

## **MARPOL Annex VI – Response to Public Consultation**

### **Executive Summary**

The discussion paper does not contain an adequate level of data on what is known about the potential costs and benefits of acceding to MARPOL Annex VI for the general public to engage easily with these issues. Specifically, the sparsity of information about the scope of the regulations contained in Annex VI will mean that submitters may focus on the single issue of reducing sulphur oxide levels in marine fuel.

### **Part 1: Setting the scene**

#### **How did we get here?**

Since the 1950s the International Maritime Organization (IMO) has undertaken work to introduce measures intended to address the environment impacts of international shipping. This is important because about 90% of global trade is transported via shipping.

The original focus of its work was the prevention of marine pollution by oil, resulting in the adoption of the first ever comprehensive antipollution convention, the International Convention for the Prevention of Pollution from Ships (MARPOL) in 1973.

- Annex I: Regulations for the prevention of pollution by oil
- Annex II: Regulations for the control of pollution by noxious liquid substances in bulk
- Annex III: Regulations for the prevention of pollution by harmful substances carried by sea in packaged form
- Annex IV: Regulations for the prevention of pollution by sewage from ships
- Annex V: Regulations for the prevention of pollution by garbage from ships
- Annex VI: Regulations for the prevention of air pollution from ships

New Zealand has acceded to Annexes 1,2,3 and 5. New Zealand currently does not have regulations that comply with international standards on the discharge of sewage into the marine environment, nor are we bound to international moves to reduce air pollution from shipping.

Until 2017, there were three publicly stated reasons for why New Zealand had not acceded to MARPOL Annex VI:

1. New Zealand does not have significant air pollution problems arising from shipping largely due to weather conditions and the low volume of shipping
2. New Zealand has no international shipping fleet operating under its flag, while virtually all foreign vessels visiting New Zealand will already be subject to the Annex VI standards, and
3. the adoption of Annex VI would increase costs for domestic shipping operators.

Reason 1 has now been debunked through air quality monitoring programmes in Auckland that show where emissions from shipping spread and what they contain. Increasingly we understand the connection between exposure to poor quality air and impacts on human and non-human health.

Reason 2 undermines New Zealand's "punches above its weight on the global stage" aspirations. We need to be consistent in our words and action on climate change and other environment protections otherwise our hypocrisy will harm our reputation and effectiveness.

Reason 3 still stands. There will be cost implications for the owners and operators of New Zealand flagged vessels. But the trade-off benefits include improved air quality, improved international reputation. If all other sectors of the economy are being asked to move to a carbon zero / reduced environmental footprint than the New Zealand maritime sector cannot expect to be excluded. Every sector needs to make its contribution to maintain a social licence to operate.

### **Features of the New Zealand maritime sector**

#### *The policy and regulatory functions of government*

Maritime New Zealand, is New Zealand's regulator for the maritime sector. It has functions and responsibilities including:

- standards development
- seafarer qualifications and licensing
- oil spill prevention and response
- search and rescue
- inspection of foreign and New Zealand flagged ships
- port and ship security,
- commercial and recreational vessel safety
- accident investigation, and
- aids to navigation.

As our maritime regulator it would be greatly impacted by the introduction of the regulations contained in MARPOL Annex VI. The operational implications of this increase in functions and responsibilities would require additional resources to ensure the organisation has the capability and capacity to deliver its regulatory functions effectively and efficiently.

The sector would also need support via information, education and guidance on how to meet the new requirements. This may require the Ministry of Transport to take on additional work to meet its regulatory stewardship obligations. Engagement with the wider maritime sector should be a critical element underpinning any future work.

#### *Profile of New Zealand's maritime sector*

According to Maritime New Zealand the maritime sector is diverse<sup>1</sup>:

- 450,000 pleasure craft
- 3,800 commercial vessels
- a small number of New Zealand flagged vessels
- Interisland ferries and smaller ferries carrying millions of passengers each year.
- 100 commercial jet boats and 300 whitewater rafts

More than 90% of New Zealand's trade is carried by sea, there are 800 foreign vessels making almost 6,000 New Zealand port visits each year.

As a whole the maritime sector makes a significant contribution to New Zealand Inc. The discussion paper does not define the 'shipping sector' that would be required to meet the regulations contained in Annex VI.

