



# WEBINAR

**MARITIME SECTOR DECARBONIZATION**

Beginning at 4 p.m.



# WEBINAR

MARITIME SECTOR DECARBONIZATION

Welcome !



# Who are we?



Stéphane AMANT  
Senior Manager  
Leader of the Mobility  
Practice

[stephane.amant@carbone4.com](mailto:stephane.amant@carbone4.com)



Clément RAMOS  
Manager  
Carbone 4  
Leader of the Strategy  
Practice

[clement.ramos@carbone4.com](mailto:clement.ramos@carbone4.com)



Eloïse DULAC  
Consultant  
Carbone 4

[eloise.dulac@carbone4.com](mailto:eloise.dulac@carbone4.com)



Jean-Pierre HUSSON  
Senior Consultant  
Bertin Energie Environnement

[jean-pierre.husson@bertin.fr](mailto:jean-pierre.husson@bertin.fr)

# Carbone 4, a climate strategy leader

Assist you to define and implement a climate strategy

Carbone 4 is a consulting firm specialized in low carbon strategy and adaptation to climate change

## Our approach:



- **Assess your footprint, understand the transition stakes**



- **Anticipate** the transition of our **climate** and **economic** system



- **Act !** To **seize the opportunities** and **reduce associated risks**



- **Promote** your actions, progress and carbon strategy

## Some figures

**50+**  
colleagues

**500+**  
clients

**1 300**  
missions  
worldwide

**60%**  
of the CAC40  
are our clients

**40+**  
countries  
where we  
have worked

**12**  
year old!

## A multi sector approach:



BUILDINGS



ENERGY



FINANCE



TRANSPORT



PUBLIC



INDUSTRY



MEDIA AND  
SERVICES



# Carbone 4, a climate strategy leader

Assist you to define and implement a climate strategy

## TOWARDS CARBON NEUTRALITY



Measure your footprint



Set 2° C mitigation goals



Reduce your footprint



Contribute to neutrality

## A CLIMATE RESILIENT BUSINESS MODEL



Follow and anticipate your sector evolution



Assess physical risks on my sites and procurement



Assess the risks and opportunities of transition



Define low carbon offers

# Carbone 4, a climate strategy leader

Some of our clients

## Energy



## Agriculture, agri-food and retail



## Construction and buildings



## Telecommunications & media

## Transport



## Finance

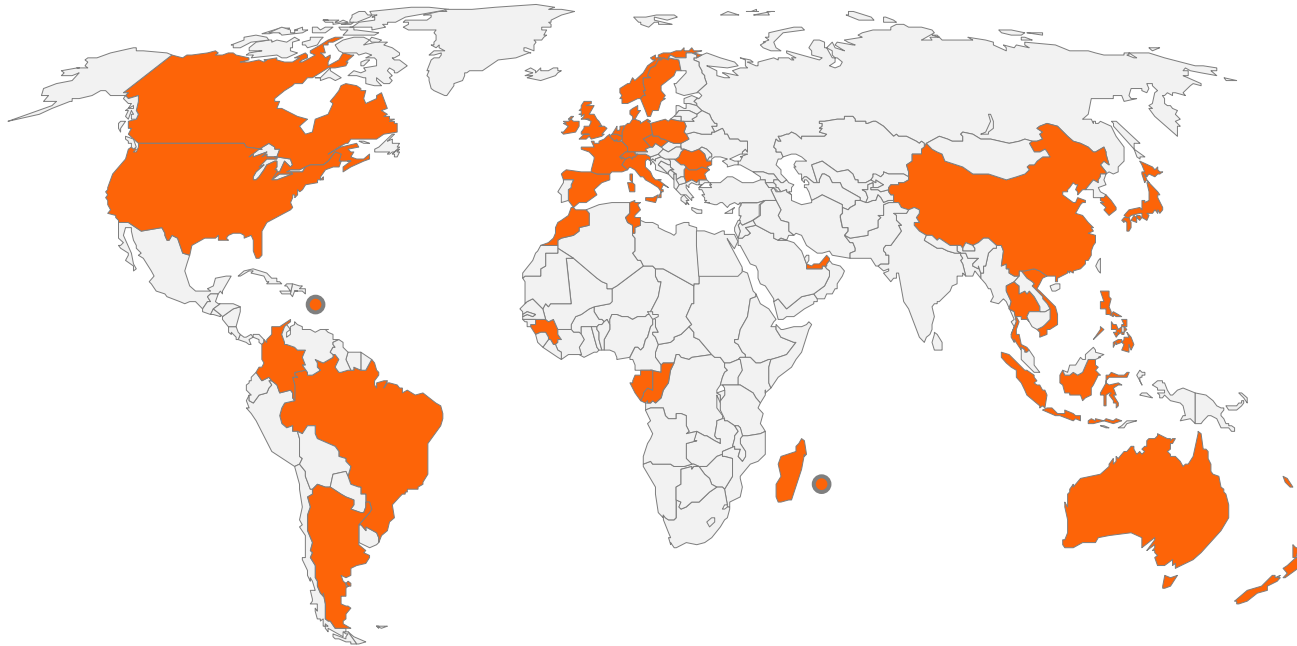




# Carbone 4, a carbon strategy leader

Where we have worked

Countries where Carbone 4 has worked



Carbone 4 team  
nationality



Languages mastered

Arabic, English, French, German, Italian, Portuguese, Spanish

# Bertin Technologies

*Bertin at a glance*





# Bertin Technologies

60 years of innovation and industrial adventure

1956



Bertin & Co.  
creation

1965



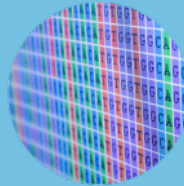
The **Aérotrain**: world speed  
record

1975



**Silencers** for nuclear  
power plants

1992



1<sup>st</sup> **human genome  
sequencer**

1999



**Modelling of  
Ariane V launcher**

2003



**Precellys**: Biological  
sample homogenizer

2008



Bertin joins  
