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Paper for the House Committee

**Report of the Bills Committee on
Air Pollution Control (Amendment) Bill 2013**

Purpose

This paper reports on the deliberations of the Bills Committee on Air Pollution Control (Amendment) Bill 2013.

Background

Review of the Air Quality Objectives

2. In the Air Pollution Control Ordinance ("APCO") (Cap. 311), the Air Quality Objectives ("AQOs") of Hong Kong are stipulated as the air quality that should be achieved and maintained in order to promote the conservation and best use of air in the public interest. The AQOs are also benchmarks for assessing the air quality impact of specified processes under the APCO and of designated projects under the Environmental Impact Assessment Ordinance ("EIAO") (Cap. 499).

3. The current AQOs have been in place since 1987. The AQOs were laid down in the Air Control Zones (Consolidation) Statement of Air Quality Objectives (Cap. 311H) in 1987. The Statement and the empowering provision for its publication were subsequently repealed, and the same AQOs were set out in the Technical Memorandum ("TM") for Specifying Air Quality Objectives for Hong Kong in 1994. Following the release of new Air Quality Guidelines ("AQGs") by the World Health Organization ("WHO") in 2006, the Administration commissioned a consultancy study in 2007 on updating the AQOs and consulted the public on the recommendations in 2009.

4. In January 2012, the Administration announced the decision to update the AQOs with effect from early 2014 subject to the passage of relevant legislation in 2013.

The Bill

5. The Air Pollution Control (Amendment) Bill 2013 ("Bill") proposes to repeal the power of the Secretary for the Environment ("Secretary") to promulgate AQOs in a TM. Instead, a set of new AQOs, which is subject to review at least once every five years, is to be provided in the APCO. Transitional provisions are also made so that the current AQOs set out in a TM will continue to be in force as a criterion for evaluating air quality impact in relation to applications made under the EIAO before 1 January 2017 for a variation of the conditions of an environmental permit issued before 1 January 2014.

The Bills Committee

6. At the House Committee meeting on 22 March 2013, members agreed to form a Bills Committee to scrutinize the Bill. The membership list of the Bills Committee is in **Appendix I**.

7. Under the chairmanship of Hon Charles Peter MOK, the Bills Committee has held four meetings with the Administration and received views from the public and representatives of various organizations at one of the meetings. A list of the organizations which have given views to the Bills Committee is in **Appendix II**.

Deliberations of the Bills Committee

8. The Bills Committee is in support of the Bill, which is considered long-overdue, and urges for its early implementation. In the course of deliberation, the Bills Committee has examined certain issues in respect of the setting of the new AQOs, air quality improvement measures and periodic review of the AQOs, and the transitional arrangement for ongoing infrastructure projects. The Bills Committee also urges the Administration to make public health a key factor of consideration in the future review of the AQOs for the sake of public interest. The deliberations are summarized in the ensuing paragraphs.

The new AQOs for Hong Kong

9. The Bills Committee has examined the justifications for the setting of the new AQOs for Hong Kong. The Administration has advised that the new AQOs are benchmarked against a combination of both interim and ultimate targets of the AQGs of WHO (see **Appendix III**), and are broadly comparable to the air quality standards adopted in the European Union ("EU") and United States ("US"). It further explains that the WHO accepts the need for governments to set their respective national standards according to their own particular circumstances. The WHO guidelines¹ therefore also suggest interim targets on certain pollutants to facilitate a progressive approach for achieving the ultimate AQGs and provide milestones in achieving better air quality. In the present exercise, ultimate targets of the AQGs of WHO are selected for four pollutants, including Sulphur Dioxide (10-min), Nitrogen Dioxide, Carbon Monoxide and Lead. The Administration assures the Bills Committee that it would review the AQOs on a regular basis.

10. Regarding the sources of emission of the key pollutants specified in the APCO, the Administration has advised that the Environmental Protection Department ("EPD") takes stock of the emission levels of key air pollutants and their sources on an annual basis. According to the 2011 emission inventory, the major sources of emissions include public electricity generation, road transport, navigation, civil aviation and other fuel combustion. The detailed breakdown can be found at **Appendix IV**.

