

Chair
Cabinet Environment, Energy and Climate Committee

APPROVAL TO CONSULT ON ACCESSION TO THE INTERNATIONAL MARITIME ORGANIZATION TREATY MARPOL ANNEX VI: PREVENTION OF AIR POLLUTION FROM SHIPS

Proposal

1. I seek the Cabinet Environment, Energy and Climate Committee's approval for the Ministry of Transport (the Ministry) to publicly consult on New Zealand's potential accession to MARPOL¹ Annex VI: Prevention of Air Pollution from Ships (Annex VI), an International Maritime Organization (IMO) treaty.

Executive summary

The consultation

2. I am proposing a six-week period of public consultation (see consultation document, attached). Submissions will inform a National Interest Analysis and subsequent advice to Cabinet on whether or not New Zealand should accede to this Annex. I anticipate providing Cabinet with that advice later this year.

MARPOL Annex VI

3. New Zealand is a party to MARPOL, which aims to prevent and minimise operational and accidental pollution of the marine environment by ships.
4. MARPOL has six annexes categorised by pollution type. Two are compulsory for all states party to MARPOL and four are optional. New Zealand has acceded to two of the four optional annexes. It has not acceded to Annex VI.
5. Annex VI primarily responds to two global problems related to shipping emissions:
 - 5.1. impacts on human health and environments in port communities from maritime pollution, and
 - 5.2. contributions to climate change and ozone layer depletion.
6. Annex VI addresses these problems by
 - 6.1. regulating air pollutants that are harmful to humans, including sulphur oxides, nitrogen oxides, soot;
 - 6.2. regulating greenhouse gases (GHGs) and ozone depleting substances, and
 - 6.3. setting out requirements for reception facilities and Port State Control, and requirements for Party States (Administrations) to enable their ships to

¹ Full title: The International Convention for the Prevention of Pollution From Ships 1973, as modified by the Protocol of 1978.

demonstrate compliance with energy efficiency regulations when entering the ports of other Party States

7. Over 96 percent of international maritime trade, including almost all ships involved in New Zealand's international trade, is carried on ships registered ('flagged') to States that have acceded to Annex VI.
8. New Zealand ship owners are looking for certainty about whether New Zealand will accede to Annex VI as this will enable them to make business decisions around fuel supplies and future ship purchases.

The potential benefits and impacts of accession

9. Consultation is necessary for officials to gain a better understanding of both the potential impacts and benefits of accession to Annex VI.
10. The potential benefits of New Zealand accession to Annex VI are:
 - 10.1. to strengthen the credibility of our voice on international climate change mitigation issues and support the global response
 - 10.2. to strengthen our ability to influence the setting of international regulations covering GHGs from shipping, particularly the development of new IMO regulations that will affect our interests in maritime trade and climate change mitigation
 - 10.3. that it will reduce shipping emissions around New Zealand ports and improve air quality
 - 10.4. that it would give certainty to owners of New Zealand flagged ships who are considering replacing their vessels in the near future
 - 10.5. that it would give certainty to the oil industry around the requirements for fuel supplies
 - 10.6. that it will facilitate easier movement between New Zealand flagged ships and other ports because there would be the same regulatory requirements.
11. The potential impacts of New Zealand's accession to Annex VI are:
 - 11.1. that around 69 domestic ships would be required to meet new limits on the amount of sulphur that is allowed in their marine fuels, from 1 January 2020²
 - 11.2. increased fuel costs for domestic operators who are unable to retro-fit their vessels with abatement technology or upgrade to more efficient ships
 - 11.3. that some low-sulphur marine fuel may be imported from overseas to replace the high-sulphur fuel currently produced domestically.

² While new Annex VI limits will come into force internationally from 1 January 2020, the New Zealand government is unlikely to make a decision and implement the necessary domestic legislation by this date. Therefore, new limits are unlikely to apply to domestic ships before 2021.

