

# Decarbonizing maritime transport: How to enable an effective and equitable transition towards zero-carbon shipping and ports

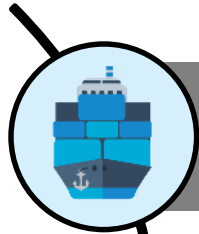


## PROBLUE

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42<sup>nd</sup> PMAWCA Council Meeting  
*Luanda, 16 November 2022*



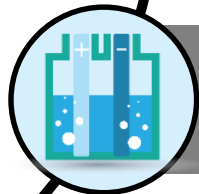
# Key messages



**1 Development opportunities** – Major opportunities for countries and ports in decarbonizing shipping



**2 Ammonia and hydrogen, not LNG** – Most promising zero-carbon bunker fuel options to date



**3 Carbon revenues** – A key enabler for an equitable energy transition in the shipping sector and beyond

## Our journey

1

- Climate target

2

- Zero-carbon fuel options

3

- Development opportunities

4

- Carbon revenues

5

- Conclusions

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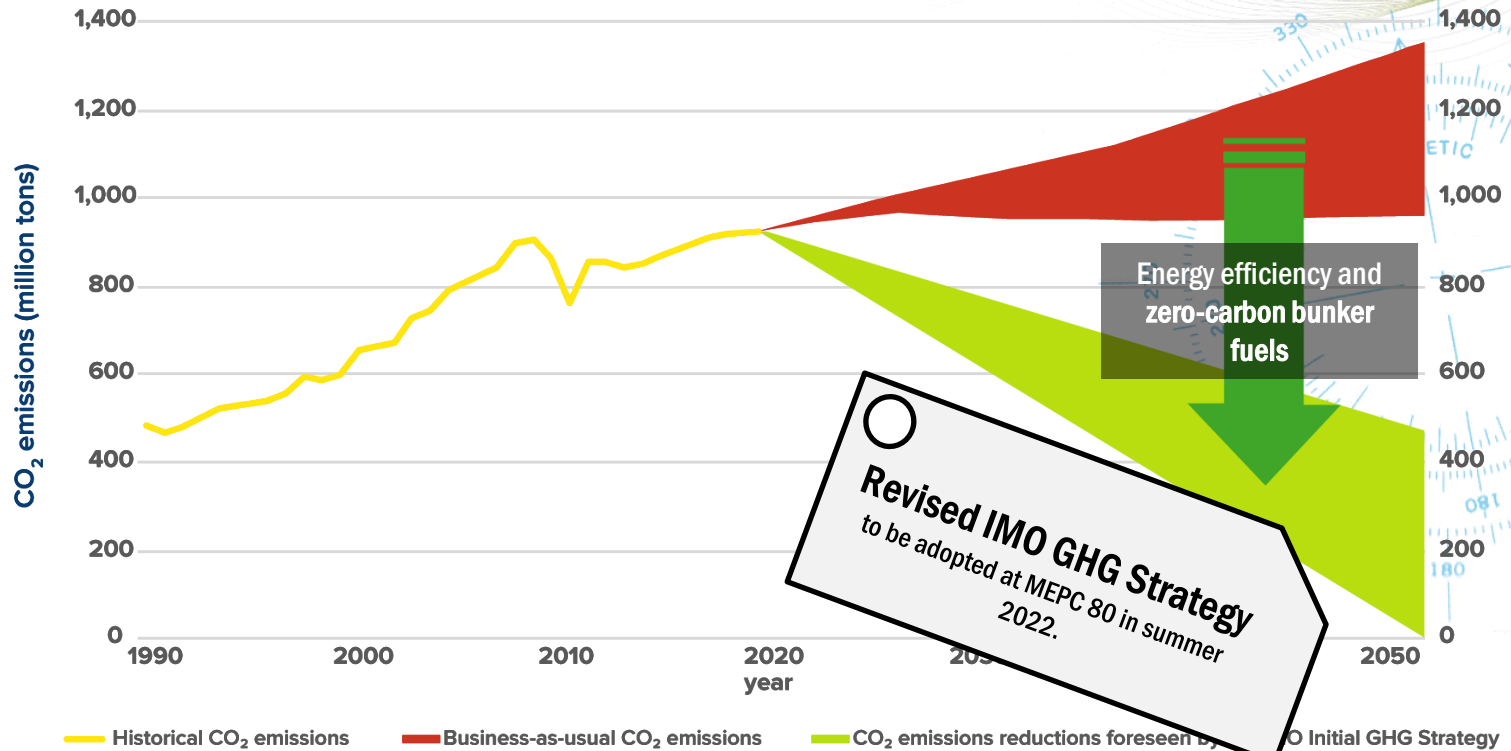
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# Shipping needs maximum energy efficiency and new fuels



