

AIR QUALITY OBJECTIVES (AQO) REVIEW WORKING GROUP

Digest of the 3rd Meeting
held on 15 June 2017 at 2:00 p.m.
in Y-Studio, 2/F, Youth Square
No. 238 Chai Wan Road, Chai Wan

Present:

Ms. Christine LOH	Under Secretary for the Environment (Chairperson) , ENB
Mrs. Alice CHEUNG	Deputy Director of Environmental Protection (3) (Vice-Chairperson) , EPD
Mr. Jeff BENT	
Mr. Arthur BOWRING	
Mr. Stanley Tandon Lal CHAING	
Dr. CHAN Ka-lung	
Ms. Suzanne CHEUNG Kit-yee	
Mr. CHIANG Sui Ki	
Prof. Larry CHOW	
Mr. Patrick FUNG Kin-wai	
Ir. FUNG Man-keung	
Mr. FUNG Pak sing	
Ir. Dr. David HO Chi-shing	
Mr. Sunny HO Lap-kee	
Dr. HUNG Wing-tat	
Mr. KEUNG Siu-fai	
Mr. David KONG	
Mr. Prentice KOO	
Dr. Nicky LAM Yun-fat	
Prof. Alexis LAU Kai-hon	
Mr. Joseph LAW Ka-chun	
Mr. Alfred LEE Tak-kong	
Dr. Ringo LEE Yiu-pui	
Mr. LING Chi-keung	
Mr. Brandon LIU	
Ir. LO Pak-cheong	
Mr. LOONG Tsz-wai	
Dr. Eunice MAK Hoi-cheung	

Dr. MAN Chi-sum	
Mr. Aaron NG Hoi-shan	
Mr. Simon NG	
Dr. NING Zhi	
Dr. Loletta SO Kit-ying	
Mr. SO Sai-hung	
Prof. TIAN Lin-wei	
Mr. Tony TONG	
Mr. Danny WU	
Ir. YEE Tak-chow	
Dr. William YU	
Ms. Irene PANG	Chief Assistant Secretary (Works) 3, DEVB
Ms. Queenie LEE	Principal Assistant Secretary for the Environment (Electricity Reviews), ENB
Mr. Desmond CHENG ⁽¹⁾	Assistant Secretary for the Environment (Energy) 2, ENB
Ms. Louisa YAN	Principal Assistant Secretary (Transport)10, THB
Mr. Alex LAU ⁽²⁾	Assistant Secretary (Transport)2B, THB
Mr. Anthony LO	Deputy Project Manager (Kowloon), CEDD
Mr. C.T. TSE ⁽³⁾	Chief Engineer, Land Works, CEDD
Dr. Eddy NG	Principal Medical Officer (Non Communicable Diseases, DoH
Mr. Kent FUNG ⁽⁴⁾	Senior Engineer (Energy Efficiency A3), EMSD
Mr. Y.K. LAI	Chief (Marine Policy), MD
Mr Patrick WONG	Senior Town Planner/Strategic Planning, PlanD
Ms. Rachel KWAN	Assistant Commissioner (Bus & Railway), TD
Mr. Dave HO	Acting Assistant Director of Environmental Protection (Air Policy), EPD
Mr. Brian LAU	Principal Environmental Protection Officer (Air Policy), EPD
Mr. Terence TSANG	Principal Environmental Protection Officer (Air Science), EPD
Dr. S.T. MAK	Acting Principal Environmental Protection Officer (Mobile Source), EPD
Mr. Freeman CHEUNG	Consultants' Representative (AECOM)
Mr. Marcus IP	Consultants' Representative (AECOM)

Mr. Ping KONG	Consultants' Representative (AECOM)
Mr. Karl AN	Consultants' Representative (AECOM)
Dr. LAO Xiang-qian	Consultants' Representative (CUHK)
Prof. Jimmy FUNG Chi-hung	Consultants' Representative (HKUST)
Prof. Zibing YUAN	Consultants' Representative (South China University of Technology)
Prof. Tze Wai WONG	Consultants' Representative (CUHK)

Note:

1. Representing Mrs. Dorothy MA, Principal Assistant Secretary for the Environment (Energy), to attend the meeting.
2. Representing Mr. Tony LI, Principal Assistant Secretary (Transport) 2, to attend the meeting.
3. Representing Mr. Keith TANG, Deputy Head of Civil Engineering Office (Port & Land), to attend the meeting.
4. Representing Mr. Barry CHU, Chief Engineer (Energy Efficiency A), to attend the meeting.