#### *Who will be required to meet the regulations contained in MARPOL Annex VI?*

The discussion paper does not make a clear case for which players in the maritime sector will be required to meet the regulations contained in Annex VI.

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<sup>1</sup> <https://www.maritimenz.govt.nz/about/documents/Maritime-New-Zealand-profile.pdf>

### *Stakeholder and advocacy groups*

There are a number of stakeholders in the sector – shipping owners and operators, freight owners, logistic companies, industry associations, unions and environmental groups.

Although the sector is small, it's diversity means that there may be little consensus amongst stakeholders on what the correct policy settings for the sector should be. There may also be disinterest in those parts of the sector not directly affected by specific regulations, until such time as those requirements evolve to include them in the scope.

## **Part 2: Responses to Discussion Paper Questions**

*Q1. New Zealand's stated ambition is to be a global leader on climate change and strengthen our credibility and influence in international climate negotiations. To enable New Zealand to influence climate change policy at the IMO we need to accede to Annex VI and be at the table to influence decisions. Do you agree? Please provide a detailed response. If you don't agree please provide reasons why.*

New Zealand's current stance on the world stage is diminished by remaining outside MARPOL Annex VI. We are part of a high ambition coalition on climate change and are championing the interests of our Pacific neighbours and friends. The maritime sector, like all sectors of the economy, must do its part to contribute to our carbon reduction targets, and wider agenda to address environmental degradation.

Whilst there is an argument that coastal shipping, a small but important part of the New Zealand maritime sector, is already a low carbon option, there are other aspects of coastal shipping that need to be cleaned up. For example, the use of ozone depleting substances, shipboard incineration and sewage discharge (noting that MARPOL Annex IV specifically addresses this activity).

*Q2. What are the costs associated with complying with SEEMP and EEDI requirements?*

*Q3. What are the benefits associated with the EEDI and SEEMP requirements?*

*Q4. What does New Zealand need to bear in mind on slow steaming when considering accession to Annex VI? Please provide as much detail as possible.*

Slow steaming is a strategy that ship operators can use to reduce their emissions. New Zealand's distance from its key markets mean that slow steaming poses a risk to New Zealand exporters in particular. If we are unable to get our products to market at the peak of their quality, already narrow margins will be further reduced. This will be a specific concern for meat exporters.

The size of New Zealand's economy means that we are a price taker, not a price setter. We are too small to demand service from international shipping lines – we work to their schedules. We do not have the global influence or buying power to direct them to change their operating policies.

*Q5. What are the public health benefits of acceding to Annex VI?*

There is established research from Auckland that shows clearly that air pollutants originating from shipping is impacting on air quality, and therefore human health. By improving air emissions, we will be improving air quality and thus having a positive impact on human and non-human health.

*Q6. What are the public health costs of acceding to Annex VI?*

There may be downstream unintended consequences when ship owners and operators pass their increased operating and infrastructure costs to consumers. This may see the price of goods increase. In regard to mitigating these negative impacts the government could explore options such as industry assistance packages and /or the removal of GST on fresh food.

*Q7. Are there any cost and benefits resulting from accession to Annex VI for the marine and built environments?*

In terms of ports, fuel storage infrastructure will need to be upgraded, as well as refuelling facilities. This is because low SO<sub>x</sub> fuels have different storage and handling requirements. They may also need to upgrade their waste storage and handling facilities if there is an increase in vessels unable to undertake shipboard incineration. Some the additional waste may be hazardous in nature and incompatible with other port activities – a full health and safety assessment would be needed at each site to ascertain the extent of these impacts.

*Q8. Are there any public health or other environmental issues that we should be aware of when considering accession to Annex VI? Providing for easier movement of New Zealand flagged ships to other countries Any New Zealand flagged vessel wishing to visit the port of a State that has acceded to Annex VI must abide by Annex VI requirements.*

New Zealand does not currently have a dry dock facility that is large enough to handle a number of ships in the current New Zealand fleet. The Navy facility in Davenport is also inadequate. As a result New Zealand flagged vessels have to travel to Sydney or Singapore (or other facilities further away) for dry docking. This is something that operators are aware of and ensure that they factor into their maintenance schedules and operational programmes.