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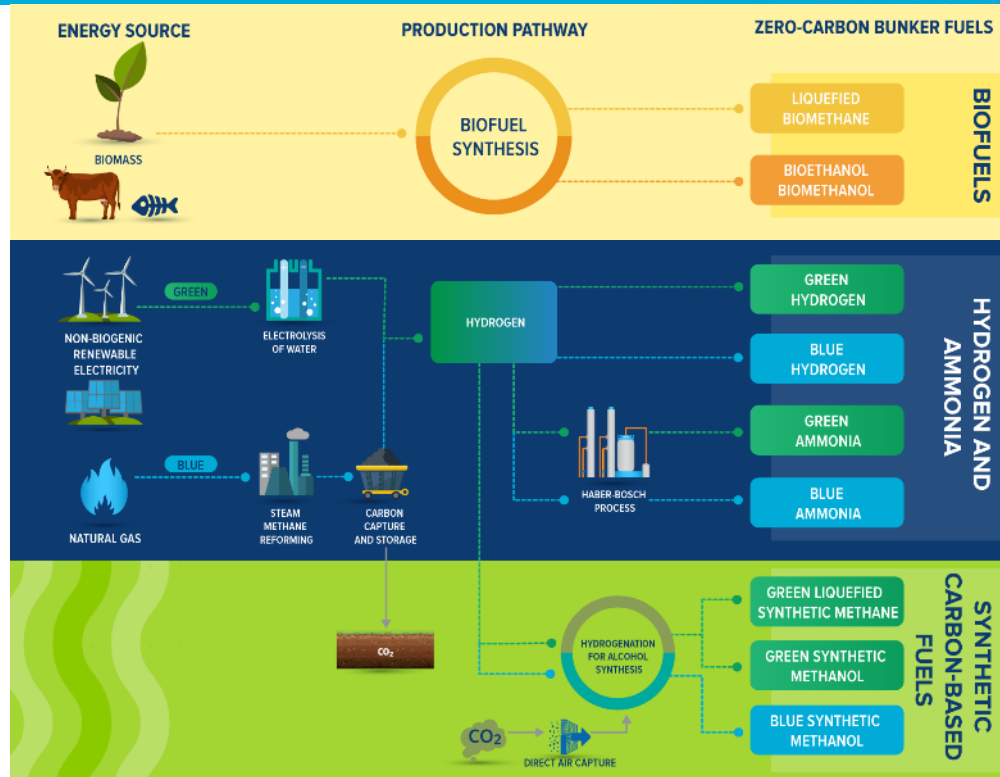
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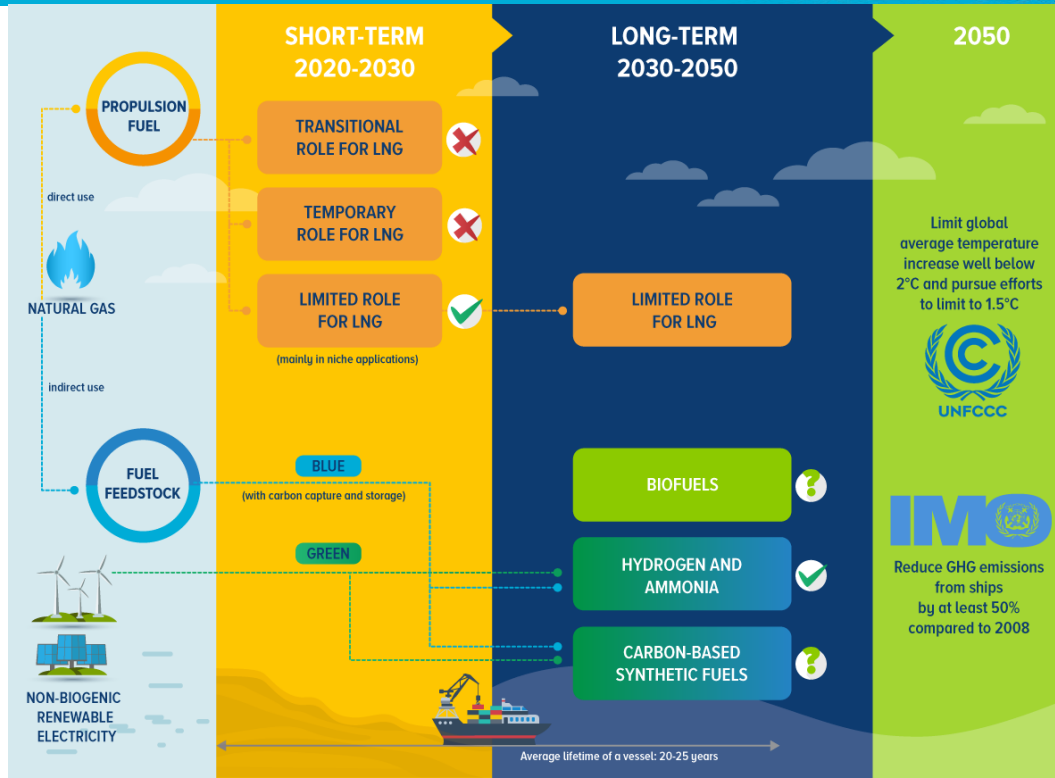
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# Green ammonia and hydrogen as most promising fuel options