Some New Zealand ships will be impacted by Annex VI regardless of whether New Zealand accedes

12. Regardless of whether New Zealand accedes to Annex VI, New Zealand ships will need to be compliant with Annex VI regulations from January 2020 if visiting an overseas port in a country that is already party to Annex VI. Some domestic ships will therefore face costs relating to Annex VI regulations regardless of whether New Zealand accedes or not.
13. Many New Zealand ships are required to travel to Singapore or Australia (Party States to Annex VI), to access dry docks for their out-of-water inspections, maintenance and repairs. This is, in part, because of the limited size and capacity of dry docks in New Zealand.
14. Consultation will help to better understand how many New Zealand flagged ships visit overseas ports, and how they will be impacted by Annex VI regulations from January 2020 regardless of whether New Zealand accedes or not.

Background

MARPOL

15. The matters addressed by MARPOL, the percentage of world tonnage registered to States party to each Annex, and New Zealand's treaty status are outlined below.

Table 1: MARPOL annexes, Contracting States and New Zealand treaty status

MARPOL Annex and pollution type	Contracting States		New Zealand treaty status
	No. of States	% of World tonnage	
Annex I: oil and oily water (compulsory annex)	157	99.15%	acceded
Annex II: noxious substances (compulsory annex)			
Annex III: harmful substances	148	98.51%	acceded
Annex IV: sewage	142	96.25%	not acceded
Annex V: garbage	153	98.68%	acceded
Annex VI: air pollution	91	96.59%	not acceded

16. Annex IV sets out international standards for sewage discharges from vessels on international voyages that are over 400 gross tonnes, or carrying greater than 15 persons. It includes fishing vessels.
17. New Zealand has not signed up to Annex IV because there are alternative ways for New Zealand to address sewage disposal from ships that are more appropriate. New Zealand's Resource Management (Marine Pollution) Regulations 1998 control the discharge of sewage from maritime sources into the marine environment. These regulations apply to all size of vessels, including smaller recreational craft.

18. In New Zealand, local councils are able to take their own initiative to expand the areas within which sewage disposal is forbidden if it becomes an issue.

Annex VI

19. Annex VI entered into force in 2005. It has five chapters, as follows:

Table 2: MARPOL Annex VI chapter and matters regulated:

Chapter	Matters regulated
1. General	• Treaty application and interpretation
2. Certification and ship survey	• Compliance and enforcement
3. Control of emissions from ships	• Emissions harmful to human health • Ozone depleting substances
4. Energy efficiency of ships	• Climate change impacts
5. Verification	• IMO audit of States Party to verify compliance with treaty provisions.

20. Annex VI regulates air pollutants harmful to human health (mainly sulphur oxides and nitrogen oxides) and emissions that alter the atmosphere (GHGs and ozone depleting substances, including nitrogen oxides). Generally, air pollutants have local impacts (mainly on human health) while GHGs and ozone depleting substances have global impacts.
21. Ships flagged to Party States must comply with Annex VI regulations, including fuel and emissions regulations, wherever they operate. Party States can also apply Annex VI requirements to ships visiting their ports. This dissuades ship owners from avoiding Annex VI requirements by flagging to States not Party. Our international trade is almost entirely carried on ships flagged to Party States
22. Ships flagged to New Zealand and other States not Party to Annex VI do not need to comply as long as they operate domestically.

Potential Benefits of acceding to Annex VI

Improving New Zealand credibility and influence on climate policy

23. Annex VI is likely to be the primary international regulatory mechanism for mitigating maritime GHG emissions as well as other air pollutants.
24. Acceding to Annex VI would align with New Zealand’s stated ambition to be a global leader on climate change and strengthen our credibility and influence in international climate negotiations.
25. In April 2018 New Zealand participated in negotiations that saw the adoption of the IMO GHG Strategy (the Strategy). This Strategy seeks to reduce international GHG emissions from international shipping, in line with the goals for the Paris Agreement.
26. In those negotiations New Zealand advocated for more ambitious global action to reduce maritime GHG emissions. It may be difficult for New Zealand to continue

arguing for ambitious action to reduce maritime emissions if it continues to free ride on the global benefits provided by Annex VI.

