

LEGISLATIVE COUNCIL BRIEF

Air Pollution Control Ordinance (Cap. 311)

Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation

INTRODUCTION

The Secretary for the Environment has, after consulting the Advisory Council on the Environment (ACE), made the Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation (the Regulation) at **Annex** on 6 March 2015 under section 43 of the Air Pollution Control Ordinance (Cap. 311). The Regulation aims to reduce emission of air pollutants from ocean going vessels (OGVs)¹ by restricting the sulphur content of their marine fuel to be used while they are at berth in Hong Kong waters.

JUSTIFICATIONS

2. Marine vessels are the largest local air pollution emission source, accounting for 50%, 37% and 32% of the emissions of sulphur dioxide (SO₂), respirable suspended particulates (RSP) and nitrogen oxides (NO_x) respectively in 2012. On 1 April 2014, the Air Pollution Control (Marine Light Diesel) Regulation (Cap. 311Y) came into operation, capping the sulphur content of locally supplied marine light diesel (MLD) at 0.05%, which was a 90% reduction as compared with the previous nominal content. This has substantially reduced the emissions from local and river trade vessels. We now need to reduce the emissions from OGVs.

3. According to Annex VI to the International Convention for the Prevention of Pollution from Ships of the International Maritime Organization (IMO), OGVs cannot use marine fuel with sulphur content exceeding 3.5% with effect from January 2012. The IMO plans to reduce this ceiling to 0.5% by 2020 subject to a review to be completed by 2018.

¹ The Regulation applies to vessels that hold the certificates specified in section 3 thereof (except those plying exclusively within river trade limits), which are generally ocean going vessels (OGVs).

4. According to the report of sulphur monitoring programme for fuel oils for 2012 issued by the IMO, OGVs generally run on heavy fuel oil (HFO) with an average sulphur content of 2.6%, which is 52 times and 2,600 times higher than that of our MLD and motor vehicle diesel respectively. In 2012, there were about 30,000 OGV-calls to Hong Kong. They accounted for about 78%, 68% and 42% of the emissions of SO₂, RSP and NO_x respectively from the marine sector. The impacts of these air pollutants are particularly discernible at the Kwai Chung Container Terminals and places close to OGV routes.

5. When an OGV is at berth, its main engine(s), which is used for propulsion, will be switched off. The auxiliary engines, boilers and generators would remain running on HFO to power onboard utilities. The SO₂ emissions at berth account for about 40% of the total SO₂ emissions of an OGV when staying in Hong Kong. Hence, requiring OGVs to switch to cleaner fuel while at berth can help improve air quality, particularly around the port areas. The European Union has also implemented a similar requirement for OGVs at berth there through limiting the sulphur content of the fuel to be used not exceeding 0.1%.

6. Cleaner fuel is more expensive than HFO. To encourage OGVs to switch to cleaner fuel while at berth, we launched in September 2012 a 3-year incentive scheme to reduce by half the port facilities and light dues charged on OGVs using low sulphur marine fuel (i.e. fuel with sulphur content not exceeding 0.5%) while at berth. Since the incentive scheme is voluntary in nature and the port dues concession cannot fully offset the higher cost of low sulphur marine fuel, the participation rate is only about 13%. To attain greater environmental benefits, the Chief Executive announced in his 2013 Policy Address that Hong Kong would bring in new legislation to enforce the fuel switch at berth requirement.

7. If the Regulation is approved by the Legislative Council, Hong Kong will be the first port in Asia to mandate OGVs switching to cleaner fuel while at berth. To ensure smooth implementation of the Regulation and to maintain Hong Kong's port competitiveness before fuel switch at berth becomes a regional practice, the Financial Secretary in his Budget Speech 2015-16 announced that the incentive scheme would be extended for 30

months up to March 2018 for OGVs using compliant fuel as described in paragraph 9(a) below while berthing in Hong Kong waters.

8. At the same time, we are also exploring with the relevant authorities in Guangdong and Shenzhen to make the use of low sulphur marine fuel a common requirement for OGVs while berthing at ports in Pearl River Delta (PRD) waters. This will enable us to attain greater environmental benefits through regional collaboration whilst maintaining a level playing field for ports in the PRD.