11. The Bills Committee asks for the justifications for setting the number of exceedances allowed in the new AQOs and whether they will be tightened in future reviews. Members note that the Administration has established the number of exceedances for each of the proposed AQOs in accordance with the WHO guidelines and the practices of advanced countries such as US and EU countries after taking into account the local circumstances. The Administration pledges to review whether the number of exceedances can be tightened in the future review of the AQOs.

¹ WHO guidelines provide that "when the standards are set to be legally binding, criteria must be identified to determine compliance. This is quantified through the number of acceptable exceedances over a certain period of time. Compliance criteria are defined in each country in order to compare the most representative data with the standards, and to minimize the designation of non-compliance owing to uncontrollable circumstances such as extreme weather. Such compliance criteria can be determined by evaluating historical data in the region as well as variability in weather and pollution patterns."

Enhancement of the current arrangement on measurement of AQOs

12. The Bills Committee requests for information pertaining to the enhancement of the current arrangement on how the AQOs are measured and the adequacy of the existing facilities. The Administration explains that the EPD operates a comprehensive air quality monitoring network comprising 11 general air quality monitoring stations ("AQMS") and three roadside stations. The network aims to assist the Administration to develop air quality management policies, assess compliance with AQOs, assess public exposure and inform the public of the current and forecast air quality. In determining the sites of the AQMS in the network, EPD needs to consider a number of factors, including the spatial distribution of the air quality monitoring network, the coverage in different types of development areas, local population, the distribution of traffic flow and pollution sources, the capability in monitoring regional air pollution, topography and meteorology. These considerations are similar to the best practices of other countries such as the US.

13. The Administration further explains that Hong Kong is a small and densely populated city. As such, vehicle emissions are a key local source of air pollution. Given the similarity in pollution sources, the levels of air pollution in different districts are mainly determined by their respective types and density of development. Against this background, the current air quality monitoring network has an adequate spatial distribution of general AQMSs covering different land uses (commercial, residential, industrial and mixed) of the urban, new town and rural areas. It is thus not necessary to set up an AQMS in each of the 18 districts. For those districts without an AQMS, the public can refer to the measurements of AQMSs in nearby districts of similar types and density of development. EPD has provided advice on the cross-district reference of the data from general AQMS. Based on the review of the air quality monitoring network completed in late 2012, EPD plans to set up a general AQMS each in Tuen Mun and Tseung Kwan O to further enhance the coverage of the network. For roadside AQMS, the existing three roadside AQMS in Central, Causeway Bay and Mongkok are built in the busy corridors of urban areas with high traffic and pedestrian flow and surrounded by high-density built environment. The data from these roadside AQMSs are hence representative of the roadside air quality of typical places with heavy vehicular and pedestrian traffic in the urban areas. As such, the Administration considers it not necessary to increase the number of roadside AQMSs.

Impact of the implementation of the new AQOs

14. Whilst welcoming that the new AQOs could help improve Hong Kong's air quality, some members are concerned that the tightening of the AQOs would affect the general public and the affected businesses, especially the transport sector. The Bills Committee has enquired whether the new AQOs would apply to other legislation and form part of the licensing conditions for renewal of vehicle licence. The Administration has advised that apart from the APCO itself and the EIAO which uses the AQOs as statutory criteria for evaluating air quality impact and hazard to life under Annex 4 of the TM on Environmental Impact Assessment process, there is no other existing legislation to which the new AQOs will be directly applicable to, after the new AQOs come into operation.