In Attendance:

Ms. Josephine HO	Acting Senior Environmental Protection Officer (Air Policy) 1, EPD
Mr. C.H. KAN	Senior Environmental Protection Officer (Air Policy) 4, EPD
Dr. Peter LOUIE	Senior Environmental Protection Officer (Air Policy) 5, EPD
Dr. Kenneth LEUNG	Senior Environmental Protection Officer (Air Science) 4, EPD
Mr. Nick TSANG	Environmental Protection Officer (Air Policy) 43, EPD
Mr. Roy TSANG	Environmental Protection Officer (Air Science) 42, EPD
Mr. Ambrose CHEN	Environmental Protection Officer (Mobile Source) 31, EPD
Mr. Ivan SHEK	Environmental Protection Officer (Mobile Source) 34, EPD
Dr. Jackie NG	Assistant Environmental Protection Officer (Air Policy) 12, EPD

Ms. Queenie CHAU

Assistant Environmental Protection Officer (Air
Policy) 14, EPD

Absent with apologies:

Mr. Evan AUYANG

Prof. Peter BRIMBLECOMBE

Ir. Cary CHAN

Hon CHAN Choi-hi

Mr. Ellis CHUNG

Ms. Jessie CHUNG

Ir. Edmond FONG Wai-man

Mr. KWOK Tak-kee

Hon KWAN Sau-ling

Mr. Roger LEE Chak-cheong

Dr. Roland LEUNG Chung-chuen

Mr. Paul LI

Prof. John LIU Jianhua

Ms. Sandy MAK

Mr. Daniel NG

Ms. Susanna NG

Prof. Raymond SO Wai-man

Mr. Madison TANG Wing-hong

Prof. WANG Tao

Mr. TUNG Ching-leung

Mr. Matthew WONG Leung-pak

Mr. David WONG Yui-cheong

Dr. Steve YIM Hung-lam

Opening Remarks

The **Chairperson** welcomed Members to the third meeting of the AQO Review Working Group (“Working Group”).

Agenda Item 1 – Confirmation of digest of the second meeting

2. Comments received from the Working Group were incorporated in the draft digest of the second meeting held on 22 December 2016. The draft meeting digest was confirmed without further amendment.

Agenda Item 2 – Report the progress of the Sub-groups (WG paper 1/2017)

3. The **Chairperson** informed Members that the latest progress of the four sub-groups had been summarized in the WG paper 1/2017, which had been circulated to Members before the meeting. She also invited Members to provide further views on the progress.

4. **Mr. Dave Ho** gave a brief account of the review progress:

(a) The three sub-groups on Road Transportation, Marine Transportation, and Energy and Power Generation had largely completed deliberations on all of the possible new air quality improvement measures, which covered a wide array of areas such as transport management, fuel policy, urban planning, etc.

(b) Among the new possible measures, 24 of them were either on-going or considered practicable for implementation within the agreed timeframe of the review up to 2025 (short term measures). There were four medium term measures of which the practicability for implementation might go beyond 2025 and would be further considered in the next AQO review. 13 measures were considered as long term which required longer term planning or further study to ascertain the practicality for implementation. 25 measures were considered not practicable for implementation, short of air quality benefits or not suitable to be considered under the current scope of the review.

