

# Callidus News

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## RAISE IN TRANSIT FEES AND ITS IMPACT ON SHIPPING ACTIVITY



Suez Canal has played a very prominent role in Global Transit with about 10% of global trade, including 7% of the world's oil passes through the Suez Canal. The Suez Canal Authority on 17th September 2022 has informed that they will be increasing the transit fees for vessels including the oil laden tankers passing through Suez Canal. It was revealed that 15% hike in transit fees for oil carrying tankers and 10% will be hiked for dry bulk and cruise ships. It was also informed that the said price hike will come into effect from 1st of January 2023.

The said announcement

seems as a futuristic activity, while the OPEC+ Countries on first week of October 2022, had decided to reduce the production of crude oil by 2 Million Barrels a day from November 2022 because of the reduction of demand and reduction of oil price despite the pressure from the western countries. This move represents a major reversal in production policy for the alliance, which slashed output by a record of 10 million barrels per day in early 2020 when demand plummeted due to the Covid-19 pandemic. The said decision will lead to increase of crude oil from 80\$ for a barrel,

which is the current price.

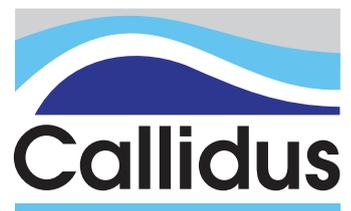
The above two announcements in fact will affect the shipping business in wider way possible, especially the coastal states who depend transit of vessel through Suez Canal.

Though the Export and Import cost increase with the increase in transit fees through Suez Canal along with the reduction in the production of crude oil, the said inflation in rates would probably have minor effects in shipping business but will not come to a halt as the transit through Suez Canal is the fastest route that connects Asia and Europe.



THE GREATEST GLORY IN  
LIVING LIES NOT IN NEVER  
FALLING, BUT IN RISING EVERY  
TIME WE FALL

**NELSON MANDELA**



# GREEN AMMONIA: A DISTINGUISHED CLEAN-FUEL CONTENDER IN THE QUEST FOR GREENING THE SHIPPING INDUSTRY

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The latest report by the Intergovernmental Panel on Climate Change has observed that the 'net anthropogenic green-house gas emissions have been rising across all major sectors globally since 2010'. Niklas Hagelberg, a climate-change expert with the United Nations Environment Program, while terming this report as a 'wake-up call for humanity', has called on fellow human beings across all strata of the society to take purposive action by 'employing every solution we can, in order to close the emissions gap'. Statistics show that the maritime shipping industry accounts for 7-8% of the global green-house gas emissions, while specifically occupying a lion's share of 1/4th of all emissions produced by the global transportation sector. The shipping industry's reliance upon and traditional preference for Heavy Fuel Oil or residual fuel oil for powering its ships has majorly been due to its' high energy density and

inexpensive procurement which however has fared badly for the environment, as the industry uses a whopping 300 million tons of fossil fuels per year resulting in colossal levels of pollution adding to the climate change woes. This had prompted the International Maritime Organization to adopt the Initial IMO Strategy on Reduction of GHG Emissions from Ships in 2018, which laid lofty ideals for sustainability such as 'reducing the CO2 output across international shipping by at least 40% by 2030 and reducing those emissions further to 70% by 2050, when compared to 2008 emission levels'. While the trend over recent years shows an overwhelming global and political tendency towards adoption of green hydrogen, obtained through renewable-energy powered electrolysis of water, as a disruptive and sustainable option for maritime fuel, this article seeks to put forth the contention

that green ammonia is a more potent contender for becoming the sustainable fuel-of-choice over its' close kin, green hydrogen, as the former outplays and overcomes the many downsides of the latter which otherwise would pose as technological impediments to latter's smooth integration as a marine fuel.

