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Paper for the House Committee meeting on 24 November 2017

**Report of the Subcommittee on Air Pollution Control
(Volatile Organic Compounds) (Amendment) Regulation 2017**

Purpose

This paper reports on the deliberations of the Subcommittee on Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2017 ("the Subcommittee").

Background

2. Volatile organic compounds ("VOCs") are organic chemicals that evaporate at room temperature. Most of them can contribute to the formation of photochemical smog, a key 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 VOCs, sulphur dioxide, nitrogen oxides and respirable suspended particulates by 55%, 40%, 20% 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

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.

reduction targets are 5% by 2015 and 15% by 2020, with 2010 as the base year.

4. One of the key initiatives in achieving Hong Kong's VOC 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 VOC 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.

5. In October 2009, the VOC Regulation was amended to extend the control to some other products containing high levels of VOCs, namely 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.

The Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2017

6. The Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2017 (L.N. 166 of 2017) ("Amendment Regulation") was published in the Gazette on 13 October 2017 and tabled at the Legislative Council on 18 October 2017 for negative vetting. It extends certain prohibitions and requirements under the VOC Regulation to fountain solutions and printing machine cleaning agents ("newly regulated products") with effect from 1 January 2018. The key prohibitions and requirements in relation to newly regulated products manufactured in or imported into Hong Kong are as follows:

- (a) prohibiting the manufacture and importation of the newly regulated products with VOC content in excess of the prescribed limits (i.e. 80 grams per litre ("g/l") for fountain solutions and 500 g/l for printing machine cleaning agents);
- (b) requiring the manufacturers and importers of the newly regulated products to disclose certain specified information in certain documents relating to the products or on the packaging or containers of the products; and

² The relevant regulatory requirements took effect in phases from 1 April 2007 onwards.

- (c) requiring the manufacturers and importers of the newly regulated products to submit annual written reports containing certain specified information to the Air Pollution Control Authority (i.e. the Director of Environmental Protection).

7. The Amendment Regulation is not applicable to a newly regulated product that is goods in transit, in the course of transshipment or solely for export or re-export and manufactured or imported prior to the effective date. The Amendment Regulation will come into operation on 1 January 2018.

The Subcommittee

8. At the House Committee meeting on 20 October 2017, Members agreed to form a subcommittee to study the Amendment Regulation. Under the chairmanship of Hon YIU Si-wing, the Subcommittee has held a meeting on 7 November 2017 to discuss with the Administration. The membership list of the Subcommittee is in the **Appendix**.

Deliberations of the Subcommittee

9. The Subcommittee generally supports the Amendment Regulation to extend the existing control on products containing VOCs to the newly regulated products as an initiative to help achieving Hong Kong's VOC reduction target by 2020 (paragraph 3 above refers). In the course of deliberations, concerns have been raised on the regulatory scope and impact on the trade, VOC content limits, assessment of the outcome of the proposed measure, enforcement and regional efforts in reducing VOC emissions.

Regulatory scope and impact on the trade

10. In 2012, the Administration commissioned the Hong Kong Productivity Council to identify feasible VOC reduction measures for the printing industry.³ In view of the findings of the feasibility study and with reference to the VOC content limits of the South Coast Air Quality Management District ("SCAQMD"), California, USA, the Administration proposes extending the statutory control to fountain solutions and printing machine cleaning agents, and adopting 80 g/l and 500 g/l respectively as their

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

VOC content limits.^{4 5} The Environmental Protection Department ("EPD") conducted a public consultation from January to April 2016 to gauge stakeholders' views on the proposed control measures. According to the Administration, stakeholders were generally supportive of the proposals and did not give any adverse feedback.