**CNIM group**

2009



Mini surveillance  
UAV

2010



**Mediacentric**:  
Multilingual and  
multisource  
open source platform

2011



**Second Sight**:  
Infrared gas tracking  
camera

2012



**MediaSpeech**:  
Speech-to-text  
transcription  
platform

2013



**Sterilwave**:  
Biohazardous waste  
treatment system

2015



**Acquisitions of  
Saphymo**  
(radioactivity  
measurement)  
& **AMI Software**  
(Strategic Intelligence  
platform)

2016



**FusionSight**:  
night vision  
camera

2017



**Acquisitions of  
Exensor**  
(Unattended Ground  
Sensors system)  
& **Winlight**, (optic  
components of high  
precision)

2018



**Enerbird**:  
decentralized  
energy  
management

# Bertin Energy & Environment

## Supporting your energy transition



### ▲ Engineering & innovation consulting

→ Evaluating technological innovations and help them reach industrial maturity



### ▲ Industrial risk management ▲ System reliability & availability

→ Ensuring safe operation of systems and safety of industrial sites



### ▲ Industrial Energy efficiency ▲ Energy-positive systems, territories and islands ▲ Smart Energy

→ Designing and building autonomous and smart energy systems

### THEY TRUST US

AIR LIQUIDE, ALBIOMA, ARKERMA, BOSTIK, CEA, CGG, COMAT, CNES, DRT, EDF, ENGIE, MICHELIN, SAUR, SCHNEIDER ELECTRIC, SUEZ, TEREOS, TOTAL, VEOLIA



# Agenda

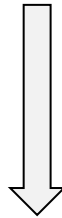
---

## I. Key messages from our publication

## II. Q&As

## A question?

**Please write your questions in the chat space, during the presentation**  
**(Do not activate your micros, thank you !)**



**We will answer the questions at the end of the webinar**



# Is maritime sector sailing towards decarbonization?



## IS THE MARITIME INDUSTRY SAILING TOWARDS DECARBONIZATION?

A STATUS REPORT

The international maritime industry plays a central role in the way our economy works based on the **transcontinental trading of goods**.

Just like the international air transport industry, it has long been absent from international discussion on climate-related issues, as a result players in the sector have adopted a wait-and-see approach to the matter over the past few decades.

The tide, however, is now turning, and the International Maritime Organization, along with a number of key players in the sector, is showing a certain willingness to take action to fight climate change, but between these grand statements of intent and the operational reality of the situation, **what exactly does the current picture look like?** Would we be right to think that only technological means will allow us to make the low-carbon transition on the required scale? What link might be established between **the fight against climate change and the fight against local air pollution?**

Check out our article on maritime transport for a clearer overview of the situation.

