

# ***Task Force on Kai Tak Harbourfront Development***


## **Marine Emissions Control in Hong Kong**

**WC Mok  
Assistant Director (Air Policy)  
Environmental Protection Department**

**30 April 2015**



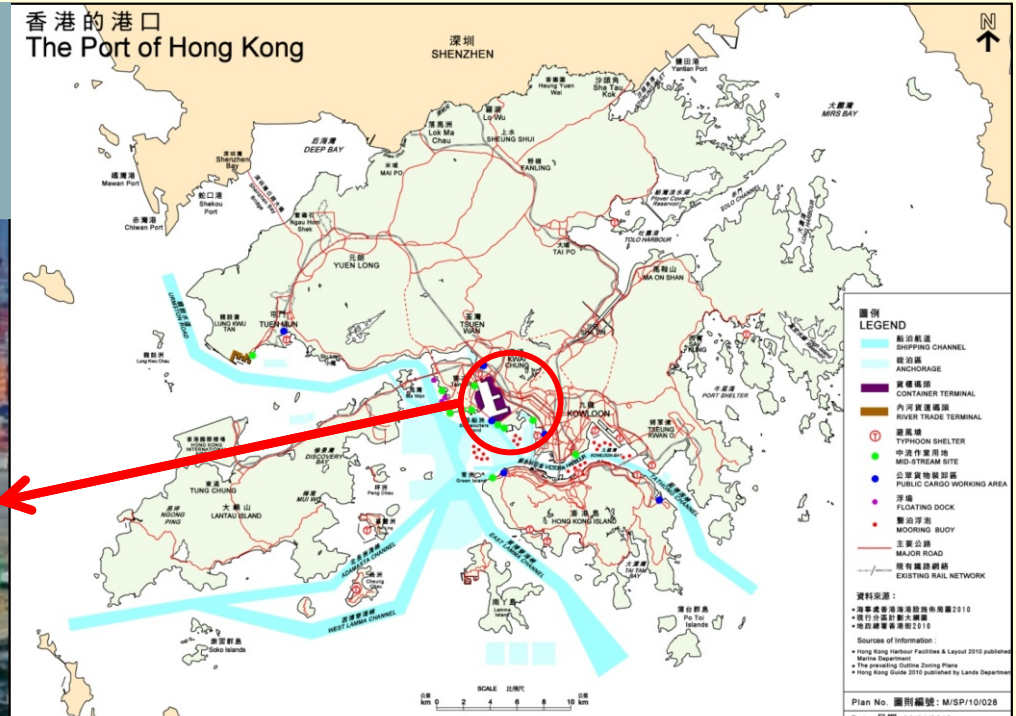
# Outline

 Background information

 Control measures

