply through the development of liquefied natural gas reception facilities. HEC has formally commissioned its first natural gas generation unit of 335MW in October 2006. The first commercial scale wind turbine power generation unit of 800kW was also commissioned in Hong Kong in February 2006.
	(New item included in December 2005) Control 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 as well as HEC's Lamma Power Station. Emission caps will gradually be tightened, with a view to reducing emissions to the practical minimum and achieving the 2010 reduction targets.

Table 2

Pearl River Delta Regional Air Quality Management Plan

Enhanced Control Measures of the Guangdong Provincial Government

Measures	Implementation Programme	Progress (Up to 30.11.2006)
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.	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.
		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 –
		(a) CNOOC Zhuhai Natural Gas Pipeline Project, with a capacity of about 1.19 million tonnes/year, has utilized 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.
		Zhongshan Hengmen Power Plant and Zhuhai Hongwan Power Plant have been converted to use natural gas as fuel since February 2006.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	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.	The capacity of Guangdong LNG Project Phase I has been expanded from 3 million tonnes/year to 3.7 million tonnes/year and gas supply was started in mid 2006. The total capacity for Phase II will be expanded to 7 million tonnes/year. Among the four newly built natural gas power plants, the ones in Huizhou and Shenzhen East have generating units commissioned in September and November 2006. Other generating units will be commissioned in phases later this year. Residents in Shenzhen, Guangzhou, Dongguan and Foshan can also use natural gas supplied through pipeline network.
	To improve by 2005 the 500KV dual circuit annular core transmission grid to ensure transmission of electricity from western provinces.	The 5 AC and 3 DC main transmission channels from western provinces have been completed.
	(New item included in December 2006)	Being implemented
	To rationalize the distribution of new power stations. Apart from proper construction of generating units for combined heat and power supply and those thermal power plant projects which have been reported to the State for planning and building, no more new coal-fired and oil-fired power plants will be planned for building in the PRD region.	
	(New item included in December 2006) To gradually enlarge the scale of electricity transmission from western provinces to Guangdong	
Control the	To control the use of high sulphur	Being implemented.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
sulphur content of fuel	fuel (sulphur content of coal and fuel oil should be below 0.8% in the acid rain control zone by 2005).	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.
Reduce emissions from coal-fired and oil-fired power stations	To phase out small-scale thermal power generating units. Power plants with a capacity equal or 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 regular coal-fired and oil-fired small thermal power generating units with capacities equal or below 50MW is expected to be phased out by end 2007. About 240 generating units with a total capacity of 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 have already been installed (including works pending official check and acceptance) for generating units with a capacity of around 11,000 MW, thereby reducing the annual
	To require all oil-fired and coal-fired generating units of capacity above 125MW to be equipped with flue gas desulphurization systems by 2007.	SO ₂ emission by more than 160,000 tonnes. In addition, generating units of around 4,000 MW are being retrofitted with this system. (Table 3 and Table 4)
	(New item included in December 2005)	Low-NO _X combustion technologies have already been required at all units in case of
	To require all coal-fired and oil-fired power plants to adopt low-NOx combustion technologies in case of alteration or expansion.	alteration or expansion.
	(New item included in December 2006)	
	To promote the installation of low-NOx combustion device at existing coal-fired and oil-fired power plants.	

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	(New item included in December 2006)	
	To require all power plants under construction, alteration or expansion to install desulphurization equipment, particulate removal devices and automatic continuous emissions monitoring system.	
	(New item included in December 2006)	
	To enhance technological improvements of existing power plants and to implement cleaner production. Newly built power plants have to meet the advanced standard on cleaner production in the country.	
	(New item included in December 2006) To materialize the subsidization policy for thermal power plants to desulphurize by giving concessions, support and assistance in land acquisition for desulphurization systems and import of essential equipment so as to facilitate the full	From 1 July 2006, power plants with desulphurization system receive an extra RMB 1.5 cents per unit when the electricity is sold to the power grid.
	implementation of desulphurization projects.	
	(New item included in December 2006)	
	To establish a province-wide quota administration system for total emissions of sulphur dioxide and to study the emissions trading mechanism of sulphur dioxide.	

