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Panel on Environmental Affairs

Meeting on 28 November 2016

Background brief on control of volatile organic compounds prepared by the Legislative Council Secretariat

Purpose

This paper provides background information on the control of volatile organic compounds ("VOCs") in Hong Kong. It also gives a brief account of the views and concerns expressed by Members when related issues were discussed by the relevant committees of the Legislative Council ("LegCo").

Background

2. VOCs are organic chemicals that would evaporate at room temperature. Most of them can contribute to the formation of photochemical smog, which is a key regional air pollution problem in the Pearl River Delta ("PRD") region. Photochemical smog leads to high levels of ozone and fine particulates in Hong Kong particularly when the prevailing wind is from inland and the sunshine is strong. VOCs can also irritate eyes, cause respiratory tract symptoms and provoke asthmatic attacks in asthma sufferers. In Hong Kong, most man-made VOCs originate from non-combustion sources (58%) which are mainly VOC-containing products such as paints, printing inks and consumer products.

3. In 2002, the governments of Hong Kong and Guangdong reached a consensus to reduce, on a best endeavour basis, the regional emissions of sulphur dioxide ("SO₂"), nitrogen oxides, respirable suspended particulates and VOCs by 40%, 20%, 55% and 55% respectively by 2010, using the emission levels of 1997 as the base year. In 2012, both governments agreed to set an

emission reduction plan for these four types of air pollutants in Hong Kong and the PRD region for 2015 and 2020.¹ Under the plan, Hong Kong's VOC reduction targets are 5% by 2015 and 15% by 2020, with 2010 as the base year.

Air Pollution Control (Volatile Organic Compounds) Regulation

4. One of the key initiatives of the Government in achieving the abovementioned emission reduction targets was the introduction of the Air Pollution Control (Volatile Organic Compounds) Regulation (Cap. 311W) ("VOC Regulation") in 2007.² The main objective of the Regulation is to prohibit the import and local manufacture of regulated products (except products manufactured locally solely for export), namely architectural paints/coatings, printing inks and selected consumer products, if their VOC contents exceed the relevant statutory limits. The Regulation also controls VOC emissions from lithographic heatset web printing machines, and requires the installation of emission control devices on those machines.

5. In October 2009, the VOC Regulation was amended to extend the control to other products containing high levels of VOCs, i.e. vehicle refinishing paints, vessel paints, pleasure craft paints, adhesives and sealants. At present, 170 types of products are under the control of the VOC Regulation.

¹ The governments of Hong Kong and Guangdong started a joint mid-term review of the emission reduction plan in February 2015 with a view to concluding the emission reductions for 2015 and finalizing the targets for 2020. The review is expected to be completed in 2017.

² The VOC Regulation was first published in the Gazette in November 2006 and subject to negative vetting by LegCo. A subcommittee was formed under the House Committee in December 2006 to study the subsidiary legislation. While the Subcommittee generally supported the legislative proposal, there were technical issues that could not be resolved before the expiry of the extended scrutiny period. With the agreement of the Administration, the Regulation was repealed by LegCo in January 2007. Subsequently, the Subcommittee to Study Issues Relating to the Air Pollution Control (Volatile Organic Compounds) Regulation was set up to expedite the examination of the policy aspects and drafting of a regulation under the same title. Taking into account the Subcommittee's deliberation, the Administration made some technical amendments and tabled the regulation in LegCo in February 2007 for negative vetting. The relevant regulatory requirements took effect in phases from 1 April 2007 onwards.

Proposal to control volatile organic compounds in fountain solutions and printing machine cleansing agents

6. In 2012, the Administration commissioned the Hong Kong Productivity Council to identify feasible VOC reduction measures for the printing industry.³ Based on the findings, the Administration proposes amending the VOC Regulation to extend the statutory control to fountain solutions and printing machine cleansing agents, and adopting 80 grams per litre ("g/l") and 500 g/l respectively as the VOC content limits.⁴ The Environmental Protection Department conducted a public consultation from February to April 2016 to gauge stakeholders' views on the proposed control measures.

Major views and concerns expressed by Members

7. The Panel on Environmental Affairs ("the Panel") discussed the Administration's proposals to establish and expand the control regimes for VOCs on 28 November 2005 and 24 November 2008 respectively. The Subcommittee on Air Pollution Control (Volatile Organic Compounds) Regulation and the Subcommittee to Study Issues Relating to the Air Pollution Control (Volatile Organic Compounds) Regulation were formed under the House Committee in December 2006 and January 2007 respectively to examine the VOC Regulation. A Subcommittee on Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2009 was formed in May 2009 to study the amendments then introduced to the VOC Regulation. In recent years, issues relating to the reduction of VOC emissions in the PRD region were raised by Members during examination of the Estimates of Expenditures 2015-2016 and 2016-2017. The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

Emission standards

8. Members sought justifications for setting the statutory limits for VOCs in Hong Kong's regulation on par with the requirements in the State of California of the USA ("Californian standards"), instead of the less stringent standards under the European Paint and Products Directive ("EU standards").

³ A Working Group on Reducing VOC – Printing Industry was formed to oversee the feasibility study. The Working Group comprises representatives of the Hong Kong Printers Association, the Graphic Arts Association of Hong Kong, and the Environmental Protection Department.

⁴ The average VOC content of conventional fountain solutions is 92 g/l, and organic solvents with average VOC content of 780 g/l are used for cleaning printing machines.

There were concerns that the stringent Californian standards might limit the supply for certain products or increase the compliance costs of related trades.

