

**AIR QUALITY OBJECTIVES (AQO) REVIEW WORKING GROUP
MARINE TRANSPORTATION SUB-GROUP**

**Digest of the 2nd Meeting
held on 22 July 2016 at 2:30 p.m.
in Conference Room, 33/F., Revenue Tower, 5 Gloucester Road, Wanchai**

Present:

Ms. Christine LOH	Under Secretary for the Environment (Chairperson), Environment Bureau (ENB)
Mrs. Alice CHEUNG	Deputy Director of Environmental Protection (3) (Vice-chairperson), Environmental Protection Department (EPD)
Mr. Arthur BOWRING	
Mr. CHIANG Sui-ki	
Ms. Jessie CHUNG	
Mr. Ellis CHUNG	
Mr. FUNG Pak-sing	
Mr. Sunny HO	
Mr. KEUNG Siu-fai	
Mr. KWOK Tak-kee	
Mr. David KONG	
Prof. John LIU Jian-hua	
Ms. Sandy MAK	
Mr. Simon NG	
Mr. MOK Wai-chuen	Assistant Director of Environmental Protection (Air Policy), EPD
Mr. Brian LAU	Acting Principal Environmental Protection Officer (Air Policy), EPD
Ms. Louisa YAN	Principal Assistant Secretary (Transport) ¹⁰ , Transport and Housing Bureau (THB)
Mr. LAI Ying-keung	Chief (Marine Policy), Marine Department (MD)

In Attendance:

Ms. Josephine HO	Acting Senior Environmental Protection Officer (Air Policy) 1, EPD
Dr. Peter LOUIE	Senior Environmental Protection Officer (Air Policy) 5, EPD
Mr. Simon LAM	Environmental Protection Officer (Air Policy) 11, EPD
Dr. Jackie NG	Assistant Environmental Protection Officer (Air Policy) 12, EPD

Absent with apologies:

Mr. CHEN Huan-you
Mr. Jeff BENT
Mr. Tony TONG
Mr. David WONG Yui-cheong

The **Chairperson** introduced Mrs. Alice Cheung to Members and welcomed her to join the AQO review.

Agenda Item 1 – Confirmation of Digest of the First Meeting

2. Members had no comments on the format of the draft digest of the first meeting. The Secretariat would follow the same format in preparing meeting digest of the forthcoming meetings.
3. The draft digest of the first meeting held on 23 June 2016 were confirmed without amendment.

Agenda Item 2 – New Air Quality Improvement Measures Proposed in the First Meeting and the Key Considerations for Implementation (MT Paper 3/2016)

4. The Administration informed Members that the new air quality improvement measures proposed by Members at the first meeting and the key considerations for implementation were summarized in the paper under four categories:

- a) Use of clean fuel;
- b) Technical measures;
- c) Fuel economy, energy efficiency and port management; and
- d) Other suggestions.

5. The Administration informed Members that the purpose of this meeting was to confirm the proposed new air quality improvement measures, and to discuss whether the key considerations for implementing the measures were comprehensive enough to facilitate detailed deliberations and analysis on their practicability in the forthcoming meetings.

6. After discussion, Members' comments on the proposed measures and key considerations and the relevant amendments were summarized in the **Annex**.

7. As agreed in the meeting, the proposed measures under the category of "Use of clean fuel" would be discussed in the next meeting. The Administration would provide further elaboration on the key considerations for implementing the measures for Members' reference before the meeting.

8. The Administration made the following responses to other views from Members:

- (a) The sub-group should focus the discussions on the practicability to implement the proposed air quality improvement measures. Whether the measures could be implemented under prevailing regulations would not be a key consideration. The emission reduction potential of the measures would be assessed by the Air Science and Health sub-group.
- (b) For the supply and use of various clean fuels in the long term, the Administration encouraged Members to advise on the development of international trend in the forthcoming meetings.
- (c) Regarding the optimization of port efficiency, the Administration advised that there had been ongoing discussions within the Government on enhancing Hong Kong's port efficiency.
- (d) With regard to the emissions from non-road mobile machinery and off-road vehicles used in public cargo working areas and shipyards, the Administration briefed Members that non-road mobile machinery and

off-road vehicles are controlled under the Air Pollution Control (Non-road Mobile Machinery)(Emission) Regulation, which came into effect on 1 June 2015. In addition, operators of the container terminals had also been using more electric and hybrid machinery to reduce emissions.

Agenda Item 3 – Any other business

9. No other business was raised.

Agenda Item 4 – Date of the next meeting

10. The next meeting would be held on 22 September 2016 (Thursday). The meeting was adjourned at 4:35 p.m.

Proposed new air quality improvement measures	Summary of amendments and comments from Members
A. Use of clean fuel	
1. Explore the use of Liquefied Natural Gas (LNG) for marine vessels	<p>The Administration would amend item A2 and A3 as “Explore the use of biofuel (e.g. B5), fuel cell, Liquefied Petroleum Gas (LPG), methanol, nuclear and renewable energy, e.g. wind and solar energy, etc. for marine vessels” and “Explore the use of hybrid power, diesel electric and electric vessels” respectively.</p> <p>The Administration would add regulatory development in the use of clean fuel and the battery development for electric vessels as the key considerations.</p>
2. Explore the use of biofuel (e.g. B5), fuel cell, hybrid power, Liquefied Petroleum Gas (LPG), methanol, etc. for marine vessels	
3. Explore the use of diesel electric and electric vessels; nuclear and renewable energy, e.g. wind and solar energy for marine vessels	
4. Ocean-going vessels (OGVs) at berth to use marine diesel with lower fuel sulphur content, e.g. not exceeding 0.1%.	<p>The Administration would add international trend and regional situation in the use of lower sulphur fuel as the key considerations.</p>
5. Local vessels to use on-shore power supply (OPS) while at berth.	<p>In response to a member’s view on the use of OPS for local vessels submitted to the Secretariat before the meeting, the Administration would amend the proposed measure as “Local vessels to use on-shore power supply (OPS) while at berth (e.g. provision of OPS to ferries at ferry piers)”.</p> <p>Some members considered that the use of OPS for river trade vessels and OGVs while at berth should be explored and separately discussed. The Chairperson agreed to add new items A6 “River trade vessels to use OPS while at berth at terminals” and A7 “OGVs to use OPS while at berth” under the category of use of clean fuel.</p> <p>The Administration would add the provision of ancillary facilities and the needs of operation and</p>

