

立法會

Legislative Council

LC Paper No. CB(1)1286/16-17(02)

Ref. : CB1/PL/EA

Panel on Environmental Affairs

Meeting on 17 July 2017

Background brief on control of marine emissions prepared by the Legislative Council Secretariat

Purpose

This paper provides background information on the control of marine emissions for improving air quality. It also gives a brief account of Members' views and concerns when related issues were discussed by the relevant committees of the Legislative Council.

Background

Marine emissions and fuel types

2. Marine vessels are the largest source of local air pollutant emissions. According to Hong Kong's emission inventory for 2015, emissions from navigation accounted for 59% of sulphur dioxide ("SO₂"), 37% of nitrogen oxides, and 34% of respirable suspended particulates of the total emissions in Hong Kong.

3. Broadly speaking, there are three types of vessels navigating in Hong Kong waters, namely (a) ocean-going vessels ("OGVs"), (b) river-trade vessels ("RTVs"), which are mainly registered in the Mainland, and (c) local vessels, such as ferries, pleasure boats and fishing boats. In 2016, there were around 28 000 OGV arrivals and 157 000 RTV arrivals in Hong Kong.¹ OGVs generally run on heavy fuel oil. RTVs and local vessels run on either marine light diesel or petrol, depending on their engine types.

¹ The figures are obtained from the [Summary Statistics on Port Traffic of Hong Kong](#) published in June 2017.

Existing measures to control marine emissions

Port Facilities and Light Dues Incentive Scheme for Ocean-Going Vessels

4. Hong Kong has adopted the international requirements prescribed under Annex VI to the International Convention for the Prevention of Pollution from Ships ("MARPOL") to regulate OGV emissions and the sulphur content of heavy fuel oil.² Although the average sulphur content of heavy fuel oil used by OGVs in Hong Kong waters is lower than the MARPOL limit (currently at 3.5%), it is significantly higher than that of motor diesel. When an OGV is at berth, its main engine(s) will be switched off but its auxiliary engines, boilers and generators will remain running to power on-board utilities. SO₂ emission from OGVs at berth accounts for about 40% of their total SO₂ emission within Hong Kong waters. Requiring OGVs to switch to cleaner fuel at berth can therefore improve the air quality around the port area.

5. In September 2012, the Administration launched the Port Facilities and Light Dues Incentive Scheme for Ocean-Going Vessels ("the Incentive Scheme") to reduce by half the port facilities and light dues charged on OGVs using low sulphur fuel (i.e. fuel with sulphur content not more than 0.5%) while at berth in Hong Kong waters to encourage OGV operators to switch to cleaner fuels. Since July 2015, the scope of the scheme was extended to cover OGVs using liquefied natural gas ("LNG") or approved fuel or technology that can achieve SO₂ emission reduction as effectively as the use of low sulphur fuel while at berth.

Mandatory fuel switch at berth for ocean-going vessels

6. Further to the introduction of the Incentive Scheme, the Administration made the Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation (Cap. 311AA) in March 2015 to mandate OGVs to use compliant fuel while at berth (excluding the first hour upon arrival and last hour before departure), with a view to attaining greater environmental benefits.³ The Regulation took effect from 1 July 2015.

² MARPOL Annex VI requirements are reflected in the Merchant Shipping (Prevention of Air Pollution) Regulation (Cap. 413P).

³ Compliant fuel means (a) low sulphur marine fuel; (b) LNG; or (c) any other fuel approved by the Director of Environmental Protection on the ground that its use can achieve SO₂ reduction at least as effectively as using low sulphur marine fuel.

Regulatory control on the quality of marine light diesel

7. To reduce emissions from RTVs and local vessels, the Administration had also introduced a statutory sulphur limit of 0.05% on marine light diesel through enacting the Air Pollution Control (Marine Light Diesel) Regulation (Cap. 311Y) in January 2014.⁴ The statutory sulphur limit represented a 90% reduction from the then sulphur content of about 0.5% of common marine light diesel. The Regulation came into operation on 1 April 2014.