Measures	Implementation Programme	Progress (Up to 30.11.2006)
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. Removal devices for particulates must be installed onto all industrial boilers. Restaurants located in sensitive areas and restaurants the operation of which would seriously affect public production must be installed with devices to purify cooking fumes.
	To continue phasing out various production technologies and installations that have caused serious pollution by emitting sulphur dioxide, smoke and particulates.	To implement on a mandatory basis a system to phase out enterprises, various production technologies and installations that have caused serious pollution. No construction of new cement plants and extension of cement plants will be planned in the PRD Region. Future development will focus on projects of new dry-type cement plant with daily production capacity of more than 4 000 tonnes. Projects of new dry-type rotary kiln cement plant with daily capacity of 2 500 tonnes and below will be prohibited. Programmes are being implemented to phase out high energy consuming and highly polluting cement plants, production lines of vertical kilns, dry hollow kilns, Lepol kilns and wet process kilns. The relocation project of Guangzhou Cement Plant, completed by end 2005, was estimated to reduce particulate emissions in the Region by approximately 3 000 tonnes/year.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	(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.	Emission of nitrogen oxides from stationary sources such as electricity station boilers, industrial boilers and restaurant boiling water furnaces will be under control in 2010.
	(New item included in December 2006) Location and planning of industries causing serious pollution will be strictly determined and administered centrally. The system of environmental assessment of construction projects will be enhanced.	
	(New item included in December 2006) For industrial sectors such as petrochemicals, steel, non-metallic mineral products, paper and paper products, textile and dyeing, technological improvement at existing enterprises will be enhanced and cleaner production will be implemented. New porjects have to meet the advanced standard on cleaner production in the country.	
	(New item included in December 2006) Initiate vapour recovery at petrol filling stations, tanker trucks and oil depots	Shenzhen — To begin survey and investigation and formulate working plan for implementation in phases a pilot scheme at selected locations before the end of 2006.
Reduce the emission of VOC from paints	To replace by 2003 paints using VOCs with xylene as the main solvent.	Work completed.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
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 30.11.2006)
	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, actively promote the use of advanced clean fuel motor vehicles and step up the development of public transport.	 Shenzhen 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. In accordance with "The scheme of providing financial subsidy to replace public transport vehicles with Euro III emissions standards in the City of Shenzhen in advance of the schedule", the work to encourage public transport enterprises to replace public transport vehicles with National III Emissions Standards has been actively pursued. As at October, there are 5 671 public transport vehicles complying with National III emissions standards, 4 423 of which are newly added vehicles or vehicles replaced with those complying with National III emissions standards. The remaining 1 248 vehicles have been replaced with engines complying with National III emissions standards.
		 The replacement of in-service public transport vehicles with National III emissions standards will be completed by the end of 2006 ahead of schedule. Guangzhou Active promotion of LPG public buses and taxis. By the end of 2005, all modification and replacement programmes had been completed for state-owned public transport companies. By the end of 2006, all public buses and taxis are expected to use LPG. As at November 2006, there are 6 400 LPG-driven public buses in Guangzhou, which accounts for 80% of all public buses in the city. With the exception of a small number of
	11	vehicles the service of which is due to expire, most of the 16 000 taxis in the city have by and large completed the LPG modification. - There are 26 LPG refilling stations in

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	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.	National II emission standards have been adopted since 1 July 2005. A recommended catalogue of motor vehicles complying with National III emission standards has been introduced in 1 July 2005, to encourage and support sale, import, purchase and use of motor vehicles on the catalogue Striving to adopt National III emission standards by end-2006.
		Guangzhou
		- The requirement for all newly registered vehicles to comply with the National III emission standards has been advanced to 1 September 2006.
		- Improvement is being made to the measures on roadside inspection and random check of vehicles with excessive emissions.
		Shenzhen
		- All newly registered public transport vehicles are required to comply with National III emission standards.
		- A reporting and joint investigation system for smoky vehicles is established.
		- 30 000 roadside inspections would be carried out by end-2006.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	(New item included in December 2005)	Preparatory work is being conducted.
	To study the feasibility of advancing the implementation of National IV emission standards for light-duty vehicles by 2010.	
	To study the feasibility of advancing the implementation of National V emission standards for heavy-duty vehicles by 2010.	
	(New item included in December 2005) To strengthen management on regular inspections of in-use motor vehicles to make sure that the required environmental performance is met.	The in-use motor vehicles inspection / maintenance system is progressively implemented and improved. Non-compliance motor vehicles are prohibited from using the roads.
		ShenzhenA system of inspection / maintenance is introduced.
		Guangzhou
		- To implement the in-use vehicles emission standards and to introduce the cycle test for motor vehicles by phases by 2007.
		- To establish a database for motor vehicles emissions control management for strengthening controls on motor vehicle testing industry.
		- To implement a phase out programme for highly polluting motor vehicles.