# LNG is likely to play a minor role only





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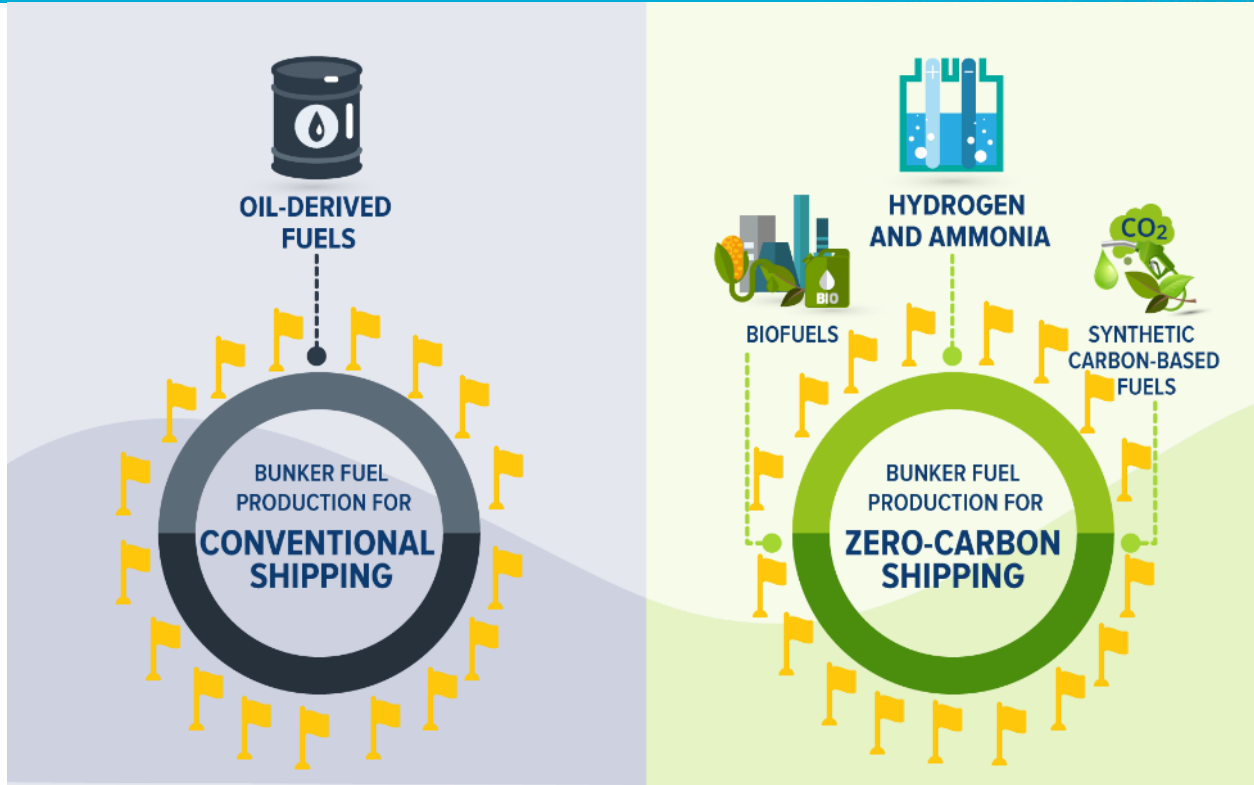
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# More decentralized and inclusive bunker fuel market expected



 Country with no or insignificant oil reserves, but large renewable energy resources

