

For Information
August 2010

**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 (SO₂), nitrogen oxides (NO_x), 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 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 January 2010. This is the tenth 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 air pollutants had dropped when compared with those in 1997. Details are as follows –

	Emission Level in 1997 (Tonnes)	Change in Emission Level during 1997-2008¹	2010 Emission Reduction Target
SO ₂	66 200	-13%	-40%
NO _x	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 emission reduction facilities in stages. We expect that emissions of SO₂, NO_x and RSP from the power sector will continue to drop in the run up to 2010.

Latest Measures to Reduce Emissions from Major Sources

Transport Sector

6. To further step up the local efforts in reducing emissions from the transport sector, since July 2010, we have –

- (a) introduced a regulatory framework for motor vehicle biodiesel; and
- (b) tightened the statutory specifications for motor vehicle fuels to the Euro V standards.

7. We are also rolling out the following major initiatives –

- (a) we are bringing the Motor Vehicle Idling (Fixed Penalty) Bill through the Legislative Council (LegCo) to introduce statutory prohibition against idling vehicles with running engines;
- (b) we are monitoring the supply of Euro V vehicles with the aim to introduce the Euro V vehicle emission standards as soon as practicable. Before the introduction, we will fully consult the relevant stakeholders including the transport trades;
- (c) we are developing a proposal to strengthen the control of emissions from in-use petrol and liquefied petroleum gas vehicles, including the

¹ The percentage changes in emission levels between 1997 and 2008 are preliminary figures.

use of roadside remote sensing equipment and dynamometers for emission testing;

- (d) 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;
- (e) we are reviewing the findings of the consultation on our proposal to control emissions from non-road mobile sources. We will finalize the proposal with the aim to initiate the necessary legislative procedures for implementing the scheme in 2011; and
- (f) we expect to complete a trial of domestic ferries using ultra low sulphur diesel (ULSD) in the latter half of 2010. We will analyze the trial findings for drawing up a scheme to encourage ferry operators to switch to using ULSD.

8. 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 one-off grant scheme to encourage vehicle owners to replace their pre-Euro and Euro I diesel commercial vehicles with new ones, we made a special arrangement to allow vehicle owners who had ordered new replacement vehicles before the application deadline in end-March 2010 to retain their eligibility for application of the grant until end-March 2011. We had received about 17,300 applications (representing about 30% of the eligible vehicles) including those made under the special arrangement. Since the introduction of the scheme, the number of on-road pre-Euro and Euro I diesel commercial vehicles has been reduced from about 59,000 to 36,000 (i.e. a reduction of about 40%);
- (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-June 2010, we have approved about 13,600 applications. Since the introduction of the scheme, environment-friendly private cars account for about 13% of first-registered private cars;
- (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-June 2010, we have approved about 800 applications; and

- (d) since July 2010, we have been providing a one-off grant to encourage vehicle owners to replace their Euro II diesel commercial vehicles early by new ones compliant with the prevailing statutory emission standards.

Power Sector

9. Power generation is the main source of air pollutant emissions in Hong Kong. To deliver the emission reduction targets, we have imposed emission caps on all power plants since 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. Stringent emission caps for 2010 were subsequently imposed on the two power companies.

10. To encourage Hongkong Electric (HEC) and CLP Power to take further steps to reduce emissions and sustain strict compliance with the environmental requirements, we 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.

11. 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 on Energy Co-operation 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 2009, 30% 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 (AQOs Review);

- (b) on promotion of renewable energy, the Environmental Impact Assessment Reports on developing commercial scale off-shore wind farms in Hong Kong waters by both power companies had been conditionally approved. CLP was granted with an Environmental Permit in August 2009 for their off-shore wind farm proposal off Sai Kung, while HEC was granted with the same permit in June 2010 for their proposal off Lamma Island. Besides, HEC will install a 550 kW thin film photovoltaic system on the roofs of the power station buildings to increase the use of renewable energy; and
- (c) both HEC and CLP Power are making good progress in retrofitting their power generation units with emission reduction facilities. The projects are expected to complete in phases between 2009 and 2011. HEC completed its two-stage retrofit project for three coal-fired units in July 2009 and March 2010. For CLP, the retrofit for the first coal-fired unit is under commissioning test. Its retrofit project involves a total of four coal-fired units, which is expected to complete by 2011.

Other Sources

12. We are also implementing the following major 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, including adhesives, sealants, vehicle refinishing paints, marine vessel paints and pleasure craft paints, to limit their VOC contents in phases from January 2010; and
- (b) under the Ozone Layer Protection (Products Containing Scheduled Substances) (Import Banning) Regulation (Chapter 403C) amended in December 2009, the import of split-type room air-conditioners containing chlorodifluoromethane (HCFC-22) has been banned since July 2010.