Measures	Implementation Programme	Progress (Up to 30.11.2006)
	(New item included in December 2006) To experiment a labeling system on the environmental categorization of in-use vehicles in key cities, and to regulate and restrict vehicles of certain categories using the road according to the ambient air quality.	Shenzhen – A labeling system on the environmental categorization of motor vehicles is introduced. Guangzhou – A labeling system on the environmental categorization of motor vehicles will be introduced in 2007.
, r	(New item included in December 2006) To vigorously promote the sale of motor vehicle fuel complying with National III standard in the province.	Guangdong Province has already announced the local National III standards for motor fuel in August 2006. The extension and reconstruction project of Guangzhou Sub-company, Sinopec was commissioned in 9 September 2006. The company is now capable of producing motor fuel complying with National III standard. Guangzhou — Motor fuel complying with National III standard is now provided in 41 petrol filling stations within the city, and such fuel supply will extend to all petrol filling stations in the city in 2007. Shenzhen — Motor diesel with sulphur content below 500 ppm is introduced and all public transport vehicles are required to use such type of diesel.
	(New item included in December 2006) To study ways to control the growth of motorcycles in key cities.	Guangzhou – Motorcycles are prohibited from using certain road sections in the urban areas. Starting from 1 January 2007, all motorcycles will be banned from the urban areas.

Table 3

Progress on Desulphurization Projects at Large Scale Coal-fired and **Oil-fired Thermal Power Plants in the PRD Economic Zone** (as at 30 Nov 2006)

Project	Desulphurization Capacity(MW)	Estimated Year of Completion		
Projects completed and put into operation before 2003				
Mawan Power Plant (Unit 4)	300			
Ruiming Power Plant	250			
Hengyun Power Plant (Unit 3-5 and Unit 7)	360			
Guangzhou Papermaking Plant	100			
New projects completed under the Implement	ntation Scheme of l	Desulphurization of		
Coal-fired and Oil-fired Thermal Power Plants in	Guangdong Provinc	e^1		
Mawan Power Plant (Units 5 and 6)	600			
Hengyun Power Plant (Unit 6)	210			
Taishan Power Plant (Units 1 and 2)	1200			
Shajiao Power Plant A (Units 3 to 5)	800			
Shajiao Power Plant C (Units 1 to 3)	1980			
Huangpu Power Plant (Units 5 and 6)	600			
Guangzhou Zhujiang Power Plant (Units 1 and 2)	600			
Guangzhou Power Plant	200			
Yuancun Power Plant	100			
Jiangmen Sugar Cane Chemical Factory	35			
Mawan Power Plant (Unit 3)	300			
Zhuhai Power Plant (Units 1 and 2)	1400			
New projects to be completed under the Implementation Scheme of Desulphurization of				
Coal-fired and Oil-fired Thermal Power Plants in Guangdong Province				
Shajiao Power Plant A (Units 1 and 2)	400	2006		
Shajiao Power Plant B	700	2007		
Mawan Power Plant (Units 1 and 2)	600	2007		
Nanhai Power Plant A ²	400	2007		
Guangzhou Zhujiang Power Plant (Units 3 and 4)	600	2007		
New Power Plants in Operation with Duly Equipped Desulphurization Systems				

including projects pending official check and acceptance
 Switch from oil to coal-water mixture as fuel

Project	Desulphurization Capacity(MW)	Estimated Year of Completion		
Xinhui Shuangshui Power Plant (Units 5 and 6) ³	300			
Taishan Power Plant (Units 3 to 5)	1800			
New Power Plants to be in Operation with Duly Equipped Desulphurization Systems				
Zhuhai Power Plant (Units 3 and 4)	1200	2007		

³ Using circular fluidized bed units

Table 4

Desulphurization Capacity and Estimated Emissions Reduction of the Desulphurization Projects at Large Scale Coal-fired and Oil-fired Thermal Power Plants in the PRD Economic Zone

	Desulphurization Capacity (MW)	Estimated Reduction in Emissions (tonnes/year)
Projects completed (as at 30 Nov 2006)	11,135	162,090#
Projects to be completed by 2007	3,900	46,500#
Projects in total	15,035	208,590#

[#] excluding projects for which collection of data is underway

Pearl River Delta Air Quality Management and Monitoring Special Panel Summary of 2007 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
- Continue with the completion of the mid-term review of the Management Plan
- Review the progress and effectiveness of the Management Plan and recommend new items to be included

Regional Air Quality Monitoring Network

- Publish on a daily basis the Regional Air Quality Index to the public
- Submit the Monitoring Report on the Guangdong-Hong Kong PRD Regional Air Quality Monitoring Network and the Report on the Operation of the Regional Air Quality Monitoring Network in April and October 2007
- 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

- Continue with the completion of the review and amendment of the 1997 Emissions Inventory
- Complete the audit of the 2003 Emissions Inventory and 1997 Emissions Inventory
- Commence the compilation of Emissions Inventories for the period after 2003 according to the result of the mid-term review of the Management Plan

Enhance Technical Exchanges and Training of Personnel

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

Emissions Trading Pilot Scheme for Thermal Power Plants in the PRD Region (the "Pilot Scheme")

• A newly formed Emissions Trading Management Group will assist the two governments in the implementation of the Pilot Scheme and report on its operation. The special panel will report to the expert group and the joint working group on the relevant details if and when necessary.