Protecting New Zealand's trade interests and advancing effective mitigation measures

27. Being a Party to Annex VI will improve New Zealand's ability to protect its maritime trade interests and support effective measures to reduce GHG emissions.
28. Both existing and new measures to implement the Strategy are likely to be regulated under Annex VI. Being a Party to Annex VI will make it possible for New Zealand to fully participate in negotiations regarding the design and implementation of new maritime regulations.
29. The IMO operates by consensus, but matters can be put to a vote if an impasse occurs. Member States cannot vote on issues relating to treaties they are not party to.
30. New measures for inclusion in the Strategy are likely to be negotiated from 2020 and implemented in 2023. These measures will have significant implications for New Zealand, which is highly dependent on both a stable global climate and international maritime trade.
31. One carbon dioxide reduction measure that could be negotiated and implemented before 2023 that could affect our maritime trade interests is *slow steaming* (ship speed reduction). Slow steaming will materially decrease the shelf life for exports to the European Union (EU) in particular. The commodities affected are beef, sheep meat, some dairy, fruit and vegetables. Chilled exports to the EU account for 2.6 percent of total merchandise exports. We need to ensure the application of slow steaming does not have disproportionate trade or operational impacts, given our distance from markets.
32. Officials recently engaged with the Shippers' Council which is the principal association representing New Zealand's major cargo owners including many of the country's biggest exporters and importers. The Shippers' Council are in favour of New Zealand having a seat at IMO negotiations to ensure that New Zealand is not disproportionately affected if, and when, measures around slow steaming are agreed.
33. New Zealand supports an alternative measure to slow shipping described as *speed optimisation*. Speed optimisation is where carbon dioxide emissions are not only reduced by speed reduction, but are also addressed by other factors such as sea state, weather and routing considerations, and taking into account commercial imperatives.

Promoting the interests of Pacific Island countries

34. Strengthening New Zealand's influence in the IMO on climate change policy will also help us to promote the interests of Pacific Island countries and territories. Most Pacific Island countries and territories are unable to attend IMO negotiations and rely on other countries like New Zealand to represent their interests.
35. New Zealand has previously stated that we will bolster our efforts to tackle priority issues for the Pacific, especially climate change. This is a region where the needs for climate-related assistance are great, and where New Zealand has the relationships and

experience to make a practical difference.³ New Zealand and Pacific Islands also share a common dependence on both international shipping and a stable global climate.

36. Accession would support our ability to advocate for the interests of Pacific Island countries and territories, with respect to Annex VI regulations that affect them. The need to influence these regulations will become more pressing as the IMO develops measures to further reduce GHG emissions from international shipping and to support the goals of the Paris Agreement.

Improving public health and regulating greenhouse gases

37. Accession would improve air quality in and around New Zealand ports and harbours as all ships would need to comply with Annex VI air quality regulations. Accession would also enable New Zealand to inspect foreign ships in port to ensure compliance with these regulations.
38. There is a growing body of international research that links ship emissions, in port, of soot and other air pollutants, with human health impacts, including premature death, in adjoining communities. There is now an increased understanding of the interplay between meteorological conditions, pollutants and the shipping sector, and the role this play is damaging human health.
39. The issue of maritime air pollution is topical in Auckland, due to Port of Auckland's shipping volumes and because it is the hub port for cruise liners operating around New Zealand, large parts of the South Pacific and sub-Antarctic regions.
40. A pilot study conducted by National Institute of Water and Atmospheric Research in 2014⁴ found that when winds blew from the north-east, heavy oil combustion near the Central Business District of Auckland resulted in raised particulate concentrations at Albert Park, associated with smog and human health problems. Analysis of the air found elevated levels of vanadium, nickel and sulphur, which suggested the source was shipping emissions generated near the Ports of Auckland.
41. Ports of Auckland's annual shipping container throughput increased from 818,819 containers in 2013 to 952,331 containers in 2017. For the same years, cruise ship passenger visits increased from 200,000 to 230,571 in 2017. Increasing throughput is associated with increased emissions of harmful pollutants.