# Hong Kong Port

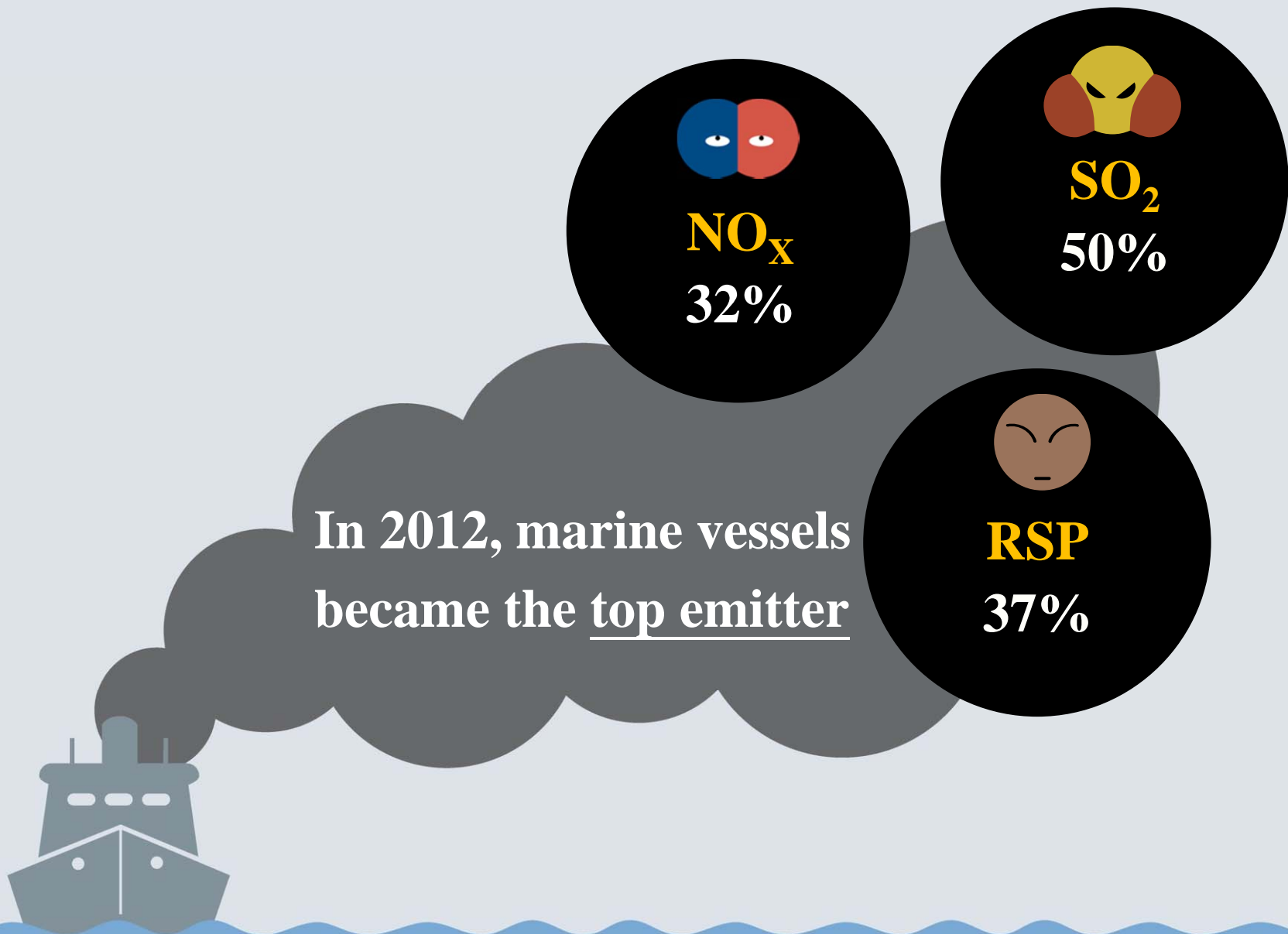
4<sup>th</sup> largest container port  
in 2013 (in TEU)



## Geographical constraints

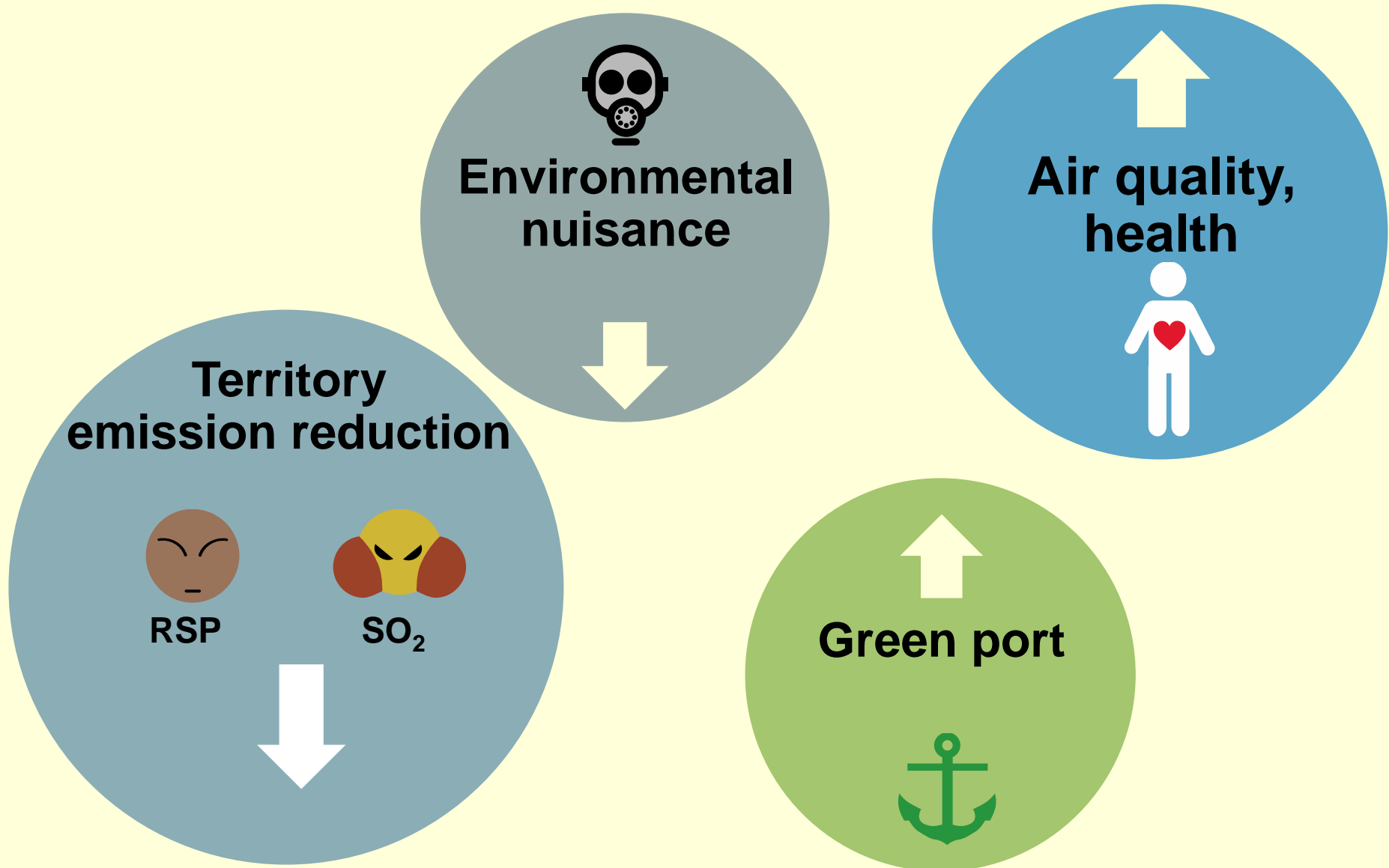
- 1) Small stretch of waters
- 2) Terminals close to population
- 3) Major water fairway to Mainland ports nearby