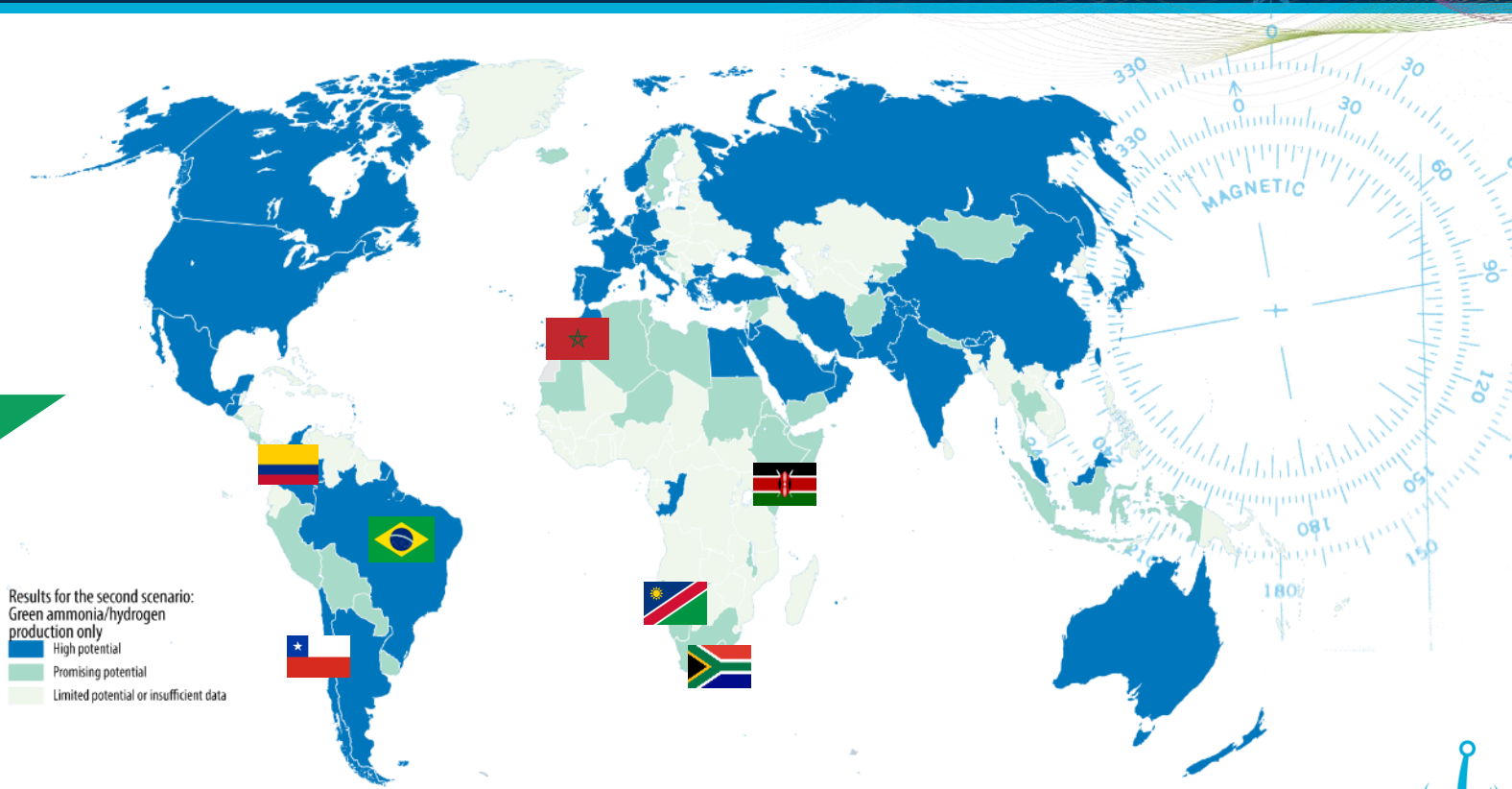


# Many countries with potential for zero-carbon bunker fuel production

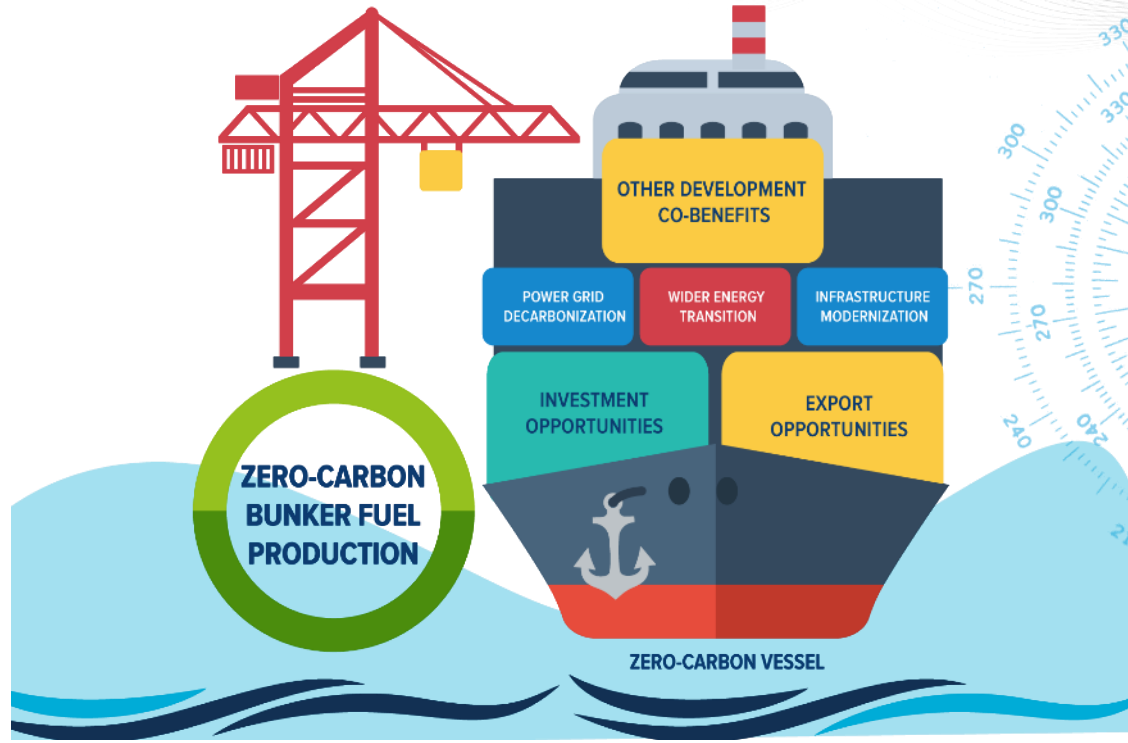
Green ammonia only

Results for the second scenario:  
Green ammonia/hydrogen production only

- High potential
