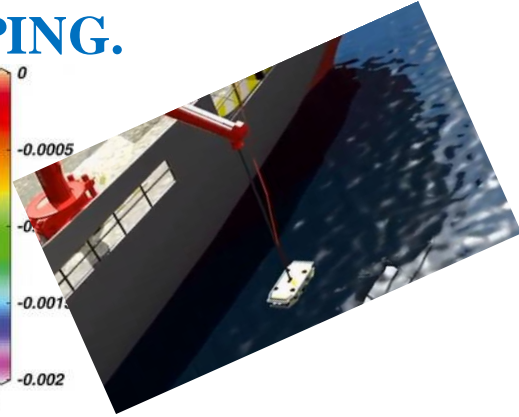
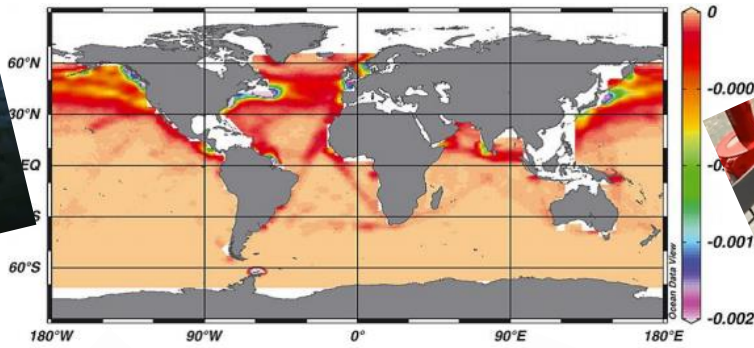


WORLD MARINE GREEN CONCEPT AND SUSTAINABILITY IN SHIPPING.



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There are various recommended ways to achieve this green concept in shipping and marine industry.

Some of them are as follows,

1. Slow or economical speed will increase the fuel efficiency.
2. Alternate Fuel for Propulsion (e.g., LNG)
3. Maximizing the propeller efficiency through systems like speed Nozzles to Save Fuel
4. Anti-Fouling Hull Paint to minimize the resistance and enhance the fuel efficiency.
5. By introducing efficient Steering Gear systems will enhance the fuel efficiency.
6. Using all means of energy generation to enhance productivity, e.g., Waste Heat Recovery System.
7. Changing over to Low-Sulfur Fuel
8. Using Wind Energy to run the propulsion system. E.g., Sail or Kite Propulsion System
9. Streaming Bubbles
10. Using scrubber operating system to control bad emissions from exhaust gas.
11. Introduction of battery powered boats & vessels.
12. Try and introduce a Ballast-Free System
13. Re-circulation System for exhaust gas.
14. Regular hull cleaning through ROV's to maintain clean smooth hull surface which will enhance the speed of the vessel and fuel efficiency.

All above systems identified by the industry experts as some of the most efficient ways to push our shipping and marine industry towards this expected green target.

We all agreed, said green concept is very important to maintain our environment stability which will support us in various ways.

Sometime industry suitability is also very important factor which we have to focus upon to understand and mitigate the risks industry might face in future.

So, we can segregate said sustainability into main three sectors such as,

1. Economic sustainability
2. Social sustainability
3. Environment sustainability

We can categories whole above green concept under environmental sustainability. So, one sector of the sustainability will fully cover under this concept.

With all above, if we can address other two main sectors like economical sustainability and social sustainability, we can use this green concept within marine and shipping very efficiently and effectively to enhance the productivity of the industry.

Hence if we consider,

1. Economic Sustainability

- Healthy profit margins (Bottom line).
- Cost / Debtor controls

As we explain, with the present world economic condition, cost factor became as one of the major bottlenecks to implement those green concepts onboard vessels.

With the years of experience, we have identified vessel owners and operators are not ready to bare those costs within their profit margins. So, all said actions will create an adverse effect on their vessel charter rates. According to the way vessel owners or operators experiencing this cost (As a one-time cost or as an operational cost) the same will add on to their rates which they are offering to their customers.

End of the day same will badly effect to the world economy where everyone will suffer with high inflation.

All are aware, as the world economy is suffering with various factors at the moment. Following can be taken as few of those,

- COVID 19 pandemic conditions (lockdowns, travel bans, quarantine, etc.)
- Low fuel oil prices (Badly effected to middle east countries and projects related to oil and as sector).
- Environment catastrophes (Landslides, earthquakes, volcano eruptions, floods, etc.)
- Trade war between countries. (Australia & China, USA & China, etc.)
- Political instability within countries (Myanmar, Syria, Yemen, etc.)
- Political instability with other countries (USA & Iran, USA & Russia, USA & China, etc.)
- The frictions in between world superpowers (USA, Russia, China, India, etc)
- Sanction restrictions imposed against certain countries (North Korea, Iran, Venezuela, etc.)

All above will create a real bottle neck towards the economical sustainability in the world and same are affecting towards the shipping sector as well.

So, additional cost on top of the above concerns will create an added pressure towards the sustainability of the shipping industry.

