MARITIME INDUSTRY AUSTRALIA LIMITED

# Submission

## Clean Air for all Victorians - Victoria's Air Quality Statement

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# Executive Summary

MIAL commends the Victorian Government for investing in a strategic and consultative approach to future air quality policy development and management and welcomes the opportunity to participate by providing this submission and engaging in future consultation opportunities.

In pursuing the development of the Victorian Air Quality Strategy, and considering the contributions made by the domestic and international shipping industry, MIAL would request that the Victorian Government consider the following key aspects (expanded upon in our submission):

- International regulations to control ship emissions have been in place for many years including agreed timeframes and standards for incremental improvement.

- The next step change will occur in 2020 - less than eighteen months away. Companies have plans in place to ensure they can comply by the 2020 date (retrofitting required at dry dock etc).

- Regional or local moves *ahead* of that date will have a considerable impact upon the shipping industry due to the very short notice period.

- Implementation of *regional or local* requirements effecting the shipping industry can also have a significant impact on the industry. The international industry relies on universal, consistent rules determined by the International Maritime Organisation.

- There is capability within the existing global framework for States to establish regional or local control areas after meeting criteria determined by the IMO as well as extensive consultation and long lead times with industry.

- The primary control measures for sulphur emissions currently available is for ships to use low-sulphur fuel or be fitted with exhaust gas scrubbers.

- Exhaust gas scrubbers are not suitable for all ship types and areas of operation.

- Globally, there are questions surrounding the capacity of refineries to supply sufficient low-sulphur fuel to the shipping industry. This may be a particularly difficult issue for Australia as it is a very small market for bunker fuels and will therefore not be a priority location for the fuel suppliers.

- It is likely that within Australia, the only low sulphur fuel available is automotive diesel - at significantly greater cost

- Low sulphur fuel is much more expensive than current fuel types and a sudden financial shock of this magnitude is likely to be unmanageable for some

businesses and could result in business moving location (i.e. ships not visiting affected ports).

- Any change in behaviour of shipping companies that results in a modal shift would result in increased greenhouse emissions (GHG), as other modes of transport are less energy efficient when compared to shipping.

- The Commonwealth Department of Infrastructure Regional Development and Cities and the Australian Maritime Safety Authority should be consulted in discussions concerning shipping, to provide background concerning the issues discussed at the IMO; timeframes; and technical issues.

# Introduction

The shipping industry has a long-established and comprehensive framework of global Conventions and regulations that have been developed by the United Nations' International Maritime Organization (IMO).

For the most part these IMO Conventions are fully implemented and enforced worldwide, through a combination of flag State inspection and port State control, directly contributing to the improvement of shipping's environmental performance. MARPOL Annex VI is the relevant instrument for the control of air emissions from ships.

The Australian Maritime Safety Authority (AMSA) is the Commonwealth statutory authority with responsibility for the protection of the marine environment from pollution from ships and other environmental damage caused by shipping. It is important to note that discussions concerning environment laws that affect shipping ought to include AMSA to ensure proper consideration of all the matters pertaining to shipping and Australia's international obligations.

MIAL commends the Victorian Government for investing in a strategic and consultative approach to future air quality policy development and management. In pursuing the development of the Victorian Air Quality Strategy, and considering the contributions made by the domestic and international shipping industry, MIAL would request that the Victorian Government consider the following:

- Regulatory framework surrounding ship emissions;
- The options available to the shipping industry to control emissions;
- Concerns surrounding the availability and cost of low sulphur fuel;
- The impact / consequences of changes made without adequate notice to provide for proper planning;
- The impact of regional vs. global regulation on shipping.

# Global regulations for Shipping Emissions

International standards for the control of SOx and PM emissions apply to all fuel oil as required by Annex VI of MARPOL.[1] This has been the case for many years and incremental improvement has been built into the regulatory instrument (Annex VI) in order that continual improvement is achieved. The next change is scheduled to take place on 1 January 2020. Since January 2012 the limit has been 3.5% m/m and from 1 January 2020 it drops to 0.5% m/m.

Any regulatory changes to be applied to the shipping industry requires a long lead in time because any significant structural work required to be done to a ship can only occur when a ship is in docking.