Proposal to mandate marine vessels to use compliant fuels within Hong Kong waters

8. According to the Administration, the Ministry of Transport of the Mainland issued an action plan in December 2015 on the establishment of three Domestic Emission Control Areas ("DECAs"), including one in the waters of the Pearl River Delta ("PRD"). From 1 January 2019, vessels within the DECAs are required to use compliant fuel. The Chief Executive announced in the 2017 Policy Address that the Administration would collaborate with the authorities in the Mainland to set up the PRD DECA.

9. From March to April 2017, the Administration carried out a public consultation on its proposal to mandate marine vessels to use low sulphur fuel with sulphur content not exceeding 0.5% by weight, or any other compliant fuel such as LNG, within Hong Kong waters (i.e. not only at berth). The proposal mainly concerns OGVs, and is not expected to impose additional burden on the operations of local vessels and RTVs which run on either petrol or marine light diesel with more stringent statutory sulphur limits already in place. The Administration aims to introduce a new regulation under the Air Pollution Control Ordinance (Cap. 311) for bringing into effect the new control regime from 1 January 2019.⁵

Major views and concerns expressed by Members

10. The Panel on Environmental Affairs ("EA Panel") discussed the Incentive Scheme and the legislative proposals to mandate fuel switch at berth for OGVs and introduce statutory sulphur limit on marine light diesel at various meetings from 2012 to 2014. A subcommittee was formed to study the Air

⁴ The statutory sulphur limit of motor petrol for petrol vessels is 0.001% under the Air Pollution Control (Motor Vehicle Fuel) Regulation (Cap. 311L).

⁵ As the proposed control will also cover the period when the controlled vessels are at berth in Hong Kong waters, the Administration also intends to repeal the Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation once the proposed control has taken effect.

Pollution Control (Marine Light Diesel) Regulation. Issues relating to marine emissions were also brought up at the meeting of the Subcommittee on Issues Relating to Air, Noise and Light Pollution (which was formed under EA Panel) on 29 January 2013, and during examination of the Estimates of Expenditure 2017-2018. The major views and concerns expressed by Members are summarized in the ensuing paragraphs.

Impact on compliant fuel prices

11. When the proposal to impose a statutory limit on the sulphur content of marine light diesel was discussed, some Members expressed concern about potential increase in the fuel costs of transport operators and price manipulation of compliant fuel by oil companies, and suggested that subsidies should be provided to affected transport operators.

12. The Administration responded that low sulphur diesel was a standard type of marine light diesel in Asian markets, and all oil companies had confirmed their ability to supply this type of fuel to Hong Kong. Implementation of the regulatory control would unlikely lead to price gouging by oil companies because it would not reduce competition in the local market. Given that the expected fuel cost increase arising from the use of compliant fuel was insignificant, the Administration did not consider it necessary to provide subsidies for the affected trades.

Impact on competitiveness of Hong Kong's port

13. As Hong Kong was the first city in Asia to legislate the mandatory requirement for OGVs to switch to low sulphur fuel while at berth, Members expressed concern about the impact of the measure on the competitiveness of Hong Kong's port vis-à-vis other ports in PRD waters. The Administration responded that it was then exploring with the Provincial Government of Guangdong the feasibility of introducing common measures to reduce marine emissions within PRD waters while ensuring a level playing field among ports in the region. In addition, the Administration had extended the duration and scope of the Incentive Scheme as a means to maintain the competitiveness of Hong Kong's port.

Statutory sulphur limit of compliant fuel for ocean-going vessels

14. Members enquired about the reasons for capping the sulphur content of compliant fuel used by OGVs while at berth at 0.5% instead of 0.1% (which was a standard applicable to Emission Control Areas designated by member countries of the International Maritime Organization). The Administration explained that tightening of fuel standard was subject to the availability of relevant fuels and the adaptability of the shipping trade. Low sulphur fuel with

0.1% sulphur content was not readily available in Hong Kong and other ports in Asia. The Administration would review the fuel standard to be adopted in Hong Kong taking into account the latest market development.