The issue is that both Australia and Singapore have both acceded to MARPOL Annex VI, meaning that New Zealand flagged vessels face additional costs and delays in proofing that meet the requirements whilst in the waters of those countries.

This is not a health or environmental issue, but something that is raised by the shipping sector as something that will become increasingly frustrating the longer New Zealand remains outside Annex VI.

*Q9. How would accession to Annex VI affect the limited number of domestic ships that visit overseas ports in Party States?*

Compliance with all Annex VI regulations would be easier to evidence, making their visits to overseas ports easier.

*Q10. If we do not accede to Annex VI what are the issues that are likely to arise for the limited number of domestic ships that visit overseas ports in Party States?*

Non-compliance with all Annex VI regulations would make their visits to overseas ports more difficult until the ultimate outcome is reached – a ban on non-compliant vessels entering non-Party states. This would be possible under the ‘No Favourable Treatment’ protocol that ensures that non-compliance to expensive regulations does not benefit the non-complier over those vessels that have met the requirements.

Q11. Are there any other issues affecting New Zealand ships visiting the ports of Party States we should be aware of?

*Q12. If we do not accede to Annex VI do you have any suggestions as to how to deal with New Zealand ships visiting overseas ports in Party States?*

Q13. What are the benefits of moving to fuel with a sulphur limit of 0.5 percent?

Q14. What are the costs associated with moving to a low sulphur fuel limit of 0.5 percent?

Q15. How easy would it be for the global shipping industry to source 0.5 percent sulphur fuel?

There are conflicting reports, depending on the interests of the research group, as to whether global supply for low sulphur fuels will be able to meet demand<sup>2</sup>. In addition, availability of the fuel may not be evenly spread across main ports, leaving some regions with additional accessibility issues.

If refineries are not retooling now to ensure they can produce fuel that meets the requirements of Annex VI it would be fair to assume that supplies will be limited for some time after the implementation date, this will be another pressure on an already price sensitive commodity.

Q16. Would Marsden Point be able to produce low sulphur fuel?

This may seem pedantic – Marsden Point is a physical location where a number of businesses and industrial activities are undertaken, including a port. Marsden Point Refinery is located at Marsden Point, operated by Refining NZ it is the only oil refinery in New Zealand.

The ability to produce fuel products in New Zealand is a strategic advantage that other countries, such as Australia, have given up. Maintaining the ability of Marsden Point Refinery to meet the current and future needs of New Zealand is critically important.

To shift to the production of lower sulphur fuels, it is my understanding that the refinery would need a significant level of investment to retool. Once the refinery had capacity and a supply of the correct quality of fuel, production would most definitely be possible and desired.

*Q17. If yes, would Marsden Point be able to produce enough quantities of low sulphur fuel at reasonable cost?*

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<sup>2</sup> <https://splash247.com/industry-divided-low-sulphur-fuel-availability-2020/>; <http://mfame.guru/availability-hfo-2020-bunkering-ports/> and <https://www.forbes.com/sites/woodmackenzie/2018/09/03/will-imo-2020-introduce-mayhem-or-opportunity-to-the-refining-and-marine-sectors/#56d098e1632d>

Increased globally driven demand for higher quality fuel oil will drive up costs. New Zealand would not be buying large stocks so would not be in a position to negotiate on price. Again, the size of our market makes us price takers, not price setters.

Yes – if they are supported to build the necessary capacity and if they can source the higher quality fuel oil required for low SOX fuel products.

The cost of production will increase, driving up operating costs, with such increases passed to consumers.

*Q18. If not, where and how will international visiting ships obtain their low sulphur fuel?*

They will switch fuels to use dirty fuel while in New Zealand waters, they have large enough tankers that they won't refuel here (most of the large ships refuel in other large parts such as Singapore and Hong Kong where fuel is cheaper). They may use slow steaming which will damage New Zealand's exporters.

Q19. How would a low sulphur fuel requirement affect our domestic shipping industry?

A first question is: "What is the domestic shipping industry?"