# Marine Emissions



Vessels: Ocean-going vessels, River Vessels and Local Vessels

# Benefits of Controlling Marine Emissions



# Marine Department



- implementing the requirements under Annex VI to the International Convention for the Prevention of Pollution from Ships (MARPOL)



- enforcing against dark smoke emissions from vessels




# New Control Measures

- Limit on fuel sulphur content
  - Local vessels
  - Ocean going vessels
- Other Initiatives

# Petrol-powered local vessels

- Mainly small boats, e.g. pleasure boats, yachts
- About 15,000 vessels licensed in HK use petrol
- Such petrol is indeed motor vehicle petrol, which has been upgraded to Euro V standard since 2010.

Sulphur content		
Petrol		0.001%S



# Diesel-powered local vessels

- About 2,000 vessels licensed in HK
- About 160,000 calls of river trade vessels (mainly licensed in the mainland) per year
- On 1 April 2014, the Air Pollution Control (Marine Light Diesel) Regulation (Cap. 311Y) imposed sulphur limit of 0.05% on marine light diesel (MLD)


# Sulphur cap on marine light diesel

- The sulphur content of MLD drops 90%

Sulphur content	
Diesel oil (before 1 April 2014)	0.5%S
Diesel oil (on or after 1 April 2014)	0.05%S

- Emission from diesel-powered local vessels reduced by

SO <sub>2</sub>	90%
RSP	30%



# Ocean Going Vessels



- About 30,000 Ocean Going Vessel (OGV) calls per year
- The sulphur content of marine fuels for OGVs should not exceed 3.5%S as required by the International Maritime Organization
- SO<sub>2</sub> emissions at berths account for about 40% of the total SO<sub>2</sub> emissions of OGVs when staying in HK



# Impact of ocean-going vessel SO<sub>2</sub> emission on Hong Kong and Pearl River Delta

In HK, over 3.8M people (57% population) living in urban airshed are directly affected by container terminal emissions

*A.K.H. Lau, et. al. (2004)*

## Legend

— — Boundary of HK waters

### Base Case All OGVs

#### SO<sub>2</sub> (tonne)

- 0.00 - 0.02
- 0.03 - 0.07
- 0.08 - 0.26
- 0.27 - 0.97
- 0.98 - 3.48
- 3.49 - 12.54
- 12.55 - 45.07
- 45.08 - 162.00
- 162.01 - 582.23
- 582.24 - 2092.43

0 3 6 12 18 24  
Nautical Miles

# Fair Winds Charter

- Industrial-led voluntary initiative
- In 2011, 17 ship liners committed to voluntarily switching to low sulphur fuel (0.5%S) while berthing in HK
- The Charter extended to end of 2014

**The Fair Winds Charter**  
2011 - 2012

As international carriers, we recognize the emissions from our ships affect air quality in Hong Kong and the Pearl River Delta region. As responsible businesses, WE VOLUNTARILY COMMIT TO:

- Switching to a fuel containing 0.50% sulphur content or less ("low sulphur fuel") while at berth (at the terminal or at anchorage) in Hong Kong, to the maximum extent possible;
- Undertaking this voluntary initiative between 1 January 2011 and 31 December 2012;
- Collaborating within our sector and with the Hong Kong SAR and Guangdong Governments to introduce regulation on ship emissions, consistent with international standards.