Transitional arrangement

15. In respect of the concern raised by the Bills Committee that there might be cases where an applicant for Environmental Permit ("EP") would rush and file their environmental impact assessment ("EIA") report to avoid the relevant projects to be subjected to the new AQOs which might be more stringent than the current ones, the Administration has stated that under the EIAO, approval of EIA reports and issue of EPs have to be based on the prevailing AQOs at the time the decision is made, not the time the application is submitted. The Administration further explains that introduction of the new AQOs might have impact on projects already granted with an EP before the new AQOs come into operation. In the event that such projects should require a variation to the EP, the application of the new AQOs may cause substantial changes to the original project and have major cost and programming implications. Thus, in order to preserve the integrity of the EIA system as an ongoing mechanism, as well as the regulatory certainty for proponents of projects that have already completed the EIA process, the Bill provides for a transitional period of 36 months from the commencement date of the new AQOs, within which the new AQOs will not apply to an application for variation of an EP issued before 1 January 2014.

16. The Administration further states that, as a means to illustrate its commitment to adopting the best practices in planning new development projects, all government projects for which EIA studies have not yet commenced by January 2012 would endeavour to adopt the proposed new AQOs for conducting the air quality impact assessment under the EIA studies as far as practicable.

Complementary measures to help achieve the more stringent AQOs

17. The Bills Committee has examined how the Administration could attain the new AQOs. The Administration advises that it has pledged to take forward a wide range of air quality improvement measures targeting at various key emission sources including power plants, vehicles and marine vessels and undertakes to review the AQOs at least once every five years after the commencement of the new AQOs. These measures include, inter alia, changing the fuel mix of the power sector in favour of cleaner fuel, early replacement of aged vehicles, wider adoption of hybrid and electric vehicles, transport management measures such as bus route rationalization, setting up low emission zones, expanding the rail network and promotion of energy efficiency and so on as detailed in "A Clean Air Plan for Hong Kong". The list of measures is at **Appendix V**.

18. According to the Administration, with these measures and further emission reduction on the Mainland side of the Pearl River Delta region, Hong Kong's ambient air quality should be able to broadly comply with the proposed new AQOs by 2020.

Procedures for the regular review of the AQOs

19. The Bills Committee has enquired how the periodic review of the AQOs would be conducted. The Administration advises that clause 5 of the Bill proposes to add a new section 7A to the Ordinance to provide that AQOs are prescribed in the Schedule 5 to the principal Ordinance. The new section 7A also provides for the review of the AQOs by the Secretary. The Secretary is also required to submit a report of the review to the Advisory Council on the Environment ("ACE"). To take forward the related matters, the Administration will establish an Advisory Panel on Review of AQOs ("Advisory Panel") comprising health experts, air scientists, industry and transport trade representatives, the Department of Health ("DH") and other relevant government departments and bureaux to oversee the technical aspects of the AQO review.

20. The Advisory Panel will meet and evaluate the latest scientific information and policy options and advise on whether and how AQOs should be updated after the assessment of –

- (a) the up-to-date health and environmental risk information;
- (b) the current and forecast air pollution levels and exposures;
and

- (c) the technological feasibility, economic considerations, and other political and social factors of further reducing the air pollution levels.

Stipulation of the new AQOs and Role of ACE and DH

21. Throughout the AQOs review process, the Director of Health, as the Government's health advisor as well as a member of the ACE, will provide professional advice on human health impacts of air pollution to EPD and the Advisory Panel. On the other hand, the EPD will, based on the advice of the Advisory Panel, issue a review report for public consultation, as to whether and how the AQOs need to be revised as well as the corresponding air quality management strategy. The Administration will follow the existing practice to consult the ACE and the Panel on Environmental Affairs ("EA Panel") of the Legislative Council ("LegCo") on the proposal during the review process. During the public consultation, the Administration will solicit views of the public through various means, including the conduct of public fora and focus group discussions. Their views and comments will be duly considered before finalizing the recommendations in the report of AQO Review which is to be submitted to the ACE. The Administration will take into account comments received from various stakeholders including academics, experts and professionals in different disciplines, the business sector as well as the public before such finalization. The Administration will also brief the EA Panel about the final report and the report will be submitted to ACE, which is the statutory advisory body on environmental issues. Future amendments of the AQOs must be through a bill passed by LegCo hence facilitating a thorough deliberation in LegCo on the proposed revisions of AQOs and their implications.