THE REGULATION

9. The Regulation prohibits an OGV from using non-compliant fuel while at berth. Its key provisions are as follows.

- (a) During the prohibition period (i.e. the period that an OGV is at berth excluding the first hour upon arrival and the last hour before departure), the OGV is prohibited from using any fuel other than compliant fuel for the operation of the main engines (except when used for propulsion of the OGVs), auxiliary engines, boilers or generators. Compliant fuel means any of the following:
 - (i) low sulphur marine fuel;
 - (ii) liquefied natural gas; or
 - (iii) other fuels approved by the air pollution control authority ("the Authority", i.e. 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.

The Regulation also contains defences to the offence for contravening this prohibition.

- (b) The particulars about an OGV's arrival and departure and the fuel switch operations will need to be recorded in the log book of the OGV concerned.
- (c) The relevant log book(s) and bunker delivery notes of the relevant OGV are required to be kept on board for 3 years and be made

readily available for inspection by the Authority.

10. The Authority may, by written notice, require the owner or the master of an OGV to submit copies of the documents referred to in paragraph 9(c) above.

11. The Authority may exempt an OGV from the requirements set out in paragraph 9(a) above if it is satisfied that –

- (a) the OGV uses technology which can reduce SO₂ emission at least as effectively as using low sulphur marine fuel; or
- (b) compliance with the prohibition requirement will pose a risk to the safety of the OGV concerned.

12. In line with international practices, the Regulation does not apply to warships or any other vessel on military service. The Regulation also does not apply to OGVs that only sail across the waters of Hong Kong without berthing, or to OGVs that do not carry any compliant fuel but enter the waters of Hong Kong solely for the purpose(s) of reducing risks to safety of the OGV concerned, seeking for shelters during inclement weather, and/or landing a sick or injured person, provided that the owner or master of the OGV has notified the Director of Marine of such purpose(s) before the OGV entering the waters of Hong Kong.

13. The relevant penalties under the Regulation are summarized in the table below –

Offences²	Maximum Penalty
Using non-compliant fuel during the prohibition period (para. 9(a) above)	A fine of \$200,000 and imprisonment for 6 months
Failing to record the required particulars in the log book (para. 9(b) above) without reasonable excuse	A fine at level 5 (i.e. \$50,000) and imprisonment for 3 months
Failing to keep the required documents on board and make them	A fine at level 5 (i.e. \$ 50,000) and imprisonment for 3 months

² The master and owner of the vessel concerned are liable for the offences under the Regulation.

available for inspection (para. 9(c) above) without reasonable excuse	
Failing to submit copies of documents as required and within the time specified in a notice issued by the Authority (para. 10 above) without reasonable excuse	A fine at level 5 (i.e. \$50,000) and imprisonment for 3 months

LEGISLATIVE TIMETABLE

14. We will publish the Regulation in the Gazette on 13 March 2015 and table it at the Legislative Council for negative vetting on 18 March 2015. It is proposed that the Regulation will take effect on 1 July 2015.

IMPLICATIONS

Environmental Implications

15. Implementing the Regulation will reduce the total SO₂ and RSP emissions in Hong Kong by 12% and 6% respectively. This will help improve air quality and reduce health risks of the population, especially in the coastal areas.

Economic Implications

16. The average prices of fuel with a maximum sulphur content of 3.5% and 0.5% in 2014 were around US\$550 and US\$835 per metric tonne respectively. For illustration, this price difference implies that an OGV with 20,000 net tonnage switching to low sulphur fuel may, on average, incur an additional fuel cost of about HK\$13,000 for berthing 15 hours³, although the actual extra costs could vary with a number of factors including the vessel type, vessel size and configuration, actual berthing time, number of containers and cargoes to be handled in Hong Kong, cost differential between high sulphur and low sulphur fuels at the time, etc. Relative to the total cost

³ The average berthing time of OGVs joining the Port Facilities and Light Dues Incentive Scheme in 2014.

for moving a container⁴, the additional cost is unlikely to pose a major burden to the shipping sector.