AQOs Review

13. The public consultation on the proposed new AQOs and air quality improvement measures recommended under the AQOs Review completed in end-November 2009. We reported the findings of the consultation to the EA Panel in June 2010. The air quality improvement measures proposed by the AQOs Review encompass a wide range of areas covering power plants, motor vehicles, vessels, traffic and transport management, as well as energy efficiency improvement. Many of these are as controversial as they are complicated. It will take us some more time to develop a comprehensive strategy on how best we should take forward the air quality improvement measures and update the AQOs. Meanwhile, we are taking active steps to introduce further measures to reduce emissions from major sources as outlined in paragraphs 6 to 12 above.

Promotion of Energy Efficiency

14. Apart from the above, another effective way of reducing emissions is through enhancing energy efficiency and promoting energy conservation. In this regard –

- (a) we are bringing the Buildings Energy Efficiency Bill through LegCo 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. As at early-May 2010, we have approved about 400 funding applications (amounting to about \$85 million);
- (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 plan to 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) 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 November 2009. The second phase covering washing machines and dehumidifiers commenced in March 2010, with a grace period of 18 months for the trades to make necessary preparations;

- (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 energy-inefficient incandescent light bulbs through legislation; and
- (g) we are conducting consultancy studies on energy wastage arising from the excessive use of external lighting, which are expected to complete soon. We will consult the public on possible ways to deal with this issue.

Co-operation with Guangdong Province and Mainland

15. To achieve the 2010 emission reduction targets, the Guangdong Provincial Government is working in earnest to implement the emission reduction measures under the Management Plan, which focus on power plants, vehicles and the more polluting industrial processes. The key initiatives are as follows –

- (a) implementing the updated Guangdong Emission Standards of Air Pollutants for Thermal Power Plants to further tighten the air pollutant emission standards;
- (b) supplying National III standard motor fuels to the entire PRD Region since January 2010;
- (c) progressively implementing the national environmental labeling system for vehicles since March 2010 with a view to tightening the control of petrol vehicles at the pre-National emission standard or below and diesel vehicles at the National II emission standard or below (i.e. the yellow-label vehicles);
- (d) subsidizing the replacement of yellow-label vehicles with new ones;
- (e) enhancing the implementation of vapour recovery system at petrol filling stations, oil depots and tanker trucks in the PRD Region with an aim to complete the works by end-2010;

- (f) continuing to close down serious polluting industries (including cement plants as well as iron and steel plants with low production capacity); and
- (g) promulgating the PRD Clean Air Action Plan in February 2010, which introduces a series of measures to improve the energy supply structure and reduce emissions from power plants, road transport, industrial sector and VOC sources.

16. The Framework Agreement on Hong Kong/Guangdong Cooperation was signed in April 2010 with a view to, among others, stepping up cooperation on the environmental front. Under the Framework Agreement, the Hong Kong SAR Government and the Guangdong Provincial Government will continue to cooperate to improve the regional air quality by actively taking forward the emission reduction measures under the Management Plan and are committed to achieving the 2010 emission reduction targets by 2010. Building on the past achievements, the two governments will also strive to further reduce the emission levels of air pollutants beyond 2010. To this end, the two sides are jointly undertaking a study on the post-2010 arrangements for emission reduction in the Region. In addition, both sides will progressively adopt air quality objectives as well as fuel and emission standards for vehicles and vessels which are more advanced than other places in the Mainland. Furthermore, we will enhance the PRD Regional Air Quality Monitoring Network and strengthen cooperation in researches on the relationship between ambient air quality and formation of photochemical smog and hazy weather.

17. 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 and Information Commission of Guangdong Province to implement the five-year Cleaner Production Partnership Programme. The objective is 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. As at end-June 2010, about 700 applications have been approved under the programme; and
- (b) in April 2010, both sides jointly released a report on the monitoring results of the PRD Regional Air Quality Monitoring Network for 2009. We are seeing fruitful outcome of efforts taken by both sides. The results show that the average annual concentration levels of SO₂, nitrogen dioxide (NO₂) and RSP in the PRD Region decreased by 38%, 9% and 7% respectively as compared to the figures of 2006 when the Network started to operate. Moreover, notwithstanding the continuing growth of the economy in the PRD Region during the period, the

concentration levels of SO₂ and NO₂ decreased by 26% and 7% respectively in 2009 compared to the figures of 2008. These significant reductions are attributable to the implementation of enhanced emission reduction measures in the two places. We aim to complete the report for the first half of this year in October 2010.

18. Members are invited to take note of the above information.

**Environment Bureau / Environmental Protection Department
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