- Promising potential
- Limited potential or insufficient data



# “Treasure Island”: wider development benefits



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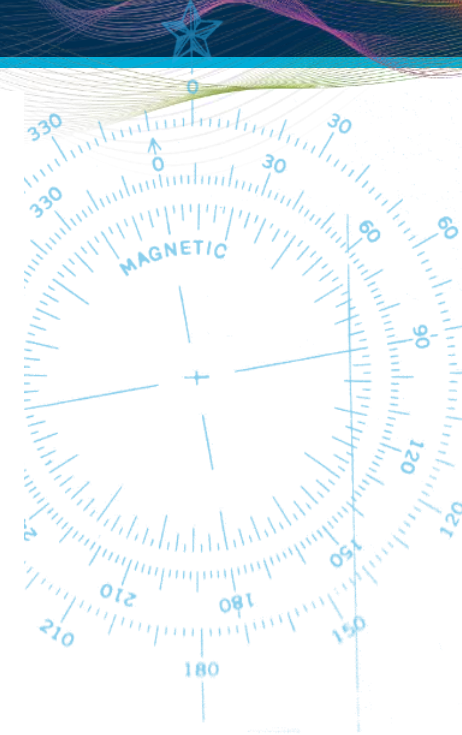
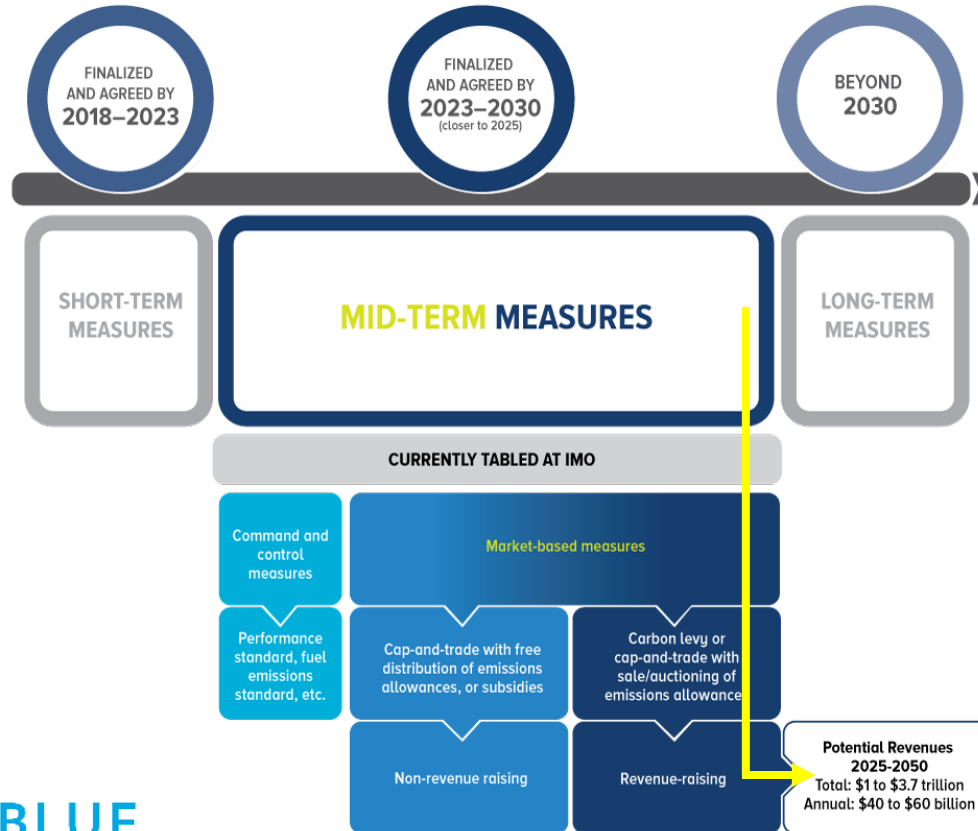