Sustainability Implications

17. The Regulation is in line with the sustainability principles of avoiding environmental problems for present and future generations and providing a living environment which protects the health of Hong Kong people. Better air quality is conducive to improving the quality of life as well as attracting tourists, foreign investments and talents to Hong Kong. All these would help reinforce Hong Kong's position as a world city and leading business hub.

Financial and Civil Service Implications

18. The EPD will absorb the additional workload arising from implementing and enforcing the Regulation within its existing resources.

Other Implications

19. The Regulation has no family implications. It is in conformity with the Basic Law, including the provisions concerning human rights.

CONSULTATION

20. Relevant stakeholders including the shipping agents, ship liners, cruise liners, shipowners, ship classification societies, terminal operators, oil suppliers, green groups, advisory bodies and statutory bodies affiliated to the maritime trade were consulted in 2013 and raised no objection to our proposal. Some stakeholders have even urged for early implementation of the Regulation while others asked for a longer lead time for their preparation. Some were also concerned that the additional cost arising from mandating fuel switch might affect the competitiveness of Hong Kong port. We have fully taken note of these views and consider the current proposal reasonable

⁴ For example, according to "Study on Hong Kong Port Cargo Forecasts 2005/2006" commissioned by the Transport and Housing Bureau and published in April 2008, the total cost for moving a container from Hong Kong to US west coast amounted to US\$3,800-4,100 in 2006.

and practicable.

21. In July 2013, the ACE discussed and supported the proposal. The Panel on Environmental Affairs of the Legislative Council was briefed of our proposal in July 2013 and the Panel supported our proposal.

PUBLICITY

22. We will issue a press release and inform the stakeholders concerned upon gazetting the Regulation.

23. We will also brief the shipping trade of the detailed requirements of the Regulation in May 2015.

ENQUIRIES

24. For enquiries about this brief, please contact Mr. W C Mok, Assistant Director of Environmental Protection (Air Policy) at 3509 8618.

Environmental Protection Department

March 2015

Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation

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Air Pollution Control (Ocean Going Vessels) (Fuel at Berth) Regulation

(Made by the Secretary for the Environment under section 43 of the Air Pollution Control Ordinance (Cap. 311) after consultation with the Advisory Council on the Environment)

1. Commencement

This Regulation comes into operation on 1 July 2015.

2. Interpretation

(1) In this Regulation—

agent (代理人), in relation to a vessel, means a person acting in Hong Kong as an agent for the owner of the vessel;

arrival (到達), in relation to a vessel, means the moment when the vessel is first securely moored or anchored at a berth;

berth (泊位) means a place in the waters of Hong Kong at which a vessel is not underway;

berthing period (停泊期間), in relation to a vessel, means the period between the arrival and departure of the vessel;

compliant fuel (合規格燃料) means—

- (a) low sulphur marine fuel;
- (b) liquefied natural gas; or
- (c) any other fuel approved by the Authority under section 11(1);

departure (開出), in relation to a vessel, means the moment when the vessel is untied from its berth;

exempted call (獲豁免停靠), in relation to a vessel, means the period during which the vessel remains in the waters of Hong

Kong if the vessel intends to rely on an exemption under section 6(1) at any time within that period;

fuel switch operation to compliant fuel (轉用合規格燃料的操作) means an operation to change the fuel used by a vessel from non-compliant fuel to compliant fuel;

fuel switch operation to non-compliant fuel (轉用不合規格燃料的操作) means an operation to change the fuel used by a vessel from compliant fuel to non-compliant fuel;

low sulphur marine fuel (低硫船用燃料) means marine fuel with sulphur content not exceeding 0.5% by weight;

marine fuel (船用燃料) means a petroleum-derived liquid fuel used, or intended for use, in a vessel;

master (船長) has the meaning given by section 2 of the Shipping and Port Control Ordinance (Cap. 313);

non-compliant fuel (不合規格燃料) means any fuel other than compliant fuel;

owner (擁有人), in relation to a vessel, means—

- (a) the bareboat charterer of the vessel;
- (b) the manager of the vessel; or
- (c) the following person—
 - (i) if the vessel is owned by a state and operated by a person registered in that state as the operator of the vessel—that person; or
 - (ii) in a case not falling within subparagraph (i)—any person registered as the owner of the vessel or, if no person is registered as the owner of the vessel, any person who owns the vessel;

prohibition period (禁制期間), in relation to a vessel, means the berthing period of the vessel excluding—

- (a) the first hour of the berthing period; and

- (b) the last hour of the berthing period;

specified machinery (指明機械), in relation to a vessel, means the following machinery of the vessel—

- (a) the main engine (except when it is used for the propulsion of the vessel);
- (b) the auxiliary engine;
- (c) the boiler; and
- (d) the generator;

vessel (船隻) has the meaning given by section 2 of the Shipping and Port Control Ordinance (Cap. 313).