## GREEN AMMONIA

Ammonia has been traditionally been in use for long as a fertilizer, resulting in a production scale of almost 175 million tons of ammonia per year. The conventional production of ammonia (NH<sub>3</sub>) using fossil-fuels as the source for energizing the production process has been statistically reported to account for nearly 2% of the global CO<sub>2</sub> emissions as CO<sub>2</sub> is produced in large proportions as a by-product of the process. In contrast, production of green ammonia results in a zero-carbon outcome as hydrogen and nitrogen, the constituent elements of ammonia, are produced using sustainable renewable-energy sources. The electrolysis of water to produce hydrogen as well as the separation unit for air to produce nitrogen, are powered by renewable energy to eventually produce green ammonia. Thus, in a nutshell, green ammonia's viability as fuel, especially from the perspective of sustainable practices, stems from the fact that only air, water and renewable power are required for its generation while also outputting zero CO<sub>2</sub> emissions. Green ammonia, as a maritime fuel, has vast potential since it harbors 9 times the energy of lithium-ion batteries while containing almost half the energy density of fossil-fuels. Scholars have also observed that the transportation and containment systems for global transport of ammonia are already been well established owing to its considerable

use since long as a fertilizer, though it's integration for the purpose of use as a maritime green-fuel may need changes in the design of the ship engines and technology. However, a shift towards materializing this change and adoption of green-fuels has been pioneered by shipping major Maersk, which placed orders this year for 12 green-methanol fueled ships from Hyundai Heavy Industries. Green methanol also is a close kin to green ammonia since both commonly share green-hydrogen as an important constituent for their production. However, scholars have compared methanol and other bio-fuels with ammonia, and have optimistically opined that ammonia is a top contender as a sustainable marine fuel owing to its many advantages over green-hydrogen while retaining other aspects crucial to its swifter adoption such as practicality, energy-density and cost-effectiveness.

### PROS AND CONS

Green ammonia has grave potential to become the sustainable fuel-of-choice for shippers as it has good production flexibility which allows its manufacture from easily sourced renewables like air, solar, wind and ocean thermal among others. Owing to the traditional use of ammonia as a fertilizer, global storage, delivery and shipment mechanisms are already in place which may only need further research for its optimization and upgradation for transport and use of green ammonia as a marine fuel. Green ammonia perfectly caters to the goal of developing a sustainable and eco-friendly source of maritime fuel for consistent use in the future, since it produces zero-carbon emissions on combustion. Studies also have shown that NH<sub>3</sub> has a better track-record in terms of human-safety when compared to fuels like gasoline, propane and natural gas. The only concern with the emissions from combustion of green ammonia is that it produces a major greenhouse contributor, NO<sub>x</sub>. However, this concern is capable of getting mitigated efficiently owing to the fact that NO<sub>x</sub> abatement

technology through a combustion-tuning process is already fitted in many ships, which was found through studies to be suitable for green ammonia as well. In order to combat the issue of ammonia's toxicity, global companies like DNV and MAN Energy Solutions have already been researching on bunkering of ammonia and are intent on developing risk-reducing double-chambers for containing it. On an analysis, it could be stated that the creation of fuel-flexible engines like the one being developed by MAN Energy Solutions, may be critical for smooth and effective transition to use of these class of green-fuels, since green ammonia, owing to its cheaper and convenient storage capability in comparison to green hydrogen, can act as green hydrogen carrier, which can be obtained from decomposing green ammonia. This may allow for alternative use of green hydrogen and green ammonia in fuel-flexible compatible marine-engines, which allows for easy adaptability and compliance with sustainable energy goals of International organizations and National governments.

### POLICY MEASURES AND GLOBAL DEVELOPMENTS

The Indian government, in the backdrop of the National Hydrogen Mission launched in 2021 by the Indian Prime Minister, notified the Green Hydrogen/ Green Ammonia policy in February 2022, wherein the Government highlighted the need for rapid adoption of green hydrogen/ammonia to keep a check on the carbon-emissions and for taking larger steps in offsetting climate-change effects. For supporting the green hydrogen/ammonia manufacturers via this policy, the Indian government's policy measures includes waiver of inter-state transmission charges for 25 years to manufacturers, provision of connectivity to the inter-state transmission system on priority basis for the renewable-energy requisites, allotment of land in renewable-energy parks for manufacturing, setting up of a single internet-portal for convenient and hassle-free grant of necessary clearances and permissions