The discussion paper does not define the 'shipping sector' that would be required to meet to meet the regulations contained in Annex VI. The coastal shipping fleet consists of 8 operators. Between them they operate:

- One bulk cargo carrier
- Four oil tankers
- Two cement carriers
- Three research vessels operated by NIWA
- One container ship
- Five Cook Strait ferries

Some or all of these vessels may face additional regulations if New Zealand accedes to Annex VI. However, the reach of the new regulatory regime may also include some or all of New Zealand's commercial fishing fleet and tourist operators.

Without a clear definition of who will be in and who will out, it is hard to determine the breadth and depth of any impact the industry may experience.

*Q20. If low sulphur fuel is unavailable, is diesel the most likely option that will be used?*

Only if the ship can convert to a diesel engine and meet the requirements of the NOx regulations contained in Annex VI. Retrofitting technology can be a time consuming and costly endeavour that does not deliver a return on investment. For example, if an operator spent \$500,000 converting their 30 year old vessel to diesel they still have a 30 year old vessel with its maintenance issues. Rather than convert an ageing fleet ship owners may choose to investment more money via the purchase of newer vessels that have been designed to meet modern requirements and provide additional safety and efficiency benefits.

If industry was made available, New Zealand based ship owners may look to invest in the purchase of new vessels that use alternative fuel sources.

Q21. What are the benefits of switching to diesel?

It is unclear if there are any benefits, given that the IMO has signalled that diesel engines are also expected to meet emissions controls for NOx. It may be more cost effective to purchase a modern, more efficient vessel<sup>3</sup>.

Q22. What are the costs of switching to diesel?

Buying a new vessels or refitting your existing fleet. The purchase of new vessels, the more expensive options, delivers other benefits such as better safety technologies, compliance with other maritime regulations and requirements and more efficient operations.

*Q23. Are ships likely to continue using 3.5 percent fuel but with abatement technology?*

Vessels will only use abatement technologies if their configuration allow for such installation. For some vessels, because of their design and operational requirements, the 'scrubbers' will not be viable because they would lead to:

- Reduced stability of the vessel (a serious health and safety implication)
- Reduced deck space and cargo storage
- Excessive increase in operational costs

There are also questions about the reliability and operating costs of abatement technologies. So far there doesn't seem to be a great deal of global demand for these technologies so we can't call on a body of overseas evidence to see what the long-term trends are.

Q24. What are the costs associated with using abatement technology?

Apart from the installation of the technology, ship owners and operators will need to assess if there will be additional wear and tear on vessels resulting from the use of the technology. There will also be waste product (the contents of the scrubbers) that will need to be disposed of appropriately. The shipboard incineration regulations may make it more difficult for ship operators to use incineration as a means of disposal, so they will need to off load the sludge at port. As noted in responses to earlier questions, this means that ports will need to have the appropriate facilities to receive and dispose of this waste. In addition, Regional Councils may have to provide additional waste management facilities as it will need to end up somewhere. I do not think it would be viable to ship it back to New Zealand Refining's facility at Marsden Point.

*Q25. What are the benefits of using abatement technology?*

I am not convinced that there are benefits of using abatement technology. Once the costs are taken into account, along with the impact on productivity and operating costs, there is probably a stronger case for ship owners to seek to replace ageing vessels with newer, more efficient models.

*Q26. How easy will it be to install abatement technology in ships already in service?*

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<sup>3</sup> <https://www.stuff.co.nz/business/107729669/investing-in-interislander-fleet-crucial-to-future-of-nz-inc>

International evidence suggests it is not easy and has a range of costs that operators are not prepared to take on.

*Q27. Are there any other considerations apart from price that is likely to be taken into account when deciding to switch fuels or use abatement technology?*

*Q28. Would current reception facilities at ports be able to cope with the requirements of Annex VI?*

Q29. If not, what are the additional costs associated with providing additional reception facilities?

Q30. If low sulphur fuel could not be locally produced, what will happen to the 3.5 percent sulphur fuel currently produced as a by-product of the refining process?

That a question best answered by Refining NZ as they have established markets for each of the components that result from the refining process. Changes in the demand or supply of those components could have a negative impact on their operating margins and long-term financial viability. As a facility of strategic national importance the views of New Zealand Refining should be sort before policy decisions are made.

Q31. Are there any costs and/or benefits or any associated industry concerns around the NOx requirements when considering accession?