Adoption of the words 'public interest' in the Bill

22. In respect of the term 'public interest' as stated in the proposed section 7A(2)(a)&(b) of the Bill 2013, the Bills Committee asks for the meaning of the term in the context of environmental protection and the Bill. Some members have also requested the Administration to express their stance as to whether the words 'public interest' should be replaced by 'public health' or whether the term 'public health' should be added to the relevant section. Section 7(2) of the APCO provides that "The air quality objectives for any particular air control zone or part thereof shall be the quality which, in the opinion of the Secretary, should be achieved and maintained in order to promote the conservation and best use of air in the zone in the public interest". The Administration states that the proposed

section 7A(2) of the Bill is, in effect, a recast of the section 7(2) of the APCO. The Secretary may from time to time review the AQOs for an air control zone to ensure that they are the objectives that should be achieved and maintained in order to –

- (a) promote the conservation of air in the zone in the public interest; and
- (b) promote the best use of air in the zone in the public interest.

23. The Administration further explains that Section 2 of the APCO defines air pollution to mean "an emission of air pollutant which either alone or with another emission of air pollutant –

- (a) is prejudicial to health;
- (b) is a nuisance;
- (c) imperils or is likely to imperil the safety of or otherwise interferes with the normal operation of aircraft; or
- (d) is determined to be air pollution under a technical memorandum.

24. The Administration suggests that it is evident from Section 2 of APCO that 'public health' is an important factor, among other considerations, that the Government needs to take into account when performing and exercising the functions, duties and powers under the APCO. Protection of public health is already and will remain as a key public interest consideration in establishing the AQOs. The Administration stresses that in both the "Air Quality Objectives Review – Public Consultation" issued in July 2009 and "A Clean Air Plan for Hong Kong" published in March 2013, the Administration has committed to setting the AQOs with a view to protecting public health. Other factors, such as technological feasibility, social and economic considerations also form part of public interest considerations and would also need to be taken into account when considering whether and to what extent the AQOs should be revised. This is also consistent with the advice of the WHO on establishment of AQOs with statutory effects for individual countries.

25. The Administration also recalls that in *Clean Air Foundation Ltd & Anor v The Government of the HKSAR*, HCAL 35/2007, the court has

interpreted section 7(2) of the APCO as meaning that, whilst one of the factors to be taken into account in establishing the AQOs is protection of public health, other considerations such as social and economic factors may also be taken into account –

"...If Government has the power under s.7 of the Air Pollution Control Ordinance to update air quality objectives, either generally or in respect of particular areas, it is inevitable there will be reasons why – if, in fact, there has been no updating – that it has declined to do so. Those reasons will be based on social and economic factors and, importantly, on an assessment of whether, all matters being taken into account, there is sufficient benefit to be obtained at this time in adopting more stringent objectives."

26. The Administration maintains that the wording of 'public interest' is considered more appropriate and is thus adopted in Section 7A(2) of the Bill instead of 'public health'.

Committee Stage amendments

27. No Committee Stage amendments to the Bill have been proposed by the Administration or the Bills Committee.

Resumption of Second Reading debate

28. The Bills Committee supports the resumption of the Second Reading debate on the Bill at the Council meeting on 10 July 2013.

Advice Sought

29. Members are invited to note the deliberations of the Bills Committee.

Bills Committee on Air Pollution Control (Amendment) Bill 2013

Membership list

Chairman Hon Charles Peter MOK

Members Hon Abraham SHEK Lai-him, SBS, JP
Hon Cyd HO Sau-lan
Hon CHAN Hak-kan, JP
Hon WONG Yuk-man
Hon Michael TIEN Puk-sun, BBS, JP
Hon Frankie YICK Chi-ming
Hon WU Chi-wai, MH
Dr Hon Kenneth CHAN Ka-lok
Hon KWOK Wai-keung
Hon Dennis KWOK
Dr Hon Helena WONG Pik-wan
Dr Hon Elizabeth QUAT, JP
Hon TANG Ka-piu
Ir Dr Hon LO Wai-kwok, BBS, MH, JP
Hon Christopher CHUNG Shu-kun, BBS, MH, JP
Hon Tony TSE Wai-chuen

