

# Australia's shipping industry to halve toxic emissions by 2050 with dramatic drop of sulphur in fuel

WA Country Hour

By Jon Daly

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[The UN's International Maritime Organisation wants to reduce the amount of sulphur dioxide coming from ships.](#)

The United Nations' International Maritime Organisation (IMO) has confirmed its intention to reduce sulphur emissions by 3 per cent over the next two years, and to halve greenhouse gas (GHG) emissions by 2050.

From January 1, 2020, the limit for the approved amount of sulphur contained in ship fuel oil will drop from 3.5 per cent to 0.5 per cent.

As a member state, Australia's shipping industry is bound to comply with these new standards.

The stakes are high, as the Australian shipping industry contributes about \$9 billion directly and \$11.8 billion indirectly to the national GDP.

The IMO stated that this reduction will "significantly reduce the amount of sulphur oxide emanating from ships and should have major health and environmental benefits for the world, particularly for populations living close to ports and coasts".

The IMO also announced earlier this month its vision to reduce greenhouse gas (GHG) emissions.

"IMO remains committed to reducing GHG emissions from international shipping and, as a matter of urgency, aims to phase them out as soon as possible in this century," the vision statement stated.

The announcement outlined an initial reduction strategy, which aims to reduce GHG emissions by 50 per cent by 2050 compared to 2008 levels.



[A Finnish study estimates that current air pollution from ships would contribute to 570,000 deaths between 2020 and 2025](#)

(Supplied: Maritime Industry Australia Ltd)

## Deadly health impacts

The driving force behind the IMO initiative to reduce sulphur oxide emissions is its impact on public health.

One Finnish study estimated that air pollution from ships — if sulphur emissions were left unchanged — would contribute to more than 570,000 deaths worldwide between 2020 and 2025.

Studies have also found that in East Asia, sulphur oxide and other harmful shipping emissions are responsible for 24,000 premature deaths annually, with China, Japan and South Korea being affected the most.

A worldwide impact assessment estimated that the widespread use of low-sulphur fuels in shipping would prevent approximately 33,500 premature deaths annually.

Richard Broome, director of Sydney Health Observatory, is also co-author of one of the only studies looking at the health effects of ship sulphur emissions in Australia.

"Ships use fuel with high sulphur content. What that means is that they produce quite a lot of particulate matter," Dr Broome said.

"Particulate matter is an air pollutant that's everywhere really. It's produced by burning stuff primarily. It's the air pollutant that we know has the biggest health impacts."

According to Dr Broome, the spectrum of health effects from particulate matter ranges from reduced life expectancy, lung and heart disease to nose and throat irritation.

Dr Broome said at an individual level those health impacts were barely noticeable, but they were large when considered at a population scale.

"We found in Sydney that in one year about 220 years of life would be lost in the whole population [due to particulates]," he said.

"But obviously there is a gradient of exposure. People who live near ports are more exposed, so we would expect more of the overall effect to be clustered within those areas close to ports."

In addition to health impacts, sulphur oxide emissions also have devastating environmental consequences, which the [IMO summarised in a detailed online statement](#):

"In the atmosphere, sulphur oxides can lead to acid rain, which can harm crops, forests and aquatic species, and contributes to the acidification of the oceans."

## Cleaning up our act

Angela Gillham is the deputy CEO of Maritime Industry Australia Ltd, which is the Australian industry's peak representative body.





[Maritime Industry Australia deputy CEO Angela Gillham says the industry needs to focus on alternative fuels.](#)

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She said the new emission limits would boil down to extra costs for vessel owners and ultimately consumers.

"Eventually this is a cost on the consumer. The cost of sea trade ends up flowing down to the cost of products in Australia and the world," she said.

Ms Gillham said the Australian shipping industry had a few options to meet the deadline imposed by the IMO.

The options included switching to a more expensive fuel such as marine gas oil or diesel oil, which could be used in existing ship engines.

Alternatively, scrubbers could be installed to filter ships' exhaust fumes, however this was a costly option.

"The industry needs to, where possible, try and anticipate what's coming next. At some point down the track, whether it's a decade or shorter, the industry will be required to address greenhouse gas emissions as well," Ms Gillham said.

"It's time that a huge focus is put on alternative fuels."

Maritime industry veteran, Walter Purio said most ships coming into Australian ports burnt heavy fuel oil, which was an affordable but dirty source of fuel.

"One very large container ship today that's allowed to burn heavy fuel oil emits more sulphur in one day of steaming than 58 million cars do in a year," Captain Purio said.

As well as being an experienced sailor, Captain Purio is also the CEO of the LNG Marine Fuel Institute (LNG MFI), an organisation advocating for the transition to liquified natural gas (LNG) as a marine fuel in Australia.

Captain Purio said the best fuel option would be to switch entirely to LNG.

"[Using] LNG reduces sulphur oxide to effectively zero and particulates are effectively zero. Nitrogen oxide reduces by 60 to 80 per cent and carbon dioxide is reduced by up to 25 per cent. That's just by burning LNG," he said.

"Gas is cleaner, it's greener, and it's a transition fuel to the other renewables that will come along in 30 or 40 years'."

Being one of the world's biggest exporters of natural gas, Captain Purio said Australia was in an ideal position to leverage off an LNG marine fuel industry, but said the industry was at risk of falling behind its northern hemisphere counterparts if transitioning did not become a priority.

"I don't think the country actually understands what is happening in the northern hemisphere, where [they] have at least 120 vessels built to support the reducing in sulphur requirements," he said.

According to Captain Purio, Australia only has one LNG vessel.

Ms Gillham said a switch to LNG was not enough to address the 2050 target set for greenhouse gas emissions.

"LNG itself is more of a transitional fuel, it still emits greenhouse gases. We're talking about fuel efficiency measures, and potentially biofuels," she said.

"There's biofuels available at the moment that you can [use] with very little technological changes to engines."

Ms Gillham said there needed to be more research and development of alternative fuel options that could satisfy restrictions to both sulphur and greenhouse gas emissions.

Matt Johnston, the environmental standards manager at the Australian Maritime Safety Authority, said commercial decisions around fuel needed to be made by vessel owners.

"[With the IMO] we are looking at developing guidance for fuel suppliers, fuel purchases, and quality assurance for new blends of fuel," he said.

"If a vessel owner elected to use a scrubber, there'd be some capital costs involved in that. It's probably a little early to tell what the cost impacts will be on the fuel itself."