Q32. How many New Zealand vessels are likely to be affected by the NOx requirements?

The sparsity of content in the discussion paper on NOx requirements would make it difficult for most members of the general public to form a view on this question. Additionally, I would hazard a guess that some New Zealand based ship owners and operators have not been sufficiently exposed to information and discussion on the full content and potential implications to understand what the impacts on them will be.

This is a question for the maritime regulator based on modelling based on the New Zealand Shipping Register and the other data collect from operators and licence holders. The New Zealand shipping fleet is large and diverse – from one domestically operated container ship to oil tankers, fishing vessels and ferries.

In regard to NO<sub>x</sub>, more work is needed to understand the financial impacts on New Zealand's ship owners and operators when they need to have an Engine International Air Pollution Prevention (EIAPP) Certificate and demonstrate compliance in accordance with the requirements of the mandatory regulations 13.8 and 5.3.2 respectively, NOx Technical Code 2008 (resolution MEPC.177(58) as amended by resolution MEPC.251.(66))? Who in New Zealand has the authority and capacity to issue the required certification and undertake compliance checks? Not only will shippers face increased costs, there will also be operational and budgetary implications for Maritime New Zealand, the regulatory agency responsible for New Zealand's maritime sector.



The NO<sub>x</sub> control requirements of Annex VI apply to installed marine diesel engine of over 130 kW output power other than those used solely for emergency purposes irrespective of the tonnage of the ship onto which such engines are installed. Definitions of 'installed' and 'marine diesel engine' are given in regulations 2.12 and 2.14 respectively. Different levels (Tiers) of control apply based on the ship construction date, a term defined in regulations 2.19 and hence 2.2, and within any particular Tier the actual limit value is determined from the engine's rated speed. Do we know how many New Zealand vessels will be unable to meet the Tier I and Tier II requirements and what the costs of compliance will be?

In relation to increased regulation of on-board incineration, more work is needed to identify what current shipboard incineration practices are undertaken by New Zealand's shipping fleet and whether these meet the regulations contained in Annex VI.

*Q33. Are there likely to be any problems associated with providing annual fuel consumption data?*

This question is difficult to answer, given that the Ministry of Transport website does not seem to have a working link to bunker fuel price data (<http://transport.govt.nz/mot-resources/tmif/transportpriceindices/ti008/>) and consumption data does not seem to be collected at the moment. Global fuel consumptions appears to be more readily available<sup>4</sup>.

Q34. How would acceding to Annex VI affect the domestic shipping sector?

Q35. What are the benefits and costs for the domestic sector of Annex VI? Additional questions

*Q36. Are there any other issues not considered above, but which you deem important and need to be factored in when considering the costs and benefits of accession to MARPOL Annex VI?*

Issues not addressed in the discussion paper

Annex VI's Regulations in regard to incineration are:

- 16.1 - incineration is only undertaken in equipment designed for that purpose while regulation
- 16.2 - prohibits the incineration of certain listed materials and therefore can be seen as complimentary to the MARPOL Annex V requirements in respect of the processing of ship generated garbage
- 16.3 - shipboard incineration of polyvinyl chlorides (PVC) is prohibited except in shipboard incinerator for which an IMO Type Approval Certificate has been issued in accordance with MEPC.59(33), MEPC.76(40) or MEPC.244(66).
- 16.4 recognizes that, while incineration of ship generated sewage sludge and sludge oil could alternatively be undertaken in main or auxiliary power plant or boilers, it is not to be undertaken within ports, harbours or estuaries.

Regulations 16.6 to 16.9 are specific to incinerators installed on ships constructed on or after 1 January 2000 or to units installed on existing ships on or after that date. Regulation 16.6 generally requires that incinerators installed on ships constructed on or after 1 January 2000 or units which are installed on existing ships on or after that date are to be Type Approved in accordance with resolution MEPC.76(40) – as modified by resolution MEPC.93(45) or MEPC.244(66) – Standard specification for shipboard incinerators. For these incinerators operating manuals are to be maintained onboard, regulation 16.7,

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<sup>4</sup> <https://www.spglobal.com/platts/en/market-insights/latest-news/shipping/031518-factbox-comparison-of-2017-bunker-fuel-demand-data-at-key-marine-hubs> and <https://www.marketwatch.com/press-release/bunker-fuel-market-2018-global-analysis-opportunities-and-forecast-to-2023-2018-08-31>

and training as to their correct operation is to be given, regulation 16.8. Regulation 16.9 requires that operation is such that the stated temperatures are achieved in order to ensure complete incineration.