(Total : 17 Members)

Clerk Ms Sophie LAU

Legal Adviser Miss Evelyn LEE

Date 16 April 2013

Bills Committee on Air Pollution Control (Amendment) Bill 2013

**List of organisations/individuals that have submitted views to the
Bills Committee**

- I. Organizations which have made oral representations to the Bills Committee*
1. Taxi Drivers & Operators Association Ltd
 2. Civic Party
 3. Youth Committee of Professional Power
 4. Tai Wo Motors Limited
 5. Friends of The Earth
 6. Clean Air Network
 7. The Staffs & Workers Union of Hong Kong Civil Airlines
 8. Hong Kong Professionals and Senior Executives Association
 9. Fresh Fruit Transportation Association
 10. Motor Transport Workers General Union
 11. N.W. Area Taxi Drivers & Operators Association
 12. New Territories Taxi Operations Union
 13. The Hong Kong Institution of Engineers
 14. Labour Party
 15. School of Public Health, The University of Hong Kong

II. Organizations/individuals providing submissions only

1. The Law Society of Hong Kong
2. Yat Tung Community Network Association
3. CLP Power
4. A member of the public
5. The Hong Kong General Chamber of Commerce
6. A member of the public
7. The Civic Exchange
8. Institute for the Environment, The Hong Kong University of Science and Technology
9. School of Public Health and Primary Care, The Chinese University of Hong Kong
10. Green Sense

The New AQOs for Hong Kong

| Pollutants | Avg. Time | Existing AQOs | | Proposed AQOs | | | | |
|---|-----------|------------------------------|----------------------------|--|--|--|--------------------------------------|----------------------------|
| | | ($\mu\text{g}/\text{m}^3$) | No of Exceed-ances Allowed | WHO IT-1 ^[3] ($\mu\text{g}/\text{m}^3$) | WHO IT-2 ^[3] ($\mu\text{g}/\text{m}^3$) | WHO IT-3 ^[3] ($\mu\text{g}/\text{m}^3$) | WHO AQG ($\mu\text{g}/\text{m}^3$) | No of Exceed-ances Allowed |
| Sulphur Dioxide (SO ₂) | 10-min | -- | -- | - | - | - | 500 | 3 |
| | 24-hr | 350 | 1 | 125 | 50 | - | 20 | 3 |
| Respirable Suspended Particulates (PM ₁₀) | 24-hr | 180 | 1 | 150 | 100 | 75 | 50 | 9 |
| | Annual | 55 | NA | 70 | 50 | 30 | 20 | NA |
| Fine Suspended Particulates (PM _{2.5}) | 24-hr | -- | -- | 75 | 50 | 37.5 | 25 | 9 |
| | Annual | -- | -- | 35 | 25 | 15 | 10 | NA |
| Nitrogen Dioxide (NO ₂) | 1-hr | 300 | 3 | - | - | - | 200 | 18 |
| | Annual | 80 | NA | - | - | - | 40 | NA |
| Ozone (O ₃) | 8-hr | 240 ^[1] | 3 | 160 | - | - | 100 | 9 |
| Carbon Monoxide (CO) | 1-hr | 30,000 | 3 | - | - | - | 30,000 | 0 |
| | 8-hr | 10,000 | 1 | - | - | - | 10,000 | 0 |
| Lead (Pb) | Annual | 1.5 ^[2] | NA | - | - | - | 0.5 | NA |

□ Proposed new AQOs

^[1] There is no existing 8-hour AQO for ozone in Hong Kong. The figure presented above is the 1-hour AQO.

^[2] There is no annual AQO for lead in Hong Kong. The figure presented above is the 3-month AQO.