**In support of the HKLSA FAIR WINDS CHARTER, WE :**

- Urge the Hong Kong SAR Government to take a lead and work with the Guangdong Government to regulate the use of low sulphur fuel in the Pearl River Delta region by 31 December 2012. Urge the Hong Kong SAR Government to encourage broader industry participation by providing incentives, as it has done with other transport modes.
- Encourage the container terminals to support this initiative by offering advantages to participating ships, as well as by addressing emissions from cargo handling equipment, and the trucks and local craft that service the terminals.
- Encourage ocean-going passenger liners and other maritime users of the Port of Hong Kong to use low sulphur fuel while at berth in Hong Kong.
- Encourage cargo producers and buyers to favour participating shipping lines as a way of meeting their sustainable supply chain commitments.
- Welcome the support of end consumers who purchase the goods that the shipping industry carries.

Logos of participating companies: ALIANCA, APL, Crystal Cruises, CMA CGM, EVERGREEN LINE, HAMBURG SÜD, Hapag-Lloyd, HONGKONG & SOUTH CHINA NAVIGATION, HONGKONG AUTOLINERS, HMM, MAERSK LINE, MOL, NYK LINE, OOCL, Prestige Cruise Holdings, YANG MING.

**The Fair Winds Charter 2013**

A commitment of international ocean-going vessels, to recognize that emissions from our ships affect air quality in Hong Kong and the Pearl River Delta region. As responsible businesses, WE VOLUNTARILY COMMIT TO:

- Switching to a fuel containing 0.50% sulphur content or less ("low sulphur fuel") while at berth in Hong Kong, to the maximum extent possible;
- Collaborating within our sector and with the Hong Kong SAR and Guangdong Governments to introduce regulation on ship emissions, consistent with international standards;
- Encouraging the cargo producers and buyers to favour participating shipping lines as a way of meeting their sustainable supply chain commitments.

**KEY GOALS OF THE FAIR WINDS CHARTER:**

- To ensure the industry continues to reduce sulphur emissions from its ships while at berth in Hong Kong by January 2013, to the maximum extent possible;
- To ensure the industry continues to reduce sulphur emissions from its ships while at berth in Hong Kong, to the maximum extent possible, by 31 December 2013, to the maximum extent possible;
- To ensure the industry continues to reduce sulphur emissions from its ships while at berth in Hong Kong, to the maximum extent possible, by 31 December 2013, to the maximum extent possible;
- To ensure the industry continues to reduce sulphur emissions from its ships while at berth in Hong Kong, to the maximum extent possible, by 31 December 2013, to the maximum extent possible;

Logos of participating companies: ALIANCA, APL, CHINA NAVIGATION, CMA CGM, HAMBURG SÜD, Hapag-Lloyd, HMM, MAERSK, MOL, NYK LINE, OOCL, P&O PRINCE OF WALES, SINOPEC, WILSON.

**HKLSA & HKSOA Extend Fair Winds Charter, Reducing Marine Emission**

**Hong Kong, 12 February, 2014** – The Hong Kong Liner Shipping Association (HKLSA) and the Hong Kong Shipping Association (HKSOA) have agreed to continue their support for reduced emissions in the maritime sector by extending the Fair Winds Charter 2013 for another year.

The FWCS2013, which was due to expire end of December 2013, has set the industry's commitment to switching to low sulphur content fuel while at berth in Hong Kong. It is a strategic, intentional, and voluntary effort started at the end of 2010 involving many of Hong Kong's leading carriers and cruise lines. Arthur Gaetano, Secretary General of the HKLSA said: "The primary aim is to switch to low sulphur fuel in Hong Kong under the Fair Winds Charter shows the shipping industry's commitment to work with government to tackle the challenges of marine emissions. We are pleased to once again see the Chief Executive's support in the Policy Address for action to address this issue, and believe that by working together, government and the shipping industry can achieve significant improvements in air quality in HK."