9. The Administration pointed out that the California Air Resources Board had conducted in-depth studies on the control of VOCs, and that both California and Hong Kong were experiencing serious smog problems. It was therefore decided that the Californian standards should be applied in Hong Kong. Experience in California showed that the imposition of VOC limits would not adversely affect the trading of VOC-containing consumer products. The Administration would provide assistance to the affected trades to facilitate their compliance with the VOC Regulation.

10. The Administration also advised that, taking into account the logistical problems faced by the paint supply industry and the need for the vehicle repair trades to adapt to the application of water-based paints, the Administration had relaxed the VOC limits for vehicle refinishing paints by setting them on par with the EU standards, and moved an amendment to the VOC Regulation to that effect.⁵ The Administration undertook to conduct reviews on the prescribed VOC limits for various products one year after the implementation of relevant controls.

Regulatory scope

Retailers and shipping agents of regulated products

11. Members noted that the VOC Regulation did not impose any legal liabilities on retailers, and expressed concern that unscrupulous retailers might smuggle into Hong Kong non-compliant regulated products and sell them at low prices. The Administration advised that in the two years after the VOC Regulation had taken effect, it conducted about 590 inspections to retail outlets and collected more than 990 samples of regulated products for analysis. There was no evidence of retailers knowingly selling illegal products. Besides, retailers and wholesalers who had smuggled non-compliant products for sales or use in Hong Kong would become importers themselves and hence caught by the VOC Regulation. As control at the source of supply was already effective in ensuring compliance, the Administration did not consider imposing legal liabilities on retailers necessary.

12. Some Members considered that it would be difficult for shipping agents, which were defined as "importers" in the VOC Regulation and fell under the

⁵ The relevant amendment to the Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2009 was moved by the Administration and passed at the Council meeting of 14 October 2009.

scope of the Regulation, to ensure that the regulated products they carried were compliant. The Administration responded that shipping agents formed a key party in the chain of custody of imported goods, and including them in the definition of "importers" would help the authority trace the actual importers. If a shipping agent was aware of or suspected certain facts about the goods arranged to be carried, he should take action to conduct further checking. If he had taken reasonable steps and exercised due diligence to avoid committing the offence, in establishing the defence under the VOC Regulation, he might adduce evidence, e.g. bill of lading or shipping order, to show that the offence committed was due to the act or default of another person, or reliance on information given by another person.

Volatile organic compound emissions from power stations

13. Some Members questioned why VOC emissions from power stations were not subject to statutory control. The Administration explained that VOC emissions from thermal power generation were of very small quantities. Moreover, there would be increasing use of natural gas for cleaner power generation. Therefore, in line with international standards, power generation in Hong Kong was not brought under the control regime for VOCs.

Testing of volatile organic compounds in regulated products

14. Members expressed concern on whether any laboratory had been accredited under the Hong Kong Laboratory Accreditation Scheme to undertake tests for VOC contents in regulated products. The Administration responded that it would conduct inspections regularly to check the use of the regulated products and its VOC contents, and the Government Laboratory could carry out the relevant tests. While the VOC Regulation did not require mandatory testing of VOC contents in regulated products by importers, there were local laboratories capable of performing such tests.

Council questions

15. At the Council meetings of 17 June 2009 and 24 February 2016, Hon LI Fung-ying and Dr Hon CHIANG Lai-wan raised questions on whether the Administration would consider regulating the VOC contents in household cleaning products and wooden furniture. The questions and the Administration's replies are hyperlinked in the **Appendix**.

Latest development

16. The Administration will brief the Panel on the proposal to control VOCs in fountain solutions and printing machine cleansing agents at the meeting on 28 November 2016.

Relevant papers

17. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
22 November 2016

Control of volatile organic compounds

List of relevant papers

Date	Event	Paper
28 November 2005	Meeting of the Panel on Environmental Affairs ("the Panel")	Administration's paper on "Control programme on volatile organic compounds" (LC Paper No. CB(1)348/05-06(04)) Minutes of meeting (LC Paper No. CB(1)484/05-06)
December 2006 to January 2007	Subcommittee on Air Pollution Control (Volatile Organic Compounds) Regulation	Report of the Subcommittee (LC Paper No. CB(1)672/06-07)
January to February 2007	Subcommittee to Study Issues Relating to the Air Pollution Control (Volatile Organic Compounds) Regulation	Report of the Subcommittee (LC Paper No. CB(1)952/06-07)
24 November 2008	Meeting of the Panel	Administration's paper on "A proposal to control the contents of volatile organic compounds in vehicle refinishing paints, marine vessel paints, pleasure craft paints, adhesives and sealants" (LC Paper No. CB(1)223/08-09(05)) Minutes of meeting (LC Paper No. CB(1)595/08-09)

Date	Event	Paper
June to September 2009	Subcommittee on Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2009	Report of the Subcommittee (LC Paper No. CB(1)2691/08-09)
30 March 2015	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2015-2016	Written questions raised by Members and the Administration's replies (Reply serial numbers: ENB092 and 370)
6 April 2016	Special meeting of the Finance Committee for examination of Estimates of Expenditure 2016-2017	Written question raised by a Member and the Administration's reply (Reply serial number: ENB142)

Hyperlink to relevant document:

Government department	Document
Environmental Protection Department	Consultation paper on "Proposal to Control Volatile Organic Compounds (VOC) in Fountain Solutions and Printing Machine Cleansing Agents"

Hyperlinks to relevant Council questions:

Date	Council Question
17 June 2009	Press release on Council question (written) raised by Hon LI Fung-ying
24 February 2016	Press release on Council question (written) raised by Dr Hon CHIANG Lai-wan