Docking is a term used to describe a period when a ship is taken out of service and placed in a dock yard where servicing, maintenance and repairs are conducted. Docking can be either wet-dock (the ship is still in the water) or dry-dock where the

[1] Regulation 2.9 of Annex VI of MARPOL. This also includes combustion equipment on board such as main and all auxiliary engines together with items such as boilers and inert gas generators.

ship is removed entirely from the water. Some work can only be done at dry-dock. Given the size of a ship and the complexity of it being taken from the water, such events happen at regular intervals of up to 5 years, are done with a high level of planning, involve many areas of work being conducted at the same time, are very expensive exercises and can only happen at ship yards with the appropriate facilities. Bookings to enter such ship yards require considerable notice periods, anything less than 1 year is uncommon and unlikely to be able to be accommodated. Further time is required if structural changes to the ship are to be made in order that approval is provided by the authorising authorities.

To comply with the staged requirements as per MARPOL Annex VI, ship owners will have plans in place to retrofit additional fuel tanks or implement abatement technology during dry dock. It is not possible to move dry dock schedules or radically change long term plans without considerable prior notice.

What this docking schedule means in practice is that many ships will be equipped to meet the higher standards earlier than 2020 as their capability to comply will come on line gradually, as abatement technology is installed and/or the capability to use low sulphur fuel (provided that the fuel supply is actually available) is provided.

## Regional and Local Emission Control Areas

The existing regulations also provide for Emission Control Areas (ECA) to exist. The sulphur content of fuel used within an ECA is further limited as per the table below.

| Outside an ECA established to limit SOx and PM Emissions | Inside an ECA established to limit SOx and PM Emissions |
|---|---|
| 4.50% m/m prior to 1 January 2012 | 1.5% m/m prior to 1 July 2010 |
| 3.5% m/m on and after 1 January 2012 | 1.0% m/m on and after 1 July 2010 |
| 0.50% m/m on and after 1 January 2020[2] | 0.10% m/m on and after 1 January 2015 |

Regional ECA's have been implemented after meeting criteria determined at IMO.[3]
The process required by IMO to establish an ECA takes at least 12 months. Moving beyond the emission reduction requirements that apply from 1 January 2020 requires both a demonstrated need for early action and careful consideration of the impact upon the shipping industry.

[2] In the event there are insufficient supplies of low sulphur, it is possible the effective date will be delayed until 1 January 2025.

[3] Appendix III of Annex VI of MARPOL provides the criteria and procedure for the designation of ECAs. The criteria include: adverse environmental impacts as well as an assessment of the economic impacts on shipping engaged in international trade.

# Methods of Controlling Emissions

The shipping industry has access to a limited range of options and techniques to cut pollution. These include:

- Using low sulphur fuel
- Installing emission scrubbers
- Shore-side electricity
- Alternative/substitute fuel – e.g. LNG

These are each discussed below.

## Low Sulphur fuel

This is the means widely adopted for compliance with the existing IMO requirements. While currently the most practical of the compliance options available it does have challenges associated with it and risks that need to be managed carefully.

The major issues with the use of low sulphur fuel to achieve reduced air emissions are outlined below.

### Availability of Low-Sulphur Fuel

Such was the concern over the ability for the oil industry to be able to supply the appropriate fuels to meet the global 2020 requirements and the subsequent impact on industry that the IMO undertook a planned study on 'low sulphur fuel availability' two years earlier than originally intended. The study reported in 2016 that the global refining capacity would be able to meet demand, however there is significant debate over the assumptions used to reach that conclusion. As such, global concerns about the availability of compliant fuel remain.

Australia faces further challenges with regard to supply. As an importer of low sulphur fuel, and a comparatively small market, Australia is likely to be a low priority when it comes to the allocation for distribution and reliance of demand that would support a business case to import compliant fuel other than the grades of fuel that already exist. That being automotive diesel.

The cost differential of the shipping using automotive diesel as an alternative to heavy fuel oil is very significant. This will particularly impact the vessels that are predominantly based in Australia and do not have the opportunity to bunker internationally.

