

For Information  
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**LEGISLATIVE COUNCIL  
PANEL ON ENVIRONMENTAL AFFAIRS  
SUBCOMMITTEE ON IMPROVING AIR QUALITY**

**Progress of Measures  
under Pearl River Delta Regional Air Quality Management Plan  
to Achieve 2010 Emission Reduction Targets**

**Purpose**

This paper reports on the latest progress of implementation of measures, including those under the Pearl River Delta (PRD) Regional Air Quality Management Plan (Management Plan), to improve air quality and meet the 2010 emission reduction targets.

**Background**

2. To improve regional air quality, the Hong Kong Special Administrative Region (SAR) Government reached a consensus with the Guangdong Provincial Government in April 2002 to reduce, on a best endeavour basis, the emissions of four major air pollutants, namely sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub>), 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 significantly help to improve the air quality of the PRD Region and relieve the regional smog problem.

3. Since September 2005, we have been providing six-monthly reports to the Panel on Environmental Affairs (EA Panel) on the progress of meeting the 2010 emission reduction targets. We last reported to the EA Panel in July 2008. This is the seventh progress report.

**Progress of Emission Reduction**

4. We are making good progress in the implementation of local emission reduction measures. Except for SO<sub>2</sub> whose emission level has increased by 3% (down from the height of 45% above the 1997 figure in 2004, and 12% above the 1997 figure in 2006) due to a rise in the use of coal in power generation in recent years, the emission levels of all other pollutants have dropped when compared with those in 1997. Details are as follows –

	<b>Emission Level in 1997 (Tonnes)</b>	<b>Change in Emission Level during 1997-2007</b>	<b>Emission Reduction Target for 2010</b>
SO <sub>2</sub>	66 200	+3%	-40%
NO <sub>x</sub>	124 000	-21%	-20%
RSP	11 500	-51%	-55%
VOC	68 800	-42%	-55%

5. As the two local power companies are retrofitting their coal-fired power generation units with flue gas desulphurization (FGD) facilities in stages, we expect the SO<sub>2</sub> emissions from the power sector to continue to drop in the run up to 2010.

## **Latest Measures to Control Emissions from Major Sources**

### ***Transport sector***

6. To further step up the local efforts in controlling emissions from the transport sector, we are rolling out the following initiatives –

- (a) after careful consideration of the views of the stakeholders, we have fine tuned the arrangements for taking forward the proposed statutory ban on idling vehicles with running engines. We will consult the EA Panel on the revised proposal, which aims to strike a reasonable balance among environmental considerations, operational needs of the transport trades and enforcement effectiveness, on 15 January 2009. Our target is to introduce a bill into LegCo in 2009;
- (b) we are developing a proposal to strengthen the control of emissions from petrol and liquefied petroleum gas vehicles, including the use of roadside remote sensing equipment and dynamometers for emission testing. Our plan is to consult the stakeholders in 2009;
- (c) we are making preparation to stipulate the specification for pure motor vehicle biodiesel and the requirements for motor vehicle biodiesel blended with diesel in the Air Pollution Control (Motor Vehicle Fuel) Regulation (Chapter 311L). This will help to ensure fuel quality, boost users' confidence and secure a better control on the impact of biodiesel on the environment, thereby promoting the development of the biodiesel market. We are conducting a consultation for preparing the enabling legislation for implementation in 2009;

- (d) we are making preparation to further tighten the statutory standards of motor vehicle diesel and unleaded petrol to the Euro V standards;
- (e) we will study to control the emissions of off-road mobile sources operating within the airport and container terminals. We plan to consult the relevant trades in 2009; and
- (f) we have set up an inter-departmental working group to conduct a trial on ferries using ultra low sulphur diesel (ULSD). We plan to commence the trial in 2009. Subject to its findings, we would draw up a scheme to encourage ferry operators to switch to using ULSD.

7. In addition to the above, we have been implementing the following incentive schemes to promote a wider use of more environment-friendly vehicles –

- (a) on the \$3.2 billion one-off grant scheme to encourage car owners to replace their pre-Euro and Euro I diesel commercial vehicles with the Euro IV models, we have extended the deadline for owners of pre-Euro diesel commercial vehicles to apply for the grant from 30 September 2008 to 31 March 2010 (which is the same as that for the Euro I models). As at the end of December 2008, we have received 10 760 applications and approved 10 636 of them. Since the introduction of the scheme, the number of pre-Euro and Euro I diesel commercial vehicles have been reduced from about 58 500 to 43 000 as at end 2008;
- (b) we have provided a 30% reduction in First Registration Tax (FRT), subject to a cap of \$50,000 per vehicle, to encourage the use of more environment-friendly private vehicles. As at the end of December 2008, we have received 6 786 applications and approved 6 763 of them; and
- (c) since 1 April 2008, we have reduced the FRT of environment-friendly commercial vehicles to encourage early take-up of these vehicles, which are currently pitched at the Euro V standards. As at the end of December 2008, we have received and approved 196 applications.