^[3] The WHO accepts the need for governments to set national standards according to their own particular circumstances. The WHO guidelines therefore also suggest interim targets (ITs) on SO₂, PM₁₀, PM_{2.5} and O₃ to facilitate a progressive approach for achieving the ultimate AQGs and provide milestones in achieving better air quality.

Appendix IV

Breakdown of Hong Kong Emissions in 2011

(Unit: Tonnes)

| Pollutant Source Categories | Sulphur Dioxide (SO₂) | Nitrogen Oxides (NO_x) | Respirable Suspended Particulates (RSP) | Volatile Organic Compounds (VOC) | Carbon Monoxide (CO) |
|------------------------------------|---|---|--|---|-----------------------------|
| Public Electricity Generation | 14,000 (44%) | 30,000 (26%) | 998 (16%) | 447 (1%) | 3,720 (5%) |
| Road Transport | 207 (<1%) | 32,700 (29%) | 1,180 (19%) | 7,450 (23%) | 45,700 (67%) |
| Navigation | 17,200 (54%) | 37,700 (33%) | 2,310 (37%) | 3,900 (12%) | 12,200 (18%) |
| Civil Aviation | 304 (<1%) | 4,770 (4%) | 58 (<1%) | 329 (1%) | 2,340 (3%) |
| Other Fuel Combustion ¹ | 237 (<1%) | 9,290 (8%) | 745 (12%) | 878 (3%) | 4,610 (7%) |
| Non-combustion ² | N/A | N/A | 934 (15%) | 19,900 (60%) | N/A |
| Total | 31,900 | 114,000 | 6,220 | 32,900 | 68,500 |

Note:-

1. Other fuel combustion sources include industrial, commercial and domestic applications.
2. RSP emission sources include quarrying, cooking fumes, construction site dust, tyre, brake and road surface wear. VOC emission sources mainly consist of consumer products, paints, printing, etc.
3. Figures in bracket are the percentages with respect to the total emission.
4. Figures may not sum up to the total due to rounding.

Air Quality Improvement Measures

(I) Emission control for vehicles

1. Early Retirement of heavily polluting vehicles
2. “Carrot and stick” approach to phase out pre-Euro IV diesel commercial vehicles
3. Wider use of hybrid / electric vehicles or other environment-friendly vehicles
4. Retrofitting Euro II and III franchised buses with selective catalytic reduction devices to reduce their nitrogen oxides (NO_x) emissions
5. Tightening the emission control regime on LPG and petrol vehicles through remote sensing equipment and dynamometer tests

(II) Emission control for vessels

6. Tightening fuel standard for local vessels
7. Mandatory fuel switch for ocean going vessels while at berth in Hong Kong waters
8. Measures for government vessels to reduce nitrogen oxides emissions
9. Installation of on-shore power facilities at Kai Tak Cruise Terminal

(III) Emission control for power plants and other operations

10. Increasing the ratio of natural gas in local electricity generation
11. Imposing emission control for non-road mobile machinery
12. Electrification of aviation ground support equipment
13. Strengthening volatile organic compounds control

(IV) Road traffic-related measures

14. Low emission zones
15. Car-free zone / pedestrianisation scheme
16. Bus route rationalization

(V) Infrastructure development and planning

17. Expand rail network
18. Develop cycle tracks in new development areas

(VI) Energy efficiency measures

19. Mandatory implementation of the Building Energy Codes
20. Review of Coverage of and Grading Standards under the Mandatory Energy Efficiency Labelling Scheme
21. Light-emitting diode or equivalent alternatives for traffic signal / street lighting
22. Tree planting / roof-top greening
23. District cooling system for Kai Tak Development

(VII) Regional collaboration

24. Collaboration with Pearl River Delta governments in requiring ocean-going vessels to switch to cleaner fuels while berthing at Pearl River Delta ports and set up an Emission Control Area in Pearl River Delta waters over the longer term
25. Collaboration with Guangdong authorities on achieving 2015 and 2020 emission reduction targets