Where current practices and equipment do not meet the regulations, ship owners and operators may face increased costs to refit vessels and re-engineer their operating processes and procedures. There could also be infrastructure and operational implications for ports as they may need to provide waste receiving facilities for a wide range of substances such as sewage, garbage, oil and oily waste as well as chemical waste. Once again, the certification and compliance activities required to meet this aspect of Annex VI will most likely pass to Maritime New Zealand.

The discussion paper is also silent on the banning of ozone depleting substances (ODS) and the emissions of volatile organic compounds (VOC) from tankers. These issues may also be of interest to New Zealand, especially given our stated commitment to enhancing the state of our environment.

#### Alternative technologies

The discussion paper is silent on the option to adopt new energy technologies such as LNG, hydrogen and electric motors. Each of these are currently experimental and expensive, with downsides that make them unattractive today (eg electric motors do not have the initial thrust required to move a Cook Strait ferry from the dock, although once momentum has been achieved they could be useful if the ferry had dual power sources).

Given New Zealand's unique situation we could become a testing ground for new approaches, this is an aspiration supported by the Ministry of Transport's aim to promote a sustainable transport system across all modes, which includes the maritime sector.

Q37. Having taken all of the above into consideration, should New Zealand accede to Annex VI?

### Part 3: Further observations

#### **Observations on the discussion paper and consultation process**

##### *The discussion paper*

MARPOL Annex VI, first adopted in 1997, limits the main air pollutants contained in ships exhaust gas, including sulphur oxides (SO<sub>x</sub>) and nitrous oxides (NO<sub>x</sub>), and prohibits deliberate emissions of ozone depleting substances (ODS). MARPOL Annex VI also regulates shipboard incineration, and the emissions of volatile organic compounds (VOC) from tankers.

The paper released for public consultation does not provide sufficient information on the regulation of NO<sub>x</sub>, ODS, shipboard incineration, nor VOCs. Analysis on the impact of these aspects of Annex VI is also needed before an informed decision can be made on whether New Zealand accedes to Annex VI or not.

The lack of content is disappointing given that in March 2017 it was stated that the Ministry of Transport had begun to assess whether New Zealand should join. A Ministry official, Nick Brown, was quoted in the Herald newspaper as saying:

"We will be investigating the full implications for New Zealand, including the costs and benefits of signing up, as part of our 2017 work programme,"

*and*

"We have already started to talk to shipping industry groups and stakeholders, and we have committed to provide advice to the Government by September 2017. Ministers will then make a decision."<sup>5</sup>

#### *Timing of the consultation*

Summer is the maritime sector's busiest time of the year with high demand for a range of shipping services and activities. Timing the consultation over December 2018 to February 2019 seems particularly cynical, especially given how long the Ministry of Transport has been conducting its investigation of the full implications for New Zealand.

#### **What the future holds**

At the moment the IMO has agreed to reduce the sulphur content of fuel to 0.05%. In the designated Emission Control Areas (ECAs) the limit is even lower (0.01%). In the future the IMO may seek to introduce the 0.01% limit to all shipping as a further attempt to improve air quality. If New Zealand is not a party to Annex VI it will not have a vote on a proposal of that kind.

As climate change science and technology continues to develop, our understanding of the impact of more substances on air quality and the atmosphere will improve. This could lead to other types of air pollutants being targeted by the IMO either through targeted reduction or prohibition. Any future changes would apply to New Zealand, so we may be agreeing to more than we know about today.

In summary, as an active member of the IMO New Zealand has a range of issues on which we advocate. Remaining outside the remaining two Annexes (IV and VI), weakens our voice.

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<sup>5</sup> [https://www.nzherald.co.nz/nz/news/article.cfm?c\\_id=1&objectid=11817827](https://www.nzherald.co.nz/nz/news/article.cfm?c_id=1&objectid=11817827)