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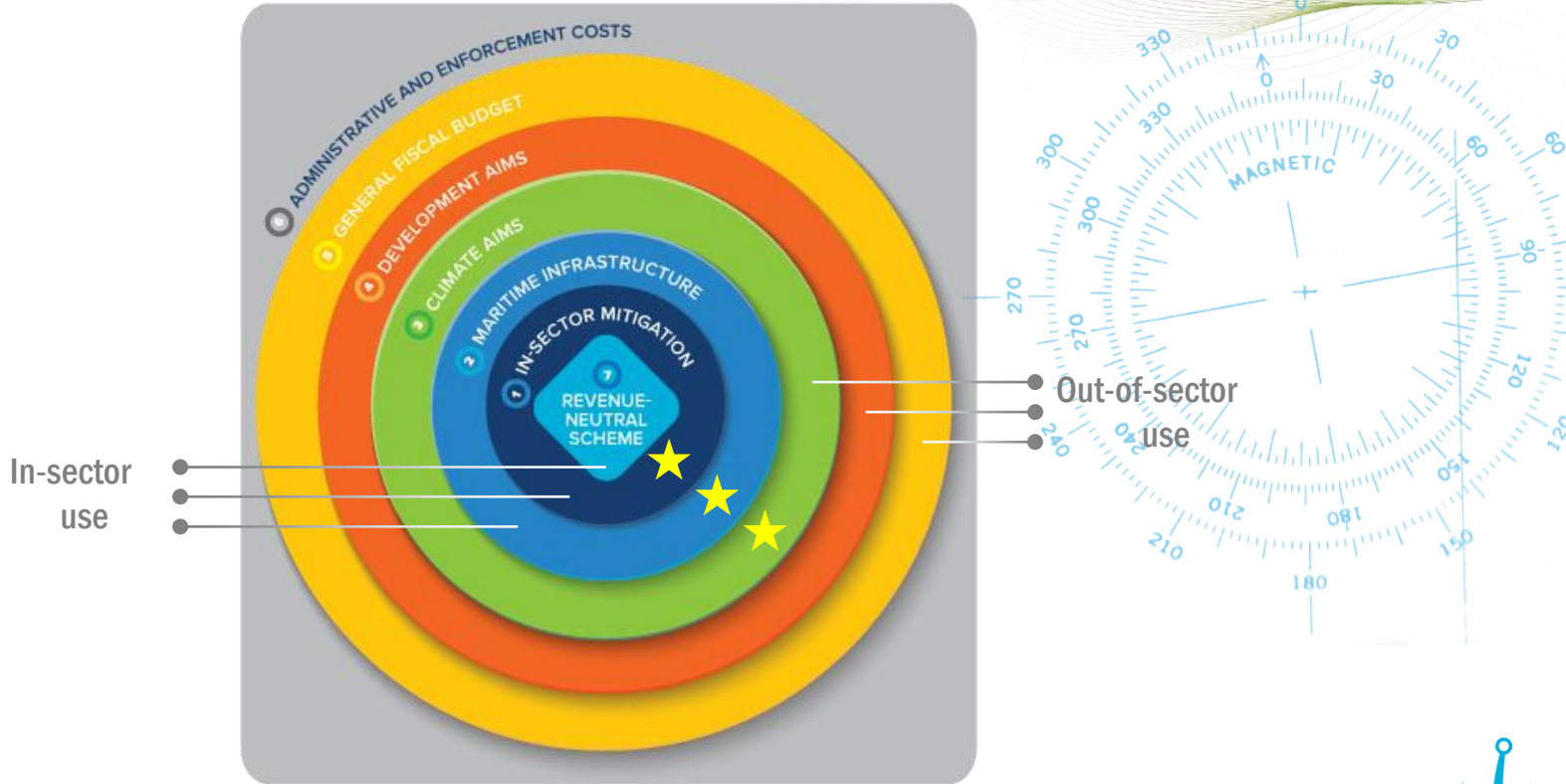
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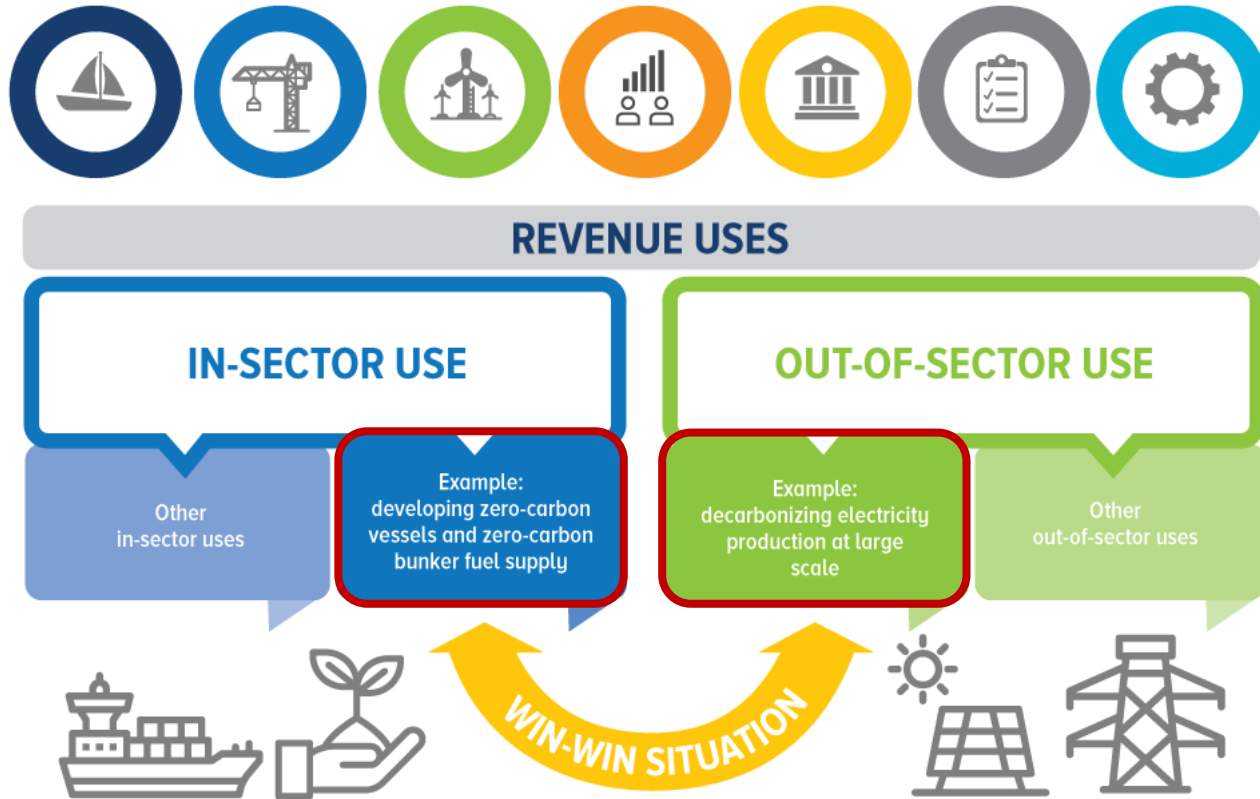
# Revenue-raising market-based measures deserve particular attention at IMO