(c) For the Road Transportation sub-group, the assessments of four possible measures discussed at the meeting held in May 2017 would be circulated for members' confirmation and updates on some previous assessments would also be re-circulated for members' consideration. An additional sub-group meeting might be arranged if necessary. [*Post Meeting Note: The assessments of the four possible measures and updates to some previous assessments were circulated to the sub-group members for comments on 28 July 2017. After taking on board the comments from members, the assessments were confirmed on 19 September 2017.*]

(d) Two task forces, namely the "Emission Reduction Estimation and Air Quality

Modelling” and “Health and Economic Impact Assessment” were formed under the Air Science and Health sub-group for in-depth deliberations on the approach and methodology of air quality assessment, estimation of emission reduction from possible new air quality improvement measures, as well as health and economic impact assessment. The two task forces had been conducting detailed discussions and providing steer to the Consultant commissioned for the AQO review.

- (e) Potential measures to reduce emissions from other minor pollution sources not covered in the three sub-groups, e.g. products containing volatile organic compounds, non-road mobile machinery, cooking fume and civil aviation were being evaluated. Where necessary, the Consultant would engage relevant stakeholders to canvass their views and comments on the potential measures.
- (f) A public engagement exercise would be conducted in the third quarter of 2017 to inform the public the review progress and collect their views on air quality improvement measures. The plan was to complete the review around end of 2017 for the consideration of the Secretary for the Environment (SEN) who would report the review findings to the Advisory Council on the Environment (ACE) and Panel on Environmental Affairs (EA Panel) of the Legislative Council around mid-2018.

Possible New Air Quality Improvement Measures

5. A member doubted the assessment of the measure “use of retired batteries of electric vehicles (EV) as an electrical energy storage system for the power grid”, which suggested that the technology was immature. He indicated that retired batteries could be used as substitutes of the more polluting diesel generators as a backup/emergency power source. Reusing retired batteries as backup power storage was not uncommon in the Mainland. He supplemented that an EV battery would generally be retired at a reduced storage capacity of about 20%.

6. The Administration clarified that the deliberation on the use of retired EV batteries in the Energy and Power Generation sub-group was mainly about its potential as an energy storage system to improve the stability of electricity supply from the power grid. The sub-group was aware that retired EV batteries could still have about 70% or more of their designed capacity. Similar pilot projects were conducted overseas (e.g. the US, Germany, Japan) in recent years and revealed that incompatibility among different types of EV

batteries might cause safety issues (e.g. short-circuit). The sub-group considered that technical standards for connecting retired EV batteries should be established before considering further the measure. In 2016, the Government launched a competition to help identify innovative and practical ideas for second-life applications of retired EV batteries. Regarding the suggestion of using retired EV batteries as a means of backup electricity supply for buildings in lieu of diesel generators, the **Chairperson** opined that the technology was well-proven and worth further exploration.

7. In view of a domestic marine emission control area (DECA) that would be set up in the Pearl River Delta (PRD) region by 2019 with a fuel sulphur limit of 0.5% (which might be further tightened to 0.1%) covering an area within 12 nautical miles from the coastlines, a member suggested that the Government should also consider mandating ocean-going vessels (OGVs) to use fuel with sulphur limit of 0.1% in the waters of Hong Kong instead of just during berthing. The **Chairperson** advised that, considering the small stretch of Hong Kong waters, mandating marine vessels to use fuel with a much lower sulphur content would be more effective on a regional approach. To this end, the Government would keep a close watch on the review of the DECA to be completed by end of 2019 which would look into whether to further tighten the fuel sulphur limit to 0.1% in the Pearl River Delta region. In fact, OGVs using marine fuel with sulphur content of 0.1% at berth was one of the short-term measures deliberated in the Marine Transportation sub-group.