Carbone 4  
54 rue de Clichy 75009 PARIS  
contact@carbone4.com  
+33 (0)1 76 21 10 00  
[www.carbone4.com](http://www.carbone4.com)

Maritime sector is at the heart of our economy which is based on goods exchanges

The sector has been overlooked by climate discussion for a long time

Today, International Maritime Organization and other major actors of the sector show some willingness to act against climate change

What is the situation in reality ? Will technology enable low carbon transition on the required scale ? What are the links between low carbon transition and the local air pollution issue ?

Mobility Department  
July 2019

**Stéphane Amant**  
Mobility Practice Leader

**Clément Ramos**  
Strategy Practice Leader

**Jean-Pierre Husson**  
Senior Consultant,  
Bertin Energie Environnement

Contacts :  
[mobilite@carbone4.com](mailto:mobilite@carbone4.com)  
[bee@bertin.fr](mailto:bee@bertin.fr)



# IMO strategy is ambitious but lacks concrete means to achieve its objective



## 50% Reduction

of greenhouse gas emissions in 2050 vs 2008

Solutions ?

Roadmap ?

Traffic projections ?

# Which promising options to prioritize?

## Low carbon technologies

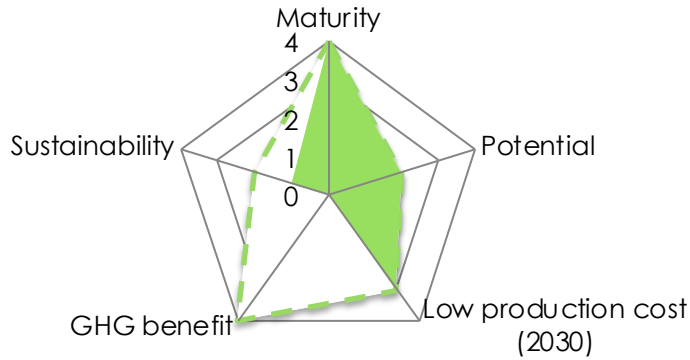


## Energy efficiency

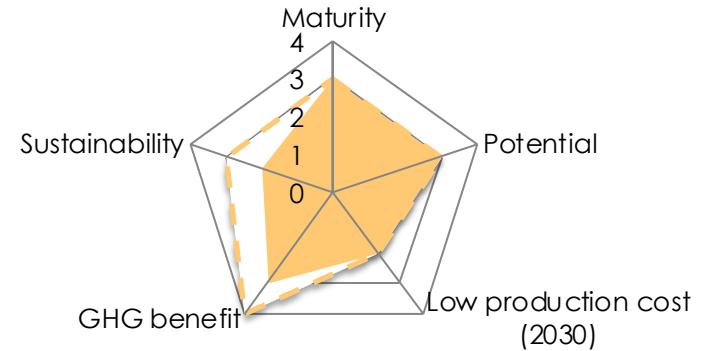


# Numerous low-carbon energies with advantages and drawbacks

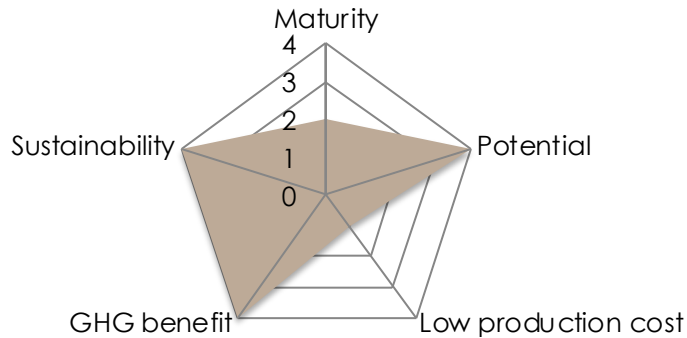
## HEFA-type biofuel



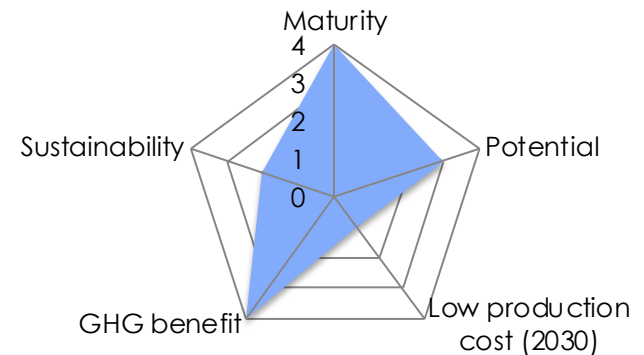
## Fischer-Tropsch-type biofuel



## PtL synthesis fuel



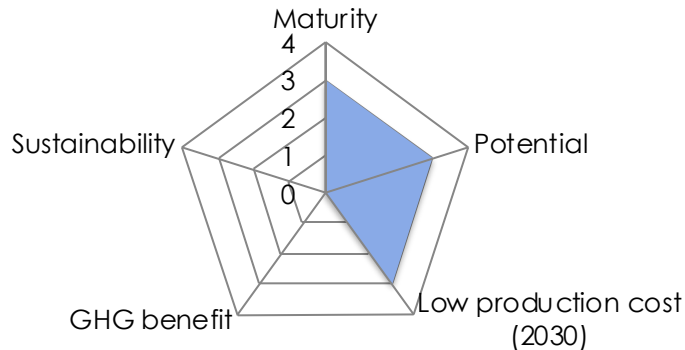
## Electricity storage (batteries)



