

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 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 Pearl River Delta (PRD) Region by 2010, using 1997 as the base year. Achieving these targets will significantly help to improve the air quality of the Region and relieve the regional smog problem.

3. Since September 2005, we have been providing biannual 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 August 2009. This is the ninth progress report.

**Progress of Emission Reduction**

4. We are making good progress in the implementation of local emission reduction measures. Emission levels of all the four major

pollutants had dropped when compared with those in 1997. Details are as follows –

	<b>Emission Level in 1997 (Tonnes)</b>	<b>Change in Emission Level during 1997-2008<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%

5. The two local power companies are on track for retrofitting their coal-fired power generation units with flue gas desulphurization (FGD) facilities in stages. We expect that the SO<sub>2</sub> emissions from the power sector will 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) we are making preparations to implement a statutory specification for pure motor vehicle biodiesel and the requirements for motor vehicle biodiesel blended with diesel from 1 July 2010;
- (b) we consulted the EA Panel in November 2009 on a proposal to further tighten the statutory standards of motor vehicle diesel and unleaded petrol to Euro V standards. We plan to introduce the enabling legislation into the Legislative Council (LegCo) in 2010 with the proposed commencement date being 1 July 2010;

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

- (c) we are developing a proposal to strengthen the control of emissions from in-use petrol and liquefied petroleum gas (LPG) vehicles, including the use of roadside remote sensing equipment and dynamometers for emission testing;
- (d) we reported to the EA Panel on the revised proposal for banning idling vehicles with running engines in January and February 2009. We are drafting the enabling legislation according to the revised proposal and will table the Bill to LegCo for scrutiny when the drafting work is completed;
- (e) we are examining the feasibility of setting up a pilot “low emission zone” at one or more busy corridors to restrict franchised buses with high exhaust emissions from entering the zone, which will help to evaluate the effectiveness of the measure in improving roadside air quality;
- (f) we are drawing up a proposal to control the emissions of non-road mobile sources. We plan to consult the relevant trades in the first half of 2010;
- (g) we launched in end-August 2009 a nine-month trial of domestic ferries using ultra low sulphur diesel (ULSD). Subject to its findings, we would draw up a scheme to encourage ferry operators to switch to using ULSD; and
- (h) we are monitoring the supply of Euro V vehicles with the aim of introducing the Euro V emission standards as soon as practicable. Before the introduction, we will fully consult the transport trades.

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

- (a) on the \$3.2 billion one-off grant scheme to encourage vehicle owners to replace their pre-Euro and Euro I diesel commercial vehicles with new vehicles, we issued a reminder in September 2009 to urge all the eligible vehicle owners to submit their applications for the grant by the application deadline, which falls on 31 March 2010, and are

sending another round of reminders to the remaining eligible vehicle owners. As at end-November 2009, we approved 13 050 applications. Since the introduction of the scheme, the number of on-road pre-Euro and Euro I diesel commercial vehicles has been reduced from about 58 500 to 39 100;

- (b) since April 2007, we have been providing a 30% reduction in First Registration Tax (FRT), subject to a cap of \$50,000 per vehicle, to encourage the use of environment-friendly private cars. As at end- November 2009, we approved 10 387 applications. Since the introduction of the scheme, environment-friendly private cars account for about 12% of first-registered private cars; and
- (c) since 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 end-November 2009, we approved 395 applications.

### ***Power Sector***

8. Power generation is the main source of air pollutant emissions in Hong Kong. To deliver the 2010 emission reduction targets, we have imposed emission caps on all power plants starting from 2005 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 by a Technical Memorandum. The emission caps for 2010 were subsequently imposed on the two power companies during the licence renewal in 2008 and 2009.

9. To encourage Hongkong Electric (HEC) and CLP Power 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 in January 2008. These arrangements include –

- (a) linking the permitted rate of return of the two power companies to their environmental performance. 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) in August 2008, the Hong Kong SAR Government signed a Memorandum of Understanding 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. In 2008, 32% of electricity generated by power plants in Hong Kong was gas-fired. To improve air quality and address the challenges posed by global warming, we will actively explore ways to accelerate the increasing use of clean energy by, for example, increasing the proportion of natural gas for local electricity generation to 50%. The proposal is one of the recommended air quality improvement measures in the review of the Air Quality Objectives, the progress of which is set out in paragraph 12;
- (b) on promotion of renewable energy, HEC is conducting Environmental Impact Assessment studies for developing commercial scale off-shore wind farms in Hong Kong waters while CLP was granted with an Environmental Permit on 4 August 2009 for their off-shore wind farm proposal off Sai Kung; and
- (c) both HEC and CLP Power are making good progress in retrofitting their power generation units with emission reduction facilities. The retrofit projects are expected to complete in phases between 2009 and 2011. HEC has completed the first stage of its retrofit programme for one coal-fired unit (i.e. retrofitting it with flue gas

desulphurization system and low nitrogen oxides burners) and the facilities are in operation starting from July 2009.

### ***Other Sources***

11. We have also taken the following new initiatives to control emissions from other sources –

- (a) we amended the Air Pollution Control (Volatile Organic Compounds) Regulation (Chapter 311W) in October 2009 to extend the control 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 1 January 2010; and
- (b) we also amended the Ozone Layer Protection (Products Containing Scheduled Substances) (Import Banning) (Amendment) Regulation in December 2009 to extend the banning of the import of controlled products to those containing HCFCs, CFC-metered dose inhalers and other portable fire extinguishers in phases from 1 January 2010.

