

Enclosure

Legislative Council - Panel on Environmental Affairs

**Summary of views from The Hong Kong Institution of Engineers
on the Administration's proposal to update the Air Quality Objectives (AQOs) and
the proposed emission control measures identified for attaining the proposed new AQOs
on the basis of the consultation document on the AQOs Review**

General

1. The Hong Kong Institution of Engineers (HKIE) shares the community's aspiration for cleaner and fresher air. It is vital to the health of the people and plays an important role in maintaining the competitiveness of Hong Kong as an international business and financial centre. We are in full support of the pressing need as desired by the community to actively review our outdated Air Quality Objectives (AQOs) taking into account the WHO AQGs and the practice of other advanced countries/economies.
2. It is pleasing to see that the Final Report together with the Public Consultation Paper issued in July 2009 has set out the main findings of the Review and seeks comments from interested parties on the proposed **New AQOs** and related emission control measures. The proposed retention of the existing practice of having same AQOs applicable to both ambient and roadside exposure with the exception of that with long averaging time (Section 4.2.10 of Final Report) is supported. The inclusion of a mandatory review mechanism (Section 6.7 of final Report) is welcome and would suggest the frequency of review should be at least once every 4 years, instead of the proposed 5 years.
3. It is noted from Section 5.1.2 of the Final Report that the proposed 36 emission control measures are assumed to be implemented in three phases with Phase I (Near Term by 2015), Phase II (Medium Term by 2020) and Phase III (Long Term by 2030). HKIE supports in principle the proposed phased approach to adopt a combination of WHO ITs and AQGs as the proposed New AQOs for Hong Kong to suit our specific local situations.
4. It is noted that the proposed New AQOs would be achieved with the full implementation of the proposed Phase I control measures comprising 16 items in 2015 (Section 6.2 of Final Report). However, among the pollutants in the proposed New AQOs, WHO AQGs will be adopted for SO₂ (10 mins), NO₂, and Pb. We are concerned that there is still a long way to go for the rest to get closer to or eventually achieve WHO AQGs, particularly RSP and FSP.
5. HKIE accepts that while there is a practical need to balance risks to health, technological feasibility, economic considerations and other political and social factors to work out the pace of implementation, it is still important to set out clearly a well-defined timetable for achieving all WHO AQGs. Please confirm otherwise that the WHO AQGs can be achieved with the full implementation of Phase III control measures in 2030. Even so, we are concerned that some of the proposed measures require technologies that are still not yet fully developed.
6. A closer look at the proposed New AQOs reveals that the extent of tightening of pollutant concentrations when compared with those measured in 2008 (ambient) given in Table A below is not that substantial. Apart from the limited number of air quality monitoring

stations in Hong Kong which raises the question of credible representation, the air quality in Hong Kong is subject to regional influence and the modelling is based on the assumption that Guangdong will continue to align itself with the best practices in the world to curb emissions from its power, transport and industrial sectors on tandem with economic growth. HKIE is concerned that clear visibility (blue sky) and aesthetic enjoyment which the local community and overseas visitors desire to see could remain a distant future. Please also refer to info in item 20.

Table A – Proposed New AQO Vs 2008 Concentrations

Pollutants	Average Time	2008 Concentration ($\mu\text{g}/\text{m}^3$) (Ambient)	Proposed New AQO ($\mu\text{g}/\text{m}^3$)	WHO AQG
SO ₂	10-min	1,173	500	500
	24-hour	149	125	20
RSP (PM ₁₀)	24-hour	164	100	50
	1-year	60	50	20
FSP (PM _{2.5})	24-hour	113	75	25
	1-year	41	35	10
NO ₂	1-hour	282	200	200
	1-year	69	40	40
O ₃	8-hour	320	160	100
CO	15-min	3,439	-	100,000
	30-min	3,323	-	60,000
	1-hour	3,220	30,000	30,000
	8-hour	3,034	10,000	10,000
Pb	1-year	0.06	0.5	0.5

7. Given that changes in proposed New AQOs will affect the permitted emission standards for specific process under APCO and the associated license application, HKIE suggests that provisions of grandfather's clause or reasonable grace period clause for compliance should be considered for all existing processes.