It should also be recognised that any increase in demand of and therefore the price for automotive diesel across the board as a result, would have consequences for all users.

Fuel makes up a large portion of vessel operating costs. A price shock associated with increased fuel costs will have impacts on shipping businesses and in some cases, those impacts will be serious.

Investment decisions, business planning and forecasting have been undertaken in good faith on the basis of complying with the IMO 2020 requirements. These

business decisions can be impacted by either an accelerated timeframe being adopted, or more onerous requirements being put in place.

Such impact could result in vessels choosing to visit alternative ports and/or a shift to other forms of transport should vessel costs rise considerably. Both the cruise and freight markets are highly price sensitive.

Any “modal shift” would result in greater greenhouse gas emissions, since shipping is the most efficient form of transport.

### Use of low sulphur fuel while underway

Fuel switching, the change between fuel types while underway, has been the subject of much concern and investigation in other jurisdictions. Low sulphur fuel can present operating challenges relating to its compatibility with marine diesel engines.

Most existing marine machinery plant and equipment were not designed to operate using low sulphur fuel and some fuel blends demonstrate characteristics (such as high wax content) which can pose safety hazards. A recent report by the UK P&I Club found that 11% of the 249 ships' surveyed said they have experienced problems when switching between fuels [4].

We raise this point to note that fuel switching is not without risk and must be undertaken only when circumstances and conditions are optimal. Switching at any time while underway and close to shore cannot be considered a reasonable option.

## Emission Scrubbers

These are a possible alternative to low sulphur fuels to cut sulphur and considerably reduce emissions of other polluting particles at the point of exhaust. They may not be suitable or available for widespread adoption.

Some of the limitations/issues with exhaust gas scrubbers include:

- The need for additional chemicals to be stored on board;
- Generation of additional waste stream with closed loop scrubbers;
- Potential restrictions on the use of open loop scrubbers in port waters.

## LNG as a Fuel Substitute

The suitability of using LNG as an alternative fuel is being considered by various operators within Australia and overseas. At this point in time, some drawbacks to the adoption of LNG as ship fuel certainly exist. The major issues are the space required on board for the tanks being some 3 and 4 times larger than for conventional fuels; and the availability (or lack thereof) of infrastructure to supply this fuel type.

## Shore-side Electricity (At Berth Measures/Alternative Marine Power)

Since this is not currently available at Australian ports this option must be considered at best a long-term solution.

[4] UK P & I Club (2012) Risk Focus: Loss of Power http://www.dunelmpr.co.uk/Ukp&i-Risk-Focus-Loss-of-power.pdf

It is understood that the provision of the required power at berth could be of the order of $30-$40 million. Who would fund such investment and what that would mean in terms of increased berth fees, are all matters that would need to be explored to avoid negative impacts on trade and perverse environment al outcomes.

The technical challenges, economic impact and net environmental benefit of such an option all need to be considered in detail.

## Incentives to drive behavior

MIAL notes there is a growing trend internationally to incentivise ships to reduce their impact on the environment. In some parts of the world, this carrot in place of the stick approach is has assisted industry to make the massive investments necessary required to make the necessary step change to reduce environmental impact beyond regulatory compliance.

For example, the Port of Los Angeles through its Environmental Ship Index (ESI) offer discounts of up to $5,250 from berthing fees per call to ships with reduced emissions. This is intended to encourage increased numbers of environmentally sustainable vessels calling at Los Angeles.[5]

NSW Ports have recently announced that they will be joining the ESI scheme from 2019. MIAL would welcome more widespread adoption of this, and other kinds of incentive schemes in other ports around Australia.

## About MIAL

MIAL represents Australian companies which own or operate:

- international and domestic trading ships;
- floating production storage and offloading units;
- cruise ships;
- offshore oil and gas support vessels;
- domestic towage and salvage tugs;
- scientific research vessels;
- ferries and workboats; and
- dredges

MIAL also represents employers of Australian and maritime labour and operators of vessels which operate under the Marine Safety (Domestic Commercial Vessel) National Law Act 2012 (National Law).

[5] http://www.professionalmariner.com/October-November-2012/Los-Angeles-establishes-green-ship-index-with-financial-incentives/