As an example,

Example 01 – Low-cost solution

If we can encourage to use economical speed for a vessel which is using HSFO, according to the experts it will reduce or save around 200MT per day of fuel from the amount when it is on its high-speed run.

(source: - IMO 2020 – The big shipping shake-up)

This will not add any cost towards the owner or operator. So, it can identify as one of the best among the given methods to approach green concept without adding any additional weight towards the owners & operators and finally towards the economy.

Example 02 – Low-cost solution

Propulsion efficiency through speed nozzle is also an efficient way to reach expected fuel efficiency levels. As per experts it will save approximately around 5% of fuel. This is also not adding any such cost towards the vessel owners or operators.

(Source: - <https://biofriendlyplanet.com/green-ideas/green/technologies-to-make-the-ultimate-green-ship/>)

Example 02 – High-cost solution

Fixing of scrubber system will give following results.

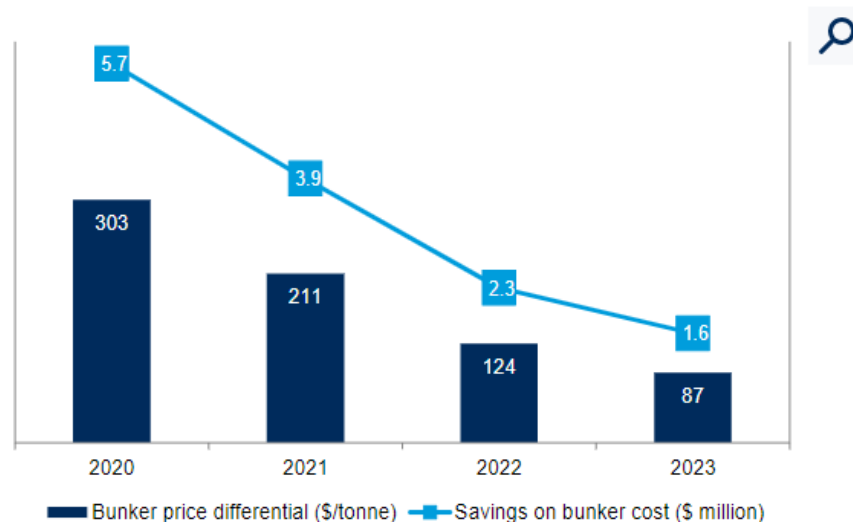
For a New VLCC, Ave. cost for an open loop scrubber is \$2.5 – \$3.0 Million dollars.

For a Retrofitted VLCC Ave. Cost for an open loop scrubber is \$4.0 - \$4.5 Million dollars

According to Drewry LSFO Premium will decline from around \$300 per ton in 2020 to \$ 87 per ton in 2023. So, the savings on bunker cost will decrease from \$5.7 million to 1.6 million for an eco VLCC.

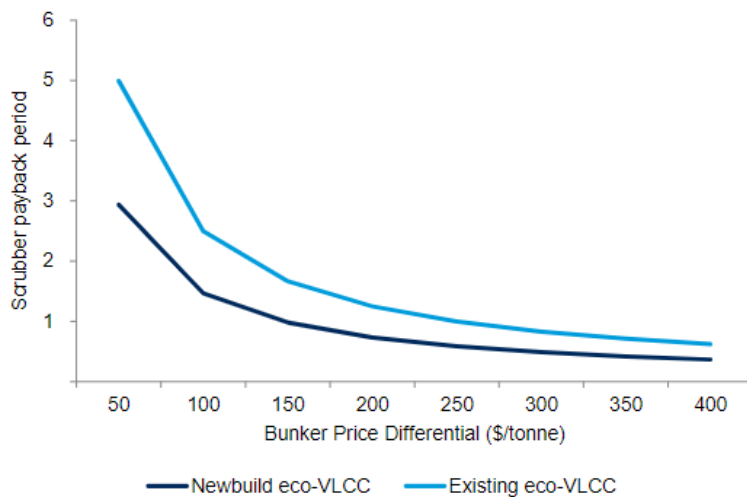
Below graphs are showing the savings and payback curves.

Scrubber-fitted VLCC – savings on bunker cost



(Source: Drewry Maritime Research)

VLCC Scrubber payback period



(Source: Drewry Maritime Research)

We can't bypass those green concepts. We must follow those to support the wellbeing of the society. Therefore, companies operating within the industry should identify most economical ways to approach towards said green concept.

2. Social sustainability

In this we can consider the contribution industry will create towards wellbeing of the society. Said projects will support to generate significant job opportunities and will help to maintain high job satisfaction levels, job security, etc. within the industry and will support to improve the living condition (health, education, housing, etc.) of the society.

When we consider sustainable shipping and green shipping separately, we can see some similarities and differences to combine the concepts. To maintain the momentum of the shipping industry we must consider about sustainability of shipping. But green shipping is basically about reducing of the environmental impact which is happening due to international shipping. It's like a resistance towards sustainability of shipping. Sustainable development is based upon human being, but green development is mainly about nature.

So, to maintain the effectiveness of the same we should combine both and create a best product which will serve the purpose.

THANK YOU

20th March 2021