# Some revenue uses more aligned with IMO guiding principles/key features



# Carbon revenues should be used in shipping and beyond





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# Summary and conclusions for port stakeholders



Prepare for the supply of true zero-carbon bunker fuels



Seize business opportunities from a more decentralized and inclusive market



Think of ports as clean energy hubs of the future beyond pure shipping



Support a global revenue-raising market-based measure at the IMO

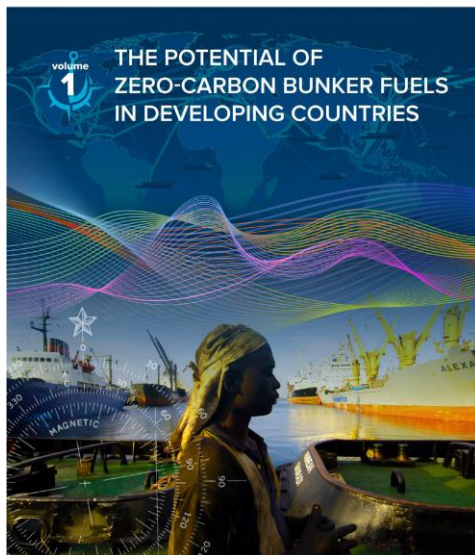
Main findings: (1) Development opportunities – (2) Ammonia and hydrogen, not LNG – (3) Carbon revenues

# Key references

## Zero-carbon bunker fuels April 2021



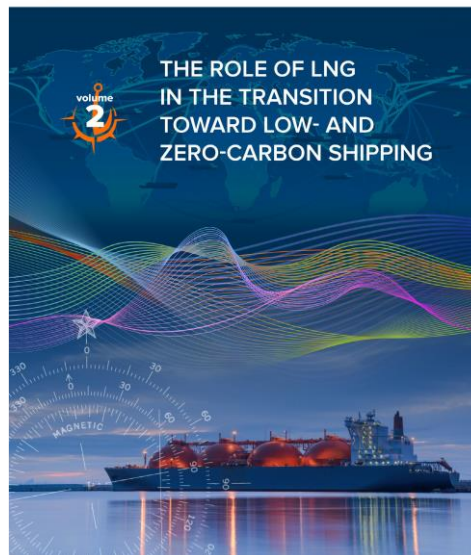
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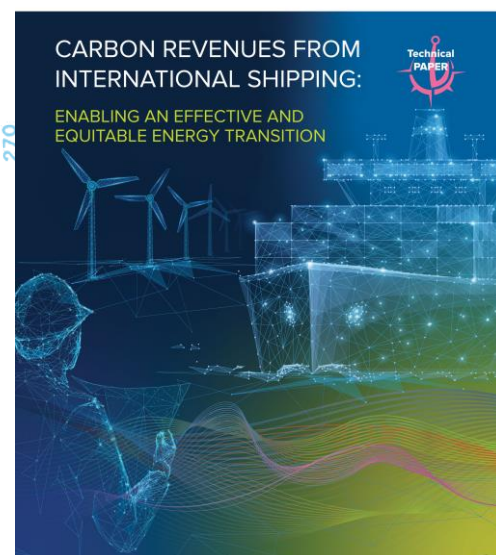
## Role of LNG April 2021