Proposed new air quality improvement measures	Summary of amendments and comments from Members
	maintenance of OPS as the key considerations.
B. Technical measures	
1. Pleasure crafts to use 4-stroke outboard engines instead of 2-stroke engines	<p>In response to a member's view that that some overseas 2-stroke outboard engines have been modified to meet higher emission standards, the Administration would amend the proposed measure as "Impose emission standards on outboard engines of pleasure crafts".</p> <p>The Administration would add technology maturity as one of the key considerations.</p>
2. Install particulate filters on engines of local vessels.	<p>In response to a member's view that other technologies that reduce particulate matters (PM) emissions from local vessels should also be considered, the Administration would amend the proposed measure as "Install emission reduction device (e.g. particulate filters) to reduce particulate matters (PM) emitted from local vessels".</p> <p>A member submitted his views to the Secretariat before the meeting saying that there would not be enough space to install the particulate filters on small vessels and the filters would require regular maintenance. These considerations fell within the scope of technical feasibility and maintenance considerations. In addition, the Administration would add international trend and regulatory development in reducing PM emissions from marine vessels as the key considerations.</p> <p>A member considered that additional measures for the control of nitrogen oxides emissions should be explored. The Chairperson agreed to add a new item B3 "Impose control on nitrogen oxides (NOx) emissions from engines of local vessels"</p>

Proposed new air quality improvement measures	Summary of amendments and comments from Members
	<p>under the category of technical measures. The Administration suggested the following associated key considerations:</p> <ul style="list-style-type: none"> - Technology maturity; - Cost implications; - Trade reaction; - International trend and regulatory development in reducing NOx emissions from marine vessels.
<i>C. Fuel economy, energy efficiency, and port management</i>	
1. Impose levy or restriction on aged and polluting OGVs from entering Hong Kong.	In response to a member's suggestion of providing subsidy to encourage green ships including OGVs calling Hong Kong ports instead of imposing levy or restriction on aged and polluting OGVs, the Administration would amend the proposed measure as "Explore financial incentive and disincentive schemes to encourage liners to use less polluting OGVs calling Hong Kong ports".
2. Optimize port efficiency to shorten waiting and turnaround time of OGVs and river trade vessels.	In response to a member's suggestion to extend the scope of this measure to cover mid-stream operations and operations at the public cargo working areas, the Administration would amend the proposed measure as "Optimize port efficiency to shorten waiting and turnaround time of OGVs, river trade vessels and mid-stream operators at container terminals, river trade terminals and public cargo working areas".
3. Slow-steaming of OGVs in Hong Kong waters.	The Administration agreed with a member's suggestion to consult the Hong Kong Pilots Association on the impact on marine traffic brought by the proposed measure.
4. Explore the use of light-weight carbon fibre for local vessels.	With regard to the comments from some members on stepping up maintenance and improving fuel and energy efficiency of local vessels, the Administration would combine the proposed measures of C4 to C8 to one single item as "Encourage academia to carry out studies on fuel
5. Step up maintenance of local vessels, e.g. adjusting propeller pitch angle, regular servicing of propeller and ship hull, etc.	
6. Explore the use of variable frequency drives	

Proposed new air quality improvement measures	Summary of amendments and comments from Members
(VFD) on motors for pumps and fan systems on board local vessels.	<p>and energy efficient measures in terms of operation and maintenance for local vessels, e.g. use of light-weight materials such as carbon fibre, adjustment of propeller pitch angle, regular servicing of propeller and ship hull, use of variable frequency drives (VFD) on motors for pumps and fan systems on board, develop devices to monitor engine performance of local vessels, etc.”</p> <p>The Administration would add the following as the key considerations:</p> <ul style="list-style-type: none"> - Availability of funding support for the studies; - Provision of resources for training of maritime professionals and engineers; - Availability of mechanism to facilitate adoption of the measures by the trade and review of their outcomes;
7. Explore ways to recover heat energy from main engines of OGVs.	
8. Develop devices to monitor engine performance of local vessels (e.g. fuel consumption, revolutions per minute (rpm), etc.).	
9. Use energy efficient electrical devices on board local vessels, e.g. LED lightings.	The Administration would remove the key consideration of “Potential for emission reduction”.
10. Develop guidelines on fuel and energy saving measures for the marine trade.	In response to some members’ suggestions, the Administration would amend the proposed measure as “Encourage the marine trade to develop best practice guidelines on fuel and energy saving measures, facilitate their adoption through establishment of award system with the marine trade.”
<i>D. Other suggestions</i>	
1. Remove floating rubbish for smooth operation of small local vessels.	No amendments.
2. Government to expedite the approval process of new local vessels.	No amendments.