(2) For the purposes of this Regulation—

- (a) a fuel switch operation to compliant fuel is completed when the fuel pipes leading to all of the specified machinery of the vessel are filled only with compliant fuel; and
- (b) a fuel switch operation to non-compliant fuel commences when a fuel pipe leading to any of the specified machinery of the vessel begins to be filled with non-compliant fuel.

3. Application

(1) Subject to subsections (2) and (3), this Regulation applies to—

- (a) a vessel that holds an accepted Convention certificate;
- (b) a vessel that holds a certificate, other than an accepted Convention certificate, that—
 - (i) is issued by a government authority of the Mainland; and
 - (ii) permits the vessel to sail along the coast of the Mainland; and

- (c) a vessel that—
- (i) is of 500 gross tonnage or over; and
 - (ii) holds a certificate, other than an accepted Convention certificate or a certificate referred to in paragraph (b), issued by a government authority of a place outside Hong Kong.
- (2) This Regulation does not apply to—
- (a) a vessel plying exclusively within river trade limits; or
 - (b) a warship or any other vessel on military service.
- (3) This Regulation also does not apply to a vessel during the period that the vessel remains in the waters of Hong Kong—
- (a) if the vessel is not moored or anchored at any berth during that period; or
 - (b) if—
 - (i) the vessel enters those waters solely for one or more of the following purposes—
 - (A) reducing risks to the safety of the vessel;
 - (B) sheltering from stress of weather;
 - (C) landing a sick or injured person;
 - (ii) the owner or the master of the vessel has notified the Director of Marine of the purpose referred to in subparagraph (i) before the vessel enters those waters; and
 - (iii) the vessel does not carry any compliant fuel when it enters those waters.
- (4) In this section—
- accepted Convention certificate** (獲認可的公約證明書) means a certificate in the form prescribed by the International

Convention for the Safety of Life at Sea, 1974 as amended from time to time;

Mainland (內地) means any part of China other than Hong Kong, Macao and Taiwan;

river trade limits (內河航限) has the meaning given by section 2 of the Shipping and Port Control Ordinance (Cap. 313).

4. Use of non-compliant fuel prohibited

- (1) During the prohibition period, a vessel must not use non-compliant fuel for combustion purposes for operating any of the specified machinery.
- (2) If subsection (1) is contravened, the owner and the master of the vessel each commits an offence.
- (3) A person who commits an offence under subsection (2) is liable on conviction to a fine of \$200,000 and to imprisonment for 6 months.

5. Defences to offence under section 4

- (1) If a person is charged with an offence under section 4(2)—
 - (a) it is a defence for the person to prove—
 - (i) that at the time of the contravention there was a document containing the procedures for conducting fuel switch operations to compliant fuel on board the vessel;
 - (ii) that at the time of the contravention the vessel was conducting a fuel switch operation to compliant fuel (*relevant operation*);
 - (iii) that after the arrival of the vessel, the person had taken all practicable measures in accordance with those procedures to complete the relevant operation as soon as possible; and