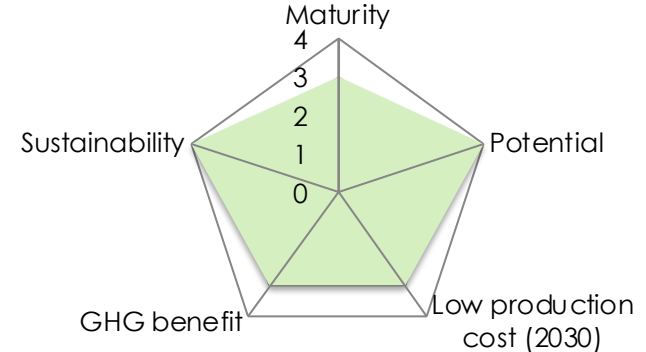


# Numerous low-carbon energies with advantages and drawbacks

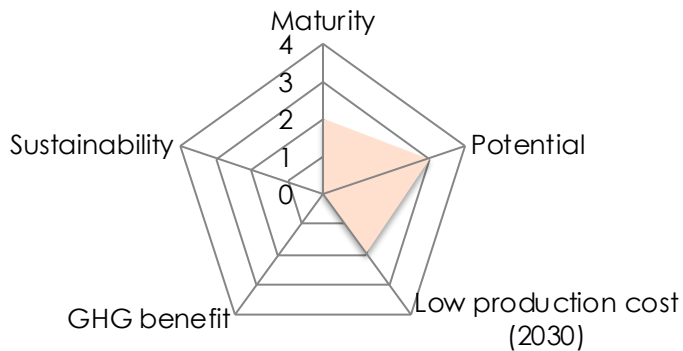
## H2 from natural gas



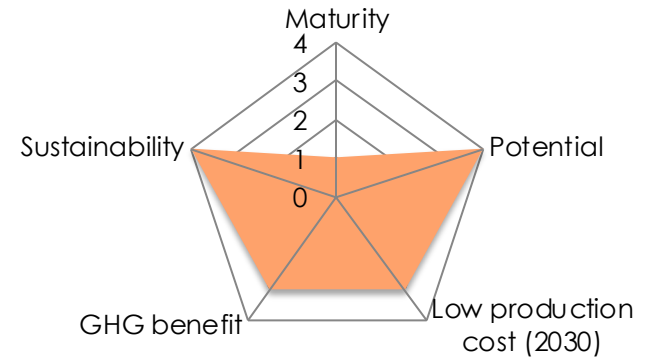
## H2 from electrolysis



## Ammonia from natural gas



## Ammonia from electrolysis



# LNG is often mentioned as a solution for achieving low-carbon transition. What to think about it?



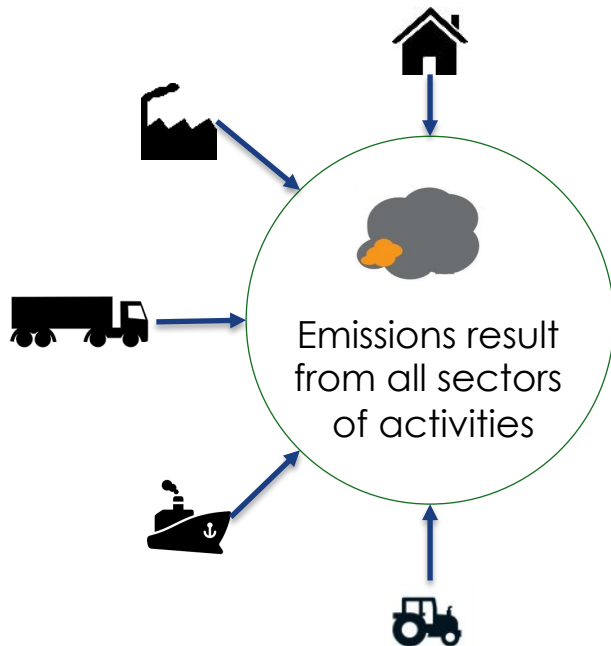
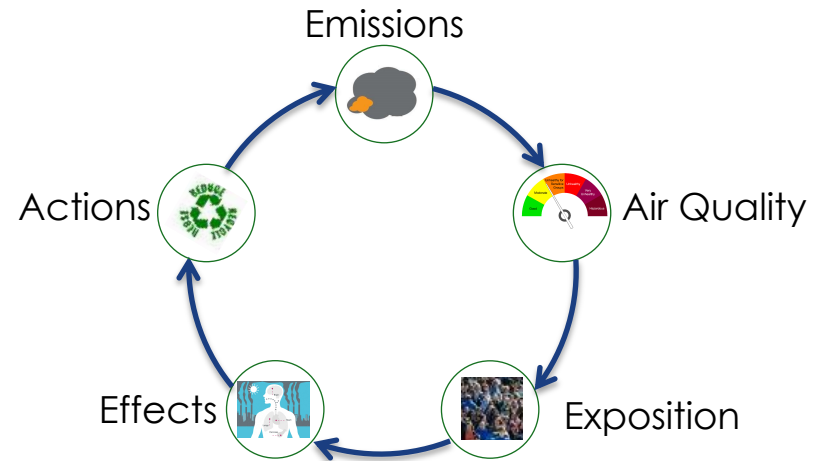
Local air pollution ?

Low carbon transition ?

CO<sub>2</sub> reduction ?

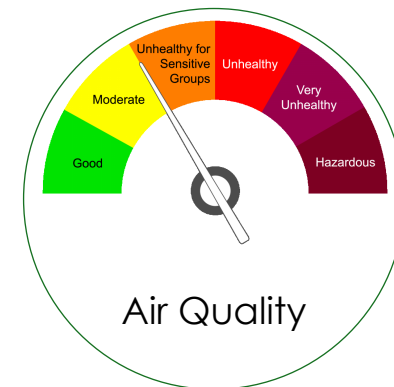
# Climate Change and Air Quality

From pollutant emissions to effects on human beings through pollutant concentration in the atmosphere to actions for controlling the emissions