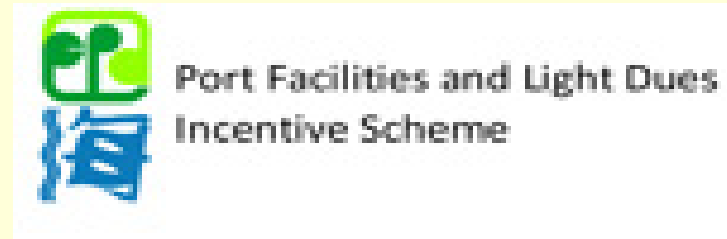
The new Winds Charter is jointly sponsored by the HKLSA and the HKSOA, and outlines the industry's commitment to fuel switch together with active support towards a number of targets – including planned legislation for fuel switch in HK by 2015, support and participation by other industry stakeholders, and strategic engagement with cross-border agencies that would see overall reduction of marine emissions in the greater Pearl River Delta region.

Roberto Gaetano, Secretary General for the HKLSA says: "Since the FWCS was signed, we have seen strong support from the HK Government in terms of financial assistance through duty holidays and engagement with industry in the drafting of potential legislation mandating fuel switch in Hong Kong. While there has been some progress in addressing air emissions targets in Shenzhen and Guangzhou, PRC regional targets have not progressed very far yet. The time has thus far arrived for extending the FWCS for another year, thus showing our commitment and support that we are ready to cooperate, in whatever way possible, with PRC regional governments in establishing realistic, achievable emissions reduction targets in the near future. These targets could, then eventually, lead to a wider Emission Control Area covering the greater or third sea basin."

This renewed commitment by the shipping industry will extend the FWCS2013 until Dec 2014, after which time fuel switching is expected to become mandatory through legislation in Hong Kong. This will also give HK and PRC governments a further 12-month window to come together on more substantial, concrete and practical measures that will see HK's air quality continue to improve in the coming years.

END

# Incentive scheme

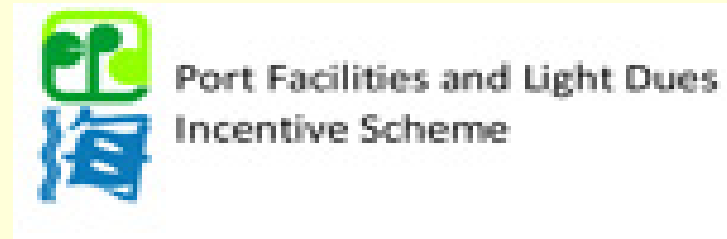


- On 26 September 2012, the Government introduced a 3-year ***Port Facilities and Light Dues Incentive Scheme***
- OGVs enjoy 50% reduction in port dues if switching to low sulphur fuel ( $S \leq 0.5\%$ ) while berthing

## From 26 Sept 2012 to 28 Feb 2015

Applications approved	~ 8,200
Participation rate	~ 13%
Revenue forgone	~HK\$ 42.1 million

# Incentive scheme



- In the 2015-16 Budget Speech, the Financial Secretary announced that the Incentive Scheme would be extended for 30 months, up to March 2018.
- The estimated revenue forgone would be about \$244 million.

# Fuel Switch At Berth regulation

- Mandating fuel switch at berth was supported by the stakeholders including the shipping trade, the Advisory Council on the Environment, and the Panel on Environment Affairs of the LegCo.
- LegCo approved the Air Pollution Control (Ocean Going Vessels)(Fuel at Berth) Regulation on 15 April 2015.
- The Regulation will take effect on **1 July 2015**.



# Fuel Switch At Berth regulation

While berthing (excluding the 1<sup>st</sup> hour upon arrival and the last hour before departure), ocean going vessels have to

(1) use compliant fuels


- low sulphur marine fuel (0.5%S) (LSMF)
- liquefied natural gases
- any other fuel approved by the Director of Environmental Protection; or

(2) adopt technology which can reduce SO<sub>2</sub> emissions at least as effectively as using LSMF.

# Fuel Switch At Berth regulation

- The first port in Asia to mandate berthing OGVs to switch to cleaner fuel.
- The regulation will reduce the total emissions of SO<sub>2</sub> and RSP by

SO <sub>2</sub>	12%
RSP	6%



# Regional collaboration

- To maintain level-playing field and maximize environmental benefit
- Explore with relevant authorities in Guangdong and Shenzhen to **make the use of LSMF for berthing OGVs a common requirement for PRD ports**



# Onshore power supply

- Explore installing OPS in Kai Tak Cruise Terminal
- Conducted feasibility study
- Finalizing the findings of the study and considering the relevant factors
- Will report to Panel of Environmental Affairs of LegCo in coming months.





# Thank you!

