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Via email: Andrew.Johnson@infrastructure.gov.au

GEA SUBMISSION ON LNG MARINE BUNKERING IN AUSTRALIA

Dear Andrew

Gas Energy Australia (GEA) welcomes the opportunity to be involved in industry consultations and provide comments on LNG marine bunkering in Australia and its ability to contribute to meeting the International Maritime Organisation (IMO) sulphur and emissions requirements.

As you are aware, GEA is the national peak body, which represents the bulk of the downstream alternative gaseous fuels industry, which covers Liquefied Petroleum Gas (LPG), Liquefied Natural Gas (LNG) and Compressed Natural Gas (CNG). The industry comprises major companies and small to medium businesses in the gaseous fuels supply chain including producers, refiners, distributors, transporters, retailers, vehicle manufacturers, equipment manufacturers and suppliers, installers, educators and consultants.

Environmental benefits of LNG as a marine fuel

New sulphur and emissions regulations, which are being mandated around the world by the IMO, are driving the development of LNG as an alternate marine fuel. Compared to diesel, LNG can achieve 100% SO_x emissions reductions, 85% NO_x emissions reductions for low pressure engines, 40% NO_x emissions reductions for high pressure engines (diesel cycle), and 95 to 100% particulate reductions, while also being a commercially viable option. LNG also has the ability to reduce greenhouse gas (GHG) emissions by up to 25% compared to diesel and make an even bigger dent in the roughly 1,000 million tonnes of CO₂ a year produced by heavy fuel oils.

In summary, LNG is a currently commercially viable option which has the ability to meet the IMO's sulphur limit for 2020 concurrently with future emissions requirements, while the use of some other technologies, such as scrubbers, do not.

Overseas growth of LNG as a marine fuel

In response to the recognition that switching from oil-based fuels to LNG will be better for the environment and public health, LNG as a marine fuel has seen significant growth overseas, particularly in Europe, North America and North Asia.

The SEALNG industry coalition reports that the number of LNG-fuelled vessels in operation or on order has been growing by around 30 per cent year-on-year. As of January 2019, it reports there are currently 278 confirmed LNG-fuelled ships and 139 additional LNG-ready ships either in operation or on order. This includes a broad selection of vessels such as ferries, tankers, bulk carriers, platform supply vessels, container ships, tugs and cruise liners.

The SEALNG industry coalition also reports that the number of LNG bunker vessels has grown exponentially within two years – from one operating at the beginning of 2017 to nine at present.

It estimates that there will likely be 30 in operation within the next four to five years at key bunkering nodes in Asia, Europe, the Middle East, and North America.

LNG as a marine fuel in Australia

Australian shippers and shipping companies are also seeking to utilise LNG to meet the IMO regulations. Switching from largely imported oil-based fuels to domestically produced LNG would also be better for the Australian economy, producing more local jobs and greater energy security.

Production of LNG in Australia for domestic consumption currently takes place at Chinchilla QLD, Karratha WA, Kwinana WA, Westbury TAS, Newcastle NSW and Dandenong VIC. Around Australia these LNG plants are capable of producing 775t per day and storing 45,000t. These plants use Australia's vast road infrastructure to deliver LNG from production facilities to the end user.

Therefore, given Australia has significant capabilities in LNG marine bunkering and as the world's largest exporter of LNG, it makes economic and environmental sense to pursue the development of marine LNG to meet sulphur and emissions requirements.

In early 2017, EVOL LNG and Woodside completed the first commercial bunkering of Australian LNG at a domestic port with the successful refuelling of Woodside's state of the art offshore platform supply vessel, Siem Thiima, at King Bay. Since then, EVOL LNG has been bunkering LNG on a fortnightly basis in Western Australia for over two years. This was a major success for industry in demonstrating LNG's viability in Australia as a marine fuel for today and into the future as the IMO and ports around the world adopt stricter sulphur and emissions regulations. With continued investment from companies like EVOL LNG, Australia can use its expertise and abundant natural gas resources to lead the world in LNG marine fuel technology.

GEA expects LNG to be used later this year as a marine fuel for a large ferry operating between Victoria and Tasmania - the Searoad Mersey II, a German built ship - the principal engines of which are dual-fuel. When using LNG as its primary source of energy, it's expected to use diesel for less than 1% of its operations between Victoria and Tasmania. TT-Line has also ordered two dual fuel Roll On Roll Off ferries for its passenger and car service for the trans-Tasman route to replace the current Spirit of Tasmania vessels by 2021.

Another example of Australian industry looking to increase its uptake of marine LNG is the Green Corridor Project. When the IMO confirmed the 2020 deadline for the 0.5 per cent global sulphur cap, industry stakeholders involved in the iron ore and coal trade between Western Australia and China, including cargo owners BHP, Fortescue Metals Group and Rio Tinto, ship owners MOL and U-Ming, ship designer SDARI, DNV GL along with LNG supplier Woodside, came together to develop a 'green corridor' a LNG-fuelled solution for the trade route. This project demonstrates the willingness of industry to find a cleaner way to ship Australian export commodities to international markets using LNG as a marine fuel.

To facilitate this growth, GEA is working with stakeholders to develop a project proposal for Standards Australia to adopt the International Standards Organisation (ISO) ISO 20519: *Ships and Marine Technology Specification for bunkering of liquefied natural gas fueled vessels* with modifications recognizing operation interfaces to existing Australian Standards. The adoption would create increased certainty for the market and manufactures alike and allow the increased uptake and utilisation of LNG as a marine fuel.

LNG as a long term sustainable marine fuel

LNG as a marine fuel is not just a transition fuel option until renewable marine propulsion technologies become available. LNG is currently undergoing its own transition to a renewable zero GHG emissions energy source. Renewable LNG is being developed and utilised around the world. For example, the Clean Energy Renewable Natural Gas (RNG) project in the United States where RNG is made from organic waste and is currently available as a commercial vehicle fuel. Clean Energy's RNG is available across North America for natural gas vehicle fleets including heavy-duty trucks, refuse trucks, airport shuttles and buses. It demonstrates a clear pathway towards the utilisation of RNG as a marine fuel.

Mixing fossil fuel-based LNG with renewable (or bio) LNG) as a 'drop-in' fuel, significantly reduces GHG emissions. Longer term, 'power-to-gas' is a key technology with the potential to produce large volumes of renewable LNG with zero GHG emissions.

Australia also has significant renewable LNG capabilities as identified in a recent *International Energy Agency's Country Report for Australia*. The report notes that in 2016 there were a total of 242 biogas plants in Australia which had a potential production output of 1,442 GW/year¹. Recent research found that potential biogas production in Australia exceeds consumption from distribution networks and demonstrates Australia's capabilities into the future.

Conclusion

In conclusion, GEA considers that LNG offers a solution to meeting the new IMO regulations with lower emissions, better economic outcomes and improved public health. With significant domestic LNG production as demonstrated above available, and commercial LNG bunkering now taking place in Western Australia and about to commence on the east coast, Australia is well placed to use LNG as a marine fuel to comply with the IMO's regulations and deliver better environmental outcomes.

We would be more than happy to further discuss these issues with your Department and look forward to working with it on helping meet Australia's IMO commitments.

Yours sincerely

A handwritten signature in black ink, appearing to read "John Griffiths", with a long horizontal flourish extending to the right.

John Griffiths
Chief Executive Officer

¹ IEA Bioenergy Task 37 Country Report Australia 2016.