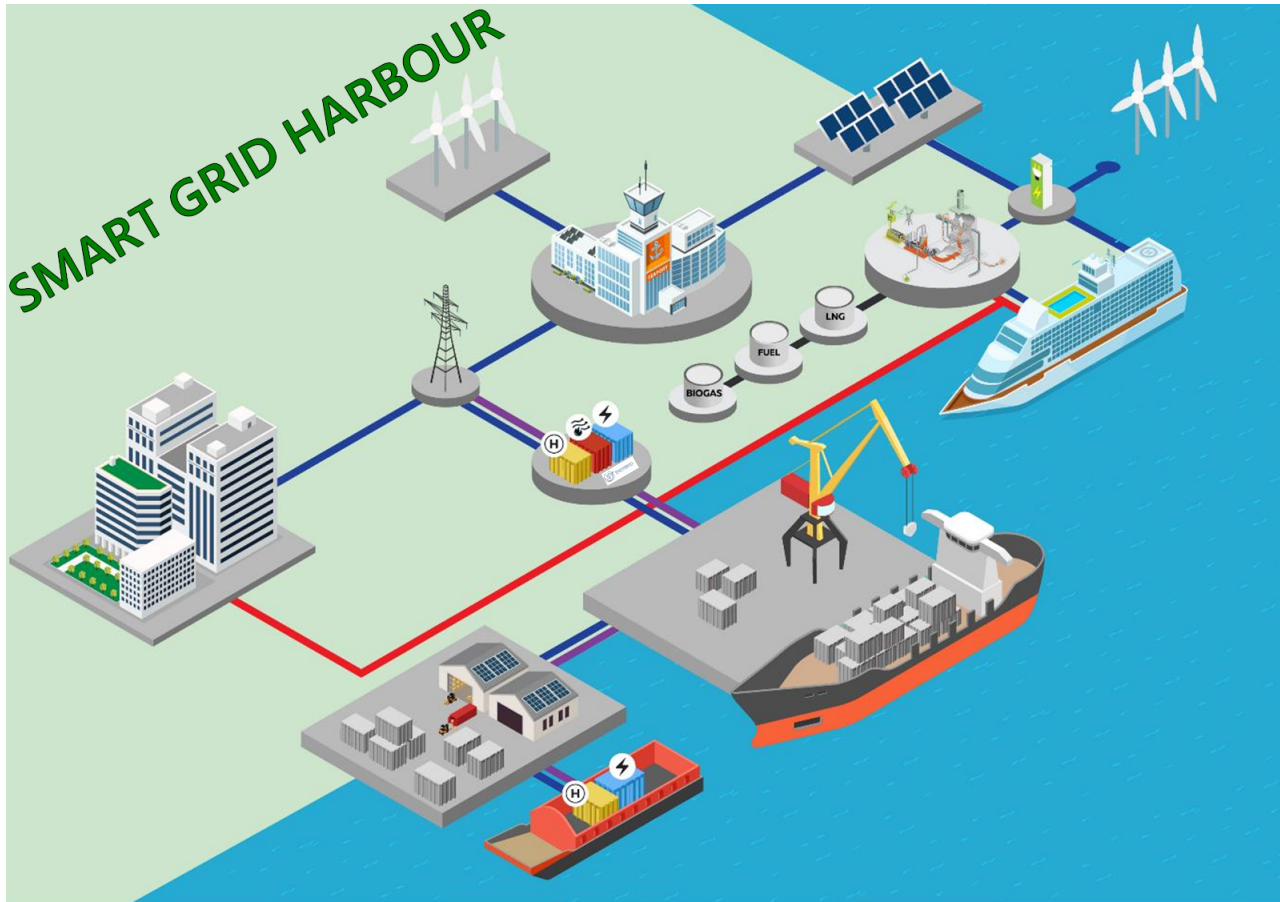


What is influencing the air quality?

Meteorological conditions  
Distance from sources  
Topography  
External pollution  
Atmospheric chemical reactions...



# Green harbor: Improving locally the air quality



Electricity production & distribution

Heat production & distribution



Cogeneration facilities

Grid services

Fuels for electricity & heat cogeneration



Storages and EMS



Electric connection – “Cold ironing”