- (iv) that it was not reasonably practicable to complete the relevant operation within 1 hour; or
- (b) it is a defence for the person to prove—
 - (i) that due to an unexpected event beyond the person's control the departure of the vessel was delayed from the expected time of departure to a later time (*actual time of departure*);
 - (ii) that the event occurred within 1 hour before the expected time of departure;
 - (iii) that the time of the contravention fell within the period beginning at 1 hour before the expected time of departure and ending at 1 hour before the actual time of departure; and
 - (iv) that the particulars referred to in subsection (2) were recorded in a log book of the vessel as soon as practicable after the delay occurred.
- (2) The particulars are—
 - (a) the expected date and time of departure of the vessel; and
 - (b) a description of the event referred to in subsection (1)(b)(i).
- (3) In addition, it is a defence for a person charged with an offence under section 4(2) to prove—
 - (a) that the person—
 - (i) exercised all due diligence to prevent the contravention of section 4(1); but
 - (ii) was misled by the supplier of the marine fuel used by the vessel at the time of the contravention as to the sulphur content of the marine fuel;
 - (b) that the person—

- (i) exercised all due diligence, from the beginning of the vessel's voyage to Hong Kong until the time of the contravention, to obtain low sulphur marine fuel intended for use in the vessel after the arrival of the vessel in Hong Kong; but
- (ii) failed to obtain such fuel; or
- (c) that the vessel was in an emergency situation that did not permit it to comply with section 4(1) at the time of the contravention.
- (4) In this section—
time of the contravention (違例時間) means the time when section 4(1) is contravened.

6. Exemptions

- (1) The Authority may exempt a vessel from the application of section 4(1) if satisfied—
 - (a) that the vessel uses technology that can achieve the reduction of emission of sulphur dioxide during a prohibition period at least as effectively as the use of low sulphur marine fuel during that period; or
 - (b) that compliance with section 4(1) will pose a risk to the safety of the vessel.
- (2) An exemption may be granted subject to any conditions the Authority thinks fit.
- (3) The breach of a condition renders the exemption invalid during the continuance of the breach.
- (4) Under subsection (1)(a), the Authority may—
 - (a) grant an exemption for a period of 3 years; and
 - (b) renew an exemption, each time for a period of 3 years.

- (5) Under subsection (1)(b), the Authority may grant an exemption that is valid for 1 exempted call.
- (6) The Authority may, by notice in writing to the owner, the master or the agent of a vessel, revoke an exemption granted for the vessel if the Authority has reasonable grounds to believe that—
 - (a) a condition of the exemption has been breached; or
 - (b) any information or document provided to the Authority in support of the application for the exemption is false or misleading in a material particular.

7. Application for exemption

- (1) The owner, the master or the agent of a vessel may apply to the Authority for an exemption under section 6(1) for the vessel.
- (2) The application—
 - (a) must be in writing and in the form specified by the Authority; and
 - (b) must be accompanied by the documents specified in the form.
- (3) The Authority may require the applicant to provide any further information or documents that the Authority considers necessary for determining the application.
- (4) For an exemption under section 6(1)(a)—
 - (a) the application must be made at least 14 days before the date on which the vessel is intended to enter the waters of Hong Kong for the first exempted call in relation to the exemption; and
 - (b) an application for renewal must be made not earlier than 3 months before, and not later than 14 days before, the date on which the exemption expires.

- (5) For an exemption under section 6(1)(b), the application must be made at least 14 days before the date on which the vessel is intended to enter the waters of Hong Kong for the exempted call in relation to the exemption.
- (6) The Authority must notify the applicant in writing of—
 - (a) the grant or renewal of an exemption; or
 - (b) the refusal to grant or renew an exemption.
- (7) A person who provides any information or document that is false or misleading in a material particular in an application under this section commits an offence and is liable on conviction to a fine at level 5 and to imprisonment for 3 months.

8. Record in log book

- (1) The following particulars in respect of a vessel must be recorded in a log book of the vessel in accordance with subsection (2)—
 - (a) the date and time of arrival;
 - (b) the date and time of departure;
 - (c) the date and time when any fuel switch operation to compliant fuel is completed;
 - (d) the date and time when any fuel switch operation to non-compliant fuel commences.
- (2) The particulars must be recorded as soon as practicable after the occurrence to which the particulars relate.
- (3) If, without reasonable excuse, subsection (1) is contravened, the owner and the master of the vessel each commits an offence.

- (4) A person who commits an offence under subsection (3) is liable on conviction to a fine at level 5 and to imprisonment for 3 months.