Providing for easier movement of New Zealand flagged ships to other countries

42. Any New Zealand flagged vessel wishing to visit the port of a State Party to Annex VI must abide by Annex VI requirements. Some New Zealand coastal trading and fishing vessels visit Australia and Singapore (Annex VI Party States) to access dry dock facilities for maintenance and repair, given capacity constraints in New Zealand.
43. Interislander is very interested in knowing whether New Zealand would accede to Annex VI as it already has one ship that is flagged to the United Kingdom and would have to be compliant with Annex VI fuel requirements from 1 January 2020. They are

³ <https://www.mfat.govt.nz/en/environment/climate-change/at-home-and-in-the-pacific/>

⁴ NIWA (2016). SpARTANZ Auckland Pilot Study: Spatially Resolved Technique for Source Apportionment in New Zealand.

<https://www.niwa.co.nz/sites/niwa.co.nz/files/SPARTANZ%20Auckland%20Pilot%20Study%20Report.pdf>

interested in a decision to enable them make future decisions on their vessel fleet going forward.

44. New Zealand's accession to Annex VI would make it easier for domestic ships visiting overseas ports as they would be able to operate under uniform IMO rules regardless of where they are in the world.
45. If there was sufficient dry docking capacity in New Zealand this will be less of an issue as domestic ships would not need to leave New Zealand waters for repair and maintenance. Some parts of the industry have been advocating for the Government support to acquire sufficient dry dock capacity. It is likely that approaches will be made to the Provincial Development Unit to see whether such a facility could be built with support from the Provincial Growth Fund.
46. Consultation would help provide a clearer picture of the number of ships that visit overseas ports, what the potential impact on them may be of MARPOL Annex VI, and how this might be addressed by accession.

Potential impacts of acceding to Annex VI

47. Consultation is necessary to provide a more detailed picture of the potential impact of accession for our domestic fleet, visiting ships and marine fuel industry.

Impacts on domestic shippers

48. New Zealand's accession to Annex VI would affect some of our domestic ships, primarily by making them subject to this new limit on sulphur in fuel.
49. From 1 January 2020, all ships flagged to Annex VI Party States will have to comply with a lower sulphur fuel limit of 0.5 percent. Currently the allowable limit is 3.5 percent.
50. This new sulphur limit of 0.5 percent would apply to approximately 69 ships over 400 gross tonnage. These 69 ships are spread between approximately 35 owners and charterers.
51. Approximately 11⁵ of these 69 ships (excluding fishing vessels) currently run on residual fuel that would not be compliant with the 0.5 percent sulphur fuel limit. This includes the interisland ferries and some domestic fuel tankers.
52. Thirty-six of the remaining 69 ships are fishing vessels. Officials understand that most of New Zealand's fishing fleet runs on diesel, which would be compliant with the new sulphur limit of less than 0.5 percent. A proportion of larger fishing vessels run on blends of residual and distillate fuels (petrol and diesel) that may be compliant with the new limit, depending on the blend. Some of the largest fishing vessels may run exclusively on residual fuel, which would not be compliant with the lower sulphur limit..
53. Officials do not know what fuel the remaining 22 vessels run on. This information would be sought through consultation.

⁵ Four interisland ferries are affected (two Interislander, two Bluebridge), three fuel tankers, one bunker (fuel) barge, one container ship (The Spirit of Canterbury) and two cement carriers. A third Interislander ferry is registered to the United Kingdom. It is already subject to Annex VI requirements.