Decarbonized electricity production

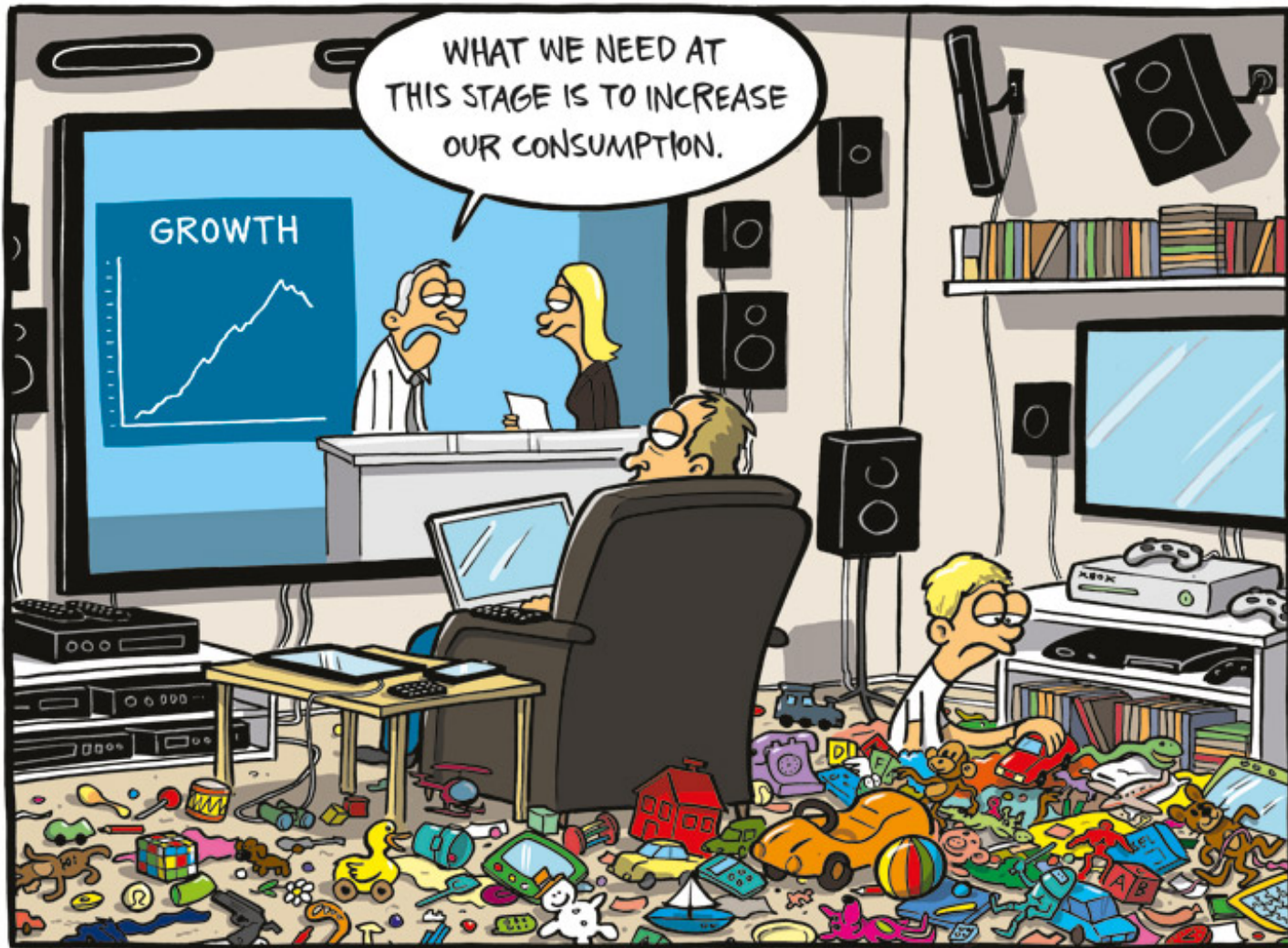


Storage



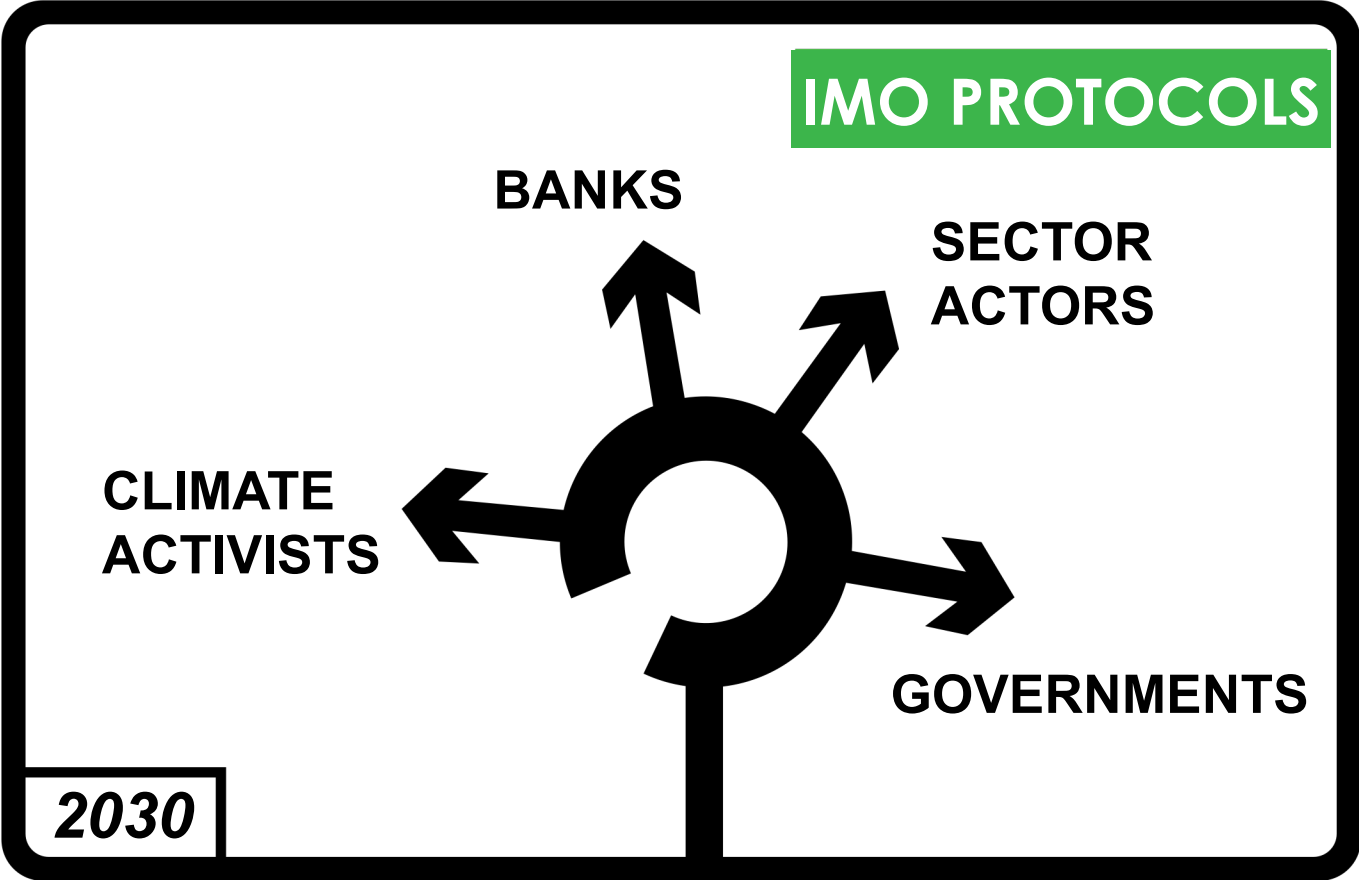


# It's not easy to reduce when you're trying to grow...





# Contradictory interests are slowing the movement towards transition



# The sector is beginning to evolve and initiatives are emerging



## POSEIDON PRINCIPLES

**Principle 1:** Assessment of climate alignment

**Principle 2:** Accountability

**Principle 3:** Enforcement

**Principle 4:** Transparency

### Open letter to IMO Member States supporting mandatory speed measure to reduce shipping emissions

30/April/2019

Effectively addressing climate change is possibly the greatest challenge of our time. In 2015 world governments agreed in Paris that global temperature rise must be limited to well below 2°C, while aiming for 1.5°C compared to pre-industrial levels. A recent IPCC 1.5° Special Report also recommended “deep emissions reductions” to achieve these temperature goals.