8. The propose New AQOs will affect the criteria for evaluating the air quality impact of the proposed development classified as Designated Project under the EIAO. Given the environmental assessment and subsequent construction would take considerable time to complete for large/complex development, HKIE is of the view the new criteria should not apply retrospectively to those developments already have their Project Profile submitted to EPD for processing under EIAO.

Emission Control Measures (Phase I)

9. HKIE considers that it is appropriate to have the 19 proposed Phase 1 Emission Control Measures grouped into four main categories, namely, emission capping and control, energy efficiency measures, transport management and infrastructure and development & planning. We have to point out that most of the proposed measures are not new, and some of which have been implemented over the years but results are not up to the expectation. This is primarily due to the absence of a body to deal with and make decisions on complex/sensitive issues which are under the jurisdiction of different Government bureaus/departments. We strongly feel that it is crucial to have a high power Authority in place to lead and oversee the implementation.

10. The Government should go ahead immediately to speed up the implementation of those in the proposed Phase 1 control measures which are known to be mature, proven, effective,

widely adopted overseas and less sensitive. These include mandatory implementation of building energy codes, car-free zone/pedestrianisation scheme, tree planting/roof-top greening, energy standards for domestic electrical appliances, LED for traffic signal/street lighting, wider use of hybrid/electric vehicles, emission control for off-load vehicles/equipment, etc.

11. Apart from the proposed 36 emission control measures, the Government should consider the inclusion of the following initiatives and come up with specifics:

- (a) Actively promote public awareness on the ways and means to achieve energy efficiency/conservation/saving as well as the adoption of green life style and behavior mindset through school curriculum, public education, community engagements and funding to NGOs.
- (b) Rationalize the design and layout of our Built Environment to reduce (i) wall effect (ii) street canyon effect and (iii) urban heat island effect to reduce road side pollutant concentration.

12. New technology is the key to the success of emission control. The Government should actively support the operations of local environmental industry and their works on R&D through tax concession and other possible incentives to encourage creativity, innovation and design. This is one of the six new economic niche pillars identified by the Chief Executive's Task Force on Economic Challenges.

Cost, Benefit & Incentives (Phase I)

13. It appears that the Final Report may have downplayed significantly the benefits of maintaining good air quality in the overall consideration, e.g. better working conditions, attracting more visitors, overseas talents and foreign investment, etc. The impact of avoidance of 4,200 hospital admissions upon the implementation of Phase 1 control measures (Section 5.3.2 of Final Report) is not clear as no figure of the total admission is given. Likely, the increase of average life expectancy by about one month fails badly to reflect the perceived full benefits.

14. The Government should consider offering a “one-off grant” as financial incentive to speed up the early retirement of aged/heavy polluting vehicles (pre-Euro, Euro I and Euro II diesel vehicles), but excluding franchised buses.

15. For local vessels, the Government should consider offering a “one-off grant” as financial incentive for retrofitting SCR and conversion of 2-stroke engines to burn ULSD, but excluding franchised ferries.

16. It is unfair for the bus passengers to bear in full the increase of 15% in bus fares respectively for earlier retirement of old buses. The Government should actively discuss with Bus Companies on the funding arrangement, schedule for implementation and how to share the costs pragmatically among communities. Retrofitting the not so older model of bus with SCR and other emission reduction devices to reduce/disperse road side pollutants as an interim arrangement should be further explored.

17. Similarly, it is unfair for the consumers to bear in full the increase of 20% in electricity tariffs for adoption of 50% natural gas in local electricity generation. The Government should actively discuss with Power Companies on the funding arrangement, schedule for implementation and how to share the costs pragmatically among communities. Given the

considerable up front time required for installation of two additional gas-fired units (Section 5.1.3a (1) of Final Report), implementation in 2015, i.e. 4 to 5 years, is considered feasible.

Yr 2015 Projected Emissions of HKSAR and PRDEZ

18. It is noted that PRDEZ's emission control strategies in Yr 2020 are given in Table G1.9 of Appendix G of the Final Report, but no specific emission control measures are given on how the emission inventory in Yr 2015 (Table G1.10 of Appendix G) can be achieved. Nevertheless, the extent of reduction is considered rather moderate as shown in Table B below when compared with the updated Yr 2010 Targets (Table 5.9 of Final Report and Table G1.1 of Appendix G).