11. According to the Administration, there are currently about 60 to 70 importers of the newly regulated products in Hong Kong, and no local manufacturer of these products has come to the Administration's knowledge. There are also about 4 000 local printing companies, and some of them will become importers themselves if they import the newly regulated products for use in Hong Kong and hence will be caught by the Amendment Regulation. On members' concern about the implications on the operating costs to the printing industry for complying with the requirements under the Amendment Regulation, the Administration has advised that, the average increase in cost is \$3 per 5 000 sheets for using low-VOC fountain solution, and \$16 per 5 000 sheets for using low-VOC printing machine cleaning agents. According to the Administration, with an estimated production cost increase of less than 1% for using compliant products, the proposed measure should not cause major financial burden to the printing trade. The Administration has also consulted several major suppliers and a survey has been conducted to confirm the availability of the compliant products in the local market.

12. Members have asked about the Administration's plan to tighten the VOC content limits of regulated products under the existing framework of the VOC Regulation, and/or extend its scope of application to deal with VOC emissions from other non-combustion sources. The Administration has advised that efforts to reduce local VOC emissions from non-combustion sources started in 2007. The Administration is exploring the possibility of further reducing the VOC content limits of existing regulated products (such as architectural paints) or bringing other VOC-containing products under the control of the VOC Regulation with a view to strengthening the VOC emission control.

⁴ The average VOC content of conventional fountain solutions is 92 g/l, and organic solvents with an average VOC content of 780 g/l are used for cleaning printing machines. The feasibility study above confirmed that fountain solutions and printing machine cleaning agents with VOC contents not exceeding 80 g/l and 500 g/l respectively can perform well just like their conventional counterparts.

⁵ SCAQMD's VOC content limits for fountain solutions (50 g/l) and printing machine cleaning agents (100 g/l) are one of the most stringent standards in use.

Volatile organic compound content limits

13. Some members have enquired about the reasons for not applying the latest SCAQMD standards under which the VOC limits for fountain solutions and printing machine cleaning agents are 50 g/l and 100 g/l respectively.

14. The Administration has explained that the VOC content limits for fountain solutions and printing machine cleaning agents are proposed to be set at 80 g/l and 500 g/l respectively having regard to the findings of the feasibility study conducted in collaboration with the trade, and with reference to the VOC content limits of SCAQMD. The Administration has explained that old printing machines remained in use in local printing factories and the trial results indicated that old printing machines could not produce satisfactory printing results when using fountain solutions with VOC contents below 50 g/l. As such, the proposed limit for VOC contents was set at 80 g/l. As for the testing of printing machine cleaning agents, it was found that the cleansing power of all three low-VOC printing machine cleaning agents (that had VOC contents below the SCAQMD's limit of 100 g/l) was not acceptable given that stains could not be removed even after 10 swipes, as compared to only three to four swipes that were needed when printing machine cleaning agents with VOC contents between 300 g/l and 500 g/l were used. Having consulted the printing industry, the Administration considers that capping the VOC content at 500 g/l appropriate.

15. The Subcommittee has enquired whether the Administration would conduct a review of the prescribed limits for newly regulated products with a view to aligning them with the SCAQMD's standards. The Administration has advised that setting the VOC content limits for fountain solutions and printing machine cleaning agent at 80 g/l and 500 g/l is considered appropriate to kick start the relevant regulatory measure, and EPD could revisit the limits if and where necessary.

Assessment of the outcome of the proposed measure

16. Regarding the methodology for assessing the outcome of the proposed VOC reduction measure, the Administration has advised that in line with international standards, local VOC emissions are calculated based on the activity data of relevant VOC emitting sources and the emission factors for VOCs. VOC emissions of regulated products are calculated according to the methods of calculating and determining their VOC contents under the current legislative framework. According to the Administration, 1 500 tonnes of VOCs were emitted from fountain solutions and printing machine cleaning agents used for printing in Hong Kong in 2014. It is expected that implementing the proposed control measure can reduce about

370 tonnes of VOC emissions a year which will help reduce the formation of photochemical smog.