In responding to this global challenge, member states of the International Maritime Organisation (IMO) agreed in April 2018 on an Initial GHG Strategy for international shipping. The strategy calls for shipping emissions to peak as soon as possible, for shipping’s carbon intensity to be reduced by at least 40% by 2030 and for total emissions to be cut by at least 50% by 2050 compared to 2008, while aiming for full decarbonisation. To do so, new operational measures will need to be implemented for both the existing fleet and new ships and immediate reductions achieved by 2023.

Since the April 2018 agreement several candidate measures have been proposed including speed regulation for all ships. Recent history shows that reducing the global fleet’s operational speed after the 2008 economic crash led to dramatic reductions in GHG emissions. This speaks to the real-world effectiveness of a potential prescriptive speed measure in helping achieve reduction targets. However, recent studies also suggest that ships are speeding up again as global demand recovers. Should this trend continue, any GHG gains from slow steaming over recent years will disappear.

The signatories to this letter unite in stressing the urgent need for shipping to make its appropriate contribution to addressing climate change. As the initial step we express our strong support for the IMO implementing mandatory regulation of global ship speeds differentiated across ship type and size categories. Our preference would be to set maximum annual average speeds for container ships, and maximum absolute speeds for the remaining ship types, which take account of minimum speed requirements. Such a regulation should be implemented as soon as possible and the obligation for compliance should be placed both on shipowners and operators, including charterers.

We call on all Parties at the forthcoming MEPC74 to support this move.

SIGNATORIES  
*[NEXT PAGE]*

# Agenda

---

I. Key messages from our publication

II. Q&As



**Write your questions in the chat!  
We are going to answer them**

**(Do not activate your micros, thank you!)**



Thank you for your attention!

**Contacts :**

[stephane.amant@carbone4.com](mailto:stephane.amant@carbone4.com)

[clement.ramos@carbone4.com](mailto:clement.ramos@carbone4.com)

[eloise.dulac@carbone4.com](mailto:eloise.dulac@carbone4.com)

[jean-pierre.husson@bertin.fr](mailto:jean-pierre.husson@bertin.fr)