Table B – PRDEZ Emissions (Yr 2010 Vs Yr 2015)

PRDEZ Emission	SO ₂ (tonnes)	NO _x (tonnes)	RSP (tonnes)	VOC (tonnes)
Yr 2010	431,300	503,600	207,500	178,200
Yr 2015	401,487	452,312	206,680	187,412
% Reduction	- 7%	-10%	-1%	+5

19. On the contrary, both emission control measures and emission inventory predicted in Yr 2015 for HKSAR (Phase I) are given in Table G1.17 and Table G1.20 respectively. Furthermore, the extent of emission reduction is much significant as shown in Table C below when compared with the updated Yr 2010 Targets (Table G1.2 of Appendix G). HKIE wishes to have more information on the rationale why Hong Kong should take such large chunk of emission reductions when compared with that undertaken by PRDEZ.

Table C – HKSAR Emissions (Yr 2010 Vs Yr 2015)

HKSAR Emission	SO ₂ (tonnes)	NO _x (tonnes)	RSP (tonnes)	VOC (tonnes)
Yr 2010	30,237	92,847	4,737	31,017
Phase I in Yr 2015	16,640	59,080	3,055	29,564
% Reduction	-45%	-36%	-36%	-5%

20. It is noted from the Final Report that based on the air quality monitored at Tap Mun (Table 4.1 of Final Report) which is far away from local emission sources, a significant amount of pollutants, in particular Ozone (O₃), recorded there are originated from PRDEZ. The data collected demonstrated the need to tackle air pollution at the regional context on top of local emissions. HKIE is concerned that even though Hong Kong has implemented all the proposed emission reduction measures, there might not be much improvement in air quality in Hong Kong as the total emission reduction of the whole Region in 2015 as shown in Table D below is not so significant, particularly RSP. Furthermore, there will be slight increase in VOC.

Table D – Regional Emissions (Yr 2010 Vs Yr 2015)

Emission		SO ₂ (tonnes)	NO _x (tonnes)	RSP (tonnes)	VOC (tonnes)
Yr 2010	HK	30,237	92,847	4,737	31,017
	PRDEZ	431,300	503,600	207,500	178,200
	Total	461,537	596,447	212,237	209,217
Yr 2015	HK	16,640	59,080	3,055	29,564
	PRDEZ	401,487	452,312	206,680	187,412
	Total	418,127	511,392	209,735	216,976
Change	Total	-9.4%	-14.3%	-1.2%	+3.7%

Post Yr 2015 Projected Emissions of HKSAR and PRDEZ

21. HKIE is concerned that the projected emissions beyond 2015 as shown below represent a huge challenge for HKSAR (Table E), but the targets for PRDEZ are much modest (no information for Yr 2020 is available) (Table F). Further explanation on such significant disparity is desirable.

Table E – HKSAR Emissions (Yr 2010 Vs Yr 2030)

HKSAR Emission	SO2 (tonnes)	NOx (tonnes)	RSP (tonnes)	VOC (tonnes)
Yr 2010	30,237	92,847	4,737	31,017
Phase I in Yr 2015	16,640	59,080	3,055	29,564
Phase II in Yr 2020	8,925	42,761	2,679	24,7a9
Reduction	-70%	-54%	-43%	-20%
Phase III in Yr 2030	3,962	35,626	2,437	24,285
Total Reduction	-87%	-62%	-48%	-22%

Table F – PRDEZ Emissions (Yr 2010 Vs Yr 2020)

PRDEZ Emission	SO2 (tonnes)	NOx (tonnes)	RSP (tonnes)	VOC (tonnes)
Yr 2010	431,300	503,600	207,500	178,200
Yr 2015	401,487	452,312	206,680	187,412
Yr 2020	371,673	401,024	206,099	196,624
Reduction	-14%	-20%	-1%	+10%

Closing Remarks

22. As regional collaboration on air quality monitoring and emission control/enforcement is of prime importance, Hong Kong Government should joint hand with the Guangdong Government to review the findings of public consultation and come up with pragmatic policy to convince the public in Hong Kong that the “finalised” Phase I Emission Control Measures for achieving the “finalized” New AQOs can be fully implemented by 2015. Furthermore, Guangdong must align itself with the best practices in the world to curb emissions from its power, transport and industrial sectors on tandem with economic growth. With that the air quality in Hong Kong can be significantly improved and the after-sought blue sky will reappear in Hong Kong.