9. Keeping of documents

- (1) The bunker delivery note that relates to any marine fuel delivered to a vessel must be kept on board the vessel and be readily available for inspection at all reasonable times for a period of 3 years after the day on which the marine fuel is delivered.
- (2) The log book of a vessel in which any particulars referred to in section 5(2) are recorded must be kept on board the vessel and be readily available for inspection at all reasonable times for a period of 3 years after the day on which the particulars are recorded.
- (3) The log book of a vessel in which any particulars are recorded under section 8(1) must be kept on board the vessel and be readily available for inspection at all reasonable times for a period of 3 years after the day on which the particulars are recorded.
- (4) If, without reasonable excuse, subsection (1), (2) or (3) is contravened, the owner and the master of the vessel each commits an offence.
- (5) A person who commits an offence under subsection (4) is liable on conviction to a fine at level 5 and to imprisonment for 3 months.

10. Authority may request copies of documents

- (1) The Authority may, by notice in writing, require the owner or the master of a vessel to submit to the Authority, within the time specified in the notice, a copy of any document that is required to be kept under section 9(1), (2) or (3).

- (2) A person who without reasonable excuse fails to comply with a notice under subsection (1) issued to the person commits an offence.
- (3) A person who in purported compliance with a notice under subsection (1) submits a copy that contains information that is false or misleading in a material particular commits an offence.
- (4) A person who commits an offence under subsection (2) or (3) is liable on conviction to a fine at level 5 and to imprisonment for 3 months.

11. Approval of fuel as compliant fuel

- (1) For the purposes of paragraph (c) of the definition of *compliant fuel* in section 2(1), the Authority may approve any fuel if satisfied that its use can achieve the reduction of emission of sulphur dioxide at least as effectively as the use of low sulphur marine fuel.
- (2) The Authority must publish in the Gazette a notice of an approval.

12. Determination of sulphur content of marine fuel

For the purposes of this Regulation, the sulphur content of marine fuel must be determined in accordance with the test method set out in the document EN ISO 14596:2007: "Petroleum products—Determination of sulfur content—Wavelength-dispersive X-ray fluorescence spectrometry" published by the European Committee for Standardization.

Secretary for the Environment

2015

Explanatory Note

The main object of this Regulation is to prohibit the use of certain fuels by vessels while they are at berth. It also provides for the requirement to keep records and documents in respect of the vessels.

2. Section 1 provides for the commencement of the Regulation.
3. Section 2 contains definitions, including—
 - (a) *compliant fuel*—defined as marine fuel with sulphur content not exceeding 0.5% by weight, liquefied natural gas or any other fuel approved by the air pollution control authority (*Authority*); and
 - (b) *non-compliant fuel*—defined as fuel that is not compliant fuel.
4. Section 3 sets out the vessels to which the Regulation applies and those to which it does not apply. Briefly, it applies to vessels that hold the certificates specified in that section (except those plying exclusively within river trade limits), which are generally ocean going vessels. The Regulation does not apply to—
 - (a) warships or other vessels on military service;
 - (b) vessels that do not arrive at any berth; or
 - (c) vessels entering the waters of Hong Kong solely for certain purposes.
5. Section 4 prohibits the use of non-compliant fuel by a vessel to operate its machinery during the period that the vessel is at berth, excluding the first hour and the last hour. This allows the vessel to carry out a fuel switch operation, which means switching from using non-compliant fuel to compliant fuel (in the first hour), or from using compliant fuel to non-compliant fuel (in the last hour).

If the prohibition is contravened, the owner and the master of the vessel each commits an offence.

6. Section 5 contains defences to the offence under section 4.
7. Section 6 empowers the Authority to exempt a vessel from the prohibition on using non-compliant fuel and also to revoke the exemption. Section 7 explains how to apply for an exemption and makes it an offence to provide false or misleading information or document in an application.
8. Section 8 requires certain particulars to be recorded in a log book of a vessel. Those particulars relate to the arrival and departure of the vessel and fuel switch operations.
9. Section 9 requires certain documents to be kept on board a vessel. Section 10 empowers the Authority to require the submission of copies of those documents and makes it an offence to submit false or misleading copies.
10. Section 11 empowers the Authority to approve fuel as compliant fuel.
11. Section 12 provides for the test method for determining the sulphur content of marine fuel.