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

12. The public consultation on the Review of Air Quality Objectives (AQOs) ended on 30 November 2009. Some 2,200 completed questionnaires and written submissions have been received. We also held a public forum and met with various stakeholders including this Panel, the Advisory Council on Environment, the Sustainable Development Council, all 18 district councils, professional bodies, chambers of commerce, trade organisations, business groups, green groups and others. We are now studying carefully the views collected from the consultation, which will be fully taken into account in deciding on how best to update the AQOs and to develop a long-term air quality management strategy. We aim to report the findings of the consultation to the Subcommittee on Improving Air Quality in early 2010. Meanwhile, we are making progress on the implementation of those control measures that consensus has already been built up, including the mandatory implementation of Building Energy Codes and district cooling

system for Kai Tak Development as reported in the ensuing paragraphs.

### ***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 introduced the Buildings Energy Efficiency Bill into LegCo on 9 December 2009. The Bill aims to improve energy efficiency in new and existing buildings by mandating compliance with the Building Energy Codes;
- (b) we are continuing to promote the buildings energy efficiency funding schemes, with \$150 million and \$300 million allocated from the Environment and Conservation Fund, to subsidize qualified building owners in carrying out energy-cum-carbon audits and energy efficiency projects respectively. The Schemes have been opened for application since April 2009. Up to end-November 2009, 149 funding applications, amounting to \$30.4 million have been approved;
- (c) we have adopted a comprehensive target-based green performance framework for government buildings and set targets in various environmental aspects to promote environmental protection and energy conservation. We will also promote the use of energy efficient designs and technologies by means of demonstration projects;
- (d) we will implement a district cooling system at the Kai Tak Development to supply chilled water to buildings in the region for centralised air-conditioning;
- (e) we introduced a mandatory Energy Efficiency Labelling Scheme through the Energy Efficiency (Labelling of Products) Ordinance (Chapter 598), which came into effect in May 2008, to encourage the use of energy-efficient products. The initial phase of the Scheme which covers three types of product, namely room air conditioners,

refrigerating appliances and compact fluorescent lamps has been fully implemented since 9 November 2009. We have submitted to LegCo amendments to the Ordinance to introduce the second phase of the Scheme;

- (f) we are promoting the replacement of incandescent light bulbs by energy-efficient lighting installations through various means. We will consult the public on progressively restricting the sales of incandescent light bulbs through legislation; and
- (g) we are conducting consultancy studies on energy wastage arising from the excessive use of external lighting and will 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 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. The key initiatives being implemented by Guangdong include –

- (a) introducing the updated Guangdong Emission Standards of Air Pollutants for Thermal Power Plants in August 2009 with a view to further tightening the air pollutant emission standards;
- (b) launching a policy for subsidizing the replacement of yellow-label vehicles (i.e., petrol vehicles with pre-National emission standard or below and diesel vehicles with National II emission standard or below) with new vehicles in September 2009;
- (c) extending the supply of National III standard motor fuels to Huizhou in July 2009 in addition to Shenzhen, Guangzhou, Dongguan, Zhuhai and Zhongshan; and



- (d) enhancing the implementation of vapour recovery system at petrol filling stations, oil depots and tanker trucks in Guangdong, with Shenzhen being the first to complete the work.

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

- (a) we are working with the Economic & Information Technology Commission of Guangdong Province (廣東省經濟和信息化委員會) to implement the five-year Cleaner Production Partnership Programme. The Programme aims to encourage and facilitate Hong Kong-owned factories operating in the PRD Region to adopt cleaner production technologies and practices, thereby reducing emissions and enhancing energy efficiency. So far, 404 applications have been approved under the Programme. In addition, both sides jointly launched the Hong Kong-Guangdong Cleaner Production Partners Recognition Scheme on 28 August 2009 to recognise and encourage the continued efforts of Hong Kong businesses in pursuing cleaner production. A presentation ceremony for the Hong Kong - Guangdong Cleaner Production Partners Recognition Scheme was held in Guangzhou on 25 November 2009 to award commendation to the first batch of Hong Kong - Guangdong Cleaner Production Partners;
- (b) at the 12th Plenary of the Hong Kong/Guangdong Cooperation Joint Conference held in Hong Kong on 19 August 2009, both sides signed the Environmental Cooperation Agreement between Hong Kong SAR and Guangdong, with a view to stepping up cooperation on environmental front. In respect of improving regional air quality, the two sides agreed to undertake a joint study on the post-2010 arrangement for air pollutant emission reduction in the PRD Region; and
- (c) on 23 October 2009, both sides jointly released a report on the monitoring results of the PRD Regional Air Quality Monitoring Network (Network) for the first half of 2009. We are gradually seeing the positive impact of the emission reduction efforts of both sides on regional air quality. The

results of the Network show that the SO<sub>2</sub> and RSP concentrations in the region in 2008 had dropped by 19% and 11% respectively as compared with 2007. In the first half of 2009, the SO<sub>2</sub> and RSP concentrations had further dropped by 33% and 9% respectively as compared with the same period in 2008. We aim to complete the report covering the whole year of 2009 in April 2010.

16. 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 implement the emission reduction measures under the Management Plan.

**Environment Bureau / Environmental Protection Department  
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