8. A member enquired if deliberations on all proposed measures, including those categorised as “long term” and “others”, would be disclosed to the public in the upcoming public engagement exercise. While the practicability for implementation of some measures might be low after taking into account a number of considerations, he believed that it would help reach a consensus in the society by informing the public of the emission reduction potential and health benefits associated with the individual measures. The **Chairperson** affirmed Members that sub-groups’ deliberations on the practicability of implementing all the possible air quality improvement measures would be covered in the review report. In addition, minutes of sub-group meetings which had recorded deliberations of those measures had been uploaded onto a dedicated AQO review webpage for public viewing. The **Vice-Chairperson** supplemented that maintaining a high level of transparency was one of the prime considerations in the current review process.

9. Another member enquired if suggestions raised during the public engagement exercise would be further deliberated in the Working Group. The **Chairperson** considered that it would be more practicable to incorporate suggestions/views gathered from the

public engagement exercise into the review report instead of further deliberation in the Working Group. She trusted that key air quality improvement measures should have been largely covered in the sub-groups and encouraged Members to give further views, if any.

10. In reply to a member's question on the differences between public engagement and public consultation to be held under the review, the Administration explained that the engagement exercise aimed at reporting progress of the AQO review to the public and collecting their views/suggestions on possible air quality improvement measures. As for the public consultation, it aimed at soliciting public views on the review findings after SEN had submitted the review report to the ACE and the EA Panel.

11. In response to a member's enquiry on the end date of the Working Group, the **Chairperson** advised that the Working Group would have discharged its duties after the review report had been submitted for SEN's consideration by end of 2017 tentatively.

Air Science and Health Assessments

12. The Consultant gave a presentation on the latest development of the review of the Air Quality Guidelines (AQGs) by the World Health Organization (WHO), air quality trend in Hong Kong and the Mainland, effectiveness of air quality improvement measures implemented in the last few years, assessments of air quality by using air quality modelling and health impacts to be conducted in the AQO review, etc.

13. A member opined that it was challenging to come up with accurate projection of future air quality by air modelling as there were a lot of uncertainties with the emission assumptions used in the model. Some Members advised that it was a well-established international practice to conduct air quality modelling using best available modelling tools, emission data, meteorological information and assumptions set for scenario projections. Despite the limitation that not all variables in reality could be covered in the air model, it had been demonstrated that the air quality modelling was capable of delivering results with a reasonable level of accuracy upon verification with observation data.

14. The Consultant clarified that the air quality modelling was mainly to assess the air quality under different scenarios of air quality improvement measures in place; and indicated that air modelling results would be validated against observation results to ensure the accuracy of the air quality model. The Administration supplemented that the air quality modelling tool adopted in this review had been developed for over a decade and was updated in 2016. The Environmental Protection Department (EPD) had been

updating the air modeling tool and conducted model validation with observation data at local monitoring stations from time to time.

15. A member suggested the air quality improvement in Kwai Chung could be mainly due to the reduced number of OGV arrivals in Hong Kong over past few years instead of the implementation of mandatory fuel switch of OGVs at berth. He considered that the fuel switch at berth control requirement could not help improve air quality in areas near the shore. The Administration clarified that the effectiveness of mandating OGVs to switch to low sulphur fuel had been reflected by air quality monitoring data recorded at the Kwai Chung air quality monitoring station (AQMS) in the vicinity of the container terminals. Significant improvement in the ambient concentration of sulphur dioxide was noted in the Kwai Chung AQMS after the mandatory fuel switch at berth requirement had been implemented, particularly when the wind direction was southerly such that the AQMS was downwind of the container terminals. Similar improvements in ambient SO₂ concentration had also been recorded at the Mong Kok and Sham Shui Po AQMSs near coastal areas. The Administration added that upon mandating all vessels in the region to use low sulphur fuel by 2019 under the PRD DECA, further air quality improvement would be anticipated.

Agenda Item 3 – Any Other Business

16. No other business was raised.

Agenda Item 4 – Date of the Next Meeting

17. The next meeting would be held in the last quarter of 2017. The Secretary would confirm the date and venue of the next meeting nearer the time.

18. The meeting was adjourned at 4:15 p.m.

[Post-meeting note: The 4th meeting has been rescheduled to December 2018.]