

11 February 2019

MARPOL Annex VI Submissions  
Ministry of Transport  
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Submission: IMO: MARPOL Annex VI

Please accept this letter as the submission of Methanex Corporation on the MARPOL Annex VI: Prevention of Air Pollution from Ships – Discussion Document.

Methanex is the world's largest producer and supplier of methanol. Methanex currently operates production sites in Canada, Chile, Egypt, New Zealand, Trinidad and Tobago and the United States. Our operations are supported by an extensive global supply chain of terminals, storage facilities and the world's largest dedicated fleet of methanol ocean going vessels.

We have invested over \$500m in our own fleet to allow our vessels to run on low emission methanol and would willingly work with the government through information sharing to demonstrate how methanol can help meet its cleaner air emission objectives and comply with MARPOL Annex VI.

Q16 of the Discussion Document asks:

**“How easy would it be for the shipping industry to source 0.5 percent fuel?”**

We would like to highlight that a 0.5 percent fuel, methanol, already exists and is currently being produced at scale right here in Taranaki. Methanex can support New Zealand and the marine industry to improve our air quality and achieve global marine emission standards. Methanol, a fuel that is produced in New Zealand from natural gas, is safe, cost effective, clean-burning and widely available.

To follow are some facts regarding methanol as a marine fuel:

1. As a clean-burning fuel, methanol is helping the global maritime industry meet MARPOL Annex VI environmental regulations. By using methanol as a marine fuel, the emissions of sulphur oxides (SOx) are reduced by approximately 99 per cent, nitrogen oxides (NOx) by over 60 per cent and particulate matter (PM) by over 95 per cent.



Source: Stena Line, Emission reductions when compared to heavy fuel oil

2. There is a growing market for methanol powered vessels in shipping. Out of our fleet of 28 tankers, that we use to ship methanol to our customers, we have adopted this technology on seven vessels (with four more on order); they are regular visitors to Port Taranaki. These seven 50,000 dead weight tonne methanol tankers have been operating safely and reliably across the globe for over two years.

<https://www.methanex.com/news/methanol-powered-vessel-arrives-new-zealand>

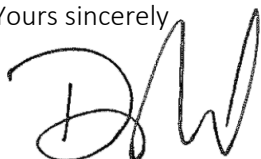
3. Stena Line, one of the world's largest ferry operators, has also adopted the use of methanol as a marine fuel on the Stena Germanica ferry operating in the Baltic Sea which has some of the strictest air emission regulations in the world.

<https://www.youtube.com/watch?v=s5txCyeJlpc>

4. Methanol is cost competitive on an energy equivalent basis with competing fuels such as marine gas oil (MGO). The cost to convert vessels to run on methanol is significantly less than alternate fuel conversions. When building a new vessel, the cost is relatively minor for it to be able to run on methanol. As a liquid fuel, only minor modifications are needed for current storage and bunkering infrastructure to enable methanol marine fueling in major port facilities – both easily and cost effectively.
5. Methanol is one of the top five chemical commodities shipped around the world each year. Unlike some alternative fuels, it is readily available through existing global terminal infrastructure and well positioned to reliably supply the global marine industry. A domestic supply infrastructure already exists in New Zealand today.
6. Methanol, if released into water, is diluted and quickly dispersed to low concentrations, allowing naturally occurring micro-organisms to biodegrade it in a relatively short period of time. The environmental effects of a large methanol spill would be much lower than those from an equivalent oil spill.
7. Methanol, which can also be made from renewable sources such as biomass and recycled carbon dioxide, is a pathway to a sustainable future in which ships can be powered by renewable fuels with a lower carbon footprint.

The use of methanol as a marine fuel could easily be adopted in New Zealand, reducing reliance on imported fuel and improving New Zealand's air quality. We would welcome the opportunity to discuss these matters face-to-face or provide you the opportunity to visit a methanol powered vessel here in New Plymouth.

Yours sincerely



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We are the world's largest producer and supplier of methanol to major international markets, with production sites around the globe.

How methanol production is used:

**55%**

HIGH TECH  
HIGH DEMAND  
PRODUCTS



Pharmaceuticals, wind turbines, solar panels, paint, clothes, electronics and medication.

**45%**

ENERGY  
APPLICATIONS



Marine fuel, transport fuels, biodiesel and industrial boilers.



Our key markets in New Zealand are China, Japan and Korea.



Our contributions to the economy total

**8%** of Taranaki GDP  
**\$834 million**  
Nationally



Methanex is New Zealand's **only** methanol producer, exporting up to **2.4 million tonnes per year** from our two sites in Taranaki.

We underpin the New Zealand gas market, using approximately 45% of the country's natural gas output.



We employ over

270 jobs directly & 3,000 jobs indirectly.

Our headquarters are in Vancouver, Canada.  
Methanex is listed on the Toronto and NASDAQ stock exchanges.

[www.methanex.com](http://www.methanex.com)



# REDUCING GLOBAL EMISSIONS



## RENEWABLE ENERGY

Methanol can be made from geothermal and industrial waste gas feedstocks. We have commercial interest in a plant in Iceland (CRI) making renewable methanol; though not yet at a commercial scale.

## REDUCE EMISSIONS

Methanol is important in manufacturing products that help reduce emissions. E.g. electric cars, solar panels, batteries and wind turbines.



**34%**

Reduction of Methanex global CO<sub>2</sub> intensity since 1994.

Our gas-based methanol plants are among the most CO<sub>2</sub> efficient plants in the world; with less than half the emissions of coal-based plants.



## READILY BIODEGRADABLE

Methanol is a clean-burning, clear liquid chemical that is water soluble.



## EMISSION REDUCTION COMPARED TO CURRENT FUEL

CO<sub>2</sub>\*

**25%**

Sulphur (SO<sub>x</sub>)

**99%**

Nitrogen (NO<sub>x</sub>)

**60%**

Particulate Matter (PM)

**95%**

\*According to recent Stena Line trial

## Emissions reduction

Providing significant benefits in the transition to a lower emissions economy.



## Shipping is a developing market

Replacing heavier marine fuels for low-sulphur emissions.



## Power generation

The Energy Sector is methanol's fastest growing market.



Methanol is a cost effective liquid fuel alternative for power generation.



**1000+**

## INDUSTRIAL BOILERS CONVERTED IN CHINA

To run on liquid methanol. Demand for methanol is expected to grow as China phases out coal-fueled boilers.



## BOILER AND SHIPPING CONVERSIONS

Only minor modifications are needed to accommodate the use of methanol as a fuel.



## WE'VE ADOPTED THE TECHNOLOGY

Seven methanol powered ships, with four more on order, were introduced to our fleet in 2016; they are regular visitors to Port Taranaki.