### ***Power Sector***

8. Power generation is the main source of emissions in Hong Kong. To deliver the 2010 emission reduction targets, we have imposed emission caps on all power plants and are progressively tightening them during licence renewals. We further brought the Air Pollution Control (Amendment) Ordinance 2008 through LegCo in July 2008 to give statutory effects to the emission caps for power plants in 2010 and beyond. The amendments also provide for the local power plants to engage in

emission trading amongst themselves or with their counterparts in the PRD Region as a means to meet the emission caps.

9. To encourage Hongkong Electric (HEC) and China Light & Power (CLP) to take more proactive steps to reduce emissions and sustain strict compliance with the environmental requirements, we have set out a number of incentives and penalty arrangements in the new Scheme of Control Agreements signed with them on 7 January 2008. These arrangements include –

- (a) linking the permitted rate of return of the two power companies to their environmental performances. A higher rate of return will be provided for rewarding better than required performance in reducing emissions and improving air quality. Likewise, the new arrangements provide for financial disincentives in terms of a lower rate of return for emitting more pollutants than permissible; and
- (b) providing a higher rate of return to the power companies for their investment in renewable energy facilities and offering them a bonus in permitted return depending on the extent of renewable energy usage in their electricity generation.

10. Other major progress in reducing emissions from the power sector include the following –

- (a) on 28 August 2008, the Hong Kong SAR Government signed a Memorandum of Understanding (MoU) with the National Energy Administration to ensure a stable and long-term supply of nuclear electricity and natural gas from three different sources, namely offshore gas, piped gas and liquefied natural gas. At present, 28% of electricity generated by power plants in Hong Kong is gas-fired. To improve air quality and address the challenges posed by global warming, we will actively explore ways to gradually increase the use of clean energy by, for example, increasing the proportion of natural gas for local electricity generation to 50%. As part of our review of AQOs, we will consult the public on this as well as other measures to improve air quality;
- (b) on promotion of renewable energy, both HEC and CLP are conducting Environmental Impact Assessment studies for developing commercial scale off-shore wind farms in Hong Kong waters; and
- (c) both HEC and CLP are making good progress in retrofitting their power generation units with FGD facilities. The retrofit projects are expected to complete in phases between 2009 and 2011.

## ***Other Sources***

11. At the same time, we have been implementing the following major initiatives progressively to control emissions from other sources –

- (a) we introduced the Air Pollution Control (Fuel Restriction) (Amendment) Regulation, which came into effect on 1 October 2008, to mandate the use of ULSD in industrial and commercial processes. This will reduce about 2 480 tonnes of SO<sub>2</sub> emission per year, or about 3.7% of the total local SO<sub>2</sub> emission in 2007<sup>1</sup>; and
- (b) we are formulating a proposal to extend the control of the Air Pollution Control (Volatile Organic Compounds) Regulation (Chapter 311W) to other products with high VOC contents, including adhesives, sealants, vehicle refinishing paints, marine vessel paints and pleasure craft paints, to limit their VOC contents in phases from January 2010.

## ***Review of Air Quality Objectives***

12. We also commissioned a comprehensive consultancy study in June 2007 to review Hong Kong's Air Quality Objectives (AQOs) and develop a long-term air quality management strategy, taking into account the latest international developments, including the Air Quality Guidelines recently published by the World Health Organization. We will engage the public in the course of the study, which is expected to complete in 2009.

## ***Promotion of Energy Efficiency***

13. Apart from controlling emissions at source, another effective way of reducing emissions is through enhancing energy efficiency and promoting energy conservation. In this regard –

- (a) we are preparing a legislative proposal for mandatory implementation of the Building Energy Codes to improve energy efficiency in new and existing buildings. We aim to introduce the legislation into LegCo in 2009;
- (b) we introduced a mandatory Energy Efficiency Labelling Scheme through the Energy Efficiency (Labelling of Products) Ordinance (Chapter 598), which came into effect on 9 May 2008, to encourage the use of energy-efficient products. The initial phase of this scheme

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<sup>1</sup> Based on an annual consumption of about 378 million litres of industrial diesel in Hong Kong.

covers three types of products, namely, room air conditioners, refrigerating appliances and compact fluorescent lamps. We will propose amendments to this ordinance in 2009 to cover more products under the second phase of the scheme;

- (c) we will reserve \$150 million and \$300 million under the Environment and Conservation Fund to subsidize qualified building owners in carrying out energy-cum-carbon audits and energy efficiency projects respectively;
- (d) we will promote environmental protection and energy conservation in government buildings, including setting targets in various environmental aspects for new government buildings. We will also promote the use of energy efficient designs and technologies by means of demonstration projects;
- (e) we plan to develop a district cooling system at the Kai Tak Development to supply chilled water to buildings in the region for centralised air-conditioning;
- (f) we will conduct a study on phasing out incandescent light bulbs and replacing them with more energy efficient lighting products. The study will look into the case for introducing a statutory restriction on the sale of incandescent light bulbs; and
- (g) we will conduct a consultancy study on energy wastage arising from the excessive use of external lighting and assess the feasibility of regulating external lighting by legislation.