17. In response to the Subcommittee's question on how the list of "exempt compound" under Part 1 of the new Schedule 8 is determined, the Administration has advised that certain VOCs are non-reactive or of negligible reactivity in the formation of ozone and hence should be excluded from the calculation of VOC contents for the purpose of the Amendment Regulation.

Enforcement and penalty

18. The Subcommittee has enquired how the Administration will ensure compliance with the Amendment Regulation by manufacturers and importers of the newly regulated products. The Administration has explained that EPD regularly collects and tests samples of regulated products from retailers and importers to ascertain the compliance with the prescribed VOC content limits, examines annual sales reports submitted by importers, and conducts investigation of complaints against non-compliance products. If a product is found to be non-compliant by the sample test, the Administration will trace the source of the product along the supply chain and carry out enforcement actions.

19. On the measures to prevent smuggling of non-compliant regulated products into Hong Kong for sale at the retail level, the Administration has advised that retailers and wholesalers who have smuggled non-compliant products for sale or use in Hong Kong will themselves become importers and will be liable under the VOC Regulation. According to the Administration, controlling the source of supply is already effective for ensuring compliance. As to whether a user of a non-compliant regulated product would commit an offence, the Administration has advised that importers and local manufacturers of non-compliant products would commit an offence while no liability would be imposed on the users under the VOC Regulation.

20. The Subcommittee notes that different offences created under the Amendment Regulation attract different penalties under the new section 17(11J), (11K) and (11L) of Cap. 311W. The penalty may be a fine of \$200,000 and imprisonment for six months or a fine at level 5 (i.e. \$50,000) and imprisonment for three months. The Subcommittee has sought justifications for setting different levels of penalties. The Administration has explained that, in line with the penalties related to existing regulated products under Cap. 311W, contravention of the provisions on prohibiting manufacture and import of non-compliant products (the new section 16M) should warrant a higher level of penalty as opposed to contravention of the requirements regarding information disclosure (the new section 16N) and/or

submission of annual written reports to the Air Pollution Control Authority (the new section 16O).

Regional efforts in reducing VOC emissions

21. The Subcommittee notes that VOCs could contribute to the formation of photochemical smog, which is a key regional air pollution problem in the PRD region, and has enquired about the progress of regional efforts in reducing VOC emissions. The Administration has advised that both the Governments of Hong Kong and Guangdong Province agreed to an emission reduction plan for Hong Kong and the PRD region up to 2020, which set specific emission reduction targets for 2015 and emission reduction ranges for 2020 for four major air pollutants, namely sulphur dioxide, nitrogen oxides, respirable suspended particulates and VOC. Currently, a mid-term review is being conducted jointly by both sides to ascertain the attainment of the emission reduction targets for 2015 and finalize the emission reduction targets for 2020. The mid-term review study is about to complete and the Administration expects to announce the results by end of 2017.

Recommendation

22. The Subcommittee has completed scrutiny of and generally supports the Amendment Regulation.

Advice sought

23. Members are invited to note the deliberations of the Subcommittee.

Council Business Division 1
Legislative Council Secretariat
22 November 2017

Appendix

Subcommittee on Air Pollution Control (Volatile Organic Compounds) (Amendment) Regulation 2017

Membership list

Chairman Hon YIU Si-wing, BBS

Members Hon CHAN Hak-kan, BBS, JP
Dr Hon Priscilla LEUNG Mei-fun, SBS, JP
Hon Michael TIEN Puk-sun, BBS, JP
Hon Frankie YICK Chi-ming, SBS, JP
Hon Kenneth LEUNG
Hon Christopher CHEUNG Wah-fung, SBS, JP
Hon POON Siu-ping, BBS, MH
Dr Hon CHIANG Lai-wan, JP
Hon CHU Hoi-dick
Hon Jimmy NG Wing-ka, JP
Dr Hon Junius HO Kwan-yiu, JP
Hon Tanya CHAN
Hon HUI Chi-fung

(Total : 14 members)

Clerk Miss Cindy HO

Legal Adviser Mr Alvin CHUI