54. Ships running exclusively on residual fuel would face compliance costs associated with Annex VI fuel sulphur content regulations. There are three ways for ships to meet the requirements if we become party to Annex VI:
- 54.1. use 0.5 percent sulphur residual fuel, which could be more expensive as it may be difficult to source, or
 - 54.2. switch to diesel, which is also more expensive than 3.5 percent residual fuel and may require the recalibration of engines, or
 - 54.3. upgrade to newer ships that are more fuel efficient or that are fitted with emissions abatement technology.
55. These compliance options will increase costs in the short term. In terms of price hierarchy, 3.5 percent sulphur residual fuel will remain the cheapest fuel, while 0.5 percent sulphur residual fuel, once it becomes available⁶ internationally prior to January 2020, will be cheaper than diesel.⁷
56. The world price of diesel is currently about 50 percent higher than that of 3.5 percent sulphur residual fuel. Ministry of Business, Innovation and Employment data shows a similar differential in New Zealand prices.
57. Based on the current price of residual fuel, overseas data indicates that switching to diesel to comply with the 0.5 percent sulphur limit would increase international ships operating costs by approximately 27 percent for a container ship and 15 percent for a passenger ship⁸.
58. The increase in costs for the domestic fleet if they switch from residual fuel to diesel is unknown and consultation would help provide a clearer picture on this.
59. Industry forecasts show that prior to and after the 1 January 2020 implementation of the 0.5 sulphur fuel limit, the world price of diesel will be relatively constant, but the world price of 3.5 percent sulphur residual fuel will drop sharply.
60. Initially 0.5 percent sulphur residual fuel will attract a high price (although it will still be cheaper than diesel), as there is some uncertainty as to whether the international oil market will be able to meet the global demand for it. By 2023, the world price of 0.5 percent sulphur residual fuel will fall as more production comes online and the uptake of emissions abatement technologies increases.⁹
61. Under Annex VI emissions abatement technology is allowed to be fitted to vessels to allow them to burn fuel with higher sulphur content, however, the age of our domestic fleet may make it uneconomic for some vessels to be retrofitted with this technology.

⁶ 0.5 percent residual fuel is a new fuel type, not currently available internationally. A price for it is therefore not available, but residual fuels, regardless of sulphur content will always be cheaper than distillates.

⁷ Source: JBC Energy (Dec 2017): 'Opportunities, challenges, and perspectives until 2030 for 3rd International Energy and Oil Conference'.

⁸ Figures generated from industry data and that in the 2016 OCED report 'Reducing sulphur emissions from ships: the impact of international regulation'.

⁹ Source: JBC Energy (Dec 2017): 'Opportunities, challenges, and perspectives until 2030 for 3rd International Energy and Oil Conference'.

Impact on the supply of marine fuel

62. The residual fuel produced in New Zealand meets the current Annex VI sulphur limit of 3.5 percent by mass, but not the 0.5 percent limit set to come into force on 1 January 2020. Marsden Point supplies all of the residual fuel at the current sulphur limit of 3.5 percent to New Zealand's domestic shipping fleet and to foreign ships refuelling in our ports.

63.

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64. This could mean that domestic ship operators choose to use imported low-sulphur residual fuel from overseas. However officials believe that most domestic operators will instead switch to diesel fuel, in the short term.

65. Diesel is currently produced domestically at Marsden Point as well as being imported.

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Impact on Marsden Point

66. It is unclear what impact New Zealand's accession to Annex VI could have on Marsden Point's overall business.

67. Marsden Point supplies residual fuel at the current sulphur limit of 3.5 percent to New Zealand's domestic shipping fleet and this makes up approximately 2 percent of the transport fuel Marsden Point produces.

68. Consultation would help provide a clearer picture of the potential impact on Marsden Point.

Impact of greater diesel use for the environment and public health

69. Should the new low sulphur limits be applied in New Zealand from 2020, most demand for marine fuel would be expected to shift from residual fuel to marine diesel, a lower sulphur distillate fuel.

70. Distillate fuels, such as diesel are cleaner for the environment and better for human health. However, some diesel additives, such as aromatics (which replaced lead in petrol) that improve fuel performance, are harmful. Some additives, such as benzene, are carcinogens.

71. Overall, however, the health impacts of emitting sulphur, particulate matter and heavy metals from burning unfiltered residual fuel have a worse effect on the environment and public health.

72. Consultation will provide officials with a better understanding of the overall impact on the environment and public health of adopting the Annex VI regulations.