Effectiveness of mandatory fuel switch at berth for improving air quality

15. Members sought details on the effectiveness of the Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation in improving air quality, and how the Administration enforced the Regulation. The Administration advised that from July 2015 (i.e. when the Regulation came into effect) to June 2016, the average concentration of SO₂ recorded at the Kwai Chung Air Quality Monitoring Station was about 50% lower than that recorded in the preceding 12 months when it was downwind of the container terminals. This indicated an improvement of air quality at areas affected by emissions of OGVs at berth subsequent to the implementation of the Regulation. To ensure OGVs' compliance with the Regulation, the Environmental Protection Department conducted surprise inspections of OGVs at berth, which included the inspection of fuel-switch records and collection of fuel samples for analyzing the sulphur content when necessary. As at the end of January 2017, 166 inspections had been conducted and prosecution against four violations had been initiated.

Council questions

16. At the Council meetings of 17 July 2013, 16 April 2014, 6 January 2016 and 8 February 2017, Hon James TO, Hon LEUNG Yiu-chung, Dr Hon Priscilla LEUNG and Hon POON Siu-ping raised questions relating to marine emissions respectively. Issues covered in the questions included effectiveness of the Incentive Scheme and the Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation in improving coastal air quality, measures to ensure OGVs' compliance with the mandatory requirement to switch fuel at berth, feasibility of establishing an Emission Control Area in PRD waters, etc. The questions and the Administration's replies are hyperlinked in the **Appendix**.

Latest development

17. At the meeting on 17 July 2017, the Administration will consult EA Panel on the proposal to enact a new legislation requiring all vessels within Hong Kong waters to use compliant fuel, i.e. low sulphur fuel with sulphur content not exceeding 0.5%, with effect from 1 January 2019.

Relevant papers

18. A list of relevant papers is set out in the **Appendix**.

Council Business Division 1
Legislative Council Secretariat
11 July 2017

Control of marine emissions

List of relevant papers

Date	Event	Paper
28 May 2012	Meeting of Panel on Environmental Affairs ("EA Panel")	Administration's paper on "Incentive scheme for ocean going vessels to switch fuel at berth" (LC Paper No. CB(1)1949/11-12(05)) Minutes of meeting (LC Paper No. CB(1)2349/11-12)
22 October 2012	EA Panel meeting	Administration's paper on "Update on Incentive Scheme on the Use of Cleaner Fuel by Ocean Going Vessels at Berth" (LC Paper No. CB(1)50/12-13(01)) Minutes of meeting (LC Paper No. CB(1)300/12-13)
29 January 2013	Meeting of Subcommittee on Issues Relating to Air, Noise and Light Pollution	Administration's paper on "Current legislation and administrative measures on the control of air pollution and the associated public expenditure" (LC Paper No. CB(1)474/12-13(01)) Minutes of meeting (LC Paper No. CB(1)743/12-13)
25 March 2013	EA Panel meeting	Administration's paper on "Upgrading the diesel standard for local vessels" (LC Paper No. CB(1)736/12-13(05)) Minutes of meeting (LC Paper No. CB(1)1331/12-13)
22 July 2013	EA Panel meeting	Administration's paper on "Mandatory fuel switch at berth for ocean going vessels in Hong Kong waters" (LC Paper No. CB(1)1537/12-13(01)) Minutes of meeting (LC Paper No. CB(1)25/13-14)

Date	Event	Paper
22 January 2014	The Air Pollution Control (Marine Light Diesel) Regulation was tabled at the Legislative Council	The Air Pollution Control (Marine Light Diesel) Regulation Legislative Council Brief (File Ref: Annex 4 to EP 150/NV/24) Legal Service Division Report (LC Paper No. LS24/13-14)
28 February 2014	House Committee meeting	Report of the Subcommittee on Air Pollution Control (Marine Light Diesel) Regulation (LC Paper No. CB(4)434/13-14)
18 March 2015	The Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation was tabled at the Legislative Council	The Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation Legislative Council Brief (File Ref: EP 150/NV/26)
5 April 2017	Special meeting of Finance Committee for examination of Estimates of Expenditure 2017-2018	Written questions raised by Members and Administration's replies (Reply serial numbers: ENB060, 097 and 206)

Hyperlinks to relevant Council Questions:

Date	Council Question
17 July 2013	Press release on Council question (written) raised by Hon James TO
16 April 2014	Press release on Council question (written) raised by Hon LEUNG Yiu-chung
6 January 2016	Press release on Council question (written) raised by Dr Hon Priscilla LEUNG
8 February 2017	Press release on Council question (written) raised by Hon POON Siu-ping