to potential manufacturers among others. An initiative specifically targeted for the shipping industry could be seen on the 8th pointer in the policy document, wherein the Government allowed the setting up and grant of land for green hydrogen/ammonia bunkers near the Ports for its' storage and for eventual export/use by shipping. This initiative could be seen to be in consonance with the Green Ports initiative taken by the Indian Government under Maritime India Vision 2030, which has identified the need for taking critical actions for reducing carbon-emissions, increasing alternative/renewable energy use, water-usage optimization, environmental indicators in all Indian ports by 2023 in obedience to IMO-Norway Green Voyage Project 2050 among others for achieving the goal of a sustainable green maritime-sector in India. A report by experts on the use of green ammonia as a fuel observed that as of now, the scientific research on the flashpoint of ammonia has been dismal and hence it may not be categorized as a 'low-flashpoint fuel', owing to which it's use may not be covered by the International Code of Safety of Ship Using Gases or Other Low Flashpoint Fuels, though the experts are still divided on this issue. Furthermore, even considering the natural toxicity of ammonia, it would come under the ambit of a toxic fuel, but use of toxic fuels is not regulated or prohibited by the International Code of Safety of Ship Using Gases or Other Low Flashpoint Fuels as well as the International Convention for the Safety of Life at Sea. In its June 2022 report, the premier Indian government think-tank, NITI Aayog has observed the critical potential of green ammonia in contributing to a greener future for the shipping industry and estimated that by 2050, upto 25% of the fuel requirements in international shipping sector could be met by green ammonia. The think-tank also observed that green ammonia has a competitive upper-hand over green hydrogen since the former has a higher energy density which allows for its easier storage in comparison to the

latter. Furthermore, it observed that the considerable subsidies provided by the Indian government for urea imports could be diverted slightly for green ammonia production which would support the potential manufacturers by way of tax benefits, capital subsidies, production-based incentives among others. ACME group, an Indian renewable energies company recently signed a Memorandum of Understanding with Japanese shipping

major NYK Line, for global shipping of green ammonia. ACME group also recently announced a green ammonia and green hydrogen production facility to be set up by it at a cost of INR 52000 crores in the south Indian state of Tamil Nadu. International efforts in this regard was witnessed when The University of Nottingham recently announced a multi-million dollar research project for using green ammonia to fuel ships and

technology major, Siemens is establishing a green-ammonia demonstrator in the United Kingdom in an awareness bid to enlighten people about the potentials of green ammonia. Further, German engineering major, MAN Energy Solutions is in the midst of building a two-stroke, fuel-flexible green-ammonia engine for maritime-vessels, which is touted to be ready for practical use by 2025.



## HOT NEWS

# CYBER ATTACKS ON THE RISE AT US PORTS AND TERMINALS

Cyber-attack attempts are becoming more common at U.S. ports and terminals, according to findings published this week by law firm Jones Walker LLP. The firm publicly released the findings of its 2022 Ports and Terminals Cybersecurity Survey, examining cybersecurity preparedness in U.S.-based ports and terminals. The report outlining the results of the survey is authored

by four of the firm's attorneys and the findings was presented by two of them, Jim Kearns and Andy Lee, during the Inland

Rivers, Ports & Terminals (IRPT) conference in Tulsa, Oklahoma. The results of the 2022 survey reflect the responses of 125 senior executives of blue- and brown-water ports and maritime terminals across the United

States and confirm that cyber security is a growing concern for owners and operators of ports and maritime terminals.

Fear of ransomware appears to be outpacing actual ransomware events. Although 45% of survey respondents named ransomware as the biggest perceived threat, only 20% of respondents whose organizations had been victimized by a cyber-attack cited ransomware as the primary attack vector. For actual cyber-attacks, survey participants primarily directed blame at solo hackers and organized criminal groups as the top threat actors facing the ports and terminals sector, with nation-state affiliated groups as a close third.

Although 73% of respondents reported having a written Incident Response Plan (IRP), only 21% noted that their IRP had been updated within the past year. Similarly, 50% of respondents said that their facility conducted IRP tabletop exercises irregularly or not at all.



Courtesy: [www.marinelink.com](http://www.marinelink.com)

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