Impact on diesel powered vessels

73. Annex VI also regulates nitrogen oxide emissions. This regulation applies to vessels that have diesel engines with a power output of 130 kilowatts or more, built on or after 1 January 2000 or that have undergone major conversion since that date.
74. The regulation would likely have no impact on the running costs of vessels already using New Zealand diesel. However, associated certification requirements would have modest compliance costs. Certification costs for New Zealand would need to be established, but could be in the region of hundreds of dollars per issue or renewal. In Australia such certificates are renewed every five years.
75. Vessels under 24 metres in length could be affected by these compliance costs, however, it is difficult to know how many. These vessels are not readily identifiable as they do not have to be registered, so their age and number cannot readily be established.
76. Public consultation and further sector engagement could provide more information on the number of other types of vessels affected by this regulation.

Impact on visiting ships flagged to other States

77. Visiting ships registered to Annex VI Party States will have to comply with the new sulphur limits from 1 January 2020 irrespective of whether New Zealand accedes or not. New Zealand's accession is unlikely to adversely impact visiting ships because most countries are already party to Annex VI (96 percent of world tonnage) and these vessels should already be compliant.

Domestic regulation

78. Domestic regulation would be necessary to implement Annex VI requirements. Operational and technical requirements relating to fuel sulphur content and management of sulphur dioxide and nitrogen oxide emissions would likely be addressed through marine protection rules under the Maritime Transport Act 1994, administered by Maritime New Zealand.
79. Regulations under the Resource Management Act 1991 and Exclusive Economic Zone and Continental Shelf (Environmental Effects) Act 2012 could, if so required, cover discharges into the air in the coastal marine area and exclusive economic zone respectively.
80. The National Interest Analysis and subsequent advice to Cabinet on whether or not New Zealand should accede to Annex VI will outline the legislative changes required to give effect to Annex VI.

Treaty process and implementation

81. If New Zealand were to accede to Annex VI, the treaty would come into force for New Zealand three months after the instrument of accession is deposited with the IMO. Associated domestic regulations would need to be in place beforehand.
82. We estimate that it would take up to the first quarter in 2021 before New Zealand would be able to complete all the processes to enable it become a party to Annex VI. This

may give us flexibility to see how the international market is responding to the lower limits.

Human rights, gender, and disability implications

83. No human rights, gender, or disability implications arise from this paper.

Legislative implications

84. No immediate legislative implications or decisions arise from the proposed consultation.

Financial implications

85. There are no financial implications arising from the proposed public consultation.

Publicity

86. The Ministry will engage with the domestic shipping industry, maritime fuels sector, the health sector, iwi and local authorities, and major importers / exporters. The documents will also be publicly available on the Ministry of Transport's website and linked from Maritime New Zealand's website.

Consultation

87. The following government agencies were consulted in relation to this proposal: the Ministry of Business, Innovation and Employment (Labour, Science and Enterprise), Ministry for the Environment, Ministry for Primary Industries, Ministry of Foreign Affairs and Trade, Ministry of Health, Te Puni Kōkiri, and Maritime New Zealand. The Treasury and the Department of Prime Minister and Cabinet were informed.

88. No formal consultation with industry or iwi on matters relating to Annex VI has occurred in the past. Preliminary discussions have taken place with the maritime and energy sectors, as these sectors would be affected by Annex VI regulations.

Recommendations

89. The Associate Minister of Transport recommends that the Committee:

1. **note** that New Zealand is not party to Annex VI: Prevention of Air Pollution from Ships of the International Convention for the Prevention of Pollution From Ships 1973, as modified by the Protocol of 1978, an International Maritime Organization (IMO) treaty
2. **note** that Annex VI accession would provide a number of benefits. It would reduce air pollution and emissions, improve our ability to further influence the development of the International Maritime Organization greenhouse gas strategy, and allow for seamless movement of NZ flagged ships
3. **note** that if New Zealand accedes to Annex VI, our maritime sector will need to comply with associated regulations, and there will be costs of compliance and potential issues around fuel availability

4. **agree** that the Ministry of Transport undertakes public consultation on whether New Zealand's should accede to Annex VI.

Hon James Shaw
Acting Associate Minister of Transport

Dated: _____

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