### **Co-operation with Guangdong Province and Mainland**

14. To achieve the 2010 emission reduction targets, the Guangdong Provincial Government is also working in earnest to implement the control measures under the Management Plan. The emission reduction measures on the Mainland side focus on power plants, vehicles and the more polluting industrial processes. These cover the following –

- (a) establishing a diversified clean energy production and supply system, including development of gas-fired power plants and transmission of electricity from the western provinces;
- (b) requiring all large-scale thermal power generating units to carry out FGD;

- (c) requiring thermal power plants to install continuous emissions monitoring systems (CEMS) with instant on-line access by local authorities;
- (d) requiring all thermal power plants that are under construction, alteration or expansion to carry out flue gas denitrification;
- (e) closing down small thermal power plants and other serious polluting industries (including cement plants and iron and steel plants with low production capacity);
- (f) stepping up annual inspections and on-road spot checks on vehicles;
- (g) restricting the growth of motorcycles at key cities and banning them in the Guangzhou and Dongguan city areas;
- (h) implementing an environment labeling pilot system for vehicles at key cities, so that vehicles of specific categories are restricted from using the roads when the ambient air quality is bad;
- (i) constructing metro expressway systems, developing green transportation and strengthening tailpipe emission standards; and
- (j) enhancing technological improvement at enterprises and promoting cleaner production (for example, requiring new projects to meet advanced cleaner production standards).

15. Since our last progress report in July 2008, the Guangdong Provincial Government has embarked on the following additional emission reduction measures –

- (a) requiring newly registered motor vehicles in Guangdong to comply with the National III standards (which are on a par with the Euro III standards);
- (b) supplying National III standard motor fuels at Dongguan, Zhuhai and Zhongshan in addition to Shenzhen and Guangzhou; and
- (c) implementing comprehensive vapour recovery system at petrol filling stations, oil depots and tanker trucks at major PRD cities.

16. After considering the recommendations made in the Mid-term Review Report, the Guangdong Provincial Government has taken on board additional control measures in the Management Plan. It will take actions to promote the earlier supply of National IV standard motor fuels and establish a provincial information management network on motor vehicle inspection.

17. We are also working on the following joint initiatives with the Mainland authorities to improve regional air quality –

- (a) in April 2008, we launched a five-year Cleaner Production Partnership Programme in conjunction with the Economic and Trade Commission of Guangdong Province to encourage and facilitate Hong Kong-owned factories operating in the PRD Region to adopt cleaner production technologies and practices, with a view to reducing emissions and enhancing energy efficiency. Together with the local authorities of Shenzhen, Dongguan, Foshan, Jiangmen, Huizhou, Zhongshan etc, we have organized seminars and workshops in the PRD Region to promote the programme. On 13 November 2008, we signed a “Co-operation Agreement on Cleaner Production between Hong Kong and Shenzhen” with the Shenzhen Municipal Environmental Protection Bureau to enhance joint effort of both governments in promoting cleaner production amongst factories in Shenzhen;
- (b) at the 11<sup>th</sup> Plenary of the Hong Kong/Guangdong Co-operation Joint Conference held on 5 August 2008, we reached a consensus with the Guangdong Provincial Government to jointly transform the PRD Region into a green and quality living area under the principle of promoting environmental protection and sustainable development. Our common goal is to enhance the appeal and competitiveness of the whole region. Building on the basis of cooperation in improving the regional air quality, both sides will seek to develop a more all-rounded strategy to address the environmental issues facing the region. Mapping out the post-2010 arrangements for tackling regional air pollution will be one of the key areas of co-operation. Both sides will work together to draw up detailed co-operation arrangements; and
- (c) on 29 October 2008, both sides jointly released a report on the monitoring results of the PRD Regional Air Quality Monitoring Network for the first half of 2008. We aim to complete the report covering the whole year of 2008 in April 2009.

18. Details of the latest progress of the Hong Kong SAR Government and the Guangdong Provincial Government in implementing the emission reduction measures under the Management Plan are set out at **Annexes A to E**. Both sides are committed to meeting the 2010 emission reduction targets and will continue to keep track of the progress.