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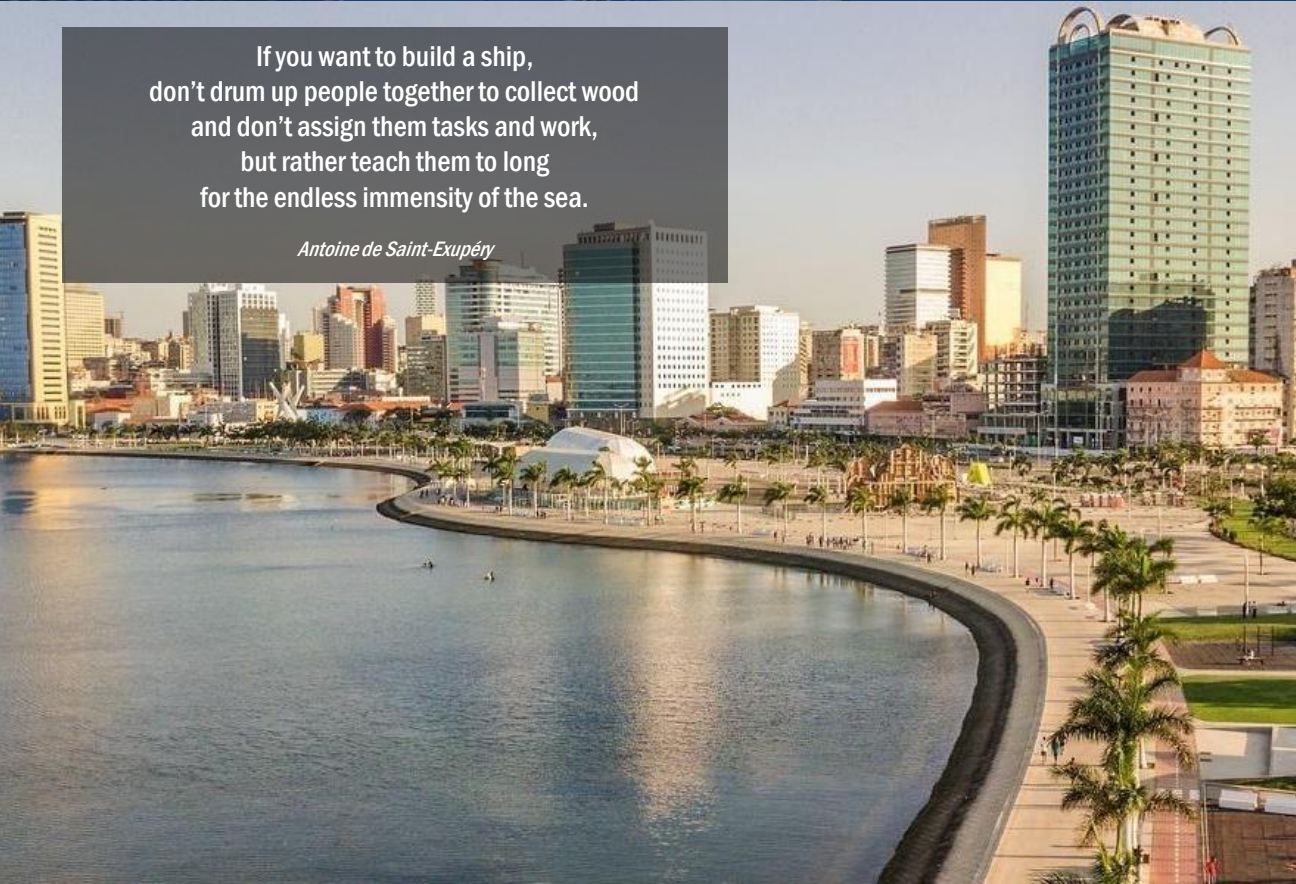


## Carbon revenues April 2022



If you want to build a ship,  
don't drum up people together to collect wood  
and don't assign them tasks and work,  
but rather teach them to long  
for the endless immensity of the sea.

*Antoine de Saint-Exupéry*



# Thank you.



## Contact

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